Reg.No:_____

Course Code: 22UAOAL508

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Physics

Fifth Semester

ALC: Energy Physics

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1. State the principle of an AC generator. (K2)
2. Write down the application of the heating effect of electric current. (K3)
3. Discuss the numerical aperture of an optical fiber. (K2)
4. State the principle of operation of a LASER. (K3)
5. State Maxwell's law of equipartition of energy. (K2)
6. Distinguish gas and vapor. (K3)
7. State Kirchoff's law of radiation. (K2)
8. Describe the significance of Wien's displacement law. (K3)
9. Write a note on a solar water heater. (K2)
10. Examine the difference between horizontal and vertical axis wind turbines. (K3)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a) Outline the construction and working of a DC motor. (K2)

(Or)

b) State the principle and explain the working performance of an electric arc lamp. (K3)

12. a) Discuss the basic optical laws used in optical fibers. (K2)

(Or)

b) Explain the components and working of a fiber optical communication system. (K3)

13. a) Deduce the expression for molar specific heat capacity at constant pressure and constant volume for a monoatomic gas.

(Or) (K2)

b) Explain the measurement of saturated and unsaturated vapor pressure using Regnault's statistical method. (K3)

14. a) Describe the Lummer-Pringsheim experiment and its results.

(Or) (K2)

b) Derive the expression of Wien's law and Rayleigh-Jeans law from Planck's radiation law. (K3)

15. a) Explain the working principle and components of a solar cooker.

(Or) (K2)

b) Classify the different types of wind energy systems and list their applications. (K3)

SECTION – C (5 X 10 = 50 Marks)
Answer ALL questions.

16. a) Explain in detail the working performance of AC generator with their components. (K4)

(Or)

b) State the principle and operation of a carbon arc in detail. (K3)

17. a) Summarize the construction, working, and applications of optical fibers. (K3)

(Or)

b) Distinguish the different types of optical fibers based on material, modes, and refractive index profiles. (K3)

18. a) Consider the degrees of freedom and its effect on the internal energy of monoatomic, diatomic, and triatomic gases. (K4)

(Or)

b) Illustrate the graphical representation of gas laws and explain their significance. (K3)

19. a) Write the concept of energy in the thermal spectrum and experimental producer of Lummer and Pringsheim in detail. (K4)

(Or)

b) Compile the process and the significance of optical pyrometer to measure temperature. (K3)

20. a) Reframe the process and list out the advantages of ocean thermal energy conversion (OTEC). (K4)

(Or)

b) Conclude solar thermal devices and systems along with their merits and demerits. (K3)

18. a) Find the Laplace Transform of f(t). (K4)

$$\begin{cases} \sin t & 0 < t < \pi \\ 0 & t > \pi \end{cases}$$

(Or)

b) Find $L[e^{4t}(\sin^3 3t + \cos h^3 3t)]$ (K5)

19. a) Prove that $\nabla^2 f(r) = f''(r) + (\frac{2}{r}) f'(r)$ (K4)

(Or)

b) Find div (grad φ) and curl(grad φ) at (1,1,1) for $\varphi = x^2y^3z^4$ (K5)

20. a) Apply Green's theorem to evaluate. (K4)

$\int_C (2x^2 - y^2)dx + (x^2 - y^2)dy$ where C is the boundary of the area enclosed by the x- axis and the upper half of circle $x^2 + y^2 = a^2$.

(Or)

b) Use Divergence theorem to evaluate $\iint_S F.\hat{n}\, ds$, where $F = x^3\bar{i} + y^3\bar{j} + z^3\bar{k}$ and S is the surface of the sphere $x^2 + y^2 + z^2 = a^2$. (K5)

Reg.No:_____

Course Code: 22UAOAT404

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022-2023 only)

Physics

Fourth Semester

Allied: Mathematics II

Time: 3 Hours Maximum marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The Wronskian of (cos x, sin x) is _____. (K1)

a) cos x b) sin x c) 1 d) 0

2. The particular solution of $y'' - 4y = 2e^{3x}$ is _____. (K1)

a) $\frac{2}{3}e^{3x}$ b) $\frac{2}{5}e^{3x}$ c) $\frac{3}{5}e^{3x}$ d) e^{3x}

3. The general solution of $y = px + p - p^2$ is _____. (K1)

a) $x = -cy - c + c^2$ b) $x = cy + c - c^2$

c) $y = -cx - c + c^2$ d) $y = cx + c - c^2$

4. The determinant of a matrix A with two identical rows and columns is _____. (K1)

a) A b) 1 c) 0 d) A^2

5. $L(t^{-1/2}) =$ _____. (K1)

a) $\sqrt{\frac{\pi}{s^2}}$ b) $\frac{\pi}{s}$ c) $\sqrt{\frac{\pi}{s^2}}$ d) $\sqrt{\frac{\pi}{s}}$

6. L (sin at) = _____. (K1)

a) $\frac{1}{s^2+a^2}$ b) $\frac{s}{s^2+a^2}$

c) $\frac{a}{s^2+a^2}$ d) $\frac{a^2}{s^2+a^2}$

7. Divergence and curl of a vector field are _____. (K1)

a) Scalar and scalar b) Scalar and vector

c) Vector and vector d) Vector and scalar

8. The curl of a vector field $\vec{f}(x,y,z) = x^2\vec{i} + 2z\vec{j} - y\vec{k}$ is _____.

a) $-3\vec{i}$ b) $-3\vec{j}$ c) $-3\vec{k}$ d) 0 (K1)

9. Using volume integral, which quantity can be calculated? (K1)

a) area of cube b) area of cuboid

c) volume of cube d) distance of vector

10. Let $\int_{(1,2)}^{(3,4)} (xy^2+y^3)dx + (x^2y+3xy^2)dy$ be independent of path.

Then the value of the integral is_____. (K1)

a) 202 b) 254 c) -202 d) -254

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Solve $(D^2 - 2D + 2)y = e^x \sin x$. (K2)

(Or)

b) Solve $(D^2 - 6D + 9)y = 1 + x + x^2$. (K3)

12. a) Form a PDE by eliminating the arbitrary constants a and b from $z = (x+a)^2 + (y-b)^2$. (K2)

(Or)

b) Solve $pz = 1 + q$ (K3)

13. a) Evaluate L(t sin 6t) (K2)

(Or)

b) Find $L(e^{3t} \sin^2 4t)$ (K3)

14. a) Derive the curl of the gradient of the scalar field defined by $V = 2x^2y + 3y^2z + 4z^2x$. (K2)

(Or)

b) Determine the unit tangent vector for $u(t) = \sin t\,\vec{i} + \cos t\,\vec{j}$ (K3)

15. a) Evaluate $\int_C x^2dy - yz\,dz$ where C is the line segment from (4, -1, 2) to (1, 7, −1) (K2)

(Or)

b) Find the work done in moving a particle in the force field $\vec{F} = 3x^2\vec{i} + (2xz - y)\vec{j} - z\vec{k}$ from $t = 0$ to $t = 1$ along the curve $x = 2t^2, y = t, z = 4t^3$. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Solve $(D^2 + 2D + 1)y = \cos^2 x$ (K4)

(Or)

b) Solve $(D^2 - 4)y = x \sin hx$. (K5)

17. a) Find the complete integral of $p^2 x + q^2 y = z$ (K4)

(Or)

b) Solve $z = p^2 + q^2$. (K5)

17. a) Explain how the value of gravitational constant is determined by Boy's method? (K4)

(Or)

b) Obtain the expressions for gravitational field and gravitational potential due to a Spherical shell. (K5)

18. a) Derive an expression for the excess of pressure over a curved liquid surface. (K4)

(Or)

b) Describe how you determine the coefficient of viscosity of a liquid using Poiseuille's formula? (K5)

19. a) Discuss about the graphical representation of the simple harmonic motion with diagram. (K4)

(Or)

b) Consider two simple harmonic motions with the same frequency but different amplitudes and phases acting along the same line. Derive the resultant displacement expression. (K5)

20. a) Discuss how frequency of tuning fork is determined by Melde's experiment? (K4)

(Or)

b) Describe magnetostriction method of producing Ultrasonic waves. (K5)

Reg.No:_____

Course Code: 23UAOCT102

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Physics

First Semester

Core: Properties of Matter and Sound

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. In the elastic materials, the direction of restoring force is_____. (K1)

a) Opposite to the direction of deforming force

b) In the direction of deforming force

c) Direction of restoring force does not depend on the deforming force Direction

d) None of the above are correct

2. Which of the following is most elastic materials? (K1)

a) Rubber b) Sponge c) Glass d) Steel

3. According to Newton's Law of Gravitation, the gravitational force between two point masses m_1 and m_2 separated by a distance r is directly proportional to_____. (K1)

a) The sum of their masses

b) The product of their masses

c) The square of the distance between them

d) The cube of the distance between them

4. The Earth's atmosphere is held by the_____. (K1)

a) wind b) clouds

c) Earth's magnetic field d) grarity

5. The rise of a liquid in a capillary tube is due to_____. (K1)

a) Surface tension b) Viscosity

c) Diffusion d) Osmosis

6. Hairs of shaving brush cling together when it is removed from water due to_____. (K1)

a) Force of attraction between Hairs

b) Surface tension

c) Viscosity of water

d) Characteristic property of Hairs

7. A particle executes simple harmonic motion along the X-axis. The force acting on it is given by_____. (K1)

a) A Cos (FX) b) $Ae^{(4X)}$ c) Akx d) -AFx

8 Which of the following is a simple harmonic motion_____.

a) Particle moving in a circle with uniform speed (K1)

b) Wave moving through a string fixed at both ends

c) Earth spinning about the axis

d) Ball bouncing between two vertical walls.

9. A measure of the intensity of sound in comparison to another sound intensity_____. (K1)

a) Phon b) Decibel c) Pascal d) Mel

10. The_____ of the sound is a subjective effect which is a function of the ear and brain. (K1)

a) Pitch b) Frequency c) Timbre d) Loudness

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Obtain an expression for the work done in twisting a wire. (K2)

(Or)

b) Define bending of beam and bending moment. (K3)

12. a) Explain Newton's law of Gravitation. (K2)

(Or)

b) Discuss how the acceleration due to gravity varies with Altitude? (K3)

13. a) Explain surface tension on the basis of molecular theory. (K2)

(Or)

b) Explain how Ostwald's viscometer measures the viscosity of a liquid? (K3)

14. a) Define simple harmonic motion. What are the characteristics of simple harmonic motion. (K2)

(Or)

b) Describe how Lissajous figures are generated when two perpendicular simple harmonic motions are combined? (K3)

15. a) State and explain the laws of transverse vibrations of strings. (K2)

(Or)

b) What are the applications of Ultrasonic waves? (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Derive the relation between the elastic constants. (K4)

(Or)

b) Describe an experiment to determine the Young's modulus of the material of a bar subjected to uniform bending by scale and Telescope method. (K5)

19. a) Explain the working of Binary Ladder Network of D/A Converter. (K4)

(Or)

b) Illustrate Successive Approximation A/D Converter. (K3)

20. a) Describe the PROM, EPROM and EEPROM. (K4)

(Or)

b) Derive the Static and Dynamic MOS RAM. (K3)

Reg.No:_____

Course Code: 22UAOET504

B.Sc. Degree Examination - November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Physics

Fifth Semester

Elective: Digital Electronics

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The digital systems usually operate on _____system. (K1)

a) binary b) octal c) decimal d) hexadecimal

2. According to De-Morgan's theorem an inverted AND gate operation result is similar to_____ type of logic gate operation.

a) XOR b) NOR c) OR d) NOT (K2)

3. Let A and B is the input of a subtractor then the output will be _____. (K1)

a) A XOR B b) A AND B c) A OR B d) A EXNOR B

4. Input clock of RS flip-flop is given to _____. (K2)

a) Input b) Pulser c) Output d) Master slave flip-flop

5. What is meant by the parallel load of a shift register? (K1)

a) All FFs are preset with data

b) Each FF is loaded with data, one at a time

c) Parallel shifting of data

d) All FFs are set with data

6. A modulus 10 counter must have_____. (K2)

a) 10 flip flops b) 4 flip flops

c) 2 flip flops d) synchronous

7. The main disadvantage of a dual slope integrator A/D converter is _____. (K1)

a) Slow conversion time b) High cost

c) Low sensitivity d) Temperature immunity

8. Drawback of counter type A/D converter is _____. (K2)

a) Counter clears automatically b) More complex

c) High conversion time d) Low speed

9. ROM has the capability to perform is _____. (K1)

a) Write operation only

b) Read operation only

c) Both write and read operation

d) Erase operation

10. The density of dynamic RAM is_____. (K2)

a) More than that of the static RAM

b) Less than that of the static RAM

c) Equal to that the static RAM

d) Equal to or more than that of the static RAM

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) List out the Decimal number systems and Explain. (K2)

(Or)

b) Briefly explain ExNOR gates with truth table. (K3)

12. a) Draw the logic circuit of full adder. Write its truth table. (K2)

(Or)

b) Write the truth table of R-S and D flips flops. Explain it. (K3)

13. a) Write about PISO shift register. (K3)

(Or)

b) Explain about 4 bit asynchronous counter. (K2)

14. a) Illustrate the D/A Converter with neat circuit. (K3)

(Or)

b) Summarize the Voltage to time A/D Converter. (K2)

15. a) Write a note on Concept of memory using register. (K3)

(Or)

b) Describe the Bipolar RAM. (K2)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Construct NOT, OR, AND gates using universal gates. (K4)

(Or)

b) State and verify De-Morgan's theorems. (K3)

17. a) Describe with truth table of parallel binary Adder and Substractor. (K4)

(Or)

b) Explain the operation of Master Slave J.K Flip flop with neat Circuit. (K3)

18. a) Explain the operation of synchronous mod 10 counters. (K4)

(Or)

b) Explain 3 bit synchronous up/down counter. (K3)

15. a) Explain Hamiltonian function H. (K2)

(Or)

b) Discuss the principle of least action. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Discribe the concepts of absolute space, time and motion as proposed by Isaac Newton. (K4)

(Or)

b) Discuss the concept of work, power and energy. (K5)

17. a) Show that in perfectly inelastic collision in laboratory system there is always loss of kinetic energy. (K4)

(Or)

b) Apply Kepler's laws of planetary motion to explain the motion of a planet in an elliptical orbit around the Sun. (K5)

18. a) Discuss in detail about translational and rotational motion. (K4)

(Or)

b) Illustrate the proof for the parallel axis theorem for moment of inertia. (K5)

19. a) Describe generalized momentum. (K4)

(Or)

b) Explain the derivation of Lagrange's equations from D' Alembert's Principle. (K5)

20. a) Explain the physical significance of the Hamiltonian function. (K4)

(Or)

b) Explain the derivation of the equations of motion for a linear harmonic oscillator using Hamilton's equations. (K5)

Reg.No:_____

Course Code: 23UAOCT101

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Physics

First Semester

Core: Mechanics

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. According to Newton's second law of motion, the force acting on an object is equal to_____. (K1)

a) its mass divided by its acceleration

b) its mass multiplied by its velocity

c) its mass multiplied by its acceleration

d) its mass multiplied by its speed

2. What is a non-conservative force? (K1)

a) A force for which work done depends on the path taken

b) A force that always acts vertically

c) A force for which work done does not depend on the path taken

d) A force that cannot do any work

3. The center of mass of a system of particles is_____. (K1)

a) The point where the mass of the system is zero

b) The point where the total mass of the system can be considered to be concentrated

c) Always at the geometric center of the system

d) The point where the velocity of the system is maximum

4. Which of the following is true for an elastic collision? (K1)

a) Kinetic energy is conserved

b) Kinetic energy is not conserved

c) Only momentum is conserved

d) Both momentum and potential energy are conserved

5. The SI unit of moment of inertia is_____. (K1)

a) kg·m b) $kg \cdot m^4$ c) $kg \cdot m^3$ d) $kg \cdot m^2$

6. The rotational kinetic energy of a rotating rigid body about the axis through its with moment of inertia I and angular velocity ω given by_____. (K1)

a) ½ Iω b) ½ $I\omega^2$ c) $I\omega^2$ d) ½ $I\omega^3$

7. In a system with constraints, the number of independent coordinates needed to describe the system is called_____. (K1)

a) Degrees of freedom b) Generalized coordinates

c) Constraints d) Kinematic variables

8. D'Alembert's principle states that_____. (K1)

a) The sum of forces on a body is zero

b) The total energy of a system remains constant

c) The sum of virtual work done by inertial forces and applied forces is zero

d) The acceleration of a body is proportional to the net force acting on it

9. The Hamiltonian function H is typically defined as_____.

a) The difference between kinetic and potential energy (K1)

b) The total displacement of the system

c) The total momentum of the system

d) The sum of kinetic and potential energy

10. The period of simple pendulum is_____. (K1)

a) $T = 2\pi\sqrt{L/g}$ b) $T = \frac{1}{2\pi\sqrt{L/g}}$

c) $T = \pi\sqrt{L/g}$ d) $\frac{\pi}{\sqrt{L/g}}$

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) State the limitations of Newton's law of motion. (K2)

(Or)

b) Discuss the general law of conservation of energy in the presence of non-conservative forces. (K3)

12. a) Explain the concept of total linear momentum with respect to the centre of mass of a system of particles. (K2)

(Or)

b) Explain the principle of conservation of angular momentum. (K3)

13. a) Express the relation between the moment of inertia and the radius of gyration for a rigid body. (K2)

(Or)

b) Illustrate the expression for the moment of inertia of a thin spherical shell of mass (M) and radius (R) about an axis passing through its center. (K3)

14. a) Distinguish holonomic and non-holonomic constraints with one example for each. (K2)

(Or)

b) Explain how to formulate the Lagrangian for a simple pendulum? (K3)

20. a) Explain the concept of particles and anti-particles in particle physics. (K3)

(Or)

b) Explain the four types of fundamental interactions between elementary particles. (K4)

Reg. No: _____

Course Code: 22UAOCT503

B.Sc. Degree Examination – November 2024

(For the candidate admitted during the year 2022 - 2023 only)

Physics

Fifth Semester

Core: Nuclear Physics

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Nuclei with the same mass number but different atomic numbers are called_____. (K2)

a) Isotopes b) Isobars c) Isotones d) Isomers

2. The Liquid Drop Model of the nucleus was proposed by_____.

a) Niels Bohr b) Enrico Fermi (K1)

c) George Gamow d) Maria Goeppert-Mayer

3. An ionization chamber is much less sensitive to_____. (K2)

a) β particle b) α particle c) γ – ray d) electron

4. The paths of particles in a cyclotron are_____. (K1)

a) Parabolic b) Linear c) Elliptical d) Circular

5. Natural radioactivity was discovered by_____. (K2)

a) Wilhelm Rontgen b) Henri Becquerel

c) Marie Curie d) Ernest Rutherford

6. The half-life of a radioactive substance is_____. (K1)

a) The time taken for half the nuclei present in a sample to decay

b) The time taken for all the nuclei in a sample to decay

c) The time taken for the activity to increase by half

d) The time taken for the activity to become zero

7. Which of the following is a common fissionable material used in nuclear reactors? (K2)

a) Uranium-238 b) Thorium-232

c) Uranium-235 d) Hydrogen-2

8. The primary principle behind an atomic bomb is_____. (K1)

a) Nuclear fusion b) Chemical reactions

c) Nuclear fission d) Electromagnetic radiation

9. Which of the following is a baryon? (K2)

a) Electron b) Proton c) Neutrino d) Pion

10. Which fundamental interaction is responsible for holding the atomic nucleus together? (K1)

a) Electromagnetic force b) Gravitational force

c) Strong nuclear force d) Weak nuclear force

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Discuss the characteristics of nuclear forces. (K3)

(Or)

b) Explain the nuclear collective model. (K2)

12. a) Explain the construction and working of solid state detectors. (K3)

(Or)

b) Explain the working of synchrotrons. (K2)

13. a) List out the properties of Alpha rays. (K2)

(Or)

b) Illustrate the fundamental laws of radioactivity. (K3)

14. a) Explain nuclear fission on the basis of Bohr and Wheeler theory. (K3)

(Or)

b) Explain about controlled thermonuclear reaction. (K2)

15. a) Classify the elementary particles. (K2)

(Or)

b) Explain the compositions of hadrons according to the quark model. (K3)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Explain the meson theory of nuclear forces. (K3)

(Or)

b) Explain the liquid drop model of the nucleus with suitable theory. (K4)

17. a) Explain the principle, construction and working of a proportional counter. (K3)

(Or)

b) Explain the principle, construction and theory of a cyclotron. (K4)

18. a) Describe the method that is used to determine the e/m of Alpha particles. (K3)

(Or)

b) Explain the law of radioactive disintegration. (K3)

19. a) Illustrate the expression for the energy released in a nuclear fission reaction. (K4)

(Or)

b) Explain carbon-nitrogen cycle and proton-proton cycle as source of stellar energy. (K3)

19. a) Describe the Michelson-Morley experiment and explain the physical significance of negative results. (K4)

(Or)

b) Illustrate the Lorentz Transformation equation. (K3)

20. a) Describe the Mass -Energy equivalence equation. (K3)

(Or)

b) Give expressions of Photons and Gravity. (K3)

Reg.No:_____

Course Code: 21UAOCT602

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2021 - 2022 only)

Physics

Sixth Semester

Core: Quantum Mechanics and Relativity

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. De Broglie wavelength is significant for particles of _____. (K1)

a) High energy

b) Low energy

c) Both high and low energy

d) No specific energy range

2. The Heisenberg Uncertainty principle is often expressed as____. (K2)

a) $\Delta x * \Delta p = h$ b) $\Delta x * \Delta p \geq \hbar/2$

c) $\Delta E * \Delta t = h$ d) $\Delta x * \Delta y = \hbar$

3. According to the first postulate of wave mechanics, the state of a quantum system is completely described by _____. (K1)

a) Energy b) Wave function

c) Momentum d) Position

4. The frequency of oscillation in a linear harmonic oscillator depends on_____. (K2)

a) Mass of the particle only b) Spring constant only

c) Both mass and spring constant d) Amplitude of oscillation

5. The commutation relation between position (x) and momentum (p) operators in quantum mechanics is given by_____. (K1)

a) [x.p]=xp b) [x.p]=0 c) h[x.p]=ih d) $\hbar$[x.p]=$-i\hbar$

6. In quantum mechanics, ladder operators are commonly used in the context of_____. (K2)

a) Angular momentum b) Energy eigenstates

c) Position eigenstates d) Spin eigenstates

7. A frame of reference is essential for_____. (K1)

a) Time dilation b) The speed of light

c) Kinematics and dynamics d) Quantum entanglement

8. According to special relativity, time dilation occurs when an observer is_____. (K2)

a) Moving at a constant velocity b) Accelerating

c) At rest d) Experiencing gravity

9. The speed of light (c) in the mass-velocity relation of_____. (K1)

a) The object's speed

b) The speed of sound

c) The maximum possible speed in the universe

d) The escape velocity

10. Which of the following is an essential property of a black hole? (K2)

a) Electric charge b) Magnetic field

c) Angular momentum d) All the above

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Explain about the de-Broglie wavelength. (K2)

(Or)

b) Give notes on Heisenberg's Uncertainty principle. (K3)

12. a) Write about the steady state form of Schrodinger's equation. (K3)

(Or)

b) Describe the Barrier Penetration problem. (K2)

13. a) Explain about hermition operator. (K2)

(Or)

b) Write a note on Ladder Operators (Jx&J). (K3)

14. a) Illustrate the Frame of reference. (K2)

(Or)

b) Summarize the postulates of special theory of relativity. (K3)

15. a) Write a note on Murkowski's Four Dimensional Space. (K3)

(Or)

b) Describe the Gravitational red Shift. (K2)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Derive an expression of Davisson and Germers Experiment. (K3)

(Or)

b) Explain the G.P Thomson's Experiment. (K3)

17. a) Derive the orthogonality of eigen functions. (K4)

(Or)

b) Describe the particle in a one dimensional box. (K3)

18. a) Explain the commutation relation of orbital angular momentum with position. (K4)

(Or)

b) Describe the commutation relation between square of the total angular momentum and its components. (K3)

18. a) Define Hermitian and orthogonal matrices with an example of each. (K3)

(Or)

b) Explain the methods of diagonalization of a square matrix with suitable example. (K4)

19. a) Deduce Lagrangian equation from D'Alembert's principle. (K4)

(Or)

b) Explain about principle of virtual work and deduce D'Alembert's principle. (K3)

20. a) Derive Hamilton's equation for a particle in a cylindrical coordinates. (K4)

(Or)

b) What is Hamilton's variational principle? Deduce it. (K3)

Reg.No:_____

Course Code: 22UAOCT501

B.Sc. Degree Examination

Special End Semester Examination - November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Physics

Fifth Semester

Core: Mathematical Physics and Classical Mechanics

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. If $F = 3xy\hat{\imath} - y^2\hat{\jmath}$, evaluate $\int F.dr$ along the curve C in the x-y plane $y = 2x^2$ from (0, 0) to (1, 2)_____. (K2)

a) $-\frac{3}{2}$ b) $-\frac{8}{3}$ c) $-\frac{7}{6}$ d) $-\frac{11}{5}$

2. The line integral per unit are along the boundary of small area around a point in vector field A is called_____. (K1)

a) $grad\ A$ b) $curl\ A$ c) $div\ A$ d) Line Integral A

3. Which of the following vectors is orthogonal to the vector $(a\hat{\imath}+b\hat{\jmath})$, where a and b ($a \neq b$) are constants and i and j are unit orthogonal vector? (K2)

a) $(-b\hat{\imath}+a\hat{\jmath})$ b) $(-a\hat{\imath}+b\hat{\jmath})$ c) $(-a\hat{\imath}-b\hat{\jmath})$ d) $(-b\hat{\imath}-a\hat{\jmath})$

4. Given the points A ($x = 2, y = 3, z = -1$) and B ($r=4$, $\theta=30^{\circ}$, $\varphi=120^{\circ}$) Find the distance between cartesian coordinate A and spherical coordinate B. (K1)

a) 7.26 b) 4.10 c) 6.12 d) 5.53

5. Which of the following matrices is skew Hermitian? (K2)

a) $\begin{bmatrix} 0 & i \\ i & 0 \end{bmatrix}$ b) $\begin{bmatrix} 0 & i \\ -i & 0 \end{bmatrix}$

c) $\begin{bmatrix} i & 0 \\ 0 & i \end{bmatrix}$ d) $\begin{bmatrix} i & 0 \\ 0 & -i \end{bmatrix}$

6. The determinant of a 3×3 real symmetric matric is 36. If the Eigen values are 2 and 3 then the third Eigen value is_____.

a) 4 b) 6 c) 8 d) 9 (K1)

7. According to D' Alembert's principle $\sum_i (Fi - pi)\, \delta ri =$ _____.

a) 1 b) 0 c) N d) Infinite (K2)

8. Period of oscillation of a simple pendulum, is T = _____. (K1)

a) $2\pi(\frac{l}{g})$ b) $4\pi(\frac{l}{g})$ c) 0 d) $2\pi\sqrt{\frac{l}{g}}$

9. Hamilton's canonical equation of motion are_____. (K2)

a) $\dot{q} = \frac{\partial H}{\partial p}$ and $\dot{p} = \frac{\partial H}{\partial q}$ b) $\dot{q} = \frac{\partial H}{\partial p}$ and $\dot{p} = -\frac{\partial H}{\partial q}$

c) $\dot{q} = \frac{\partial H}{\partial \dot{p}}$ and $\dot{p} = -\frac{\partial H}{\partial \dot{q}}$ d) $q = \frac{\partial H}{\partial \dot{p}}$ and $p = -\frac{\partial H}{\partial \dot{q}}$

10. Hamiltonian principle is an example of a _____. (K1)

a) Force b) Hamiltonian

c) Momentum d) Vector co – ordinate

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Using Gauss divergence theorem, the value of the vector field over the volume element around the point. (K3)

(Or)

b) Show that $\nabla.(\nabla u \times \nabla v) = 0$. (K2)

12. a) Write down the scalar factors for the spherical polar coordinate (r,θ,ϕ). (K3)

(Or)

b) Write about the $div\ V$ in orthogonal curvilinear coordinates. (K2)

13. a) What do you mean by diagonalization of a matrix? Give suitable example. (K2)

(Or)

b) State Cayley-Hamilton theorem for the square matrices. (K3)

14. a) Write down the formula of the equation of motion of Lagrangian for a simple pendulum. (K2)

(Or)

b) Explain about generalised velocity. (K3)

15. a) What is the physical significance of Hamiltonian function? (K3)

(Or)

b) Apply Hamilton principle to prove planetary motion. (K2)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) State and prove Stoke's theorem. (K3)

(Or)

b) Evaluate $\int_s x^2 dydz + y^2 dzdx + 2z(xy - x - y)dxdy$ where s is the surface of the cube $0 \le x \le 1, 0 \le y \le 1, 0 \le z \le 1$. (K4)

17. a) Use cylindrical polar coordinates to find the square of the line element. (K3)

(Or)

b) Evaluate $\int_v \sqrt{x^2 + y^2}\, dxdydz$, where V is the region bounded by $z = x^2 + y^2$ and $z = 8 - (x^2 + y^2)$. (K4)

Reg.No:_____

Course Code: 22UAOAL509

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Physics

Fifth Semester

ALC: Optoelectronics

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1. Define Franz-Keldysh effect in semiconductors. (K2)
2. Distinguish the direct and indirect bandgapin semiconductors. (K2)
3. Illustrate the performance characteristics of LEDs related to optical output power. (K3)
4. Define the term "forward current voltage characteristics" in LEDs. (K2)
5. Explain the internal quantum efficiency in OLEDs. (K1)
6. List out the advantages of OLEDs compared to conventional LEDs. (K3)
7. Describe the detector responsivity in photo detectors. (K2)
8. Define quantum efficiency in photo detectors. (K1)
9. State the principle of operation of a photoconductive cell. (K2)
10. Discuss the characteristics of phototransistors. (K1)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a) Explain the principle of action of LEDs and derive the expression for light power in terms of photon energy. (K2)

(Or)

b) Analyze the effect of electric field on absorption in semiconductors. (K3)

12. a) Classify the different types of LED structures and explain with their advantages. (K2)

(Or)

b) Explain the modulation bandwidth and power bandwidth product in LEDs. (K3)

13. a) Explain the principle of operation of OLEDs and their structure. (K2)

(Or)

b) Evaluate the efficiency and characterization methods used for OLEDs. (K3)

14. a) Outline the important parameters of photo detectors and their impact on performance. (K2)

(Or)

b) Compare the given list of diodes such as junction photodiodes, PIN diodes, and avalanche photodiodes. (K3)

15. a) Explain the I-V characteristics of solar cells and their significance. (K2)

(Or)

b) Outline the fundamental processes involved in solar cell operation, including exciton absorption and exciton dissociation. (K3)

SECTION – C (5 X 10 = 50 Marks)
Answer ALL questions.

16. a) Compare homo-structured and hetero-junction LEDs. Discuss their advantages and drawbacks. (K3)

(Or)

b) Summarize the concept of electron-hole pair formation and recombination in semiconductors. How does it relate to LED operation? (K4)

17. a) Predict the performance characteristics of planar and dome type LED structures. (K3)

(Or)

b) Summarize the forward current-voltage characteristics of LEDs and their significance in LED performance. (K3)

18. a) Compare and contrast multilayer OLEDs with single-layer OLEDs in terms of performance and applications. (K4)

(Or)

b) Compile the process of characterization of OLEDs and its importance. (K3)

19. a) Distinguish the operation and characteristics of photomultiplier tubes compared to other photo detectors. (K4)

(Or)

b) Summarize the noise characteristics of photo detectors and their impact on detection performance. (K3)

20. a) Compare photoconductive cells and phototransistors in terms of their applications and performance. (K4)

(Or)

b) Conclude the efficiency and characterization methods of solar cells. (K3)

18. a) A and B are orthogonal matrices, show that AB is also orthogonal. (K3)

(Or)

b) Prove that the Eigen values of a Hermitian matrix are always real. (K4)

19. a) Derive Lagrangian equation from D'Alembert's principle. (K3)

(Or)

b) Using Lagrangian's equation of motion to solve,

i) Compound pendulum ii) Atwood Machine (K3)

20. a) Derive Lagrangian equation from Hamilton's principle. (K3)

(Or)

b) Derive modified Hamilton principle. (K4)

Reg.No:_____

Course Code: 22UAOCT501

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Physics

Fifth Semester

Core: Mathematical Physics and Classical Mechanics

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. $\vec{\nabla}(.(r.\vec{r}))$ is solenoidal if n=_____. (K1)

a) 1 b) 2 c) 3 d) -3

2. If a force $\vec{F}$ is derivable from a potential function V(r), where r is the distance from the origin of the coordinate system, it follows that_____. (K2)

a) $(\nabla\times\vec{F})=0$ b) $(\nabla.\vec{F})=0$ c) $(\nabla\vec{\nabla})=0$ d) $(\nabla^2\vec{\nabla})=0$

3. The θ component of the expression $\vec{r}\times\vec{\nabla}\Psi$ in spherical co-ordinate is_____. (K2)

a) $-\frac{1}{\sin\theta}\frac{\partial\psi}{\partial\phi}$ b) $\frac{1}{\sin\theta}\frac{\partial\psi}{\partial\phi}$ c) $\frac{\partial\psi}{\partial\theta}$ d) $-\frac{\partial\psi}{\partial\theta}$

4. If r, θ and φ are the unit vectors is spherical coordinates the θ may be expressed in term of i ,j and k as_____. (K2)

a) $\theta = \sin\theta\, cos\varphi\, \hat{\imath} + sin\theta\, sin\varphi\, \hat{\jmath} + cos\theta\, \hat{k}$

b) $\theta = \cos\theta\cos\varphi\, \hat{\imath}$

c) $\theta = -\sin\varphi\, \hat{\imath} + cos\varphi\, \hat{\jmath}$

d) $\theta = \cos\varphi\, \hat{\imath} + sin\varphi\, \hat{\jmath}$

5. A 3×3 matrix has Eigen values 0, 2+i and 2-i. Which of the following correct sentence? (K1)

a) The matrix in Hermitian

b) The matrix is unitary

c) The inverse of the matrix exists

d) $\det A = 0$

6. Two matrices A and B can be diagonalized simultaneously. Which of the following is true? (K2)

a) $A^2B = B^2A$ b) $A^2B^2 = B^2A$

c) AB=BA d) $AB^2AB = BA\,BA^2$

7. Lagrangian L = _____. (K1)

a) T - V b) T + V c) TV d) T/V

8. Principle of virtual work was suggested by_____. (K2)

a) D'Alembert b) Kepler

c) Bernoulli d) Lagrange

9. If a coordinate is cyclic, Hamiltonian would reduce and the number of variables in new formulation by_____. (K1)

a) One b) Two c) Three d) Four

10. Kinetic energy of compound pendulum is _____. (K2)

a) Iθ b) $I\theta^2$ c) $\frac{I}{\theta}$ d) $\frac{1}{2}I\dot{\theta}$

SECTION – B ((5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Define gradient of a scalar function ϕ. State whether grad ϕ is a scalar of a vector. (K3)

(Or)

b) Explain about surface integral. (K2)

12. a) Write the curl operator in general orthogonal curvilinear coordinates. (K3)

(Or)

b) Explain the acceleration of a particle in cylindrical coordinates. (K2)

13. a) What do you understand by a unitary matrix and Hermitian matrix? (K3)

(Or)

b) If A and B are idempotent matrices. Compare unitary matrix in it. (K2)

14. a) Define the terms: Generalized co – ordinates and generalized force. (K3)

(Or)

b) Explain the D' Alembert's principle. (K2)

15. a) Define principle of least action. (K3)

(Or)

b) Explain the physical significance of Hamilton H. (K2)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) If r is position vector of any point on the surface S, find $\iint_s r \cdot ds$ (K3)

(Or)

b) State and prove Gauss divergence theorem. (K4)

17. a) Prove that a cylindrical coordinate system is orthogonal. (K3)

(Or)

b) Find the volume of the two region bounded by the sphere $16 = x^2 + y^2 + z^2$ and the core $z^2 = x^2 + y^2$ (K4)

Reg.No: _____

Course Code: 22UAOST507

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Physics

Fifth Semester

Skill Based: Office Automation

Time: 3 Hours Maximum Marks: 45

SECTION – A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. What is an operating system? (K1)

a) Interface between the hardware and application programs

b) Collection of programs that manages hardware resources

c) System service provider to the application programs

d) All of the mentioned

2. The shortcut key Ctrl + N is used to _____. (K2)

a) Save document b) Open document

c) New document d) Close document

3. You can set page border in Excel form_____. (K1)

a) From Border tab in Format Cells dialog box

b) From Border tool in Formatting toolbar

c) From Line Style tool in Drawing toolbar

d) You cannot set page border in Excel

4. In MS-Access, to open a new database using the key_____. (K2)

a) CTRL + N b) CTRL + O

c) ALT + F4 d) None of these

5. To start Microsoft power point application_____. (K1)

a) Click on Start > Programs > All Programs > Microsoft PowerPoint

b) Hit Ctrl + R then type ppoint.exe and Enter

c) Click Start > Run then type power point then press Enter

d) All of above

SECTION - B (5 X 3 = 15 Marks)
Answer ALL questions.

6. a) Sketch the block diagram of a computer. (K3)

(Or)

b) What are output devices of a computer? (K2)

7. a) How will you open and save a words file in MS-Word? (K3)

(Or)

b) Mention the uses of bullets and its type. (K2)

8. a) Paraphrase about menu in MS-Excel. (K3)

(Or)

b) Write a note on i) setting formula (K2)

ii) Finding subtotal of a column in MS-Excel.

9. a) Mention the steps to create tables in MS-Access. (K3)

(Or)

b) Propose about importing data from other databases. (K2)

10. a) Write the procedure for setting background in Ms Power Point. (K3)

(Or)

b) Describe about setting animation and transition effect in MS power point. (K2)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Describe about types of computer. (K3)

(Or)

b) Write short notes on i) Local area computer (K4)

ii) Functions of OS.

12. a) Describe about alignments and indent usage in MS-Word. (K3)

(Or)

b) Explain about i) header & footer (K3)

ii) Footnotes & end notes

13. a) Summarize about Entering & Deleting data in MS-Excel. (K4)

(Or)

b) Illustrate about creating charts in MS-Excel. (K3)

14. a) Facilitate creating a new data base in MS-Access. (K4)

(Or)

b) Explain about types of reports in MS-Access. (K3)

15. a) What are the different presentation templates? Explain. (K4)

(Or)

b) How will you insert pictures and movies in MS power point? (K3)

20. a) With a neat diagram, explain the working process of GM counter. (K4)

(Or)

b) Delineate the principle and techniques of scintillation counter. (K5)

Reg.No:_____

Course Code: 23UAOAT103 / 23UAPAT104

B. Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Physics / Biochemistry

First Semester

Allied: Chemistry I

Time: 3 Hours Maximum marks: 55

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The nucleus of an atom contains_____. (K1)

a) protons only b) neutrons only

c) protons and neutrons d) electrons and protons

2. Pick out the strongest type of the following bond_____.

a) ionic bond b) covalent bond (K1)

c) coordinate bond d) hydrogen bond

3. Thermosetting plastics_____. (K1)

a) can be remolded after initial heating

b) are cross linked polymers

c) have low melting points

d) are easily recyclable

4. Vat dyes are_____. (K1)

a) Soluble in water b) Insoluble in water

c) Soluble in organic solvents d) Volatile liquid

5. Pick out the permanent effect of the following _____. (K1)

a) Inductive effect b) Inductomeric effect

c) Electromeric effect d) Hyper conjugation

6. The hybridization of carbon in benzene is_____. (K1)

a) sp b) sp^2 c) sp^3 d) dsp^3

7. Identify the molecularity of the following reaction_____.

$2NO + O_2 \rightarrow 2NO_2$ (K1)

a) 1 b) 2 c) 3 d) 0

8. Normality is defined as_____. (K1)

a) number of moles of solute per liter of solution

b) number of gram equivalents of solute per liter of solution

c) number of moles of solute per kilogram of solvent

d) mass of solute per liter of solution

9. Find out isotope of hydrogen_____. (K1)

a) Deuterium b) Helium c) Oxygen d) Carbon

10. Radioactive iodine (I-131) is used in the treatment of_____.

a) Thyroid disorders b) Cancer (K1)

c) Heart Diseases d) Diabetes

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Specify the first aid procedures made in chemistry lab. (K2)

(Or)

b) Differentiate between nuclear fusion and nuclear fission. (K3)

12. a) Give the preparation and uses of PVC. (K2)

(Or)

b) Compare the chromophore and auxochrome. (K3)

13. a) Account on steric effects. (K2)

(Or)

b) Enlist the elements of symmetry. (K3)

14. a) State and explain Raoult's law. (K2)

(Or)

b) Classify the types of solutions. (K3)

15. a) What are isotopes and isobars? How are they distinguished? (K2)

(Or)

b) Focus the applications of radio isotopes. (K3)

SECTION – C (5 X 6 = 30 Marks)

Answer ALL questions.

16. a) With suitable example define the ionic, covalent and hydrogen bonds. (K4)

(Or)

b) Construct the molecular orbital diagram for oxygen molecule. (K5)

17. a) Draw the structure of methyl orange. Mention its preparation, properties and uses. (K4)

(Or)

b) Bring out the preparation and uses of triple super phosphate. (K5)

18. a) Design the hybridization of acetylene with suitable explain. (K4)

(Or)

b) Justify the maleic acid and fumaric acid of geometrical isomerism. (K5)

19. a) Sketch and explain the fractional distillation. (K4)

(Or)

b) Define the order of reaction. How will you determine it? (K5)

11/11/24 (FN)

Reg.No: _____

Course Code: 22UAOCT502

B.Sc. Degree Examination – November 2024

(For the candidate admitted from the year 2022 – 2023 only)

Physics

Fifth Semester

Core: Condensed Matter Physics

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Space lattice + Basis is equal to_____. (K2)

   a) Unit cell b) Crystal structure

   c) Bravais lattices d) Translational vector

2. Which of the following surface defects? (K1)

   a) Vacancy b) Screw dislocation

   c) Edge dislocation d) Twin boundaries

3. The super conductivity was discovered by _____. (K2)

   a) K.Onnes b) Meissner c) Silsbee d) Josephson

4. Which type magnetic material is used for superconductivity?

   a) Paramagnetic b) Diamagnetic (K1)

   c) Terramagnetic d) Ferromagnetic

5. The susceptibility of a paramagnetic substance is _____.

   a) negative b) positive c) zero d) infinity (K1)

6. Curie – Weiss law is _____. (K2)

   a) $\chi = \frac{C}{T-\theta}$ b) $\chi = \frac{T}{C-\theta}$ c) $\chi = \frac{\theta}{C-T}$ d) $\chi = \frac{C}{T-\mu}$

7. The Unit of Polarization is _____. (K1)

a) Coulomb.meter^2 b) Coulomb/ meter^2

c) Coulomb. meter d) meter. Coulomb

8. Which of the following polarizations is very rapid? (K2)

a) Electronic polarization b) Ionic polarization

c) Space charge polarization d) Orientation polarization

9. The full form of LED is_____. (K1)

a) Light Emitting Diode b) Lowlight Erecting Diode

c) Light Erecting Diode d) Light Editing Diode

10. Photodiodes operate at _____. (K2)

a) Forward bias b) Reverse bias

c) Breakdown region d) Saturation region

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Discuss miller indices of the crystal system. (K2)

(Or)

b) What are Frenkel and Schottky defects? (K3)

12. a) Classify, the super conductors. (K2)

(Or)

b) Distinguish D.C and A.C Josephson effect. (K3)

13. a) Find the relation between μ and χ. (K2)

(Or)

b) Compare soft and hard magnetic materials. (K3)

14. a) What is meant by local field in a dielectric? (K2)

(Or)

b) Distinguish polar and non-polar dielectrics. (K3)

15. a) Compare LED and LCD. (K2)

(Or)

b) What are metallic glasses? Name any two for metallic glasses. (K3)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Explain the FCC structure of crystal system with a neat sketch. (K4)

(Or)

b) Discuss the line defects and surface defect in crystal. (K3)

17. a) Explain in detail about BCS theory of super conductivity. (K4)

(Or)

b) Write short notes on (i) SQUID and their applications and (ii) Magnetic levitation. (K3)

18. a) Explain Langevin's theory of paramagnetism. (K4)

(Or)

b) Describe about domain theory of ferromagnetism. (K3)

19. a) Give a short account on Ionic polarization. (K4)

(Or)

b) Derive the Clausius – Mossotti relation. (K3)

20. a) State the principle and describe the construction and working of a solar cell. (K4)

(Or)

b) Write a short note on SMART materials. (K3)

15. a) Interpret the process of impression management. (K3)

(Or)

b) Explain the components of attitudes. (K2)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Evaluate the historical trajectory of the discipline of Organisational Psychology. (K4)

(Or)

b) Construct the significance of Hawthorne studies in the modern field of Organisational Psychology. (K3)

17. a) Develop the concepts of heredity, environment and family as determinants of personality. (K4)

(Or)

b) Summarise McClelland's theory of needs. (K3)

18. a) Compose an essay on decision making biases. (K4)

(Or)

b) Analyse the five distinct stages that groups proceed through in its formation. (K3)

19. a) Write in detail on organisational designs and employee behaviour. (K4)

(Or)

b) If you were a manager of an organisation, how would you create a positive organisational culture? (K3)

20. a) Elaborate the process of stereotype formation. (K4)

(Or)

b) Dissect the concept of organisational values. (K3)

Reg.No:_____

Course Code: 22UAVCT502

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Psychology

Fifth Semester

Core: Industrial / Organizational Psychology - 1

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The degree to which an employee identifies with a particular organization and its goals and wishes to maintain membership in the organization is called_____. (K1)

a) Organisational Citizenship Behaviour

b) Organisational Commitment

c) Working spirit

d) All the above

2. Where was the Hawthorne Studies conducted? (K2)

a) Chicago, US b) Florida, US

c) New Delhi, India d) Canberra, Australia

3. The tendency to underestimate the influence of external factors and overestimate the influence of internal factors when making judgments about the behavior of others. (K1)

a) Fundamental attribution error

b) Self-serving bias

c) Proprioception error

d) Self-fulfilling prophecy

4. When we draw a general impression about an individual on the basis of a single characteristic, such as intelligence, sociability, or appearance, it is called_____? (K2)

a) Flynn effect b) Halo effect

c) Social loafing d) None of the above

5. Identify the characteristic that is NOT part of the four characteristics of MBTI. (K1)

a) Extraversion b) Intuitive

c) Psychoticism d) Perceiving

6. A highly_____ person is responsible, organized, dependable, and persistent according to Big-Five. (K2)

a) Emotionally stable b) Agreeable

c) Introverted d) Conscientious

7. Perspective in which we see members of our in group as better than other people, and people not in our group as all the same is called _____. (K1)

a) In-group favouritism b) Conformity

c) Cognitive dissonance d) Group think

8. A phenomenon in which the norm for consensus overrides the realistic appraisal of alternative courses of action is called _____. (K2)

a) Group think b) Group shift

c) Group decision d) All the above

9. Departmentalisation is_____. (K1)

a) The degree to which tasks in an organization are subdivided into separate jobs

b) The degree to which decision making is concentrated at a single point in the organization

c) The degree to which jobs within the organization are standardized

d) The basis by which jobs in an organization are grouped together

10. The system of shared meaning held by members that distinguishes the organization from other organizations is called_____. (K2)

a) Organisational climate b) Organisational culture

c) Organisational structure d) Organisational dynamics

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Demonstrate work life balance as a challenge to organisations. (K3)

(Or)

b) Construct a brief note on scientific management. (K2)

12. a) Analyse the job fit theory. (K2)

(Or)

b) Evaluate two- factor theory of motivation. (K3)

13. a) Contrast between groups and teams. (K2)

(Or)

b) Illustrate the characteristics of groups as found in organisations. (K3)

14. a) Expand on bureaucracy. (K2)

(Or)

b) Outline the origin and sustenance of organisational culture. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Justify how to formulate research? (K4)

(Or)

b) Summarize the types of research. (K5)

17. a) Conclude the sources and functions of hypothesis. (K4)

(Or)

b) Generalize about the reviewing the literature. (K5)

18. a) Predict the probability sampling methods. (K4)

(Or)

b) Organize the non-probability sampling methods. (K5)

19. a) Argue about the meaning and importance of data. (K4)

(Or)

b) Write about the methods of data collection. (K5)

20. a) Distinguish the APA writing style. (K4)

(Or)

b) Intervene about techniques of data presentation and interpretation. (K5)

Reg.No:_____

Course Code: 22UAVAT403

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022-2023 only)

Psychology

Fourth Semester

Allied: Research Methodology

Time: 3 Hours Maximum marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Identify the first step in research. (K1)

a) Selecting a problem

b) Searching a problem

c) Finding a problem

d) Identifying a problem

2. Research can be classified as_____. (K1)

a) Basic, Applied and Action Research

b) Philosophical, Historical, Survey and Experimental Research

c) Quantitative and Qualitative Research

d) All the above

3. A research problem is not feasible only when_____.

a) It is researchable (K1)

b) It is new and adds something to the knowledge

c) It consists of independent and dependent variables

d) It has utility and relevance

4. Tell the formulation of hypothesis may NOT be required in_____. (K1)

a) Survey method b) Historical studies

c) Experimental studies d) Normative studies

5. Match: non-probability sampling_____. (K1)

a) Cluster sampling b) Quota sampling

c) Systematic sampling d) Stratified random sampling

6. Find the sampling method which is appropriate to study the prevalence of AIDS amongst male and female in India in 1976, 1986, 1996 and 2006. (K1)

a) Cluster sampling b) Systematic sampling

c) Quota sampling d) Stratified random sampling

7. What is it called when the data source is gathered and compiled with others? (K1)

a) Primary data b) Quantitative data

c) Secondary data d) Qualitative data

8. Match: Data collected from an archive or the records of an organization_____. (K1)

a) Internal data b) Secondary data

c) External data d) Primary data

9. Which of the following is not a form of research report?

a) Thesis b) Enquiry report of a commission

c) Precise d) Dissertation (K1)

10. Interpret the reporting of research findings should be done_____. (K1)

a) By the scientists themselves

b) In a scientific and effective way

c) Through internet

d) Through scientific journals

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Conclude on problem identification. (K2)

(Or)

b) Explain the variable constructing. (K3)

12. a) Illustrate the characteristics of problem. (K2)

(Or)

b) Complete the characteristics of hypothesis. (K3)

13. a) Classify the types of sampling in short. (K2)

(Or)

b) Outline the fundamentals of sampling. (K3)

14. a) Compare the interview and questionnaire method. (K2)

(Or)

b) Contrast the methods of secondary data. (K3)

15. a) Define data analysis. (K2)

(Or)

b) Write down the usage of SPSS. (K3)

19. a) Bring out the picture of personality development, hazards and happiness in early childhood. (K4)

(Or)

b) Enlighten the concept of moral development and sex role typing in early childhood. (K5)

20. a) Highlight the aspect of understanding moral attitude and behavior in late childhood. (K4)

(Or)

b) Throw light on changes on family relationship and personality in late childhood. (K5)

Reg.No:_____

Course Code: 23UAVCT102

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Psychology

First Semester

Core: Developmental Psychology I

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The correct order of the three stages of human prenatal development are_____. (K1)

a) Embryo, zygote, foetus

b) Placental, umbilical, embryonic

c) Embryonic, placental, umbilical

d) Zygote, embryo, foetus

2. What is a significant developmental issue during prenatal development? (K1)

a) Adolescence b) Puberty

c) Teratogens d) Middle adulthood

3. Which is not infant adjustment? (K1)

a) Adjustment to body waste b) Adjustment to breathe

c) Adjustment to in-laws d) Adjustment to temperature

4. Shortest period of life span_____. (K1)

a) Prenatal b) Infancy c) Babyhood d) childhood

5. Baby born death is referred as_____. (K1)

a) Blue baby b) Still born c) Green baby d) New baby

6. What is happiness in babyhood? (K1)

a) poor health b) play c) child abuse d) crying

7. At which stage child engage in play? (K1)

a) Infancy b) Babyhood

c) Early childhood d) Adolescence

8. _____ refers to the social and psychological dimensions of being female or male. (K1)

a) Sex b) Gender c) A gender role d) Gender typing

9. A unit of father mother and children is_____. (K1)

a) Friends b) Family c) Kinship d) Acquaintances

10. Late childhood exists up to_____. (K1)

a) 14 years b) 12 years c) 11years d) 13 years

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Describe concept of development. (K2)

(Or)

b) Explain various kinds of child birth. (K3)

12. a) Explain characteristics and developmental task of infancy. (K2)

(Or)

b) Discuss physical, psychological, emotional aspects of development in infancy. (K3)

13. a) Portray the characteristics and developmental task of babyhood. (K2)

(Or)

b) Inculcate emotional behavior and language development in babyhood. (K3)

14. a) Discuss physical development and skills in early childhood. (K2)

(Or)

b) Describe characteristics and developmental task of early childhood. (K3)

15. a) Illuminate social grouping and social behavior in late childhood. (K2)

(Or)

b) Write the characteristics and developmental task of late childhood. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Enumerate the characteristics and importance of conception to birth. (K4)

(Or)

b) Elucidate prenatal hazards and complications of low birth weight. (K5)

17. a) Critically comment on adjustments of infancy and conditions influencing post life. (K4)

(Or)

b) Highlight infant reflexes and hazards of infancy. (K5)

18. a) Critically discuss the concept of socialization, development of understanding and beginnings of morality in babyhood. (K4)

(Or)

b) Discuss in detail family relationship and personality development. (K5)

14. a) Summarize the process of predicting future performance in clinical assessment. (K3)

(Or)

b) Justify clinicians effectively manage the complexity of using multiple assessment methods. (K4)

15. a) Prepare the effectiveness of Exposure and Response Prevention in treating OCD. (K3)

(Or)

b) Support the treatment approaches used in the case study of Alice. (K3)

Reg.No:_____

Course Code: 22UAVST508

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Psychology

Fifth Semester

Skill Based: Professional Skills in Clinical & Counselling Settings

Time: 3 Hours Maximum Marks: 45

SECTION – A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. What is the primary definition of counselling? (K1)

a) Teaching

b) Advising

c) Assisting individuals in making decisions

d) Solving technical problems

2. What is transference in the context of counselling? (K2)

a) The counsellor's feelings towards the client

b) The client's projection of past emotions onto the counsellor

c) The client's resistance to counselling

d) The counsellor's communication skills

3. How should assessment results be communicated to a client?

a) In technical jargon (K1)

b) Through a detailed written report only

c) Clearly and in understandable terms

d) By email without follow-up

4. Which of the following is NOT typically involved in predicting dangerousness? (K1)

a) Historical behaviour b) Current mental state

c) Personal hobbies d) Social context

5. Which treatment approach is commonly used for managing OCD? (K1)

a) Psychoanalysis

b) Cognitive Behavioural Therapy (CBT)

c) Humanistic therapy

d) Play therapy

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

6. a) Describe two types of initial interviews used in counselling. (K2)

(Or)

b) Discover the main factors that influence the counselling process. (K3)

7. a) Discuss the role of the counsellor in managing the client's expectations during the closing phase. (K3)

(Or)

b) Explain the advantages of ending counselling on a positive note for the client. (K2)

8. a) Illustrate the key components of a schematic view of the clinical assessment process. (K3)

(Or)

b) List the role of a case study in clinical assessment. (K2)

9. a) Classify the role of clinical judgment in making decisions about treatment plans. (K3)

(Or)

b) Conclude the importance of measuring the accuracy of clinical predictions of dangerousness. (K3)

10. a) How can counsellors use case studies to improve their practice? (K2)

(Or)

b) Justify the role of family support in the treatment of OCD as seen in the boy's case study. (K3)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Discuss the importance of empathy as a counselling skill and how it can influence the counselling process? (K3)

(Or)

b) Describe the key steps involved in conducting an effective initial interview in counselling. (K4)

12. a) Explain the role of the counsellor in managing the client's expectations during the closing phase. (K3)

(Or)

b) Discover the ways transference and counter transference affect the therapeutic relationship. (K4)

13. a) Outline the role of referral questions in shaping the clinical assessment process. (K3)

(Or)

b) Devise the process of forming conclusions from assessment data and its impacts the treatment planning. (K4)

19. a) Evaluate the differences between Classical Conditioning and Operant Conditioning. (K4)

(Or)

b) Compare the key concepts of social and cognitive learning theories. (K5)

20. a) Elucidate the theories of forgetting. (K4)

(Or)

b) Highlight the ways to improve memory with suitable illustrations. (K5)

Reg.No:_____

Course Code: 23UAVCT101

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Psychology

First Semester

Core: Introduction to Psychology I

Time: 3 Hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____established first psychology laboratory in University of Leipzig, Germany. (K1)

a) William James b) Wilhelm Wundt

c) Sigmund Freud d) B.F Skinner

2. _____are generally conducted to establish a cause-and-effect relationship between two sets of events or variables in a controlled setting. (K1)

a) Observation b) Experimentation

c) Introspection d) Survey

3. _____ involves focusing on one specific stimulus or task while ignoring others. (K1)

a) Divided attention b) Sustained attention

c) Selective attention d) Perception

4. Depth perception refers to the ability to perceive the relative _____ of objects in 3D space. (K1)

a) Color b) Shape c) Size d) Distance

5. What measures brain activity during sleep? (K1)

a) EEG b) PET c) CAT d) MRI

6. What is the unconscious meaning of dream? (K1)

a) Manifest content b) Latent content

c) Dreams have no meaning d) None of the above

7. Reinforcement refers to the ways in which the _____ of a behavior can influence its likelihood of occurring in the future.

a) Consequences b) Association (K1)

c) Continuation d) Development

8. _____ is a type of learning process where behavior is modified by the consequences that follow it. (K1)

a) Classical conditioning b) Operant conditioning

c) Reinforcement d) Punishment

9. _____ plays a role in the formation of memories associated with reward, motivation and emotion. (K1)

a) Dopamine b) GABA c) Serotonin d) Cortisol

10. _____ occurs when you forget a previously learnt task due to the learning of a new task. (K1)

a) Retroactive interference b) Proactive interference

c) Retrieval failure d) Decaying

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Explore the scope of Psychology and mention its goals. (K2)

(Or)

b) Explain in detail about schools of Psychology. (K3)

12. a) Give a brief account on Hallucinations and Illusions with its types. (K2)

(Or)

b) Explain about attention with its types and determinants. (K3)

13. a) Write about state of Consciousness and its types. (K2)

(Or)

b) Discuss sensory deprivation in detail. (K3)

14. a) Define learning and its nature. (K2)

(Or)

b) Describe the schedules of reinforcement and types of punishment. (K3)

15. a) Write on memory and its process. (K2)

(Or)

b) Explain the types of memory with examples. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Elaborate on history of Psychology. (K4)

(Or)

b) Give detailed account of methods of Psychology. (K5)

17. a) Bring out the picture of Perception in detail. (K4)

(Or)

b) Elaborate in detail: Sensation, Proprioception, Attention. (K5)

18. a) Discuss about altered states of Consciousness. (K4)

(Or)

b) Describe in detail stages of sleep and sleep disorders. (K5)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Discover the facial feedback hypothesis and its implications for understanding emotions. (K4)

(Or)

b) Estimate the influence of cultural factors on the expression and interpretation of emotions. (K5)

17. a) Relate the changes in neurotransmitter activity that occur during LTP. (K4)

(Or)

b) Discuss the role of synaptic plasticity in the formation and retrieval of memories. (K5)

18. a) Explain the physiological basis of relational learning and its dependence on the hippocampus. (K4)

(Or)

b) Write the concept of anterograde amnesia using a case study example. (K5)

19. a) Infer the relationship between hormonal fluctuations and sexual orientation. (K4)

(Or)

b) Outline the concept of sexual orientation and discuss potential biological influences. (K5)

20. a) Summarize the clinical features and diagnostic criteria for Alzheimer's disease. (K4)

(Or)

b) Integrate the impact of neurodegenerative disorders on cognitive and motor functions. (K5)

Reg.No:_____

Course Code: 21UAVAT204

B. Sc Degree Examination – November 2024

(For the candidates admitted during the year 2021–2022 and 2022-2023 Batch only)

Psychology

Second Semester

Allied: Bio psychology II

Time: 3 Hours Maximum marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which part of the brain is primarily involved in processing emotions such as fear and anger? (K1)

a) Hippocampus b) Hypothalamus

c) Amygdala d) Thalamus

2. Which neurotransmitter is involved in regulating mood and emotional responses? (K1)

a) Acetylcholine b) Serotonin

c) Histamine d) Endorphins

3. Which receptor is critical for the induction of long-term potentiation (LTP)? (K1)

a) AMPA receptor b) GABA receptor

c) NMDA receptor d) Dopamine receptor

4. Which part of the brain is heavily involved in classical conditioning? (K1)

a) Hippocampus b) Cerebellum

c) Amygdala d) Prefrontal cortex

5. In the context of anterograde amnesia, which type of memory is typically spared? (K1)

a) Semantic memory b) Procedural memory

c) Episodic memory d) Working memory

6. Which type of memory is involved in tasks that require learning new facts and events? (K1)

a) Procedural memory b) Episodic memory

c) Semantic memory d) Sensory memory

7. Which hormone is primarily responsible for the regulation of the female reproductive cycle? (K1)

a) Testosterone b) Progesterone

c) Estrogen d) Cortisol

8. Which hormone is involved in the initiation of labor and milk ejection? (K1)

a) Estrogen b) Progesterone

c) Oxytocin d) Follicle-stimulating hormone

9. Which disorder is characterized by demyelination of the central nervous system? (K1)

a) Alzheimer's disease b) Parkinson's disease

c) Multiple sclerosis d) Huntington's disease

10. Which of the following is a common type of brain tumor found in adults? (K1)

a) Meningioma b) Medulloblastoma

c) Neuroblastoma d) Ependymoma

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Describe the role of cortisol in emotional regulation. (K2)

(Or)

b) Explain the role of the fusiform gyrus in processing facial expressions. (K3)

12. a) Demonstrate how perceptual learning can affect sensory discrimination? (K2)

(Or)

b) Discuss the role of reinforcement schedules in operant conditioning. (K3)

13. a) Illustrate the role of the hippocampus in spatial memory. (K2)

(Or)

b) Show the significance of the Morris water maze in studying spatial memory. (K3)

14. a) Analyze how testosterone influences sexual behaviour in males? (K2)

(Or)

b) Outline the effects of estrogen on female sexual behaviour. (K3)

15. a) Conclude the main types of seizures associated with seizure disorders. (K2)

(Or)

b) Arrange the typical presentation and progression of multiple sclerosis. (K3)

14/11/24 (AN)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Analyze the role of media, education, and interpersonal relationships in shaping women's self-perception and identity. (K4)

(Or)

b) Trace the history of feminine psychology. (K3)

17. a) Examine various forms of gender bias prevalent in contemporary society. (K4)

(Or)

b) Elucidate theories of gender development. (K3)

18. a) Examine the interplay between traditional gender roles within families and their impact on women's health. (K4)

(Or)

b) Compare the psychosocial aspects of women's health in the 3 phases – pregnancy, mothering and menopause. (K3)

19. a) Analyze the relationship between gender identity and career development, exploring the challenges and opportunities faced by individuals of diverse gender identities. (K4)

(Or)

b) Evaluate the impact of societal expectations and stereotypes on career choices and professional growth of women. (K3)

20. a) Throw light on strategies to support women who are victims of violence and sexual crimes. (K3)

(Or)

b) Evaluate differences in stress, coping styles and health outcomes of individuals based on their gender. (K4)

Reg. No: _____

Course Code: 21UAVET606

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2021 - 2022 only)

Psychology

Sixth Semester

Elective: Psychology and Gender Issues

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)
Answer ALL questions.
Choose the correct answer.

1. What is the term for the psychological distress that can result from the conflict between one's assigned sex at birth and their gender identity? (K1)
   a) Gender confusion b) Gender dysphoria
   c) Gender variance d) Gender incongruence

2. What term is used to describe the tendency to favour individuals of one's own gender over the other in various social and professional contexts? (K2)
   a) Gender prejudice b) Gender bias
   c) Gender discrimination d) Gender selectivity

3. Which of the following is a consequence commonly associated with the glass ceiling effect? (K1)
   a) Enhanced diversity and inclusion
   b) Increased job satisfaction for all employees
   c) Equal representation at all organizational levels
   d) Limited career advancement opportunities for certain demographic groups

4. Name the unconscious attitudes or stereotypes that affect the understanding, actions, and decisions of people, causing them to engage in discriminatory practice. (K2)
   a) Availability bias b) Implicit bias
   c) Belief contagion d) Collectivity bias

5. Which theory emphasizes that to understand aggression and violence, one has to look beyond mere gender role stress and examine sociopsychological factors that influence a man's conception of masculinity in a patriarchal and sexist society? (K1)

a) Gender Role Stress Theory
b) Gender incongruity Theory
c) Gender Role Dissonance Theory
d) Gender Role Conflict Theory

6. Who gave the gender schema theory? (K2)

a) Sandra Bem b) Karen Horney
c) Esther Greenwells d) Mary Calkin

7. How does the concept of inter sectionality contribute to the understanding of gender issues? (K1)

a) It emphasizes the importance of biological factors in gender identity
b) It highlights the complex interplay between gender and other social identities
c) It talks about relevance of cultural and social factors in gender development
d) It supports a binary understanding of gender roles

8. Which concept refers to the cultural expectations regarding appropriate behavior for males and females? (K2)

a) Gender roles b) Gender stereotypes
c) Gender norms d) Gender identity

9. A person realises their gender remains constant across settings. What is this termed? (K1)

a) Gender Identity b) Gender consistency
c) Gender Labelling d) Gender Association

10. In company AB, the women are lesser in number and are underrepresented in the workplace, leading to their presence being symbolic rather than meaningful. What is this phenomenon called_____? (K2)

a) Role incongruity b) Affinity bias
c) Tokenism d) Favouritism

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Define gender identity and differentiate gender discrimination and gender stereotype. (K3)

(Or)

b) Discuss feminist child rearing practices. (K2)

12. a) Describe gender scheme theory. (K2)

(Or)

b) Explain about gender comparisons in ability and attitudes towards achievements. (K3)

13. a) Elucidate the current perspectives on dual-career families. (K2)

(Or)

b) Describe the changes in psychological aspects of women's health during mothering. (K3)

14. a) Organizations that show unequal treatment to various genders can create a negative work environment to their employees. Discuss. (K3)

(Or)

b) Examine the differences in pay and job opportunities offered to men and women, and explain the impact it can have on the individual. (K2)

15. a) List out some measures to support women who are victims of domestic violence. (K3)

(Or)

b) Analyse the psychosocial challenges faced by individuals with gender issues. (K2)

17. a) Discuss on the process of communication. (K3)

(Or)

b) Define negotiation and bargaining strategies involved in negotiation. (K4)

18. a) Explain effects of stress in workplace. (K3)

(Or)

b) Elaborate on few techniques to treat stress in workplace. (K4)

19. a) Give a detailed noted on the principles of scientific management theory. (K4)

(Or)

b) Explain relay assembly test and illumination studies. (K3)

20. a) Describe behavioural theories of leadership. (K3)

(Or)

b) Explain conflict resolution and conflict management strategies. (K4)

Reg. No:_____

Course Code: 21UAVCT602

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2021 - 2022 only)

Psychology

Sixth Semester

Core: Industrial / Organisational Psychology II

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 x 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____ measures the degree to which a person identifies psychologically with his or her job. (K1)

a) Job satisfaction b) Job involvement

c) Job engagement d) Organization commitment

2. To begin motivating an apathetic associate, a manager informally questions her about her satisfaction with her job's ability to provide safety, social interaction, self-respect, and opportunities for growth. What theory of motivation is this manager most likely trying to apply in working with the associate? (K2)

a) Maslow's need hierarchy

b) Vroom's expectancy theory

c) Herzberg's two-factor theory

d) McCelland's acquired needs theory

3. The indirect conflict management approach that uses chain of command for conflict resolution is known as _____. (K1)

a) hierarchical referral b) avoidance

c) smoothing d) appeal to common goals

4. When a manager asks people in conflict to remember the mission and purpose of the organization and to try to reconcile their differences in that context, she is using a conflict management approach known as _____. (K2)

a) reduced interdependence b) buffering

c) resource expansion d) appeal to common goals

5. _____is a reaction of individuals to new or threatening factors in their work. (K1)

a) Attitude b) Stress

c) Dissonance d) Disappointment

6. An example of physiological stress_____. (K2)

a) financial problems b) job interviews

c) sleep disturbances d) anxiety

7. Scientific management approach was developed by_____. (K1)

a) Elton Mayo b) Henry Fayol

c) F.W. Taylor d) Maslow

8. Scope of organizational behaviour does not include _____.(K2)

a) leadership b) perception

c) job design d) technology

9. Authentic leadership includes self-awareness and _____. (K1)

a) relational transparency b) internalized moral perspectives

c) balanced processing d) all of these

10. In an organization, one group of managers wanted to introduce a new sportswear different in designs, colours and models from the previous ones immediately, whereas other managers wanted to do expansion more deliberately and cautiously what type of conflict is depicted in the example? (K2)

a) conflict between organization and environment

b) interpersonal conflict

c) inter-organizational conflict

d) intergroup conflict

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Mention Maslow's hierarchy of need with diagram. (K3)

(Or)

b) Define Motivation. (K2)

12. a) Define feedback loop in communication. (K3)

(Or)

b) Expand BATNA in detail. (K2)

13. a) Define Stress. (K2)

(Or)

b) Name any four behavioural symptoms of stress. (K3)

14. a) Write about motion study. (K2)

(Or)

b) Define Hawthrone studies. (K3)

15. a) Expand SLT with its meaning. (K3)

(Or)

b) Mention five conflict-handling strategies. (K3)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Describe process theories of motivation. (K3)

(Or)

b) Give a detailed outline on organization commitment. (K4)

19. a) Expound principles of compliance. (K4)

(Or)

b) Describe Milgram studies. (K3)

20. a) Explain testimony of eyewitness. (K3)

(Or)

b) Describe the processes of health related information. (K4)

Reg. No: _____

Course Code: 21UAVCT601

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2021 - 2022 only)

Sixth Semester

Psychology

Core: Social Psychology II

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. It is voluntary, intentional behavior that results in benefits for another person. (K1)

a) Altruism b) Social c) Welfare d) Service

2. The inhibiting influence of the presence of others on a person's willingness to help someone in need. (K2)

a) Cultural b) Bystander effect

c) Analytical d) Belief

3. Visual portrayals of acts of physical aggression by one human or human-like character against another is known as_____.

a) Conflict b) Power (K1)

c) Media violence d) Group

4. A disagree that aggression is caused by the individuals, and propose that aggression in prisons is the result of environmental factors is_____. (K2)

a) Aggression b) Bullying

c) Loafing d) Situational aggression

5. It means that someone forces or manipulates someone else into unwanted sexual activity without their consent. (K1)

a) Sexual violence b) Inconsistency

c) Personal vegence d) Gangrape

6. A number of persons or things gathered closely together and forming a recognizable unit is called as_____. (K2)

a) Opinion b) Group

c) Polarization d) Minority influence

7. It is the direct influence of other people on your thoughts, desires, and actions. (K1)

a) Authority b) Low balling technique

c) Social pressure d) Conformity

8. This is a psychological compliance strategy that utilizes asking another person for small requests first, to make them comply with larger requests eventually. (K2)

a) Compliance b) Power

c) Social pressure d) foot in the door theory

9. This include the abilities or strengths shown by people in management roles that aid in guiding and encouraging a group of people and their team toward achieving a common goal or set of goals. (K1)

a) Leadership skills b) Eyewitness

c) Order d) Satisfaction

10. An active disagreement between people with opposing opinions or principles is_____. (K2)

a) Power b) Conflict

c) Misunderstanding d) Group

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Write down the importance of prosocial behavior. (K3)

(Or)

b) Highlight the motives for helping. (K2)

12. a) Explain the consequences of Aggression. (K3)

(Or)

b) What is sexual violence? (K2)

13. a) Explain social loafing. (K3)

(Or)

b) Discuss the importance of Self awareness. (K2)

14. a) Explain Door in the face technique. (K3)

(Or)

b) Write about low balling technique. (K2)

15. a) List out the qualities of a good leader. (K3)

(Or)

b) Explain the factors that lead to job satisfaction. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Describe the characteristics of helping people. (K3)

(Or)

b) Explain the external and internal influence on helping behavior. (K4)

17. a) Explain the causes of aggression. (K3)

(Or)

b) Describe the strategies to prevent and control aggression. (K4)

18. a) Elaborate risky shift phenomenon. (K3)

(Or)

b) Explain group problem solving. (K3)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) 'Social Psychology seeks to understand the causes of social behaviour and thought'. Justify. (K3)

(Or)

b) Summarize the history of Social Psychology. (K3)

17. a) Evaluate the different types of heuristics. (K4)

(Or)

b) Compile the sources of error in social cognition. (K4)

18. a) Compare the personal identity and social identity of people. (K3)

(Or)

b) Weigh the effects of having high self-esteem in people. (K4)

19. a) Compile the different sources of prejudice. (K3)

(Or)

b) Assess how attitude develops in people. (K4)

20. a) Summarize the different internal determinants of attraction. (K3)

(Or)

b) Criticize the different types of attachment styles based on their role in interpersonal relationships. (K4)

Reg. No: _____

Course Code: 22UAVCT501

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Psychology

Fifth Semester

Core: Social Psychology I

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Culture means_____. (K2)

a) Physical artifacts and objects created by society

b) System of shared meanings, perceptions, and beliefs held by people belonging to some group

c) The genetic traits and biological characteristics of a population

d) The historical events, natural environment and geographical features of a region

2. A study is conducted on male corporate employees to understand if watching humorous videos influences the life satisfaction of men. Identify the dependent variable of the study.

a) Life satisfaction b) Gender (K1)

c) Watching humorous videos d) All the above

3. Name the process by which the effects of a prime dissipate after the prime is consciously acknowledged and counteracted. (K2)

a) Priming b) Unpriming c) Repriming d) Deactivation

4. 'Micro-expressions are not a part of non-verbal cues. Select the correct comment about the statement. (K1)

a) The statement is true

b) The statement is true, but incomplete

c) The statement is bizarre

d) The statement is false

5. Select the right term that relates to the process of contemplating privately on 'who we are?' as a way of gaining self-knowledge.

a) interpretation b) introjections (K2)

c) integrated thought d) introspection

6. Recognise who among the following developed the prominent scale for self-esteem? (K1)

a) George Mead b) Rosenberg

c) Prentice and Miller d) Tajfel and Turner

7. Relate the concept of knowing prior that one is going to be the target of an attempt of persuasion with the right term among the following. (K2)

a) Forewarning b) Foreboding

c) Forwarding d) Forecasting

8. Recall the concept defined as the negative emotional response based on group membership. (K1)

a) Stereotype b) Discrimination

c) Prejudice d) Social inequality

9. Identify the prominent theorist who worked on attachment styles from the following. (K2)

a) Harold Kelly b) Jean Piaget

c) Allport d) Bowlby

10. Label the unpleasant emotional and cognitive state people experience based on desiring close relationships but being unable to attain them. (K1)

a) Loneliness b) Helplessness

c) Worthlessness d) Hopelessness

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Compare and contrast experimental methods and observation methods of research. (K2)

(Or)

b) Social Psychology is scientific in nature. Evaluate the statement. (K3)

12. a) Outline the impacts of schema on social cognition. (K3)

(Or)

b) Analyse the cognitive perspective of impression formation. (K2)

13. a) List the different tactics of self-presentation with examples. (K3)

(Or)

b) Differentiate self-esteem from self-control. (K2)

14. a) Evaluate the different techniques used for countering prejudice. (K2)

(Or)

b) Outline the ways through which cognitive dissonance can be dealt effectively. (K3)

15. a) Deduce the role of affect in attraction. (K2)

(Or)

b) Explain the role of friendship in the development of an individual. (K3)

15. a) Prioritize the impact of personality disorders on social and occupational functioning. (K2)

(Or)

b) Outline the evolution of views on sexual behavior. (K3)

SECTION - C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Trace the historical background of Abnormal Psychology. (K4)

(Or)

b) Summarize the Epidemiology of maladaptive behaviour. (K5)

17. a) Criticize the effectiveness and limitations of various assessment methods used in abnormal psychology. (K4)

(Or)

b) Evaluate the Biological, Psychodynamic, and Cognitive models of abnormal behavior. (K5)

18. a) Examine various Eating Disorders. (K4)

(Or)

b) Formulate the concept of psychophysiological disorders and their connection to psychological stress. (K5)

19. a) Construct the pain disorders and malingering disorder. (K4)

(Or)

b) Evaluate the Psychodynamic, Behavioral, Cognitive, and Biological perspectives. (K5)

20. a) Integrate the main categories of sexual dysfunctions. (K4)

(Or)

b) Facilitate the concept of Gender Identity Disorder. (K5)

Reg.No:_____

Course Code: 23UAVCT301

B.Sc. Degree Examination - November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Psychology

Third Semester

Core: Abnormal Psychology I

Time: 3 Hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. In ancient Western cultures, which theory was commonly used to explain abnormal behavior? (K1)
   a) Humoral imbalance b) Psychological trauma
   c) Genetic predisposition d) Cognitive distortion
2. Which of the following is NOT a common risk factor for developing abnormal behavior? (K1)
   a) Genetic predisposition
   b) Socioeconomic status
   c) Family history of mental illness
   d) High levels of intelligence
3. Name the theoretical perspective in abnormal psychology emphasizes the influence of unconscious conflicts and early life experiences? (K1)
   a) Biological b) Psychodynamic
   c) Behavioral d) Cognitive
4. According to the DSM-5, which of the following is NOT a category of mental disorders? (K1)
   a) Neurodevelopmental disorders
   b) Mood disorders
   c) Personality disorders
   d) Cognitive-behavioral disorders

5. Narcolepsy is best characterized by_____. (K1)
   a) Difficulty falling or staying asleep
   b) Sudden and uncontrollable episodes of sleep during the day
   c) Repeated nightmares and night terrors
   d) Obstructive breathing during sleep

6. Binge Eating Disorder is characterized by_____. (K1)
   a) Recurrent episodes of consuming large amounts of food with a lack of control
   b) Extreme restriction of food intake and severe weight loss
   c) Alternating periods of extreme overeating and purging
   d) Frequent, severe headaches associated with eating

7. According to the Cognitive perspective, anxiety disorders are often maintained by_____. (K1)
   a) Malfunctioning brain circuits
   b) Unresolved early childhood conflicts
   c) Dysfunctional thinking patterns and catastrophic thinking
   d) Reinforcement of avoidance behaviors

8. Somatoform Disorders are characterized by_____. (K1)
   a) The presence of physical symptoms without a medical explanation
   b) Severe mood swings and changes in appetite
   c) Excessive worry about future panic attacks
   d) Intrusive thoughts and ritualistic behaviors

9. Trace the paraphilia involves the urge to engage in sexual activities with children_____. (K1)
   a) Exhibitionism b) Pedophilia
   c) Frotteurism d) Voyeurism

10. Which of the following is NOT a recognized cluster of personality disorders in the DSM-5? (K1)
    a) Odd or Eccentric Behavior
    b) Traumatic, Emotional, or Erratic Behavior
    c) Anxious or Fearful Behavior
    d) Emotional Regulation Disorder

SECTION - B (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Illustrate the evolution of psychology abnormal from the Ancient Western World to the Reform Movement. (K2)

(Or)

b) Explain the reasons why individuals seek clinical help for abnormal behavior? (K3)

12. a) Demonstrate the main differences between the DSM-5 and ICD-11. (K2)

(Or)

b) Interpret the advantages and disadvantages of using neuropsychological tests. (K3)

13. a) Construct the clinical reaction to stress. (K2)

(Or)

b) Evaluate the different types of Dissociative Disorders. (K3)

14. a) Analyze the main characteristics of Post-Traumatic Stress Disorder (PTSD). (K2)

(Or)

b) Conclude the treatment options available for anxiety disorders. (K3)

15. a) What are the common types of Clinical interview. (K2)

(Or)

b) Write the goals of clinical interview. (K3)

SECTION - C (5 X 6 = 30 Marks)

Answer ALL questions.

16. a) Discuss the history, evolution of clinical psychology from its early roots to its current state. (K4)

(Or)

b) Describe in detail about in careers in clinical psychology. (K5)

17. a) Evaluate the importance of cultural competence in clinical psychology. (K4)

(Or)

b) Write in detail about Empathy and Sympathy. (K5)

18. a) Explain in detail about The Mental Health Act. (K4)

(Or)

b) Describe the role of ethics committees in clinical psychology. (K5)

19. a) Explain the process of conducting a thorough case history in clinical psychology. (K4)

(Or)

b) How do clinical psychologist assist in treatment planning in a case formulation? (K5)

20. a) Explain the skills of interviewing. (K4)

(Or)

b) Describe the structure of interview in detail. (K5)

Reg.No:_____

Course Code: 23UAVST304

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Psychology

Third Semester

Skill Based: Professional Skills for Clinical Settings

Time: 3 Hours Maximum marks: 55

SECTION - A (10 X 1=10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which organization in India is primarily responsible for regulating the profession of clinical psychology? (K1)
   a) Indian Psychiatric Society
   b) Rehabilitation Council of India (RCI)
   c) Indian Psychological Association
   d) National Institute of Mental Health and Neurosciences (NIMHANS)
2. What is the main purpose of clinical psychology? (K1)
   a) Describe, explain, predict, and change human behavior
   b) To conduct research on mental disorders
   c) To develop new testing measures to identify mental disorders
   d) To teach psychology courses in an academic setting
3. Which of the following is a critical skill for clinical psychologists in establishing therapeutic rapport with clients? (K1)
   a) Prescription of medication b) Active listening
   c) Financial planning d) Political Advocacy
4. What skill is essential for clinical psychologists to accurately assess and diagnose mental health disorders_____. (K1)
   a) Social media management b) Empathy
   c) Event planning d) Graphic design

5. Which year mental health act has been established_____.
a) 1967 b) 1957 c) 1987 d) 1947 (K1)

6. Which is not the ethics of clinicians_____. (K1)
a) Non confidentiality b) Non judgemental
c) Non maleficence d) Informed consent

7. Which of the following is most critical for a psychologist to consider during the initial case history taking with a new client?
a) The client's level of education and employment history (K1)
b) The client's personal preferences for therapeutic techniques
c) The client's current symptoms and their impact on daily functioning
d) The client's favourite hobbies and interests

8. Which of the following statements about genograms is accurate?
a) Genograms are used exclusively for diagnosing psychological disorders. (K1)
b) Genograms can include information about family relationships, health history, and major life events.
c) Genograms are only useful for understanding immediate family dynamics and do not provide insights into extended family.
d) Genograms should always be created without the input of family members to ensure objectivity.

9. Which interviewing skill involves summarizing and restating key points of the client's narrative to ensure understanding and accuracy? (K1)
a) Paraphrasing b) Clarification
c) Reflection d) Confrontation

10. In what situation would a clinical psychologist most appropriately use the technique of "silence" during an interview? (K1)
a) When the client is talking too much and needs to be interrupted
b) When the psychologist needs to take control of the interview
c) To give the client time to reflect and respond more deeply to questions
d) To avoid discussing uncomfortable topics

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Describe the role of Clinical psychologist. (K2)

(Or)

b) Explain the significance of Lightner Witmer in the development of clinical psychology. (K3)

12. a) Provide any three strategies that clinical psychologists can use to enhance their cultural competence. (K2)

(Or)

b) How can clinical psychologists improve their therapeutic effectiveness? (K3)

13. a) What is Active Listening? (K2)

(Or)

b) Outline the steps a psychologist should take to ensure they provide competent services. (K3)

14. a) Describe the role of a clinical case history in developing a treatment plan for a client. (K2)

(Or)

b) Describe the process and importance of formulating a case conceptualization. (K3)

19. a) Examine the reason for smoking. (K3)

(Or)

b) Simplify the factors associated with obesity. (K4)

20. a) Discuss the principles of palliative care. (K3)

(Or)

b) Elaborate on psychological interventions in palliative care. (K4)

Reg.No:_____

Course Code: 22UAVCT503

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Psychology

Fifth Semester

Core: Health Psychology

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. A trend towards medicine that affects health psychology is movement towards _____. (K1)

a) Impact of technology

b) Comprehensive intervention

c) Changing nature of medical practice

d) Systematic documentation of cost and treatment effectiveness

2. _____ trains people to recognize and modify the internal monologues to promote health behavior change. (K2)

a) Behavioral assignments b) Contingency contract

c) Cognitive restructuring d) Self-control

3. _____ is a propensity to deal with stressful events in a particular way. (K1)

a) Optimism b) Resilience

c) Self esteem d) Coping style

4. _____ is one of the oldest techniques in pain management.

a) Hypnosis b) Surgical control of pain (K2)

c) Acupuncture d) Pharmacological control of pain

5. Risk factors of type II diabetes includes_____. (K1)

a) High risk ethnic group

b) High blood pressure

c) Siblings or parent with diabetes

d) All of the above

6. _____ is characterized as suspiciousness, resentment, frequent anger, antagonism and distrust of others. (K2)

a) Reactivity b) Expressing hostility

c) Cynical hostility d) Harboring hostility

7. The hormone _____ is responsible for inducing hunger. (K1)

a) leptin b) cholecystokinin

c) ghrelin d) insulin

8. _____ decreases the arousal and increase relaxation. (K2)

a) Stimulants b) Depressants

c) Hallucinogens d) Narcotics

9. Till the year _____ the palliative care and hospice were considered the same. (K1)

a) 1967 b) 1980 c) 1974 d) 1982

10. Drug that is used for controlling anxiety in palliative care includes. (K2)

a) Benzodiazepines b) Duloxetine

c) Mirtazapine d) Fluoxetine

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Explain briefly on health psychology and its trends. (K4)

(Or)

b) Demonstrate conversion hysteria. (K3)

12. a) Simplify psychological control. (K4)

(Or)

b) Describe how counter irritation works in pain control technique. (K3)

13. a) Build on cardiac rehabilitation. (K4)

(Or)

b) Discuss age, gender, sociocultural factors in AIDS. (K3)

14. a) Briefly discuss any three interventions for smoking. (K4)

(Or)

b) Interpret briefly on health benefits of exercise. (K3)

15. a) Examine shortly on controlling symptoms of chronic pain in palliative care. (K4)

(Or)

b) Outline the emotional responses in terminal illness. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Explain biopsychosocial model and its advantages. (K3)

(Or)

b) Outline any three cognitive- behavioral approaches to health behavior change. (K3)

17. a) Compare and contrast problem-focused and emotional-focused coping. (K4)

(Or)

b) Analyze the chronic pain management program. (K3)

18. a) Demonstrate the psychosocial factors of cardiovascular disease. (K3)

(Or)

b) Write a note on diagnosis and treatment of cancer. (K4)

18/11/2024

Reg. No: _____

Course Code: 21UAVET608

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2021 - 2022 only)

Psychology

Sixth Semester

Elective: Forensic Psychology

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Quote the year in which APA adopted forensic psychology guidelines. (K1)

   a) 1994 b) 1993 c) 1992 d) 1991

2. Identify the field which is related to inmates entering jail or prison. (K2)

   a) Victimology b) Correctional psychology

   c) Legal Psychology d) Police Psychology

3. Select the process related to eyewitness testimony. (K1)

   a) Lineup b) Litigation c) Pleading d) Intent

4. Label the confessions based on changes in our private thoughts or belief. (K2)

   a) Coerced confession b) Voluntary confession

   c) Compliant confession d) Internalized confession

5. State the tem preferred to profiling. (K1)

   a) Autopsy b) Investigation

   c) Behavioural analysis d) Crime analysis

6. Recognize the type of profiling employed when series of crimes are occurring. (K2)

a) criminal profiling b) geographical profiling

c) psychological profiling d) suspect-based profiling

7. Recall the psychological process related to violent offenders.

a) Social learning b) Cognitive learning (K1)

c) Generalization d) Punishment

8. Discover the additional aim of violence intervention programmes. (K2)

a) moral development b) medical care

c) networking d) relapse prevention

9. Label causing of the death of another person without legal justification or excuse. (K1)

a) bias crime b) criminal homicide

c) murder d) hate crime

10. Distinguish the cognitive factor in violence. (K2)

a) ignorance b) provocation

c) interpretation d) stress

SECTION - B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Interpret the ethical issues in forensic psychology. (K3)

(Or)

b) Prepare an overview of forensic psychology. (K2)

12. a) Sketch out the basics of voluntary confessions. (K3)

(Or)

b) Write on coerced false confessions. (K2)

13. a) Distinguish psychological profiling. (K2)

(Or)

b) Outline geographical profiling. (K2)

14. a) Correlate moral reasoning with violent behaviour. (K3)

(Or)

b) Explain the role of anger in violence. (K2)

15. a) Illustrate juvenile psychopathy. (K3)

(Or)

b) Focus on workplace violence. (K2)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Appraise the trends in forensic psychology. (K3)

(Or)

b) Order the historical benchmarks pertinent to forensic psychology. (K4)

17. a) Assess the memory process involved in eyewitness. (K3)

(Or)

b) Justify the strength and validity of evidence. (K3)

18. a) Invent methods of detecting lies and deceit. (K4)

(Or)

b) Compose criminal profiling from crime scene. (K3)

19. a) Propose a note on development of violent behaviour. (K4)

(Or)

b) Develop programmes for offending behaviour. (K3)

20. a) Compile the nature of female pscyhopathy. (K4)

(Or)

b) Prepare an essay on criminal homicide. (K3)

Reg.No: _____

Course Code: 22UAVAL510

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Psychology

Fifth Semester

ALC: Psychology of Exceptional Children

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1.	What is meant by impairment?	(K2)
2.	Tell the meaning of disability.	(K3)
3.	Infer the definition of hearing impairment.	(K2)
4.	Discover about speech development.	(K3)
5.	Enumerate the social adjustment.	(K2)
6.	Define visual impairment.	(K3)
7.	State about remedial measures.	(K2)
8.	Identify the definition for giftedness.	(K3)
9.	Retell assessment.	(K2)
10.	Examine autism.	(K3)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a)	Who are called as exceptional children? Explain.	(K3)
	(Or)	
b)	List the possible benefits of labeling and classification.	(K4)
12. a)	Analyze the causes of hearing loss.	(K3)
	(Or)	
b)	Infer about the academic achievement of hearing impaired children.	(K4)

13. a)	Relate the language development in visual impairment.	(K3)
	(Or)	
b)	Outline the meaning of visual impairment.	(K3)
14. a)	Contrast the nature and characteristics of learning disability.	(K4)
	(Or)	
b)	Describe the characteristics of giftedness.	(K3)
15. a)	Discover the types of communication disorders.	(K3)
	(Or)	
b)	Classify the symptoms of ADHD.	(K3)

SECTION – C (5 X 10 = 50 Marks)

Answer ALL questions.

16. a)	List the nature and characteristics of special education.	(K4)
	(Or)	
b)	Summarize the historical perspectives of exceptional children.	(K5)
17. a)	Conclude about the types of hearing loss.	(K4)
	(Or)	
b)	Generalize about the intellectual ability in detail.	(K3)
18. a)	Predict the management of visually impaired child in the school.	(K4)
	(Or)	
b)	Organize the special considerations in educating visually impaired children.	(K5)
19. a)	Argue the causes of learning disability.	(K3)
	(Or)	
b)	Write about the techniques for educating gifted children.	(K4)
20. a)	Distinguish the education for children with ADHD.	(K4)
	(Or)	
b)	Elaborate about the autism.	(K3)

21/11/24 AN

Reg. No: _____

Course Code: 21UAVST610

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2021 - 2022 only)

Psychology

Sixth Semester

Skill Based: Personality Assessment

Time: 3 Hours Maximum Marks: 45

SECTION – A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. Name the one who published the list as the Personal Data Sheet. (K1)

   a) Grove b) Cattell

   c) Weinberger d) Woodworth

2. Select the inventory that hasTrue Response Consistency (TRIN) scale. (K2)

   a) PAI b) MMPI - 2

   c) MCMI-III d) NEO PI-R

3. Identify the population for which MMPI-A is appropriate. (K1)

   a) Adolescents b) Adults

   c) Aged d) Army personnel

4. Recognized one for his pioneering emphasis on individual differences. (K2)

   a) Jung b) Morgan

   c) Henry Murray d) Morton Prince

5. Recall the name which is associated with DAP. (K1)

   a) Treffers b) Machover c) Drewes d) Rosanoff

SECTION - B (5 X 3 = 15 Marks)
Answer ALL questions

6. a) Demonstrate obtaining informed consent. (K2)

(Or)

b) Interpret the areas which enhance the effectiveness and utility of assessment reports. (K3)

7. a) List the item characteristics in self report inventories. (K2)

(Or)

b) Show the nature of self report inventories. (K2)

8. a) Relate the impact of demographic variables on MMPI. (K3)

(Or)

b) Discover the reliability of MCMI-III. (K2)

9. a) Estimate the psychometric foundations of Rorschach Test. (K3)

(Or)

b) Infer the way TAT reflecting coping styles. (K2)

10. a) Survey the psychometric properties of figure drawing tests through inspection methods. (K3)

(Or)

b) Infer the nature of sentence completion methods. (K2)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Consider the history of personality assessment. (K3)

(Or)

b) Weigh the shrinkage and growth in personality assessment over time. (K4)

12. a) Assess the item characteristics in self report inventories. (K3)

(Or)

b) Recommend the method of scale development. (K4)

13. a) Consider the issues in administration of MMPI. (K3)

(Or)

b) Appraise the historical development of MCMI. (K4)

14. a) Validate interpretation of behavioral variables in Rorschach. (K4)

(Or)

b) Rewrite the emergence of TAT. (K3)

15. a) Produce the nature and history of figure drawing methods. (K4)

(Or)

b) Compose the details of major sentence completion tests. (K3)

Reg.No:_____

Course Code: 23UAVCT103

B. Sc Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Psychology

First Semester

Core: Bio psychology

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is responsible for the reuptake of neurotransmitters from the synaptic cleft? (K1)

   a) Glial cells b) Axon terminals

   c) Dendrites d) Synaptic vesicles

2. Match – Theory of Evolution_____. (K1)

   a) Charles Darwin b) Charles James

   c) Williams d) Hebb

3. Name the part of the brain responsible for balance, coordination, and posture is the_____. (K1)

   a) Cerebrum b) Cerebellum c) Medulla d) Hypothalamus

4. The neurotransmitters are chemical messengers that transmit signals between_____. (K1)

   a) Neurons and glial cells b) Synapses and axons

   c) Neurons and muscles d) Dendrites and cell bodies

5. The circadian rhythm is primarily regulated by_____. (K1)

   a) Cerebral Cortex b) Basal Ganglia

   c) Limbic System d) Hippocampus

6. Sleep apnea is a disorder characterized by_____. (K1)

a) Excessive daytime sleepiness

b) Difficulty falling asleep

c) Pauses in breathing during sleep

d) Nightmares and night terrors

7. Which brain structure plays a central role in regulating hunger and satiety? (K1)

a) Hypothalamus b) Amygdala

c) Hippocampus d) Cerebellum

8. Name the process by which the body regulates its internal environment, including hunger and thirst. (K1)

a) Homeostasis b) Heterostasis c) Allostasis d) Adaptation

9. Name the neurotransmitter most closely associated with learning and memory. (K1)

a) Serotonin b) Dopamine c) Acetylcholine d) GABA

10. Which type of memory involves the conscious recall of facts and events? (K1)

a) Semantic memory b) Procedural memory

c) Episodic memory d) Implicit memory

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Conclude the definition and types of neurons. (K2)

(Or)

b) Explain the effects of brain damage. (K3)

12. a) Classify the types of neurotransmitters. (K2)

(Or)

b) Explain the blood brain barrier. (K3)

13. a) Illustrate the functions of sleep. (K2)

(Or)

b) Outline the functions of emotions. (K3)

14. a) Describe the hunger and thirst. (K2)

(Or)

b) Contrast the short term regulation of feeding. (K3)

15. a) List the types of memory. (K2)

(Or)

b) Discover about the definition of amnesia. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Justify the theories of Biological Psychology. (K4)

(Or)

b) Summarize the resting and action potential. (K5)

17. a) Conclude about the four lobes and its function. (K4)

(Or)

b) Generalize about the MRI and fMRI. (K5)

18. a) Predict the sleep disorders. (K4)

(Or)

b) Organize the interplay between stress and health. (K5)

19. a) Argue about the eating disorders. (K4)

(Or)

b) Write about the sodium specific hunger. (K5)

20. a) Distinguish the localized representation of memory. (K4)

(Or)

b) Intervene about hippocampus. (K5)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Critically analyze the transition from negative to positive views of human functioning in psychology. (K4)

(Or)

b) Evaluate the significance of assumptions in the study of positive psychology. (K5)

17. a) Discuss the development of strengths and the concept of living well in positive psychology. (K4)

(Or)

b) Provide a comprehensive overview of the different measures used to assess happiness. (K5)

18. a) Examine the relationship between positive emotions and overall well-being. (K4)

(Or)

b) Discuss the impact of positive emotions on health and provide relevant examples. (K5)

19. a) Evaluate the role of self-efficacy, optimism, and hope in achieving success. (K4)

(Or)

b) Analyze the concepts of mindfulness, flow, and spirituality and their contributions to well-being. (K5)

20. a) Discuss the importance of pro social behaviors such as altruism and empathy in society. (K4)

(Or)

b) Examine the impact of positive environments on individual and community well-being. (K5)

Reg.No:_____

Course Code: 23UAVAT104

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Psychology

First Semester

Allied: Positive Psychology

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following best describes the main goal of positive psychology? (K1)
   a) Diagnosing mental illnesses
   b) Understanding and promoting human strengths
   c) Studying negative behaviors
   d) Analyzing cognitive biases
2. Eastern perspectives on positive psychology often emphasize_____. (K1)
   a) Individual achievements b) Collective well-being
   c) Material success d) Technological advancements
3. Subjective Well-Being (SWB) primarily focuses on_____.
   a) Financial success (K1)
   b) Personal happiness and life satisfaction
   c) Physical health
   d) Social status
4. Self-realization in positive psychology refers to_____. (K1)
   a) Acquiring material possessions
   b) Achieving one's full potential
   c) Gaining social approval
   d) Avoiding negative emotions

5. Positive emotions are linked to better health because they_____. (K1)
a) Increase stress levels b) Enhance immune function
c) Decrease social interactions d) Promote pessimistic thinking

6. Emotional Intelligence involves the ability to_____. (K1)
a) Ignore emotions
b) Recognize, understand, and manage emotions
c) Suppress feelings
d) Avoid emotional expression

7. Self-efficacy is best defined as_____. (K1)
a) The belief in one's ability to succeed
b) The tendency to procrastinate
c) The fear of failure
d) The need for social validation

8. Mindfulness practices typically encourage individuals to_____. (K1)
a) Multitask efficiently
b) Focus on the present moment
c) Worry about the future
d) Dwell on the past

9. Altruism involves_____. (K1)
a) Acting solely for personal gain
b) Helping others at a cost to oneself
c) Ignoring the needs of others
d) Seeking recognition for good deeds

10. Positive schooling emphasizes_____. (K1)
a) Strict discipline and rote learning
b) Fostering student well-being and strengths
c) High-stakes testing
d) Competitive environments

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Discuss the differences between Eastern and Western perspectives on positive psychology. (K2)

(Or)

b) Explain how positive outcomes are measured in positive psychology? (K3)

12. a) Analyze the meaning and measures of happiness in positive psychology. (K2)

(Or)

b) Explain the process of self-realization and its significance in positive psychology. (K3)

13. a) Explain how positive emotions contribute to health resources? (K2)

(Or)

b) Discuss the role of emotional intelligence in personal and professional life. (K3)

14. a) Define self-efficacy and discuss its impact on behavior. (K2)

(Or)

b) Discuss the practices of mindfulness and flow and their benefits. (K3)

15. a) Explain the role of gratitude and forgiveness in positive relationships. (K2)

(Or)

b) Analyze the importance of positive schooling and gainful employment for well-being. (K3)

15. a) Classify the types of non-parametric test. (K2)

(Or)

b) Discover about chi square test. (K3)

SECTION - C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Summarize the frequency curve and ogive. (K4)

(Or)

b) Justify the uses of research. (K5)

17. a) Conclude the mean, median and mode interpretation. (K4)

(Or)

b) Generalize about quartile deviation. (K5)

18. a) Predict about the correlation coefficient. (K4)

(Or)

b) Organize about the linear regression. (K5)

19. a) Contrast about the one way and two way ANOVA. (K4)

(Or)

b) Write about the types of parametric test. (K5)

20. a) Distinguish the parametric and nonparametric test. (K4)

(Or)

b) Facilitate the use of parametric and nonparametric test. (K5)

Reg.No:_____

Course Code: 23UAVAT303

B.Sc. Degree Examination - November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Psychology

Third Semester

Allied: Introduction To Psychological Statistics

Time: 3 Hours Maximum Marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. What does the term "sample" refer to in psychological research? (K1)

a) The specific individuals selected to participate in the study

b) The various theories being tested in the study

c) The statistical methods used to analyze the data

d) The research design chosen for the study

2. What is the dependent variable in a psychology experiment?

a) The variable that is manipulated or controlled by the researcher (K1)

b) The outcome variable that is observed and recorded

c) The variable that remains constant throughout the experiment

d) The variable that is measured to determine its effect

3. Which of the following measures is affected most by extreme values in a data set? (K1)

a) Mean b) Median c) Mode d) Range

4. A researcher wants to summarize the income levels of participants in a study. Which measure of central tendency should be used if the income data is heavily skewed? (K1)

a) Mean b) Mode c) Median d) Variance

5. What does a correlation coefficient indicate about the relationship between two variables? (K1)

a) The strength and direction of the relationship

b) The cause-and-effect relationship between the variables

c) The average of the two variables

d) The standard deviation of the variables

6. In regression analysis, which variable is typically the predictor or independent variable? (K1)

a) Dependent variable b) Control variable

c) Explanatory variable d) Moderator variable

7. Which of the following assumptions is typically required for parametric tests? (K1)

a) The data should be non-normally distributed.

b) The sample size should be small.

c) The variables should be measured on a nominal scale.

d) The data should be normally distributed.

8. Which parametric test is used to compare means of two independent groups? (K1)

a) Paired t-test

b) Chi-square test

c) Independent samples t-test

d) ANOVA

9. Which non-parametric test is used to compare two independent groups when the dependent variable is measured on an ordinal scale? (K1)

a) Mann-Whitney U test

b) Chi-square test

c) Wilcoxon signed-rank test

d) Kruskal-Wallis test

10. Which non-parametric test is an alternative to the independent samples t-test? (K1)

a) Mann-Whitney U test b) Spearman's rank correlation

c) Chi-square test d) Kruskal-Wallis test

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) List out the types of variables. (K2)

(Or)

b) Write a note on sample. (K3)

12. a) Analyze about the range. (K2)

(Or)

b) Infer the characteristics of skewness. (K3)

13. a) Explain about the regression lines. (K2)

(Or)

b) Outline about the scatter plot. (K3)

14. a) Contrast the paired t test. (K2)

(Or)

b) Compare the different types ANOVA. (K3)

15. a) Explain the key features of MongoDB. (K2)

(Or)

b) Create query for documents using the MongoDB. (K3)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Compare Imperative Versus Declarative and provide an example in JavaScript. (K4)

(Or)

b) Describe immutability and how can it be applied in JavaScript. (K3)

17. a) List out the lifecycle methods available in class components and their use cases. (K4)

(Or)

b) Demonstrate the steps to set up Babel in a React project. (K4)

18. a) Create a form using Context for state management. (K4)

(Or)

b) Apply Virtualized Lists in large data sets. (K3)

19. a) Apply different data types and how they are represented in a MongoDB document? (K4)

(Or)

b) Implement CRUD operations in MongoDB. (K3)

20. a) Create a database " Movie" and insert multiple document in the database. (K3)

(Or)

b) Create a database "Employee" and insert document to fetch users, post and comments collection. (K4)

Reg.No:_____

Course Code: 22UAMCT502

B.Sc. Degree Examination November - 2024

(For the candidates admitted during the year 2022 - 2023 only)

Information Technology

Fifth Semester

Core: Web Development with React JS and MongoDB

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Usage of React Developer tools for _____. (K1)

a) Debugging JavaScript errors

b) Inspecting React component hierarchy

c) Managing application state

d) Compiling JavaScript code

2. Which command is used to check the version of Node.js installed? (K2)

a) node -v b) node --version

c) node version d) Both (a) and (b)

3. Which of the following is a key part of a basic Webpack configuration? (K1)

a) Loaders b) Components

c) Hooks d) JSX files

4. _____used to create a React element. (K2)

a) React DOM.create Element() b) React.createComponent()

c) React.create Element() d) React DOM.create Component()

5. A _____ can be used to avoid prop drilling by providing a way to pass state and functions down through the component tree without having to pass props manually at each level. (K1)

a) Render Props b) Visualized List

c) React Application d) React Context

6. Which of the following statements is true regarding state management in React component trees? (K2)

a) State should always be managed in the highest-level component of the tree to ensure all child components can access it.

b) Lifting state up refers to moving state to a common ancestor component so that it can be shared between sibling components.

c) React Context is unnecessary for state management because prop drilling is always the preferred method for passing state down the component tree.

d) State should only be managed within the component that directly uses it to minimize the complexity of the component tree.

7. Which of the following is NOT a supported data type in MongoDB? (K1)

a) String b) Integer c) Blob d) Array

8. Which of the following is NOT a feature of MongoDB? (K2)

a) Document-oriented storage b) SQL-based querying

c) Horizontal scalability d) Flexible schema design

9. Which operator is used in MongoDB to update fields of an existing document? (K1)

a) $set b) $modify c) $update d) $change

10. In MongoDB, which method is used to find documents that match a specified query? (K2)

a) db.collection.query(query)

b) db.collection.search(query)

c) db.collection.find(query)

d) db.collection.retrieve(query)

SECTION – B (5 X 3 =15 Marks)

Answer ALL questions.

11. a) Describe how to inspect component props and state using React Developer Tools? (K3)

(Or)

b) Explain higher-order functions with an example. (K3)

12. a) Contrast between JSX and regular JavaScript. (K2)

(Or)

b) Apply Webpack in conjunction with Babel to transpile React applications. (K3)

13. a) Discuss Context in form components. (K2)

(Or)

b) Outline the challenges of passing state through multiple levels of components. (K3)

14. a) Describe the structure of a MongoDB database. (K2)

(Or)

b) Summarize direct interaction with the database. (K3)

b) Analyze the given relation R(P, Q, R, S, T) and Functional Dependency set FD = { PQ → R, S → T }, determine whether the given R is in 2NF? If not convert it into 2NF. (K5)

20. a) Sketch the difference between discretionary and mandatory access control with an example. (K4)

(Or)

b) Explain the recovery mechanism techniques with neat diagram. (K5)

Reg. No:_____

Course Code: 23UALCT202 /23UAMCT202

B.Sc. Degree Examinations - November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Technology/Information Technology

Second Semester

Core: Database Management Systems

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Name the field of the record is same as _____. (K1)

a) data item b) data type c) value d) ariable

2. Recall the term that is used to define overall design of the database. (K1)

a) schema b) application program

c) data definition language d) code

3. Match the one of following can have only one in the table. (K1)

a) primary key b) alternate key

c) foreign key d) secondary key

4. Tell the relational algebra query language is _____. (K1)

a) analytical b) procedural

c) symmetrical d) instrumental

5. Recall the notation represented by relationship type in E-R diagram. (K1)

a) Ellipse b) Dashed ellipse

c) Rectangle d) Diamond

6. Identify an association among three entities is called_____. (K1)

a) single relationship b) binary relationship

c) ternary relationship d) recursive relationship

7. Match the following one is expansion of BCNF. (K1)

a) Boyd-Codd Normal Form

b) Boyce-Codd Normal Form

c) Boyd-Cromwell Normal Form

d) Boy-Codd Normal Form

8. Match the meaning of Data redundancy. (K1)

a) security of data b) duplication of data

c) management of data d) recovery data

9. Select one of the following is most dangerous type of failures.

a) hardware b) network c) media d) software (K1)

10. Identity one the following state, the transaction will wait for the final statement has been executed. (K1)

a) active b) failed c) aborted d) partially committed

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Differentiate between schema, subschema and instances. (K2)

(Or)

b) Express the any five significant differences between a file-oriented system and a DBMS. (K3)

12. a) Illustrate the tuple relational calculus operations with an example. (K2)

(Or)

b) Write down the concept of embedded SQL and its advantages. (K3)

13. a) Interpret the advantages of using super types and subtypes. (K2)

(Or)

b) Demonstrate the connectivity of a relationship with diagrammatic representation. (K3)

14. a) Sketch the concept of full functional dependency with example and neat diagram. (K2)

(Or)

b) Explain the fourth normal form with an example. (K3)

15. a) Summarize the three main problems of concurrency control. (K2)

(Or)

b) Describe the vital role of transactions imports units of operation in a DBMS. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Illustrate the RDBMS model with diagram in detail. (K4)

(Or)

b) Show the importance of data dictionary. (K5)

17. a) Analyze the DML statements briefly. (K4)

(Or)

b) Explain the structure of relational database. (K5)

18. a) Demonstrate the concept of aggregation. Give an example of where this concept used. (K4)

(Or)

b) Write down the basic concepts of ER model with diagram. (K5)

19. a) Illustrate the data normalization process with an example. (K4)

(Or)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Write a C program to find all possible roots of a quadratic equation. (K4)

(Or)

b) Explain the usage of nested if-else statement syntax with an example. (K5)

17. a) Write a C program to check if a given string is a palindrome. (K4)

(Or)

b) Explain string handling functions with its syntax. (K5)

18. a) How to declare and initialize pointers. (K4)

(Or)

b) How do you read from and write to a file in C? Give an example. (K5)

19. a) What is member functions? How to define the member function? (K4)

(Or)

b) Explain in detail on copy constructor. (K5)

20. a) What is binary operator overloading? Write a program for adding two complex numbers. (K4)

(Or)

b) Explain the exception handling mechanism in C++. (K5)

Reg.No:_____

Course Code: 23UALCT102 / 23UAMCT102

B. Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Technology / Information Technology

First Semester

Core: Programming with C and C++

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Who is the father of C language? (K1)

a) Steve Jobs b) James Gosling

c) Dennis Ritchie d) Rasmus Lerdorf

2. Which of the following is not a valid C variable name? (K1)

a) int number; b) float rate;

c) int variable_count; d) int $main;

3. Functions in C Language are always _____. (K1)

a) Internal

b) External

c) Both Internal and External

d) External and Internal are not valid terms for functions

4. Which keyword is used to make the array size optional in C language during array declaration? (K1)

a) auto b) static c) extern d) register

5. Which one of the following is correct syntax for opening a file? (K1)

a) FILE *fopen(const *filename, const char *mode)

b) FILE *fopen(const *filename)

c) FILE *open(const *filename, const char *mode)

d) FILE open(const*filename)

6. In C, which library is used for the file operations such as reading and writing files? (K1)

a) stdio.h b) iostream.h c) fileio.h d) files.h

7. Which of the following represent a hexadecimal number? (K1)

a) 570 b) (hex)5 c) 0X5 d) 08

8. When the continue statement is executed within a loop, the control goes to_____. (K1)

a) The next statement in the loop

b) The top of the loop

c) The statement immediately after the loop

d) The beginning of the program

9. The class C is derived from classes A and B. Which of them are legal? (K1)

a) Class C: public A, public B b) Class C: public A : public B

c) Class C:public A,B d) Class C::public A, public B

10. An Exception is caused by a_____. (K1)

a) A hardware problem

b) A problem in the operating system

c) A syntax error

d) A run-time error

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Explain relational operator with a suitable example. (K2)

(Or)

b) Explain in brief about the switch statement with suitable example. (K3)

12. a) How do you declare and initialize a string in C? Give an example. (K2)

(Or)

b) Illustrate in brief about the two-dimensional array with an example. (K3)

13. a) Explain pointer arithmetic. How does it work with different data types? (K2)

(Or)

b) Write a program to count the number of words in a file. (K3)

14. a) List few areas of application of OOP technology. (K2)

(Or)

b) List at least four new operators added by C++ with aid OOP. (K3)

15. a) What is operator overloading? Explain. (K2)

(Or)

b) Describe the syntax of multiple inheritance. When do we use such an inheritance. (K3)

Reg. No:_____

Course Code: 22UALET505 / 22UAMET505

B.Sc. Degree Examinations November - 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Technology / Information Technology

Fifth Semester

Elective: Operating Systems

Time: 3 Hours Maximum Marks: 45

SECTION – A (5 X 1 = 5 Marks)

Answer ALL questions.

1. Select the one of the following is NOT a typical process state in an operating system. (K1)

   a) Running b) Waiting c) Sleeping d) Terminated

2. Identify one of the following defines the functionality of the multithreading. (K1)

   a) Running multiple processes simultaneously

   b) Running multiple threads simultaneously within a single process

   c) Dividing a single thread into multiple sub-threads

   d) Executing multiple instructions at the same time on different processors

3. Match one of the following scheduling algorithms is non-preemptive. (K1)

   a) Round Robin b) Shortest Job Next (SJN)

   c) Priority Scheduling d) Multilevel Queue Scheduling

4. Name the memory management technique that allows partitions to be allocated based on the size of the process. (K1)

   a) Fixed Partitioning b) Dynamic Partitioning

   c) Paging d) Segmentation

5. The Direct Memory Access (DMA) usage in an I/O system is____.

a) To transfer data directly between I/O devices and memory without CPU intervention (K1)

b) To execute I/O operations through interrupts

c) To schedule I/O tasks based on priority

d) To manage I/O device drivers

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

6. a) Describe the three objectives of the operating system. (K2)

(Or)

b) Summarize the modes of process execution in detail. (K2)

7. a) Sketch the single threaded and multithreaded process model.(K3)

(Or)

b) What is a race condition in the context of multithreading, and why is it problematic? (K3)

8. a) Demonstrate the deadlock concept with neat diagram. (K2)

(Or)

b) Why scheduling is important in operating system? (K2)

9. a) Write a brief note on Demand paging. (K3)

(Or)

b) List the memory management requirements intended to satisfy in operating system. (K3)

10. a) Summarize the typical operations of the file system. (K2)

(Or)

b) Discuss the advantages of using directories. (K2)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Define PCB. List the information included in PCB with diagram. (K4)

(Or)

b) Outline the typical steps involved in creating a new process in an operating system. (K4)

12. a) Write the hardware approaches of mutual exclusion in detail. (K3)

(Or)

b) Explain the concept of Semaphores. (K3)

13. a) Classify the methods using in handling deadlock in detail. (K4)

(Or)

b) Explain the first come first served algorithm with an example. (K4)

14. a) Sketch the different behavior in the page replacement algorithms with example. (K3)

(Or)

b) Illustrate how dynamic partitioning facilitates multiprogramming in an operating system. (K4)

15. a) Outline the five common types of file organizations used in file I/O system in detail. (K4)

(Or)

b) Explain the I/O buffering schemes with neat diagram. (K4)

18. a) Discuss the parallel binary adder and BCD adder. (K4)

(Or)

b) Describe the multiplexers with diagram. (K5)

19. a) Illustrate the Positive Edge triggered J K flip-flop. (K4)

(Or)

b) Illustrate the clocked R S flip-flop with diagram. (K5)

20. a) Discuss the basic concept of Ring counter. (K4)

(Or)

b) Discuss the requirements of CMOS. (K5)

Reg.No:_____

Course Code: 23UALCT101 / 23UAMCT101

B. Sc Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Technology / Information Technology

First Semester

Core: Digital Principles

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. If each successive code differs from its preceding code by a single bit only, then this code is called_____. (K1)

a) BCD code b) Gray Code

c) Weighted Code d) Binary Code

2. The decimal number 6 in excess-3 code is written as_____.(K1)

a) 0110 b) 0011 c) 1101 d) 1001

3. A (A + B) = ? (K1)

a) AB b) 1 c) (1 + AB) d) A

4. In Boolean algebra, the OR operation is performed by _____. (K1)

a) Associative properties b) Commutative properties

c) Distributive properties d) All of the Mentioned

5. The gates required to build a half adder are _____. (K1)

a) EX-OR gate and NOR gate b) EX-OR gate and OR gate

c) EX-OR gate and AND gate d) EX-NOR gate and AND gate

6. A basic multiplexer principle can be demonstrated through the use of a _____. (K1)

a) Single-pole relay b) DPDT switch

c) Rotary switch d) Linear stepper

7. The logic circuits whose outputs at any instant of time depends only on the present input but also on the past outputs are called _____. (K1)

a) Combinational circuits b) Sequential circuits

c) Latches d) Flip-flops

8. The sequential circuit is also called _____. (K1)

a) Flip-flop b) Latch c) Strobe d) Adder

9. The main difference between a register and a counter is _____. (K1)

a) A register has no specific sequence of states

b) A counter has no specific sequence of states

c) A register has capability to store one bit of information but counter has n-bit

d) A register counts data

10. Which of the following logic families has the least propagation delay_____. (K1)

a) RTL b) DTL c) CMOS d) I^2L (i square L)

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Add these 8-bit numbers: 0101 0111 and 0011 0101. Then show the same numbers in hexa-decimal notation. (K2)

(Or)

b) Explain Excess -3 code with table. (K3)

12. a) Explain the basic logic gates with truth table and logic symbol. (K2)

(Or)

b) Construct a K-map for logic equation Y = F (A, B, C) = $\sum$ m(2, 6, 7). Find the fundamental products for input conditions. (K3)

13. a) Illustrate half adder with truth table and diagram. (K2)

(Or)

b) Summarize the basic principle of encoder with example. (K3)

14. a) Demonstrate the T flip-flops with diagram. (K2)

(Or)

b) Elaborate the functions of D flip-flops. (K3)

15. a) Write about shift register. (K2)

(Or)

b) Write notes on characteristics of IC logic family. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Discuss the different types of number system. What is the BCD code for decimal number 874? (K4)

(Or)

b) Explain the BCD numbers and alphanumeric codes. (K5)

17. a) Express the Boolean function F=A+B'C as a sum of min terms. (K4)

(Or)

b) Construct a K map and give the simplest logic circuit for the following logic equation where d represents don't - care condition for the following locations.

F(A, B, C, D) = $\sum$m(7) + d(10,11, 12,13, 14, 15). (K5)

19. a) Demonstrate in detail about the binary search tree with an example. (K4)

(Or)

b) Summarize the static hashing with an example. (K5)

20. a) Determinate the binary search with an example. (K4)

(Or)

b) Discuss in detail about heap sort with an example. (K5)

Reg. No:_____

Course Code: 23UALCT201 / 23UAMCT201

B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Technology / Information Technology

Second Semester

Core: Data Structures

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. An_____ is a process or a set of rules required to perform calculations or some other problem-solving operations especially by a computer. (K1)

a) program b) performance

c) algorithm d) both a &b

2. An_____ is a collection of items stored at contiguous memory locations. (K1)

a) array b) stack c) queue d) vector

3. What is the postfix expression for the infix expression given, a – b – c? (K1)

a) – ab – c b) – – abc c) ab – c – d) – a – bc

4. A queue follows _____. (K1)

a) FIFO b) LIFO c) Ordered array d) Linear tree

5. Which of these is not an application of a linked list? (K1)

a) To implement file systems

b) For separate chaining in hash-tables

c) To implement non-binary trees

d) Random Access of elements

6. What is the time complexity to count the number of elements in the linked list? (K1)

a) O(1) b) O(n) c) O(logn) d) O(n2)

7. What is the traversal strategy used in the binary tree? (K1)

a) depth-first traversal b) breadth-first traversal

c) random traversal d) Priority traversal

8. What is the maximum number of children that a binary tree node can have? (K1)

a) 0 b) 1 c) 2 d) 3

9. _____sorting algorithm is frequently used when n is small where n is total number of elements. (K1)

a) Heap b) Insertion c) Bubble d) Quick

10. Order is the best possible for array sorting algorithm which sorts n item. (K1)

a) O(n logn) b) O(n2) c) O(n+logn) d) O(logn)

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Write short notes on performance measurement of an algorithm. (K2)

(Or)

b) Define Structure and explain about it with an example. (K3)

12. a) Illustrate the concept of stack with an example. (K2)

(Or)

b) Narrate the concept of amazing problem and explain. (K3)

13. a) Write short notes on singly linked list with an example. (K2)

(Or)

b) Classify the various List operation with an example. (K3)

14. a) Discuss the concept of binary tree and its representation with an example. (K2)

(Or)

b) Write in detail about binary tree traversals. (K3)

15. a) Define External sorting and Explain it with an example. (K2)

(Or)

b) Give a brief note on Insertion sort. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Describe the concept of dynamically allocated arrays with an example. (K4)

(Or)

b) Elaborate the concept of representation of multidimensional arrays with an example. (K5)

17. a) Explain in detail about Stacks using dynamic arrays with an example. (K4)

(Or)

b) Develop and explain the algorithm for push and pop operation using multiple stack. (K5)

18. a) Write down an algorithm for polynomial multiplication and explain it with an example. (K4)

(Or)

b) Explain the concept of Linked stack with an example. (K5)

18. a) Compare flow-oriented and class-based modelling approaches in terms of their application. (K5)

(Or)

b) Discuss the main components of the Design Model in design engineering. (K6)

19. a) Examine the benefits of using Control Structure Testing in software development. (K5)

(Or)

b) Evaluate how Validation Testing ensures software meets user requirements. (K6)

20. a) Describe the process of statistical software quality assurance. (K5)

(Or)

b) Compare formal approaches to SQA with informal approaches. (K6)

Reg.No: _____

Course Code: 22UALCT503/22UAMCT503

B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Technology / Information Technology

Fifth Semester

Core: Software Engineering

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. What is the first phase in the Waterfall model? (K1)
   a) Design b) Implementation
   c) Requirements d) Testing
2. Which of the following is not a software myth? (K2)
   a) Adding more programmers speeds up development
   b) Requirements do not change
   c) Documentation is unnecessary
   d) Software maintenance is expensive
3. What is the primary task of requirements engineering? (K1)
   a) Coding b) Testing
   c) Eliciting Requirements d) Debugging
4. Which technique is used for developing use cases? (K2)
   a) Structured Analysis b) Object-Oriented Analysis
   c) Prototyping d) Agile
5. Which model emphasizes data relationships in the analysis phase? (K1)
   a) Flow-Oriented Modeling b) Class-Based Modeling
   c) Data Modeling Concepts d) Scenario-Based Modeling

6. What does the Design Model focus on in design engineering?
   a) Data Structures b) System Architecture (K2)
   c) User Interface d) Functional Specifications
7. Which strategy involves testing a system as a whole? (K1)
   a) Validation Testing b) White-Box Testing
   c) Black-Box Testing d) System Testing
8. What is the primary focus of Basis Path Testing? (K2)
   a) Control Structures b) Data Flow
   c) Test Coverage d) User Requirements
9. Which of the following is a core quality concept in software engineering? (K1)
   a) Performance b) Maintainability
   c) Usability d) All of the above
10. What does ISO 9000 primarily focus on? (K2)
   a) Software Testing b) Software Design
   c) Quality Management Systems d) Project Management

SECTION – B (5 X 3=15 Marks)
Answer ALL questions.

11. a) Explain how software has evolved in its role over the years?(K3)

(Or)

b) Describe the four layers of Software Engineering as a layered technology. (K4)

12. a) Explain the role of stakeholder interviews in the requirements elicitation process. (K3)

(Or)

b) Describe the significance of validating requirements in the requirements engineering process. (K4)

13. a) Explain the purpose of data modelling in analysis. (K3)

(Or)

b) Describe the role of scenario-based modelling in capturing system behaviour. (K4)

14. a) Explain the role of test strategies in software testing. (K3)

(Or)

b) Describe the difference between White-Box Testing and Black-Box Testing. (K4)

15. a) Explain the purpose of a Software Quality Assurance (SQA) plan. (K3)

(Or)

b) Discuss the main components of formal technical reviews. (K4)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Compare and contrast the Waterfall model and Incremental Process model. (K5)

(Or)

b) Evaluate the importance of Capability Maturity Model Integration (CMMI) in software development. (K6)

17. a) Discuss how to build an analysis model in requirements engineering? (K5)

(Or)

b) Analyze the challenges in negotiating requirements with stakeholders. (K6)

17. a) Explain any two Guided Transmission Media with its, advantages and disadvantages. (K4)

(Or)

b) Compare Circuit Switching and Packet Switching. (K3)

18. a) Explain the One-Bit Sliding Window Protocol. Illustrate how it handles data transmission and acknowledgment between the sender and receiver? (K3)

(Or)

b) Describe the working of the Token Passing protocol and explain how it ensures collision-free communication in a network. (K4)

19. a) Explain the Distance Vector Routing algorithm and describe how it computes the shortest path in a network? Include an example to illustrate the process. (K3)

(Or)

b) Describe the IPv4 addressing scheme, including its structure and how subnetting is used to create sub-networks? (K4)

20. a) Explain the concept of congestion control in networking and describe the primary mechanisms used to manage congestion in TCP. (K3)

(Or)

b) Describe the TCP three-way handshake process and its purpose in establishing a reliable connection. (K4)

Reg. No.:_____

Course Code: 22UALCT501 / 22UAMCT501

B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Technology / Information Technology

Fifth Semester

Core: Computer Networks

Time: 3 Hours Maximum Marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is a primary function of network hardware? (K1)
   a) Managing software updates b) Processing data
   c) Facilitating data transmission d) Developing applications
2. Which network hardware device is used to connect multiple networks and route data between them? (K2)
   a) Switch b) Hub c) Router d) Modem
3. What is the primary purpose of the Public Switched Telephone Network (PSTN)? (K1)
   a) To provide internet access
   b) To switch and route telephone calls
   c) To manage wireless networks
   d) To control satellite communication
4. Which multiplexing technique divides the frequency spectrum into distinct channels? (K2)
   a) Time Division Multiplexing b) Frequency Division Multiplexing
   c) Code Division Multiplexing d) Digital Modulation
5. Which protocol is used for error detection and correction in the Data Link Layer? (K1)
   a) IP b) TCP c) ARP d) CRC

6. What is the primary function of the Data Link Layer? (K2)
a) Routing of data packets
b) Error detection and correction
c) Application-specific data handling
d) Encryption of data

7. Which routing algorithm uses a table to determine the shortest path to all destinations? (K1)
a) Link State Routing b) Distance Vector Routing
c) Multicast Routing d) Flooding

8. What is the primary purpose of congestion control algorithms in the Network Layer? (K2)
a) To increase network bandwidth
b) To prevent data loss during high traffic
c) To manage data encryption
d) To establish end-to-end connections

9. Which layer of the OSI model is responsible for end-to-end communication and error recovery? (K1)
a) Network Layer b) Data Link Layer
c) Transport Layer d) Application Layer

10. What is the purpose of DNS in networking? (K2)
a) To provide encryption services
b) To resolve domain names to IP addresses
c) To manage network traffic
d) To handle email delivery

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Illustrate how computer networks can be used in Business Applications? (K2)

(Or)

b) When a transmission is called unicasting and broadcasting? Explain. (K3)

12. a) Describe electromagnetic spectrum and its uses. (K2)

(Or)

b) Apply the knowledge of telephone network hierarchy to explain how a local call is routed within a city? (K3)

13. a) Analyze the impact of using fixed-size framing on network bandwidth and error detection. (K2)

(Or)

b) Analyze how the use of Reed-Solomon error-correcting codes can improve the reliability of data transmission over noisy channels? (K3)

14. a) Explain the key design issues of the network layer in the OSI model. (K2)

(Or)

b) What is the optimality principle in routing algorithms, and how does it impact the routing decisions? (K3)

15. a) Summarize the key services provided by the transport layer to the upper layers in the OSI model. (K3)

(Or)

b) Describe the key features of UDP (User Datagram Protocol). (K2)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Explain the differences between OSI model and the TCP/IP model in network architecture. (K4)

(Or)

b) Create a network design plan for a small business including hardware and software requirements. (K3)

17. a) Apply the Don't Care Condition for the following

i) Minimise the following function in SOP minimal form using K-Maps:

$f = m(1, 5, 6, 11, 12, 13, 14) + d(4)$ result $f = BC' + BD' + A'C'D + AB'CD$

ii) Minimise the following function in POS minimal form using K-Maps:

$F(A, B, C, D) = m(0, 1, 2, 3, 4, 5) + d(10, 11, 12, 13, 14, 15)$

$= F = (A' + C)(B' + C')$ (K4)

(Or)

b) Sketch the De-Morgan's theorem with truth table and logic gates. (K5)

18. a) Analyze about Encoders and Decoders with neat diagram. (K4)

(Or)

b) Write a brief note on Half adder and Full adder with neat diagram. (K5)

19. a) Outline about Clocked R-S Flip Flop, Positive Edged Triggered Data flip flop with neat diagram. (K4)

(Or)

b) Explain about the Master-Slave JK Flip Flop with neat diagram. (K5)

20. a) Discuss about BCD Counter and Ring counter design & its Operations with neat diagram. (K4)

(Or)

b) List down the various types of Read only memory. (K5)

Reg.No:_____

Course Code: 22UALAT303 / 22UAMAT303

B.Sc. Degree Examinations - November 2024

(For the candidates admitted during the year 2022-2023 only)

Third Semester

Computer Technology / Information Technology

Allied: Digital Electronics

Time: 3 Hours Maximum marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Octal coding involves grouping the bits in _____. (K1)
   a) 5's b) 7's c) 4's d) 3's.
2. BCD code is_____. (K1)
   a) non-weighted
   b) the same thing as binary numbers
   c) a binary code
   d) an alphanumeric code
3. How many AND gates are required to realize $Y = CD + EF + G$?
   a) 4 b) 5 c) 3 d) 2 (K1)
4. Which of the following are known as universal gates?
   a) NAND & NOR b) AND & OR
   c) XOR & OR d) EX-NOR & XOR (K1)
5. Half-adders have a major limitation in that they cannot _____. (K1)
   a) Accept a carry bit from a present stage
   b) Accept a carry bit from a next stage
   c) Accept a carry bit from a previous stage
   d) Accept a carry bit from the following stages

6. if A, B and C are the inputs of a full adder then the sum is given by _____ (K1)

a) A AND B AND C b) A OR B AND C

c) A XOR B XOR C d) A OR B OR C

7. The truth table for an S-R flip-flop has how many VALID entries?

a) 1 b) 2 c) 3 d) 4 (K1)

8. When both inputs of a J-K flip-flop cycle, the output will _____. (K1)

a) Be invalid b) Change c) Not change d) Toggle

9. How can parallel data be taken out of a shift register simultaneously? (K1)

a) Use the Q output of the first FF

b) Use the Q output of the last FF

c) Tie all of the Q outputs together

d) Use the Q output of each FF

10. The instruction used in a program for executing them is stored in the _____. (K1)

a) CPU b) Control Unit

c) Memory d) Microprocessor

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Label the number systems used in digital system with example. (K2)

(Or)

b) Show the result for the following (K3)

i) 1010 × 101 ii) 1011.01 × 110.1

12. a) Explain the expression using K-maps: F (A,B,C) = Σ (1,3,5,6,7). (K2)

(Or)

b) Trace about the logic gates with neat diagram and truth table. (K3)

13. a) Demostrate the working of parallel Binary Adder and Parallel Binary Subtractions with neat diagram. (K2)

(Or)

b) Define Multiplexer. Explain the types of Multiplexer with neat diagram. (K3)

14. a) Mention the uses of Clock signals with neat example. (K2)

(Or)

b) Correlate the D Flip Flop and T Flip Flop with neat diagram. (K3)

15. a) Draw the diagram of Shift left register and shift right register. Explain. (K2)

(Or)

b) Distinguish between Buffer and cache memory. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Demonstrate about the following with suitable example

i) BCD weighted ii) Excess Three ii) Gray code (K4)

(Or)

b) Illustrate the following

i) (0011010 – 001100)2 ii) Solve (01111100 ÷ 0010)2

iii) (110 X 100)2 (K5)

19. a) Discuss in detail about applets. (K4)

(Or)

b) Write a Java program to demonstrate the event handling within the class. (K5)

20. a) Discuss about Swing used in java programming. (K4)

(Or)

b) Describe the types of JDBC drivers. (K5)

Reg.No: _____

Course Code: 23UALCT301 / 23UAMCT301

B.Sc. Degree Examinations - November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Computer Technology / Information Technology

Third Semester

Core: Java Programming

Time: 3 Hours Maximum Marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is not a Java feature? (K1)

a) Dynamic b) Architecture Neutral

c) Use of pointers d) Object-oriented

2. _____ is used to find and fix bugs in the Java programs. (K1)

a) JVM b) JRE c) JDK d) JDB

3. What is a multilevel inheritance in Java? (K1)

a) A class extends two or more classes

b) Two or more classes extend the same class

c) A class extends another class which also extends another class

d) All of the above

4. Which of these keywords must be used to monitor for exceptions? (K1)

a) try b) finally c) throw d) catch

5. Which of these keywords is used to define packages in Java?

a) pkg b) Pkg c) package d) Package (K1)

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6. Which of the following is a logical operator in Java? (K1)

a) ++ b) / c) && d) =

7. Which of these methods is a part of Abstract Window Toolkit (AWT)? (K1)

a) display() b) paint()

c) drawString() d) transient()

8. What is a listener in context to event handling? (K1)

a) A listener is a variable that is notified when an event occurs

b) A listener is a object that is notified when an event occurs

c) A listener is a method that is notified when an event occurs

d) None of the mentioned

9. AWT stands for_____. (K1)

a) All Window Toolkit b) Abstract Work Toolkit

c) Abstract Window Toolkit d) Abstract Window Text

10. How many stages are used by Java programmers while using JDBC in their programs? (K1)

a) 3 b) 2 c) 5 d) 6

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Briefly explain type casting and conversion. (K2)

(Or)

b) Describe the constructor with its special properties. (K3)

12. a) Write a Java program to illustrate the concept of inheritance. (K2)

(Or)

b) Illustrate about handling exceptions. (K3)

13. a) Explain the built-in packages in Java. (K2)

(Or)

b) Write short notes on wrapper classes. (K3)

14. a) Describe about graphic class. (K2)

(Or)

b) List the adaptor classes with their corresponding listener interfaces in Java. (K3)

15. a) Discuss briefly about Java AWT. (K2)

(Or)

b) Write short notes on layout manager. (K3)

SECTION - C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Discuss the conditional statements with syntax, flowchart and an example. (K4)

(Or)

b) Summarize the scope of variables with an example. (K5)

17. a) Elaborate note on Polymorphism with an example. (K4)

(Or)

b) Explain thread states with a diagram. (K5)

18. a) Elaborate on handling I/O operations in Java. (K4)

(Or)

b) Describe about iterator and enumeration with examples. (K5)

Reg.No:_____

Course Code: 22UAMAL510

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Information Technology

Fifth Semester

ALC: E-Commerce

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1.	What is convergence?	(K1)
2.	Define consumers.	(K2)
3.	Differentiate LAN and WAN.	(K1)
4.	What is wireless cable TV?	(K2)
5.	What is the role of a hacker?	(K1)
6.	Describe the purpose of firewall system.	(K2)
7.	Define electronic payment system.	(K1)
8.	What is the purpose of credit card?	(K2)
9.	Define data warehouse.	(K1)
10.	Describe about macro forces.	(K2)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a) Compare the interrelationship of Ecommerce and Convergence in detail. (K2)

(Or)

b) Discuss the concept of retail industry and marketing in developing ecommerce application in detail. (K3)

12. a) Illustrate the different components of the I - way infrastructure in detail. (K3)

b) List out the public policy issues and illustrate each of its role in defining the I - way. (K4)

13. a) Compare the concept of Smart card authentication including Third party authentication with suitable example. (K2)

(Or)

b) Interpret the mechanism of email related to Encryption in detail. (K3)

14. a) Demonstrate the mercantile process model in detail. (K3)

(Or)

b) Explain the concept of mercantile model from the perspective of consumer. (K2)

15. a) Discuss the different issues of document infrastructure in detail.

(Or) (K2)

b) How the work-flow automation system is used to enhance productivity? Discuss in detail. (K3)

SECTION – C (5 X 10 = 50 Marks)

Answer ALL questions.

16. a) Analyze the generic framework for electronic commerce in detail. (K4)

(Or)

b) Illustrate the applications of Multimedia components for the ecommerce application in detail. (K3)

17. a) List and distinguish the various types of Network access equipments for I - way access in detail. (K4)

(Or)

b) Analyze the concept of globalization of the academic internet in detail. (K3)

18. a) Explain the concept Client - Server Network security in E-commerce. (K3)

(Or)

b) What are the transaction issues? Explain each issue in detail. (K4)

19. a) Differentiate the concept of digital token based electronic payment system with the concept of smart card-based payment system. (K4)

(Or)

b) Analyze the impact of credit card based electronic payment system in detail. (K3)

20. a) Illustrate the use cases of supply chain management in ecommerce in detail. (K3)

(Or)

b) List and explain the various types of digital document in detail. (K4)

Reg.No:_____

Course Code: 22UALAL509

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Technology

Fifth Semester

ALC: Web Development with React JS and MongoDB

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1.	Define functional programming in JavaScript.	(K2)
2.	List two differences between CommonJS and ES6 modules.	(K3)
3.	Define JSX in the context of React.	(K2)
4.	Describe the purpose of ReactDOM in a React application.	(K3)
5.	Define the term 'state' in React.	(K2)
6.	List two ways to incorporate data in a React application.	(K3)
7.	Define a MongoDB collection.	(K2)
8.	Name two data types supported by MongoDB.	(K3)
9.	Define a MongoDB document.	(K3)
10.	List two query criteria used in MongoDB.	(K2)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a)	Explain the process of installing Node.js for React application development.	(K2)
	(Or)	
b)	Eloborate how to declare variables and create functions in JavaScript for React?	(K3)
12. a)	Evaluate the role of Babel in compiling JSX.	(K2)
	(Or)	
b)	Oultine how React Fragments are used in JSX?	(K3)

13. a) Explain the concept of state in component trees and its importance. (K2)

(Or)

b) Write in detail about the process of requesting data in a React application. (K3)

14. a) Explain the ease of use of MongoDB for developers. (K2)

(Or)

b) Outline the steps to get started with the MongoDB shell. (K3)

15. a) Explain the process of inserting documents in MongoDB. (K2)

(Or)

b) Illustrate the function and usage of cursors in MongoDB queries. (K3)

SECTION – C (5 X 10 = 50 Marks)

Answer ALL questions.

16. a) Evaluate the benefits of using functional programming concepts in JavaScript for React. (K3)

(Or)

b) Compare and contrast imperative and declarative programming paradigms in the context of React. (K4)

17. a) Discriminate the importance of using Webpack in a React project. (K3)

(Or)

b) Evaluate the process and advantages of rendering React elements using JSX. (K4)

18. a) Write the challenges and solutions for managing state in complex React applications. (K3)

(Or)

b) Evaluate the effectiveness of virtualized lists for handling large datasets in React. (K4)

19. a) Summarize the scalability features of MongoDB and their impact on large-scale applications. (K3)

(Or)

b) Enumurate the advantages of using MongoDB for document-based storage compared to traditional relational databases. (K4)

20. a) Discriminate the impact of different query criteria on the performance of MongoDB queries. (K3)

(Or)

b) Examine the various methods of updating documents in MongoDB with their use cases. (K4)

Reg.No:_____

Course Code: 22UAMAL509

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Information Technology

Fifth Semester

ALC: Programming in MATLAB

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1.	List out some rules for variables.	(K2)
2.	Write the syntax for Assignment operator.	(K3)
3.	Recall the eye command.	(K2)
4.	Define Transpose operator.	(K3)
5.	What is Disp command?	(K2)
6.	Write the syntax for fplot command.	(K3)
7.	What is the use of if end statement?	(K2)
8.	Write the syntax for break statement.	(K3)
9.	Define Global variable.	(K2)
10.	State the use of inline function.	(K3)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a) Discuss in detail about the various operators in Matlab. (K3)

(Or)

b) List out some managing commands in Matlab and explain it with an example. (K4)

12. a) Write short notes on one dimensional array with an example.

(Or) (K3)

b) Describe in detail about strings with an example. (K3)

13. a) Explain in detail about the input and output command to a script file with an example. (K4)

(Or)

b) Write short notes on hold on and hold off commands. (K3)

14. a) Develop matlab code to explain the concept of if else end structure. (K4)

(Or)

b) Elaborate the concept For end statement with an example. (K3)

15. a) Criticize the structure of a function file with an example. (K4)

(Or)

b) Write the difference between script file and function file. (K3)

SECTION – C (5 X 10 = 50 Marks)
Answer ALL questions.

16. a) Summarize the various working windows in matlab. (K4)

(Or)

b) Develop the steps to create, saving and running a script files. (K5)

17. a) Elucidate the concept of vectors and explain about how to reference the elements of a vector? (K4)

(Or)

b) Classify the various built in functions for handling arrays with an example. (K5)

18. a) Evaluate the concept of Plotting multiple graphs in a same plot.

(Or) (K4)

b) Define plot editor and explain formatting the plot using plot editor with an example. (K5)

19. a) Write a matlab code to find the sum of array using while loop.

(Or) (K4)

b) Describe the concept of Switch case with an example. (K4)

20. a) Explain in detail to create and define the user defined function in matlab with an example. (K5)

(Or)

b) List out some Matlab applications and explain it. (K4)

Reg.No:_____

Course Code: 22UALAL510

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Technology

Fifth Semester

ALC: Enterprise Resource Planning

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1.	Define ERP.	(K2)
2.	Listout any two benefits of ERP.	(K3)
3.	Define ERP implementation.	(K2)
4.	Name two hidden costs associated with ERP implementation.	(K3)
5.	Define a business module in an ERP package.	(K2)
6.	List out any two functions of the Finance module in ERP.	(K3)
7.	Define SAP AG.	(K2)
8.	Name two competitors of SAP AG in the ERP marketplace.	(K3)
9.	Define Enterprise Integration Applications.	(K2)
10.	List out any two ways ERP is integrated with E-Commerce.	(K3)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a)	Explain the concept of Business Process Reengineering.	(K2)
	(Or)	
b)	Outline the role of Data Warehousing in ERP.	(K3)
12. a)	Write in detail about life cycle of ERP Implementation.	(K2)
	(Or)	
b)	Describe the methodology used for ERP implementation.	(K3)

13. a) Explain the manufacturing module in an ERP package. (K3)

(Or)

b) Illustrate the Human Resources module in ERP. (K2)

14. a) Explain the role of Oracle Corporation in the ERP market. (K2)

(Or)

b) Evaluate the contributions of People Soft in the ERP industry. (K3)

15. a) Explain the future directions of ERP. (K2)

(Or)

b) Describe the relationship between ERP and the Internet. (K3)

SECTION – C (5 X 10 = 50 Marks)
Answer ALL questions.

16. a) Summarize the importance of OLAP in ERP systems. (K3)

(Or)

b) Critique the impact of Supply Chain Management integration in ERP. (K4)

17. a) Discriminate the challenges in organizing and managing ERP implementation. (K3)

(Or)

b) Assess the roles of vendors, consultants, and users in an ERP project. (K4)

18. a) Eloborate the integration of Plant Maintenance and Materials Management in ERP. (K3)

(Or)

b) Summarize the significance of the Sales and Distribution module in ERP systems. (K4)

19. a) Evaluate the market strategies of JD Edwards in the ERP sector. (K3)

(Or)

b) Evaluate the position and impact of Baan Company in the ERP market place. (K4)

20. a) Discriminate the current trends in ERP and their impact on businesses. (K3)

(Or)

b) Examine the potential future advancements in ERP and their implications for enterprises. (K4)

SECTION - C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Design the 8085 bus structure and present its functions. (K4)

(Or)

b) Construct Memory Classification using its block diagram. (K5)

17. a) Organize 8085 Microprocessor architecture with a neat sketch. (K4)

(Or)

b) Describe demultiplexing the bus using the necessary theory and diagram. (K5)

18. a) Summarize arithmetic and logic operations in the 8085 processor. (K4)

(Or)

b) Write in detail about the looping, counting, and indexing in the 8085 programming. (K5)

19. a) Compose the Hexadecimal Counter with a flowchart and program. (K4)

(Or)

b) Describe the stack operation in an 8085 Microcomputer system. (K5)

20. a) Write the functions of programmable interrupt controller 8259A using its block diagram. (K4)

(Or)

b) Write a detailed note on DMA architecture using its block diagram. (K5)

Reg.No:_____

Course Code: 23UALAT303 / 23UAMAT303

B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Computer Technology / Information Technology

Third Semester

Allied: Microprocessor and ALP

Time: 3 Hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. How many general-purpose registers are available in the 8085 microprocessor? (K1)

a) 5 b) 6 c) 7 d) 8

2. The Program Counter (PC) in 8085 is used to_____. (K1)

a) Store data temporarily

b) Point to the next instruction to be executed

c) Store the current instruction

d) Store the current data

3. In the 8085 Microprocessor, what is the purpose of the address bus? (K1)

a) To carry data

b) To carry control signals

c) To specify the memory location

d) To carry a power supply

4. During memory interfacing with the 8085 microprocessor, which component is commonly used for address decoding?

a) Multiplexer b) Decoder c) Encoder d) Flip-Flop (K1)

5. Which of the following is a data transfer instruction in the 8085 Microprocessor? (K1)

a) MOV A, B b) ADD B

c) JMP 2000H d) CPI 09H

6. The instruction INR B in 8085 is used to_____. (K1)

a) Add the contents of B with the accumulator

b) Increment the contents of register B by 1

c) Subtract 1 from the contents of B

d) Transfer data from B to the accumulator

7. Which instruction in the 8085 microprocessor is used to call a subroutine located at a specific memory address? (K1)

a) JMP 2000H b) CALL 2000H

c) RET d) PUSH 2000H

8. Which register pair is commonly used for implementing a 16-bit hexadecimal counter in the 8085 Microprocessor? (K1)

a) BC b) DE c) HL d) SP

9. Which of the following is a vectored interrupt in the 8085 Microprocessor? (K1)

a) RST 7.5 b) TRAP c) INTR d) All of the above

10. Which of the following interrupt has the highest priority in the 8085 Microprocessor? (K1)

a) RST 7.5 b) RST 6.5 c) TRAP d) INTR

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Illustrate the categories of microprocessor operations. (K2)

(Or)

b) Draw the block diagram of a 4-bit Register and mention its functions. (K3)

12. a) Explain the demultiplexing process of a Bus with the necessary explanation. (K2)

(Or)

b) Write about Address decoding. (K3)

13. a) Write down the features of Assembly Language Programming. (K2)

(Or)

b) Classify various types of 8085 instruction sets. (K3)

14. a) Explain how Time Delay is accomplished using one register? (K2)

(Or)

b) Illustrate the subroutine concept in an 8085Microcomputer system. (K3)

15. a) Outline the role and significance of interrupts in ALP. (K2)

(Or)

b) Write the issues in implementing Interrupts. (K3)

17. a) Create a demo app that illustrates the Android Lifecycle and evaluate the importance of each lifecycle method in managing the app's state. (K3)

(Or)

b) Create a UI using Constraint Layout and fragments that adapt to different screen sizes and orientations. Evaluate how this approach improves user experience? (K4)

18. a) Evaluate the benefits and drawbacks of using method overloading in Java. Create two overloaded methods to calculate the area of a triangle (using base and height) and a rectangle. (K3)

(Or)

b) Create a Java app that uses a switch statement to control a simple menu system. Evaluate the limitations of using switch statements compared to other control structures. (K4)

19. a) Explain the process of running the Widget Exploration app in Android Studio. What steps are involved in ensuring the app functions correctly on an Android device or emulator? (K3)

(Or)

b) Create a dialog window in an Android app to confirm user actions, such as deleting a file. Evaluate how this dialog improves user experience and discuss its role in preventing accidental actions? (K4)

20. a) Create a simple Image Gallery app that uses View Pager to swipe through images. Explain the key components and their roles. (K3)

(Or)

b) Design a basic database application using SQLite in Android. Outline the steps involved in creating, accessing, and managing the database. (K4)

Reg.No: _____

Course Code: 22UALCT502

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Technology

Fifth Semester

Core: Android Programming

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which language is primarily used for Android development?(K1)

a) Python b) Java c) C++ d) Swift

2. What is the role of XML in Android development? (K2)

a) Writing Java code b) Designing the User Interface

c) Compiling code d) Running the app

3. What is the primary function of a Constraint Layout in Android?

a) To create a flexible grid layout (K1)

b) To manage complex UI with a flat view hierarchy

c) To stack views on top of each other

d) To manage text alignment

4. What is the purpose of using Scroll View in Android? (K2)

a) To create multi-column layouts

b) To allow vertical or horizontal scrolling of content

c) To handle touch events

d) To manage lifecycle phases

5. Which keyword is used to define a method in Java? (K1)

a) define b) function c) void d) method

6. What is the result of the expression 5 + 3 * 2 in Java? (K2)

a) 16 b) 11 c) 13 d) 10

7. Which class is used to manage sound effects with low latency in Android? (K1)

a) Media Player b) Sound Pool

c) Audio Track d) Audio Manager

8. What is the purpose of a Dialog in Android? (K2)

a) To display long lists of data

b) To present brief messages or get user confirmation

c) To handle complex animations

d) To manage background processes

9. What is the role of Fragment Manager in Android? (K1)

a) To manage and interact with fragments within an activity

b) To handle network requests

c) To create and manage database connections

d) To perform background processing

10. Which SQL statement is used to retrieve data from a table in a database? (K2)

a) INSERT b) DELETE c) UPDATE d) SELECT

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Analyze the role of the Android emulator in the development process and how it can be used to test an Android app? (K2)

(Or)

b) Write down the methods of buttons is added to the main layout file in an Android project using XML. Explain the steps. (K3)

12. a) How can Card View and Scroll View be applied together to build a UI? Provide a practical use case. (K2)

(Or)

b) How does the Android Lifecycle affect UI design, and what measures can be taken to handle lifecycle phases effectively? (K3)

13. a) How would you declare and initialize a variable in Java to store the result of an arithmetic expression? (K2)

(Or)

b) How does encapsulation improve code maintainability in Object-Oriented Programming? Provide an example. (K3)

14. a) How would you add a spinner widget to an Android layout and populate it with data? (K2)

(Or)

b) How would you explore and use the palette in Android Studio to add widgets to your app's layout? (K3)

15. a) Describe how to build a basic Image Gallery Slider app in Android? (K2)

(Or)

b) What is the purpose of the SELECT statement in SQL, and how would you use it to retrieve all columns from a table named Employees? (K3)

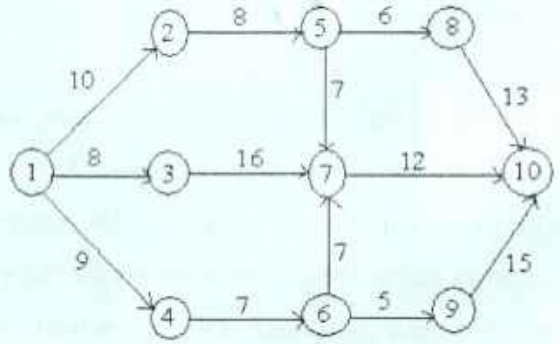
SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Evaluate the relationship between Java and XML in Android development, and create a scenario where both are used to design and implement a simple user interface. (K3)

(Or)

b) Create a step-by-step guide for deploying an Android app from Android Studio, including the evaluation of common deployment issues. (K4)



(Or)

b) A small project consisting of eight activities has the following

Activity	Preceding activity	Most optimistic time (a)	Most likely time(m)	Most Pessimestic time (b)
A	None	2	4	12
B	None	10	12	26
C	A	8	9	10
D	A	10	15	20
E	A	7	7.5	11
F	B,C	9	9	9
G	D	3	3.5	7
H	E,F,G	5	5	5

characteristics:

(i) Draw the PERT network for the project.

(ii) Prepare the activity schedule for the project.

(iii) Determine the critical path.

(iv) If a 30- week deadline is imposed, what is the probability that the project will be finished within the time limit? (K5)

Reg.No:_____

Course Code: 22UAJAT303 / 22UAKAT303

B.C.A / B.Sc. Degree Examinations - November 2024

(For the candidates admitted during the year 2022-2023 only)

Computer Applications / Computer Science

Third Semester

Allied: Computer Based Optimization Techniques

Time: 3 Hours Maximum marks: 50

SECTION - A (10 X 1=10 Marks)

Answer ALL questions.

Choose the correct answer.

1. In degenerate solution the value of objective function is _____.

a) One or more basic variables are zero (K1)

b) basic variables are nonzero

c) decreases infinitely

d) increases infinitely

2. In graphical representation the bounded region is known as _____ region. (K1)

a) Solution b) Basic solution

c) Feasible solution d) Optimal

3. The solution to a transportation problem with 'm' rows (supplies) & 'n' columns (destination) is basic feasible if number of positive allocations are _____. (K1)

a) m + n b) m + n - 1

c) m * n d) m + n + 1

4. For finding an initial feasible solution in transportation problem _____ method is used. (K1)

a) Simplex b) Big M

c) Hungarian d) Least cost

5. An assignment problem can be solved by_____. (K1)
   a) Simplex b) Transportation
   c) Dual simplex d) both a) and b)
6. In assignment problem of maximization, the objective is to maximize _____. (K1)
   a) Profit b) Optimization
   c) Cost d) Solution
7. In queue description M/M/1, the number of servers is _____.
   a) 0 b) 1 c) N d) ∞ (K1)
8. The inter departure time, corresponding to truncated Poisson distribution in a pure death model is ____ distributed. (K1)
   a) normal b) exponential
   c) binomial d) poisson
9. The objective of network analysis is to _____. (K1)
   a) minimize total project duration
   b) minimize total project cost
   c) minimize production delays, interruption and conflicts
   d) maximize total project duration
10. PERT is used in the preparation of _____. (K1)
   a) Budgeting b) Scheduling
   c) Evaluating d) Finalizing

SECTION - B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) The manager of an oil refinery must decide on the optimum mix of two possible blending processes of which the input and output production runs are as follows: (K2)

If the interest rate is 10% per year, when should the machine be replaced?

19. a) Customers arrive at a one-window drive-in bank according to Poisson distribution with mean 10 per hour. Service time per customer is exponential with 5 minutes. The space in front of the window including the customer in service can accommodate a maximum of three customers. Others can wait outside this space.
   (i) What is the probability that an arriving customer can drive directly to the space in front of the window?
   (ii) What is the probability that an arriving customer will have to wait outside the indicated space?
   (iii) How long is an arriving customer expected to wait before starting service? (K4)

(Or)

b) Solve the following 2 X 5 game graphically. (K5)

	I	II	III	IV	V
I	-5	5	0	-1	8
II	8	-4	-1	6	-5

20. a) Determine the early start and late start in respect of all node points and identify critical path for the following network. (K4)

		Destination				
		P	Q	R	S	Supply
Source	A	21	16	25	13	11
	B	17	18	14	23	13
	C	32	17	18	41	19
	Demand	6	10	12	15	43

(Or)

b) Solve the following Transportation problem (K5)

		Destination					
		W_1	W_2	W_3	W_4	W_5	Supply
Source	F_1	7	6	4	5	9	40
	F_2	8	5	6	7	8	30
	F_3	6	8	9	6	5	20
	F_4	5	7	7	8	6	10
	Demand	30	30	15	20	5	100

18. a) Solve the following assignment problem. (K4)

	1	2	3	4
A	50	40	60	20
B	40	30	40	30
C	60	20	30	20
D	30	30	20	30
E	10	20	10	30

(Or)

b) A machine costs Rs.6,000. The running costs and the salvage value at the end of the year are given below. (K5)

Year	1	2	3	4	5	6	7
Running cost	1200	1400	1600	1800	2000	2400	3000
Salvage value	4000	2666	2000	1500	1000	600	600

Process	Input		Output	
	Crude A	Crude B	Gasoline x	Gasoline y
1	6	4	6	9
2	5	6	5	5

The maximum amounts available of crudes A and B are 250 units and 200 units respectively. Market demand shows that at least 150 units of gasoline X and 130 units of gasoline Y must be produced. The profits per production run from process 1 and 2 are Rs. 4 and Rs.5 respectively. Formulate the problem for maximizing the profit.

(Or)

b) Solve the following LPP graphically. Min $Z = 200x + 500y$ subject to, $x + 2y \geq 10$, $3x + 4y \leq 24$, $x, y \geq 0$. (K3)

12. a) Determine an initial basic feasible solution to the following transportation problem using Least cost method. (K2)

	D_1	D_2	D_3	D_4	Supply
O_1	1	2	1	4	30
O_2	3	3	2	1	50
O_3	4	2	5	9	20
Required	20	40	30	10	100

(Or)

b) Determine an initial basic feasible solution to the following transportation problem using Vogel's Approximation method. (K3)

	1	2	3	4	Supply
1	2	3	11	7	6
2	11	0	6	1	1
3	5	8	15	9	10
Required	7	5	3	2	17

13. a) From the following cost matrix, establish

i) optimal job assignment ii) the cost of assignments. (K2)

		Job				
		1	2	3	4	5
Machine	A	10	3	3	2	8
	B	9	7	8	2	7
	C	7	5	6	2	4
	D	3	5	8	2	4
	E	9	10	9	6	10

(Or)

b) A firm is considering replacement of equipment whose first cost is Rs. 1750 and the scrap value is negligible at any year. Based on experience, it is found that maintenance cost is zero during the first year and it increases by Rs. 100 every year thereafter. When should be the equipment replaced if i = 12% (K3)

14. a) A super market has a single cashier. During the peak hours, customers arrive at a rate of 20 customers per hour. The average no of customers that can be processed by the cashier is 24 per hour. Find (i) The probability that the cashier is idle.

(ii) The average no of customers in the queue system

(iii)The average time a customer spends in the system.

(iv) The average time a customer spends in queue.

(v) The average time a customer spends in the queue waiting for service. (K2)

(Or)

b) Solve the following pay-off matrix. Also determine the optimal strategies and value of the game. (K3)

	B	
A	5	1
	3	4

15. a) Draw the network diagram and determine the critical path for the following project: (K2)

Activity	1-2	1-3	1-4	2-5	3-6	3-7	4-7	5-8	6-8	7-9	8-9
Time estimate (Weeks)	5	6	3	5	7	10	4	2	5	6	4

(Or)

b) The following table shows the job of a network along with their time estimates. (K3)

Job	1-2	1-6	2-3	2-4	3-5	4-5	6-7	5-8	7-8
a (days)	1	2	2	2	7	5	5	3	8
m (days)	7	5	14	5	10	5	8	3	17
b (days)	13	14	26	8	19	17	29	9	32

Draw the project network and illustrate the probability of the project completing in 40 days.

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Solve the following LPP using Simplex method. Max $Z = 30x_1 + 20x_2$ subject to, $10x_1 + 8x_2 \leq 800$, $x_1 \leq 60$, $x_2 \leq 75$, $x_1, x_2 \geq 0$. (K4)

(Or)

b) Use Simplex method to solve the LPP: Max $Z = 3x_1 + 2x_2$ subject to, $x_1 + x_2 \leq 4$, $x_1 - x_2 \leq 2$, $x_1, x_2 \geq 0$ (K5)

17. a) Solve the following Transportation problem. (K4)

Reg.No:_____

Course Code: 17UAJAT405 / 17UAKAT404

B.C.A. / B.Sc. Degree Examinations - November 2024

(For the candidates admitted from the year 2017-2018 to 2020-2021 only)

Computer Applications / Computer Science

Fourth Semester

Allied: Business Accounting

Time: 3 Hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Ledger is a_____book of account. (K1)

   a) Original b) Main c) Duplicate d) Complete

2. _____purchases are recorded in purchases Book. (K1)

   a) Cash b) Credit

   c) Cash and credit d) Barter

3. The financial statement that displays the revenues and expenses is_____. (K1)

   a) Balance sheet b) Income statement

   c) Funds flow statement d) Cash flow statement

4. _____ appears outside the trial balance. (K1)

   a) Opening stock b) Closing stock

   c) Raw Materials d) Prime cost

5. Costing is a technique of _____. (K1)

   a) Allocating cost b) Ascertaining Cost

   c) Controlling Cost d) Distributing Cost

6. The total of all direct expenses is known as_____.

a) Prime Cost b) Variable Cost (K1)

c) Fixed cost d) Sunk cost

7. Scrap is_____. (K1)

a) Residue of Raw material b) Wastage of material

c) Surplus of material d) Abnormal loss of material

8. LIFO is suitable at the time of _____. (K1)

a) Falling prices b) Rising Prices

c) Marketing prices d) Sharing Prices

9. Management accounting helps management in_____. (K1)

a) Preparation of Final accounts

b) Raising Finance

c) Filing Tax returns

d) Decision making

10. Management accounting gives information that is useful to_____ (K1)

a) Management b) Secretary

c) Director d) Survive

SECTION - B (5 X 7 = 35 Marks)

Answer ALL questions.

11. a) Describe any five principles of Accounting. (K2)

(Or)

b) From the under mentioned balances extracted from the books of a trader on 31st march 2011, prepare a Trial balance (K3)

20. The expenses for budgeted production of 10,000 units in a factory are furnished below: (K4)

	Per unit (Rs.)
Materials	70
Labour	25
Variable overheads	20
Fixed Overheads(Rs. 1,00,000)	10
Variable Expenses(Direct)	5
Selling Expenses(10% Fixed)	13
Distribution Expenses(20% Fixed)	7
Administration Expenses(Rs.50,000)	5
Total cost per unit	155

Prepare a budget for production of:

a) 8,000 units b) 6,000 units

c) Indicate cost per unit at both the levels.

Assume that administration expenses are fixed for all levels of production.

Debtors	40,000	Loans	10,000
Trade expenses	600		
Purchases	25,000		
Advances	2,500		
Bank balance	5,600		
	81,500		81,500

Adjustments

1) The closing Stock was Rs.9,000

2) Outstanding salary Rs.500

3) Rent prepaid Rs.200

4) Calculate 5% interest on capital.

18. Explain the various elements of cost. (K4)

19. The following information is given about materials for the month of March 2012. (K4)

March 2012

1	Opening Balance	1000 units@ Rs.2.50
7	Purchase of Materials	1500 units@ Rs.2.70
10	Issue of Materials	1000 units
14	Purchase of Materials	2000 units@ Rs.3.00
15	Issue of Materials	1500 units
21	Purchase of Materials	4000 units@ Rs.3.10
25	Purchase of Materials	2500 units@ Rs.3.20
28	Issue of Materials	1000 units
31	Issue of Materials	2400 units

Prepare Stores Ledger using FIFO Method.

Particulars	Rs.	Particulars	Rs.
Cash in Hand	2,400	Debtors	2,20,000
Purchases	2,40,000	Creditors	48,000
Capital	2,00,000	Bills Payable	44,000
Sales	4,00,400	Bills Receivable	2,30,000

12. a) From the following particulars prepare Trading Account for the year ended 31st March 2007. (K2)

	Rs.
Stock on 1-4-2006	8,000
Purchases	70,000
Wages	15,800
Sales	1,25,000
Carriage Inwards	800
Gas	2,200
Purchase Returns	2,000
Sales Returns	1,500
Value of closing Stock	10,000

(Or)

b) From the following prepare Trading Account of Sudaram as on 31st December 2005 (K3)

Particulars	Rs.
Stock 1.1.2005	12,500
Purchases	78,000
Sales	1,25,000

Return outwards	3,000
Return inwards	5,000
Salaries	4,400
Wages	7,500
Rent	2,750
Carriage Inwards	2,500
Carriage outwards	750

Closing stock was valued at 14,000

13. a) State the functions of cost accounting. (K2)

(Or)

b) Ascertain i) Prime Cost ii) Works Cost (K3)
iii) Cost of Production iv) Total Cost and
v) Profit from the under mentioned figure:
Factory Expenses Rs.1,500: Administration Expenses Rs.800;
Direct Labour Rs.3,000 : Direct Materials Rs.5,000 ;
Direct Expenses Rs.500; Selling Expenses Rs.700 and
Sales Rs.15,000.

14. a) From the following details, prepare the stores ledger accounts by adopting FIFO method, what would be the value of stock at the end of the period? (K3)

Dec 1 Opening stock 1000 units @ Rs.200 each
3 Purchase 800 units @ Rs.2.10 each
5 Issued 1200 units
12 Purchased 1600 units @ Rs.2.10 each

(Or)

b) List out the merits and demerits of FIFO method. (K2)

15. a) State the objectives of management accounting. (K2)

(Or)

b) Differentiate between Management Accounting and financial Accounting. (K3)

SECTION – C (3 X 10 = 30 Marks)
Answer any THREE questions.

16. Journalise the following transactions (K4)
i) Kannan commenced business with Rs.15, 000
ii) Received cash from Muthu Rs.500
iii) Paid cash to Hari Rs.300
iv) Bought goods for cash Rs.500 v) Cash sales Rs.600
vi) Sold goods to Selvam on credit Rs.1,100
vii) Paid into Bank Rs.10,000
viii) Paid salary in cash Rs.420
ix) Paid rent by cheque Rs.250 x) Received commission Rs.750

17. From the following particulars for the year ending 31st December 2000. Prepare the Trading and Profit and Loss Account and a balance sheet as on that date. (K4)

Debit balance	Rs.	Credit balance	Rs.
Salaries	5,500	Creditors	9,500
Rent	1,300	Sales	32,000
Cash	1,000	Capital	30,000

Reg. No:_____

Course Code: 22UAKAT403 / 22UAWAT403

B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2022-2023 only)

Computer Science / Computer Science and Applications

Fourth Semester

Allied: Business Accounting

Time: 3Hours Maximum marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which accounting concept requires the practice of crediting closing stock to the trading account? (K1)

   a) Going concern b) Cost

   c) Realisation d) Matching

2. The Monthly total of a Sales book must be_____. (K1)

   a) Credited to sales account

   b) Credited to customers account

   c) Debited to sales account

   d) Credited to suppliers account

3. Goodwill is_____. (K1)

   a) a current asset b) an intangible asset

   c) a tangible asset d) a fictitious asset

4. Loss by theft is debited to_____. (K1)

   a) Manufacturing A/c b) P& L A/c

   c) Trading A/c d) Balance sheet

5. Cost accounting provides data for managerial_____.(K1)

a) Decision making b) Recruitment

c) Retrenchment d) Selection

6. Elements of cost of a product are_____.(K1)

a) Material only b) Labour only

c) Expenses only d) Material, Labour and expenses

7. Economic order quantity is that quantity at which cost of holding and carrying inventory is_____. (K1)

a) Maximum and equal

b) Minimum and equal

c) It can be maximum or minimum depending upon case to case

d) Minimum and unequal

8. In case of rising prices (inflation), FIFO method will_____.

a) provide lowest value of closing stock and profit (K1)

b) provide highest value of closing stock and profit

c) provide highest value of closing stock but lowest value of profit

d) provide highest value of profit but lowest value of closing stock

9. Budgetary control involves comparison of budgets with_____. (K1)

a) Output b) Performance

c) Actual d) Report

in west zone which is estimated to get additional sale of 2000 units and 1500 units of products 'R' and 'S' respectively in the West zone. Prepare a sales budget for 2023, incorporating the above details. (K4)

(Or)

b) The expenses for the production of 5000 units are given as follows. (K5)

Per unit	(Rs.)
Materials	50
Labour	20
Variable overheads	15
Fixed overheads(Rs. 50,000)	10
Administrative expenses (5% variable)	10
Selling expenses(20% fixed)	6
Distribution expenses(10% fixed)	5
Total cost per unit	116
Prepare a budget for the production of	7000units

(Or)

b) The following balances are drawn from the books of M/s Geetha Mills as on 31-12-2023. (K5)

Particulars	Rs.	Particulars	Rs.
Land	1,00,000	Sales	3,00,000
Building	2,00,000	Purchases	1,75,000
Sales returns	10,000	Stock (1-1-23)	25,000
Purchase returns	5,000	Debtors	50,000
Bank overdraft	15,000	Cash in hand	5,000
Creditors	20,000	Salaries	10,000
Wages	12,000	Goodwill	15,000
General expenses	5,000	Selling expenses	12,000
Bad debts	1,000	Insurance	1,000
Capital	2,81,000		

Adjustments:

i) Closing stock is Rs.30,000

ii) Provide for depreciation @ 10 % on buildings.

iii) Write off further bad debts – Rs. 1,000

iv) Salaries yet to be paid- Rs. 3,000

You are required to prepare a trading and profit & loss a/c and balance sheet of M/s Geetha Mills.

18. a) A manufacturing concern requires a statement showing the result of its production operations for September,2023. Cost records give the following inform. (K4)

Particulars	Rs.
Opening Stock	2,000
Closing Stock	1,500
Returns Inward	300
Returns Outward	200
Wages	350
Purchases	4,000
Sales	7,000
Freight	100

13. a) Compute the prime cost: (K2)

Particulars	Rs.
Direct Material used	82,000
Productive wages	17,000
Royalty paid	11,000
Hire charge of special Machines for the job	13,000

(Or)

b) Calculate works cost

Factory expenses	Rs.700
Office expenses	Rs. 300
Selling expenses	Rs. 900
Materials consumed	Rs. 3,400

(K3)

14. a) From the following particulars, calculate the EOQ. (K2)

Annual requirements 10,800 kgs.

Cost of purchasing and receiving one order Rs. 1,000

Annual carrying cost Rs. 20.

(Or)

b) Compute closing stock under LIFO: (K3)

Purchase of Material on 1-2-2023: 1000 units @Rs. 12 per unit

Purchase of Material on 5-2-2023: 1500 units @Rs. 14 per unit

Issue of Material on 10-2-2023: 2100 units.

15. a) A firm produces two products called 'A' and 'B'. The opening balances of the products are 7,800 units and 8,400 units respectively. The estimated sales during a month are 14,700 units and 15,300 units respectively. The required closing balances are 8,200 and 9,000 units. Prepare production Budget. (K2)

(Or)

b) What will be the Budgeted Sales for 2023, based on the following?

Sales for 2022: 20,000 units at Rs.40 each. Expected rise in sales quantity is 15% over those of 2022. Additional volume budgeted to be achieved through special sales promotion drive: 5,000 units. Selling price is to be increased by 5%. (K3)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Explain various accounting concepts briefly. (K4)

(Or)

b) Enter the following transactions of sekar, a dealer in electrical goods, in the purchases book for the month of April 2023

April 3rd Purchases from General Suppliers Limited

24 Transistor Radio sets at Rs.200 each

20 Electric Toasters at Rs.100 each

6 Electric clocks at Rs.200 each

Less: Trade discount 20% on all items.

April 6th Purchased from Topaz Limited

12 Electric rooms at Rs.120 each

48 Battery torches at Rs.20 each

April 7th Purchased from Radio House

10 Colour T.V. at Rs.6,000 cash

4 Portable B/W Televisions at Rs.1500 each

April 19th Purchased 400 light bulbs at Rs. 5 each

Less: trade discount at 20%. (K5)

17. a) From the following balances as at 31st December 2023 of a trader, prepare trading and Profit & Loss account for the year 2023 and a balance sheet as on that date: (K4)

Particulars	Rs.	Particulars	Rs.
Salaries	5,500	Creditors	9,500
Rent	1,300	Sales	32,000
Cash	1,000	Capital	30,000
Debtors	40,000	Loans	10,000
Trade expenses	600		
Purchases	25,000		
Advances	2,500		
Bank balance	5,600		
	81,500		81,500

Adjustments:

i) The closing stock Rs.9,000

ii) One month's Salary is outstanding

iii) One month's rent has been paid in advance

iv) Provide 5% for doubtful debts.

Reg. No.: _____

Course Code: 22UAJCT502/22UAWCT502

B.C.A. / B. Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Applications / Computer Science and Applications

Fifth Semester

Core: Relational Database Management Systems

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. What is a relation in RDBMS? (K1)

   a) Key b) Programs c) Table d) Row

2. In _____normal form transitive functional dependency of non-prime attribute on any super key should be removed. (K2)

   a) First b) Second c) Third d) Fourth

3. _____ is a special type of integrity constraint that relates two relations & maintains consistency across the relations. (K1)

   a) Entity Integrity Constraints

   b) Referential Integrity Constraints

   c) Domain Integrity Constraints

   d) Domain Constraints

4. Which of the following command is used to delete the structure of a table in Oracle? (K2)

   a) DELETE b) DROP c) ERASE d) TRUNCATE

5. What is another name for Cross join? (K1)

   a) Left Join b) Right Join

   c) Full Join d) Cartesian Products

6. The intersection operator is used to get the _____ tuples.
a) Different b) Common c) All d) Repeating (K2)

7. PL/SQL Variable needs to be declared in the _____. (K1)
a) Variable Section b) Declaration Section
c) Initialization Section d) None of the above

8. How many ELSIF's can an IF-THEN-ELSIF statement contain in PL/SQL? (K2)
a) 1 b) 5 c) 100 d) No specified limit

9. Which attribute is used to raise exception? (K1)
a) Open b) Select c) Raise d) Try

10. In PL/SQL, a function is called inside which of the following code blocks? (K2)
a) EXCEPTION b) END
c) BEGIN d) DECLARE

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) What are the advantages of DBMS? Explain. (K2)

(Or)

b) Comment on Entity integrity. (K3)

12. a) How to create a new table in Oracle? Explain. (K2)

(Or)

b) How to get the comment of a column in Oracle table? Give an example. (K3)

13. a) Discuss the update exist rows and records in Oracle table. (K3)

(Or)

b) What is a CASE structure? Explain. (K2)

14. a) Summarize the user defined identifiers in PL/SQL. (K3)

(Or)

b) List out the data types in PL/SQL. (K2)

15. a) What is a implicit cursor? Give an example. (K3)

(Or)

b) Write about the trigger in PL/SQL. (K2)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Demonstrate the Relational algebra with an example. (K3)

(Or)

b) Explain the concept of first normal form. (K4)

17. a) Illustrate the data types in Oracle with an example. (K3)

(Or)

b) How to dropping and Renaming tables in oracle? (K4)

18. a) Elaborate add a new row or record in Oracle table. (K3)

(Or)

b) Analyze the types of join in Oracle. (K4)

19. a) Examine the selection structure in PL/SQL. (K3)

(Or)

b) Identify the data manipulation in PL/SQL. (K4)

20. a) Discuss about Explicit cursor attributes in PL/SQL. (K3)

(Or)

b) Interpret the types of exceptions in PL/SQL. (K3)

(Or)

b) Obtain the principal conjunctive normal form of $(\neg P \rightarrow R) \wedge (Q \Leftrightarrow P)$. (K5)

18. a) Let R and S be two relation on a set of positive integers I. $R = \{\langle x, 2x\rangle \mid x \in I\}$ and $S = \{\langle x, 7x\rangle \mid x \in I\}$. Find $R \circ S$, $R \circ R$, R° $R \circ R$ and $R \circ S \circ R$. (K4)

(Or)

b) Let $X = \{1, 2, 3, 4\}$ and $R = \{\langle 1, 1\rangle, \langle 1, 4\rangle, \langle 4, 1\rangle, \langle 4, 4\rangle, \langle 2, 2\rangle, \langle 2, 3\rangle, \langle 3, 2\rangle, \langle 3, 3\rangle\}$. Write down the matrix of R and sketch its graph. (K5)

19. a) The language $L(G_5) = \{a^n b a^m \mid n, m \geq 1\}$ is generated by the grammar $G_5 = \langle \{S, A, B, C\}, \{a, b\}, S, \Phi \rangle$ where Φ consist of the productions is $S \rightarrow aS$, $S \rightarrow aB$, $B \rightarrow bC$, $C \rightarrow aC$, $C \rightarrow a$. Obtain derivation for the expression $a^2 b a^2$. (K4)

(Or)

b) The language $L(G_3) = \{a^n b^n c^m \mid n \geq 1\}$ is generated by the grammar $G_3 = \langle \{S, B, C\}, \{a, b, c\}, S, \Phi \rangle$ where Φ consist of the productions is $S \rightarrow aSBC$, $S \rightarrow aBC$, $CB \rightarrow BC$, $aB \rightarrow ab$, $bB \rightarrow bb$, $bC \rightarrow bc$, $cC \rightarrow cc$. Obtain derivation for the expression $a^2 b^2 c^2$. (K5)

20. a) Show that every chain is a distribution lattice. (K4)

(Or)

b) Let $(L, \leq)$ be a lattice. Show that $a, b \in L$, $a \leq b \Leftrightarrow a * b = a \Leftrightarrow a \oplus b = b$. (K5)

Reg. No:_____

Course Code:23UAJAT204/23UAKAT204/23UALAT204/ 23UAMAT204/23UAWAT204

B.C.A / B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Applications/Computer Science/Computer Technology/ Information Technology/Computer Science and Applications

Second Semester

Allied: Discrete Mathematics

Time: 3 Hours Maximum Marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. $\neg(\neg q) =$ _____. (K1)

a) q b) $\neg q$ c) p d) $\neg p$

2. $\neg(p \rightarrow q) \Leftrightarrow$ _____. (K1)

a) $p \wedge q$ b) $p \wedge \neg q$ c) $\neg p \wedge \neg q$ d) $\neg p \wedge q$

3. Rule ES(Existential Specification) from _____. (K1)

a) $(\exists x)A(x)$ one can conclude $(\exists y)A(y)$

b) $A(x)$ one can conclude $(\exists y)A(y)$

c) $(\exists x)A(x)$ one can conclude $A(y)$

d) $A(x)$ one can conclude $A(y)$

4. Rule UG (Universal Generalization) from _____. (K1)

a) $A(x)$ one can conclude $(y)A(y)$

b) $A(x)$ one can conclude $A(y)$

c) $(x)A(x)$ one can conclude $A(y)$

d) $(x)A(x)$ one can conclude $(y)A(y)$

5. A relation R on a set A is said to be_____ if a R b ⇒b R a (K1)

a) symmetric b) anti symmetric

c) reflexive d) irreflexive

6. A relation R on a set A is said to be _____if whenever a R b , b R c then a R c. (K1)

a) symmetric b) anti symmetric

c) reflexive d) transitive

7. A function $f : A \to B$ is a constant function if the range of f is a _____. (K1)

a) singleton b) constant c) inverse d) onto

8. A function $f : R \to R$ defined by f(x)= 3x is _____. (K1)

a) bijection b) 1-1 but not onto

c) not 1-1 but onto d) neither 1-1 nor onto

9. $a * b = b * a$, $a \oplus b = b \oplus a$ is called_____. (K1)

a) idempotency b) commutativity

c) associativity d) absorption

10. $(a * b) * c = a * (b * c)$, $(a \oplus b) \oplus c = a \oplus (b \oplus c)$ is called_____. (K1)

a) idempotency b) commutativity

c) associativity d) absorption

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) If H_1, H_2, H_m and P imply Q, then prove that H_1, H_2, H_m imply $P \to Q$ (K2)

(Or)

b) Show that $\neg(P \wedge Q) \to (\neg P \vee (\neg P \vee Q)) \Leftrightarrow (\neg P \vee Q)$ (K3)

12. a) Show that $(\exists x)M(x)$ follows logically from the premise $(x)(H(x) \to M(x))$ and $(\exists x)H(x)$ (K2)

(Or)

b) Obtain the principal disjunctive normal form of $\neg P \vee Q$. (K3)

13. a) Let A be a given finite set and $\rho(A)$ its power set. Let $\subseteq$ be the inclusion relation on the elements of $\rho(A)$. Draw Hasse diagrams of $<\rho(A), \subseteq>$ for A = {a, b}. (K2)

(Or)

b) Let X = {2, 3, 6, 12, 24, 36} and the relation ≤ be such that x ≤ y if x divides y. Draw the Hassse diagram of (X, ≤). (K3)

14. a) If f : X → Y is invertible, then prove that $f^{-1} \circ f = I$, and $f \circ f^{-1} = I$, . (K2)

(Or)

b) If $f : A \to B$ and $g : B \to C$ are invertible functions then $g \circ f : A \to C$ is also invertible, Prove that $(g \circ f)^{-1} = f^{-1} \circ g^{-1}$. (K3)

15. a) State and prove Dominance Laws. (K2)

(Or)

b) Show that every distributive lattice is modular. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Show that $(\neg P \wedge (\neg Q \wedge R)) \vee (Q \wedge R) \vee (P \wedge R) \Leftrightarrow R$ (K4)

(Or)

b) Show that:

$((P \vee Q) \wedge \neg(\neg P \wedge (\neg Q \vee \neg R))) \vee (\neg P \wedge \neg Q) \vee (\neg P \wedge \neg R)$ is a tautology (K5)

17. a) Show that from (i) (∃x) (F(x) ∧ S(x)) → (y) (M(y) →W(y))

(ii) (∃y) (M(y) ∧ ¬ W(y)) the conclusion (x) (F(x) → ¬S(x) (K4)

(Or)

b) Evaluate $I = \int_0^6 \frac{1}{1+n}\, dx$ using

(i) Trapezoidal rule (ii) Simpson's rule (K5)

18. a) Find the mean,median and mode for the following data. (K4)

Salary	3- 5	5 - 8	8 - 10	10- 15	15- 20	20- 30	30- 50
No of persons	10	25	52	173	108	36	16

(Or)

b) Calculate standard deviation for the following data. (K5)

x	6	9	12	15	18
f	7	12	19	10	2

19. a) The following table gives aptitude test scores and productivity indices of 8 randomly selected workers: (K4)

Score	57	58	59	59	60	61	62	64
Index	67	68	65	68	72	72	69	71

Calculate the correlation coefficient between aptitude score and productivity indices.

(Or)

b) Calculate the coefficient of correlation of the following data by Spearman's rank correlation method: (K5)

x	19	24	12	23	19	16
y	9	22	20	14	22	18

20. a) Calculate two regression equations from the following data. (K4)

x	10	12	13	12	16	15
y	40	38	43	45	37	43

(Or)

b) From the regression equations $6x + 10y = 700$ and $15x + 16y = 1390$. Find: (K5)

(i) the mean value

(ii) the correlation coefficient

Reg.No:_____

Course Code: 23UAJAT104 / 23UAKAT104 / 23UALAT104 / 23UAMAT104 / 23UAWAT104

B. Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Applications / Computer Science / Computer Technology / Information Technology / Computer Science and Applications

First Semester

Allied: Numerical and Statistical Methods

Time: 3 Hours Maximum Marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The convergence of which of the following method is sensitive to starting value? (K1)
   a) False position b) Gauss seidal Method
   c) Newton Raphson Method d) Gauss Elimination methos
2. Order of convergence of Newton-Raphson method is_____.
   a) 5 b) 1.2 c) 1.08 d) 2 (K1)
3. Newton Forward interpolation formula can be used_____. (K1)
   a) only for equally spaced intervals
   b) only for unequally spaced intervals
   c) for both equally and unequally spaced intervals
   d) for unequally intervals
4. The highest order of polynomial integrand for which Simpson's 1/3 rule of integration is exact is _____. (K1)
   a) first b) second c) third d) fourth
5. _____ is not a measures of central tendency. (K1)
   a) Mean b) Median c) Mode d) Range
6. The range of 3,2,1,5,7 is _____. (K1)
   a) 6 b) 2 c) 1 d) 7

7. The correlation for the values of two variables moving in the same direction is _____. (K1)

a) positive b) perfect positive
c) negative d) no correlation

8. Scatter diagram is graphical component of _____. (K1)

a) Regression Analysis b) profit
c) demand d) supply

9. If any regression coefficient's value is zero, the two variables are_____. (K1)

a) independent b) qualitative c) dependent d)) none

10. If a regression coefficient is less than 1 then the other should be_____. (K1)

a) equal to 1 b) less than 1 c) 0 d) greaterthan1

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) For the initial value $x_0 = 3$, find approximate the root of $f(x) = x^3 + 3x + 1$ by Newton Raphson method. (K2)

(Or)

b) Solve $2x + y = 8, x + 2y = 1$ using Gauss Seidel method. (K3)

12. a) Estimate f(3.17)from the data using Newton Forward Interpolation. (K2)

x	3.1	3.2	3.3	3.4	3.5
f(x)	0	0.6	1.0	1.2	1.3

(Or)

b) Find out the area under the curve with help of the Trapezoid Rule Formula that passes through the following points. (K3)

x	0	0.5	1	1.5
f(x)	5	6	9	11

13. a) Find the mean for the following distribution. (K2)

x	1	2	3	4	5	6
f(x)	3	5	2	4	3	3

(Or)

b) Calculate quartile deviation for the following data:30,18,23,15,11,29,37,42,10,21 (K3)

14. a) Explain about types of correlation. (K2)

(Or)

b) For the data given below, calculate the rank correlation coefficient. (K3)

X	21	36	42	37	25
Y	47	40	37	42	43

15. a) For the data given below, find the regression equation X on Y.
$\bar{X} = 36, \bar{Y} = 85, \sigma_x = 11, \sigma_y = 8, r = 0.66$ (K2)

(Or)

b) Write down the properties of regression lines . (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Find the root of the following polynomial function using the bisection method: $x^3 - 4 = 1$. (K4)

(Or)

b) Solve the following system of equations by using Gauss elimination method.$x + y + z = 2, x + 2y + 3z = 5,$
$2x + 3y + 4z = 11$ (K5)

17. a) Find Solution using Newton's Forward Difference formula at $x = 3$ *and* 3.5 (K4)

x	1	3	5	7	9
f(x)	85.3	74.5	67	60.5	54.3

f	8	15	30	17	9	4

(Or)

b) Calculate coefficient of variation of the following: (K5)

40 41 45 49 50 51 55 59 60 60

19. a) Find the coefficient of correlation for the following: (K4)

A	5	10	5	11	12	4	3	2	7	1
B	1	6	2	8	5	1	4	6	5	2

(Or)

b) Find the rank correlation for the following: (K5)

X	15	20	28	12	40	60	20	80
Y	40	30	50	30	20	10	30	60

20. a) You are given the following data: (K4)

	X	Y
Arithmetic mean	36	85
Standard deviation	11	8

Correlation coefficient between X and Y 0.66

(i) Find the two regression equations

(ii) Estimate the value of X when Y=75.

(Or)

b) Compute regression equation of y on x. (K5)

X	146	152	158	164	170	176	182
Y	32	36	44	37	71	72	109

Reg.No: _____

Course Code: 21UAJAT104/21UAKAT104/21UALAT104/
21UAMAT104/22UAWAT104

B.C.A. / B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2021–22 and 2022-23 Batch only)

Computer Applications/Computer Science/
Computer Technology/Information Technology/
Computer Science and Application

First Semester

Allied: Numerical and Statistical Methods

Time: 3 Hours Maximum marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Bisection method is also called_____. (K1)

a) Newton's method b) Iteration method

c) BOLZANO'S method d) Regula-Falsi method

2. The Gauss elimination method is_____. (K1)

a) Direct method b) Indirect method

c) Inverse method d) Positive method.

3. In Newton's forward difference formula_____. (K1)

a) $u=\frac{x1-x_0}{h}$ b) $u=\frac{x+x_0}{h}$ c) $u=\frac{x-x_0}{h}$ d) $u=\frac{x-x_0}{h2}$

4. In Simpson's One- Third rule y(x) is polynomial of degree _____. (K1)

a) 1 b) 2 c) 3 d) 4

5. The arithmetic mean of 45 , 50 , 55 , 60, 40 is_____. (K1)

a) 55 b) 50 c) 40 d) 30

6 . The formula for computing range is _____. (K1)

a) L+S b) L-S c) (L-S)/(L+S) d) (L+S)/(L-S)

7. Karl Pearson's coefficient of correlation is also called____. (K1)

a) co efficient&covariance b) product moment correlation

c) simple correlation d) none

8. Rank correlation coefficient lies between _____. (K1)

a) $+\infty$ and $-\infty$ b) -2 and+2 c) -1 and +1 d) 0 and -1

9. Geometric mean of two regression coefficients is _____. (K1)

a) Standard deviaiton b) regression equation

c) regression coefficient d) correlation coefficient

10. The two regression coefficient and the correlation coefficient have_____. (K1)

a) the same sign b) the different sign

c) the opposite signs d) infinite signs

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Find the positive root of $x^3 = 2x+5$ by False position method. (K2)

(Or)

b) Explain Gauss elimination method. (K3)

12. a) Derive Newton's forward difference formula. (K2)

(Or)

b) Evaluate $I = \int_0^6 \frac{1}{1+x} dx$ by using Simpson's one –third rule. (K3)

13. a) Calculate Mean of the following: (K2)

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No. of Students	5	10	25	30	20	10

(Or)

b) When mean =40 and S.D = 4, find the coefficient of variation. (K3)

14. a) Calculate correlation coefficient from the following: (K2)

N=10; $\sum X = 140$; $Y = 150$; $\sum (X-10)^2 = 180$; $\sum (Y-15)^2 = 215$; $\sum (X-10)\sum (Y-15) = 60$

(Or)

b) Find the Rank correlation coefficient for the following: (K3)

X	21	36	42	37	25
Y	47	40	37	42	43

15. a) Define Correlation and Regression. (K2)

(Or)

b) Write any three properties of regression lines and coefficients. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Find the positive root of $f(x) = 2x^3 - 3x - 6 = 0$ by Newton-Raphson method correct to five decimal places. (K4)

(Or)

b) Solve the system of equations by Gauss Seidel method: (K5)

10x+-5y2z= 3; 4x-10y+3z= -3; x+6y+10z= -3

17. a) Find the value of y at $x=21$ from the following data: (K4)

x:	20	23	26	29
y:	0.3420	0.3907	0.3420	0.4848

(Or)

b) Evaluate $\int_0^1 \frac{dx}{1+x2} dx$ using Trapezoidal rule with h=0.2.

Hence obtain an approximate value of π. (K5)

18. a) Calculate mean, median and mode: (K4)

x	0-50	50-100	100-150	150-200	200-250	250-300

Reg. No.:_____

Course Code: 22UAJAL509 / 22UAWAL509

B.C.A. / B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2022 – 2023 only)

Computer Applications / Computer Science and Applications

Fifth Semester

ALC: Big Data Analytics

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1.	Give the primary characteristic of Big Data.	(K2)
2.	Write the main value proposition of Big Data analytics.	(K3)
3.	What is the primary driver for the adoption of Big Data?	(K2)
4.	What are the key benefits of having multiple Big Data options beyond Hadoop?	(K3)
5.	What is a key challenge in storing Big Data?	(K2)
6.	What is necessary to bring structure to Big Data?	(K3)
7.	Write about the main compliance concern for Big Data.	(K2)
8.	Give the intellectual property challenge in Big Data.	(K3)
9.	Define Big Data analytics.	(K2)
10.	Which is the importance of thinking big in Big Data analytics?	(K3)

SECTION - B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a)	Discuss the role of open-source tools in Big Data.	(K3)
	(Or)	
b)	Describe the evolving nature of Data and Data analysis.	(K4)

12. a) What are the key skills required for a Data Scientist in a Big Data team? (K3)

(Or)

b) Explain the team challenge in building a Big Data team. (K3)

13. a) Discuss the primary benefit of Big Data adoption for businesses. (K4)

(Or)

b) Write about the key advantage of using Spark over Hadoop for Big Data processing. (K3)

14. a) Explain the importance of classifying Big Data for security purposes. (K4)

(Or)

b) Discuss the challenges of protecting Big Data analytics. (K3)

15. a) Write the realities of thinking in Big Data analytics. (K3)

(Or)

b) Describe the role of anomalies in Big Data analytics. (K4)

SECTION - C (5 X 10 = 50 Marks)
Answer ALL questions.

16. a) Explain the concept of Big Data and the benefits of Big Data analytics. (K4)

(Or)

b) Explain the importance of Big Data in driving business value and competitiveness. (K5)

17. a) Explain the business case for Big Data, including the benefits and drivers for adoption. (K4)

(Or)

b) Discuss the rise of Big Data options beyond Hadoop. (K3)

18. a) Describe the storage dilemma in Big Data, including challenges and solutions. (K4)

(Or)

b) Elucidate the importance of bringing structure to Big Data, including data modeling and processing. (K5)

19. a) Describe the auditing process for Big Data, including data quality and security assessments. (K4)

(Or)

b) Explain the production challenges in Big Data, including data integration and processing. (K4)

20. a) Explain the trade-off between expediency and accuracy in Big Data analytics. (K3)

(Or)

b) Discuss the role of Big Data visualization in communicating insights and driving business decisions. (K4)

18. a) How packages are created, accessed in java? (K4)

(Or)

b) Construct a Java code that ensures synchronization in Multithreading. (K5)

19. a) Explain how exception handling mechanism is done in Java. (K4)

(Or)

b) Summarize the types of data files in Java with suitable examples. (K5)

20. a) Write a detailed note on the Applet life cycle with the necessary steps. (K4)

(Or)

b) Design a sample web page for the basic college information and available course details using Applets. (K5)

Reg.No:_____

Course Code: 23UAJCT301 / 23UAWCT301

B.C.A. / B.Sc Degree Examinations - November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Computer Applications / Computer Science and Applications

Third Semester

Core: Java Programming

Time: 3 Hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Java is _____ language. (K1)
   a) a compiled
   b) an interpreted
   c) both compiled and interpreted
   d) none of these
2. The size of a float variable in Java is _____. (K1)
   a) 2 bytes b) 4 bytes c) 8 bytes d) 12 bytes
3. If we want a field not be visible other than its own class, one should specify_____specifier. (K1)
   a) public b) protected
   c) private d) private protected
4. Primitive data types may be converted into objects by using _____ classes. (K1)
   a) wrapper b) friend class
   c) super class d) none of these
5. Packages in Java act as _____for classes. (K1)
   a) objects b) methods c) functions d) container

20

6. Java permits prioritization of threads using _____ method.
   a) selectPriority( ) b) setPriority( ) (K1)
   c) firstPriority( ) d) usePriority( )

7. When do exceptions in Java arise in code sequence?
   a) compile time b) run time (K1)
   c) any time d) editingtime

8. Which of these values is returned by read( ) method when end of file (EOF) is encountered? (K1)
   a) 0 b) 1 c) -1 d) Null

9. Which methods can output a string in an applet? (K1)
   a) draw string( ) b) display ( )
   c) paint( ) d) transient

10. Event classes in applets are derived from the super class called _____. (K1)
    a) SuperObject b) AWTEvent
    c) AppletObject d) EventObject

SECTION - B (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Describe the structure of Java Program and explain. (K2)

(Or)

b) Write a note on JVM. (K3)

12. a) Write a Java code to print basic student data of a class using an array of objects. (K2)

(Or)

b) Explain the four parts of method declaration. (K3)

13. a) Outline the significance of API packages in grouping Java classes/interfaces. (K2)

(Or)

b) Write a Java program to demonstrate Thread Priority. (K3)

14. a) Explain the types of errors in Java. (K2)

(Or)

b) Briefly explain the concept of Streams. (K3)

15. a) How do applets differ from other applications? (K2)

(Or)

b) Write a note on AWT package. (K3)

SECTION - C (5 X 8 = 40 Marks)
Answer ALL questions.

16. a) Summarize the Java tokens with its types. (K4)

(Or)

b) Write a Java program to generate the following pyramid of numbers using looping statements. (K5)

```
            0
          1 0 1
        2 1 0 1 2
      3 2 1 0 1 2 3
    4 3 2 1 0 1 2 3 4
```

17. a) Explain multilevel and Hierarchical inheritance. (K4)

(Or)

b) Why wrapper classes are important in Java. (K5)

(Or)

b) Explain in detail about Breadth First Search algorithm with an example. (K6)

20. a) Discriminate in detail about implementation of Linear search (K5)

(Or)

b) Summarize the operation and implementation of merge sort. (K5)

Reg. No:_____

Course Code:23UAJCT202/23UAWCT202

B.C.A./ B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Applications/ Computer Science and Applications

Second Semester

Core: Data Structures

Time: 3 Hours Maximum Marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. What is a data structure? (K1)

a) A Programming Language

b) A Collection of Algorithms

c) A way to store and organize data

d) A type of computer Hardware

2. Which of the following is the advantage of the array data structure? (K1)

a) Elements of mixed data types can be store.

b) Easier to access the elements in an array.

c) Index of the first elements starts from 1.

d) Elements of an array cannot be stored.

3. In a stack, if a user tries to remove an element from an empty stack it is called _____. (K1)

a) Underflow b) Empty collection

c) Overflow d) Garbage Collection

4. A linear list of elements in which deletion can be done from one end (front) and insertion can take place only at the other end (rear) is known as _____. (K1)

a) Queue b) Stack c) Tree d) Linked list

5. What is the time complexity of searching for an element in a Linked List? (K1)

a) O(1) b) O(log n) c) O(n) d) O(n log n)

6. To implement Sparse matrix dynamically, the following data structure is used_____. (K1)

a) Tree b) Graph c) Linked list d) Stack

7. The number of edges from the root to the node is called _____ of the tree. (K1)

a) Height b) Depth c) Length d) Width

8. A graph in which all vertices have equal degree is known as _____. (K1)

a) Complete graph b) Regular graph

c) Multi graph d) Simple graph

9. Finding the location of a given item in a collection of items is called _____. (K1)

a) Discovering b) Finding c) Searching d) Mining

10. The complexity of bubble sort algorithm is_____. (K1)

a) O(n) b) O(logn) c) $O(n^2)$ d) O(n logn)

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Write a note on Abstract Data Type (K3)

(Or)

b) List out the types of special matrices. (K3)

12. a) Write down the applications of Stacks. (K4)

(Or)

b) What is DeQueue? Explain its operation with an example. (K3)

13. a) List out the types of Linked List with neat diagram. (K4)

(Or)

b) Illustrate the Linked list applications. (K3)

14. a) How to represent Binary trees? Explain with an example. (K4)

(Or)

b) Explain the various representation of graph with an example in detail (K3)

15. a) Illustrate Binary search with an example. (K4)

(Or)

b) Write an algorithm to sort 'n' numbers using insertion sort. Show following numbers are sorted using insertion Sort: 3,1,4,1,5,9,2,6,5. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Explain in detail about Time Complexity Classes. (K5)

(Or)

b) Summarize the Two dimensional Arrays with example. (K5)

17. a) Discriminate in detail about Implementation of Stack. (K5)

(Or)

b) Describe about the Implementation of Queue. (K5)

18. a) Evaluate the operations of doubly linked lists. (K5)

(Or)

b) Write in detail about polynomial addition. (K6)

19. a) Define Tree. Summarize the tree traversals with algorithms and examples. (K5)

20. a) Explain C++ stream classes with example. (K4)

(Or)

b) Classify the file stream operations with an example. (K5)

Reg. No:_____

Course Code: 23UAJCT201/23UAWCT201

B.C.A. / B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Applications/Computer Science and Applications

Second Semester

Core: C++ Programming

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____ feature of OOP indicates code reusability. (K1)

a) Abstraction b) Polymorphism

c) Encapsulation d) Inheritance

2. _____are reserved words that have predefined meanings and can't be used for any other purpose, such as naming a variable or function. (K1)

a) constant b) identifier c) keywords d) operator

3. The data members and functions of a class in C++ are by default _____. (K1)

a) protected b) private c) public d) public & protected

4. An inline function is expanded during _____. (K1)

a) compile-time b) run-time

c) never expanded d) end of the program

5. _____ is a run -time polymorphism. (K1)

a) over loading b) operator overloading

c) function overloading d) function prototyping

6. _____ has the same name as their class name preceded by a tilde (~) (K1)

a) constructor b) destructor c) function d) both a& b

7. _____ is an arithmetic exception in C++. (K1)

a) Divide by zero b) Semi colon not written

c) Variable not declared d) An expression is wrongly written

8. _____ is Re-throwing an exception means in C++. (K1)

a) An exception that is thrown again as it is not handled by that catching block

b) An exception that is caught twice

c) An exception that is not handled in one caught hence thrown again

d) All of the mentioned

9. _____ of the following is used to create an output stream.

a) ofstream b) ifstream c) iostream d) fsstream (K1)

10. _____ is the return type open() method. (K1)

a) int b) char c) bool d) float

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Elaborate the structure of C++ program with an example. (K2)

(Or)

b) Develop a program to find the biggest of three numbers. (K3)

12. a) Define class and explain in detail about assigning and accessing the members of a class with an example. (K2)

(Or)

b) Narrate the concept of call by reference with an example. (K3)

13. a) Write short notes on dynamic constructor. (K2)

(Or)

b) Explain about type conversion with an example. (K3)

14. a) Discuss – How to create pointers to object? (K2)

(Or)

b) Elucidate virtual function with an example. (K3)

15. a) Explain unformatted console IO operations with an example. (K2)

(Or)

b) Give a brief note on Error handling during file operations. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Summarize the basic concepts of OOP with an example. (K4)

(Or)

b) Elucidate the types of looping statements with an example. (K5)

17. a) Create a program to display the net pay of a employee using the concept of classes and objects. (K4)

(Or)

b) Elaborate the concept of function and its types. (K5)

18. a) Explain about parameterized constructor. (K4)

(Or)

b) Describe the concept of operator overloading with an example. (K5)

19. a) Define inheritance and explain its types. (K4)

(Or)

b) Discuss about the types of Exceptions. (K5)

4. spring while we are writing is here the winds blow gently the birds the flowers and the buds all proclaim the coming of spring

5. he said why do you come and disturb me what a nuisance you are why cant you play somewhere else can.t you see that i want to work go away at once and do not come here again.

Reg. No:_____

Course Code: 21UAJCT201 / 21UAKCT201 / 21UALCT201 / 21UAMCT201 / 21UANCT201 / 21UAOCT201 / 21UAVCT201 / 21UATCT201

B.Sc. Degree Examination - November 2024

(For the candidates admitted during the year 2021-22 and 2022-23 only)

Second Semester

Computer Applications / Computer Science / Computer Technology / Information Technology / Mathematics / Physics / Psychology / Catering Science and Hotel Management

Core: Professional English -II

Time: 3 Hours Maximum marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer

1. _____ is the first communication skill acquired by everyone.

a) Listening b) Speaking (K1)

c) Reading d) Writing

2. Which one of the following is related to speaking skills? (K1)

a) Listening to a particular video/audio

b) Descriptive writing

c) Critical writing

d) Conversation skill

3. Describe Indirect Persuasion. (K1)

a) Talking to a group of nonsmokers about the dangers of smoking

b) Talking to a group of Republicans about the merits of a Democratic proposal

c) Talking to students who are in class on time about the importance of promptness over tardiness

d) Talking to a group of teachers about the value of education

4. Discover when the phrase "hot minute" was first recorded. (K1)

a) Mid-1850s b) Mid-1950s

c) Mid-1900s d) Mid-1800s

5. Define signs used like smiling and participatory eye-contact while listening. (K1)

a) Linguistic b) Numerical

c) Verbal d) Non-verbal

6. Web pages are created using_____. (K1)

a) MTML b) Java

c) MS Word d) MS Excel

7. The content with different forms of multimedia is _____. (K1)

a) Active listening b) Passive listening

c) Academic listening d) Hyper listening

8. A well written paragraph should contain _____. (K1)

a) Focus on a single, coherent idea

b) Consist of logically connected sentences

c) Both a & b

d) None of these

9. Recite one of the punctuation marks used to glue words together. (K1)

a) Ellipsis b) Hyphen

c) Apostrophe d) Quotation Mark

10. If a writer concludes the essay with a logical reasoning in his/her essay, then it is _____ essay. (K1)

a) Narrative b) Reflective

c) Argumentative d) Descriptive

SECTION – B (4 X 10 = 40 Marks)

Answer ALL questions.

11. a) Illustrate the format of Minutes of Meeting. (K2)

(Or)

b) Interpret Ted Talk with examples. (K3)

12. a) Classify Do's and Don'ts in Debate. (K2)

(Or)

b) Outline a dialogue talking about opinions on a book. (K3)

13. a) Illustrate Video Conferencing Skills. (K2)

(Or)

b) Prepare a conversation between two students on the importance of sports. (K3)

14. a) Show the basic instructional design for oral presentation through short films. (K2)

(Or)

b) Use the appropriate punctuation marks in the following sentences. (K3)

1. he read an article called Finding Answers on the Internet to the group, and then he turned to the class and said do you believe that
2. you must listen to her the lawyer shouted she wrote an article called legal practice in b.c. about courts she knows her stuff
3. did you really believe that another day of waiting would make it easier to give that speech asked her friend it is still called the hazards of not preparing for public speaking and it is still the most popular speech in the text called speeches for notoriety

Reg. No.:_____

Course Code: 22UAJET505 / 22UAWET505

B.C.A. / B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Application / Computer Science and Applications

Fifth Semester

Elective: Computer Networks

Time: 3 Hours Maximum Marks: 45

SECTION – A (5 X 1= 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is not a use of a computer network? (K2)

   a) Business Applications b) Home Applications

   c) Education d) None of the above

2. Which protocol is used for email services? (K1)

   a) DNS b) TCP c) SMTP d) UDP

3. How many layers are in the OSI reference model? (K2)

   a) 5 b) 7 c) 9 d) 11

4. Which of the following routing algorithms is based on the principle of optimality? (K1)

   a) Shortest Path b) Flooding

   c) Distance Vector d) Link State

5. What is the main function of the Transport Layer in the OSI model? (K2)

   a) Addressing b) Routing

   c) Flow control d) Data encoding

SECTION – B (5 X 3 = 15 Marks)

Answer ALL Questions.

6. a) Compare the uses and architecture of LAN and WAN. (K3)

(Or)

b) Explain the term 'Protocol Hierarchies'. (K3)

7. a) Recall the significance of error detection in the Data Link Layer. (K2)

(Or)

b) Summarize the process of 'Sliding Window Protocol'. (K3)

8. a) List the main features of Ethernet in MAC Sub Layer Protocol. (K2)

(Or)

b) Illustrate the function of Manchester Encoding. (K3)

9. a) Describe the 'Shortest Path' routing algorithm. (K2)

(Or)

b) Outline the general principles of congestion control. (K3)

10. a) Classify the differences between TCP and UDP. (K2)

(Or)

b) Discuss the role of DNS in internet communication. (K3)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Discuss the uses and applications of various types of network hardware. (K3)

(Or)

b) Compare the Connection Oriented Servies with the Connectionless Services. (K4)

12. a) Explain error detection and correction techniques in the Data Link Layer. (K3)

(Or)

b) Describe the design issues in the Data Link Layer. (K4)

13. a) Analyze the differences between Ethernet and Wireless LANs. (K3)

(Or)

b) Summarize the working of multiple access protocols. (K4)

14. a) Illustrate the 'Distance Vector' routing algorithm. (K3)

(Or)

b) Distinguish the challenges in routing for mobile hosts. (K4)

15. a) Classify the differences between UDP and TCP in terms of functionality and use cases. (K3)

(Or)

b) Discuss the role and importance of Email protocols in the Application Layer. (K4)

Reg. No: _____

Course Code: 22UALCT401 / 22UAMCT401

B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2022-2023 only)

Computer Technology / Information Technology

Fourth Semester

Core: Web Technology

Time: 3 Hours Maximum marks: 45

SECTION - A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which character is used to represent when a tag is closed in HTML? (K1)

   a) # b) ! c) / d) \

2. What will be the output of the following code? (K1)

```
<script type="text/javascript">
a = 5 + "9";
document.write(a);
</script>
```

   a) compilation error b) 14

   c) runtime error d) 59

3. _____method is used to retrieve data from a server using a servlet. (K1)

   a) GET b) POST c) PUT d) DELETE

4. In an XML document, the comments are written within ____. (K1)

   a) /* and */ b) <!-- and -->

   c) <# and > d) @ and @

5. Which of the following is the default file extension of PHP files? (K1)

a) .php b) .ph c) .xml d) .html

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

6. a) Mention the elements located within <head> and </head> element. (K2)

(Or)

b) What is the difference between tag and attributes? Explain with an example. (K3)

7. a) What is the difference between JavaScript and Jscript? (K2)

(Or)

b) List out the various objects in JavaScript. (K3)

8. a) Name the values to method attribute other than GET or POST? (K2)

(Or)

b) What is the functionality of JSP? (K3)

9. a) What are the advantages of XML? (K2)

(Or)

b) How XSL is different from CSS? Give an example. (K3)

10. a) How to store input in array in PHP? Give an example. (K2)

(Or)

b) Summarize in brief PHP Functions – Returning values syntax with an example. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Discuss in detail about the <table> tag. Also explain all its attributes related tags with examples. (K4)

(Or)

b) Explain the various tags used to create HTML form with suitable examples. (K5)

12. a) Outline in detail about the various objects in Document Object Model in JavaScript with an example. (K4)

(Or)

b) Explain in brief about various Loop Statements used in JavaScript syntax with an example. (K5)

13. a) Compare and Contrast Servlets and CGI. (K4)

(Or)

b) How does JSP handles runtime exception? Give an example. (K5)

14. a) Explain about validating and non-validating parsers with an example. (K4)

(Or)

b) Create a small XML file designed to contain information about the Book information on a module. (K5)

15. a) Elucidate in detail about PHP Loops syntax with an example. (K4)

(Or)

b) Explain PHP Exception Handling with an example. (K5)

15. a) Evaluate the effectiveness of using Linux on Raspberry Pi for managing multiple IoT devices . (K2)

(Or)

b) Compare the use of Raspberry Pi with other IoT development boards. (K3)

SECTION - C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Elaborate the concepts of Internet of Things . (K4)

(Or)

b) Elucidate IoT enabling technologies. (K5)

17. a) Illustrate M2M architecture . (K4)

(Or)

b) Explain about Home Automation applications in IoT. (K5)

18. a) Evaluate the scalability of NETCONF in managing IoT devices across different industries such as healthcare, agriculture, and manufacturing. (K4)

(Or)

b) Analyse the security features of NETCONF when used in IoT systems. (K5)

19. a) Discuss IoT design Methodology . (K4)

(Or)

b) Describe about control flow statements in Python. (K5)

20. a) Evaluate the effectiveness of using Raspberry Pi as an IoT device. (K4)

(Or)

b) Summarize the key features of Raspberry Pi. (K5)

Reg.No:_____

Course Code: 23UAWAT303

B.Sc. Degree Examination - November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Computer Science and Applications

Third Semester

Allied: Internet of Things

Time: 3 Hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Classify the components commonly found in the physical design of IoT_____. (K1)

a) Sensors, actuators, microcontrollers

b) Keyboards, monitors, mice

c) CPUs, GPUs, RAM

d) Operating systems, applications, databases

2. Define the term "Internet of Things"_____. (K1)

a) A global network of interconnected computers

b) A network of physical objects embedded with sensors and software to exchange data

c) A software development methodology

d) A type of wireless communication standard

3. Which of the following technologies is most commonly associated with IoT in smart cities? (K1)

a) Blockchain

b) Autonomous vehicles

c) Intelligent traffic management systems

d) Artificial Intelligence

4. Which of the following is a key feature of M2M communication? (K1)

a) Human-to-machine interaction

b) Machine-to-machine interaction

c) Machine-to-human interaction

d) None of the above

5. Identify the primary limitation of the Simple Network Management Protocol (SNMP) in IoT systems_____. (K1)

a) Lack of scalability

b) Inability to perform configuration changes

c) High complexity in implementation

d) Limited support for real-time data collection

6. Which IoT application is most relevant to personal health monitoring? (K1)

a) Smart thermostats

b) Wearable fitness trackers

c) Smart refrigerators

d) Connected home security systems

7. Identify the correct data type in Python that is an unordered collection of unique items_____. (K1)

a) List b) Tuple

c) Dictionary d) Set

8. Summarize the purpose of functions in Python_____. (K1)

a) To execute code only once

b) To define reusable blocks of code that perform a specific task

c) To create data structures

d) To control the flow of a program

9. Which operating system is most commonly used on Raspberry Pi? (K1)

a) Windows 10 b) macOS

c) Raspberry Pi OS d) Android

10. Which feature of Raspberry Pi makes it suitable for IoT projects? (K1)

a) High processing power

b) Large storage capacity

c) Low cost and multiple interfaces

d) High-resolution display

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Describe the key components of the physical design of an IoT system. (K2)

(Or)

b) Explain about the different levels of IoT deployment. (K3)

12. a) Distinguish between IoT and M2M. (K2)

(Or)

b) Explain how IoT can be applied in agriculture to increase crop yields? (K3)

13. a) Design a scalable IoT network management solution for a smartcity using NETCONF. (K2)

(Or)

b) Classify the components of an IoT system managed by NETCONF. (K3)

14. a) Illustrate about any 2 data structures in Python . (K2)

(Or)

b) Explain the characteristics of Python. (K3)

Reg. No.:_____

Course Code: 22UAWAL510

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 – 2023 only)

Computer Science and Applications

Fifth Semester

ALC: Cryptography and Network Security

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1.	Define cryptography.	(K1)
2.	What do you mean by block cipher?	(K2)
3.	Define Kerberos.	(K1)
4.	What is mean by public key and private key?	(K2)
5.	Define firewall.	(K1)
6.	What is the impact of security in e-commerce transaction?	(K2)
7.	Write a note on learning objectives of email security.	(K1)
8.	Define non-repudiation.	(K2)
9.	Define encoding.	(K1)
10.	What is web security?	(K2)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a) List and explain the five ingredients of a symmetric encryption scheme with an example. (K2)

(Or)

b) Demonstrate the mechanism of Transposition technique with a suitable example. (K3)

12. a) Illustrate the technique of Diffie-Hellman key exchange in detail. (K2)

(Or)

b) Explain the concept of remote user authentication function. (K3)

13. a) Discuss the different roles and functions of Firewall in detail. (K2)

(Or)

b) Explain the mechanism of Intrusion detection system with suitable example. (K3)

14. a) Explain the concept of S/MIME with an example. (K2)

(Or)

b) What is the purpose of Message integrity in security? Illustrate in detail. (K3)

15. a) Explain how AH handles packet integrity and source authentication in detail? (K2)

(Or)

b) Differentiate between IPv4 and IPv6 in terms of address format, and address space. (K3)

SECTION – C (5 X 10 = 50 Marks)
Answer ALL questions.

16. a) Analyze the following substitution techniques with suitable examples. i) Ceaser cipher ii) Monoalphabetic Ciphers (K4)

(Or)

b) Briefly explain the concept of DES Encryption algorithm in detail. (K3)

17. a) Experiment to encrypt and decrypt a message using the RSA algorithm. (K4)

(Or)

b) Compare the mechanism of encryption with public key and encryption with private key in Public-Key Cryptosystems. (K4)

18. a) Explain the different types of Firewalls in detail. (K3)

(Or)

b) Demonstrate the different types of malwares and describe their impact on network security. (K4)

19. a) Briefly explain the concept of Internet Mail Architecture in detail. (K4)

(Or)

b) Explain the fundamental principles behind Pretty Good Privacy for email communication in detail. (K3)

20. a) Illustrate the phases of the Internet Key Exchange (IKE) protocol in detail. (K3)

(Or)

b) Explain the fundamental principles and objectives of Secure Electronic Transaction (SET) in detail. (K4)

20. a) Examine the steps to update data in a database using PHP with MySQL. (K3)

(Or)

b) Write a PHP MySQL Database program for student mark statement. (K4)

Reg. No.: _____

Course Code: 22UAWCT503

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Science and Applications

Fifth Semester

Core: PHP & MYSQL

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Expand PHP. (K1)

a) Hypertext Preprocessor b) HTML Preprocessor

c) Hypertext Processor d) HTML Processor

2. How to define a variable in PHP? (K2)

a) $variable_name = value b) $variable_name = value;

c) $variable_name == value; d) $variable_name as value;

3. Which notation is used to access methods and properties of the object? (K1)

a) * b) -> c) # d) &

4. PHP numerically indexed array begins with position _____.

a) 1 b) 2 c) -1 d) 0 (K2)

5. Which field is similar to a text input field, but it allows the user to enter multiple lines of text? (K1)

a) text area b) select c) upload d) text

6. Which Button is a way to restrict users to having only one choice? (K2)

a) Submit b) Reset c) Radio d) Image

7. Which one of the following is the default PHP session name?
   a) PHPSESSID b) PHPSESID (K1)
   c) PHPSESSIONID d) PHPIDSESS

8. Which one of the following function is used to start a session?
   a) start_session() b) session_start() (K2)
   c) session_begin() d) begin_session()

9. Which of the following function is used to access MySQL database in PHP? (K1)
   a) mysqlconnect() function b) mysql-connect() function
   c) mysql_connect() function d) sql_connect() function

10. _____ is the method which is responsible for sending the query to the database? (K2)
   a) query() b) send_query()
   c) sendquery() d) query_send()

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) What are various data types in PHP? Give an example. (K3)

(Or)

b) Define constants and variables in PHP. (K2)

12. a) Describe the method of setting access to properties and methods in PHP. (K2)

(Or)

b) Write a PHP Program to create functions Welcome() and Hello() with no arguments. (K3)

13. a) Describe the importance of HTTP headers. (K2)

(Or)

b) Illustrate the concept of handling button in PHP, with an example. (K3)

14. a) Analyze the importance of Server side Data Validation. (K3)

(Or)

b) Evaluate the method of creating Cookies with PHP. Give an example. (K2)

15. a) Estimate the process of inserting new items into a database. (K3)

(Or)

b) Outline the concept of sorting data in database in PHP. (K2)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Illustrate the use of Assignment and Comparison Operator in PHP with examples. (K3)

(Or)

b) Explain the three components to be installed in a computer to run PHP Web Pages. (K4)

17. a) Brief the process of nesting functions in PHP. Give examples. (K3)

(Or)

b) Elaborate the method of creating classes and objects in PHP with an example. (K4)

18. a) Explain the method of performing client side Data Validation using Java Script. (K3)

(Or)

b) Write a PHP Program to multiply two numbers and display the result in Third Box. (K4)

19. a) Summarize the steps to destroy a PHP session. Give an example. (K3)

(Or)

b) Elaborate the method of adding attachment to Email with an example. (K4)

18. a) Discuss the control statements in Javascript. (K4)

(Or)

b) Design a JavaScript function that calculates the factorial of a number. (K5)

19. a) Classify the CSS Selectors and give an example. (K4)

(Or)

b) Explain three methods to insert CSS into an HTML document. (K5)

20. a) Summarize advantage and disadvantages of XML . (K4)

(Or)

b) Design an asynchronous data transfer mechanism using XMLHttpRequest. (K5)

Reg.No:_____

Course Code: 23UAWST304

B.Sc. Degree Examination - November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Computer Science and Applications

Third Semester

Skill Based: Web Programming

Time: 3 Hours Maximum marks: 55

SECTION - A (10 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which HTML element defines the root of an HTML document? (K1)

a) <head> b) <html>

c) <meta> d) <title>

2. Which HTML tag is used to create an ordered list? (K1)

a) <UL> b) <OL>

c) <LI> d) <LH>

3. Identify the HTML element used to create a table_____.(K1)

a) b) <td>

c) <table> d)

4. Select the attribute used to specify the source file of an image_____. (K1)

a) <href> b) <file>

c) <src> d) <source>

5. Which tag is used to include JavaScript in an HTML document? (K1)

a) <code> b) <js>

c) <script> d) <javascript>

6. Which of the following is a valid event in JavaScript? (K1)

a) onclick b) onload

c) onmouseover d) All of these

7. CSS stands for_____. (K1)

a) Cascading Style Service b) Cascading Style Sheet

c) Computer System Software d) Style Sheet Control

8. If you want to use a blinking text, which css property will we use? (K1)

a) text-Color b) text-Decorator

c) text-Style d) border-Line

9. XML is defined as_____. (K1)

a) A language used to design webpage

b) A markup language for creating custom data structure

c) A style sheet language for designing webpage

d) A programming language for web development

10. Identify the correct method to open a connection using the XML HttpRequest object. (K1)

a) xmlHttpRequest.open("GET", "url", false);

b) xmlHttpRequest.open("POST", "url", true);

c) xmlHttpRequest.connect("GET", "url", true);

d) xmlHttpRequest.connect("POST", "url", false);

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Describe about character entities. (K2)

(Or)

b) Illustrate the hyperlink element <a> with an example. (K3)

12. a) Demonstrate about <img> tag with an example. (K2)

(Or)

b) Classify the types of form elements. (K3)

13. a) Construct a JavaScript function for addition of two numbers. (K2)

(Or)

b) Analyze the common types of errors in JavaScript. (K3)

14. a) Explain the syntax of a CSS rule and illustrate with an example. (K2)

(Or)

b) Describe how to set a background color and a background image for a webpage using CSS. (K3)

15. a) Compare XML and HTML of their purpose. (K2)

(Or)

b) Describe the important of root element in an XML document. (K3)

SECTION - C (5 X 6 = 30 Marks)

Answer ALL questions.

16. a) Describe about <html> ,<head> and <body> elements with an example. (K4)

(Or)

b) Create a HTML program for an ordered list. (K5)

17. a) Summarize about <table> elements . (K4)

(Or)

b) Design a simple form using any form elements in HTML. (K5)

18. a) Write Peterson algorithm and explain. (K3)

(Or)

b) Explain deadlock prevention with an example. (K4)

19. a) Differentiate between static and dynamic memory allocation. (K3)

(Or)

b) Explain partitioning algorithm with suitable program. (K4)

20. a) Discuss the role of page table in OS. (K3)

(Or)

b) Elaborate the demand paging concept with an example. (K3)

Reg. No:_____

Course Code: 22UAWCT501

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 – 2023 only)

Computer Science and Applications

Fifth Semester

Core: Operating Systems

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____provide the interface between a process and the operating system. (K1)

a) Kernal b) System calls

c) Command d) Processor

2. What is the meaning of booting in operating system? (K2)

a) Restart the computer b) Turn off

c) Scan the computer d) Install a program

3. Which of the following is not a valid process state? (K1)

a) Ready b) Waiting c) Running d) Starving

4. What type of scheduling is round-robin scheduling? (K2)

a) Linear data scheduling b) Non-linear data scheduling

c) Preemptive scheduling d) Non-preemptive scheduling

5. The circular wait condition can be prevented by _____. (K1)

a) Defining a linear ordering of resource types

b) Using thread

c) Using pipes

d) All of the mentioned

6. Which of the following "semaphore" can take the non-negative integer values? (K2)

a) To swap the two elements

b) To select one of several alternatives

c) To toggle between true and false values

d) To change the iteration value

7. In contiguous memory allocation _____. (K1)

a) each process is contained in a single contiguous section of memory

b) all processes are contained in a single contiguous section of memory

c) the memory space is contiguous

d) none of the mentioned

8. In fixed size partition, the degree of multiprogramming is bounded by _____. (K2)

a) the CPU utilization b) the memory size

c) the number of partitions d) none of the mentioned

9. _____ is a process to combine all of the empty location in a memory. (K1)

a) Partitioning b) Spooling

c) Compaction d) Flush

10. What does Belady's Anomaly related to? (K2)

a) Page Replacement Algorithm

b) Memory Management Algorithm

c) Deadlock Prevention Algorithm

d) Disk Scheduling Algorithm

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) List the types of virtual machines and explain. (K2)

(Or)

b) Sketch the structure of an operating system. (K3)

12. a) Explain the process state transition. (K2)

(Or)

b) State the advantages of multithreading. (K3)

13. a) Write short notes on mutual exclusion. (K2)

(Or)

b) Illustrate the use semaphores with an example. (K3)

14. a) Explain overlay memory management with suitable examples. (K2)

(Or)

b) Compare Logical Address Space and Physical Address Space. (K3)

15. a) State the advantages and disadvantages of paging. (K2)

(Or)

b) Explain the page replacement algorithm with an example. (K3)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Outline the services of an operating system. (K4)

(Or)

b) Illustrate the booting process in OS. (K3)

17. a) Explain round robin algorithm with an example. (K4)

(Or)

b) Illustrate the multithreading models in OS. (K3)

Reg.No:_____

Course Code: 22UAWCT401

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022-2023 only)

Computer Science and Applications

Fourth Semester

Core: .Net Programming

Time: 3 Hours Maximum marks: 45

SECTION - A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which one of the following is a comparison operator in VB.Net ? (K1)

   a) + b) – c) * d) >

2. _____ bar contains a set of tools to provide controls in the Form. (K1)

   a) Status b) Tool c) Menu d) Progress

3. A module-level is available to all the _____ in the module. (K1)

   a) data b) procedures c) event d) task

4. The term LINQ supports _____ syntax. (K1)

   a) Query b) Method

   c) Command d) All the above

5 Oracle Database is also known as ____. (K1)

   a) OracleAB b) OracleBB c) OracleCB d) OracleDB

SECTION – B (5 X 3 =15 Marks)
Answer ALL questions.

6. a) List out the benefits of the.net framework. (K2)

(Or)

b) Discuss the operators in the .net framework. (K3)

7. a) Describe the input box .net framework. (K2)

(Or)

b) Illustrate the picture box in the .net. (K3)

8. a) Explain the menu strip control. (K2)

(Or)

b) Describe the tools strip control. (K2)

9. a) Demonstrate the LINQ query in the .net framework. (K3)

(Or)

b) Explain the projection in the .net framework. (K3)

10. a) Describe the term data reader. (K2)

(Or)

b) Explain the data relation in the .net framework. (K3)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Evaluate the Statement in VB. (K4)

(Or)

b) Categorize the versions in .net. (K5)

12. a) Analyze about label box in .net. (K4)

(Or)

b) Illustrate about the radio button in the.net framework. (K5)

13. a) Demonstrate about dialog box control. (K4)

(Or)

b) Explain the folder browser dialog control in .net. (K5)

14. a) Explain the LINQ to sql in .net. (K4)

(Or)

b) Explain the standard query operations in .net. (K5)

15. a) Illustrate the oracle and sql command in .net (K4)

(Or)

b) Explain the data table in .net. (K5)

20. a) Elaborate on the architecture of 80286 addressing modes. (K4)

(Or)

b) Outline on organization and addressing modes of 80386 with a neat diagram. (K5)

Reg.No:_____

Course Code: 22UAWCT102

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022-2023 Batch only)

Computer Science and Applications

First Semester

Core: Digital Fundamentals and Computer Architecture

Time: 3 Hours Maximum marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following are known as universal gates? (K1)

a) NAND & NOR b) AND & OR

c) XOR & OR d) EX-NOR & XOR

2. The NOR gate output will be high if the two inputs are _____. (K1)

a) 01 b) 00 c) 10 d) 11

3. A _____ map is a visual display of the fundamental products needed for a sum-of-products solution. (K1)

a) Karnaugh b) Batch c) Multi d) Karnite

4. A _____ flip-flop can also be modified to form a D flip-flop.

a) SS b) RS c) JK d) SR (K1)

5. In _____ the interface transfers data into and out of the memory unit through the memory bus. (K1)

a) DDA b) DAA c) DMA d) DMM

6. The DMA controller has _____ registers. (K1)

a) 4 b) 3 c) 2 d) 1

7. A _____ is a circular plate constructed of metal or plastic coated with magnetized material. (K1)

a) Magnetic disk b) Magnetic space

c) Magnetic tape d) Magnetic Data

8. The memory unit that communicates directly with the CPU is called _____ memory. (K1)

a) Auxiliary b) Main c) Cache d) Virtual

9. Which of the block is not considered as a block of architecture of 80286? (K1)

a) Address Unit b) Bus Unit

c) Control Unit d) Instruction Unit

10. The process of fetching the instruction in advance and storing in queue is _____. (K1)

a) Storing b) Swapping

c) Instruction Pipelining d) Mapping

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Infer the concept of Parallel Binary Subtractor with an example. (K2)

(Or)

b) Relate Half adder with Full adder arithmetic circuits with examples. (K3)

12. a) Explain the importance of Multiplexers. (K2)

Or)

b) Focus on the applications of Shift Registers. (K3)

13. a) Outline the difference between I/O Bus with Memory Bus. (K2)

(Or)

b) Construct an example for I/O Interface. (K3)

14. a) Explain the effect of Page Replacement. (K2)

(Or)

b) Evaluate the benefits of Set Associative Mapping. (K3)

15. a) Estimate the importance of Microcontroller. (K2)

(Or)

b) Outline the addressing modes of 80486. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Convert (1010.011)2 and (630.4)8 to decimal numbers. (K4)

(Or)

b) Discuss on NOR and NAND gates with examples. (K5)

17. a) Minimize the following boolean function, Use K map

$F(A, B, C, D) = \Sigma m (0, 1, 2, 5, 7, 8, 9, 10, 13, 15)$ (K4)

(Or)

b) Evaluate the concept of JK Master Slave Flip flop. Give examples. (K5)

18. a) Analyze the importance of DMA Controller with a neat diagram. (K4)

(Or)

b) Outline the features of Parallel Priority Interrupt. (K5)

19. a) Discuss about RAM and ROM chips with neat diagram. (K4)

(Or)

b) Recall the relation between address and memory space in a virtual memory system. (K5)

19. a) Write down the role of arrays in C++. Give examples. (K4)

(Or)

b) Discuss the importance of pure virtual functions in C++ with an example. (K5)

20. a) Examine the concept of Random Access Operations in C++. Give examples. (K4)

(Or)

b) Illustrate the method of opening a file with different modes in C++ program. (K5)

Reg.No:_____

Course Code: 22UAWCT201

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022-2023 Batch only)

Computer Science and Applications

Second Semester

Core: C++ Programming

Time: 3 Hours Maximum marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is called as address operator? (K1)

a) * b) - c) & d) %

2. The data members and functions of a class in C++ are by default _____. (K1)

a) private b) public c) protected d) both (b) & (c)

3. How many types of constructors are there in C++? (K1)

a) 4 b) 3 c) 2 d) 1

4. Which of the following operator cannot be overloaded in C++?

a) + b) - c) % d) ?: (K1)

5. Which keyword is used to declare virtual functions? (K1)

a) virt b) virtual c) virtually d) virtua

6. Which inheritance type in C++ does not allow private and protected members of the base class to be accessed from the derived class? (K1)

a) public b) private c) protected d) friend

7. Which of the following declaration is wrong? (K1)

a) int *ip; b) string s, *sp = 0;

c) int i; double* dp = &i; d) int *pi = 0;

8. The delete operator _____. (K1)

a) Invokes function operator delete

b) Invokes function defined by user to delete

c) Invokes function defined in global scope to delete object

d) Doesn't invoke any function

9. What kind of exceptions is available in C++? (K1)

a) unhandled b) dynamic c) static d) handled

10. Which part of the try-catch block is always fully executed? (K1)

a) try part b) catch part c) finally part d) throw part

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Infer the importance of loops in C++. Give examples. (K2)

(Or)

b) Sketch the benefits of OOP. (K3)

12. a) Explain the ways in which the member function is declared in C++ with an example. (K2)

(Or)

b) Narrate on the special characteristics of friendly functions. (K3)

13. a) Outline the concept of Virtual Base class in C++. (K2)

(Or)

b) Write a simple C++ program to implement Multiple Inheritance. (K3)

14. a) Explain the concept of declaring and initializing Pointers in C++ with an example. (K2)

(Or)

b) Illustrate the use of overloading operators in C++. (K3)

15. a) Write the syntax of file stream classes in C++. (K2)

(Or)

b) Write a C++ program to illustrate Division by Zero Exception with a catch block. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Illustrate the use of inline functions with appropriate examples. (K4)

(Or)

b) Explain about the basic concepts of object oriented programming. (K5)

17. a) Elaborate the concept of bit fields and classes in C++. (K4)

(Or)

b) Illustrate the use of copy constructor in C++, with an example. (K5)

18. a) Write a C++ program to find the cube of a number using function overloading concept. (K4)

(Or)

b) Explain the method of implementing single inheritance concept in C++. (K5)

08/11/2024 (AN)

Reg.No:_____

Course Code: 22UAPNT406

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022-2023 only)

Computer Science with Data Analytics

Fourth Semester

Non Major Elective: Nutritional Diet Therapy

Time: 3 Hours Maximum marks: 75

SECTION - A (5 X 15 = 75 Marks)

Answer ALL questions.

1. a) Discuss about etiology clinical features and nutritional management of underweight. (K2)

(Or)

b) Focus on clinical features and nutritional management of anorexia and the nausea. (K3)

2. a) Discuss about metabolism in fever. (K2)

(Or)

b) Analyze the general dietary consideration in tuberculosis and malaria. (K3)

3. a) Tell about a diet in Gall bladder stones. (K2)

(Or)

b) Brief account on diet in diabetes and constipation. (K3)

4. a) Mention the causes and treatment of urinary calculi. (K2)

(Or)

b) Explain the diet in atherosclerosis and hypertension. (K3)

5. a) Organize the impact of nutritional deficiency on outcome of pregnancy. (K2)

(Or)

b) Identify the adult nutrition and food requirements of older people. (K3)

Reg. No:_____

Course Code: 22UAXCT502

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 – 2023 only)

Computer Science with Data Analytics

Fifth Semester

Core: R Programming

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Numbers in R are generally treated as _____ precision real numbers. (K1)

   a) single b) double c) real d) imaginary

2. What is the simplest way of creating the vector? (K2)

   a) C function b) Create c) Destroy d) Invalid

3. R provides _____ function, to read a CSV file available in our current working directory. (K1)

   a) get.csv() b) scan.csv() c) get.csv() d) read.csv()

4. Which of the following function is used to return the result set of a R language query? (K2)

   a) write() b) return() c) fetch() d) get()

5. What is the purpose of break statement in R loop? (K1)

   a) To skip the current iteration of the loop

   b) To reset the loop from the beginning

   c) To increment the loop variable

   d) To exit the loop immediately

6. Mention the role of switch statement in R. (K2)

a) To swap the two elements

b) To select one of several alternatives

c) To toggle between true and false values

d) To change the iteration value

7. _____ is a process for the conversion of columns into multiple rows. (K1)

a) Melting b) Convert c) Traverse d) Class()

8. Which of the following is not an aggregate function in R? (K2)

a) mean b) min c) sum d) aggr

9. _____is a statistical term used to measure the direction of the linear relationship between the data vectors. (K1)

a) Mean b) Covariance

c) Standard deviation d) Correlation

10. ANOVA stands for_____. (K2)

a) Analytical variable b) Analogue variance

c) Analytical vector d) Analysis of variance

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Write short note on variables in R language. (K2)

(Or)

b) Enlist any six built-in math functions in R. (K3)

12. a) Explain the functions associated with binary files in R. (K2)

(Or)

b) Elaborate on web scraping in R. (K2)

13. a) Illustrate the do.call() method with an example. (K2)

(Or)

b) Test the switch statement with a simple R program. (K3)

14. a) Explain grepl() and gregexpr() with suitable examples. (K2)

(Or)

b) Outline the concept data reshaping in R. (K2)

15. a) State the built-in functions to generate normal distribution. (K3)

(Or)

b) Interpret the two types of ANOVA test. (K2)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Demonstrate the calling of a user defined function with suitable program. (K4)

(Or)

b) Summarize the benefits of data frames in R. (K3)

17. a) Discuss the uses of CSV file in R. (K3)

(Or)

b) Illustrate charts and graphs in R with an example. (K4)

18. a) Compare Do..while and while loop in R. (K3)

(Or)

b) Write an R program to find the maximum and minimum of a number in a given list. (K4)

19. a) Elaborate on plyr package with an example. (K2)

(Or)

b) Explain the string manipulation functions with suitable program. (K4)

20. a) Discuss the procedure to find the best fit model based on their AIC score in R. (K3)

(Or)

b) Elaborate the uses of T-Test in R with an example. (K3)

Reg.No: _____

Course Code: 22UAXCT401

B.Sc. Degree Examination - November 2024

(For the candidates admitted during the year 2022-2023 only)

Computer Science with Data Analytics

Fourth Semester

Core: Python Programming

Time: 3 Hours Maximum marks: 45

SECTION - A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. Python gives a_____ error when the incorrect codes are recognized by the interpreter. (K1)

   a) Runtime b) Syntax c) Semantic d) Logical

2. Which function returns the length of a specified list? (K1)

   a) Print () b) Len () c) Input () d) Char ()

3. Which method returns the current elapsed time in seconds? (K1)

   a) Time () b) Gmtime () c) Datetime () d) Decimal ()

4. Which keyword can remove objects and call the class destructor? (K1)

   a) Destroy () b) Delete () c) Del d) Remove ()

5. Which one of the title's specified by its title () method? (K1)

   a) Window object's b) Window ()

   c) Pack d) Grid

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

6. a) Write down the features of python. (K2)

(Or)

b) Give a note on comparison operators. (K3)

7. a) Explain about the list manipulation in python. (K2)

(Or)

b) Explain about the use of lambda keyword. (K3)

8. a) What is the use of random () method? (K2)

(Or)

b) How to update file strings? (K3)

9. a) Write down the syntax for creating instance of the class. (K2)

(Or)

b) Describe about garbage collection with an example. (K3)

10. a) Write down the function of text area with an example. (K2)

(Or)

b) List out the functions of list box with an example. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Discuss the steps for installing python on window. (K4)

(Or)

b) Describe about bit manipulation with an example. (K5)

12. a) Explain about the function of while loop with an example. (K4)

(Or)

b) Explain about if-else statement with a suitable example. (K5)

13. a) Describe – How to read and write a file? (K4)

(Or)

b) Discuss about matching patterns with example. (K5)

14. a) Demonstrate the function of radio button with example. (K4)

(Or)

b) Enlarge the term inheritance. (K5)

15. a) Compare list box with check Box. (K4)

(Or)

b) Discuss about Static & Dynamic properties. (K5)

17. a) Explain the fundamental operations of RS Flip Flop with tis truth table. (K4)

(Or)

b) Analyze the truth table and diagram for the De Multiplexer and explain its operations in detail. (K4)

18. a) Interpret the method of Direct Memory Access in detail. (K3)

(Or)

b) Illustrate the concept of input output bus with memory bus.(K3)

19. a) Compare the concept of RISC with CISC in detail. (K4)

(Or)

b) Explain any four Addressing modes and explain each mode with suitable example. (K4)

20. a) Interpret the method of Address Mapping using pages with suitable example. (K3)

(Or)

b) Demonstrate the concept of Main Memory with its types in detail. (K3)

Reg. No:_____

Course Code: 23UAKCT202/23UAXCT203

B.Sc. Degree Examinations - November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Science/Computer Science with Data Analytics

Second Semester

Core: Digital Fundamentals and Computer Architecture

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Convert the hexadecimal number "2F8" to binary. (K1)

a) 1011111000 b) 1010111100

c) 1010100111 d) 111101000

2. How can De Morgan's Laws be applied to the expression NOT (A OR B)? (K1)

a) NOT A OR NOT B b) NOT A AND NOT B

c) A AND B d) A OR B

3. What is the purpose of the Clear (CLR) input in flip-flops? (K1)

a) To set the flip-flop to its initial state

b) To enable clock pulses

c) To disable clock pulses

d) To clear the output and prepare for the next input

4. Which flip-flop type is commonly used for constructing binary counters? (K1)

a) RS Flip-Flop b) D Flip-Flop

c) JK Flip-Flop d) T Flip-Flop

5. Separate rows and columns in ASCII value "1000001". (K1)

a) 100,0001 b) 0001,100. c) 1000, 001 d) 001, 1000

6. Which component initiates the DMA process in a computer system? (K1)

a) CPU b) Memory

c) Peripheral device d) DMA controller

7. What does the op code field in an instruction format indicate? (K1)

a) The size of the instruction

b) The operation to be performed

c) The memory address of the instruction

d) The clock cycle required for execution

8. What is the role of registers in "register addressing mode"? (K1)

a) Store the result of an operation

b) Hold the memory address of the operand

c) Contain the operand itself

d) Manage the clock cycles of the CPU

9. In what unit is the size of main memory typically measured?

a) Hertz b) Bytes c) Gigabytes d) Megahertz (K1)

10. What is the term used for the process of transferring data between physical memory and virtual memory storage? (K1)

a) Memory allocation b) Paging

c) Fragmentation d) Caching

SECTION – B (5 X 5 = 25Marks)

Answer ALL questions.

11. a) Differentiate the truth table of NAND and NOR gate with suitable diagram. (K2)

(Or)

b) Explain the method of BCD with suitable example. (K2)

12. a) Illustrate the circuit diagram for Half Adder with its truth table. (K3)

(Or)

b) Explain the functionality of T Flip Flop with suitable example. (K3)

13. a) Illustrate the concept of Input Output interface with suitable diagram. (K2)

(Or)

b) Briefly describe the concept of Strobe Control in detail. (K2)

14. a) How does the operands are specified in an instruction? Explain with Instruction Format. (K3)

(Or)

b) Describe the concept of Reduced Instruction Set with suitable example. (K3)

15. a) Demonstrate the concept of Memory hierarchy with suitable example. (K2)

(Or)

b) Illustrate the method of Associative Mapping with suitable example. (K2)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Simplify the Boolean function F(A,B,C,D) = Σ (1,2,5,7,8,10,12,14,15) with Karnaugh map (K4)

(Or)

b) Simplify the Boolean function F (A, B, C, D) = π (1,2,5,7,8,9,10,11,12,14,15) with Karnaugh map. (K4)

19. a) Discuss in detail about the K – way merging. (K4)

(Or)

b) Write down the procedure for Heap Sort algorithm. (K5)

20. a) Paraphrase about the File Organization in detail. (K4)

(Or)

b) Illustrate the concept of Hashing Functions. (K5)

Reg.No:_____

Course Code: 23UAKCT102 / 23UAXCT102

B. Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Science / Computer Science with Data Analytics

First Semester

Core: Data structures and Algorithms

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is an example for a postfix expression?

a) a*b(c+d) b) abc*+de-+ c) +ab d) a+b-c (K1)

2. Which of the following is not the method to represent Sparse Matrix? (K1)

a) Dictionary of Keys b) Linked List

c) Array d) Heap

3. In linked list each node contains a minimum of two fields. One field is data field to store the data second field is_____. (K1)

a) Pointer to character b) Pointer to integer

c) Pointer to node d) Node

4. What is a full binary tree? (K1)

a) Each node has exactly zero or two children

b) Each node has exactly two children

c) All the leaves are at the same level

d) Each node has exactly one or two children

5. What approach is being followed in Floyd Warshall Algorithm?
a) Linear Programming b) Backtracking (K1)
c) Greedy technique d) Dynamic Programming

6. Which of the following statements for a simple graph is correct?
a) Every path is a trail (K1)
b) Every trail is a path
c) Every trail is a path as well as every path is a trail
d) Path and trail have no relation

7. In what position does the array for heap sort contains data? (K1)
a) -1 b) 1 c) 0 d) anywhere in the array

8. Magnetic tape is a type of _____ access device. (K1)
a) Sequential b) Direct access
c) Step d) Indirect

9. If several elements are competing for the same bucket in the hash table, what is it called? (K1)
a) Diffusion b) Replication c) Collision d) Duplication

10. The file organization which allows us to read records that would satisfy the join condition by using one block read is_____. (K1)
a) Heap file organization b) Sequential file organization
c) Clustering file organization d) Hash file organization

SECTION – B (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Explain about the representation of arrays. (K2)

(Or)

b) Identify in brief about the term SPARKS. (K3)

12. a) Outline about the concept of Counting Binary Trees. (K2)

(Or)

b) Illustrate the concept of Linked Stacks with suitable examples. (K3)

13. a) Summarize about the representation of graphs. (K2)

(Or)

b) Discover about the spanning trees in detail. (K3)

14. a) Analyze about the Internal Sorting with examples. (K2)

(Or)

b) Explain about the disk storage. (K3)

15. a) Describe the concept of Hash Tables in detail. (K2)

(Or)

b) Discover about the files in detail. (K3)

SECTION – C (5 X 8 = 40 Marks)
Answer ALL questions.

16. a) Illustrate about the evaluation of expressions in detail. (K4)

(Or)

b) Summarize about the sparse matrix transpose algorithm in detail. (K5)

17. a) Illustrate about the polynomial addition with suitable examples. (K4)

(Or)

b) Describe the concept of Binary Tree Traversal. (K5)

18. a) Explain about the Graph Traversal in detail. (K4)

(Or)

b) Analyze the terms Shortest Path and Transitive Closure in detail. (K5)

Reg. No:_____

Course Code: 22UAXET507

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 – 2023 only)

Computer Science with Data Analytics

Fifth Semester

Elective: Artificial Neural Network and Fuzzy Systems

Time: 3 Hours Maximum Marks: 45

SECTION – A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following activation functions is typically used in the output layer of a binary classification neural network? (K1)

a) ReLU b) Sigmoid c) Tanh d) Leaky ReLU

2. _____is an example of passive data collection. (K2)

a) Conducting Surveys b) Observing user behavior

c) Installing sensors d) Interviewing participants

3. The primary purpose of feedback in neural network is_____. (K1)

a) to adjust weights during training

b) to preprocess input data

c) to initialize the network architecture

d) to activate neurons in the input layer

4. Which of the following is not a characteristic of fuzzy sets? (K2)

a) Fuzziness b) Crisp boundaries

c) Membership function d) Degree of membership

5. Which of the following describes an equivalence relation? (K1)

a) Reflexive, symmetric, and transitive

b) Symmetric, transitive, and irreflexive

c) Reflexive, antisymmetric, and transitive

d) Reflexive, symmetric, and non-transitive

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

6. a) Write a note on Feed Forward neural network. (K2)

(Or)

b) Brief note on Min-Max normalization. (K3)

7. a) What is data labeling? (K2)

(Or)

b) Explain the concept of classifier coding. (K3)

8. a) Illustrate Perceptron with an example. (K2)

(Or)

b) Mention the features of Hard problem. (K3)

9. a) Write down the limitation of fuzzy systems. (K2)

(Or)

b) Illustrate fuzzy set and membership with an example. (K3)

10. a) List down the functions of fuzzy cartesian product. (K2)

(Or)

b) What is fuzzy relation? Explain it. (K3)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Summarize the concept of Supervised Training methods. (K5)

(Or)

b) Write a note on Energy Normalization. (K6)

12. a) Discuss about data collection and write an example. (K5)

(Or)

b) Develop the effect of training data on neural network performance. (K6)

13. a) Assess analysis of Pattern Association Networks. (K5)

(Or)

b) Formulate Linear Auto associative FF Networks. (K6)

14. a) Evaluate utility of fuzzy systems. (K5)

(Or)

b) Summarize the fuzzy set operations with an example. (K6)

15. a) Appraise cardinality of fuzzy relations. (K5)

(Or)

b) Discuss properties of crisp relations. (K6)

19. a) Illustrate this operator with an example. (K4)

(Or)

b) Discuss the declaration of Arrays with an example. (K5)

20. a) Explain the exception handling mechanisms used in C++. (K4)

(Or)

b) Outline the types of miscellaneous function. (K5)

Reg. No:_____

Course Code: 23UAXCT201

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Science with Data Analytics

Second Semester

Core: Programming in C++

Time: 3 Hours Maximum Marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The packing of data and functions into a single component is known as _____. (K1)

a) Objects b) Classes

c) Encapsulation d) Statements

2. Which statement allows the programmer to terminate the loop?

a) Break b) Continue c) Switch d) If (K1)

3. Which one of the following is not part of a class but have access to its private member? (K1)

a) Friend b) Const c) Static d) Virtual

4. Which one has the same name as that of a class? (K1)

a) Constructor b) Overloading

c) Destructor d) Polymorphism

5. Which one of the following is the mechanism of deriving new class from old one? (K1)

a) Polymorphism b) Overloading

c) Inheritance d) Encapsulation

6. A class inherits properties from more than one class is called as_____. (K1)

a) Multiple inheritance b) Single inheritance

c) Multilevel inheritance d) Hierarchical inheritance

7. Which one of the following is the mechanism of deriving new class from old one? (K1)

a) Polymorphism b) Overloading

c) Inheritance d) Encapsulation

8. Which type of function among the following shows polymorphism? (K1)

a) Inline b) Friend

c) member functions d) undefined functions

9. When fopen() is not able to open a file, it returns? (K1)

a) EOF b) Null

c) Runtime error d) Compiler dependent

10. By default, all the files are opened in which of the following mode? (K1)

a) Binary mode b) Text mode

c) Sequential mode d) Both (a) & (b)

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Describe the tokens in C++ with suitable example. (K2)

(Or)

b) Elaborate the switch case statement with an example. (K2)

12. a) Write about static variables with suitable example. (K3)

(Or)

b) Illustrate the array of objects with an example. (K3)

13. a) Write short notes on single inheritance with an example. (K3)

(Or)

b) Explain the use of Abstract class with an example. (K3)

14. a) Describe the Dynamic object with an example. (K2)

(Or)

b) Outline the need of virtual function with example. (K3)

15. a) Describe the need of templates with an example. (K2)

(Or)

b) Illustrate the purpose of random access operation. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Discuss the key concepts in Object Oriented Programming. (K4)

(Or)

b) Enumerate the syntax and example of for loop statement in C++. (K5)

17. a) Explain the concept of friend function with an example. (K4)

(Or)

b) Describe the declaration of Constructor with example. (K5)

18. a) Describe about the type conversion with suitable example. (K4)

(Or)

b) Compare overloading unary and binary operator with an example. (K5)

20/11/2024 (FN)

(Or)

b) What is Java Tokens? List and explain all the five types of tokens in Java. (K5)

17. a) Analyze the importance of various access specifiers used in Java. (K4)

(Or)

b) Explain various types of constructors used in Java with an example. (K5)

18. a) Define an interface Shape2D with the method double getArea() Define a class Square that implements the Shape2D interface as Given below:

Data Member: side

Methods : 1. Constructor

2. getArea()

Create an object for the class Square and find the area. (K4)

(Or)

b) (i) What is Package? Give an example (5 marks)

(ii) Explain the purpose of import statement (3 marks) (K5)

19. a) Define a thread using Thread class to generate factorial of first 20 natural numbers. Create instance for this thread and then activate it. (K4)

(Or)

b) Discuss few important input and output stream classes (5 marks) What is the purpose of StreamTokenizer class? (3 marks) (K5)

20. a) Describe three different layout managers in Java Swing and provide a brief example of each. (K4)

(Or)

b) Illustrate the idea of Model-View-Controller (MVC) design pattern. (K5)

Reg.No: _____

Course Code: 23UAKCT301 / 23UAXCT301

B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Computer Science / Computer Science with Data Analytics

Third Semester

Core: Java Programming

Time: 3 Hours Maximum Marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is not a feature of Java? (K1)

a) Object-Oriented b) Platform-Dependent

c) Secure d) Multithreaded

2. Which of the following is not a type of statement in Java? (K1)

a) Declaration Statement b) Assignment Statement

c) Control Statement d) Procedure Statement

3. Which of the following is true about the else-if ladder? (K1)

a) It is a sequence of if statements with else conditions

b) It allows multiple conditions to be checked in a single statement

c) It does not allow nested if-else statements

d) It requires a switch statement at the end

4. Which of the following is the correct syntax to define a class in Java? (K1)

a) class MyClass { } b) MyClass class { }

c) define class MyClass { } d) class { MyClass }

5. Which of the following true about vectors in Java? (K1)

a) Vectors are synchronized.

b) Vectors cannot change size once created.

c) Vectors do not allow duplicate elements.

d) Vectors are not part ofthe Java Collections Framework.

6. Which keyword is used to extend an interface in Java? (K1)

a) extends b) implements

c) inherits d) interface

7. Which of the following is not a state in the life cycle of a thread? (K1)

a) New b) Runnable c) Blocked d) Suspended

8. Which of the following is a checked exception in Java? (K1)

a) NullPointerException

b) ArrayIndexOutOfBoundsException

c) IOException

d) ArithmeticException

9. Which of the following is a top-level container in Swing? (K1)

a) JPanel b) JButton c) JFrame d) JLabel

10. Which of the following describes the Delegation Event Model in Java? (K1)

a) Events are handled by the source component itself.

b) Events are delegated to a separate object called an event listener.

c) Events are handled by a global event handler.

d) Events are ignored by the application.

20

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Explain any five features of Java Programming Language. (K2)

(Or)

b) List and explain the steps of implementing a Java Program. (K3)

12. a) Bring out the differences between method overloading and overriding. (K2)

(Or)

b) What is method declaration? Explain the basic parts of a method. (K3)

13. a) Discuss the methods of string class with suitable example. (K2)

(Or)

b) How interface can be implemented? Explain with an example. (K3)

14. a) Draw the Applet life cycle diagram and explain its phases. (K2)

(Or)

b) What is thread? Explain various ways to create threads in Java. (K3)

15. a) Write a Java Swing program to implement border layout. (K2)

(Or)

b) What is component driven programming? Explain with an example. (K3)

SECTION - C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Describe the Java Virtual Machine (JVM) and its role in Java programming. Include a discussion on the importance of bytecode. (K4)

Reg.No:_____

Course Code: 22UAXCT503

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Science with Data Analytics

Fifth Semester

Core: Big Data Analytics

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Big data analysis does the following except _____. (K1)

   a) Collects data b) Spreads data

   c) Organizes data d) Analyzes data

2. The word 'Big data' was coined by _____. (K2)

   a) Roger Mougalas b) John Philips

   c) Simon Woods d) Martin Green

3. The examinations of large amounts of data to see what patterns or other useful information can be found is known as _____. (K1)

   a) Data examination b) Information analysis

   c) Data analysis d) Big data analytics

4. In how many forms Bigdata could be found? (K2)

   a) 2 b) 3 c) 4 d) 5

5. _____ is the architectural center of Hadoop that allows multiple data processing engines. (K1)

   a) YARN b) Hive c) Incubator d) Chuckwa

6. Which of the following platforms does Hadoop run? (K2)

a) Debian b) Cross-platform

c) Unix-like d) Bare metal

7. Mapper class is _____. (K1)

a) Static type b) Abstract type

c) Generic type d) Final

8. _____ is the best described as a programming model that is used to construct Hadoop-based applications that can be scaled up and down. (K2)

a) Oozie b) Zookepper c) MapReduce d) Spark

9. In PIG, what does the term "Relation" refer to? (K1)

a) A column in a table b) A set of records

c) A single piece of data d) A column in a table

10. Which of the following function is used to read data in PIG?

a) WRITE b) READ c) LOAD d) BUFFER (K2)

SECTION - B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Manipulate about the Big data in detail. (K2)

(Or)

b) Prepare and explain the challenges with Big data. (K3)

12. a) Construct the process of Hadoop distributions. (K2)

(Or)

b) Evaluate the top challenges facing Big data. (K3)

13. a) Write a note on Hive and HBase. (K2)

(Or)

b) List out the components of Hadoop. (K3)

14. a) Compare the text file and sequential file. (K2)

(Or)

b) Explain the use of Combiner in MapReduce. (K3)

15. a) Classify about the Pig Philosophy. (K2)

(Or)

b) Sketch the collaborative filtering in machine learning. (K3)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Develop the classification of digital data. (K3)

(Or)

b) Organize the typical Hadoop Environment with diagram. (K4)

17. a) Design the types of NoSQL databases and advantages of NoSQL. (K3)

(Or)

b) Hypothesize the Data Science in Big data Analytics. (K4)

18. a) Justify the basic concept of Hadoop Distributed File system (HDFS). (K3)

(Or)

b) Evaluate the history of Hadoop. (K4)

19. a) Explain about the following in Hive Query Language: (K3)

i) DDL & DML ii) Partitions

(Or)

b) Summarize the Hive data types with an example. (K4)

20. a) Measure the overview of Pig Latin. (K3)

(Or)

b) Explain about any six relational operations in Pig. (K4)

18. a) Justify about the Segmentation. (K3)

(Or)

b) Write the following: (K4)

i) First-in-First-Out (FIFO) Page Replacement Strategies

ii) Least-Frequently-used (LFU) Page Replacement

19. a) Hypothesize scheduling levels. (K3)

(Or)

b) Summarize in detail Fair Share Scheduling. (K4)

20. a) Defend and predict file systems. (K3)

(Or)

b) Simulate and validate the necessary for disk scheduling. (K4)

Reg.No:_____

Course Code: 22UAXCT501

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Science with Data Analytics

Fifth Semester

Core: Operating Systems

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following program is loaded first when starting a computer? (K1)

a) Window desktop b) Network connection program

c) Operating system d) CMD

2. Which of the following operating system require a command to run? (K2)

a) Windows b) Kali Linux

c) Mac OS d) Single-user OS

3. Which one of the following is the deadlock avoidance algorithm? (K1)

a) Banker's algorithm b) Round-robin algorithm

c) Elevator algorithm d) Karn's algorithm

4. If the resources are always preempted from the same process _____ can occur. (K2)

a) Deadlock b) Starvation

c) System crash d) Aging

5. Working set model for page replacement is based on the assumption of _____. (K1)

a) Modularity b) Globalization

c) Locality d) Random access

6. Users_____ that their processes are running on a paged system. (K2)

a) are aware b) are unaware

c) may aware d) may unaware

7. First-in-First-Out (FIFO) scheduling is_____. (K1)

a) Non-Preemptive Scheduling

b) Preemptive Scheduling

c) Fair Share Scheduling

d) Deadline Scheduling

8. What is a major advantage of using the Multilevel Queue scheduling algorithm? (K2)

a) It allows processes to move between queues

b) It reduces the overall system security

c) It simplifies the scheduler design

d) It increases the CPU utilization

9. In which allocation method does the user has to give size of the file before creating the file? (K1)

a) Linked b) Contiguous c) Indexed d) Desktop

10. Which file is a sequence of bytes organized into blocks understandable by the system's linker? (K2)

a) Object file b) Source file

c) Executable file d) Text file

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Write and explain the Process State Transitions. (K2)

(Or)

b) Classify about the Process. (K3)

12. a) Illustrate the single user Contiguous Storage Allocation. (K2)

(Or)

b) Write a note on Deadlock and Indefinite Postponement. (K3)

13. a) Sketch out the Paging. (K2)

(Or)

b) Estimate about the Virtual Storage Management strategies. (K3)

14. a) Demonstrate the Shortest-Remaining-Time-Scheduling. (K2)

(Or)

b) Estimate and test the Priorities in detail. (K3)

15. a) Categorize about the file organization. (K2)

(Or)

b) Manipulate and prepare the Access Control Matrix. (K3)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Describe the Process Control Blocks (PCB) in detail. (K3)

(Or)

b) Editorialize and assess the distributed computing. (K4)

17. a) Estimate about the Deadlock Detection. (K3)

(Or)

b) Generalize the Fixed Partition Multiprogramming. (K4)

Reg.No: _____

Course Code: 22UAXAL509

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Science with Data Analytics

Fifth Semester

ALC: Data Mining

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1.	Define data mining.	(K1)
2.	Define regression.	(K2)
3.	Write a note on quartiles.	(K2)
4.	Comment on alternative hypothesis.	(K2)
5.	Identify using probability distributions.	(K1)
6.	What is tree structure?	(K2)
7.	Define clustering.	(K1)
8.	Write down the Nearest Neighbor algorithms.	(K2)
9.	Write a note on Context Focused Crawler.	(K2)
10.	Define Generalized Suffix Tree.	(K1)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a)	Explain about data mining metrics.	(K3)
	(Or)	
b)	Illustrate data mining versus knowledge discovery in databases.	
12. a)	List out the similarity measures in data mining.	(K3)
	(Or)	
b)	Analyze the point estimation.	(K3)

13. a)	Write a note on issues in classification.	(K3)
	(Or)	
b)	Classify statistical based algorithms with an example.	(K4)
14. a)	Explain outliners with a neat diagram.	(K3)
	(Or)	
b)	Illustrate Agglomerative Algorithms with an example.	(K4)
15. a)	Discover Crawlers with an example.	(K3)
	(Or)	
b)	Explain pattern discovery.	(K4)

SECTION – C (5 X 10 = 50 Marks)

Answer ALL questions

16. a)	Write a note on basic data mining tasks in details.	(K6)
	(Or)	
b)	Organize data mining issues with an example.	(K6)
17. a)	Summarize a statistical perspective on data mining.	(K5)
	(Or)	
b)	Design a decision trees with a neat diagram.	(K6)
18. a)	Discriminate decision tree based algorithms.	(K5)
	(Or)	
b)	Generalize neural network based algorithms.	(K6)
19. a)	Summarize Minimum Spanning Tree with a neat diagram.	(K5)
	(Or)	
b)	Write a note on Squared Error Clustering Algorithms.	(K6)
20. a)	Defend web structure mining.	(K5)
	(Or)	
b)	Generalize web usage mining.	(K6)

18. a) Let $V_n(R)$ is a real inner product space with inner product defined by $\langle x,y\rangle = x_1y_1 + x_2y_2 + \ldots\ldots + x_ny_n$, where $x=(x_1, x_2, \ldots\ldots x_n)$ and $y=(y_1, y_2, \ldots\ldots y_n)$, then prove that the standard inner product on $V_n(R)$. (K4)

(Or)

b) Apply Gram-Schmidt process to construct an ortho normal basis for $V_3(R)$ with the standard inner product for the basis $\{ v_1, v_2, v_3\}$ where $v_1=(1,0,1)$; $v_2=(1,3,1)$ and $v_3=(3,2,1)$. (K5)

19. a) Show that the matrix

$$A=\begin{bmatrix} 2 & -3 & 1 \\ 3 & 1 & 3 \\ -5 & 2 & -4 \end{bmatrix}$$ satisfies the equation $A(A-I)(A+2I)= 0$. (K4)

(Or)

b) Compute the inverse of th matrix $A=\begin{bmatrix} 2 & -1 & 1 \\ -15 & 6 & -5 \\ 5 & -2 & 2 \end{bmatrix}$ (K5)

20. a) Show that the system of equations $X+Y+Z=6$

$X+2Y+3Z=14$

$X+4Y+7Z=30$ is consistent and solve them. (K4)

(Or)

b) Find the characteristic roots and characteristic vectors of the matrix $A=\begin{bmatrix} 0 & 1 & 1 \\ -4 & 4 & 2 \\ 4 & -3 & -1 \end{bmatrix}$ (K5)

Reg.No.: _____

Course Code : 23UAXAT104

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Science with Data Analytics

First Semester

Allied: Introduction to Linear Algebra

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer

1. Any vector space is an _____ group with respect to vector addition. (K1)

a) abelian b) sub c) cyclic d) non-cyclic

2. Given any field F, there exists a vector space of ___ over F. (K1)

a) m b) n c) m x m d) n x n

3. Any two bases of a finite dimensional vector space have the same number of _____. (K1)

a) scalars b) vectors c) elements d) products

4. If V is a vector space of dimension n and m<n, then there exists a subspace of V of dimension _____. (K1)

a) m+n b) m-n c)n d) m

5. Any finite dimensional vector space over R or C can be provided with an _____ product. (K1)

a) inner b) outer c) dot d) vector

6. Any finite dimensional inner product space has ____basis. (K1)

a) zonal b) orthogonal c) singular d) non singular

7. The transpose of a row matrix is a _____ matrix. (K1)

a) null b) row c) column d) unit

8. The product of two non-singular matrices is _____. (K1)

a) symmetric b) unit c) singular d) non-singular

9. Every square matrix satisfies its _____ equation. (K1)

a) characteristics b) scalar c) linear d) non-linear

10. The characteristic vectors corresponding to a characteristic root form a _____ space. (K1)

a) Scalar b) Vector c) trivial d) non-trivial

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Prove that the set V of all polynomials of degree $\leq n$ including the zero polynomial in F[x] is a vector space over the field F under the addition and scalar multiplication. (K2)

(Or)

b) Let $T : V \rightarrow W$ be a linear transformation, then prove that $T(V) = \{ T(v) / v \in V \}$ is a subspace of W. (K3)

12. a) Prove that, any subset of a linearly independent set is linearly independent. (K2)

(Or)

b) Obtain the matrix representing the linear transformation $T:V_3(R) \rightarrow V_3(R)$ given by $T(a,b,c)=(3a,a-b,2a+b+c)$ with respect to the standard basis $\{ e_1, e_2, e_3\}$. (K3)

13. a) Let V be the vector space of polynomials with inner product given by $\langle f,g \rangle = \int_0^1 f(t)g(t)dt$. Let $f(t) = t+2$ and $g(t) = t^2-2t-3$. Find $\langle f,g \rangle$. (K2)

(Or)

b) Let $S=\{v_1, v_2, \ldots, v_n\}$ be an orthogonal set of non-zero vectors in an inner product space V. Then prove that S is linearly independent. (K3)

14. a) If $A=\begin{bmatrix} 1 & 2 \\ 3 & 4 \\ 9 & 5 \end{bmatrix}$ and $B=\begin{bmatrix} 0 & 4 \\ 2 & 1 \\ -1 & 0 \end{bmatrix}$ Find A+B. (K2)

(Or)

b) Let A be any square matrix. Then prove that $A + A^T$ is symmetric. (K3)

15. a) Show that the non-singular matrix $A=\begin{bmatrix} 1 & 2 \\ 3 & 1 \end{bmatrix}$ satiesfies the equation $A^2-2A-5I = 0$. Hence evaluate A^{-1} (K2)

(Or)

b) Prove that 0 is a characteristic root of A if and only if A is a singular matrix. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Show that, R x R is a vector space over R under addition and scalar multiplication defined by $(x_1,x_2) + (y_1,y_2)= (x_1+x_2 , y_1+y_2)$ and $\alpha(x_1,x_2)= (\alpha x_1,\alpha x_2)$. (K4)

(Or)

b) Let V be a vector space over a field F and S be a non-empty subset of V. Then prove that (i) L(S) is a subspace of V. (ii) SCL(S). (K5)

17. a) Prove that, in $V_3(R)$, the vectors (1,4, -2); (-2,1,3) and (-4,11,5) are linearly independent. (K4)

(Or)

b) Find the linear transformation T: $V_3(R) \rightarrow V_3(R)$ determined by the matrix $\begin{bmatrix} 1 & 2 & 1 \\ 0 & 1 & 1 \\ -1 & 3 & 4 \end{bmatrix}$ with respect to the standard basis $\{ e_1, e_2, e_3\}$. (K5)

SECTION - C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Elaborate about protocols in networking, key elements and its various types in detail. (K4)

(Or)

b) Outline about the concept of Information encoding. (K5)

17. a) Summarize the concept of Digital transmission. (K4)

(Or)

b) Outline about the concept of Baud rate and bits per second in detail. (K5)

18. a) Elaborate about Asynchronous and Isochronous communication. (K4)

(Or)

b) Outline the difference between FDM and TDM. (K5)

19. a) List the types of Switching. Explain any one in detail. (K4)

(Or)

b) Outline about the Routing algorithm in detail. (K5)

20. a) Summarize about the Broadband-ISDN of ATM. (K4)

(Or)

b) Outline about ISDN Interfaces and functional grouping. (K5)

Reg.No:_____

Course Code: 23UAXAT303

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Computer Science with Data Analytics

Third Semester

Allied: Data Communication and Networks

Time: 3 Hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____ uses radio waves to transport data over the air, enabling devices to be connected to a network without any cabling. (K1)

a) Wireless networking b) Wired networking

c) Static networking d) Dynamic networking

2. _____ is the process of encoding, restructuring or otherwise modifying data in order to reduce its size. (K1)

a) Data de-compression b) Data compression

c) Data Encryption d) Data Decryption

3. _____are commonly used in communication systems that convey voice, data, image, signal, or video information using a continuous signal. (K1)

a) Digital signal b) Analog transmission

c) Analog signal d) Digital transmission

4. _____is the transfer of data over a point-to-point or point-to-multipoint communication channel. (K1)

a) Analog transmission b) Non-Digital communication

c) Analog Communication d) Digital communication

5. _____ is a technique used to combine and send the multiple data streams over a single medium. (K1)

a) Multiplexing b) Non- multiplexing

c) De-multiplexing d) Non-De-Multiplexing

6. In the _____error correction scenario, the receiving end is responsible for correcting the network error and there's no need for retransmission of the data from the sender's side. (K1)

a) Backward b) Forward

c) Uni-directional Forward d) Uni-directional Backward

7. _____ refer to the physical pathways through which data is transmitted from one device to another within a network and these pathways can be wired or wireless. (K1)

a) Guided media b) Bounded media

c) Transmission media d) Un-bounded media

8. A _____ is a procedure that lays down the route or path to transfer data packets from source to the destination. (K1)

a) Non-routing algorithm b) Router algorithm

c) Non-router algorithm d) Routing algorithm

9 _____ is a reference model that describes how information from a software application in one computer moves through a physical medium to the software application in another computer. (K1)

a) Open System Interconnection

b) Open Source Interconnection

c) Open System Intra-connection

d) Open Structure Interconnection

10 _____ is process to forward packets coming in from one port to a port leading towards the destination. (K1)

a) Connection-oriented Switching

b) Switching

c) Connectionless Switching

d) Circuit switching

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Summarize about the Signal Propagations. (K2)

(Or)

b) Explain about the concept of bandwidth of a signal. (K3)

12. a) List the advantages and disadvantages of Analog Signals. (K2)

(Or)

b) Summarize the advantages and disadvantages of Digital Signals. (K3)

13. a) List the needs of Serial and Parallel communications. (K2)

(Or)

b) Summarize about the various types of Errors. (K3)

14. a) Outline the concept of Shannon capacity. (K2)

(Or)

b) Summarize the concept of Router and routing. (K3)

15. a) Explain about the ISDN architecture. (K2)

(Or)

b) Outline the concepts of ATM Cells. (K3)

Reg.No: _____

Course Code: 22UANCT503

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Mathematics

Fifth Semester

Core: Operations Research

Time: 3 Hours Maximum Marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Decision variables in an OR model are_____. (K1)

   a) controllable b) uncontrollable

   c) parameters d) constants

2. In LPP model, constraints with $\geq$ inequality can be balanced by_____. (K2)

   a) Slack Variable b) Surplus Variable

   c) Artificial Variable d) Both (b) and (c)

3. For maximization linear programming problem, the simplex method is estimated when all the net evaluations are_____.

   a) negative b) non negative c) zero d) positive (K1)

4. If the dual has an unbounded solution, primal has_____.

   a) an unbounded solution b) an infeasible solution (K2)

   c) a feasible solution d) none of the above

5. If we use the cost value for non-basic cell to test optimality, then it should be_____. (K1)

   a) most negative number b) most positive number

   c) equal to zero d) any value

6. The solution to a transportation problem with m-sources and n-destinations has _____number of allocations. (K2)

a) m + n-1 b) m + n + 1 c) m + n d) m x n

7. If there are n workers and n jobs, there would be____ solutions.

a) n b) n! c) (n – 1)! d) $(n!)^n$ (K1)

8. When maximin and minimax values of the game are same, then_____. (K2)

a) there is a saddle point b) solution does not exit

c) strategies are mixed d) none of the above

9. In network analysis, CPM means_____. (K1)

a) Critical Path Method b) Crash Project Management

c) Critical Project Management d) Critical Path Management

10. The activity which can be delayed without affecting the execution of the immediate succeeding activity is determined by_____. (K2)

a) total float b) free float

c) independent float d) interfering float

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) A firm manufactures headache pills in two sizes A and B. Size A contains 2 grains of aspirin, 5 grains of bicarbonate and 1 grain of codeine. Size B contains 1 grain of aspirin, 8 grains of bicarbonate and 6 grains of codeine. It is found by users that it requires at least 12 grains of aspirin, 74 grains of bicarbonate and 24 grains of codeine for providing immediate effect. It is required to determine the least number of pills a patient should take to get immediate relief. Formulate the problem as LPP. (K3)

(Or)

b) Discuss the scientific method in OR. (K2)

i. Draw the network diagram and find the project completion time.

ii. Calculate total float for each of the activities and highlight the critical path.

(Or)

b) A small project is composed of seven activities whose time estimates are listed below: (K4)

Activity		Estimated Duration (weeks)		
i	j	Optimistic	Most likely	Pessimistic
1	2	1	1	7
1	3	1	4	7
1	4	2	2	8
2	5	1	1	1
3	5	2	5	14
4	6	2	5	8
5	6	3	6	15

i) Find the expected duration and variance of each activity. What is the expected project length?

ii) Calculate the variance and standard deviation of project length. What is the probability that the project will be completed atleast 4 weeks earlier and no more than 4 weeks later than expected?

12. a) Show that the following system of solutions has a degenerate solution. $2x_1 + x_2 - x_3 = 2$

$3x_1 + 2x_2 + x_3 = 3.$ (K3)

(Or)

b) Use two-phase simplex method to maximize $z = 5x_1 + 3x_2$ subject to $2X_1 + X_2 \leq 1$, $X_1 + 4X_2 \geq 6$ and $X_1, X_2 \geq 0$. (K2)

13. a) Apply North-West Corner method to find the initial basic feasible solution to the following transportation problem. (K3)

$$\begin{array}{ccc|c} 8 & 10 & 12 & 900 \\ 12 & 13 & 12 & 1000 \\ 14 & 10 & 11 & 1200 \\ \hline 1200 & 1000 & 900 & \end{array}$$

(Or)

b) Obtain an initial basic feasible solution to the following transportation problem using least cost method. (K2)

$$\begin{array}{cccc|c} 1 & 2 & 3 & 4 & 6 \\ 4 & 3 & 2 & 0 & 8 \\ 0 & 2 & 2 & 1 & 10 \\ \hline 4 & 6 & 8 & 6 & \end{array}$$

14. a) Explain the steps involved in Hungarian method. (K3)

(Or)

b) Solve the game whose pay off matrix is given by (K2)

Player B

$$\begin{array}{cc} & \begin{matrix} B_1 & B_2 & B_3 \end{matrix} \\ \text{Player A} \begin{matrix} A_1 \\ A_2 \\ A_3 \end{matrix} & \begin{bmatrix} 1 & 3 & 1 \\ 0 & -4 & -3 \\ 1 & 5 & -1 \end{bmatrix} \end{array}$$

15. a) Analyze the difference between PERT and CPM. (K3)

(Or)

b) Sketch a network diagram for the following data. (K2)

Activity	A	B	C	D	E	F	G	H	I	J
Preceding activities	None	A	A	B	A	B,E	C	D,F	G	H,I

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Summarize the applications of OR. (K3)

(Or)

b) Use graphical method to solve the following LPP: (K4)

Minimize $z = -x_1 + 2x_2$ subject to

$-x_1 + 3x_2 \leq 10$, $x_1 + x_2 \leq 6$, $x_1 - x_2 \leq 2$ where $x_1, x_2 \geq 0$

17. a) Solve using Simplex method. (K4)

Maximize $z = 4x_1 + 10x_2$ subject to

$2x_1 + x_2 \leq 50$, $2x_1 + 5x_2 \leq 100$, $2x_1 + 3x_2 \leq 90$ where $x_1, x_2 \geq 0$.

(Or)

b) Use duality to solve the following LPP. (K3)

Maximize $z = 2x_1 + x_2$ subject to

$x_1 + 2x_2 \leq 10$, $x_1 + x_2 \leq 6$, $x_1 - x_2 \leq 2$, $x_1 - 2x_2 \leq 1$

where $x_1, x_2 \geq 0$.

18. a) Using Vogel's approximation method, estimate a basic feasible solution to the following transportation method. (K3)

	1	2	3	4	a_i
I	21	16	25	13	11
II	17	18	14	23	13
III	32	27	18	41	19
b_j	6	10	12	15	43

(Or)

b) Solve the following transportation problem. (K4)

	D_1	D_2	D_3	D_4	a_i
S_1	3	1	7	4	300
S_2	2	6	5	9	400
S_3	8	3	3	2	500
b_j	250	350	400	200	1200

19. a) Solve the following assignment problem. (K3)

	a	b	c	d	e
A	85	75	65	125	75
B	90	78	66	132	78
C	75	66	57	114	69
D	80	72	60	120	72
E	76	64	56	112	68

(Or)

b) Obtain the optimal strategies for both persons and the value of the game for zero-sum two-person game whose payoff matrix is as follows: (K4)

$$\begin{bmatrix} 1 & -3 \\ 3 & 5 \\ -1 & 6 \\ 4 & 1 \\ 2 & 2 \\ -5 & 0 \end{bmatrix}$$

20. a) A small project consists of seven activities for which the relevant data are given below: (K3)

Activity	Project activities	Activity Duration (Days)
A	---	4
B	---	7
C	---	6
D	A, B	5
E	A, B	7
F	C, D, E	6
G	C, D, E	5

14. a) The mean and variance of a binomial variate are 8 and 6. Find $P[X \geq 2]$ (K2)

(Or)

b) The number of accidents in a year attributed to taxi drivers in a city follows a Poisson distribution with mean equal to 3. Out of 1,000 taxi drivers, find approximately the number of drivers with (i) no accidents in a year (ii) more than 3 accidents in a year ($e^{-3} = 0.05$) (K3)

15. a) Given the normal distribution curve with $\mu = 25.3$ & $\sigma = 8.1$, find the area under the curve between 20.6 and 29.1 (K2)

(Or)

b) Derive the moment generating function of the normal distribution. (K3)

SECTION - C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Each of three urns contains black and white balls; one has eight white and 4 black balls, two have six white and six black balls and three have 4 white and 8 black balls. An urn is drawn at random, and 3 balls are drawn without replacement from that urn. Two of the three are white and the other is black. What is the probability that the urn drawn contained 4 white and 8 black balls? (K4)

(Or)

b) A man has three coins A, B and C. A is unbiased. The probability that a head will result when B is tossed is $\frac{2}{3}$, the

probability that a head will result when C is tossed is $\frac{1}{3}$. If one of the coin chosen at random is tossed three times, giving a total of two heads and one tail, find (i) the probability that the chosen coin is A (ii) the probability that a fourth toss of the same coin will give a head. (K5)

17. a) Given the joint pdf of (X, Y) as

$$f(x,y) = \begin{cases} \frac{K}{(1+x+y)^3} & for\ x > 0, y > 0 \\ 0 & Otherwise \end{cases}$$

Find K, the marginal pdf of X given $Y = y$. Also find

$P(X < 5, 1 < Y < 2)$

$P(X < 1, 1 < Y < 2)$ (K4)

(Or)

b) For the joint distribution

$$f(x,y) = \begin{cases} \frac{9}{4} - x - y, & 0 \leq x \leq 2, 0 \leq y \leq 2 \\ 0 & elsewhere \end{cases}$$

Obtain the marginal and conditional distributions. (K5)

18. a) Find the Mean and Variance with the probability function

$$p(x) = \begin{cases} \frac{2}{3}\left(\frac{1}{3}\right)^{x-1} & for\ x = 1,2,3 \ldots \\ 0 & otherwise \end{cases}$$ (K4)

(Or)

b) A continuous random variable X has a pdf given by

$$f(x) = \begin{cases} kxe^{-\lambda x}, & x \geq 0, \lambda > 0 \\ 0 & Otherwise \end{cases}$$

Determine the constant k. Obtain the mean and variance of X. (K5)

19. a) If 10% of the screws produced by an automatic machine are defective, find the probability that of 20 screws selected at random, there are (i) exactly two defectives (ii) at the most three defectives (iii) at least two defectives and (iv) between one and three defectives(inclusive). Find also the mean, variance of the number of defective screws. (K4)

(Or)

b) One-fifth percent of the blades produced by a blade manufacturing factory turn out to be defective. The blades are supplied in packets of 10. Use Poisson distribution to calculate the approximate number of packets containing no defective, one defective and two defective blades respectively in a consignment of 1,00,000 packets. ($e^{-0.02} = 0.9802$) (K5)

20. a) Students of a class were given an aptitude test. Their marks were found to be normally distributed with mean 60 and standard deviation 5. What per cent of student scored:
(i) more than 60 marks?(ii) less than 56 marks?
(iii) between 45 and 65 marks? (K4)

(Or)

b) The customer accounts of a certain departmental store have an average balance of Rs. 120 and a standard deviation of Rs. 40. Assuming that the account balances are normally distributed, find (i) What proportion of accounts over Rs. 150? (ii) What proportion of account is between Rs. 100 and Rs. 150?
(iii) proportion of accounts is between Rs. 60 and Rs. 90? (K5)

(Or)

b) A committee of 4 people is to be selected from 3 officers of the production department, 4 officers of the purchase department, two officers of the sales department and one charted accountant. Find the probability if forming the committee in the following manner. (i) There must be one from each category
(ii) It should have at least one from the purchase department. (K3)

12. a) A random variable X has the following probability function. (K2)

x	1	2	3	4	5	6	7
$P(x)$	0	k	$2k$	$2k$	$3k$	$2k^2$	$7k^2+k$

(i) Find k (ii) Evaluate $P(X < 6)$, $P(X \geq 6)$, $P(0 < X < 5)$

(Or)

b) Given the pdf of a continuous random variable X as follows:

$f(x) = \begin{cases} kx(1-x) & for\ 0 < x < 1 \\ 0 & otherwise \end{cases}$ Find k and the cdf. (K3)

13. a) A coin is tossed until a head appears. What is the expectation of the number of tosses? (K2)

(Or)

b) A distribution is defined as follows:

$F(x) = \begin{cases} 0 & x \leq 1 \\ \frac{1}{16}(x-1)^4 & 1 \leq x \leq 3 \\ 1 & x > 3 \end{cases}$ Find the density, function and the mean of X. (K3)

5. If X_1, X_2, X_3 are independent random variables then $E(X_1X_2X_3) =$ _____. (K1)

a) $E(X_1) + E(X_2) + E(X_3)$ b) $E(X_1)E(X_2)E(X_3)$

c) 0 d) 1

6. $Var(aX + b) =$ _____. (K1)

a) $a\,Var(X)$ b) $a\,Var(X) + b$

c) $a^2\,Var(X)$ d) $a^2\,Var(X) + b$

7. For a Binomial distribution with parameters $n = 5, p = 0.3$ then the variance of this distribution is_____. (K1)

a) 0.15 b) 1.5 c) 0.105 d) 1.05

8. Number of parameters for a Binomial distribution is _____. (K1)

a) 2 b) 3 c) 1 d) 4

9. The mean, median and mode of a normal distribution coincide at _____. (K1)

a) $x = 0$ b) $x = \mu$

c) $\mu = 0$ d) $\mu = 1$

10. Skewness of the Normal distribution is _____. (K1)

a) 1 b) 2 c) -1 d) 0

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) An integer is chosen at random out of the integers from 1 to 100. What is the probability that, it is (i) multiple of 5 (ii) divisible by 7 (iii) greater than 70. (K2)

Reg.No: _____

Course Code: 23UANAT303

B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Mathematics

Third Semester

Allied: Statistics for Mathematics I

Time: 3 Hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. If the number of favourable outcomes is equal to the number of possible outcomes then the event is called _____. (K1)

   a) impossible event b) equally likely event

   c) dependent d) independent event

2. If A and B are mutually exclusive events then $P(A \cup B)$ = _____. (K1)

   a) $P(A) + P(B)$ b) $P(A) + P(B) - P(A \cap B)$

   c) $P(A) - P(B)$ d) $P(A \cap B)$

3. If X is a continuous random variable then $P(a \leq X \leq b) =$ _____. (K1)

   a) $F(b) - F(a)$ b) $\int_a^b f(x)dx$

   c) $\int_{-\infty}^{x} f(x)dx$ d) $\sum_{x_i<x} p(x_i)$

4. Let (X, Y) be two dimensional continuous random variable with joint probability function $f(x,y)$. Then the conditional probability density function of X given $Y = y$ is _____. (K1)

   a) $g(x/y) = \frac{f(x,y)}{h(y)}$ b) $g(x/y) = \frac{f(x,y)}{g(x)}$

   c) $g(x/y) = \frac{h(y)}{f(x,y)}$ d) $g(x/y) = \frac{g(x)}{f(x,y)}$

6. Which of the following is an expression for Boyle's temperature?
a) Ra/8b b) 27a/R c) a/b d) a/Rb (K1)

7. The frequency of infrasonic wave is _____. (K1)
a) > 20 Hz b) < 20 Hz
c) > 20 KHz d) lies between 20 Hz and 20 KHz

8. Which of the following causes acoustical grating? (K1)
a) Magnetic waves b) Electric waves
c) Magnetostriction effect d) Ultrasonic waves

9. Find the correct combination regarding relative permeability and magnetic susceptibility of a paramagnetic substance. (K1)
a) $\mu_r > 1, \chi < 0$ b) $\mu_r < 1, \chi > 0$
c) $\mu_r < 1, \chi < 0$ d) $\mu_r > 1, \chi > 0$

10. Electric field due to a point charge is_____. (K1)
a) $\frac{q}{4\pi\varepsilon_0 r^2}$ b) $\frac{q}{4\pi\varepsilon_0 r}$ c) $\frac{q}{\varepsilon_0}$ d) $\frac{q}{4\pi\varepsilon_0 r^3}$

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Describe the method of determining the rigidity modulus by static torsion method using Searle's apparatus. (K2)

(Or)

b) Obtain the expression for internal bending moment of a beam. (K3)

12. a) State and explain Kepler's laws of planetary motion. (K2)

(Or)

b) Write a note on Ostwald's viscometer. (K3)

13. a) Give a brief account on adiabatic process. (K2)

(Or)

b) Define mean free path and deduce an expression for it. (K3)

14. a) Distinguish between transverse and longitudinal waves. (K2)

(Or)

b) Outline any two methods used to detect the ultrasonic waves. (K3)

15. a) What is meant by electric potential? Obtain the expression for electric potential due to a point charge. (K2)

(Or)

b) Establish the relation between B, H and M. (K3)

SECTION – C (5 X 6 = 30 Marks)
Answer ALL questions.

16. a) Deduce an expression for torque per unit twist of a cylinder. (K4)

(Or)

b) Determined the Young's modulus of the given rectangular beam by the non uniform method. (K5)

17. a) With necessary theory, discuss the determination of gravitational constant (G) by Boy's method. (K4)

(Or)

b) What is meant by Compound pendulum? Explain, how acceleration due to gravity (g) is found using compound pendulum? (K5)

18. a) Derive Vander Waal's equation of state, of real gas. (K4)

(Or)

b) (i) Brief first law of thermodynamics. (K5)
(ii) What is Carnot's engine? Mention some of its application.

19. a) State and explain the laws of transverse vibrations of strings. (K4)

(Or)

b) Narrate the determination of frequency of alternating current using sonometer. (K5)

20. a) State and prove Gauss law. (K4)

(Or)

b) Enumerate the method of drawing M-H curve by horizontal method. (K5)

Reg.No:_____

Course Code: 23UANAT104

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Mathematics

First Semester

Allied: Physics I

Time: 3 Hours Maximum marks: 55

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. On bending of a beam, which is the layer which is neither elongated nor shortened? (K1)

a) Axis of load b) Neutral axis

c) Center of gravity d) Center of mass

2. In uniform bending, the load is applied _____ of the beam.(K1)

a) at middle b) at one third

c) at both ends d) at one end

3. If the mass of the object is doubled then what will be the effect of time period of the compound pendulum? (K1)

a) Doubled b) Remains same

c) Halved d) Decreases by $\sqrt{2}$ times

4. What is the SI unit of viscosity? (K1)

a) Candela b) Poiseiulle c) Newton/m d) No units

5. For the adiabatic process to take place, the system should be _____. (K1)

a) Perfectly insulating b) Perfectly conducting

c) Semiconducting d) Semi-insulating

9. A and B together can complete a piece of work in 4 days. If A alone can complete the same in 12 days, in how many days, can B alone complete that work? (K3)

10. A tap can fill a tank in 6 hours. After half of the tank is filled, three more similar taps are opened. What is the total time taken to fill the tank completely? (K2)

SECTION - B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a) If three numbers are added in pairs, the sum equal 10, 19 and 21. Find the numbers. (K3)

(Or)

b) The age of the father 10 years ago was thrice the age of his son. Ten years hence, father's age will be twice that of his son. Then calculate the ratio of their present ages. (K4)

12. a) If $x = y^a,\ y = z^b$ and $z = z^c$, then find the value of abc. (K3)

(Or)

b) In a hotel 60% had vegetarian lunch while 30% had non-vegetarian lunch and 15% had both types of lunch. If 96 people were present, how many did not eat either type of lunch? (K2)

13. a) A book was sold for Rs.27.50 with a profit of 10%. If it were sold for Rs.25.75, then what would be the percentage of profit or loss? (K3)

(Or)

b) Two numbers are respectively 20% and 50% more than a third number. Find the ratio of the two numbers. (K3)

14. a) A, B and C enter into partnership. A invests 3 times as much as B invest and B invest two-third of what C invests. At the end of the year, the profit earned is Rs.6,600. What is the share of B? (K4)

(Or)

b) A garrison of 500 men had provisions for 27 days. After 3 days a reinforcement of 300 men arrived. For how many more days will the remaining food last now? (K3)

15. a) A and B undertake to do a piece of work for Rs. 600. A alone can do it in 6 days while B alone can do it in 8 days. With the help of C, they finish it in 3 days. Find the share of each. (K4)

(Or)

b) Two pipes can fill a cistern in 14 hours and 16 hours respectively. The pipes are opened simultaneously and it is found that due to leakage in the bottom it took 32 minutes more to fill the cistern. When the cistern is full, in what time will the leak empty it? (K5)

SECTION - C (5 X 10 = 50 Marks)

Answer ALL questions.

16. a) The difference between two positive integers is 3. If the sum of their squares is 369, then find the sum of the numbers. (K4)

(Or)

b) Rohit was 4 times as old as his son 8 years ago. After 8 years, Rohit will be twice as old as his son. What are their present ages? (K5)

17. a) Determine the number of prime factors in $(216)^{\frac{3}{5}}\ X\ (2500)^{\frac{2}{5}} X\ (300)^{\frac{1}{5}}$. (K3)

(Or)

b) Paulson spends 75% of his income. His income is increased by 20% and he increased his expenditure by 10%. Find the percentage increase in his savings. (K4)

18. a) A dealer sold three-fourth of his articles at a gain of 20% and the remaining at cost price. Find the gain earned by him in the whole transaction. (K3)

(Or)

b) A sum of money is to be distributed among A, B, C, D in the proportion of 5 : 2 : 4 : 3. If C gets Rs.1,000 more than D, what is B's share? (K4)

19. a) Four milkmen rented a pasture. A grazed 24 cows for 3 months; B grazed 10 cows for 5 months, C grazed 35 cows for 4 months and D grazed 21 cows for 3 months. If A's share of rent is Rs.720, find the total rent of the field. (K4)

(Or)

b) If 9 engines consume 24 metric tonnes of coal, when each is working 8 hours a day, how much coal will be required for 8 engines, each running 13 hours a day, it being given that 3 engines of former type consume as much as 4 engines of latter type? (K3)

20. a) A and B can do a piece of work in 18 days; B and C can do it in 24 days; A and C can do it in 36 days. In how many days will A, B and C finish it working together and separately? (K5)

(Or)

b) It two pipes function simultaneously, the reservoir will be filled in 12 hours. One pipe fills the reservoir 10 hours faster than the other. How many hours does it take the second pipe to fill the reservoir? (K4)

Reg. No:_____

Course Code: 22UANAL509

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Mathematics

Fifth Semester

ALC: Mathematics for Competitive Examinations

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1. A number is as much greater than 36 as is less than 86. Find the number. (K2)
2. The ages of two persons differ by 16 years. If 6 years ago, the elder one be 3 times as old as the younger one, find their present ages. (K3)
3. If $\left(\frac{1}{5}\right)^{3y}=0.008$, then find the value of $(0.25)^{y}$. (K2)
4. Which is greater in $16\frac{2}{3}\%$, $\frac{2}{15}$ and 0.17? (K3)
5. If the cost price is 96% of the selling price, then what is the profit percent? (K2)
6. Divide Rs. 672 in the ratio 5:3. (K2)
7. X and Y invested in a business. They earned some profit which they divided in the ratio of 2:3. If X invested Rs. 40,000 then find the amount invested by Y. (K3)
8. 36 men can complete a piece of work in 18 days. In how many days will 27 men complete the same work? (K2)

6. The equation of any sphere of radius r having its centre in the xoy plane is _____. (K1)

a) $(x-a)^2+(y-b)^2+z^2=r^2$

b) $x^2+y^2+z^2=r^2$

c) $x^2+y^2=r^2$

d) $(x+a)^2+(y+b)^2+z^2=r^2$

7. Laplace transform of 1 is _____. (K1)

a) $\frac{1}{s}$ b) $\frac{1}{s^2}$ c) 0 d) 1

8. Laplace transform of $\sin at$ is _____. (K1)

a) $\frac{a}{s^2+a^2}$ b) $\frac{a}{s^2-a^2}$ c) $\frac{s}{s^2+a^2}$ d) $\frac{s}{s^2-a^2}$

9. The Inverse Laplace transform of $\frac{10}{(s+2)^6}$ is _____. (K1)

a) $e^{2t}\frac{t^5}{12}$ b) $e^{-2t}\frac{t^5}{12}$ c) $e^{t}\frac{t^5}{12}$ d) $e^{-t}\frac{t^5}{12}$

10. $L^{-1}[f(s+a)]$ is _____. (K1)

a) $e^{-at}f(t)$ b) $e^{-t}f(t)$

c) $e^{-at}f(a)$ d) $e^{t}f(a)$

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Solve : $yp^2-(x-y^2)p-xy=0$. (K2)

(Or)

b) Solve : $(x^2-2xy+3y^2)dx+(y^2+6xy-x^2)dy=0$ (K3)

12. a) Solve : $(D^2-3D+2)y=e^{5x}+2$ (K2)

(Or)

b) The radial displacement u in a rotating disc at a distance r from the axis is given by $\frac{d^2u}{dr^2}+\frac{1}{r}\frac{du}{dr}-\frac{u}{r^2}+kr=0$. Find its displacement. (K3)

13. a) Solve : $p+q=pq$ (K2)

(Or)

b) Find the complete and singular solution of $z=xp+yq+p^2-q^2$ (K3)

14. a) Find the Laplace transform of function $\frac{\sin^2 t}{t}$ (K2)

(Or)

b) Find the Laplace transform of $\cos^3 t$ (K3)

15. a) Find the inverse Laplace transform of $\frac{s+2}{(s-2)^7}$ (K2)

(Or)

b) Find the inverse Laplace transform of $\frac{2(s+1)}{(s^2+2s+2)^2}$ (K3)

SECTION - C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Solve : $y=2px+y^2p^3$ (K4)

(Or)

b) Solve : $p^2+2yp\cot x-y^2=0$ (K5)

17. a) Solve : $(D^2+3D+2)y=e^{2x}+x^2+\sin x$ (K4)

(Or)

b) Solve: $(1+x)^2\frac{d^2y}{dx^2}+(1+x)\frac{dy}{dx}+y=4\log(1+x)+\cos[\log(1+x)]$ (K5)

18. a) (i) Eliminate the arbitrary function in $z = f_1(y + 2x) + f_2(y - 3x)$

(ii) From the partial differential equation by eliminating the arbitrary constants from $z = (x^2 + a)(y^2 + b)$ (K4)

(Or)

b) Solve :$z^2(p^2 + q^2) = x^2 + y^2$ (K5)

19. a) Find the Laplace transform of (i) $\frac{\cos 3t - \cos 2t}{t}$ and (ii) $\frac{e^{3t} - e^{-2t}}{t}$ (K4)

(Or)

b) Find the Laplace transform of the followings

(i) $f(t) = \begin{cases} \sin t \ ; \ 0 < t < \pi \\ 0 \ ; \ t > \pi \end{cases}$

(ii) $f(t) = \begin{cases} e^{2t} \ ; 0 < t < 3 \\ 1; \ t > 3 \end{cases}$ (K5)

20. a) Find the inverse Laplace transform of $\frac{s^2}{(s^2+a^2)^2}$ (K4)

(Or)

b) Solve the differential equation $\frac{d^2y}{dt^2} - 4\frac{dy}{dt} - 5y = te^t$ given $y(0) = 0; y'(0) = 0$. (K5)

Reg.No: _____

Course Code: 23UANCT301

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Mathematics

Third Semester

Core: Differential Equations and Laplace Transforms

Time: 3 Hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The general solution of $y = \tan(y - xp)$ is _____. (K1)

a) $y = cx + \tan^{-1} c$ b) $y = cx - \tan^{-1} c$

c) $y = cy + \tan^{-1} c$ d) $y = cy - \tan^{-1} c$

2. Write the condition for the equation $Mdx + Ndy = 0$ is exact. (K1)

a) $\frac{\partial M}{\partial y} \neq \frac{\partial N}{\partial x}$ b) $\frac{\partial M}{\partial y} = \frac{\partial N}{\partial x}$

c) $\frac{\partial M}{\partial y} \leq \frac{\partial N}{\partial x}$ d) $\frac{\partial M}{\partial y} \geq \frac{\partial N}{\partial x}$

3. If the auxillary equation has equal roots then the solution is_____. (K1)

a) $y = e^x(Ax - B)$ b) $y = e^{mx}(Ax - B)$

c) $y = e^{mx}(Ax + B)$ d) $y = e^x(Ax + B)$

4. The particular integral of $(D^2 - 3D + 2)y = 2$ is_____. (K1)

a) 1 b) e^{5x} c) $\frac{1}{2}$ d) 0

5. Formation the partial differential equation by eliminating the arbitrary function from $z = f(x^2 + y^2 + z^2)$ is_____.(K1)

a) $px = qy$ b) $px \neq qy$

c) $py \neq qx$ d) $py = qx$

7. In D'Alemberts test if $x < 1$, then the series is_____. (K1)

a) Divergent b) Convergent

c) oscillatory d) both (a) or (b)

8. $\lim_{n\to\infty} u_n^{1/n} > 1$, the series is_____. (K1)

a) Convergent b) Divergent

c) oscillatory d) both (a) or (b)

9. $\theta - \frac{\theta^3}{3!} + \frac{\theta^5}{5!}$ is the value of _____. (K1)

a) $Sin\ \theta$ b) $Cos\ \theta$ c) $Sinh\ \theta$ d) $Cosh\ \theta$

10. $Cosh^2 x - Sinh^2 x =$ _____ . (K1)

a) 0 b) 1 c) 2 d) -1

SECTION -- B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Find the coefficient of x^{32} in the expansion of $\left(x^4 - \frac{1}{x^3}\right)^{15}$. (K2)

(Or)

b) Find the greatest term in the expansion of $(1-x)^{31/3}$ *when* $x = \frac{2}{7}$.

12. a) Sum the series $1 + \frac{1+3}{2!} + \frac{1+3+3^2}{3!} + \frac{1+3+3^2+3^3}{4!} + \ldots$ *to* ∞. (K2)

(Or)

b) Sum the series $\sum_{n=1}^{\infty} \frac{1}{(2n-1)2n(2n+1)}$. (K3)

13. a) Prove that the series $\frac{1}{1.3} + \frac{2}{3.5} + \frac{3}{5.7} + \frac{4}{7.9} + \ldots$ is divergent. (K2)

(Or)

b) Show that the series $1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \ldots$ is divergent. (K3)

14. a) Test the convergency of the series $\sum_{n=0}^{\infty} \frac{n^3+1}{2^n+1}$. (K2)

(Or)

b) Discuss the convergence of the series

$1 + \frac{(1!)^2}{2!}x + \frac{(2!)^2}{4!}x^2 + \frac{(3!)^2}{6!}x^3 + \ldots$ (K3)

15. a) Expand $\cos^6\theta$ in the series of cosines of multiples of θ. (K2)

(Or)

b) If $\tan A = \tan\alpha \tanh\beta$, $\tan B = \cot\alpha \tanh\beta$, prove that $\tan(A+B) = \sinh 2\beta \cos ec\, 2\alpha$. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Find the sum to infinity of the series $1 + \frac{3}{4} + \frac{3.5}{4.8} + \frac{3.5.7}{4.8.12} + \ldots$ (K4)

(Or)

b) Find the sum to infinity of the series $\frac{1.4}{5.10} - \frac{1.4.7}{5.10.15} + \frac{1.4.7.10}{5.10.15.20} - \ldots$ (K5)

17. a) Find the sum of $\frac{1^2}{1!}+\frac{1^2+2^2}{2!}+\ldots\ldots\ldots+\frac{1^2+2^2+\ldots+n^2}{n!}+\ldots$ (K4)

(Or)

b) Show that $\log\sqrt{2}=1+\left(\frac{1}{2}+\frac{1}{3}\right)\frac{1}{4}+\left(\frac{1}{4}+\frac{1}{5}\right)\frac{1}{4^2}+\left(\frac{1}{6}+\frac{1}{7}\right)\frac{1}{4^3}+\ldots$ (K5)

18. a) Find the limit of the sequence $\{a_n\}$ where $a_n=\left(1+\frac{1}{n}\right)^n$. (K4)

(Or)

b) Test the convergence of the series $\frac{1}{1.2.3}+\frac{3}{2.3.4}+\frac{5}{3.4.5}+\frac{7}{4.5.6}+\ldots\ldots$ (K5)

19. a) Discuss the convergency of the series $\frac{1}{1+x}+\frac{1}{1+2x^2}+\frac{1}{1+3x^3}+\frac{1}{1+4x^4}\ldots\ldots$ (K4)

(Or)

b) Examine the convergence of $\frac{1^2}{2^2}+\frac{1^2.3^2}{2^2.4^2}+\frac{1^2.3^2.5^2}{2^2.4^2.6^2}+\ldots$ (K5)

20. a) Expand $\sin^7\theta$ in a series of sines of multiples of θ. (K4)

(Or)

b) Separate into real and imaginary parts of $\tan^{-1}(x+iy)$. (K5)

Reg.No:_____

Course Code: 23UANCT101

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Mathematics

First Semester

Core: Algebra and Trigonometry

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Binomial expansion contains _____ terms. (K1)

a) n b) n + 1 c) n – 1 d) 2n

2. The series $u_1+u_2+\ldots+u_r+\ldots$ is absolutely convergent if ____. (K1)

a) $|x|<1$ b) $|x|\le 1$ c) $|x|\ge 1$ d) $|x|>1$

3. $1+\frac{x}{1!}+\frac{x^2}{2!}+\ldots\ldots$ to ∞ *is* the value of_____. (K1)

a) e b) e^x c) e^{-x} d) e^{-1}

4. $x-\frac{x^2}{2}+\frac{x^3}{3}-\ldots\ldots(-1)^{n-1}\frac{x^n}{n}+\ldots\ldots$ is the value of_____. (K1)

a) log(1+x) b) log(1-x) c) log x d) log e

5. If $u_1+u_2+\ldots+u_r+\ldots$ is convergent then $\theta\lim_{n\to\infty}u_n$ is_____. (K1)

a) 0 b) 1 c) e d) -1

6. The sequence $\{a_n\}$ satisfies $\overline{\lim}\,a_n=\underline{\lim}\,a_n$ then the sequence is_____. (K1)

a) Divergent b) Convergent

c) Both (a) or (b) d) Either (a) or (b)

6. In C, what is the purpose of the 'goto' statement? (K2)

a) Break out of loop

b) Terminate the program

c) Transfer control to a labeled statement

d) Execute a function

7. In a 'do-while' loop, when is the condition tested? (K1)

a) Before the first iteration

b) After the first iteration

c) At the middle of each iteration

d) At the end of each iteration

8. Which of the following loop types is not supported in C? (K2)

a) for b) while c) do-while d) foreach

9. What will the given code result in printf("\n you are\"awesome \" ");? (K1)

a) compile error b) run-time error

c) you are "awesome" d) you are awesome ()

10. What is the keyword used to define a structure in c? (K2)

a) struct b) record c) class d) object

SECTION - B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Write the basic structure of C program and explain. (K2)

(Or)

b) List the keywords and identifiers of C. (K3)

12. a) Mention the logical operators and explain it. (K2)

(Or)

b) How shorthand assignment operators are used in C? (K3)

13. a) Write about getchar() and give an example. (K2)

(Or)

b) Explain simple if condition. (K3)

14. a) How one-dimentional array is declared and initialized? (K2)

(Or)

b) Write down the uses of Jumps in loop. (K3)

15. a) How will you declare and initialize string variable in C? (K2)

(Or)

b) Give the syntax for defining a structure. (K3)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) How variables are declared and initialized? (K4)

(Or)

b) Summarize about the data types of C. (K3)

17. a) Explain conditional operator with an example. (K4)

(Or)

b) Write in detail about operator precedence. (K3)

18. a) Discuss about 'Go to' statements in C. (K4)

(Or)

b) Write a C program that depicts the concept of switch statement. (K3)

19. a) Mention simple for loops with proper syntax. (K3)

(Or)

b) What are multi-dimensional arrays? Write its syntax and give example. (K4)

20. a) Write the procedure for reading a line of text in C. (K3)

(Or)

b) Persuade the structure initialization in C. (K3)

Reg.No: _____

Course Code: 22UANCT504

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Mathematics

Fifth Semester

Core: Programming in C

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Who is the father of C language? (K1)
   a) Steve Jobs b) James Gosling
   c) Dennis Ritchie d) Rasmus Lerdorf
2. All keywords in C are in _____. (K2)
   a) Lower Case letters b) Upper Case letters
   c) Camel Case letters d) None of the mentioned
3. Which among the following are the fundamental arithmetic operators, i.e, performing the desired operation can be done using that operator only? (K1)
   a) +, – b) +, -, % c) +, -, *, / d) +, -, *, /, %
4. What is the precedence of arithmetic operators (from highest to lowest)? (K2)
   a) %, *, /, +, – b) %, +, /, *, –
   c) +, -, %, *, / d) %, +, -, *, /
5. What is purpose of the 'else' statement in C's 'if-else' control structure? (K1)
   a) Execute the 'if' block
   b) Execute the 'else' block
   c) Execute both 'if' and 'else' block
   d) Skip the 'if' block

6. Cartesian formula for finding the radius of curvature is_____.

a) $\left[1+\left(\frac{dy}{dx}\right)^2\right]^{3/2}$ b) $\frac{\left[1+\frac{dy}{dx}\right]^{3/2}}{\frac{d^2y}{dx^2}}$ (K1)

c) $\frac{\left[1+\left(\frac{dy}{dx}\right)^2\right]^{3/2}}{\frac{d^2y}{dx^2}}$ d) $\frac{\left[1-\left(\frac{dy}{dx}\right)^2\right]^{3/2}}{\frac{d^2y}{dx^2}}$

7. The x-coordinate of centre of curvature is _____. (K1)

a) $x-\frac{y_1(1+y_1^2)}{y_2}$ b) $x+\frac{y_1(1+y_1^2)}{y_2}$

c) $x-\frac{y_1(1+y_1)}{y_2}$ d) $x+\frac{y_1(1+y_1)}{y_2}$

8. The y-coordinate of centre of curvature of the curve $y=x^2$ at $\left(\frac{1}{2},\frac{1}{4}\right)$ is _____. (K1)

a) $-\frac{5}{4}$ b) $\frac{5}{4}$ c) $\frac{1}{2}$ d) $-\frac{1}{2}$

9. To find the asymptotes parallel to the axes, equate the coefficients of the highest power of x and y to

a) -1 b) 1 c) 0 d) xy

10. Any straight line parallel to $y=m_1x$ will meet the curve in _____ at infinity. (K1)

a) one point b) two points c) three points d) infinite points

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Determine the nth derivative of $e^{ax}\sin(bx+c)$. (K2)

(Or)

b) Obtain y_n for $y=\frac{3}{(x+1)(2x-1)}$. (K3)

12. a) If $V=(x^2+y^2+z^2)^{-\frac{1}{2}}$ show that $\frac{\partial^2V}{\partial x^2}+\frac{\partial^2V}{\partial y^2}+\frac{\partial^2V}{\partial z^2}=0$. (K2)

(Or)

b) State and prove Euler's theorem for homogeneous function of degree n. (K3)

13. a) Obtain the radius of curvature of the curve $x^4+y^4=2$ at the point $(1,1)$. (K2)

(Or)

b) Calculate ρ at the point t of the curve $x=a(\cos t+t\sin t)$; $y=a(\sin t-t\cos t)$. (K3)

14. a) Show that the evolute of the cycloid $x=a(\theta-\sin\theta)$; $y=a(1-\cos\theta)$ is another cycloid. (K2)

(Or)

b) Prove that the $p-r$ equation of the cardioid $r=a(1-\cos\theta)$ is $\rho^2=\frac{r^3}{2a}$. (K3)

15. a) Find the asymptotes of $x^3+2x^2y-xy^2-2y^3+4y^2+2xy+2xy+y-1=0$. (K2)

(Or)

b) Show that the asymptotes of the cubic equation $x^3y-xy^2+xy+y^2+x-y=0$ cut the curve again in three points which lie on the line $x+y=0$. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Obtain the nth differential coefficient of $cos^5\theta\, sin^7\theta$. (K4)

(Or)

b) If $y=\sin(m\sin^{-1}x)$, prove that $(1-x^2)y_2-xy_1+m^2y=0$ and $(1-x^2)y_{n+2}-(2n+1)xy_{n+1}+(m^2-n^2)y_n=0$ (K5)

17. a) (i) Prove that $\frac{\partial^2 u}{\partial x \partial y} = \frac{\partial^2 u}{\partial y \partial x}$ when $u = \log \frac{x^2+y^2}{xy}$

(ii) If $u = log(x^3 + y^3 + z^3 - 3xyz)$, show that $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} + \frac{\partial u}{\partial z} = \frac{3}{x+y+z}$. (K4)

(Or)

b) Transform $\frac{\partial^2 V}{\partial x^2} + \frac{\partial^2 V}{\partial y^2}$ into polar coordinates. (K5)

18. a) Show that the radius of the curvature at any point of the catenary $y = c \cosh \frac{x}{c}$ is equal to the length of the portion of the normal intercepted between the curve and the axis of x. (K4)

(Or)

b) Prove that the radius of curvature at any point of the cycloid $x = a(\theta + \sin\theta)$ and $y = a(1 - \cos\theta)$ is $4a \cos {}^{\theta}/_{2}$. (K5)

19. a) Determine the evolute of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$. (K4)

(Or)

b) (i) Find the radius of the curvature of the cardioid $r = a(1 - \cos\theta)$

(ii) Show that the radius of curvature of the curve $r^n = a^n \cos n\theta$ is $\frac{a^n r^{-n+1}}{n+1}$. (K5)

20. a) Construct the rectilinear asymptotes of $2x^4 - 5x^2y^2 + 3y^4 + 4x^3 - 6y^3 + x^2 + y^2 - 2xy + 1 = 0$. (K4)

(Or)

b) Determine the asymptotes of the curve $4(x^4 + y^4) - 17x^2y^2 - 4x(4y^2 - x^2) + 2(x^2 - 2) = 0$ and show that they pass through the points if intersection the curve with the ellipse $x^2 + 4y^2 = 4$. (K5)

Reg.No:_____

Course Code: 23UANCT102

B. Sc Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Mathemetics

First Semester

Core: Differential Calculus

Time: 3 Hours Maximum Marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. If $y = e^{3x}$ then $\frac{d^n y}{dx^n} =$ _____. (K1)

a) e^{3x} b) $3e^{3x}$ c) $3^n e^{3x}$ d) $n^3 e^{3x}$

2. The n[th] derivative of $\cos x$ is _____. (K1)

a) $n \cos\left(\frac{\pi}{2} + x\right)$ b) $\cos\left(\frac{n\pi}{2} + x\right)$

c) $\cos\left(\frac{\pi}{2} + x\right)$ d) $\cos\left(\frac{n\pi}{2}\right)$

3. If $u = \sin(ax + by + cz)$ then $\frac{\partial u}{\partial z} =$ _____. (K1)

a) $c\ cos(ax + by + cz)$ b) $b\ cos(ax + by + cz)$

c) c $sin(ax + by + cz)$ d) $a\ cos(ax + by + cz)$

4. If $f(x, y)$ is a homogeneous function of degree n, then _____. (K1)

a) $x \frac{\partial f}{\partial x} + y \frac{\partial f}{\partial y} = n$ b) $x \frac{\partial f}{\partial x} + y \frac{\partial f}{\partial y} = nf$

c) $\frac{\partial f}{\partial x} + \frac{\partial f}{\partial y} = nf$ d) $x \frac{\partial f}{\partial x} + y \frac{\partial f}{\partial y} = 0$

5. Curvature of the circle is the _____ of its radius. (K1)

a) reciprocal b) equal c) greater d) none of the above

8. If R is a commutative ring then aR=Ra is an _____. (K2)

a) ideal b) principal ideal

c) right ideal d) left ideal

9. The field of complex numbers is not an _____field. (K1)

a) unique b) ordered c) absolute d) derivative

10. An ideal m in A is maximal if and only if A/m is a_____.

a) field b) principal ideal (K2)

c) right ideal d) left ideal

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Prove that the set of all n^{th} roots of unity with usual multiplication is a group. (K2)

(Or)

b) Prove that in a group the left and right cancellation laws hold $ab = ac \Rightarrow b = c$ and $ba = ca \Rightarrow b = c$. (K3)

12. a) Let G be a group and $a \in G$. Then prove that the order of a is the same as the order of the cyclic group generated by a. (K4)

(Or)

b) State and prove Euler's theorem. (K2)

13. a) Let f: $G \rightarrow G'$ be a homomorphism. Then prove that the kernel K of f is a normal subgroup of G. (K3)

(Or)

b) Prove that the set R of all matrices of the form $\begin{pmatrix} a & b \\ -b & a \end{pmatrix}$ where $a,b \in R$ is a ring under matrix addition and matrix multiplication. (K3)

14. a) Let R be a ring and $a,b \in R$. Then prove that i) $0a = a0 = 0$, ii) $a(-b) = (-a)b = -(ab)$, iii) $(-a)(-b) = ab$, iv) $a(b-c) = ab - ac$.

(Or) (K2)

b) If R is a ring such that $a^2 = a$ for all $a \in R$, prove that

i) $a + a = 0$, ii) $a + b = 0 \Rightarrow a = b$, iii) $ab = ba$. (K3)

15. a) Prove that ~ is an equivalence relation in S. (K2)

(Or)

b) Let R be an integral domain. Let a and b be two non – zero elements of R. Then prove that a and b are associates iff a = bu where u is a unit in R. (K3)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Let G be the set of all real numbers except -1. Define * on G by $a * b = a + b + ab$. Then prove that (G, *) is a group. (K3)

(Or)

b) Let $G = \{(a, b) / a \in R^*, b \in R\}$. Then prove G is a group under the operation * defined by $(a, b) * (c, d) = (ac, bc + d)$. (K5)

17. a) Prove that let G be a group and a be an element of order n in G. Then $a^m = e$ iff n divides m. (K3)

(Or)

b) Prove that let H and K be two finite subgroups of a group G. Then $|HK| = \frac{|H||K|}{|H \cap K|}$. (K4)

18. a) State and prove Cayley's theorem. (K3)

(Or)

b) If G is a group and G' is a set with a binary operation and there exists a one-one mapping f from G onto G' such that $f(ab) = f(a)f(b)$ for all a, b ∈ G then show that G' is also a group. (K4)

19. a) Let R be a ring with identity. Then prove that the set of all units in R is a group under multiplication. (K3)

(Or)

b) Let R be a commutative ring with identity. Then prove that R is a field iff R has no proper ideals. (K5)

20. a) Let R be a commutative ring with identity. Prove that an ideal M of R is maximal iff R / M is a field. (K4)

(Or)

b) State and prove the fundamental theorem of homomorphism. (K3)

Reg.No: _____

Course Code: 22UANCT502

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Mathematics

Fifth Semester

Core: Abstract Algebra

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. An element $a \in G$ is called idempotent if_____. (K1)

a) $a = \frac{1}{a^2}$ b) $a^2 = a$ c) $a^2 = -a$ d) $a = \sqrt{a^2}$

2. Two cycles are said to be _____if they have no symbols in common. (K2)

a) union b) disjoint c) infinite d) unbounded

3. Every group of prime order is_____. (K1)

a) finite b) infinite c) cyclic d) relative prime

4. Homomorphism and a bijective is_____.

a) homeomorphism b) isomorphism (K2)

c) isolated d) harmonic

5. Any two finite cyclic groups of the same order are_____.

a) homomorphism b) homeomorphism (K1)

c) isomorphic d) isomorphism

6. A ring R is called a Boolean ring if _____for all $a \in R$. (K2)

a) $a = -1$ b) $a = \overline{a^2}$ c) $a^2 = a$ d) $a = \frac{-1}{a^2}$

7. A field has _____ideals. (K1)

a) proper b) differentiable

c) no proper d) partially

8. In a discrete metric space every subset is _____. (K2)

a) open b) closed

c) open and closed d) not defined

9. In a metric space (S,d) a sequence (x_n) converges to p if and only if every subsequence $(x_{k(n)})$ converges to_____. (K1)

a) p b) p_k c) $p_{k(n)}$ d) k(n)

10. A metric space (S,d) is called _____if every Cauchy sequence in S converges in S. (K2)

a) compact b) complete c) convergent d) countable

SECTION – B (5X3= 15 Marks)
Answer ALL questions.

11. a) Show that every integer n >1 is either a prime or a product of primes. (K2)

(Or)

b) If n is a positive integer which is not a perfect square then illustrate that √n is irrational. (K3)

12. a) Demonstrate that every subset of a countable set is countable.

(Or) (K2)

b) Show that the arbitrary union of countable sets is also countable. (K3)

13. a) Show that the union of any collection of open sets is open. (K2)

(Or)

b) Prove that a set S in R^n is closed if and only if it contains all its adherent points. (K3)

14. a) State and prove Lindel of covering theorem. (K2)

(Or)

b) Let (S,d) be a metric subspace of (M,d) and let X be a subset of S. Show that X is open in S if and only if X = A ∩ S for some set A which is open in M. (K3)

15. a) Demonstrate that a sequence $\{x_n\}$ in a metric space (S,d) can converge to atmost one point in S. (K2)

(Or)

b) Show that in any metric space (S,d) every compact subset T is complete. (K3)

SECTION – C (5 X 5 =25 Marks)
Answer ALL questions.

16. a) State and prove Unique factorization theorem. (K4)

(Or)

b) State and prove Cauchy- Schwarz inequality. (K3)

17. a) Test that the set of all real numbers is uncountable. (K3)

(Or)

b) If $F = \{A_1, A_2, \ldots\}$ is a countable collection of sets, let $G = \{B_1, B_2, \ldots\}$, where $B_1 = A_1$ and for $n > 1$,

$$B_n = A_n - \bigcup_{(k=1)}^{(n-1)} A_k$$

then defend that G is a collection of disjoint sets and test that $\bigcup_{k=1}^{\infty} A_k = \bigcup_{k=1}^{\infty} B_k$. (K4)

18. a) If x is an accumulation point of S then test that every n-ball B(x) contains infinitely many points of S. (K4)

(Or)

b) State and prove Cantor's intersection theorem. (K3)

19. a) State and prove Heine Borel theorem. (K4)

(Or)

b) Let S be a subset of R^n.If S is compact then show that S is closed and bounded. (K3)

20. a) Justify that in Euclidean space R^k, every Cauchy sequence is convergent. (K3)

(Or)

b) Assume p is an accumulation point of A and assume b∈T. Then conclude that $\lim_{x\to p} f(x) = b$ if and only if $\lim_{n\to\infty} f(x_n) = b$ for every sequence $\{x_n\}$ of points in A – {p} which converges to p. (K4)

Reg.No: _____

Course Code: 22UANCT501

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Mathematics

Fifth Semester

Core: Real Analysis-I

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. If x > 0 and y > 0 then_____. (K1)

a) xy< 0 b) xy = 0 c) xy> 0 d) x > y

2. If a | bc and (a,b) = 1 then_____. (K2)

a) a | c b) a | b c) b | a d) c | a

3. The cardinal number of empty set is_____. (K1)

a) 1 b) 0 c) ∞ d) not defined

4. A set S is called_____ if it is either finite or countably infinite. (K2)

a) infinite b) finite c) uncountable d) countable

5. A set S in R^n is called open if all its points are_____ points.

a) interior b) exterior c) fixed d) limit (K1)

6. If A is open and B is closed then A – B is _____. (K2)

a) closed b) open c) derived set d) not defined

7. A collection F of sets is said to be _____of a given set S if $S\subseteq U_{A\in F}A$. (K1)

a) open b) closed c) countable d) covering

5. The value of $\int_c 3xy\,dx - y^2dy$ where c is the curve on the xy plane $y = 2x^2$ from (0, 0) to (1, 2) is _____. (K1)

a) $-\frac{7}{6}$ b) $\frac{7}{6}$ c) $\frac{1}{2}$ d) 0

6. The integral $\int_A^B \vec{F}.\frac{d\vec{r}}{ds}\,ds$ is_____. (K1)

a) Line integral b) surface integral

c) volume integral d) none

7. The value of $curl\ (grad\ \phi)$ is_____. (K1)

a) -1 b)ϕ c) 1 d) 0

8. The area of the ellipse $x = a\cos\theta\,; y = b\sin\theta$ is_____.

$a)\ ab$ b) 1 c) πab d) 0 (K1)

9. The value of a_0 where $f(x) = x\sin x\,;\ -\pi \le x \le \pi$ is_____. (K1)

a) 2 b) 0 c) 1 d) π

10. A function $f(x)$ is an odd function if $f(-x)$ is _____. (K1)

$a)\ f(-x)$ b) $f(x)$ c) $-f(x)$ d) $-f(-x)$

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Increase by 7 the roots of the equation $3x^4 + 7x^3 - 15x^2 + x - 2 = 0$. (K2)

(Or)

b) Show that the equation $3x^4 - 8x^3 - 6x^2 + 24x - 7 = 0$ has one positive, one negative and two imaginary roots. (K3)

12. a) If $u = x + y + z; v = x^2 + y^2 + z^2; w = yz + zx + xy$, prove that $grad\ u.\ grad\ v \times grad\ w = 0$. (K2)

(Or)

b) If $\vec{r} = x\hat{\imath} + y\hat{\jmath} + z\hat{k}$, show that $\nabla \times (r^n\vec{r}) = 0$. (K3)

13. a) If $\vec{F} = (3x^2 + 6y)\hat{\imath} - 14yz\hat{\jmath} + 20xz^2\hat{k}$ evaluate $\int \vec{F}.d\vec{r}$ from (0, 0, 0) to (1, 0, 0) along the paths $x = t; y = t^2; z = t^3$. (K2)

(Or)

b) Evaluate $\iiint_V \nabla.\vec{F}\,dV$ if $\vec{F} = x^2\vec{\imath} + y^2\vec{\jmath} + z^2\vec{k}$ and if V is the volume of the region enclosed by the cube $0 \le x \le 1, 0 \le y \le 1, 0 \le z \le 1$. (K3)

14. a) Show that $\int_c \vec{A} \times \vec{r}d\vec{r} = 2\iint_s \vec{n}.\vec{A}.dS$ where A is a constant vector. (K2)

(Or)

b) Find the area of the four leafed rose $r = 3\sin 2\theta$. (K3)

15. a) Find the Fourier series of the function $f(x) = \begin{cases} -k; -\pi < x < 0 \\ k; 0 < x < \pi \end{cases}$ (K2)

(Or)

b) Obtain a sine series for unity in $0 < x < \pi$. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Solve the equation $6x^5 - x^4 - 43x^3 + 43x^2 + x - 6 = 0$. (K4)

(Or)

b) Solve the equation $x^4 - 12x^3 + 48x^2 - 72x + 35 = 0$ by removing its second term. (K5)

17. a) A field $\vec{F}$ is of the form $\vec{F} = (6xy + z^3)\hat{\imath} + (3x^2 - z)\hat{\jmath} + (3xz^2 - y)\hat{k}$. Show that $\vec{F}$ is conservative field and find a function ϕ such that $\vec{F} = \nabla\phi$. (K4)

(Or)

b) Prove that $\nabla\left[\frac{f(r)}{r}\vec{r}\right] = \frac{1}{r^2}\frac{d}{dr}(r^2 f)$. (K5)

18. a) Prove that $\int \vec{r} \times \frac{d^2\vec{r}}{dt^2}dt = \vec{r} \times \frac{d\vec{r}}{dt} + \vec{c}$ and evaluate $\int_1^2 \vec{r} \times \frac{d^2\vec{r}}{dt^2}dt$ where $\vec{r} = 5t^2\vec{i} + t\vec{j} - t^3\vec{k}$. (K4)

(Or)

b) Verify Gauss's theorem for $\vec{F} = x\vec{i} + y\vec{j} + z\vec{k}$ taken over the region bounded by the planes x = 0, x = a, y = 0, y = a, z = 0, z = a. (K5)

19. a) Verify Stoke's theorem for $\vec{F} = (2x - y)\vec{i} - yz^2\vec{j} - y^2z\vec{k}$ where S is the upper half surface of the sphere $x^2 + y^2 + z^2 = 1$ and C its boundary. (K4)

(Or)

b) Verify Green's theorem in the plane for $\oint_C (xy + y^2)dx + x^2dy$ where C is the chord curve of the region bounded by y = x and $y = x^2$. (K5)

20. a) Obtain the Fourier series of the function $f(x) = x^2$ in the interval $-\pi < x < \pi$ and hence show that $\frac{1}{1^2} + \frac{1}{2^2} + \frac{1}{3^2} + \ldots\ldots\infty = \frac{\pi^2}{6}$ and $\frac{1}{1^2} - \frac{1}{2^2} + \frac{1}{3^2} \ldots\ldots\infty = \frac{\pi^2}{12}$. (K4)

(Or)

b) Obtain the cosine series for $f(x) = \begin{cases} \cos x; 0 < x < \frac{\pi}{2} \\ 0; \frac{\pi}{2} < x < \pi \end{cases}$ (K5)

Reg.No: _____

Course Code: 23UANCT302

B.Sc. Degree Examinations - November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Mathematics

Third Semester

Core: Theory of Equations Vector, Calculus and Fourier Series

Time: 3 Hours Maximum marks: 75

SECTION - A (10 X 1 =10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The remainder when $3x^3 + 8x^2 + 8x + 12$ is divided by $x - 4$ is_____. (K1)

a) 364 b) 362 c) 363 d) 360

2. Remove the fractional coefficients from the equation $x^3 - \frac{1}{4}x^2 + \frac{1}{3}x - 1 = 0$ is _____. (K1)

a) $x^3 - 3x^2 + 48x + 1728 = 0$

b) $x^3 - 3x^2 + 48x - 1728 = 0$

c) $x^3 + 3x^2 + 48x + 1728 = 0$

d) $x^3 - 3x^2 - 48x + 1728 = 0$

3. If $\vec{F} = xy^2\hat{i} + 2x^2yz\hat{j} - 3yz^2\hat{k}$ then div $\vec{F}$ at the point (1, -1, 1) is _____. (K1)

a) 6 b) 5 c) 9 d) 7

4. The value of $\nabla \times \nabla\phi$ is _____. (K1)

a) 0 b) $\nabla^2\phi$ c) $\nabla\phi$ d) 1

Reg. No:_____

Course Code: 22UAKET505

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 – 2023 only)

Computer Science

Fifth Semester

Elective: Operating Systems

Time: 3 Hours Maximum Marks: 45

SECTION – A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. A process can be terminated due to _____. (K1)

   a) normal exit b) fatal error

   c) killed by another process d) all of the mentioned

2. A problem encountered in multitasking when a process is perpetually denied necessary resources is called _____. (K2)

   a) deadlock b) starvation c) inversion d) aging

3. _____ is the concept in which a process is copied into the main memory from the secondary memory according to the requirement. (K1)

   a) Paging b) Demand paging

   c) Segmentation d) Swapping

4. Which scheduling algorithm allocates the CPU first to the process that requests the CPU first? (K2)

   a) first-come, first-served scheduling

   b) shortest job scheduling

   c) priority scheduling

   d) none of the mentioned

5. _____ is a unique tag, usually a number identifies the file within the file system. (K1)

a) File identifier b) File name

c) File type d) None of the mentioned

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

6. a) Describe the functions Operating System. (K2)

(Or)

b) List out the various states of Process. (K3)

7. a) Outline the necessary conditions for Deadlock. (K2)

(Or)

b) Enumerate the advantages and disadvantages of non-contiguous memory allocation. (K3)

8. a) Compare paging and segmentation. (K2)

(Or)

b) Describe the role of dynamic address mapping mechanisms in virtual memory systems. (K3)

9. a) Justify deadline scheduling is complex. (K3)

(Or)

b) Write the significance of priorities in process Management. (K2)

10. a) What are the essential goals of disk scheduling? Why is each important? (K3)

(Or)

b) List out the responsibilities of File System. (K2)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Write about Operation on process. (K3)

(Or)

b) Elaborate the method of handling Critical Section in Operating System. (K4)

12. a) Explain Deadlock Avoidance with Dijkstra's Banker's Algorithm. (K3)

(Or)

b) Criticize Protection in a Single-User System. (K3)

13. a) Explain the various techniques used for mapping virtual addresses to physical addresses under paging. (K4)

(Or)

b) Summarize the goals of each of the following memory management strategies in the context of virtual memory systems with paging. (K4)

a) fetch strategy b) placement strategy

14. a) Write Round-Robin (RR) scheduling algorithm with suitable example. (K3)

(Or)

b) Write Shortest-Job-First (SJF) Scheduling algorithm with suitable example. (K4)

15. a) Explain the Schematic side view of a moving-head disk. (K3)

(Or)

b) Discuss File Access Control Matrix. (K3)

19. a) (i) What is union?

(ii) Differentiate union from structure. (K4)

(Or)

b) Explain pointer with an example. (K5)

20. a) Write a C Program that appends one file to the another. (K4)

(Or)

b) Illustrate how to read the contents randomly from a file? (K5)

Reg.No:_____

Course Code: 23UAKCT101 / 23UAXCT101

B. Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Science / Computer Science with Data Analytics

First Semester

Core: Programming in C

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is NOT an advantage of using C? (K1)

a) Portability b) Speed

c) Limited to Windows OS d) Flexibility

2. Which of the following is the correct syntax of main() in ANSCI C? (K1)

a) void main() b) main() c) int main() d) main() void

3. In C,_____ is an arithmetic operator. (K1)

a) && b) || c) % d) !=

4. _____ keyword is used to terminate a case in a switch statement. (K1)

a) break b) continue c) exit d) stop

5. Which of the following correctly declares 1D array of integers?

a) int array[10]; b) int array: (K1)

c) array[10] d) int[10] array;

6. What is a user defined function in C? (K1)

a) function provided by C Library

b) function written by programmer

c) function that cannot return a value only

d) function that can be used once

7. _____ keyword is used to define a structure in C. (K1)

a) struct b) union c) typedef d) class

8. How do you pass a structure to a function in C? (K1)

a) by value b) by reference c) both a and b d) neither a nor b

9. What is file in C Programming? (K1)

a) collection of variables

b) collection of functions

c) collection of related data on disk

d) collection of arrays

10. In C,_____ function is used to read data from a file in C. (K1)

a) fread() b) read() c) get() d) file_read()

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Describe different type of constant available in C. (K2)

(Or)

b) Illustrate the purpose of formatted input and output functions in C. (K3)

12. a) Explain neatly about if & if...else statement with an example. (K2)

(Or)

b) Construct a switch...case statement with an example. (K3)

13. a) Explain neatly about two dimensional arrays. (K2)

(Or)

b) Apply recursive function to calculate factorial of a number. (K3)

14. a) Define a structure student with members name, roll_number, and marks. Explain how to access structure members? (K2)

(Or)

b) Write short notes on arrays in C. (K3)

15. a) Write the steps involved in defining and opening a file in C? (K2)

(Or)

b) Explain the usage of command line arguments in C. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) What is comments in C? Differentiate single line and multiline comments with an example. (K4)

(Or)

b) Why C is called structured programming language? Explain the components of C programming structure? (K5)

17. a) Explain about type conversion in C. (K4)

(Or)

b) Describe logical operators with an example. (K5)

18. a) Differentiate call by value and call by reference with an example. (K4)

(Or)

b) Write a C program to print matrix addition and subtraction. (K5)

Reg.No: _____

Course Code: 22UAKCT502

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Science

Fifth Semester

Core: Visual Basic and VB.NET

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Visual Basic is a programming language developed by_____.

   a) Apple Inc b) Microsoft Corporation (K1)

   c) Google LLC d) Oracle Corporation

2. The "If…Then…Else" statement is used for_____. (K2)

   a) Looping b) Decision making

   c) Error handling d) Object instantiation

3. The list of items displayed by menu title are known as _____.

   a) Items b) Menu list c) Menu items d) Lists (K1)

4. Each of the options on the submenu are referred to as _____.

   a) Menu items b) Submenu items (K2)

   c) Submenu lists d) Options

5. Data in an array can be distinguished using _____ number.

   a) Reference b) Subscript c) Array d) ID (K1)

6. The act of initializing array is also called as _____.

   a) Populating an array b) Assigning array (K2)

   c) Initializing d) Factoring and array

7. Which of the following is used to create a new object in VB.Net?

   a) New Object() b) New() (K1)

   c) Object.New() d) Object()

8. Which of the following is used to exit a loop in VB.Net? (K2)

a) Exit b) Break c) Continue d) All of these

9. _____ property on windows forms, gets or sets the size and location of the form on the windows desktop. (K1)

a) Client size b) Size

c) Desktop Bounds d) Bounds

10. Windows forms public object property, _____ gets or sets the bounding rectangle for the form. (K2)

a) Client size b) Size

c) Desktop Bounds d) Bounds

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Illustrate the visual basic environment in detail. (K2)

(Or)

b) Analyze Relational operators with an example. (K3)

12. a) Explain in detail about the visual basic control tools. (K2)

(Or)

b) Show in detail the use of dialog box with an example. (K3)

13. a) Outline in brief the control array with an example. (K2)

(Or)

b) Write a note on common Dialog Control. (K3)

14. a) Explain variables in VB.Net. (K2)

(Or)

b) Organize types of arithmetic operators in VB.Net. (K3)

15. a) Write a note on popup menus in VB.Net. (K2)

(Or)

b) Discuss about File class in VB.Net. (K3)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Summarize the data types in visual basics. (K3)

(Or)

b) Validate in detail about the branching and looping in visual basic. (K4)

17. a) Evaluate the control tools in visual basic. (K3)

(Or)

b) How to build drop down menus in visual basic? (K4)

18. a) Write in detail about the way of processing array elements. (K3)

(Or)

b) Summarize sequential data files. (K4)

19. a) Propose different types of data types in VB.Net. (K3)

(Or)

b) Develop a code for the radio button control in VB.Net. (K4)

20. a) Organize the types of string handling function in VB.Net. (K3)

(Or)

b) Create the directory class in VB.Net. (K4)

25/11/2024 (FN)

b) What is deadlock prevention? Explain the strategies used to prevent deadlocks from occurring. (K5)

18. a) Explain virtual storage management system used in operating system. (K4)

(Or)

b) Explain the concept of demand paging in an operating system. system. (K5)

19. a) Explain Round Robin Scheduling. (K4)

(Or)

b) Compare and contrast preemptive and non-preemptive scheduling in an operating system. (K5)

20. a) Summerize the file organization and allocating process. (K4)

(Or)

b) Discuss disk performance optimization techniques used in operating systems. (K5)

Reg.No: _____

Course Code: 23UAKAT303

B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Computer Science

Third Semester

Allied: Operating Systems

Time: 3 Hours Maximum Marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The operating system may specify a set of instructions called an _____to be executed in response to each type of Interrupt.
   a) interrupt Handler b) interrupt designer (K1)
   c) interrupt occur d) interrupt process
2. The thread enters the _____state when it must wait for the completion of an I/O request. (K1)
   a) running b) blocked c) request d) start
3. _____methods are used in systems in which deadlocks can occur. (K1)
   a) deadlock delete b) deadlock detection
   c) deadlock open d) deadlock research
4. Which of the following is a single user operating system? (K1)
   a) Windows b) MAC
   c) MS-DOS d) Linux

5. What is a common method to handle deadlocks in operating systems? (K1)

a) Demand Paging b) Banker's Algorithm

c) Spooling d) Segmentation

6. Which memory management technique divides the memory into fixed-sized blocks? (K1)

a) Paging b) Segmentation

c) Fragmentation d) Caching

7. The_____ is a CPU Scheduling algorithm that selects the shortest jobs on priority and executer them. (K1)

a) SJF b) JFS c) SFJ d) FSJ

8. Which of the following is a common page replacement algorithm used in virtual memory management? (K1)

a) Round Robin b) FIFO (First In, First Out)

c) Shortest Job First d) Priority Scheduling

9. Which of the following techniques is commonly used to optimize disk performance by reducing the time to access data?

a) Defragmentation b) Spooling (K1)

c) Paging d) Segmentation

10. What is the purpose of disk caching in an operating system?

a) To increase the size of the disk (K1)

b) To temporarily store frequently accessed data for faster retrieval

c) To manage network connections

d) To organize files into directories

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Explain distributed computing in operating system. (K2)

(Or)

b) What is mutual exclusion in operating system. (K3)

12. a) Define deadlock prevention in operating system. (K2)

(Or)

b) What is storage management strategies? Explain. (K3)

13. a) Describe virtual storage management system. (K2)

(Or)

b) Define demand paging and explain. (K3)

14. a) How does Multilevel feedback occurs? (K2)

(Or)

b) Discuss FIFO scheduling process in detail. (K3)

15. a) What is Disk scheduling? (K2)

(Or)

b) Summarize file and database system in operating system. (K3)

SECTION - C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) What are the types of operating system? Explain its history. (K4)

(Or)

b) How does the operating system handle interrupts? What are the steps involved in interrupt processing? (K5)

17. a) Elaborate deadlock avoidance and deadlock detection. (K4)

(Or)

18. a) Evaluate the benefits of using JOIN operations for data retrieval across multiple tables. (K5)

(Or)

b) Design a query using GROUP BY and aggregate functions to summarize sales data. (K6)

19. a) Describe the block structure of a PL/SQL program with an example. (K5)

(Or)

b) Discuss the role of control structures in PL/SQL with examples of nested blocks. (K6)

20. a) Discuss how parameters are passed to functions and procedures in PL/SQL? (K5)

(Or)

b) Analyse the advantages of using packages in PL/SQL. (K6)

Reg. No:_____

Course Code: 22UAKCT503

B.Sc. Degree Examination - November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Science

Fifth Semester

Core: Relational Database Management System

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. DBMS stand for_____. (K1)

a) Database Management System

b) Data Base Management System

c) Database Management Software

d) Database Maintenance System

2. _____is known as a primary key. (K2)

a) A unique identifier for records

b) A foreign key

c) A duplicate entry

d) An indexing key

3. _____is the primary function of the SQL 'Plus environment.

a) Data Analysis b) Data Storage (K1)

c) Database Management d) Data Entry

4. _____command is used to create a new table in Oracle. (K2)

a) CREATE TABLE b) INSERT INTO

c) ALTER TABLE d) SELECT

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5. _____SQL command is used to add a new record in a table.
a) UPDATE b) INSERT c) DELETE d) SELECT (K1)

6. How can you update an existing row in SQL?
a) MODIFY TABLE b) INSERT INTO (K2)
c) UPDATE SET d) ALTER TABLE

7. What is the purpose of bind variables in PL/SQL? (K1)
a) To comment on code b) To define data types
c) To prevent SQL injection d) To declare constants

8. _____control structure allows conditional execution in PL/SQL. (K2)
a) LOOP b) CASE c) WHILE d) IF-THEN-ELSE

9. Which part of a PL/SQL block specifies the actions to be performed? (K1)
a) Declaration Section b) Execution Section
c) Exception Handling d) Header

10. What is the correct syntax to call a procedure in PL/SQL? (K2)
a) CALL procedure_name; b) EXEC procedure_name;
c) RUN procedure_name; d) PERFORM procedure_name;

SECTION - B (5 X 3 =15 Marks)
Answer ALL questions.

11. a) Illustrate the concept of relational integrity rules. (K3)

(Or)

b) Differentiate between relational algebra and relational calculus. (K4)

12. a) Illustrate the steps to create a table in Oracle SQL*Plus. (K3)

(Or)

b) Compare the constraints 'NOT NULL' and 'UNIQUE' in Oracle tables. (K4)

13. a) Demonstrate the use of the WHERE clause in SQL with an example. (K3)

(Or)

b) Analyse the use of CASE statements for conditional data retrieval in SQL. (K4)

14. a) Explain the difference between implicit and explicit cursors in PL/SQL. (K3)

(Or)

b) How can exceptions be handled in PL/SQL? Mention different types? (K4)

15. a) Explain the purpose of a function header in PL/SQL. (K3)

(Or)

b) Describe the differences between BEFORE and AFTER triggers. (K4)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Evaluate the role of ER diagrams in database design. (K5)

(Or)

b) Design a relational schema using dependency diagrams. (K6)

17. a) Evaluate the impact of SQL*Plus commands on database management. (K5)

(Or)

b) Design a table in Oracle to manage student records, including constraints. (K6)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Explain the differences between a hub, switch, and router. (K3)

(Or)

b) Explain the concept of internetworking and its importance. (K4)

17. a) Elaborate the concept of infrared transmission. (K3)

(Or)

b) Explain the principle of total internal reflection in fiber optic cables. (K4)

18. a) Compare and contrast ALOHA and CSMA protocols. (K3)

(Or)

b) Describe the Bluetooth architecture and its components. (K4)

19. a) Explain the concept of Link State routing. (K3)

(Or)

b) Describe the Congestion Control algorithms. (K4)

20. a) Describe the key differences between Symmetric and Public Key Algorithms. (K4)

(Or)

b) Explain the concept of Public Key Cryptography. (K3)

Reg.No:_____

Course Code: 22UAKCT501

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Science

Fifth Semester

Core: Computer Networks

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____is the primary function of a router in a network. (K1)

a) To connect devices within a LAN

b) To connect multiple LANs together

c) To connect a LAN to a WAN

d) To connect a WAN to the internet

2. _____ network type covers a larger geographic area, such as a city or town. (K2)

a) Local Area Network (LAN)

b) Metropolitan Area Network (MAN)

c) Wide Area Network (WAN)

d) Internetwork

3. _____wireless transmission method uses radio waves with frequencies between 3 kHz and 300 GHz. (K2)

a) Radio Transmission

b) Microwave Transmission

c) Infrared Transmission

d) Light Transmission

4. _____is the primary advantage of using fiber optic cables for data transmission. (K1)

a) High speed b) Long distance

c) Security d) All of the above

5. What is the purpose of the Sliding Window Protocol? (K1)

a) To detect errors in data transmission

b) To correct errors in data transmission

c) To manage data flow control

d) To provide collision-free transmission

6. _____Multiple Access Protocol uses a random delay before retransmitting a frame. (K2)

a) ALOHA

b) Carrier Sense Multiple Access (CSMA)

c) Carrier Sense Multiple Access with Collision Detection (CSMA/CD)

d) Token Ring

7. _____Transport Layer protocol provides reliable, connection-oriented data transfer. (K1)

a) TCP b) UDP c) SCTP d) DCCP

8. The purpose of the TCP three-way handshake is_____. (K2)

a) To establish a connection b) To release a connection

c) To transfer data d) To acknowledge data

9. The purpose of a digital signature is_____. (K1)

a) to encrypt data b) to decrypt data

c) to authenticate the sender d) to verify data integrity

10. Which network security protocol uses a pair of keys, one public and one private? (K2)

a) Symmetric Key Algorithm b) Public Key Algorithm

c) Digital Signature Algorithm d) Encryption Algorithm

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Which layer of the OSI model is responsible for logical addressing? (K3)

(Or)

b) Which reference model is widely adopted for internet communication? (K2)

12. a) Describe the difference between radio waves and microwaves. (K3)

(Or)

b) Explain the concept of satellite communication and its types.(K2)

13. a) What is the difference between a Simplex and Duplex communication channel? (K3)

(Or)

b) Write short notes on the protocol that uses a token to manage access to the network. (K2)

14. a) Write about function of the Transport Layer in the OSI model. (K3)

(Or)

b) Describe the purpose of the TCP Segment Header. (K2)

15. a) Write short notes on the protocol used for electronic mail transfer. (K3)

(Or)

b) Describe the DNS Name Space. (K2)

Reg.No:_____

Course Code: 19UAKET505

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2019-20 and 2020-21 only)

Computer Science

FifthSemester

Elective: Computer Graphics

Time:3 hours Maximum Marks:75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is best for smooth line drawing on the screen? (K1)

   a) Random scan b) Raster scan

   c) CRT d) All the above

2. What is the primary use of clipping in computer graphics? (K1)

   a) Adding graphics b) Zooming

   c) Removing objects and lines d) Copying

3. Identify the data structures that works on divide and conquer strategy. (K1)

   a) List b) Table

   c) Octree d) Pointer

4. A color lookup table with _____ bits per entry is accesses from the frame buffer. (K1)

   a) 20 b) 22 c) 24 d) 26

5. The straight line movement of an object from one position to another is called_____. (K1)

   a) translation b) shearing

   c) rotation d) reflection

6. State how many data elements for each region in octree data structure? (K1)

a) 32 b) 8 c) 4 d) 16

7. What is the primary use of clipping in computer graphics? (K1)

a) Adding graphics b)Zooming

c) Removing objects and lines d)Copying

8. Identify the odd one out _____. (K1)

a) Vector based b) Hardware based

c) Bitmap based d) Scanline based

9. Which of the following is also known as painter algorithm? (K1)

a) BSP tree b) Octree

c) Depth sorting d) Area subdivision

10. Name a Shearing is also termed as _____. (K1)

a) Kernel b) Skewing

c) Reflecting d) Conjunction

SECTION – B (5 X 7 = 35Marks)
Answer ALL questions

11. a) Write down the concept of Video display devices. (K3)

(Or)

b) Explain about Hard Copy Devices. (K2)

12. a) Sketch the Line Drawing Algorithms. (K3)

(Or)

b) Give a note on Curve attributes. (K2)

13. a) Outline shear transformation. (K2)

(Or)

b) Analyse viewing pipeline. (K2)

14. a) Analyze perspective projection. (K3)

(Or)

b) Summarize the concept of Visible Line. (K3)

15. a) Illustrate Back-face detection method. (K2)

(Or)

b) Explain the Visibility Detection Functions. (K2)

SECTION – C (3 X 10 = 30 Marks)
Answer any THREEquestions.

16. Summarize color CRT monitors with neat diagram. (K4)

17. Explain Bresenham's Line drawing algorithm. (K4)

18. Examine Matrix Representations and Homogeneous. (K3)

19. Simulate Sutherland Hodgeman polygon clipping. (K4)

20. Give an account on Wireframe methods. (K3)

Reg.No: _____

Course Code: 22UAKAL509

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Science

Fifth Semester

ALC: Modern Database Systems

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1. Define distributed database systems. (K2)
2. List out the main complications in designing a distributed database system. (K3)
3. Define parallel database systems. (K2)
4. Name any two strategies used for parallel data placement. (K3)
5. Define next generation databases. (K2)
6. List out the key features of Hadoop. (K3)
7. Define document databases. (K2)
8. List out the differences between XML and JSON document databases. (K3)
9. What is the use of MongoDB? (K2)
10. List out any two features of Hbase. (K2)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a) Explain the architecture of a distributed database management system (DBMS). (K2)

(Or)

b) Illustrate the issues related to fragmentation in distributed database design. (K3)

12. a) Outline the architecture of parallel database systems. (K2)

(Or)

b) Explain how load balancing is achieved in parallel database systems. (K3)

13. a) Illustrate how Google pioneered the big data revolution. (K2)

(Or)

b) Write in detail the open-source Google Stack and its components. (K3)

14. a) Explain the concept of XML & XML Databases. (K2)

(Or)

b) Simulate the concept of in-memory databases. (K3)

15. a) Explain the distributed database pattern used by MongoDB. (K2)

(Or)

b) Sketch the architecture of Hbase. (K3)

SECTION – C (5 X 10 = 50 Marks)
Answer ALL questions.

16. a) Mention the key design issues in distributed DBMS. (K4)

(Or)

b) Summarize the challenges in the allocation process of distributed databases. (K3)

17. a) Design the query processing techniques in parallel database systems. (K4)

(Or)

b) Evaluate the advantages and disadvantages of database clusters in parallel systems. (K3)

18. a) Write in detail the impact of big data on modern database technologies. (K4)

(Or)

b) Evaluate the role of Hadoop in handling large datasets. (K3)

19. a) Summarize the advantages of using columnar databases for data warehousing. (K3)

(Or)

b) List down the performance improvements provided by SybaseIQ, C-Store, and Vertica. (K3)

20. a) Describe the key features and use cases of MongoDB in distributed database systems. (K4)

(Or)

b) Enumurate the performance and scalability of Cassandra in handling big data. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) How do you assign values to variables in Python? Explain it. (K4)

(Or)

b) Write a note on precedence and its impact on Python code execution? (K5)

17. a) How to perform operations like adding and removing within a list? Explain it. (K4)

(Or)

b) Give a note on callback function in detail. (K5)

18. a) Explain how Python performs mathematical calculations? (K4)

(Or)

b) What is the concept of pattern matching in Python? Explain it. (K5)

19. a) Discuss about the importance of handling values in programming. (K4)

(Or)

b) Describe the purpose of text areas in programming. (K5)

20. a) Why is testing the program crucial before freezing and deploying the application? Explain. (K4)

(Or)

b) Determine the different methods of deploying an application. Explain. (K5)

Reg. No:_____

Course Code: 23UAKCT201

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Science

Second Semester

Core: Python Programming

Time: 3 Hours Maximum Marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is used for obtaining user input in Python? (K1)

a) print() b) input() c) scan() d) readline()

2. What is the purpose of the "Setting Precedence" step in Python programming? (K1)

a) Defining the order of operations

b) Installing additional modules

c) Debugging assertions

d) Importing modules

3. What does the term "Callback" refer to in Python functions?

a) A function that returns a value (K1)

b) A function passed as an argument to another function

c) A function with conditional statements

d) A function that handles exceptions

4. What keyword is used to define a generator function in Python?

a) def b) gen c) yield d) generator (K1)

5. How can strings be manipulated in Python? (K1)

a) By using the list data type

b) By using the tuple data type

c) By using the str data type methods

d) By using the int data type

6. What method is used to read the entire content of a file as a string? (K1)

a) file.read_all() b) file.read()

c) file.read_string() d) file.read_file()

7. What is the primary purpose of the "Processing Requests" phase in Python application development? (K1)

a) Handling values and submitting forms

b) Creating instance objects

c) Checking boxes and choosing radio buttons

d) Manipulating strings

8. In a graphical user interface (GUI) application, what module is commonly used for creating radio buttons in Python? (K1)

a) tkinter b) pygame c) requests d) sqlite3

9. Which function is commonly used to print messages to the console? (K1)

a) show_message() b) print_message()

c) display() d) print()

10. What is the purpose of unit testing in Python? (K1)

a) To test the entire program as a whole

b) To validate the correctness of individual functions or units of code

c) To check for syntax errors in the code

d) To analyze the program's performance

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) What are the key components involved in meeting the Python interpreter? Explain. (K2)

(Or)

b) Explain the steps of writing and executing a simple Python program. (K3)

12. a) What is branching in programming? How to use if statement? (K2)

(Or)

b) How to use loops to iterate over items in a list or other data structure? Explain. (K3)

13. a) Write the purpose of the timer function in Python. (K2)

(Or)

b) Discuss about the different ways to convert strings in Python. Explain. (K3)

14. a) Give a note on instance object. (K2)

(Or)

b) Write a note on inheritance in the context of programming objects. (K3)

15. a) Discuss about the purpose of listing options in an application's interface. (K2)

(Or)

b) Explain the role of static properties in planning the program's interface. (K3)

26/11/24 (FN)

Reg. No.: _____

Course Code: 22UATAL513

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Catering Science and Hotel Management

Fifth Semester

ALC: Event Management

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1.	Define the term Event.	(K2)
2.	Name the four categories of special events.	(K3)
3.	What is back stage management?	(K2)
4.	Who is a sponsor?	(K3)
5.	How would you describe Press release?	(K2)
6.	What is publicity?	(K3)
7.	Define public relations.	(K2)
8.	How would you describe program scripting?	(K3)
9.	Identify the nature of exhibition.	(K2)
10.	Outline the benefits of space planning.	(K3)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a)	Describe the objectives of event management.	(K3)
	(Or)	
b)	Discuss on the need for event management.	(K2)
12. a)	Illustrate the activities under back stage management.	(K3)
	(Or)	
b)	Indicate the importance of budget management.	(K2)

13. a)	List out the factors to be considered while planning backdrop.	(K3)
	(Or)	
b)	Outline the importance of publicity for an event.	(K2)
14. a)	Describe the procedures followed to selecting a location for an event.	(K3)
	(Or)	
b)	Highlight the social and business etiquette needed while organizing event.	(K3)
15. a)	Explain the nature of sporting events.	(K2)
	(Or)	
b)	Elucidate the nature of leisure events.	(K2)

SECTION – C (5 X 10 = 50 Marks)

Answer ALL questions.

16. a)	Discuss on the typology of events.	(K3)
	(Or)	
b)	Enumerate the creativity implications of events.	(K4)
17. a)	List the benefits of event planning.	(K3)
	(Or)	
b)	Categorize the types of leadership for events and organizations.	(K4)
18. a)	Describe the process of marketing communication.	(K3)
	(Or)	
b)	Highlight the factors to be considered while handling guests and celebrities.	(K4)
19. a)	Mention the importance of time management.	(K3)
	(Or)	
b)	Discuss on the role of public relation in event management.	(K4)
20. a)	Illustrate the importance of tourism events for business.	(K3)
	(Or)	
b)	Elucidate the concept of exhibition.	(K3)

25/11/24 (AN)

Reg.No:_____

Course Code: 22UATST405

B.Sc. Degree Examination –November 2024

(For the candidates admitted during the year 2022-2023 only)

Catering Science and Hotel Management

Fourth Semester

Skill Based: Bakery & Confectionery

Time: 3 Hours Maximum marks: 45

SECTION – A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. Identify the flour that is commonly used in making bread due to its high protein content. (K1)

   a) All-purpose flour b) Cake flour

   c) Pastry flour d) Bread flour

2. Select the step involved in yeast dough production for allowing the dough to rest and rise before shaping_____. (K1)

   a) Kneading b) Proofing c) Mixing d) Fermentation

3. Name the term represent the process of cutting in fat to create a crumbly texture_____. (K1)

   a) Folding b) Kneading c) Creaming d) Sifting

4. Indicate the purpose of folding in the cake making process_____. (K1)

   a) Incorporate air for leavening b) Prevent overmixing

   c) Enhance colour d) Add moisture

15. a) Write the preparation methods and characteristics of rough puff pastry and puff pastry. (K4)

(Or)

b) Summarise the common faults found in various pastry products. (K5)

5. Infer the factor which gives flaky layers to rough puff pastry_____. (K1)

a) Yeast b) Laminating fat into the dough

c) Beating the dough d) Chilling the dough

SECTION – B (5 X 3 =15 Marks)
Answer ALL questions.

6. a) Illustrate the significance of gluten in the texture of baked goods. (K2)

(Or)

b) Explain the function of eggs in bakery products. (K3)

7. a) Outline the steps involved in shaping bread dough. (K2)

(Or)

b) Write the recipe for milk bread. (K3)

8. a) Interpret the function of sugar in biscuits and its impact on the final product. (K2)

(Or)

b) Infer the characteristics of salt biscuits and their distinguishing features. (K3)

9. a) List the steps involved in the melt-and-mix method for cake preparation. (K2)

(Or)

b) Outline the whisking method and its application in making chiffon cakes. (K3)

10. a) Explain the key steps in making choux pastry. (K2)

(Or)

b) Distinguish between shortcrust pastry and sweet crust pastry. (K3)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Appraise the importance of ingredient quality in bakery production. (K4)

(Or)

b) Validate the significance of temperature control during the proofing and baking stages. (K5)

12. a) Explain the types of yeast dough making process. (K4)

(Or)

b) Distinguish between different shaping techniques in bread making. (K5)

13. a) Evaluate the importance of proper leavening agent ratios in biscuit recipes. (K4)

(Or)

b) Write in detail about the role of salt in balancing flavours in biscuit recipes. (K5)

14. a) Appraise the role of leavening agents in different cake making methods. (K4)

(Or)

b) Validate the impact of ingredient proportions in the sponge method. (K5)

Reg.No:_____

Course Code: 24UATCT102

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2024 - 2025 and onwards)

Catering Science and Hotel Management

First Semester

Core: Food & Beverage Service I

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following ia an example of welfare catering? (K1)

   a) Restaurant b) school c) banquets d) Room service.

2. Which one of the following operates round the clock? (K1)

   a) Popular restaurant b) Discotheque

   c) coffee shop d) carvey.

3. Sommelier is also called _____. (K1)

   a) Station waiter b) Wine waiter

   c) Head waiter d) Room waiter

4. Dhabas are located at _____. (K1)

   a) beaches b) hill stations c) highways d) Airport.

5. The height of a dinning table is _____. (K1)

   a) 24" b) 36" c) 30" d) 40"

6. The diameter of a full plate is _____. (K1)

   a) 6" b) 10" c) 8" d) 12"

7. Which of the following sections is responsible for the preparations of coffee and tea? (K1)

   a) Hotplate b) Silver room c) Still room d) Linen room

8. Aboyeur is the French name for_____. (K1)

a) Barker b) cook c) waiter d) Pot wash man.

9. Cyclic menu is followed in _____. (K1)

a) Fast food b) Industrial canteen

c) coffee shop d) room service.

10. Silton is a type of _____. (K1)

a) Vegetables b) Fish c) game d) cheese.

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Elaborate the classify customers of the food service industry. (K2)

(Or)

b) Plan the hospital catering in food industry. (K3)

12. a) Sketch the organization structure of food & beverages service department. (K2)

(Or)

b) Outline the qualities required for the Head waiter service staff. (K3)

13. a) List any two Restaurant Linen and their uses. (K2)

(Or)

b) Categorize Tableware with examples. (K3)

14. a) Write down the meaning of Still room and its functions. (K2)

(Or)

b) Explain two sink method of washing. (K3)

15. a) Assess the types of Menu. (K2)

(Or)

b) Justify the advantages and limitation of table 'dhote and Ala' carte menu. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Evaluate the attributes of a food service professional. (K4)

(Or)

b) Develop the environmental factors influencing the food service operations. (K5)

17. a) Edit the duties of food and beverage of Manager. (K4)

(Or)

b) Design the Fast food operation used in food industry. (K5)

18. a) Estimate the factors that should be considered while selecting food service equipment. (K4)

(Or)

b) Prepare the salient features of: 1.Bone china 2. Earth ware. (K5)

19. a) Explain the silver cleaning methods. (K4)

(Or)

b) Compile the do's and don'ts in a restaurant. (K5)

20. a) Plan down the French classical courses in sequences. (K4)

(Or)

b) Write down the accompaniments for the following: (K5)

1. Roast turkey 2. Roast duck

3. Roast chicken 4. Roast lamb.

(Or)

b) Prepare the American Breakfast cover setting. (K5)

20. a) Assess checking system in food service operations. (K6)

(Or)

b) Solve about method of payment in Industry. (K5)

Reg.No: _____

Course Code: 21UATCT203

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2021-22 to 2022-23 Batch only)

Catering Science and Hotel Management

Second Semester

Core: Food & Beverage Service II

Time: 3 Hours Maximum marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The food which is served from trolley is termed as? (K1)

a) Buffet Service b) Gueridon Service

c) Plated Service d) Silver Service

2. French service is also termed as? (K2)

a) Family Service b) Side board Service

c) Gueridon Service d) Self Service

3. _____is a good example for Aerated drinks. (K1)

a) Mineral water b) A Juice

c) Coffee d) Soda

4. Cafe _____ is a milk coffee that is a made up of one or two shots of espresso, steamed milk and a final, thin layer of frothed milk on top. (K2)

a) Espresso b) Latte

c) Filter d) Double Cup

5. _____is an ice cream dessert of American origin that typically consists of one or more scoops of ice cream topped with sauce or syrup and other toppings. (K1)

a) Bomb b) Sundae c) Dessert d) Flan

6. A _____consists of custard, thickened and set with the use of gelatine. (K2)

a) Mousse b) Ice cream

c) Soufle d) Bavarois

7. A meal which is taken around 12 noon is_____. (K1)

a) Brunch b) Breakfast

c) Lunch d) Supper

8. Which breakfast is known as neither too heavy nor light? (K2)

a) American b) Indian

c) English d) Continental

9. The bill which has 2 copies is called as_____ system. (K1)

a) Triplicate b) Duplicate

c) Fine dining d) Check

10. The bill is also called as_____. (K2)

a) Cheque b) Check

c) Duplicate d) G-Pay

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions

11. a) Write about the factors that influences the styles of food service. (K3)

(Or)

b) Tabulate the cafeteria service . (K4)

12. a) Outline the procedure of producing coffee. (K3)

(Or)

b) Illustrate Aerated water with examples. (K4)

13. a) List the categories of Ice creams. (K3)

(Or)

b) Explain the types of cheese. (K4)

14. a) Construct a sample menu for continental breakfast. (K3)

(Or)

b) Plan order taking produce by telephone. (K4)

15. a) Show the meaning of billing. (K3)

(Or)

b) Prepare the service with order in order taking. (K4)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions

16. a) Explain about assisted service with examples. (K5)

(Or)

b) Explain about the types of waiter services. (K6)

17. a) Classify Non-Alcoholic beverage and explain. (K5)

(Or)

b) Explain about the process of producing Tea. (K6)

18. a) Develop the types of Horsd' oeuvres and example of each. (K5)

(Or)

b) Justify the following: Parfait Bombes and sundac. (K6)

19. a) Design the types of Breakfast and explain. (K5)

18. a) Write the special features of tourism marketing. (K4)

(Or)

b) Plan the itinerary for 4 days trip to goa. (K3)

19. a) Compile the procedure for obtaining passport. (K4)

(Or)

b) Write the roles of transport in tourism. (K3)

20. a) Order the principles of tourism attraction development. (K4)

(Or)

b) Summarize the emerging trends in tourism. (K3)

Reg. No:_____

Course Code: 22UATET506

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Catering Science and Hotel Management

Fifth Semester

Elective: Tourism & Travel Management

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____ is a person visiting a country other than that in which, he usually resides. (K1)

a) Tourist b) Traveller c) Excursionist d) Archaeologist

2. Facilities like swimming, boating, surf-riding amusements are called _____. (K2)

a) pleasing weather b) scenery

c) accessibility d) amenities

3. _____ is a unique concept in the parlance of tourism that satisfies some specific needs of the customer. (K1)

a) Tourism product b) Accommodation

c) Transport d) Tourism attraction

4. If you are moving in a sanctuary and learning more about migratory birds, you are, in all probability, a/an_____. (K2)

a) Tourist b) Explore c) Eco-tourist d) Researcher

5. _____ is the process of selection of segments and approaching selected markets. (K1)

a) Surveys b) Market segmentation

c) Market targeting d) Portfolio

6. What is the unique feature of a tourism product? (K2)

a) It is meant to be delivered to the customer

b) It is perishable

c) Its components are predominantly products

d) It is cheap most of the times

7. Expand visa. (K1)

a) Visiting intention to stay abroad

b) Visiting interest for stay abroad

c) Visitors international standard association

d) Visiting intension to standard abroad

8. The mode of transport to be used by the tourist would depend upon_____. (K2)

a) The availability of transport network to reach the tourist spot

b) His financial prowess

c) His willingness to use a particular mode of travel

d) All of these

9. The world heritage list is published by_____. (K1)

a) WTO b) UNESCO c) UNICEF d) WHO

10. _____is made a major advance in the airline reservation system. (K2)

a) Computer reservation system

b) Central reservation system

c) Central reservation software

d) Computer record software

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Define Tourism. (K3)

(Or)

b) Write about package tours. (K2)

12. a) Illustrate the travel motivators. (K3)

(Or)

b) Relate the tourism and peace. (K2)

13. a) Outline the tourism marketing and its uses. (K3)

(Or)

b) Classify the marketing mix. (K2)

14. a) List out the travel formalities. (K3)

(Or)

b) Explain about travel insurance. (K2)

15. a) Outline the importance of tourism planning. (K2)

(Or)

b) Illustrate the government initiatives for tourism. (K3)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Explain the components of tourism. (K4)

(Or)

b) List the functions of travel agencies. (K3)

17. a) Summarize the types of tourism product. (K4)

(Or)

b) Classify the tourist. (K3)

19. a) Write short notes on: 1.Washing 2.Mashing 3.Emulisification 4.Sieving. (K4)

(Or)

b) Plan the cuts of vegetables with examples. (K5)

20. a) Test the following terms: 1.Sauteing 2.Deep frying 3.Baking 4.Smoking. (K4)

(Or)

b) Prepare the following terms: 1.Stewing 2.Steaming 3.Poaching 4.Boiling. (K5)

Reg.No:_____

Course Code: 24UATCT101

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2024 - 2025 and onwards)

Catering Science and Hotel Management

First Semester

Core: Food Production I

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____ is an example for protective clothing used by cooks. (K1)

a) Apron b) chef cap c) Duster d) wiping cloth.

2. _____ is an example for right for right texture of bread. (K1)

a) coarse b) tough

c) firm and close d) hard.

3. The French term for section head in a kitchen is known as _____. (K1)

a) chef de partie b) sous chef

c) chef de rang d) commis de rang.

4. _____ is in charge for cold kitchen. (K1)

a) cheftourant b) chef patisserie

c) chef larder d) chef grillardin.

5. Margarine is an example for_____. (K1)

a) Raising agent b) flavouring agent

c) shortening d) liquid.

6. _____ is the thickening agent used in the preparation of khorma. (K1)

a) Besan flour b) Ginger and garlic paste

c) rice flour d) coconut and khuskhus paste.

7. Doughnuts are cooked by _____. (K1)

a) Baking b) Shallow fat frying

c) Deep fat frying d) Roasting.

8. Cooking in a small quantity of water/liquid in a simmering flame. (K1)

a) Roasting b) Brasing c) Stewing d) Poaching.

9. _____ means mixing of two or more ingredients together. (K1)

a) Kneading b) blending

c) emulsification d) steeping.

10. _____ is a combined method of Pot roasting and stewing. (K1)

a) Brasing b) Grilling c) Poeling d) steeping.

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Show the aims and objective of cooking. (K2)

(Or)

b) Plan the safety procedure in handling equipment's used in food industry. (K3)

12. a) Sketch the layout of kitchen –receiving area and wash up area. (K2)

(Or)

b) Outline the hierarchy of kitchen department. (K3)

13. a) Write the action of heat on carbohydrates. (K2)

(Or)

b) List out any 5 of spices used in food production industry and explain it. (K3)

14. a) Explain the following terms: 1) Grating 2) Evaporation. (K2)

(Or)

b) Analyze the following terms: 1) Beating 2) Creaming. (K3)

15. a) Compare between the conduction and radiation. (K2)

(Or)

b) Select the any two moist heat method and explain it. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Summarize the personal hygiene used in Food production department. (K4)

(Or)

b) Prepare the Culinary history of Cookery used in Food production . (K5)

17. a) Assess the need for food production to co-ordinate with other department of a hotel. (K4)

(Or)

b) Validate the cooking fuels with examples. (K5)

18. a) Evaluate the Raising agents and its function. (K4)

(Or)

b) Create the types of Thickening agents with examples. (K5)

18. a) Validate the role of additives and preservatives in charcuterie. (K6)

(Or)

b) Appraise the historical significance and modern-day applications in gastronomy of charcuterie. (K5)

19. a) Write the preparation of mousse line, emphasizing its distinctive characteristics compared to traditional mousses. (K6)

(Or)

b) Summarize different pate varieties and their traditional serving methods. (K5)

20. a) Summarize the uses and techniques involved in creating Pastillage and jelly logo displays. (K5)

(Or)

b) Classify the appetizers with an example. (K6)

Reg. No.: _____

Course Code: 22UATCT501

B.Sc. Degree Examination – November 2024

(For the candidates admitted from the year 2022 - 2023 only)

Catering Science and Hotel Management

Fifth Semester

Core: Food Production V

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Name the type of budget focuses on day-to-day expenses like labour and ingredients. (K1)

a) Operating budget b) Capital budget

c) Cash flow budget d) Forecasting budget

2. Identify the impact of well-structured kitchen organization and layout. (K2)

a) Staff turnover rates b) Customer satisfaction

c) Menu pricing strategies d) Beverage selection

3. Indicate the primary function of a larder kitchen. (K2)

a) Baking desserts b) Preparing cold dishes and salads

c) Grilling meats d) Brewing coffee

4. Select the section of a typical larder kitchen that is responsible for preparing salads and appetizers. (K1)

a) Butchery b) Garde Manger

c) Pastry d) Bakery

5. Tell the additive that is commonly used in charcuterie to enhance flavour and prolong shelf life. (K1)

a) Salt b) Sugar c) Pepper d) Flour

6. State the main purpose of curing in charcuterie. (K1)

a) Increase meat tenderness b) Enhance meat flavour

c) Improve meat colour d) Prevent meat spoilage

7. Select the factor on which Galantines and Ballotines differ primarily. (K2)

a) Shape b) Cooking method

c) Filling ingredients d) Serving temperature

8. Indicate the organ which is known as key ingredient of Pate de foie gras? (K1)

a) Beef liver b) Chicken liver

c) Pork liver d) Duck liver

9. Define the factor on which appetizers are classified. (K1)

a) Size and shape

b) Origin and flavour

c) Temperature and preparation method

d) Colour and texture

10. Identify that from which Quenelles are typically made. (K1)

a) Poultry b) Fish or meat

c) Root vegetables d) Rice and beans

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Explain the aims and objectives of a purchasing policy in kitchen management. (K3)

(Or)

b) Illustrate the process of identifying regular suppliers and its importance in kitchen operations. (K4)

12. a) List the functions of the larder section. (K3)

(Or)

b) Explain the significance of a larder kitchen. (K4)

13. a) Analyze the importance of charcuterie in culinary traditions. (K4)

(Or)

b) Interpret the types and varieties of sausages commonly found in charcuterie. (K3)

14. a) Explain about different types of pates. (K3)

(Or)

b) Outline the differences between mousses and mousse lines. (K4)

15. a) Analyze the concept of non edible displays in culinary arts. (K3)

(Or)

b) Write down the historic importance of culinary garnishes. (K4)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Compare and contrast operating budgets and capital budgets in the context of kitchen management. (K5)

(Or)

b) Write the importance of forecasting in kitchen management. (K6)

17. a) Evaluate the importance of inventory management, temperature control, and food safety practices in the larder. (K5)

(Or)

b) Assess the primary role played by the larder chefs. (K5)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Appraise the importance of offering a variety of menu choices in enhancing the dining experience. (K5)

(Or)

b) Validate the factors that food and beverage establishments should consider when selecting a location. (K6)

17. a) Asses the main duties and responsibilities of a purchase manager in a food and beverage setting. (K5)

(Or)

b) Predict the types of storage facilities and conditions necessary for storing food and beverages. (K5)

18. a) Evaluate the significance of implementing a food control checklist in a restaurant. (K5)

(Or)

b) Write in detail about the process involved in calculating the food cost. (K6)

19. a) Appraise the significance of understanding the elements of cost in a restaurant business. (K5)

(Or)

b) Validate the importance of HACCP in ensuring food safety in a restaurant environment. (K6)

20. a) Write the potential problems and limitations of Menu Engineering. (K6)

(Or)

b) Summarise the role of Menu Engineering concept in the context of restaurant management. (K5)

Reg. No:_____

Course Code: 22UATET503

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Catering Science and Hotel Management

Fifth Semester

Elective: Food & Beverage Management

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Identify the primary responsibility of the Food and Beverage department. (K1)

a) Housekeeping management

b) Staff training and development

c) Front office operations

d) Marketing strategy development

2. Select the common constraint faced by food and beverage managers. (K2)

a) Staff turnover b) Overstocking of inventory

c) Customer complaints d) Menu diversity

3. Infer the responsibility that is typically not a part of a purchase manager's role. (K2)

a) Negotiating with suppliers

b) Ensuring food safety standards

c) Maintaining inventory records

d) Marketing food products

4. Indicate the critical step to be followed during the receiving process to ensure food safety. (K2)

a) Checking temperature controls

b) Inspecting packaging aesthetics

c) Recording invoice details

d) Contacting the supplier

5. Name the method of food control involves establishing predetermined costs for all menu items. (K1)

a) Standard costing b) FIFO costing

c) ABC costing d) Average costing

6. Identify the primary benefit of using standard recipes in food production. (K2)

a) Ensuring consistent quality b) Reducing labor costs

c) Increasing portion sizes d) Minimizing waste

7. Indicate the formula for calculating contribution margin. (K2)

a) Total Revenue - Fixed Costs

b) Total Revenue - Variable Costs

c) Total Revenue / Variable Costs

d) Total Revenue / Total Costs

8. Select the answer that is considered as a variable cost in a restaurant. (K1)

a) Rent b) Salaries of permanent staff

c) Cost of ingredients d) Insurance premiums

9. Infer the primary goal of menu engineering. (K2)

a) To design visually appealing menus

b) To create balanced menu items

c) To maximize profitability of menu items

d) To standardize food portion sizes

10. _____is the purpose of considering the shape and fold of a menu.

a) To enhance menu aesthetics (K1)

b) To reduce printing costs

c) To improve menu durability

d) To influence customer menu selection

SECTION – B ((5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Illustrate the primary responsibilities of the Food and Beverage department in a hospitality setting. (K3)

(Or)

b) Interpret the importance of interior design in creating a pleasant dining atmosphere. (K3)

12. a) Outline the nature of purchasing in food and beverage management. (K4)

(Or)

b) Interpret the typical steps involved in the purchasing procedure for food and beverages. (K4)

13. a) Write three methods of food control used in commercial kitchens. (K3)

(Or)

b) Infer the essentials of a food control system in a restaurant setting. (K4)

14. a) List the considerations a restaurant should take into account when pricing its menu items. (K3)

(Or)

b) Outline the concept of contribution margin and its significance in determining profitability for a restaurant. (K4)

15. a) Explain the concept of menu engineering and its significance in restaurant profitability. (K3)

(Or)

b) Distinguish between menu pricing methods in menu engineering. (K4)

Reg. No:_____

Course Code: 22UATST511

B.Sc. Degree Examination - November 2024

(For the Candidates admitted from the year 2022 - 2023 only)

Catering Science and Hotel Management

Fifth Semester

Skill based: Bar Management

Time: 3 Hours Maximum Marks: 45

SECTION – A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____ is a service professional who prepares and serves alcoholic and non-alcoholic beverages. (K1)

a) Bar tender b) Bar waiter

c) Bar head waiter d) Bar manager

2. _____involves implementing measures to prevent theft, spillage, and waste. (K2)

a) Manufacture b) Bar control

c) Bar manager d) Sommelier

3. _____ is a crucial part of making cocktails that use heavier ingredients such as fruit, ice cream or ice. (K1)

a) Blending b) Straining c) Stirring d) Muddling

4. _____cocktail is straightforward, requiring brandy, simple syrup, and club soda. (K2)

a) Embassy b) Sidecar

c) Brandy cobbler d) Brandy alexander

5. _____ is the art and science of creating delicious cocktails.

a) Mocktail b) Mojito c) Mixology d) Chemistry (K1)

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

6. a) Explain about bar operations. (K2)

(Or)

b) Describe the opening procedure of bar. (K2)

7. a) Illustrate the bar costing. (K2)

(Or)

b) Summarize the cellar control. (K2)

8. a) Write the meaning of cocktail. (K3)

(Or)

b) List out the glassware used for cocktails. (K3)

9. a) Name any three vodka-based cocktails. (K3)

(Or)

b) Describe about spirit coffee. (K3)

10. a) Explain the business planning for bar. (K3)

(Or)

b) Write a sample menu bar. (K3)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Explain the roles of a bar tender. (K3)

(Or)

b) Illustrate the various types of bar. (K3)

12. a) List out and explain the various records maintained in bar. (K3)

(Or)

b) Illustrate the importance of stocking of alcoholic beverage. (K3)

13. a) Classify the types of cocktails. (K4)

(Or)

b) List out the points to be observed while making cocktail. (K4)

14. a) Write a recipe of any one champagne-based cocktail. (K4)

(Or)

b) Illustrate how to develop a new cocktail. (K4)

15. a) Summarize the art of mixology and service. (K4)

(Or)

b) Explain the procedure followed to increase bar sales. (K4)

19. a) Write the classification of linen and their sizes. (K4)

(Or)

b) Compile a types of laundry equipments and its uses. (K5)

20. a) Summarize the different styles of flower arrangement. (K4)

(Or)

b) Assess the fire prevention and procedure followed for first aid. (K5)

Reg.No:_____

Course Code: 24UATAT103

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2024 - 2025 and onwards)

Catering Science and Hotel Management

First Semester

Allied: Housekeeping Management

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. A hotel largest margin of profit comes from _____. (K1)

a) room sales b) banquet c) bar sales d) food sales

2. Housekeeping co – ordinates with engineering department for_____. (K1)

a) Cleaning of fans and lights

b) Repair of all electrical equipment

c) Discarding of all electrical equipment

d) Phone repair

3 Control desk is used for_____. (K1)

a) Dissemination of information and communication in house keeping

b) Located in front office

c) Office used for banquet function booking

d) Store room in house keeping

4. Turndown service is done in _____shift. (K1)

a) Night shift b) Morning shift

c) During lunch time d) Evening shift.

5. Special cleaning record is used for _____. (K1)

a) Details of carpet shampooing

b) Details of guest room cleaning

c) Details of equipment's cleaning

d) Details of linen cleaning

6. _____is an example of cleaning mechanical equipment. (K1)

a) Cloths b) Wet mop c) Box sweeper d) Dust pan

7. The room where current linen is stored for issue and receipt is _____. (K1)

a) Linen room b) Uniform room

c) Tailors room d) Linen uniform room

8. _____ of the following is the largest single expense item on a room division income statement. (K1)

a) Laundry and dry cleaning b) Cost of sales

c) Salaries and wages d) Operating supplies

9. _____ is also known as ikebana. (K1)

a) western b) oriental c) modern d) moribana

10. _____ is the correct procedure to follow in the event of fire.

a) Close door and windows b) Act quickly (K1)

c) Help evacuate d) Raise the alarm

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Explain the importance of housekeeping department. (K2)

(Or)

b) Sketch the layout of housekeeping department. (K3)

12. a) Outline the standard cleaning of guest room. (K2)

(Or)

b) Plan the roles of desk control. (K3)

13. a) Illustrate the selection of cleaning equipments. (K2)

(Or)

b) List the types of contract services and its uses. (K3)

14. a) Plan the activities of linen room. (K2)

(Or)

b) Classify the types of stains and its removal. (K3)

15. a) Write down the purpose of flower arrangements in hotel. (K2)

(Or)

b) List out the common types of pest found in hotel and their controls. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Summarize the duties and responsibilities of housekeeping personnel. (K4)

(Or)

b) Order the personal attributes of a house keeping personnel. (K5)

17. a) Write the functions of housekeeping department. (K4)

(Or)

b) Plan the process of bed making process. (K5)

18. a) Illustrate the Care and maintenance of electrical equipment's. (K4)

(Or)

b) Distinguish between the advantages and disadvantages of contract service. (K5)

20. a) What do you mean by forecasting? Explain its importance in food and beverage operations. (K4)

(Or)

b) Explain the following: (K3)

1. Executive training programmes
2. Minimising customer relation problems.

Reg. No.: _____

Course Code: 22UATCT502

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 – 2023 only)

Catering Science and Hotel Management

Fifth Semester

Core: Food & Beverage Service V

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____ is a movable service table or trolley from which food may be served. (K1)

a) Gueridon b) Doiley c) Buttery d) Troncon

2. _____ gas is used in flare lamps. (K2)

a) Indane b) Methane c) Calor d) Gobar

3. The term function is associated with _____. (K1)

a) Room service b) Banquet

c) Cocktail bar d) Bub

4. Standing buffet may also be called as _____ buffet. (K2)

a) Spoon b) Knife c) Fork d) Formal

5. _____ sequences various events in a formal banquet. (K1)

a) Banquets secretary b) Banquet Manager

c) Toast master d) Barker

6. Which one of the following table plans is suitable for sensitive discussion? (K2)

a) Theatre b) Herring bone

c) Class room style d) Star fish

7. Pantry cars are associated with_____ catering. (K1)

a) Railway b) Bar c) Pub d) Restaurant

8. For air line catering services ____ prepare food on requirements.

a) Flight kitchen b) Flight cabins (K2)

c) Pantry d) Silver rooms

9. _____ budget deals with investment on land and machinery.

a) Capital b) Operating c) Recurring d) Zero (K1)

10. _____ training is offered to the employer during the operation of the hotels in a particular department. (K2)

a) Off the Job b) On the job c) Class room d) Vestibule

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) What is caviar? Mention the accompaniments for caviar and its service procedure. (K3)

(Or)

b) Write notes on Mise-en-Place required for Gueridon. (K2)

12. a) Define: Function catering. (K2)

(Or)

b) Mention the factors involved in planning of buffets. (K3)

13. a) List out the types of Banquets function. (K2)

(Or)

b) Describe the procedures for organizing fashions shows. (K3)

14. a) What is the meaning of ODC? (K2)

(Or)

b) Comment the required service personals and counters for a working in Outdoor catering for 500 pax. (K3)

15. a) Assess the importance of training for Hotel employees. (K2)

(Or)

b) Explain in detail on sales forecasting in food and beverage operations. (K3)

SECTION – C (5 X 5 =25 Marks)

Answer ALL questions.

16. a) Give a detailed account on specification and uses of any three Guerdion equipment. (K3)

(Or)

b) Explain the following terms: (K3)

1. Shell fish Cocktail
2. Steak diane

17. a) How will you calculate the staff requirement for function catering? (K4)

(Or)

b) Describe an account on organization of wedding reception. (K4)

18. a) Illustrate the Booking procedure of a banquet function. (K3)

(Or)

b) Sketch the various seating arrangement followed in banquets. (K4)

19. a) Explain the limitations of outdoor catering. How do you overcome them? (K3)

(Or)

b) Brief notes on: (K4)

1. Re-heating in Outdoor catering
2. In-flight catering service

Reg.No:_____

Course Code: 22UAPAL510

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 – 2023 only)

Biochemistry

Fifth Semester

ALC: Entrepreneurship Development in Life Sciences

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1.	Define the term entrepreneurship.	(K1)
2.	List out two characteristics of entrepreneurs.	(K1)
3.	Identify two scopes of mushroom cultivation.	(K2)
4.	List out the health benefits of consuming mushrooms.	(K1)
5.	List two nutritional benefits of consuming Spirulina.	(K1)
6.	Explain the term Vermiwash.	(K2)
7.	Define organic terrace farming.	(K1)
8.	Identify the basic requirements for starting beekeeping.	(K2)
9.	Infer about Ornamental fishes.	(K2)
10.	Identify the primary nutrients required for the growth of silkworms.	(K2)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a)	List the objectives of Entrepreneurship Development.	(K3)
	(Or)	
b)	Analyze the characteristics of an entrepreneurial mindset.	(K4)
12. a)	Explain the sterilization of substrates.	(K3)
	(Or)	
b)	Outline about the value addition of mushroom.	(K4)

13. a) Prepare a list of commercially available spirulina products. (K3)

(Or)

b) Explain about the types of earthworms used in vermicomposting. (K4)

14. a) Explain the need and benefits of organic farming. (K3)

(Or)

b) Analyze the strategies to be followed while marketing honey. (K4)

15. a) List the uses of agro-industrial waste and biofertilizers in aquaculture. (K3)

(Or)

b) Write about the nutritive value of fish in aquaculture. (K4)

SECTION – C (5 X 10 = 50 Marks)
Answer ALL questions.

16. a) Summarize the phases of entrepreneurship development. (K3)

(Or)

b) Compile the roles and characteristics of entrepreneurship. (K4)

17. a) Appraise about the structure and construction of an ideal mushroom house. (K4)

(Or)

b) Write in detail about the process of spawn production. (K3)

18. a) Appraise about the enhancement of Spirulina nutrients and processing. (K4)

(Or)

b) Discuss the preparation and uses of Panchakavya, highlighting its medicinal uses. (K5)

19. a) Summarize about the principle and types of organic farming. (K3)

(Or)

b) Write a detailed note on the types of honeybees and the biological properties of honey. (K4)

20. a) Appraise about Shrimp and prawn culture. (K3)

(Or)

b) Compile the biology of silkworms and the cultural conditions for silk production. (K3)

18. a) Give a detailed account on the structure and functions of chromosomes. (K4)

(Or)

b) Explain in detail on the mitosis phases of cell division. (K5)

19. a) Discuss on law of independent assortment using dihybrid cross in pea plants. (K4)

(Or)

b) Discuss in detail on the applications of Punnett square method in explaining Mendel law. (K5)

20. a) Give a detailed account on the factors affecting linkage. (K4)

(Or)

b) Discuss in detail on the factors affecting crossing over. (K5)

Reg.No:_____

Course Code: 23UAPCT102

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Biochemistry

First Semester

Core: Cell Biology and Genetics

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____do not fall into the category of cells. (K1)

a) Algae b) Bacteria c) Virus d) Fungi

2. The two domains to which prokaryotes are classified into are_____. (K1)

a) Bacteria and Protista b) Bacteria and Archaea

c) Archaea and Eukarya d) Eukarya and Monera

3. The _____ is the organelle functions to package and deliver proteins. (K1)

a) Lysosome b) Endoplasmic reticulum

c) Mitochondria d) Golgi apparatus

4. Choose the correct statement? (K1)

a) Genes are located in the chromosomes

b) Cell is located in the nucleus

c) Chromosomes are located in the nucleolus

d) Cell membrane surrounds the nucleus

5. Cytoskeleton is made up of_____. (K1)

a) Proteins b) Carbohydrates

c) Lipids d) All of these

6. The process of appearance of recombination nodules occurs at _____ sub-stage of prophase I in meiosis. (K1)

a) Diakinesis b) Zygotene c) Pachytene d)Diplotene

7. The tendency of an offspring to resemble its parent is known as _____. (K1)

a) Variation b) Resemblance c) Heredity d) Inheritance

8. An allele is_____. (K1)

a) Another word for a gene

b) A homozygous genotype

c) A heterozygous genotype

d) One of several possible forms of a gene

9. Percentage of crossing over is more when_____. (K1)

a) Genes are located in a different cell

b) Genes are not linked

c) Linked genes are located close to each other

d) Linked genes are located far apart from each other

10. Repulsion and coupling are two faces of _____. (K1)

a) Mutation b) Chiasmata c) Linkage d) Crossing over

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Compare prokaryotic and eukaryotic cells. (K2)

(Or)

b) Compare passive and facilitated diffusion. (K3)

12. a) Illustrate the structure of mitochondria by labelling the parts. (K2)

(Or)

b) Illustrate the structure of Golgiapparatus by labelling the parts. (K3)

13. a) Write a note on the structure and function of microtubules. (K2)

(Or)

b) Differentiate between Eu chromatin and hetero chromatin. (K3)

14. a) Explain about law of segregation. (K2)

(Or)

b) Explain briefly on back cross and test cross. (K3)

15. a) Differentiate complete and incomplete linkage. (K2)

(Or)

b) Explain the significance of crossing over. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Give a detailed account on fluid mosaic model. (K4)

(Or)

b) Write in detail on the Na+ - K+ pump system in biology. (K5)

17. a) Describe in detail on the types and functions of ribosomes. (K4)

(Or)

b) Explain in detail on the structure and biological functions of glyoxysomes. (K5)

17. a) Choose and explain a blotting technique which is involved in detection of protein. (K5)

(Or)

b) Assess the steps involved in construction of cDNA library. (K5)

18. a) Summarize the steps involved in PCR. (K5)

(Or)

b) Assess the methodology involved in Maxam and Gilbert's DNA sequencing. (K5)

19. a) Choose and explain a chemical technique involved in gene transfer in plants. (K6)

(Or)

b) Validate your views on agrobacterium mediated gene transfer using a diagram. (K5)

20. a) Summarize methods of Embryogenic stem cells. (K6)

(Or)

b) Compile the steps involved in production of transgenic mice.(K6)

Reg.No:_____

Course Code: 22UAPET505

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Biochemistry

Fifth semester

Elective: rDNA Technology

Time: 3 Hours Maximum Marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Identify which is NOT a common type of vector used in gene cloning? (K1)

a) Plasmid vector b) Bacteriophage vector

c) Cosmids vector d) Ribosome vector

2. Select the feature which is essential for a plasmid vector to function in gene cloning? (K2)

a) Origin of replication

b) Signal peptide

c) Transcription factor binding site

d) Enzyme active site

3. Identify the process involved the uptake of DNA by a bacterial cell from its environment. (K1)

a) Conjugation b) Transduction

c) Transformation d) Transfection

4. Show the technique which is used to detect specific nucleic acid sequences by hybridization. (K2)

a) Western Blotting b) Southern Blotting

c) PCR d) Mass Spectrometry

5. Identify which component of a PCR reaction provides the necessary heat-stable DNA polymerase enzyme? (K1)

a) dNTPs b) Taq polymerase

c) DNA primers d) DNA template

6. Select which of the following is NOT a typical application of PCR? (K2)

a) Amplifying a specific DNA segment from a sample

b) Sequencing long stretches of DNA

c) Detecting the presence of a specific gene or pathogen

d) Cloning genes into vectors

7. Identify the type of transgenic plant that is produced by integrating a foreign gene into the plant's genome. (K1)

a) Clonal plant

b) Hybrid plant

c) Genetically modified (GM) plant

d) Somatic cell plant

8. Select a bacterium is commonly used for transferring genes into plants. (K2)

a) Escherichia coli b) Pseudomonas aeruginosa

c) Agrobacterium tumefaciens d) Bacillus subtilis

9. Identify which method involves delivering therapeutic genes directly into a patient's cells using a virus as a vector? (K1)

a) CRISPR-Cas9

b) RNA interference

c) Viral vector-mediated gene therapy

d) Gene editing

10. Select the primary objective of the Human Genome Project.(K2)

a) To develop new treatments for genetic diseases

b) To map and sequence the entire human genome

c) To identify all human proteins

d) To understand the genetic basis of aging

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Illustrate the applications of gene cloning. (K3)

(Or)

b) Outline the types of Restriction endonucleases. (K3)

12. a) List the applications of gene editing tool. (K3)

(Or)

b) Demonstrate the principle of southern blotting. (K3)

13. a) Explain the principle of PCR. (K3)

(Or)

b) Illustrate the applications of RFLP. (K3)

14. a) Analyse the structure of Ti plasmid. (K4)

(Or)

b) Outline about Biolistics. (K4)

15. a) Explain the applications of gene therapy. (K4)

(Or)

b) Analyze the merits of IVF. (K4)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Summarize the structural features of pBR322. (K5)

(Or)

b) Justify the role of Bacteriophage as vector. (K5)

Reg. No.:_____

Course Code: 22UAPCT501

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Biochemistry

Fifth Semester

Core: Human Physiology and Medical Terminology

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The conversion of liquid blood into semisolid at the bleeding site is called_____. (K1)

   a) Blood Groups b) Blood Fluids

   c) Blood Coagulation d) Blood Flow

2. The heart is covered by a fibrous sac called_____. (K2)

   a) Pericardium b) Neuron

   c) Fluera d) Epicardium

3. _____can be corrected by wearing lenses with cylindrical surface on one side and spherical surface on the other side. (K1)

   a) Anisometropia b) Astigmatism

   c) Night blindness d) Presbyopia

4. The myelin sheath is covered by a thin membrane called_____.

   a) Axolemma b) Neuroplasm (K2)

   c) Terminaux d) Neurolemma

5. Chymotrypsin is a proteolytic enzyme secreted by the_____.

   a) Pancreas b) Liver c) Kidney d) Lungs (K1)

6. The transport of oxygen from the lungs to the cells and the transport of CO_2 from the cells to the lungs are called_____.

a) Oxygen transport b) CO_2 transport (K2)

c) O_2 dissociation curved d) Transport of gases

7. _____may be defined as the separation and elimination of the nitrogenous metabolic activities from the body. (K1)

a) Absorption b) Excretion c) Metabolism d) Digestion

8. The_____ is commonly called the master gland of the endocrine system. (K2)

a) Thyroid b) Pituitary c) Adrenal d) Parathyroid

9. The _____is a muscular copulator organ used to deposit sperm within the reproductive tract of the female. (K1)

a) Penis b) Semen c) Spermatids d) Testis

10. The rupture of the follicle and the release of the egg from the ovary is called_____. (K2)

a) Spermiation b) Fertilization

c) Ovulation d) Implantation

SECTION - B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Explain the composition and functions of blood. (K3)

(Or)

b) Enumerate the structure and functions of heart. (K2)

12. a) Illustrate the Alzheimers disease. (K3)

(Or)

b) Describe the structure of Eye. (K2)

13. a) Discuss about functions of Gastric juices. (K3)

(Or)

b) Define the term Bronchoscopy and Mediastinscopy. (K2)

14. a) Survey about mechanism of formation of urine. (K3)

(Or)

b) Identify the symptoms of thyroid glands. (K2)

15. a) Organize the mechanism of ovarian cycle. (K3)

(Or)

b) Predict the process of Spermatogenesis. (K2)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Differentiate the term Hematocrit and Hemostasis. (K4)

(Or)

b) Explain the mechanism of muscle contraction. (K3)

17. a) List out the functions of Neuron. (K3)

(Or)

b) Distinguish between Hyperopia and Presbyopia. (K4)

18. a) Describe the structure and functions of digestive system. (K3)

(Or)

b) Discuss about structure and functions of respiratory tract. (K4)

19. a) Outline the structure and functions of Nephron. (K3)

(Or)

b) Classify the different types of hormones. (K3)

20. a) Enumerate the physiological functions of male hormones. (K4)

(Or)

b) Comment on Amenorrhoea and Amniocentesis. (K3)

Reg. No.:_____

Course Code: 22UAPCT502

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 – 2023 only)

Biochemistry

Fifth Semester

Core: Clinical Biochemistry

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Every 3 months once, the following test result is required to understand on diabetic patient. (K1)

   a) Hb b) HbA1c c) blood sugar d) urine sugar

2. The followings are acetone bodies, except_____. (K2)

   a) acetone b) acetoacetatte

   c) gama amino butyric acid d) 3-OH butyric acid

3. Sphingmyelinidase deficiency is leads to_____. (K1)

   a) Tay-Sach disease b) Nieman-Pick disease

   c) Tangier's disease d) Fatty liver

4. Normal serum cholesterol level is_____. (K2)

   a) 80 - 120 mg/dL b) 10- 190 mg/dL

   c) 15 - 40 mg/dL d) 150 - 240 mg/dL

5. Abnormalities of_____ metabolism cause albinism. (K1)

   a) tryptophan b) tyrosine

   c) cysteine d) histidine

6. Tophus is the result of deposition of_____. (K2)

   a) urea b) creatinine c) uric acid d) bilirubin

7. An absence of HCl in the stomach is known as_____. (K1)

a) dischlorhydria b) achlorhydria

c) acidemia d) aciduria

8. Pancreatitis is confirmed by the elevation of serum_____. (K2)

a) urease b) lipase

c) maltase d) alcohol dehydrogenase

9. Bile salt is the end product of_____. (K1)

a) bilirubin b) protein c) urea d) cholesterol

10. Elevation of serum acid phosphatase indicates_____. (K2)

a) bone tumour b) prostate cancer

c) hepatitis d) nephritis

SECTION - B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Enlist the mechanisms involved in regulation of blood glucose.

(Or) (K2)

b) Outline the diagnosis and clinical features of diabetic ketoacidosis. (K3)

12. a) Summarise on the composition of different lipoproteins. (K2)

(Or)

b) Relate the alcoholism and fatty liver. (K2)

13. a) Discuss on the phathophysiology, diagnosis and treatment of phenylketonuria. (K3)

(Or)

b) Outline the abnormalities and significance of oroticaciduria.(K3)

14. a) Explain the normal and abnormal content of HCl in the stomach.

(Or) (K2)

b) Demonstrate the tubeless gastric analysis. (K3)

15. a) Write briefly on the formation and diagnosis of bile salt (Hay's test). (K2)

(Or)

b) Demonstrate the procedure and calculation steps of urea clearance test. (K3)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Elaborate the types and clinical features of diabetes mellitus. (K3)

(Or)

b) Outline the types and clinical features of glycogen storage disease. (K3)

17. a) Explain the clinical features and diagnosis of type-II and V of hyperlipoproteinemia. (K3)

(Or)

b) Demonstrate the types and clinical disorders of hypolipoproteinemia. (K3)

18. a) Elaborate the types and treatment of Gout. (K4)

(Or)

b) Illustrate the abnormalities and diagnostic uses of non-protein nitrogen molecules. (K4)

19. a) Explain the function abnormalities of HCl in the stomach. (K3)

(Or)

b) Write the procedure and interpretation of caffine stimulation gastric analysis. (K4)

20. a) Summarize the types, diagnosis and interpretation of jaundice.

(Or) (K3)

b) Enlist the clinical importance of PSA and CEA. (K4)

17. a) Explain the derivation of the Michaelis-Menten equation and discuss its significance in enzyme kinetics. (K2)

(Or)

b) Write detailed account on the effect of pH and temperature on enzyme activity. (K3)

18. a) Discuss the structure and functions of FAD and its role in enzymatic reactions. (K2)

(Or)

b) Explain the mechanism of action of the enzyme chymotrypsin, including the roles of its active site residues. (K3)

19. a) Describe the various sources of immobilized enzymes and discuss the advantages of using immobilized enzymes over free enzymes. (K2)

(Or)

b) Explain the advantages and limitations of using fluidized bed reactors (FBR) for immobilized enzyme processes. (K3)

20. a) Explain the principle, technique and mechanism of immunosensors with examples. (K2)

(Or)

b) Discuss the enzymes used in diagnosis and various diseases with normal and abnormal values. (K3)

Reg.No:_____

Course Code: 23UAPCT301

B.Sc. Degree Examination - November 2024

(For the candidates admitted during the year 2021-2022 only)

Biochemistry

Third Semester

Core: Enzyme and Enzyme Technology

Time: 3Hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which theory suggests that the enzyme's active site and the substrate have specific geometric shapes that fit exactly into one another? (K1)

a) Lock and key model b) Induced fit model

c) Transition state theory d) Michaelis-Menten model

2. What does the unit of enzyme activity define? (K1)

a) The amount of substrate converted to product per unit time.

b) The molecular weight of the enzyme.

c) The color change of the substrate.

d) The enzyme's structural conformation.

3. Which plot is used to determine the inhibition type in enzyme kinetics? (K1)

a) Michaelis-Menten plot b) Lineweaver- Burk plot

c) Arrhenius plot d) Eadie-Hofstee plot

4. Which type of enzyme inhibition can be overcome by increasing substrate concentration? (K1)

a) Competitive inhibition b) Non-competitive inhibition

c) Uncompetitive inhibition d) Irreversible inhibition

5. FMN (Flavin mononucleotide) and FAD are derived from_____vitamin. (K1)

a) Vitamin B2 (Riboflavin) b) Vitamin B3 (Niacin)
c) Vitamin B6 (Pyridoxine) d) Vitamin B12 (Cobalamin)

6. Which coenzyme is involved in the oxidative decarboxylation of pyruvate? (K1)

a) NAD+ b) FAD c) TPP d) CoA

7. What is the main advantage of using immobilized enzymes in industrial processes? (K1)

a) Increased cost b) Reduced reaction speed
c) Reusability of enzymes d) Lower specificity

8. Which enzyme is commonly used in the food industry for the clarification of fruit juices? (K1)

a) Amylase b) Pectinase c) Lipase d) Protease

9. What is the role of cellulases in the paper industry?

a) Ink removal (K1)
b) Fiber strengthening
c) Fiber modification and pulp refining
d) Paper coating

10. Which of the following is a common application of enzymes in the food industry? (K1)

a) Textile dyeing b) Wastewater treatment
c) Juice clarification d) Metal extraction

SECTION - B (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Explain the key criteria used to characterize crude enzymes.(K2)

(Or)

b) Define the active site of an enzyme and explain its significance in enzyme catalysis. (K3)

12. a) Describe Irreversible inhibition and provide an example of a drug that acts as a suicide inhibitor. (K2)

(Or)

b) Write brief notes on role of superoxide dismutase. (K3)

13. a) Define coenzymes and explain their role in enzyme-catalyzed reactions. (K2)

(Or)

b) Discuss the role of proximity and orientation effects in enzyme catalysis. (K3)

14. a) Explain the covalent binding technique for enzyme immobilization and its advantages. (K2)

(Or)

b) Give a note on industrial production and applications of protease. (K3)

15. a) Discuss the therapeutic applications of enzymes with examples. (K2)

(Or)

b) Discuss the role of enzymes in the paper industry, specifically in the bleaching and recycling processes. (K3)

SECTION - C (5 X 8 = 40 Marks)
Answer ALL questions.

16. a) Define enzymes. Explain the nomenclature and classification of enzymes. (K2)

(Or)

b) Describe the different types of specificity with suitable examples. (K3)

18. a) Explain the isolation of pure culture by streaking with a neat diagram. (K4)

(Or)

b) Summarize the principle and procedure involved in Gram staining. (K5)

19. a) Illustrate diagrammatically the lytic cycle of bacteriophage. (K4)

(Or)

b) Appraise the pathophysiology of adenovirus. (K5)

20. a) Analyze how sewage water is treated by secondary treatment process. (K4)

(Or)

b) Predict the cause of botulism and describe its main symptoms. (K5)

Reg.No:_____

Course Code: 23UAPST304

B.Sc. Degree Examination - November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Biochemistry

Third Semester

Skill Based: Microbiology

Time: 3 Hours Maximum marks: 55

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Recall which of the following is a method of asexual reproduction in bacteria? (K1)

a) Binary fission b) Conjugation

c) Transduction d) Transformation

2. Which of the following fungi is used in the production of antibiotics? (K1)

a) Aspergillus b) Penicillium

c) Saccharomyces d) Candida

3. Recall what does TEM stand for? (K1)

a) Trends Scanning Electron Microscopy

b) Transmission Electron Microscopy

c) Tandem Electron Microscopy

d) Translucent Electron Microscopy

4. State which method is not used for sterilization? (K1)

a) Autoclaving b) Filtration

c) Refrigeration d) Chemical treatment

5. Name the technique used for isolating pure cultures_____.(K1)

a) Serial dilution b) Gram staining

c) Simple staining d) Fluorescent microscopy

6. Select the staining technique which uses a single dye_____.(K1)

a) Gram staining b) Acid-fast staining

c) Simple staining d) Endospore staining

7. Name the protein coat that surrounds a virus._____. (K1)

a) Envelope b) Capsule c) Membrane d) Capsid

8. Recall the type of genetic material found in adenoviruses_____. (K1)

a) RNA b) DNA

c) Lipoprotein d) Nucleoprotein

9. Name the bacterium that causes typhoid fever_____. (K1)

a) Salmonella typhi b) Vibrio cholerae

c) Escherichia coli d) Helicobacter pylori

10. Identify the air borne disease from the following options_____. (K1)

a) Salmonellosis b) Typhoid

c) Hepatitis d) Aspergillosis

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Summarize the basic shapes of bacteria. (K2)

(Or)

b) List the importance of algae. (K3)

12. a) Explain the term pasteurization. (K2)

(Or)

b) Illustrate the principle of fluorescent microscopy with a diagram. (K3)

13. a) Describe about Enrichment media. (K2)

(Or)

b) Write the applications of acid fast staining. (K3)

14. a) Discuss the general characteristics of viruses. (K2)

(Or)

b) Demonstrate the morphology of retrovirus. (K3)

15. a) Summarize the cause and symptoms of Hepatitis. (K2)

(Or)

b) Write the steps involved in the process of alcoholic fermentation. (K3)

SECTION – C (5 X 6 = 30 Marks)

Answer ALL questions.

16. a) Explain the sub cellular structure found in bacteria with its functions. (K4)

(Or)

b) Summarize the morphological characteristics of fungi. (K5)

17. a) Outline the physical methods of sterilization with example. (K4)

(Or)

b) Appraise the principle and applications of Scanning Electron Microscope. (K5)

18. a) Justify the effective role of Inosine in base pairing according to Wobble hypothesis. (K5)

(Or)

b) Appraise the steps involved in termination of synthesized protein from mRNA. (K5)

19. a) Compile the mechanism of lac operon. (K6)

(Or)

b) Validate the steps involved in transformation. (K6)

20. a) Organize the types of mutation. (K6)

(Or)

b) Summarize on the transposable elements of prokaryotes and eukaryotes. (K6)

Reg.No:_____

Course Code: 22UAPCT503

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Biochemistry

Fifth Semester

Core: Molecular Biology

Time: 3 hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. During DNA replication, show which enzyme unwinds DNA. (K1)
   a) DNA ligase b) DNA polymerase
   c) Helicase d) RNA polymerase
2. What is the primary effect of UV light on DNA? (K2)
   a) Formation of double-strand breaks
   b) Formation of thymine dimers
   c) Removal of nucleotides from the DNA sequence
   d) Alteration of DNA base pairing
3. Which is the catalytic subunit of RNA polymerase? (K1)
   a) Alpha b) Beta c) Gamma d) Sigma factor
4. Which of the process occurs after transcription of mRNA _____? (K2)
   a) Capping b) Addition of modified bases
   c) Glycation d) Phosphorylation
5. Identify which of the characters of the genetic code proves codons contains three bases? (K1)
   a) Triplet b) Universality
   c) Unambiquity d) Degeneracy

6. Which of the following is present as third bases in anticodon?
a) Adenine b) Guanine c) Inosine d) Thymine (K2)

7. Identify the role of the repressor protein in lac operon. (K1)
a) It binds to the promoter region to enhance transcription
b) It binds to the operator region to inhibit transcription
c) It facilitates the binding of RNA polymerase to the promoter
d) It removes tryptophan from the operon to promote gene expression

8. What is the primary mechanism of gene transfer in bacterial transduction? (K2)
a) Direct uptake of DNA from the environment
b) Transfer of DNA via conjugation pili
c) Transfer of DNA via a bacteriophage
d) Transfer of DNA through a plasmid vector

9. What is the primary purpose of the Ames test in genetic research? (K1)
a) To measure the rate of DNA replication
b) To identify potential mutagens and carcinogens
c) To sequence the entire genome of a bacterium
d) To clone genes into bacterial vector

10. What is the main role of tansposons in DNA? (K2)
a) To help make proteins
b) To move DNA pieces within the genome
c) To copy DNA
d) To fix DNA damage

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Illustrate the enzymes of DNA replication process. (K3)

(Or)

b) Outline the causes of DNA damage. (K3)

12. a) List the types of Eukaryotic RNA polymerases. (K3)

(Or)

b) Demonstrate the initiation step in transcription. (K3)

13. a) List out any three salient features of genetic code. (K3)

(Or)

b) Illustrate how amino acids are activated in translation. (K3)

14. a) Analyse the principle of conjugation. (K4)

(Or)

b) Outline about attenuation in trp operon. (K4)

15. a) Explain the term transposons. (K4)

(Or)

b) Analyse the principle of Ames test. (K4)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Summarize the steps involved in leading strand synthesis. (K5)

(Or)

b) Justify that DNA replication in semi conservative mechanism. (K5)

17. a) Assess how capping process occurs in mRNA? (K5)

(Or)

b) Summarize the process of elongation in RNA biosynthesis. (K5)

Reg. No.: _____

Course Code: 22UAPST508

B. Sc. Degree Examination – November 2024

(For the candidates admitted from the year 2022 – 2023 only)

Biochemistry

Fifth Semester

Skill Based: Nutritional Biochemistry

Time: 3 Hours Maximum Marks: 45

SECTION – A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. The total number of essential vitamins required for the proper functioning of the human body is _____. (K1)

   a) 12 b) 13 c) 15 d) 22

2. _____ has the highest calorific value. (K1)

   a) Carbohydrate b) Protein

   c) Fat d) Vitamin

3. Therapeutic activity of garlic is due to the presence of chemical constituent _____. (K1)

   a) Lignin b) Bilobilin c) Catechin b) Allicin

4. Disorders related to nutrition are known as _____. (K1)

   a) Balancing of nutrition b) Insolubility of nutrition

   c) Solubility of nutrition d) Malnutrition

5. A serious and potentially life-threatening allergic reaction is called _____. (K1)

   a) Heart Failure b) Anaphylaxis

   c) Loss of breath d) High Blood Pressure

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

6. a) Write any three important functions of water in human body. (K3)

(Or)

b) List out any three nutritional importance of carbohydrates. (K2)

7. a) Write short notes on digestibility coefficient. (K3)

(Or)

b) Define RDA with example. (K2)

8. a) List out any three importance of prebiotics. (K3)

(Or)

b) Describe nutraceuticals with example. (K2)

9. a) Write a brief note on bitot's spot. (K2)

(Or)

b) Discuss the causes of xeroderma. (K2)

10. a) List out any three plant toxicants and their sources. (K3)

(Or)

b) Write the symptoms of food allergy. (K2)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Describe the food sources and functions of carbohydrates. (K3)

(Or)

b) Illustrate the regulation of acid base balance in human body. (K4)

12. a) Enumerate the methods for determination of BMR. (K3)

(Or)

b) Demonstrate thermogenic effect of food. (K3)

13. a) Compile therapeutic diet for anaemia. (K3)

(Or)

b) Classify nutraceuticals based on the structure. (K4)

14. a) Write a detailed account on nutritional glossitis. (K3)

(Or)

b) Discuss the causes and symptoms of malnutrition. (K4)

15. a) Explain the various types of food allergy with examples. (K3)

(Or)

b) Summarize the harmful effects of avidin. (K4)

18. a) Give a detailed account on classification of amino acids based on their chemical nature. (K4)

(Or)

b) Explain in detail on the quaternary structure of hemoglobin (K5)

19. a) Discuss on the structure and functions of tRNA. (K4)

(Or)

b) Discuss in detail on the principle and application of karyotyping. (K5)

20. a) Give a detailed account on the sources, biological role and deficiency of B1, B6 and B12 vitamins. (K4)

(Or)

b) Discuss in detail on the biological significance of chlorophyll and carotenoids. (K5)

Reg.No:_____

Course Code: 23UAPCT101

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Biochemistry

First Semester

Core: Chemistry of Biomolecules

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The most important epimer of glucose is_____. (K1)

a) Arabinose b) Fructose c) Galactose d) Xylose

2. Lactose is an example of_____. (K1)

a) Polysaccharides b) Monosaccharides

c) Disaccharides d) Oligosaccharides

3. Unsaturated fatty acids have_____. (K1)

a) Single bonds between carbon atoms

b) Double bonds between carbon atoms

c) Both single and double bonds between carbon atoms

d) No carbon atoms

4. Which of the following is an example of a saturated fatty acid?

a) Linoleic acid b) Oleic acid (K1)

c) Stearic acid d) Palmitic acid

5. Amino acids with the non-polar aliphatic 'R' group are_____.

a) Glycine, alanine, leucine (K1)

b) Serine, threonine, cysteine

c) Lysine, arginine, histidine

d) Phenylalanine, tyrosine and tryptophan

6. Which of the following amino acids yield acetyl CoA during catabolism? (K1)

a) Ketogenic b) Glucogenic c) Essential d) Non-essential

7. The monomeric unit of nucleic acid are called _____. (K1)

a) Nucleotides b) Nucleosides

c) Pyrimidines d) Purines

8. In nucleic acid, the bond between the phosphate and hydroxyl group is_____. (K1)

a) Hydrogen bond b) Glycosidic bond

c) Ester bond d) Peptide bond

9. Niacin is synthesized in the body from_____. (K1)

a) Tryptophan b) Tyrosine

c) Glutamate d) Aspartate

10. Which of the following minerals controls growth and body weight? (K1)

a) Iodine b) Calcium c) Phosphorus d) All of the above

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Write a note on stereoisomerism and optical isomerism of sugars with examples. (K2)

(Or)

b) Write a note on the cyclic structure of glucose and fructose. (K3)

12. a) Explain on saponification and halogenation of lipids with examples. (K2)

(Or)

b) Differentiate between essential and non-essential fatty acids. (K3)

13. a) Write a note on the structure and significance of peptide bond. (K2)

(Or)

b) Explain the Sanger's and Edman degradation method. (K3)

14. a) Explain about Watson and Crick model of DNA with neat diagram. (K2)

(Or)

b) Explain briefly on the denaturation and renaturation of DNA. (K3)

15. a) Explain on the sources and biological importance of vitamin A and D. (K2)

(Or)

b) Explain the sources and functions of Na and K. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Give a detailed account on the classification of carbohydrates. (K4)

(Or)

b) Write in detail on the structure, properties and functions of starch. (K5)

17. a) Describe in detail on the classification of lipids. (K4)

(Or)

b) Explain in detail on the structure and biological significance of cholesterol. (K5)

Reg.No:_____

Course Code: 22UADNT404

B.C.A. Degree Examination – November 2024

(For the Candidates admitted during the year 2022-2023 only)

Computer Applications

Fourth Semester

Non Major Elective: Insurance - Principles and Practice

Time: 3 Hours Maximum marks: 75

SECTION – A (5 X 15 = 75 Marks)

Answer ALL questions.

1. a) Bring out the benefits of insurance. (K2)

(Or)

b) Explain the functions of insurance in detail. (K3)

2. a) Distinguish between Life Insurance and General Insurance. (K2)

(Or)

b) Discuss the essential features of life insurance. (K3)

3. a) What do you understand by Marine insurance? Discuss its importance in international trade. (K2)

(Or)

b) Discuss the principles of a fire insurance. (K3)

4. a) Explain in detail the types of health insurance policies. (K2)

(Or)

b) How the claims are settled under motor vehicle insurance? (K3)

5. a) Write a note on burglary insurance. (K2)

(Or)

b) Explain fidelity guarantee insurance. (K3)

Reg. No.:_____

Course Code: 22UAJAL510

B.C.A. Degree Examination – November 2024

(For the candidates admitted during the year 2022 – 2023 only)

Computer Applications

Fifth Semester

ALC: Cloud Computing

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1. Define Data center. (K2)
2. State the impact of Full Virtualization in cloud computing. (K3)
3. What is SSL? (K2)
4. Write the core framework of Python Django. (K3)
5. Write down the services offered by Microsoft Dynamics CRM. (K2)
6. List out the services offered by Salesforces.com. (K3)
7. State the advantages of SaaS. (K2)
8. Identify the significance of Blue Cloud. (K3)
9. What is Sky tap Migration API? (K2)
10. What are the variables used to establish a Baseline and Metrics. (K3)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a) Outline the services available in Cloud Computing. (K3)

(Or)

b) List out the regulatory issues in Cloud Computing. (K4)

12. a) Analyse the unique features of Google Apps Premier Edition. (K3)

(Or)

b) Compare the top web browsers in the web market. (K3)

13. a) Describe the method of evaluating SaaS. (K2)

(Or)

b) How to delete your Data centre? (K3)

14. a) Illustrate driving forces in SaaS. (K4)

(Or)

b) Prepare the features which are available in Microsoft Office Live Small Business. (K3)

15. a) Write and explain about the most popular cloud applications. (K3)

(Or)

b) Show the most popular apps on Force.com. (K4)

SECTION – C (5 X 10 = 50 Marks)

Answer ALL questions.

16. a) Summarize the benefits and limitations in Cloud Computing. (K4)

(Or)

b) Prepare the storage and database functionality of Cloud Computing. (K5)

17. a) Write about Web APIs. (K4)

(Or)

b) Elaborate the function of Cloud Storage Provider. (K3)

18. a) Conclude the services provided by Cloud Computing. (K4)

(Or)

b) Illustrate the functions of Thomson Reuters. (K3)

19. a) Elaborate the ups and downs of Software Plus Services. (K4)

(Or)

b) Assess Local Clouds and Thin Clients. (K3)

20. a) Discuss the function of various cloud vendors. (K4)

(Or)

b) Explain cloud migration in detail. (K3)

17. a) Summarize about the Supplying Arguments to function. (K4)

(Or)

b) Explain about the Handling Exceptions. (K5)

18. a) Justify on the Matching Patterns in Python. (K4)

(Or)

b) How to Read, Write and Update in Files? Explain. (K5)

19. a) Describe about the Method Overriding with example. (K4)

(Or)

b) Distinguish between Check Boxes and Radio Buttons in Python with examples. (K5)

20. a) Explain about the Polling radio buttons with example. (K4)

(Or)

b) How to develop Applications in Python? Explain. (K5)

Reg.No:_____

Course Code: 22UAJCT301

B.C.A. Degree Examination – November 2024

(For the candidates admitted during the year 2022-2023 only)

Computer Applications

Third Semester

Core: Python Programming

Time: 3 Hours Maximum marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Identify the year in which the Python language was developed.

a) 1995 b) 1972 c) 1989 d) 1981 (K1)

2. Identify from the following operator which is used to compare the values. (K1)

a) Arithmetic b) Logical c) comparison d) bitwise

3. Name the statement which checks for multiple conditions. (K1)

a) if b) if-else c) if-else-if d) if elif else

4. State the statement which runs iteratively_____. (K1)

a) for b) continue c) break d) switch

5. _____function is used to read a string. (K1)

a) input("Enter a string")

b) eval(input("Enter a string"))

c) enter("Enter a string")

d) eval(enter("Enter a string"))

6. _____ is the use of seek() method in files. (K1)

a) sets the file's previous position at the offset

b) sets the file's current position within the file

c) sets the file's current position at the offset

d) sets the file's current position without the file

7. Identify the biggest reason for the use of polymorphism from the following. (K1)

a) It allows the programmer to think at a more abstract level

b) There is less program code to write

c) The program will have a more elegant design and will be easier to maintain and update

d) Program code takes up less space

8. Identify the widget which is used to implement one-of-many selection in the python application? (K1)

a) Radio button widget b) List box widget

c) Image widget d) button widget

9. In which of the following field, we can put our Button? (K1)

a) Window b) Frame c) Label d) All of them

10. Name the button which is used to display a list of options to the user. (K1)

a) Radio button widget b) List box widget

c) Image widget d) button widget

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Explain about the Arithmetic and Logical Operations in Python. (K2)

(Or)

b) Summarize about the Casting Data Types. (K3)

12. a) Illustrate about the While Statement with example. (K2)

(Or)

b) Summarize on the Associating List Elements. (K3)

13. a) Explain about the Date and Time Object in Modules. (K2)

(Or)

b) Describe about the String Manipulation. (K3)

14. a) Illustrate about the Built- in Class Attributes. (K2)

(Or)

b) Summarize on the Polymorphism. (K3)

15. a) How to Add Images in Python? Explain. (K2)

(Or)

b) Explain about the Listing Options with suitable example. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Summarize about Python Installation in Windows and Linux. (K4)

(Or)

b) How to Correct Errors in Python? Explain. (K5)

19. a) Analyze briefly about design concepts in Software Engineering. (K3)

(Or)

b) Elaborate the designing class-based components in software. (K4)

20. a) Explain the Software Quality Assurance task. (K3)

(Or)

b) Describe objectives of basis path testing and give an example flowcharts. (K4)

Reg. No:_____

Course Code: 22UAJCT501

B.C.A Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Applications

Fifth Semester

Core: Software Engineering

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. What is Software Engineering? (K1)

a) Designing a software

b) Testing a software

c) Application of engineering principles to the design a software

d) Working with software

2. Agile Software Development is based on_____. (K2)

a) Iterative Development

b) Incremental Development

c) Both Incremental and Iterative Development

d) Linear Development

3. What are the types of Requirement Engineering? (K1)

a) Availability b) Reliability

c) Usability d) All of the mentioned

4. A _____ is always a person having a role that different people may play. (K2)

a) Use – case actor b) SDD

c) DDD d) FAST

5. Which of the following UML diagrams has a static view? (K1)

a) Collaboration b) Use case

c) State chart d) Activity

6. Requirements Analysis is a _____process. (K2)

a) Developer b) Design c) Stakeholder d) iterative

7. In Design phase, which is the primary area of concern? (K1)

a) Architecture b) Data

c) Interface d) All the above

8. The importance of software design can be summarized in a single word which is_____. (K2)

a) Efficiency b) Accuracy c) Quality d) Complexity

9. Which of the following is not a SQA plan for a project? (K1)

a) Evaluations to be performed

b) Amount of technical work

c) Audits and reviews to be performed

d) Documents to be produced by the SQA group

10. Software Debugging is known as _____. (K2)

a) identifying the task to be computerized

b) creating program code

c) creating the algorithm

d) finding and correcting errors in the program code

SECTION - B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Write down the nature of software. (K2)

(Or)

b) Give a note on Agility process. (K3)

12. a) Describe to build the analysis model. (K2)

(Or)

b) Discuss about the requirements validations in software. (K3)

13. a) How to develop an activity diagram? Explain. (K2)

(Or)

b) Illustrate the process of create behavioral model. (K3)

14. a) Describe the software quality guidelines and attributes. (K2)

(Or)

b) Why is software architecture important? (K3)

15. a) Write about test strategic for Mobile Apps. (K2)

(Or)

b) Write a note on Validation testing. (K2)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Explain the major concepts about Software Engineering practice. (K3)

(Or)

b) Explain the following models. (K4)

i) Spiral Model ii) Prototyping Model

17. a) Explain the brief note on Software Engineering principles. (K3)

(Or)

b) What is Requirement Elicitation? Explain the various activity performed by requirements elicitation. (K4)

18. a) Give a brief note on Requirement Analysis in software. (K3)

(Or)

b) Explain the various factors involved in Scenario Based Modeling. (K4)

20. a) Discuss the principles and benefits of multiprogramming in operating systems. (K4)

(Or)

b) What is process scheduling? Explain FCFS scheduling algorithm with an example. (K3)

Reg. No.: _____

Course Code: 22UAJCT503

B.C.A. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Computer Applications

Fifth Semester

Core: Data Structures and Operating Systems

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Process of inserting an element in stack is called _____. (K1)
   a) Create b) Push c) Evaluation d) Pop
2. The postfix form of A*B+C/D is_____. (K2)
   a) *AB/CD+ b) AB*CD/+ c) A*BC+/D d) ABCD+/*
3. Which data structure is used to implement a breadth-first search (BFS) algorithm? (K1)
   a) Stack b) Queue c) Tree d) Hash Table
4. The essential condition which is checked before insertion in a linked queue is_____. (K2)
   a) Underflow b) Overflow
   c) Front value d) Rear value
5. What is a full binary tree? (K1)
   a) Each node has exactly zero or two children
   b) Each node has exactly two children
   c) All the leaves are at the same level
   d) Each node has exactly one or two children
6. What is the time complexity of performing DFS on a graph with V vertices and E edges? (K2)
   a) O(V + E) b) O(V^2) c) O(E) d) O(V log V)

7. Which system call is used to create a new process in Unix-based systems? (K1)

a) fork() b) exec() c) wait() d) exit()

8. What is the primary purpose of a Graphical User Interface (GUI) in an operating system? (K2)

a) To manage system resources and hardware

b) To provide a visual and interactive way for users to interact with the computer

c) To control network communications

d) To handle low-level system processes

9. Which state is a process in when it is waiting for an event or resource to become available? (K1)

a) Running b) Ready

c) Blocked (or Waiting) d) Terminated

10. What is a common issue that needs to be addressed when multiple threads access shared resources? (K2)

a) Increased context switching b) Deadlock

c) Thread starvation d) Synchronization

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Explain the need for Data structures. (K2)

(Or)

b) List the primitive operations in arrays. (K3)

12. a) Infer the concepts of basic operations of queue. (K2)

(Or)

b) Describe about sparse matrix representation. (K3)

13. a) Outline the procedure for in order traversal. (K2)

(Or)

b) Compare directed and undirected graph. (K3)

14. a) Infer the importance of kernel. (K2)

(Or)

b) Mention the uses of system calls. (K3)

15. a) Explain the various states a process can transition through. (K2)

(Or)

b) Show the functions of user level threads. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Explain the implementation of stack using array. (K3)

(Or)

b) Illustrate the following infix to postfix expression (K4)

(A+B/C*(D+E)-F).

17. a) Discuss the concepts of circular queue. (K3)

(Or)

b) List the types of linked list with explanation. (K3)

18. a) Summarize the procedure to insert an element into a BST. (K4)

(Or)

b) Explain the algorithm for Breadth First Search. (K3)

19. a) Mention various services of an OS. (K3)

(Or)

b) Discuss the types of I/O schedulers used in operating systems. (K4)

Reg. No: _____

Course Code: 22UAJCT401

B.C.A. Degree Examination – November 2024

(For the Candidates admitted during the year 2022-2023 only)

Computer Applications

Fourth Semester

Core: PHP & MYSQL

Time: 3 Hours Maximum marks: 45

SECTION - A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. PHP stand for_____. (K1)

   a) Preprocessor Home Page

   b) Pretext Hypertext Processor

   c) Hypertext Preprocessor

   d) Personal Hyper Processor

2. PHP's numerically indexed array begin with position _____. (K1)

   a) 0 b) 2 c) 1 d) -1

3. Which element is used to create multi-line text input? (K1)

   a) text b) textarea

   c) submit d) radio button

4. Function is used to save a cookie in the user's computer. (K1)

   a) savecookie() b) createcookie()

   c) create_cookie() d) setcookie()

5. Which one of the following databases has PHP supported almost since the beginning? (K1)

a) Oracle Database b) SQL

c) SQL+ d) MySQL

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

6. a) List any three data types in PHP and explain it. (K2)

(Or)

b) Write a Note on Switch statement with an example. (K3)

7. a) Mention the Nesting functions and write in detail. (K2)

(Or)

b) Summarize the class and objects with suitable example. (K3)

8. a) Distinguish between Textbox and Text areas in PHP. (K2)

(Or)

b) Describe the HTTP Headers and explain it. (K3)

9. a) Explain the Cookies with example. (K2)

(Or)

b) Write a note on FTP. (K3)

10. a) Write the Query for insert and delete in MYSQL and explain it. (K2)

(Or)

b) How to update the field in database? (K3)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Explain the flow control in PHP with an example. (K4)

(Or)

b) Simulate the types of operators in PHP. (K5)

12. a) Illustrate the string functions in PHP. (K4)

(Or)

b) What is function? Explain the categories of functions. (K5)

13. a) Illustrate the Handling File uploads in PHP. (K4)

(Or)

b) Explain the Handling password and Hidden Controls. (K5)

14. a) Write in detail on server side data validation. (K4)

(Or)

b) Explain the Sessions with an example. (K5)

15. a) How to access the items from database? Explain. (K4)

(Or)

b) Write a simple PHP program and connecting MySQL for students information and explain it. (K5)

Reg.No:_____

Course Code: 23UAJCT102 / 23UAWCT102

B.C.A. Degree Examinations – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Computer Applications / Computer Science and Applications

First Semester

Core: Digital Fundamentals and Computer Architecture

Time: 3 Hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The Decimal Number systems uses the Radix _____. (K1)
   a) 4 b) 8 b) 8 d) 32
2. _____ is a character encoding standard using 7-bit to represent 128. (K1)
   a) ASCII b) BCD c) Grey Code d) Unicode
3. _____ is the complement of the AND function. (K1)
   a) NOR b) XOR c) NOR d) XNOR
4. _____ deals with binary variables and logical Operations. (K1)
   a) Expression b) Boolean Algebra
   c) Truth Table d) Logical Gates
5. Which one of the following electronic circuits can be used to store 1 -bit of data? (K1)
   a) Encoder b) OR Gate c) Multiplexer d) Flip flop
6. A combinational logic circuit which sends data coming from a single source to two or more separate destinations is called _____. (K1)
   a) Decoder b) Encoder c) Multiplexer d) Demultiplexer

7. In_____ transmission the two units share a common clock frequency and bits are transmitted continuously at the rate dictated by the clock pulse. (K1)

a) Sequential b) Synchronous
c) Asynchronous d) Dynamic

8. _____ input is used by the DMA controller to request the CPU to relinquish control of the buses. (K1)

a) BR b) BG c) WR d) DS

9. Devices that provide backup storage are called _____ Memory. (K1)

a) Main b) Auxiliary c) Cache d) Virtual

10. _____ is used for storing the bulk of the programs that are subject to change. (K1)

a) RAM b) ROM c) EPROM d) PROM

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Illustrate the steps to convert binary number to decimal number. (K2)

(Or)

b) Explain the rules for binary division with an example. (K3)

12. a) Sketch NOR gates and explain its functions. (K2)

(Or)

b) Outline the basic concept of Don't Care Combinations. (K3)

13. a) Discover the functions of half adder. (K2)

(Or)

b) Write notes on Decoder. (K3)

14. a) Sketch the connection of I/O bus to input - output devices. (K2)

(Or)

b) Discuss the process of IOP communication. (K3)

15. a) Compare RAM and ROM. (K2)

(Or)

b) What are the advantages of on Cache Memory? Explain. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Elaborate the complements in digital computers. (K4)

(Or)

b) Compare ASCII, BCD and Gray Code. (K5)

17. a) Discuss about types of basic gates with diagram. (K4)

(Or)

b) Explain the sum of products with suitable example. (K5)

18. a) Discriminate multiplexer and demultiplexer. (K4)

(Or)

b) Analyze the functions of JK Flip flop. (K5)

19. a) Discuss the functions of asynchronous data transfer with diagram. (K4)

(Or)

b) Draw and explain the block diagram of DMA Controller. (K5)

20. a) Write notes on Associate Memory. (K4)

(Or)

b) Discuss the features of Auxiliary Memory. (K5)

17. a) Compare while and do while statements. (K4)

(Or)

b) Outline the concept of array with its types. (K5)

18. a) List any 5 string handling functions with an example. (K4)

(Or)

b) Explain call by reference in C. (K5)

19. a) Illustrate arrays of structures in C. (K4)

(Or)

b) Write a C program to print student number, name, marks through accessing structure elements. (K5)

20. a) Compare accessing a variable through address and through pointer in C. (K4)

(Or)

b) Write a C program to print number of characters in a file. (K5)

Reg. No:_____

Course Code: 21UAJCT102

B.C.A. Degree Examinations – November 2024

(For the candidates admitted during the year 2021–2022 and 2022-2023 Batch only)

Computer Applications

First Semester

Core: Programming in C

Time: 3 Hours Maximum marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is a valid variable declaration in C? (K1)

a) int 1variable; b) int variable1;

c) int variable one; d) int variable@;

2. What is the output of the following code? (K1)

```
#include <stdio.h>
int main()
{
int x = 10;
printf("%d", x++);
return 0;
}
```

a) 10 b) 11 c) 0 d) Compilation Error

3. Which of the following loops is guaranteed to execute at least once? (K1)

a) for b) while c) do-while d) foreach

4. How do you initialize an array with all elements set to zero? (K1)

a) int arr[5] = {0}; b) int arr[5] = {1};

c) int arr[5] = {}; d) int arr[5] = {0, 0, 0, 0, 0};

5. Which function is used to get the length of a string in C? (K1)

a) strlen() b) strlength() c) strlen_length() d) strsize()

6. What is a recursive function? (K1)

a) A function that calls itself directly or indirectly

b) A function that does not return any value

c) A function that calls other functions but not itself

d) A function that has no parameters

7. What is the size of a structure variable in C if it contains two int members on a system where int is 4 bytes? (K1)

a) 4 bytes b) 8 bytes c) 12 bytes d) 16 bytes

8. How are unions differ from structures in C? (K1)

a) Unions use more memory than structures

b) Unions can store multiple members simultaneously, while structures cannot

c) Structures can store multiple members simultaneously, while unions can store only one member at a time

d) There is no difference between unions and structures

9. What will be the output of the following code? (K1)

```
#include <stdio.h>
int main()
{
Int num = 5;
int *ptr = &num;
printf("%d\n", *ptr);
return 0;
}
```

a) 5 b) The address of num

c) The size of num d) 0

10. What does the fseek() function do? (K1)

a) Moves the file pointer to a specified position

b) Reads data from a file

c) Writes data to a file

d) Closes a file

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) List the common data types in C with an example. (K2)

(Or)

b) Explain about printf() function in C. (K3)

12. a) Interpret the concept of if-else in C. (K2)

(Or)

b) Describe two dimensional arrays in C. (K3)

13. a) Outline the procedure for reading and writing a string. (K2)

(Or)

b) Summarize the categories of function. (K3)

14. a) Compare between arrays and structures. (K2)

(Or)

b) Infer the syntax of union with an example. (K3)

15. a) Explain Pointers with its features. (K2)

(Or)

b) List the basic file operations in C with examples. (K3)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Explain the structure of C program. (K4)

(Or)

b) Illustrate arithmetic operators in C with an example. (K5)

20. a) Describe on Read and Write operations of Associative memory. (K4)

(Or)

b) Discuss of Direct Mapping in Cache memory. (K5)

Reg.No:_____

Course Code: 22UAJAT403

B.C.A. Degree Examination – November 2024

(For the candidates admitted during the year 2022-2023 only)

Computer Applications

Fourth Semester

Allied: Digital Systems and Computer Architecture

Time: 3 Hours Maximum marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The Radix of octal number system is _____. (K1)

   a) 2 b) 8 c) 10 d) 16

2. _____ is the basic unit of memory. (K1)

   a) Bit b) Byte c) Octal d) Decimal

3. A _____ gate has only one input and one output signal.

   a) AND b) OR c) NOT d) NAND (K1)

4. The output of a two input AND gate is high_____. (K1)

   a) only if both the inputs are high

   b) only if both the inputs are low

   c) only if one input is high

   d) if at least one of the inputs is low

5. Which of the following is known as half adder? (K1)

   a) XOR gate b) XNOR gate

   c) NAND gate d) NOR gate

6. T flip flop is used as _____. (K1)

   a) differentiator b) toggle switch

   c) time delay switch d) transfer circuit

7. _____ connects processor and memory. (K1)

a) Bus transaction b) Back plane bus

c) Synchronous bus d) Processor-memory bus

8. Read and write request to I/O devices is _____. (K1)

a) Input request b) Output request

c) I/O request d) Peripheral request

9. _____is used to speed up computer processing. (K1)

a) Cache memory b) RAM

c) ROM d) Secondary

10. _____ memory unit directly communication with CPU. (K1)

a) Cache b) Main c) Auxiliary d) Secondary

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Convert the following Binary to Decimal equivalent (K2)

i) 1111101 ii) 11.011 iii) 10101

(Or)

b) Perform binary multiplication. $(11.110)_2 \times (100.1)_2$ (K3)

12. a) With suitable circuit diagram, explain NAND gate and NOR gate. (K2)

(Or)

b) Explain construction of Karnaugh map. (K3)

13. a) With a neat diagram explain about Half- subtractor. (K2)

(Or)

b) With a neat diagram explain the working of Multiplexer. (K3)

14. a) Brief out on I/O bus and interfaces. (K2)

(Or)

b) Explain about strobe for data transfer. (K3)

15. a) Brief out on Main memory. (K2)

(Or)

b) Write short notes on cache initialization. (K3)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Explain about 2's complement of a Binary number system. (K4)

(Or)

b) With an example, explain binary addition, subtraction and multiplication. (K5)

17. a) Explain the following with circuit diagram and truth table :

i) AND ii) OR iii) NOT (K4)

(Or)

b) Obtain the minimal POS for the 4 variable K-Map : (K5)

$f(A, B, C, D) = \sum(0, 1, 2, 3, 4, 7, 8, 11, 12, 13, 14, 15)$

18. a) Explain about Full adder circuit using AND, OR gates. (K4)

(Or)

b) Explain the working of RS flip flop. (K5)

19. a) Elaborate of DMA Controller. (K4)

(Or)

b) Enumerate on CPU-IOP Communication. (K5)

18. a) Provide a detailed explanation of recursion in C. Include a step-by-step example and discuss how recursion differs from iteration? (K4)

(Or)

b) Provide a comprehensive explanation of declaring, initializing, reading and writing strings in C. (K5)

19. a) Create a detailed comparison between structures and unions in C. Write a program that demonstrates how memory is shared among union members and separately allocated for structure members? (K4)

(Or)

b) Create a C program that uses an array within a structure to manage a list of books. Include functions to add, remove, and display books, and explain the program logic. (K5)

20. a) Explain the concept of file handling in C programming. Discuss the various functions used for opening, reading, writing, and closing files. (K4)

(Or)

b) Write a C program that accepts three command-line arguments: two integers and an arithmetic operator. Perform the corresponding arithmetic operation and print the result. Include error checking for invalid input. (K5)

Reg.No:_____

Course Code: 23UAJCT101 / 23UAWCT101

B.C.A Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Computer Applications / Computer Science and Applications

First Semester

Core: C Programming

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is not a valid way to define a constant in C? (K1)
   a) #define PI 3.14 b) const float PI = 3.14;
   c) float const PI = 3.14; d) PI = 3.14;
2. Which statement about C tokens is true? (K1)
   a) Tokens are case-sensitive
   b) Tokens can start with a digit
   c) Tokens can contain spaces
   d) Tokens must end with a semicolon
3. The go to statement is used to _____. (K1)
   a) Exits the program b) Jumps to a specified label
   c) Repeats a block of code d) Terminates a loop
4. Which statement is used to skip the rest of the loop iteration and continue with the next iteration? (K1)
   a) break b) return c) go to d) continue
5. How are strings stored in C? (K1)
   a) As an array of integers
   b) As an array of characters terminated by a null character
   c) As a list of characters
   d) As a string object

6. Which function type does not return a value? (K1)
a) int b) void c) char d) float

7. Which of the following declares an array of structures? (K1)
a) struct Person people[10]; b) struct Person people;
c) Person struct people[10]; d) struct Person[10] people;

8. How do you assign a value to a member of a union in C? (K1)
a) u.member = value; b) u->member = value;
c) u:member = value; d) u|member = value;

9. What is the correct way to declare and initialize a pointer to an integer variable in C? (K1)
a) int *ptr = &var; b) int ptr = &var;
c) int &ptr = var; d) int *ptr = var;

10. Which file mode in C allows you to open a file for both reading and writing, with the file pointer positioned at the end? (K1)
a) "r" b) "w" c) "a+" d) "r+"

SECTION – B (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Describe the steps involved in writing formatted output in C programming. Discuss the usage of formatting specifiers and their impact on displaying data. (K2)

(Or)

b) Analyze the structure of a typical C program. Discuss the purpose of each section. (K3)

12. a) Compare and contrast the else-if statement with the switch statement in C. (K2)

(Or)

b) Explain the concept of altering the flow of loop execution in C programming. (K3)

13. a) Explain the concept of functions in C programming. Discuss the process of defining, declaring, and calling functions. (K2)

(Or)

b) Discuss the significance of string handling functions in C programming. (K3)

14. a) Analyze the advantages and disadvantages of using union in C. (K2)

(Or)

b) Why we use structure? How we can access member of a structure? (K3)

15. a) Illustrate with an example how to use fseek() and ftell() functions within a file? (K2)

(Or)

b) Develop a C program that swaps two numbers using pointers as function arguments. (K3)

SECTION – C (5 X 8 = 40 Marks)
Answer ALL questions.

16. a) Illustrate the concept of operators in C programming. Explain the different types of operators and provide examples of their usage. (K4)

(Or)

b) Explain type conversions in C comprehensively. Discuss how implicit and explicit conversions are performed and their potential pitfalls with examples? (K5)

17. a) Discuss the significance of loop statements in C programming. Provide examples to illustrate their applications. (K4)

(Or)

b) Explain the process of declaring, initializing, and accessing one-dimensional and two-dimensional arrays in C. Provide detailed code examples to illustrate your explanation. (K5)

19. a) Demonstrate the types of streams and the use of streams for processing and I/O operations. (K4)

(Or)

b) Outline the file concatenation and buffering in Java and the benefits of using buffered I/O streams. (K5)

20. a) Describe the life cycle of an applet in Java and explain the key methods involved in the applet life cycle. (K4)

(Or)

b) Discuss the components and features provided by the AWT package and provide an example. (K5)

Reg.No:_____

Course Code: 21UAJCT202

B.C.A. Degree Examination – November 2024

(For the candidates admitted during the year 2021-2022 and 2022-2023 Batch only)

Computer Applications

Second Semester

Core: Programming in Java

Time: 3 Hours Maximum marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is the correct structure of a basic Java program? (K1)

a) Class declaration, Method declaration, Package declaration

b) Package declaration, Class declaration, Method declaration

c) Method declaration, Class declaration, Package declaration

d) Import statement, Method declaration, Class declaration.

2. Which OOP concept in Java is demonstrated by using a class to create objects? (K1)

a) Encapsulation b) Polymorphism

c) Inheritance d) Abstraction

3. Which keyword is used to create an object in Java? (K1)

a) class b) new c) object d) instance

4. Which of the following correctly declares an array of integers in Java? (K1)

a) int array[]; b) int[] array; c) array int[]; d) array[] int;

5. Which keyword is used to import a package in Java? (K1)

a) package b) import c) include d) use

6. Which method is used to start a thread in Java? (K1)

a) begin b) start c) run d) execute

7. Which keyword is used to handle exceptions in Java? (K1)

a) try b) catch c) throw d) finally

8. Which class is used to read from a file in Java? (K1)

a) FileReader b) FileWriter

c) FileInputStream d) FileOutputStream

9. Which method is called only once during the lifecycle of an applet and is used for initialization? (K1)

a) start b) init c) paint d) stop

10. Which method is used to draw graphics in a Java applet? (K1)

a) draw b) render c) paint d) display

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Explain the basic structure of a Java program. (K2)

(Or)

b) What are the types of data types in Java? Explain. (K3)

12. a) How to define a class in Java? Explain. (K2)

(Or)

b) Determine the procedure for create objects in Java. (K3)

13. a) How to create packages in Java? Give an example. (K2)

(Or)

b) Describe the threads in Java. (K3)

14. a) Highlight the handling primitive data types in Java. (K2)

(Or)

b) Show the methods used for Random Access Files in Java. (K3)

15. a) Explain the event handling in Java. (K2)

(Or)

b) Build the design a webpage using applet programming in Java. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Explain the principles of Object-Oriented Programming (OOP) and their application with examples. (K4)

(Or)

b) Discuss the role of the Java Virtual Machine (JVM) in the execution of a Java program. Discuss its components and how it contributes to Java's platform independence. (K5)

17. a) Differentiate between method overloading and method overriding in Java. (K4)

(Or)

b) Explain the concept of interfaces in Java. Discuss their importance, key features, how differ from abstract classes. (K5)

18. a) Describe the life cycle of a thread in Java. (K4)

(Or)

b) Explain thread priority in Java. Discuss how thread priority affects thread scheduling, how to set and get thread priorities? (K5)

b) Find the minimum cost of the assignment (K3)

	I	II	III
A	8	7	6
B	5	7	8
C	6	8	7

14. a) Explain about classification of queuing models. (K2)

(Or)

b) Determine the range of the value of p and q that will make the payoff element a_{22}, a saddle point for the game whose payoff matrix (a_{ij}) is given below (K3)

Player B

Player A $\begin{bmatrix} 2 & 4 & 5 \\ 10 & 7 & q \\ 4 & p & 8 \end{bmatrix}$

15. a) Develop the network analysis concept. (K2)

(Or)

b) Find the critical path of the given activity (K3)

Activity	1-2	1-3	1-4	3-4	3-5	5-7	5-6
Time	4	7	6	5	7	6	5

SECTION – C (5 X 8 = 40 Marks)

Answer ALL the question.

16. a) Solve the following LPP by graphical method (K4)

Maximize $z = 2x_1 + 3x_2$

Subject to constraints $x_1+x_2 \leq 30$

$x_1 - x_2 \geq 0$; $x_2 \geq 3$,

$0 \leq x_1 \leq 20$ and $0 \leq x_2 \leq 12$

(Or)

b) Use simplex method to solve the following LPP

Maximize $z = 4x_1 + 10x_2$

Subject to constraints $2x_1 + x_2 \leq 50$, $2x_1 + 5x_2 \leq 100$,

$2x_1 + 3x_2 \leq 90$ and $x_1, x_2 \geq 0$ (K5)

17. a) Write shorts notes on the transportation table. (K4)

(Or)

b) Find the starting solution by Vogel's Approximation method and also obtain the optimum solution. (K5)

	D_1	D_2	D_3	D_4	Supply
S_1	3	7	6	4	5
S_2	2	4	3	2	2
S_3	4	3	8	5	3
Demand	3	3	2	2	

18. a) Determine the optimum assignment schedule for the following (K4)

	E	F	G	H
A	18	26	17	11
B	13	28	14	26
C	38	19	18	15
D	19	26	24	10

(Or)

b) A machine operator processes five types of items on his machine each week, and must choose a sequence for them. The set-up cost per change depends on the item presently on the machine and the set-up to be made according to the following table. (K5)

	A	B	C	D	E
A	-	4	7	3	4
B	4	-	6	3	4
C	7	6	-	7	5
D	3	3	7	-	7
E	4	4	5	7	-

19. a) In a railway marshalling yard, goods trains arrive at a rate of 30 trains per day. Assuming that the inter-arrival time follows an exponential distribution and the service time distribution is also exponential with an average 36 minutes, calculate the following (i) the mean queue size and (ii) the probability that the queue size exceeds 10. (K4)

(Or)

b) Solve the following 2 x 2 game graphically

Player B

$$\text{Player A} \begin{bmatrix} 2 & 1 & 0 & -2 \\ 1 & 0 & 3 & 2 \end{bmatrix}$$ (K5)

20. a) Write basic difference between CPM and PERT. (K4)

(Or)

b) Find expected duration and variance. (K5)

Activity		1-2	1-3	1-4	2-5	3-5	4-6	5-6
Time	t_0	6	6	12	6	12	12	18
	t_m	6	12	12	6	30	30	30
	t_p	24	18	30	6	48	42	54

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Write down the steps for mathematical formulation of linear programming problem. (K2)

(Or)

b) Solve the following LPP by graphically (K3)

Minimize $z = -x_1 + 2x_2$

Subject to constraints $-x_1 + 3x_2 \le 10;\ x_1 + x_2 \le 6;$

$x_1 - x_2 \le 2,\ x_1 \ge 0 \ \& \ x_2 \ge 0$

12. a) Explain the algorithm of North – West Corner Method. (K2)

(Or)

b) Obtain an initial basic feasible solution for the transportation problem by Least Cost Method. (K3)

	D_1	D_2	D_3	D_4	Available
O_1	1	2	3	4	6
O_2	4	3	2	0	8
O_3	0	2	2	1	10
Demand	4	6	8	6	

13. a) Find the minimum cost of the following assignment schedule (K2)

	E	F	G	H
A	1	4	6	3
B	9	7	10	9
C	4	5	11	7
D	8	7	8	5

(Or)

5. If there were n workers & n jobs there would be_____.(K1)

a) n! solutions b) (n-1)! solutions

c) $(n!)^n$ solutions d) n solutions

6. Assignment problem helps to find a maximum weight identical in nature in a weighted _____. (K1)

a) Partite graph b) Tripartite graph

c) Bipartite graph d) All the above

7. When there are more than one servers, customer behavior in which he moves from one queue to another is known as_____.

a) Balking b) Jockeying (K1)

c) Reneging d) Alternating

8. When the calling population is assumed to be infinite? (K1)

a) Arrivals are independent of each other

b) Arrivals are dependent upon each other

c) Capacity of the system in infinite

d) service rate is faster than arrival rate

9. In critical path analysis, CPM is_____. (K1)

a) Event oriented b) Probabilistic in nature

c) Deterministic in nature d) Dynamic in nature

10. Which of the option is not a notable challenge while scheduling a project? (K1)

a) Deadlines exist

b) Independent activities

c) Too many workers may be required

d) Costly delay

Reg. No.:_____

Course Code: 23UAJAT303

B.C.A. Degree Examinations-November 2024

(For the candidates admitted from the year 2023-2024 and onwards)

Computer Applications

Third Semester

Allied: Operations Research

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL the question.

1. The area bounded by all the constraint is called_____. (K1)

   a) Infeasible region b) Feasible region

   c) Constant region d) Origin

2. The common element which is in the k^{th} row and r^{th} column is known as_____. (K1)

   a) Pivot b) Optimum c) Feasible d) Degenerate

3. The objective function of transportation problem is to_____.

   a) Maximize the total cost (K1)

   b) Minimize or Maximize the total cost

   c) Minimize the total cost

   d) Total cost is zero

4. The occurrence of degeneracy while solving a transportation problem means that_____. (K1)

   a) Total supply equals total demand

   b) The solution so obtained is not feasible

   c) The few allocations become negative

   d) None of the above

17. a) Explain the process of transcription in prokaryotes with neat diagram. (K4)

(Or)

b) With schematic diagrammatic representation explain how the process of transcription is different in eukaryotes? (K5)

18. a) Describe RNA codes for the proteins by translation processes. (K4)

(Or)

b) Discuss in detailed about post translation modifications. (K5)

19. a) Cell identifies and corrects damage to the DNA molecules that encode its genome by repair mechanism- Explain. (K4)

(Or)

b) Ames test is a widely employed method to detect mutation – Justify (K5)

20. a) Elaborately discuss about the role of transposable elements in gene expression. (K4)

(Or)

b) Recombination process creates genetic diversity at the level of genes – Prove. (K5)

Reg.No:_____

Course Code: 23UAQCT301

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Biotechnology

Third Semester

Core: Molecular Biology

Time: 3 Hours Maximum Marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Basic tools of genetic regulation are the ability of some proteins to bind to specific_____. (K1)

a) Regulatory DNA sequences

b) regulatory RNA sequences

c) Enzymes of cells

d) promoter portions of genes

2. Which of the following enzymes separates the two strands of DNA during replication? (K1)

a) Gyrase b) Topoisomerase

c) Helicase d) DNA polymerase

3. The enzyme required for transcription is_____. (K1)

a) RNAase b) DNA polymerase

c) RNA polymerase d) Restriction enzymes

4. In both prokaryotic and eukaryotic cells, the synthesis of protein chains is initiated by_____. (K1)

a) Arginine b) Methionine c) Serine d) Valine

5. This drug inhibits the initiation step of translation._____ (K1)

a) Ricin b) tetracycline

c) streptomycin d) Cyclohexylamine

6. If adenine is replaced from guanine then the mutation is_____. (K1)

a) Transcription b) Transition

c) Transversion d) Frameshift mutation

7. What is the physical basis of mutational hotspots? (K1)

a) Transposons b) tautomers

c) palindromes d) transitions

8. How many amino acids make up a protein? (K1)

a) 10 b) 20 c) 30 d) 50

9. Transfer of genetic material in bacteria through virus is termed as_____. (K1)

a) Transduction b) recombination

c) conjugation d) transformation

10. Common vegetative reproduction in bacteria is by_____.

a) conjugation b) budding (K1)

c) oidia d) binary fission

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Histone proteins plays vital role in making the structure of chromosome-Explain. (K2)

(Or)

b) Recall the Watson and Crick model of DNA structure. (K3)

12. a) Comment on the regulation of gene expression in prokaryotes with the example of Lac Operon. (K2)

(Or)

b) Analyse the structure, types and highlight important function of RNA. (K3)

13. a) Explain the molecular events involved in protein folding. (K2)

(Or)

b) Explain protein sorting with suitable diagram. (K3)

14. a) Prove mutations results in errors on DNA replication during cell division. (K2)

(Or)

b) Mutagens can cause mutations in DNA by altering its structure – Explain. (K3)

15. a) Describe process was first reported in *Streptococcus pneumonia* by Griffith in bacteria. (K2)

(Or)

b) Give an account on steps conjugation involved with neat sketch. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Explain how organisms replicate their DNA by various models? (K4)

(Or)

b) List out and demonstrate the key enzymes involved in the DNA replication process. (K5)

a) It allows selection of E. coli host cells that contain the plasmid

b) It allows selection of E. coli host cells that contain mplasmid in which the insert has been ligated

c) It cleaves the insert to allow it to be ligated into the vector

d) It enables the plasmid vector to replicate in E. coli host cells

5. Maximum size of foreign DNA molecule which can be inserted into a replacement vector_____. (K1)

a) 25-30 kb b) 18-20 kb c) 20-25 kb d) 40-50 kb

6. Which of the following ions is commonly required for the activity of all Type II restriction enzymes_____? (K2)

a) Ca2+ b) Mg2+ c) Cl2+ d) Mn2

7. Nick translation is done by_____. (K1)

a) DNA polymerase I b) DNA polymerase II

c) DNA ligase d) DNA polymerase III

8. Which out of the following technique is used for the detection of gene of interest_____? (K2)

a) Southern blotting b) Polymerase chain reaction

c) Northern blotting d) DNA foot printing

9. The confirmatory test to diagnose AIDS is_____. (K1)

a) ELISA b) Western blot

c) ESR d) PCR

10. In order to change Cysteine to alanine in the given gene, the best technique to utilize would be_____. (K2)

a) Random mutagenesis b) Site directed mutagenesis

c) Transposition mutagenesis d) Homologous recombination

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) List out the enzyme involved in gene cloning. (K3)

(Or)

b) Illustrate the ligation mechanism. (K2)

12. a) Outline the properties of good vector. (K3)

(Or)

b) Explain the major components of pBR322 vector. (K2)

13. a) List out the features of cosmid vector. (K3)

(Or)

b) Explain the construction of phagemid. (K2)

14. a) Classify gene transfer method based on the mechanism. (K3)

(Or)

b) Deduce the steps involved in construction of cDNA. (K2)

15. a) Organise the applications of PCR. (K3)

(Or)

b) Describe the steps involved in PCR technique. (K2)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Explain the role and importance of alkaline phosphate in cloning techniques. (K3)

(Or)

b) Summarize the mechanism of linker and adaptors in constructing the vector with gene of interest. (K4)

17. a) Discuss shuttle vector and Expression vectors with example. (K3)

(Or)

b) Explain about the pUC vector and its derivatives. (K4)

18. a) Differentiate between plant and animal vector. (K3)

(Or)

b) Explain the importance of lambda phage in gene cloning. (K4)

19. a) Explain the steps involved in Random primer labeling of DNA.

(Or) (K3)

b) Distinguish between southern blotting and northern blotting.(K4)

20. a) Distinguish between agarose gel electrophoresis and SDS PAGE.

(Or) (K4)

b) Explain the principle and application of Microarray. (K3)

Reg. No: _____

Course Code: 22UAQCT502

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Biotechnology

Fifth Semester

Core: rDNA Technology

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following does not act as a sticky end cutter? (K1)

a) EcoRI b) BamHI c) HindIII d) EcoRV

2. Which of the following enzymes' combined action leads to the generation of sticky ends in plasmid vector? (K2)

a) Alkaline phosphatase and terminal transferase

b) Exonuclease III and alkaline phosphatase

c) Bacteriophage lambda exonuclease and terminal transferase

d) Endonuclease III and terminal transferase

3. The extra chromosomal, self-replicating, closed, double stranded and circular DNA molecule is generally termed as_____.

a) Chromosome b) Plasmid (K1)

c) Genomic DNA d) Bacteriophage

4. Plasmid vectors used in cloning often contain a gene for the N-terminal 146 amino acids of the enzyme βgalactosidase. What is the purpose of including this gene in the vector? (K2)

25

6. Which of the following is not an example of secondary data?
   a) Census data used for demographic analysis (K1)
   b) A company's internal sales data analysed for trends
   c) Research articles reviewed for a literature review
   d) Customer feedback collected through a new survey

7. Calculate the mean of the following data set: 4, 6, 8, 10, 12_____. (K1)
   a) 8 b) 9 c) 10 d) 12

8. If the range of a data set is 40 and the smallest value is 10, what is the largest value? (K1)
   a) 30 b) 50 c) 40 d) 45

9. What does the correlation coefficient measure? (K1)
   a) The strength and direction of a linear relationship between two variables
   b) The average value of the dependent variable
   c) The spread of the data
   d) The slope of the regression line

10. Calculate the slope of the regression line for two variables, X and Y: (1, 2), (2, 4), (3, 5), and (4, 4)_____. (K1)
    a) 0.5 b) 1 c) 1.5 d) 2

SECTION - B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Prove that if the matrix A is symmetric then A^T is also symmetric matrix. (K2)

(Or)

b) If $A = \begin{bmatrix} 0 & 1 & 2 \\ 1 & 2 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 1 \\ -1 & 0 \\ 0 & 1 \end{bmatrix}$ find the matrix AB (K3)

12. a) Define probability of an event with two examples. (K2)

(Or)

b) The number of ways of selecting 2 white balls and 3 black balls out of 5 white and 6 black balls. (K3)

13. a) Explain the types of diagrams and their uses. (K2)

(Or)

b) Write short notes on i) histogram ii) frequency curve. (K3)

14. a) Find the median of the set of observations 27, 36, 28, 18, 35, 26, 20, 35, 40, 26 (K2)

(Or)

b) Distinguish between quartile division and quartile coefficient of dispersion. (K3)

15. a) Calculate the coefficient of correlation between X and Y from the following data. (K2)

X	10	14	15	28	35	48
Y	74	61	50	54	43	26

(Or)

b) How many regression lines are there? What are its uses? (K3)

SECTION - C (5 X 6 = 30 Marks)
Answer ALL questions.

16. a) Find the inverse of the matrix $\begin{bmatrix} 5 & -6 & 4 \\ 7 & 4 & -3 \\ 2 & 1 & 6 \end{bmatrix}$ (K4)

(Or)

b) If $A = \begin{bmatrix} 4 & 2 \\ -1 & 1 \end{bmatrix}$ verify that $A^2 - 5A + 6I = 0$. (K5)

17. a) State addition and multiplication theorems on probability. (K4)

(Or)

b) A bag contains 4 white, 5 black and 6 red balls. A ball is drawn at random. What is the probability that it is red or white? (K5)

18. a) Explain the term classification of statistical data. What are the types of classification followed in statistical data? (K4)

(Or)

b) Represent the following data by a simple bar diagram. (K5)

Year	1974	1975	1976	1977	1978	1979	1980	1981
Production (in tonnes)	45	40	44	41	49	42	55	50

19. a) From the following data find out arithmetic mean and median. (K4)

Height.	120	122	124	126	128	130
No. of students.	5	7	9	6	4	10

(Or)

b) Find the standard deviation from the following data. (K5)

X	6	9	12	15	18
f	7	12	19	10	2

20. a) Calculate the coefficient of correlation between x and y (K4)

x	10	12	13	16	17	20	25
y	19	22	26	27	29	33	37

(Or)

b) Find the line of regression of y on x (K5)

x	1	2	3	4	5	8	10
y	9	8	10	12	14	16	15

Reg.No:_____

Course Code: 23UAPAT303 / 23UAQAT303

B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Biochemistry / Biotechnology

Third Semester

Allied: Bio Mathematics

Time: 3 Hours Maximum marks: 55

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. If $\begin{vmatrix} 2 & x \\ 1 & 1 \end{vmatrix} = 0$ then $x =$_____. (K1)

a) 0 b) 1 c) 3 d) 4

2. The rank of the unit matrix of order n is_____. (K1)

a) $n-1$ b) n^2 c) $n+1$ d) n

3. What is the sum of the probabilities of all possible outcomes in a probability experiment? (K1)

a) 0 b) 1 c) -1 d) 2

4. Two fair dice are rolled. What is the probability that the sum of the numbers on the dice is 7? (K1)

a) $\frac{1}{6}$ b) $\frac{1}{12}$ c) $\frac{1}{8}$ d) $\frac{1}{9}$

5. Which of the following is a primary source of data? (K1)

a) A research paper in a journal

b) A government census report

c) data collected from a survey you conducted

d) A textbook summarizing statistical method

7. A ligand will donate a minimum of _____ pair of electrons. (K1)

a) 2 b) 1 c) 3 d) 4

8. EDTA is_____. (K1)

a) Ethylene diamminetetra acid

b) Ethylene diaminoacetic acid

c) Erythro diamminetetra acetate

c) Ethylene diamminetetra acetate

9. Normal phase rule is_____. (K1)

a) $F = C - P + 2$ b) $F = C - P$

c) $F = C - P + 1$ d) $F = C + 2$

10. Photochemical reactions take place in the presence of _____. (K1)

a) heat b) temperature

c) light d) concentrated solutions

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) What do you understand by hydrogen bond? (K2)

(Or)

b) Explain hybridization with an example. (K3)

12. a) Calculate the amount of sodium hydroxide required to prepare 1N solution in 100 mL. (K2)

(Or)

b) Briefly write about order of a chemical reaction. (K3)

13. a) How is an isothermal process different from an adiabatic process? (K2)

(Or)

b) Write Carnot's theorem. Explain briefly. (K3)

14. a) Name the following compounds. (K2)

i) K4 [Fe(CN)6] ii) [Ag(NH3)2]Cl iii) [Co(NH3)6]3+.

(Or)

b) State and Explain Effective Atomic Number rule. (K3)

15. a) Discuss the laws of photochemistry. (K2)

(Or)

b) Write the normal phase rule and condensed phase rule. Why is the condensed phase rule different from normal phase rule? (K3)

SECTION - C (5 X 6 = 30 Marks)

Answer ALL questions.

16. a) Explain the structure of methane and ethane. (K4)

(Or)

b) Discuss the the molecular orbital theory of N2 molecule with a neat diagram. (K5)

17. a) Explain fractional distillation. (K4)

(Or)

b) How does temperature affect the rate of a reaction? Explain. (K5)

18. a) Explain Carnot cycle. (K4)

(Or)

b) Discuss different types of thermodynamic system. (K5)

19. a) Briefly discuss the applications of EDTA. (K4)

(Or)

b) Explain Sidgwick's theory on coordination complexes. (K5)

20. a) Explain fluorescence and phosphorescence. (K4)

(Or)

b) Explain the phase diagram of Pb-Ag system. (K5)

Reg.No:_____

Course Code: 23UAQAT104

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Biotechnology

First Semester

Allied: Chemistry

Time: 3 Hours Maximum marks: 55

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Diamagnetic molecules will have _____ number of unpaired electrons. (K1)

   a) 1 b) 2 c) 3 d) 0

2. Which of the following is the weakest bond? (K1)

   a) Covalent bond b) ionic bond

   c) coordinate bond d) hydrogen bond

3. _____ obeys Raoult's law in all stages of concentration.

   a) Ideal Solution b) Non-Ideal solution (K1)

   c) Real Solution d) None of the mentioned

4. Temperature will _____ the rate of a chemical reaction. (K1)

   a) decrease b) increase c) not affect d) none of the above

5 In an isothermal process,_____ remains constant. (K1)

   a) entropy b) energy c) heat d) temperature

6. Free energy is represented as_____. (K1)

   a) G b) H c) U d) S

6. The highest rpm of ultracentrifugation. (K1)

a) 1,50,000 b) 1,60,000 c) 1,70,000 d) 1,80,000

7. The type of HPLC pump has limited solvent capacity. (K1)

a) Reciprocating b) Displacement

c) Reciprocating dual pumps d) particle separation

8. The compound that is separated using paper chromatography.

a) Simple mixtures b) Complex mixtures (K1)

c) Viscous mixtures d) Metals

9. The miniature form of _____ electrophoresis is used in Microchip electrophoresis. (K1)

a) PAGE b) AGE c) 2-D gel d) capillary

10. The technique that is combined by 2D- gel electrophoresis. (K1)

a) PCR and gel electrophoresis

b) SDS- PAGE and isoelectric focusing

c) western blotting and SDS- PAGE

d) Northern and Southern blotting

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Generalize your views on emission spectrum. (K2)

(Or)

b) Write down the definition of spectroscopy. (K2)

12. a) Demonstrate flame photometer. (K3)

(Or)

b) Relate the determination of structure using Raman spectroscopy. (K3)

13. a) Discuss the principles of ultra centrifugation (K2)

(Or)

b) Write a note on Geiger- Muller counter. (K2)

14. a) Relate an idea about paper chromatography. (K3)

(Or)

b) Discuss HPLC in brief. (K3)

15. a) Explain pulse field gel electrophoresis. (K2)

(Or)

b) List the principle and uses of MRI scan (K2)

SECTION – C (5 X 6 = 30 Marks)

Answer ALL questions.

16. a) Analyze Henderson Hasselbac equation. (K4)

(Or)

b) Explain the classification of spectra. (K4)

17. a) Infer the analysis of bio molecules using UV-Visible spectroscopy. (K4)

(Or)

b) Categorize the principle and applications of Atomic Absorption Spectroscopy. (K4)

18. a) Illustrate measurement of radioactivity using scintillation counter. (K3)

(Or)

b) Discuss Autoradiography with an example. (K3)

19. a) Explain the principle, working and applications of affinity and ion exchange chromatography. (K4)

(Or)

b) Outline GC-MS with relevant example. (K4)

20. a) Explain Agarose gel electrophoresis. (K3)

(Or)

b) Demonstrate 2D gel electrophoresis. (K3)

Reg. No:_____

Course Code: 23UAQAT204

B.Sc. Degree Examination -November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Biotechnology

Second Semester

Allied: Bioanalytical Techniques

Time: 3 Hours Maximum Marks: 55

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The span of electromagnetic radiation is also referred to as____.
   a) portions b) radio atoms c) radio isotopes d) partition (K1)
2. The factor that increases fluorescence intensity. (K1)
   a) electron withdrawing group b) photo decomposition
   c) increase in temperature d) increase in viscosity
3. Beer's law states that the intensity of light decreases with respect to _____. (K1)
   a) Concentration b) Distance
   c) Composition d) Volume
4. In Atomic Absorption Spectroscopy, with what material is the cathode in Hollow cathode lamp constructed? (K1)
   a) Tungsten b) Quartz
   c) Element to be investigated d) Aluminium
5. Geiger-Muller counter is used in the detection of _____.(K1)
   a) proteins b) amino acids
   c) radiations d) compound mixture

6. What is the primary purpose of biogas production? (K2)

a) Water purification b) Fuel generation

c) Soil fertilization d) Air pollution control

7. What is solid waste management? (K1)

a) The process of reducing and managing liquid waste

b) The process of collecting, treating, and disposing of solid materials

c) The production of biogas

d) The use of microorganisms to generate energy

8. What is e-waste primarily composed of_____? (K2)

a) Organic materials b) Electronic devices

c) Plant biomass d) Hazardous chemicals

9. What is the scope of Environmental Impact Assessment (EIA)?

a) To analyze the economic benefits of a project (K1)

b) To assess the potential environmental impacts of a proposed project

c) To study the chemical composition of pollutants

d) To enhance agricultural productivity

10. Which species are considered endemic? (K2)

a) Species found in multiple regions

b) Species that migrate seasonally

c) Species native to a specific area

d) Species introduced from other regions

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Describe the primary and secondary production in an ecosystem. (K3)

(Or)

b) Explain the concept of food chain and food web. (K2)

12. a) Discuss the factors affecting the process of biodegradation. (K3)

(Or)

b) Explain the methods used to determine biodegradability. (K2)

13. a) Compare and contrast hydrogen production and methane production using microorganisms. (K4)

(Or)

b) Discuss the applications of nanotechnology in environmental pollution remediation. (K3)

14. a) Explain the components and benefits of Integrated Solid Waste Management (ISWM). (K3)

(Or)

b) Discuss the management strategies for radioactive waste. (K2)

15. a) Evaluate the merits and demerits of conducting Environmental Impact Assessment (EIA) studies. (K3)

(Or)

b) Analyze the importance of green energy and industrial green building systems. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Discuss the structure and function of a pond ecosystem. (K4)

(Or)

b) Explain the role of biotic factors in an ecosystem. (K3)

17. a) Describe the process and importance of biosorption and bioleaching. (K4)

(Or)

b) Discuss the use of biosensors and bioindicators in pollution detection. (K3)

18. a) Compare the production processes of bioethanol and biomethanol. (K4)

(Or)

b) Analyze the impact of environmental pollutants in air, water, and soil. (K4)

19. a) Explain the classification and types of solid wastes and their management. (K4)

(Or)

b) Discuss the composition and management of e-waste in India. (K3)

20. a) Evaluate the need for Environmental Impact Assessment (EIA) and the steps involved in conducting EIA studies. (K4)

(Or)

b) Analyze the significance of conserving endangered and endemic species in India. (K4)

Reg. No. :_____

Course Code: 22UAQET505

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Biotechnology

Fifth Semester

Elective: Environmental Biotechnology

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is an abiotic factor? (K2)

a) Symbiosis b) Soil c) Predation d) Competition

2. What is the term for the relationship where both organisms benefit? (K1)

a) Parasitism b) Antagonism

c) Mutualism d) Antibiosis

3. What is bioremediation? (K2)

a) The use of plants to absorb pollutants

b) The use of microbes to degrade environmental pollutants

c) The accumulation of toxins in organisms

d) The enhancement of plant growth by bacteria

4. Which of the following is an example of a xenobiotic compound? (K1)

a) Methane b) Plastic c) Nitrogen d) Oxygen

5. What is biomass? (K2)

a) Inorganic matter

b) Organic matter used as a source of energy

c) A type of pollutant

d) Chemical waste

6. Molecules permit the B cell to function as an antigen-presenting cell is_____. (K2)

a) Class I MHC b) Class II MHC

c) CR1 d) CRII

7. The transfer of individuals own tissue to another part of the body is called_____. (K1)

a) Alograft b) Xenograft c) Autograft d) Syngeneic graft

8. The major molecules responsible for rejection of transplant is_____. (K2)

a) B cells b) T cells c) antibodies d) MHC molecule

9. Types of ELISA includes_____. (K1)

a) Competitive b) Indirect

c) Sandwitch d) All of these

10. Antigens are separated by electrical charge and then visualized by a precipitation reaction in which of the following serological techniques? (K2)

a) Flow cytometry b) Immunoelectrophoresis

c) Radioimmunoassay d) ELISA

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Explain about the milestone in the history and scope of immunology. (K3)

(Or)

b) Describe about the primary immune response. (K2)

12. a) Interpret the importance of Immunogenicity. (K2)

(Or)

b) Report the mechanism of Antigen and antibody interaction. (K3)

13. a) Outline the structure and function of B – cell maturation. (K2)

(Or)

b) Interpret main steps involved in the classical pathway. (K3)

14. a) Explain about the immuno suppression. (K2)

(Or)

b) Write in brief about the autoimmune disease Rheumatoid arthritis. (K3)

15. a) Examine the successful methods and important steps of cancer immunotherapy. (K3)

(Or)

b) Compare and contrast the indirect ELISA and sandwich ELISA. (K3)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Summarize the steps involved in cell-mediated response. (K3)

(Or)

b) Write about the barriers of innate immunity. (K4)

17. a) Describe the structure and types of antibody. (K3)

(Or)

b) Interpret the functions and mechanisms of CD molecules and cytokines. (K4)

18. a) Discriminate the types and role of APC`S. (K3)

(Or)

b) Write about the immunoglobulin gene rearrangement. (K4)

19. a) Summarize the Hypersensitivity type I,II,III and IV. (K3)

(Or)

b) Explain the production of monoclonal antibodies. (K4)

20. a) Illustrate the techniques of western blotting. (K3)

(Or)

b) Asses the steps involved and role of radio immune assay. (K4)

Reg. No.:_____

Course Code: 22UAQCT501

B. Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Biotechnology

Fifth Semester

Core: Immunology

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Who is the father of Immunology? (K1)

a) Louis Pasteur b) Pasteur and Jenner

c) Edward Jenner d) Von Behring

2. Innate immunity is also called as _____immunity. (K2)

a) Familial b) Genetic c) Inborn d) All of these

3. Antibody molecules have a common structure of_____ peptide chains. (K1)

a) 4 b) 3 c) 8 d) 5

4. Epitope which induces more pronounced immune response is called as_____. (K2)

a) Immunostimulant b) Immunogenic

c) Antigenic d) Immunodominant

5. The highest levels of class I MHC molecules are expressed by _____. (K1)

a) Skin cells b) Colon cells

c) Lymphocytes d) Epithelial cell

5. What is the major benefit of biopharmaceuticals? (K2)

a) Lower production b) Targeted treatment of disease

c) Longer shelf life d) All of the above

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

6. a) Explain the principle of composting. (K2)

(Or)

b) How would you arrange the four components to start a compost pile? Explain. (K3)

7. a) How do you control mushroom disease? (K2)

(Or)

b) Explain the role of bio filters in aquaculture. (K3)

8. a) What is the main function of spirulina? (K2)

(Or)

b) What factors should be considered when evaluating the potential of Single-Cell Protein (SCP) for use in animal feed? (K3)

9. a) Which type of soil is favourable for Moriculture? (K2)

(Or)

b) What are the advantages of branch cutting when compared to leaf picking? (K3)

10. a) What are the five sectors of biotechnology? (K2)

(Or)

b) How would you apply biopharma technologies to develop a new therapeutic drug? (K3)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Explain the advantages and disadvantages of using a waste-to-energy plant to produce two valuable products. (K4)

(Or)

b) Compare and contrast between bio compost and chemical fertilizers in terms of their effects on soil fertility. (K3)

12. a) Compute a design plan to optimize mushroom yield for a small-scale farm, considering factors like substrate selection, environmental control, and harvest timing. (K4)

(Or)

b) Compare the difference between the three types of aquaponics in a laboratory setting. (K3)

13. a) Explain the advantages and disadvantages of using various microbial sources for producing Single Cell Protein. (K4)

(Or)

b) Infer about the critical factors that influence the yield and quality of Single-Cell Protein (SCP) during cultivation. (K3)

14. a) Examine the physical and commercial characteristics of cocoon. (K4)

(Or)

b) Report the differences in flavour and texture produced by each method of cocoon cooking. (K3)

15. a) Evaluate factors should be considered when analyzing options during the decision-making process in entrepreneurship. (K4)

(Or)

b) Justify – new proposal of biotechnology application that addresses current global challenge. (K3)

Reg. No.: _____

Course Code: 22UAQST508

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Biotechnology

Fifth Semester

Skill Based: Entrepreneurship in Life Sciences

Time: 3 Hours Maximum Marks: 45

SECTION – A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which of the following is false about vermicomposting? (K2)

a) Worms population doubles in 90 days

b) Worms eat double their body weight

c) The wooden bin is best for vermicomposting

d) Red worms are the best for vermicomposting

2. What is the most expensive mushroom in India? (K1)

a) Ganoderma lucidum *b) Pleurotus spp*

c) lammulina filiformis *d) Gucchi Mushroom*

3. Which of the following bacterial species is known for its high rate of biomass production?

a) Methylophilus methylotrophus *(K2)*

b) Xanthomonas

c) Clostridium

d) Rhizomonas

4. Silk is produced by_____. (K1)

a) cocoon b) adult moth

c) larva d) larva and adult moth

6. Which of the following cannot be used as an adsorbent in Column adsorption Chromatography? (K1)

a) Magnesium oxide b) Silica gel

c) Activated alumina d) Potassium permanganate

7. The general mechanism is that an enzyme acts by_____. (K1)

a) Reducing the activation energy

b) Increasing activation energy

c) Decreasing pH value

d) Increasing the pH value

8. Which of the following is produced with the combination of apoenzyme and coenzyme_____? (K2)

a) Holoenzyme b) Enzyme substrate complex

c) Prosthetic group d) Enzyme product complex

9. Water insoluble enzymes can be prepared by using multifunctional agents that are bifunctional in nature and have_____. (K2)

a) low molecular weight b) high molecular weight

c) high equivalent weight d) low reactivity

10. Methanol is an example for which of the functional group _____. (K1)

a) Alcohol b) Ketone c) Aldehyde d) Ester

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Explain the different methods for strain improvement of industrially important microorganism. (K3)

(Or)

b) Illustrate the concept thermal death kinetics in microorganism. (K3)

12. a) Distinguish between manual and automatic control. (K3)

(Or)

b) List out and brief the different parts of bioreacter. (K3)

13. a) Outline the different techniques used for product purification in downstream processing. (K3)

(Or)

b) Describe the methodology and importance of drying process in product formulation. (K2)

14. a) Explain the covalent linkage method used in enzyme immobilization process. (K3)

(Or)

b) List out the application of enzymes in food industry. (K2)

15. a) Report the steps involved in the production of glutamic acid.

(Or) (K3)

b) Illustrate the production process of cheese. (K2)

SECTION – C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Write about the different physical methods used for sterilization.

(Or) (K3)

b) Compile the various components of media necessary for fermentation and highlight their role in microbial growth. (K4)

17. a) Illustrate the structure, parts and types of Airlift Bioreactor. (K3)

(Or)

b) Compare batch fermentation with continuous fermentation and write the applications of submerged fermentation. (K4)

18. a) Report the different types of filtration methods used in downstream process for removal of insolubles and product purification. (K3)

(Or)

b) Write the steps involved in the crystallization process. (K3)

19. a) Examine the methodology used for the production of amylase.

(Or) (K3)

b) Illustrate the techniques used for immobilization of cells with advantages and limitations. (K4)

20. a) Assess the plan/methodology for the production of wine. (K3)

(Or)

b) Infer the methodology used for the production of lactic acid. (K4)

Reg. No:_____

Course Code: 22UAQCT503

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Biotechnology

Fifth Semester

Core: Industrial Biotechnology

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Microorganism used in fermentation are_____. (K1)

a) Bacteria b) Fungi c) Virus d) Both (a) & (b)

2. _____is the chemical method of sterilization. (K1)

a) Autoclave b) Phenol

c) Hot air oven d) Filtration

3. Cells in continuous culture system are maintained in_____.

a) lag phase b) log phase (K1)

c) stationary phase d) decline phase

4. _____is the process in which fermentation process is carried in batches. (K1)

a) Batch fermentation b) SSF

c) Submerge fermentation d) Continuous fermentation

5. Chromatography is a physical method that is used to separate and analyse_____. (K2)

a) Simple mixtures b) Complex mixtures

c) Viscous mixtures d) Metals

5. Tell the first antibiotic used in medicine. (K1)

a) Salvarsan b) Penicillin c) Morphine d) Quinine

6. Which of the following is not a physical method for selection of pure culture? (K1)

a) Heat treatment b) In vitro pH of the media

c) Cell size and motility d) Use of dilute media

7. Select the microorganism that not being used as a bio-fertilizer.

a) Bacteria b) Algae c) Cyanobacteria d) Fungi (K1)

8. Name the biocontrol agents for controlling butterfly caterpillars.

a) Treponema palladium b) Acetobacter aceti (K1)

c) Lactobacillus d) Bacillus thuringiensis

9. Identify the cells destroyed by HIV. (K1)

a) A- helper cells b) K-helper cells

c) T-helper cells d) Ideas

10. Label the test to confirm Typhoid Fever. (K1)

a) Schick Test b) Widal Test

c) Pap smear Test d) Tourniquet Test

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Describe the scope of Microbiology. (K2)

(Or)

b) Write down the importance of staining technique. (K2)

12. a) List the steps involved to measure the bacterial growth. (K3)

(Or)

b) Relate Gram's, capsule and spore staining methods of microorganism. (K3)

13. a) Explain the physical methods of microbial control. (K2)

(Or)

b) Indicate the bacterial resistance against the antibacterial agent ESBL. (K2)

14. a) Discuss how Baculovirus act as a biofertilizer? (K3)

(Or)

b) Illustrate the role of microorganisms in making the diary products. (K3)

15. a) Discuss the lab diagnosis and treatment of chicken pox. (K2)

(Or)

b) Discuss sexually transmitted disease with relevant of AIDS.(K2)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Organize the classical and molecular approaches for bacterial classification. (K4)

(Or)

b) Relate protozoa classification. (K4)

17. a) Classify the types of media used in microbiology and its preparations. (K4)

(Or)

b) Explain the preservation and storage of microbes. (K4)

18. a) Sketch the mode of action of antibiotics. (K3)

(Or)

b) Apply the role of antibiotics in clinical laboratories. (K3)

19. a) Outline your views on single cell protein. (K4)

(Or)

b) Discuss the role of *Azospirillum* and its applications. (K4)

20. a) Illustrate the diagnosis and treatment of water borne disease. (K3)

(Or)

b) Demonstrate the vector borne diseases. (K3)

Reg. No:_____

Course Code: 23UAQCT201

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Biotechnology

Second Semester

Core: Microbiology

Time: 3 Hours Maximum Marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Match the macrococci. (K1)

a) Monococcus b) Streptococcus

c) Tetracoccus d) Staphylococcus

2. Select the dye used in the staining of proteins. (K1)

a) DAPI b) Ethidium bromide

c) Coomassie blue d) Safranin

3. Observe the purpose of semisolid media. (K1)

a) Isolation of discrete colonies

b) Obtaining growth throughout the tube.

c) Determination of motility of a culture

d) Determination of viscosity of a culture

4. Select the culture media that contains inhibitors to suppress bacterial growth, making it selective for fungi? (K1)

a) Czapek-Dox Agar

b) MacConkey Agar

c) Sabouraud Dextrose Agar

d) Sabouraud ChloramphenicolAgar

5. How many are essential amino acids? (K1)

a) 40 b) 20 c) 36 d) 28

6. Name the proteins that help to speed up the metabolism in the cell. (K1)

a) Structural proteins b) Antibodies

c) Enzymes d) Transport proteins

7. Which is a specific type of enzyme inhibition that are characterized by an inhibitor binding to an allosteric site resulting in decreased efficacy of the enzyme? (K1)

a) Non-Competitive inhibition b) Competitive inhibition

c) Uncompetitive inhibition d) In-competitive inhibition

8. Which one is a cofactor? (K1)

a) Metallic ion b) Carbohydrates

c) Lipids d) Nucleic acids

9. Find out the most common conformation of DNA. (K1)

a) A-DNA b) B-DNA c) Z-DNA d) cDNA

10. In Salvage pathway, _____can be salvaged along the uracil pathway by cytidine deaminase, which converts them to uridine and deoxyuridine, respectively. (K1)

a) cytidine and deoxycytidine b) cytidine and deoxythymidine

c) Thymine and deoxycytidine d) Adenine and deoxyguanine

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Illustrate the structure and functions of heparin. (K2)

(Or)

b) Demonstrate the importance of glycogen breakdown. (K3)

12. a) Explain the structure and nomenclature of fatty acids. (K2)

(Or)

b) Interpret the various biological functions of lipids. (K3)

13. a) List the structure, sources and functions of essential amino acids. (K2)

(Or)

b) Outline the role of primary structure of proteins. (K3)

14. a) Show the effect of substrate concentration on the activity of enzymes. (K2)

(Or)

b) Sketch the lock and key model of enzymes. (K3)

15. a) Illustrate the Clover leaf structure of tRNA. (K2)

(Or)

b) Demonstrate the types of DNA. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Compare the structure and functions of cellulose & hemicellulose. (K4)

(Or)

b) Explain the steps, products and efficiency of Citric acid cycle. (K5)

17. a) Outline the properties and classification of lipids. (K4)

(Or)

b) Organize the various metabolic reactions that are involved in the biosynthesis of cholesterol. (K5)

18. a) Why should amino acids be deaminated? Explain the mechanism involved in it. (K4)

(Or)

b) Differentiate peptides, oligopeptides, polypeptides and proteins with an example. (K5)

19. a) How will you correlate the action of enzyme inhibitors in maintaining cellular homeostasis? (K4)

(Or)

b) Classify the enzymes based on International Union of Biochemistry. (K5)

20. a) Outline the De novo pathway of Pyrimidine biosynthesis. (K4)

(Or)

b) "Degradation of Pyrimidines — Enzymes, Localization and Role in Metabolism" – Infer the reasons. (K5)

Reg. No:_____

Course Code: 23UAQCT202

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Biotechnology

Second Semester

Core: Biochemistry

Time: 3 Hours Maximum Marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which sugar is present in human cartilage? (K1)

a) Lactose b) Chondroitin sulfate

c) Maltose d) Hemicellulose

2. Name the enzyme that converts lactate into pyruvate during the Cori cycle. (K1)

a) Malate dehydrogenase b) Pyruvate dehydrogenase

c) DNA Polymerase d) Lactate dehydrogenase

3. Name the organelle where the β-oxidation of fatty acids takes place. (K1)

a) Mitochondria b) Vacuoles

c) Nucleus d) Ribosomes

4. In which organelle, does two molecules of farnesyl pyrophosphate condense to form squalene by the action of squalene synthase. (K1)

a) Endoplasmic reticulum b) Chloroplast

c) Nucleus d) Ribosomes

5. Cell organelles are located within the ____ of the cell. (K1)

a) Nucleus b) Cytoplasm c) Cell membrane d) Lysosomes

6. Sacs containing digestive enzymes_____. (K1)

a) Endoplasmic reticulum b) Mitochondria

c) Golgi body d) Lysosomes

7. The five phases of cell cycle are _____. (K1)

a) G1, G2, S, M, C b) G1, M, G2, S, C

c) G1, S, G2, M, C d) C, M, G1, G2, S

8. Main mitotic cell division occurs during _____. (K1)

a) M phase b) G2 phase c) S phase d) G1 phase

9. Thread like structures are _____. (K1)

a) Chromatin fibers b) Chromosomes

c) Endoplasmic reticulum d) Mitochondria

10. Hetero chromatins are _____. (K1)

a) Darkly stained b) metabolically active

c) Less coiling or no coiling d) lightly stained

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Differentiate prokaryotic and eukaryotic cell. (K2)

(Or)

b) Comment on ultra-structure of plasma membrane with neat sketch. (K3)

12. a) Explain on cell junctions with neat diagram. (K2)

(Or)

b) Explain cell signaling receptors. (K3)

13. a) Illustrate the structure and function of mitochondria. (K2)

(Or)

b) Write the structure and functions of Endoplasmic reticulum. (K3)

14. a) Summarize the different stages of cell cycle. (K2)

(Or)

b) Discuss apoptosis with neat diagram. (K3)

15. a) Describe about the centromere and telomere. (K2)

(Or)

b) Give an account on polytene chromosome and its significance. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Elaborate on various transport mechanisms occurs across the membrane. (K4)

(Or)

b) Describe the structure and characteristics of eukaryotic cell. (K5)

17. a) Write a detailed account on cell-cell signaling. (K4)

(Or)

b) Detailed notes on the role of diffusion and osmosis in cell membrane function. (K5)

18. a) Describe about the ultra structure of chromosome and its functions. (K4)

(Or)

b) Illustrate on cytoskeleton system and its significance. (K5)

19. a) Explain the different stages of mitosis with neat diagram. (K4)

(Or)

b) Differentiate between mitosis and meiosis. (K5)

20. a) Comment on chromatin, euchromatin and heterochromatin. (K4)

(Or)

b) Elaborate notes on nucleus structure and functions. (K5)

Reg.No:_____

Course Code: 23UAQCT101

B. Sc Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Biotechnology

First Semester

Core: Cell Biology

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Who postulated that the cell is the basic unit of life and all organisms are formed of one or more cells? (K1)

a) E.VanBeneden b) M.J.Schleiden and Schwann

c) Hugo van Mohl d) Robert Hooke

2. How many statements are there in Modern Cell Theory? (K1)

a) One statement b) two statements

c) three statements d) four statements

3. Pinocytosis process is otherwise called as _____. (K1)

a) Cellular Eating b) Cellular Drinking

c) Both (a) & (b) d) None of the above

4. What will happen to a cell which is placed in a hypertonic solution? (K1)

a) cell will gain water and shrink

b) cell will lose water and shrink

c) cell will gain water and swell

d) cell will lose water and swell

7. Frame shift mutation is caused due to_____. (K1)

a) Duplication b) Translocation

c) Inversion d) Deletion

8. When the organisms have more than two complete sets of chromosomes is called_____. (K1)

a) Polyploidy b) Euploidy

c) Aneuploidy d) None of the above

9. The term eugenics was coined in _____. (K1)

a) 1883 b) 1894 c) 1700 d) 1990

10. The term eugenics was coined by _____. (K1)

a) Watson b) Pasteur c) Griffith d) Francis Galton

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) List out the F1 and F2 generation phenotype and genotype for the Monohybrid cross between parents Tall (TT) and Dwarf (tt). (K2)

(Or)

b) Illustrate the Mendels law of Incomplete Dominance with an example. (K3)

12. a) Outline the sex-linked inheritance mechanism. (K2)

(Or)

b) Illustrate the crossing over types and mechanism. (K3)

13. a) Explain the operon concept with an example. (K2)

(Or)

b) Compare bacterial conjugation with transduction. (K3)

14. a) Distinguish between physical and chemical mutagen. (K2)

(Or)

b) List out the pedigree symbols used in the pedigree chart. (K3)

15. a) Explain the factors affecting the gene frequency. (K2)

(Or)

b) Evaluate the concept of euphenics. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Summarize the F1 and F2 generation phenotype and genotype for the Dihybrid cross with an example. (K4)

(Or)

b) Assess the impact of multiple alleles on blood group types. (K5)

17. a) Discuss the different types of chromosome mapping. (K4)

(Or)

b) Summarize the sex-determination mechanism in man. (K5)

18. a) Compare the hypothesis proposed by Griffith experiment with hershey chase experiment. (K4)

(Or)

b) Compose the bacterial transformation mechanism with example. (K5)

19. a) Summarize the numerical and structural chromosomal aberrations. (K4)

(Or)

b) Compare the nucleotide excision repair mechanism with base excision repair mechanism. (K5)

20. a) Compile the history and facts about eugenics. (K4)

(Or)

b) Summarize the assumptions of Hardy Weinberg principle. (K5)

Reg.No:_____

Course Code: 23UAQCT102

B. Sc Degree Examination – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Biotechnology

First Semester

Core: Genetics

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Monohybrid cross is carried out considering _____ character.
   a) 2 b) 3 c) 4 d) 1 (K1)
2. Johann Mendel was born in the year _____. (K1)
   a) 1900 b) 1800 c) 1822 d) 1777
3. Sex phenotype of the organism was determined based on_____.
   a) Chromosomes b) Genetic (K1)
   c) Environmental d) All the above
4. SRY gene codes for_____. (K1)
   a) Male phenotype b) Female phenotype
   c) Both (a) and (b) d) None of the above
5. _____experiment is the evidence that DNA is the genetic material in T2 bacteriophage. (K1)
   a) Hershy and chase b) Meselson and Stahl
   c) Griffith d) Jacob and Monad
6. Griffith reported the phenomenon of transformation first in _____. (K1)
   a) H. influenza b) Bacillus sp.
   c) Streptococcus pneumoniae d) *E.coli*

Reg.No: _____

Course Code: 22UAQAL509

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Biotechnology

Fifth Semester

ALC: Cancer Biology

Time: 3 Hours Maximum Marks: 100

SECTION – A (10 X 2 = 20 Marks)

Answer ALL questions.

1. What is cancer? (K3)
2. Define 'oncogene' with two examples. (K2)
3. What is radio carcinogenesis? (K3)
4. State the 'single hit' and 'multiple hit' theory of carcinogenesis. (K2)
5. Why p53 is known as Guardian of genome? (K3)
6. Why the 'tumor suppressor' proteins are named so? Write two examples. (K3)
7. What is the application of HepG2? (K2)
8. Name the source of A549. (K3)
9. List the function of cancer biomarker. (K2)
10. List the mechanisms radio-therapeutic agents that outline inhibit cancer cells. (K3)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a) Explain about the history and scope of cancer research. (K3)

(Or)

b) Illustrate the different stages of cervical and oral cancers. (K3)

12. a) Interpret the main functions of carcinogenesis theories. (K3)

(Or)

b) Write a brief note on the principles of physical carcinogenesis. (K2)

13. a) Interpret the main steps involved in mechanism of oncogene activation. (K3)

(Or)

b) Explain about the proto oncogenes. (K2)

14. a) Discuss the important role of MCF – 7 cell line in cancer research. (K2)

(Or)

b) Describe the important role of moving protein in secretion and endocytosis. (K3)

15. a) Report the important steps involved in biochemical and histopathological test. (K3)

(Or)

b) Explain about the cell culture based vaccines. (K2)

SECTION – C (5 X 10 = 50 Marks)

Answer ALL questions.

16. a) Write about the types prevalence and causing mechanism of lymphoma. (K4)

(Or)

b) Compare the difference between colon and lung cancer. (K3)

17. a) Summarize the important steps involved in chemical carcinogenesis. (K4)

(Or)

b) Infer about the important steps of radiation carcinogenesis and its action. (K3)

18. a) Explain the significant role and mechanism of protein involved in apoptosis. (K4)

(Or)

b) Write about the function and steps involved p53 and cyclins. (K3)

19. a) Report in detail about the HeLa cell line. (K3)

(Or)

b) Compare the moving protein into membranes and organelles. (K4)

20. a) Infer the role of cytotoxic and viability assay in cancer research. (K3)

(Or)

b) Explain the principle and application of cancer biomarkers. (K4)

Reg.No.:_____

Course Code: 22UARST507 / 22UASST507

B.Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Costume Design and Fashion / (Vocational)

Fifth Semester

Skill Based: Business Organization and Accounting

Time: 3 Hours Maximum Marks: 45

SECTION – A (5 X 1 = 5 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____is known to us by the institutions that conduct it and therefore, we may try to mark its essential characteristics by examining the nature of work performed by some of them. (K1)

   a) Business b) Business man

   c) Minor d) Partner

2. Journal is a _____record. (K1)

   a) Monthly b) Daily c) Weekly d) Yearly

3. Purchase book is also called as_____. (K1)

   a) Sales book b) Brought book

   c) Cash book d) Sales return book

4. _____Account is prepared in order to calculate the net profit or net loss of the Business. (K1)

   a) Trading b) Profit & Loss c) Capital d) Sales

5. Expand FIFO_____. (K1)

   a) First in First out b) First investment in future orders

   c) Fast issue of First orders d) First in First order

SECTION – B (5 X 3 = 15 Marks)

Answer ALL questions.

6. a) What are the disadvantages of partnership firm? (K3)

(Or)

b) What do you meant by business? (K3)

7. a) Journalize the following: (K3)

2021 Jan.15	Ajit drew Rs.200 for personal use.
24	Ajit drew a cheque for Rs.300 for personal use.
30	Ajit the proprietor of a hotel took Rs.400 worth goods for his household use.
31	Paid for rent Rs.500

(Or)

b) Journalize the following: (K3)

2022 Feb.1	Brought from Senthil for cash Rs.730
2	Brought Machinery Rs.6,700
3	Paid for Stationery Rs.120
4	Goods sold for cash Rs.2,500
5	Paid for Rent Rs.1,500

8. a) Record the following transactions in the purchase book: (K3)

Date	Particulars	Amount (Rs.)
7-1-2005	Purchased from Madhavan	650
23	Bought of Arumugam	4,000
30	Vasu sold us goods for	500

(Or)

b) From the following balances, prepare Trial balance on 31-12-2004. (K3)

Particulars	Rs.
Cash at bank	9,600
Capital	9,76,000
Purchases	10,88,000
Opening Stock	2,80,000
Sundry Debtors	5,60,000

15. a) Calculate Prime Cost, Factory Cost, Cost of Production, Cost of Sales and Profit from the following particulars: (K5)

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
Direct materials	1,00,000	Dep. On Factory Plant	500
Direct wages	30,000	Dep. On Office premises	1,250
Wages of foreman	2,500	Consumable stores	2,500
Electricity Power:	500	Manager's salary	5,000
Lighting: Factory	1,500	Director's fees	1,250
Lighting: Office	500	Office stationary	500
Storekeeper's Wages	1,000	Telephone charges	125
Oil and water	500	Postage and Telegram	250
Rent: Factory	5,000	Salesmen's salaries	1,250
Rent: Office	2,500	Travelling expenses	500
Repairs: Factory plant	3,500	Advertising	1,250
Repairs: Office premises	500	Warehouse charges	500
Transfer to Reserves	1,000	Sales	1,89,500
Discount on shares written off	500	Carriage outward	375
Dividend	2,000	Income-tax	10,000

(Or)

b) Prepare a cost sheet from the following: (K4)

Particulars	(Rs.)
Direct materials	50,000
Direct Wages	15,000
Factory expenses	5,000
Office expenses	1,000
Selling expenses	500

14. a) Prepare Trading Account of Archana for the year ending 31-12-1996 from the following information. (K3)

Particulars	Amount (Rs)
Opening Stock	80,000
Purchases	8,60,000
Freight Inward	52,000
Wages	24,000
Sales	14,40,000
Purchase Returns	10,000
Sales Returns	3,16,000
Closing Stock	1,00,000
Import Duty	30,000

(Or)

b) The Following balances were extracted from the books of Prasad on 31-3-1994. (K6)

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
Capital	50,000	Drawings	4,000
General Expenses	5,000	Buildings	22,000
Machinery	18,680	Stock	32,400
Power	4,480	Taxes & Insurance	2,630
Wages	14,400	Debtors	12,560
Bank Overdraft	6,600	Charity	210
Creditors	5,000	Bad depts	1,100
Loan	15,760	Sales	1,30,720
Purchases	94,000	Motor car	4,000
Reserve fund (Cr)	1,800	Commission(Cr)	2,640
Car Expenses	3,600	Bills payable	6,700
Cash	160		

Stock on 31-3-1994 was valued at Rs.47,000. Prepare the final Accounts for the year ended on 31-3-1994.

Sundry Creditors	3,52,000
Machinery	6,00,000
Sales	16,01,600
Salaries	3,92,000

9. a) From the following information, prepare a trading account. (K3)

Particulars	Amount (Rs.)
Opening stock	20,000
Purchases	30,000
Sales	80,000
Carriage inwards	5,000
Wages	20,000
Closing stock	30,000

(Or)

b) Prepare Trading and profit and loss Account from the information given below: (K3)

Particulars	Amount (Rs.)	Particulars	Amount (Rs.)
Opening Stock	3,600	Purchases	18,260
Wages	3,620	Closing stock	4,420
Sales	32,000	Carriage on Purchases	500
Carriage on sales	400	Rent (Factory)	400
Rent (Office)	500	Sales returns	700
Purchase returns	900	General expenses	900
Discount to customers	360	Interest from bank	200

10. a) Ascertain the prime cost from the following: (K4)

Particulars	Rs.
Direct Wages	50,000
Chargeable expenses	5,000
Opening stock of raw materials	10,000
Raw materials bought during the period	60,000
Closing stock of raw materials	20,000
Carriage inwards	1,500
Carriage outwards	2,000
Raw materials returned to supplier	1,500

(Or)

b) Calculate works cost: (K4)

Particulars	Rs.
Factory Expenses	700
Office Expenses	300
Selling Expenses	900
Materials consumed	3,400

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Describe the nature of business. (K5)

(Or)

b) Explain the main characteristics of sole trading form of organization. (K5)

12. a) Post the following transactions to ledger accounts on May 2003. (K5)

Date	Particulars	Rs.
1	Ram Commenced business with cash	6,000
	Goods	3,000
	and building	8,000
5	Sold goods for cash	700
7	Sold goods to mani	640
10	Cash Purchase	2,000

(Or)

b) Journalise the following transaction in the books of Kapil: (K3)

		Rs.
2002 June 1	Started business with cash	45,000
2	Paid into bank	25,000
3	Purchase of furniture and payment by cheque	5,000
4	Sold goods for cash	8,500
5	Paid for stationary	200

13. a) Prepare Trial Balance from the following: (K4)

Particulars	Amount (Rs)
Capital	40,000
Sales	25,000
Stock (Opening)	5,200
Debtors	2,500
Creditors	1,000
Purchases	15,000
Salaries	2,000
Rent	1,500
Cash	2,000
Insurance	300
Drawings	5,000
Plant	28,000
Bank	4,500

(Or)

b) Enter the following transactions to proper subsidiary books. (K4)

Date	Particulars	Rs.
2007 Dec-1	Purchased goods form A	5,000
3	Sold goods to M for cash	8,000
8	Returned defective goods to A	1,000
10	N bought goods from us	7,000
13	Sold goods to P	3,000
14	Returns inwards from P	400
17	Purchases from J	4,000
20	Credit sales to K	2,000
22	Returned to J goods worth	750
28	Bought machinery from RS Ltd on Credit	12,000
29	Received goods returned by K	300
30	Sold old Machinery for cash	2,000

Reg. No.:_____

Course Code: 22UARET504

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Costume Design and Fashion

Fifth Semester

Elective: Historic Costumes and Textiles

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. What is a "terracotta figurine" from the Indus Valley Civilization known to depict? (K1)
   a) Priest in ceremonial robes
   b) Warrior in full armor
   c) Woman wearing a skirt and bangles
   d) Dancer with elaborate headdress
2. What material was predominantly used for clothing during the Indus Valley Civilization? (K2)
   a) Cotton b) Wool c) Silk d) Flax
3. Which tribal community in Kerala is known for their traditional metal jewellery, anklets and earrings? (K1)
   a) Irula tribe b) Kadar tribe
   c) Toda tribe d) Kanikkar tribe
4. What is the name of the traditional south indian armlet? (K2)
   a) Vanki b) Kada c) Kangan d) Bajuband
5. Which is the traditional long skirt worn by Gujarati women called_____? (K1)
   a) Chaniya b) Ghagra c) Anarkali d) Churidhar

6. What is the name of the traditional nine-yard saree worn by Maharashtrian women? (K2)

a) Nauvari b) Kanjeevaram

c) Banaras d) Bandhani

7. What is the term for the resist-dyeing technique used in Patola weaving? (K1)

a) Ikat b) Bandhani c) Kalamkari d) Batik

8. What does the term "Kalamkari" literally mean?

a) Pen Work b) Brush Work (K2)

c) Needle Work d) Thread Work

9. Find out the traditional embroidery of Kashmir. (K1)

a) Applique b) Kashida c) Pulkari d) Kantha

10. Select the traditional embroidery of Lucknow. (K2)

a) Kashida b) Chikankari

c) Bagh d) Pulkari

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Explain about the origin of costume. (K2)

(Or)

b) Discuss about the costumes used during Mugal period. (K2)

12. a) Describe about Mauryan period jewellery. (K3)

(Or)

b) List out the tribal jewellery. (K2)

13. a) State the traditional costumes of Karnataka. (K3)

(Or)

b) State the traditional costumes of Tamil Nadu. (K3)

14. a) What is Himrus and Amrus fabric? (K2)

(Or)

b) State the art of Pochampalli fabric. (K3)

15. a) List out the types of traditional embroidery stitches. (K2)

(Or)

b) Define Punjab traditional embroidery. (K3)

SECTION C - (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Explain about Indus valley fashion. (K3)

(Or)

b) Summarize about Gupta period fashion. (K4)

17. a) Summarize the jewelleries used in the Pallava and Chola period. (K3)

(Or)

b) Explain about temple jewelleries of south india. (K4)

18. a) Explain about traditional costumes of Maharashtra. (K3)

(Or)

b) Summarize about traditional costumes of Nagaland. (K4)

19. a) Describe about Chanderi brocades and Kashmir shawls. (K3)

(Or)

b) Explain about Ikkat and kalamkari techniques of printed textiles. (K4)

20. a) Explain about traditional embroidery of Rajasthan. (K3)

(Or)

b) Explain about traditional embroidery of Gujarat. (K3)

b) Judge the length and density of pile in Velveteen fabric and fast pile structure. (K5)

20. a) Develop the flow chart for the preparation of double cloth. (K4)

(Or)

b) Integrate the Centre stitched double cloth and face to back stitching. (K5)

Reg.No:_____

Course Code: 22UARAT403 / 22UASAT403

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022-2023 only)

Costume Design and Fashion / Costume Design and Fashion (Vocational)

Fourth Semester

Allied: Woven Fabric Structures

Time: 3 Hours Maximum marks: 50

SECTION - A (10 X 1=10 Marks)

Answer ALL questions.

Choose the correct answer.

1. What is the other name of warp yarn? (K1)

a) En b) Picks c) Filling d) Weft

2. The process of converting yarns into a fabric is called_____. (K1)

a) Roving b) Spinning c) Weaving d) Finishing

3. Which resembles a comb? (K1)

a) Heddles b) Warp yarn c) reed d) frame

4. The row of loops or stitches running across the width of a fabric is _____.(K1)

a) Warp b) Wales c) Course d) Weft

5. The upper part of the loop produced by the needle drawing the yarn is _____. (K1)

a) Cam b) Needle c) Needle loop d) sinker

6. The plain weave is also called as _____. (K1)

a) Twill weave b) Satin weave

c) Tabby weave d) Pique weave

7. The weave that produce rib or cords in the warp or weft direction is _____. (K1)

a) Plain b) Twill c) Rib d) Sateen

8. Which one of the following is the derivative of the twill weave? (K1)

a) Rib weave b) Pique weave

c) basket weave d) Diamond weave

9. The _____ weave is small figured designs that require fewer than 25 different warp arrangements to complete one repeat of the design. (K1)

a) Jacquard b) Dobby c) Tabby d) Tapestry

10. Random interlacing of warp and weft yarns that result in an irregular surface is _____ weave. (K1)

a) Pique b) Lappet

c) Double cloth d) Crepe

SECTION - B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Brief on the basic weaves. (K2)

(Or)

b) Explain Twill weave. (K3)

12. a) Write about Reversing of small motif in a short note. (K2)

(Or)

b) Explain Brighten honey comb weave with the suitable diagram. (K3)

13. a) Differentiate the warp backed and weft backed fabrics. (K2)

(Or)

b) Explain single and two colors of Extra weft figuring. (K3)

14. a) Simulatethe pile fabric and formation of pile. (K2)

(Or)

b) Explain Terry pile. (K3)

15. a) Evaluate the stitching with center warp threads and center weft threads. (K2)

(Or)

b) Write a short note on Double cloth. (K3)

SECTION - C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Summarizethe elements of woven design with the suitable example. (K4)

(Or)

b) Write about satin and sateen weaves and their derivatives. (K5)

17. a) Explain Huck-a-back weave & crepe weave. (K4)

(Or)

b) Differentiate perforated fabric and Distorted thread effect. (K5)

18. a) Estimate the Comparison between warp backed and weft backed fabrics. (K4)

(Or)

b) Assess the single and two colors of extra warp fabrics. (K5)

19. a) Justify the Corduroy fabric with its neat diagram. (K4)

(Or)

Reg.No:_____

Course Code: 23UARCT102

B. Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Costume Design and Fashion

First Semester

Core: Historic Costumes and textile

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The beginning of dress was in the form of _____. (K1)

   a) Body decoration b) Body ornamentation

   c) cutting d) painting

2. _____ type of garment was worn by both men and women from Indus Valley Civilization. (K1)

   a) One piece b) Two-piece c) Draped d) Stitched

3. In Mauryan period the tradition of mix and match in jewellery with different kinds of jewellery like. (K1)

   a) Karnphul b) Apavartika c) Kundala d) Nath

4. Lucknow was most famous for its footwear in _____. (K1)

   a) Chola period b) Mughal period

   c) Pallava period d) Gupta period

5. _____ is the upper garment form Kerala. (K1)

   a) Munda b) Dhotara c) Neriyadu d) Bandy

6. Pagadi is _____ dress from Maharashtra. (K1)

   a) Lower garment b) Upper garment

   c) Head dress d) Types of Dhoti

7. Another name of bhandhani saree? (K1)

a) Ikkat b) Chanderi c) Chunari d) Himrus

8. Patola saree is famous from _____. (K1)

a) Gujarat b) Uttar Pradesh

c) Maharashtra d) Rajasthan

9. Jali work is famous in _____ Embroidery. (K1)

a) Phulkari b) Kutch c) chicken work d) Kasuti

10. Kasuti embroidery famous from_____. (K1)

a) Karnataka b) Kutch c) Lucknow d) Bengal

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Define beginning of costumes. (K2)

(Or)

b) Explain costumes from Vedic period. (K3)

12. a) Describe jewellery used in the period of Mughal. (K2)

(Or)

b) Describe the temple jewellery of south India. (K3)

13. a) Explain the costumes from Maharashtra. (K2)

(Or)

b) Describe the costumes from Nagaland. (K3)

14. a) Discuss about Kalamkari. (K2)

(Or)

b) Explain about Dacca Muslin. (K3)

15. a) Discuss about Kasuti of Karnataka. (K2)

(Or)

b) Explain about Kantha of Bengal. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Write in detail about the costumes from Mughal. (K4)

(Or)

b) Describe about the costumes from British Rule. (K5)

17. a) Describe about the jewelleries used in Pallava and Chola period. (K4)

(Or)

b) Discuss in detail about the jewelleries used in Mauryan period. (K5)

18. a) Explain in detail about the costumes from Jammu and Kashmir. (K4)

(Or)

b) Describe about costumes from Gujarat. (K5)

19. a) Explain in detail about Kashmir shawls. (K4)

(Or)

b) Differentiate Patola and Ikkat. (K5)

20. a) Explain in detail about Phulkari of Punjab. (K4)

(Or)

b) Discuss about Chikankari work of Lucknow. (K5)

Reg. No.:_____

Course Code: 22UARAL509

B.Sc. Degree Examination - November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Costume Design and Fashion

Fifth Semester

ALC: Eco Textiles

Time: 3 Hours Maximum Marks: 100

SECTION - A (10 X 2 = 20 Marks)

Answer ALL questions.

1.	Define Eco Textiles.	(K2)
2.	Tabulate physical properties of Eco Fibers.	(K3)
3.	List importance of sustainable fashion.	(K2)
4.	State the need for Eco labelling.	(K3)
5.	Name the chemicals used in Eco friendly Desizing and Scouring.	(K2)
6.	Examine about scope of Eco processing.	(K3)
7.	Recall natural dyes extracted from root and leaves.	(K2)
8.	Describe about need of mordant in natural dyeing.	(K3)
9.	State about Vegan textile products.	(K2)
10.	Examine the need for Upcycling in textile industry.	(K3)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a)	Explain about physical and chemical properties of Eco friendly fibers.	(K4)
	(Or)	
b)	Interpret how synthetic fibers can be Eco-friendly.	(K3)

12. a) Demonstrate about recycled and repurposed textiles. (K3)

(Or)

b) Interpret about future challenges in Eco textiles. (K3)

13. a) Distinguish eco friendly processing and chemical processing. (K4)

(Or)

b) Review about effectiveness ecofriendly bleaching and mercerizing process. (K3)

14. a) Demonstrate the requirement for ecofriendly dyeing and printing. (K4)

(Or)

b) Review about using natural dyes for bock and screen printing. (K3)

15. a) Discover about the effect of sales, based on consumer awareness. (K4)

(Or)

b) List of the different types of certifications required for Eco standards. (K3)

SECTION – C (5 X 10 = 50 Marks)
Answer ALL questions.

16. a) Classify the types of Eco-friendly fibers. (K4)

(Or)

b) Analyze about new ecofriendly fibers. (K4)

17. a) Evaluate about the need of life cycle assessment of a product. (K5)

(Or)

b) Analyze about green marketing effect on brand value. (K4)

18. a) Explain about scope and application of biotechnology in bio processing of textiles. (K4)

(Or)

b) Relate the effect of Eco finishing on environment. (K3)

19. a) Contrast the efficiency of Bio Mordant with chemical mordant. (K5)

(Or)

b) Classify natural dyes based their source of extraction. (K4)

20. a) Explain about different sources of textile processing. (K5)

(Or)

b) Interpret the effect of textile pollution on environment. (K4)

Reg. No.:_____

Course Code: 22UARAL508/22UASAL508

B.Sc. Degree Examinations - November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Costume Design and Fashion / Vocational

Fifth Semester

ALC: Interior Designing

Time: 3 Hours Maximum Marks: 100

SECTION - A (10 X 2 = 20 Marks)

Answer ALL questions.

1.	Define aesthetics.	(K2)
2.	Tabulate concepts of Interior Design.	(K3)
3.	List out the importance of good design.	(K2)
4.	State the types of decorative design.	(K3)
5.	Name the elements of design.	(K2)
6.	List out the types of Lines.	(K3)
7.	Recall principles of design.	(K2)
8.	Describe about emphasis in design.	(K3)
9.	Illustrate a motif suitable for a cushion cover.	(K2)
10.	Define motif.	(K3)

SECTION – B (5 X 6 = 30 Marks)

Answer ALL questions.

11. a)	Express the need for developing skill in aesthetics.	(K3)
	(Or)	
b)	Review about changing trends in interior design.	(K2)
12. a)	Explain about characteristics of decorative design.	(K3)
	(Or)	
b)	Interpret the purpose of design.	(K2)
13. a)	Demonstrate about texture and space in interior design.	(K3)
	(Or)	
b)	Illustrate the role of lines in interior design.	(K2)

14. a)	Distinguish the use of balance and rhythm in design.	(K2)
	(Or)	
b)	Review about how harmony can be achieved in a living room?	(K3)
15. a)	List out the qualities of a good designer.	(K2)
	(Or)	
b)	Discover the use of different motifs in designing.	(K3)

SECTION – C (5 X 10 = 50 Marks)

Answer ALL questions.

16. a)	Explain about the development of interior design – a historic review.	(K4)
	(Or)	
b)	Correlate good taste with planning and its role and importance.	(K3)
17. a)	Classify the types of design and elaborate.	(K3)
	(Or)	
b)	Design 10 decorative design, 2 in each type.	(K4)
18. a)	Evaluate about role of form and shape in designing interior for a room.	(K3)
	(Or)	
b)	Analyze about the effect of light and color in interior design.	(K4)
19. a)	Explain about interior design principles for commercial buildings.	(K4)
	(Or)	
b)	Relate principles of design with good design.	(K3)
20. a)	Evaluate the different career opportunities of an interior designer.	(K4)
	(Or)	
b)	Outline about man as a consumer of design.	(K3)

Reg.No:_____

Course Code: 23UARCT101

B. Sc. Degree Examinations – November 2024

(For the candidates admitted during the year 2023 - 2024 and onwards)

Costume Design and Fashion

First Semester

Core: Principles of Pattern Making

Time: 3 Hours Maximum marks: 75

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Commercial pattern was developed in _____. (K1)

   a) 1850 b) 1820 c) 1860 d) 1880

2. Commercial pattern prepared on the basis of_____. (K1)

   a) Standard measurement b) Body measurement

   c) Draping d) Pattern measurement

3. The measurement of a particular person is taken and pattern is prepared this is _____. (K1)

   a) Draping b) Individual measurement

   c) Standard measurement d) Block paper pattern

4. _____ is the process of creating a flat pattern on paper from measurements. (K1)

   a) Drafting b) Draping

   c) Body measurement d) Grading

5. List the number of standards for good fit garment. (K1)

   a) Four b) Five c) Six d) Eight

6. _____ is the art of shifting the existing darts in a sewing pattern.

   a) Grading b) Draping (K1)

   c) Dart manipulating d) Yoke

7. _____ means customising patterns to fit according to body shape. (K1)

a) Pattern alteration b) Pattern making

c) Body measurement d) Grading

8. _____ techniques are a method of manipulating pattern to form new shapes. (K1)

a) Slash and spread b) Increasing and Decreasing

c) Cutting and spreading d) All

9. For transferring lines in pattern _____ is helpful to run along the edge of the rules. (K1)

a) Carbon paper b) Tracing Wheel

c) Using butter sheet d) Stay stitching

10. _____ is straight stich sews through one layer of fabric and its most often used around a curve to prevent distortion. (K1)

a) Stay stiching b) Ease stiching

c) Using Carbon sheet d) Tracing Wheel.

SECTION – B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Define body measurement. (K2)

(Or)

b) Describe steps in preparing the fabric for cutting. (K3)

12. a) Discuss about merits and demerits of drafting. (K2)

(Or)

b) Explain about pattern making basics bodice front. (K3)

13. a) Explain steps in preparing the blouse for fitting. (K2)

(Or)

b) How to solve fitting problems in blouse. (K3)

14. a) Define pattern alteration. (K2)

(Or)

b) Discuss general principles for pattern alterations. (K3)

15. a) Define pattern layout. (K2)

(Or)

b) Discuss about rules in layout. (K3)

SECTION – C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Discuss about preparations for taking measurement. (K4)

(Or)

b) Explain about measurement for men and children. (K5)

17. a) Describe in detail about pattern making. (K4)

(Or)

b) Discuss in detail about commercial pattern. (K5)

18. a) Describe standard of good fit. (K4)

(Or)

b) Describe about checking fit of a blouse. (K5)

19. a) Explain in detail about Grading. (K4)

(Or)

b) Discuss about computer aided design. (K5)

20. a) Explain in detail about stay stitching and ease stitching. (K4)

(Or)

b) Discuss about types of layout. (K5)

Reg. No.:_____

Course Code: 22UARCT501/22UASCT501

B.Sc. Degree Examinations - November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Costume Design and Fashion / (Vocational)

Fifth Semester

Core: Knitting Technology

Time: 3 Hours Maximum Marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. The first knitting machine was developed in 1589 by _____. (K2)

   a) Rev. Willian Lee b) John Ford

   c) William Samuel d) Roger Thomas

2. Identify the example of hand knitting. (K1)

   a) Warp knitting b) Weft knitting

   c) Both (a) & (b) d) Rib knitting

3. _____is the process of fabric formation through inter looping of one or more yarn. (K2)

   a) Knitting b) Weaving c) Quilting d) Braiding

4. Jersy fabrics have a tendency to_____ at the edges. (K1)

   a) Curl b) Finish c) Ravel d) Fix

5. Jacquard systems of circular knitting machines can be divided into two techniques. (K2)

   a) Needle selector b) Dial needles

   c) Latch needles d) Both (a) & (b)

6. Which of the following knit uses alternative knit and purl stitches to form ridges? (K1)

   a) Plain b) Rib c) Jacquard d) Purl

7. _____ is longitudinal series of loops. (K2)

a) Wale b) Course

c) Knitting feeder d) Both (a) & (b)

8. Milane knit fabric is _____. (K1)

a) Light weighted b) Drapery

c) Smooth texture d) Loop structure

9. _____machines are not designed for fusing although same fusible are produced for use on these machines. (K1)

a) Steam press b) Flat bed press

c) Convey or belt press d) Electrical iron

10. In tunnel finishers _____ are removed. (K1)

a) Drying b) Wrinkles c) Stiffness d) Strain

SECTION – B (5 X 3 = 15 Marks)
Answer ALL questions.

11. a) Discuss about history of Knitting. (K2)

(Or)

b) Explain the characteristics of knitted goods. (K3)

12. a) Define interlock structures. (K2)

(Or)

b) Discuss about working of single jersey. (K3)

13. a) Symbolically represent a plain knit structure and discuss its effect on fabric properties. (K2)

(Or)

b) Define tape patterning device. (K3)

14. a) Discuss about working of tricot. (K3)

(Or)

b) Explain about end uses of warp knit fabrics. (K2)

15. a) Define blocking of knit fabric. (K3)

(Or)

b) Discuss about damp finishing. (K2)

SECTION – C (5 X 5 = 25 Marks)
Answer ALL questions.

16. a) Differentiate Weaving and Knitting process. (K3)

(Or)

b) Compare warp and weft knitting. (K4)

17. a) Describe about the parts of weft knitting machine. (K3)

(Or)

b) Discuss in detail about working of Rib and purl knitting machine. (K3)

18. a) Explain in detail about the effect of knit, Tuck and float stitches on fabric properties. (K4)

(Or)

b) Describe about Jacquard knitting. (K4)

19. a) Explain in detail about Raschel knitting machine. (K3)

(Or)

b) Describe Simplex and Milance knitting machine. (K4)

20. a) Explain in detail about yarn quality requirement for knitting. (K3)

(Or)

b) Discuss about care and maintenance of knitted fabrics. (K4)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Interpret the theories explaining the fashion of adornment. (K3)

(Or)

b) Describe the history and origin of fashion. (K4)

17. a) Relate the social psychology of fashion. (K3)

(Or)

b) Explain the consumer group in fashion cycles. (K4)

18. a) Illustrate the fashion forecasting techniques. (K3)

(Or)

b) Organize the methods of market research. (K4)

19. a) Prioritize the consumer perceptions towards self esteem. (K3)

(Or)

b) Enhance the nonverbal communication in fashion clothing. (K4)

20. a) Inculcate the Indian fashion designers Ritu Kumar. (K3)

(Or)

b) Enumerate the International fashion centers from France. (K4)

Reg.No:_____

Course Code: 22UARCT301 / 22UASCT301

B.Sc. Degree Examination - November 2024

(For the candidates admitted during the year 2022-2023 only)

Costume Design and Fashion / Vocational

Third Semester

Core: Fashion Clothing Psychology

Time: 3 hours Maximum marks: 50

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which fashion movement emerged in the 1960s and is characterized by innovative and experimental designs, often using unconventional materials? (K1)

a) Minimalism b) Grunge

c) Mod d) Avant-garde

2. Which fashion theorist introduced the concept of "semiotics" to analyze clothing and its meaning? (K1)

a) Karl Lagerfeld b) Roland Barthes

c) Coco Chanel d) Alexander McQueen

3. Which psychological theory suggests that people tend to conform to the clothing norms of their social group? (K1)

a) Maslow's Hierarchy of Needs

b) Social Identity Theory

c) Cognitive Dissonance Theory

d) Attachment Theory

4. The concept of "emotional contagion" in fashion psychology refers to_____. (K1)

a) The spread of emotions through clothing fibers

b) The idea that clothing can transmit diseases

c) The transfer of emotions and moods through clothing choices

d) The study of fashion trends in contagious diseases

5. Fashion forecasting involves predicting trends in_____.

a) Food and beverages b) Technology advancements

c) Clothing and accessories d) Political ideologies (K1)

6. Which term refers to a collection of colors that are predicted to be popular in upcoming fashion seasons? (K1)

a) Chromatic spectrum b) Color palette

c) Tint and shade array d) Hue conglomerate

7. The concept of "retail therapy" suggests that consumers engage in shopping for fashion items primarily to_____. (K1)

a) Save money

b) Stay updated with trends

c) Elevate their mood and emotions

d) Impress their peers

8. When consumers purchase fashion items to symbolize their achievements and success, it is an example of_____. (K1)

a) Emotional shopping b) Impulsive buying

c) Status consumption d) Bargain hunting

9. Who is known as the "King of Fashion" and the founder of the French luxury brand Chanel? (K1)

a) Christian Dior b) Yves Saint Laurent

c) Karl Lagerfeld d) Alexander McQueen

10. Which Italian fashion designer is famous for his colorful and eclectic designs, often featuring bold prints and patterns? (K1)

a) Giorgio Armani b) Dolce & Gabbana

c) Roberto Cavalli d) Valentino Garavani

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Describe the importance of protection theory. (K2)

(Or)

b) Interpret the immodesty theory for fashion. (K3)

12. a) Stimulate the technological and economical psychological facts. (K2)

(Or)

b) Demonstrate the stages of fashion cycles. (K3)

13. a) Generalize the activities involved in market research. (K2)

(Or)

b) Describe the collection of data and evaluation techniques. (K3)

14. a) Evaluate the consumer perceptions towards self-identity. (K2)

(Or)

b) Summarize the age and gender preference towards fashion psychology. (K3)

15. a) Prepare the realist thinking followed by the international fashion designers. (K2)

(Or)

b) Trace the activities followed in the social media towards JJ Valaya. (K3)

20. a) Discuss about the Forecasting with colour cycles. (K4)

(Or)

b) Give a detail about consumers and the psychology of colour. (K5)

Reg.No:_____

Course Code: 23UASCT301

B.Sc Degree Examination - November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Costume Design and Fashion (Vocational)

Third Semester

Core: Fashion Forecasting

Time: 3 Hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. _____ Forecasting is an in-depth exploration of the latest fashion trends. (K1)

a) Fashion b) Style c) Trend d) Colour

2. _____ is the essence of fast fashion. (K1)

a) Trend b) Design c) Market d) Fashion

3. _____ Forecasting is the practice of predicting upcoming trends based on past and present style-related information. (K1)

a) Style b) Fashion c) Colour d) trend

4. _____ Term forecast gives you a glimpse of your company's immediate future and can help you make business decisions quickly. (K1)

a) Long b) formal c) Short d) Quick

5. _____ Research involves a complete analysis of fast-changing trends, consumer behaviours, and competitive dynamics. (K1)

a) Consumer b) Design c) Sales d) Market

6. _____ report features the latest seasonal releases making waves within the fashion industry and at the consumer level as well. (K1)

a) Collection b) Trend

c) Trade publication d) Fashion editorial

7. There are_____ major methods in fashion forecasting. (K1)

a) 3 b) 2 c) 6 d) 4

8. Two models that are commonly used in _____ forecasting are a market research and the Delphi method. (K1)

a) Quantitative b) sequential

c) qualitative d) traditional

9. _____ Forecasting serves as a bridge between the creative vision of designers and the preferences of consumers. (K1)

a) Fashion b) style c) trend d) colour

10. The three dimensions of colour are Hue, Value and _____.

a) Chroma b) tint c) shade d) brightness (K1)

SECTION - B (5 X 5 = 25 Marks)

Answer ALL questions.

11. a) Discuss about trend forecasting. (K2)

(Or)

b) List out the advantage of trend forecasting. (K3)

12. a) Explain about role of Fashion forecaster. (K2)

(Or)

b) Illustrate the direction of fashion change. (K3)

13. a) State the involvement in fashion editing. (K2)

(Or)

b) Give a delebrate note on evaluating the collections. (K3)

14. a) Outline the Forecast error measures. (K2)

(Or)

b) Simplify the objective approach in forecasting. (K3)

15. a) Discuss on Color palette in fashion. (K2)

(Or)

b) List out the steps in color forecasting. (K3)

SECTION - C (5 X 8 = 40 Marks)

Answer ALL questions.

16. a) Write about theories explaining forecasting. (K4)

(Or)

b) Give a note on elements of forecasting. (K5)

17. a) Justify long term and short term forecasting. (K4)

(Or)

b) Write in detail on seasonality and cycles in Fashion forecasting. (K5)

18. a) How will you simulate Textile development and Sales forecasting. (K4)

(Or)

b) Explain in detail about Market research and Consumer research. (K5)

19. a) Justify on fashion forecasting techniques in detail. (K4)

(Or)

b) Explain in detail about forecasting methods. (K5)

19. a) Write a note on characteristics of consumer in detail. (K4)

(Or)

b) Assess on factors influencing consumer behavior. (K5)

20. a) Prepare the role and responsibilities of fashion centers and its designers. (K4)

(Or)

b) Write a detail note any three Indian fashion designers. (K5)

Reg.No:_____

Course Code: 23UARCT301

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2023-2024 and onwards)

Costume Design and Fashion

Third Semester

Core: Fashion Clothing Psychology

Time: 3 hours Maximum marks: 75

SECTION - A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. A Popular or the latest style of clothing, hair, decoration, or behaviour is known as_____. (K1)

a) Style b) fashion c) trend d) cloth

2. There are_____ theories of clothing. (K1)

a) 4 b) 5 c) 6 d) 7

3. _____ needs of fashion includes conformity, desires for variety seeking, the need to express personal creativity, and sexual attraction. (K1)

a) Physical b) social

c) psychological d) cultural

4. Obsolescence is the _____ stage of fashion cycle. (K1)

a) First b) second c) third d) last

5. Fashion _____predict upcoming trends, and present trends that are on the decline. (K1)

a) Inventor b) forecaster c) influencer d) designer

6. _____forecasting is the choosing of ranges of colours that are predicted for a particular product/market at a particular time in the time ahead. (K1)

a) Design b) market c) colour d) fashion

7. _____influences consumer behavior by impacting the perceived importance of factors such as price, durability, and suitability when buying clothes. (K1)

a) Age b) gender c) race d) income

8. Clothing is a form of_____ communication that Outfits tell others what that person does for a living. (K1)

a) Formal b) informal c) verbal d) non verbal

9. _____ Fashion designer designs or setup a style of clothing that is timeless looks, beautiful but simple cuts in clothing, fine natural fabrics, and leather shoes and handbags. (K1)

a) Classicist b) idealist c) influenced d) realist

10. Which of the following doesn't comes under the category of international fashion centre? (K1)

a) Paris b) Milan c) Japan d) New York

SECTION - B (5 X 5 = 25 Marks)
Answer ALL questions.

11. a) Explain about origin of fashion. (K2)

(Or)

b) Categorize fashion terms. (K3)

12. a) Explain about social psychology of fashion. (K2)

(Or)

b) List out factors influencing fashion changes. (K3)

13. a) Explain about color forecasting. (K2)

(Or)

b) Give the outline market research. (K3)

14. a) Write about consumer perception. (K2)

(Or)

b) Outline about Dress as nonverbal communication. (K3)

15. a) Explain about the fashion centre of Japan. (K2)

(Or)

b) Infer about the types of classicist fashion designers. (K3)

SECTION - C (5 X 8 = 40 Marks)
Answer ALL questions.

16. a) Classify theories of the origin of clothing in detail. (K4)

(Or)

b) Justify theories explaining the need for clothing. (K5)

17. a) Write about length of fashion cycles. (K4)

(Or)

b) Justify consumer groups in fashion cycles. (K5)

18. a) Write down role of a Fashion forecaster. (K4)

(Or)

b) Summarize on evaluation and trends on fashion collection. (K5)

17. a) Illustrate the types of color palettes. (K3)

(Or)

b) Explain about seasonal product lines. (K4)

18. a) Explain about product specifications. (K3)

(Or)

b) Summarize about pre and final costing. (K4)

19. a) Describe functions of fashion marketing. (K3)

(Or)

b) Explain about micro marketing environment. (K4)

20. a) Discuss about diffusion and luxury brands. (K3)

(Or)

b) Explain about market levels in fashion industry. (K4)

Reg. No.:_____

Course Code: 22UASET504

B.Sc. Degree Examination – November 2024

(For the candidates admitted during the year 2022 - 2023 only)

Costume Design and Fashion (Vocational)

Fifth Semester

Elective: Fashion Product Development and Marketing

Time: 3 Hours Maximum Marks: 50

SECTION – A (10 X 1 = 10 Marks)

Answer ALL questions.

Choose the correct answer.

1. Which types of clothing commonly associated with bespoke fashion? (K1)

a) Casual T-shirts b) Tailored suits

c) Fast fashion dresses d) Off-the-rack jeans

2. Which is typically done after the prototype is approved during fashion product development? (K2)

a) Market research b) Bulk production

c) Trend forecasting d) Product launch event

3. Which is a common method for generating design ideas during the early stages of the design development process? (K1)

a) Trend forecasting b) Brainstorming and sketching

c) Product launch event d) Retail analysis

4. Which color palette is known for its subtle and cohesive look?

a) Triadic b) Analogous (K2)

c) Complementary d) Tetradic

5. Which stage of the style adoption process involves evaluating the success of new styles and making necessary adjustments?

a) Introduction phase b) Growth phase (K1)

c) Maturity phase d) Decline phase

6. Which information is typically included on a line sheet? (K2)

a) Financial reports

b) Seasonal trend analysis

c) Product images, descriptions, sizes, colors, and prices

d) Manufacturing timelines

7. What is the term for using customer data to tailor marketing messages and offers? (K1)

a) Targeting b) Branding c) Budgeting d) Production

8. What term describes the use of celebrities or influencers to promote fashion products? (K2)

a) Content marketing b) Endorsement

c) Direct marketing d) Event marketing

9. Find out the market level focuses on offering trendy, low-cost items that change frequently. (K1)

a) Premium b) Fast Fashion c) Luxury d) Boutique

10. Select the market level is characterized by high exclusivity, high prices, and custom-made garments. (K2)

a) Haute Couture b) Mass Market

c) Fast Fashion d) Premium

SECTION - B (5 X 3 = 15 Marks)

Answer ALL questions.

11. a) Identify the role of fabric selection in the evaluation of a garment. (K2)

(Or)

b) Describe how the construction and stitching of a garment influence its durability? (K3)

12. a) Describe about merchandising calendar. (K3)

(Or)

b) Define market research. (K2)

13. a) What is line sheets? (K2)

(Or)

b) Define prototyping. (K3)

14. a) What is fashion marketing environment? (K3)

(Or)

b) State the size and structure of fashion marketing. (K2)

15. a) Define haute couture. (K2)

(Or)

b) Define made to measure. (K3)

SECTION - C (5 X 5 = 25 Marks)

Answer ALL questions.

16. a) Explain about functions and categories of new product. (K3)

(Or)

b) Summarize about the role of design in new product development. (K4)