KONGU ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)

ERODE – 638 107

M.C.A

KONGU ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)

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2018-2019

KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS)

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DEPARTMENT OF COMPUTER SCIENCE (P.G.)

MASTER OF COMPUTER APPLICATIONS (MCA) DEGREE

SCHEME OF EXAMINATION – CBCS PATTERN

(For the candidates admitted during the academic year 2017 – 2018 and onwards)

Course Code	Course Title	Inst. Hrs./Week	T/P	Examination Details				Credits
				Duration in Hours	CIA	ESE	Total Marks	
SEMESTER I								
17PBHCT101	Core I: Introduction to Computing & Web Technology	4	T	3	25	75	100	3
17PBHCT102	Core II : Computer Organization and Architecture	4	T	3	25	75	100	3
17PBHCT103	Core III : Data Structures and Algorithms	4	T	3	25	75	100	4
17PBHCT104	Core IV: Accounting and Financial Management	4	T	3	25	75	100	3
17PBHCT105	Core V: Object Oriented Analysis and Design & C++	4	T	3	25	75	100	4
17PBHCP106	Core Practical I : Data Structures Lab using C++	5	P	3	40	60	100	4
17PBHCP107	Core Practical II: IT & Web Designing Lab	5	P	3	40	60	100	4
	Total	**30**					**700**	**25**
SEMESTER II								
17PBHCT201	Core VI: Computer Graphics and Multimedia	4	T	3	25	75	100	3
17PBHCT202	Core VII: Relational Database Management Systems	4	T	3	25	75	100	4
17PBHCT203	Core VIII: Operating Systems	4	T	3	25	75	100	3
17PBHCT204	Core IX: Computer Networks	4	T	3	25	75	100	4
17PBHCT205	Core X: Mathematical Foundations of Computer Science	4	T	3	25	75	100	3
17PBHCP206	Core Practical III: Graphics and Multimedia Lab	5	P	3	40	60	100	4
17PBHCP207	Core Practical IV: RDBMS Lab	5	P	3	40	60	100	4
	Total	**30**					**700**	**25**
SEMESTER III								
17PBHCT301	Core XI: Open Source Programming	4	T	3	25	75	100	4
17PBHCT302	Core XII: Advanced Java Programming	4	T	3	25	75	100	4
17PBHCT303	Core XIII: Programming Logic and Design	4	T	3	25	75	100	3
17PBHCT304	Core XIV: Software Engineering	4	T	3	25	75	100	3
17PBHCT305	Core XV: Optimization Techniques	4	T	3	25	75	100	3
17PBHCP306	Core Practical V : Open Source Programming Lab	5	P	3	40	60	100	4
17PBHCP307	Core Practical VI : Advanced Java Programming Lab	5	P	3	40	60	100	4
	Total	**30**					**700**	**25**

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Course Code	Course Title	Inst. Hrs. /Week	T/P	Examination Details				Credits
				Duration in Hours	CIA	ESE	Total Marks	
SEMESTER IV								
17PBHCT401	Core XVI: Python Programming	4	T	3	25	75	100	4
17PBHCT402	Core XVII: .NET Programming	4	T	3	25	75	100	4
17PBHCT403	Core XVIII: Data Mining and Warehousing	4	T	3	25	75	100	3
17PBHET40.	Elective - I	4	T	3	25	75	100	3
17PBHET40.	Elective - II	4	T	3	25	75	100	3
17PBHCP410	Core Practical VII: Python Programming Lab	5	P	3	40	60	100	4
17PBHCP411	Core Practical VIII: .NET Programming Lab	5	P	3	40	60	100	4
	Total	**30**					**700**	**25**
SEMESTER V								
17PBHCT501	Core XXI: Big Data Analytics	4	T	3	25	75	100	4
17PBHCT502	Core XXII: Internet of Things	4	T	3	25	75	100	3
17PBHCT503	Core XXIII: Cloud Computing	4	T	3	25	75	100	3
17PBHET50.	Elective - III	4	T	3	25	75	100	3
17PBHET50.	Elective - IV	4	T	3	25	75	100	3
17PBHCP510	Core Practical IX: Software Testing Lab	5	P	3	40	60	100	4
17PBHCP511	Core Practical X: Mini Project Lab	5	P	3	--	100	100*	5
	Total	**30**					**700**	**25**
SEMESTER VI								
17PBHCV601	Project Work and Viva-Voce	-	-	-	-	-	200**	10
17PBHCV602							375##	15

*Mini Project Report - 80 marks; Viva-Voce – 20 marks

** Project Report - 160 marks; Viva-Voce – 40 marks

Project Report - 300 marks; Viva-Voce – 75 marks (For Lateral Entry Only)

CIA – Continuous Internal Assessment

ESE – End Semester Examinations

Programme	Total Marks	Total Credits
3 Years Programme	3700	135
Lateral Entry (2 Years)	2475	90

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LIST OF ELECTIVES

Students can choose any ONE Elective course from each Elective.

Electives for IV Semester

ELECTIVE I

S. No.	Course Name	Course Code
1.	Client Server Techniques	17PBHET404
2.	Cryptography and Network Security	17PBHET405
3.	WAP & XML	17PBHET406

ELECTIVE II

S. No.	Course Name	Course Code
1.	Compiler Design	17PBHET407
2.	E-Commerce	17PBHET408
3.	Service Oriented Architecture	17PBHET409

Electives for V Semester

ELECTIVE III

S. No.	Course Name	Course Code
1.	Organizational Behaviour	17PBHET504
2.	Mobile Computing	17PBHET505
3.	Scripting Languages	17PBHET506

ELECTIVE IV

S. No.	Course Name	Course Code
1.	Business Intelligence	17PBHET507
2.	Mobile Application Development	17PBHET508
3.	Information Retrieval Techniques	17PBHET509

ADVANCED LEARNERS COURSES

S. No.	Course Name	Course Code
1.	Computer Simulation	17PBHAL512
2.	Human Computer Interaction	17PBHAL513

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Advanced Learners Course (ALC) - Guidelines

- The number of Advanced Learners Courses (ALC) will be 2.
- These courses are optional and purely self study courses.
- These courses are offered to the students those who have secured 7.5 and above CGPA up to the respective semesters (I to IV for Regular and III & IV for Lateral Entry).
- The students can choose any one of the courses offered.
- Only End Semester Examination (ESE) will be conducted for these courses.
- 2 Extra credits are allotted for each ALC.
- The marks are obtained in ALC will not be considered for computation of CGPA.
- The students who have no standing arrear are eligible to choose ALC.
- The students who have failed in ALC (V Semester) are not eligible to reappear and choose the ALC in the succeeding Semester (VI Semester).

Dr. B. JAYANTHI
Chairman
Board of Studies – MCA
Kongu Arts and Science College (Autonomous)
Erode.

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Sem.	Course Code	CORE PAPER – XI OPEN SOURCE PROGRAMMING	Total Marks: 100		Hours Per Week	Credits
III	17PBHCT301		CIA:25	ESE:75	4	4

Objective(s): On successful completion of the course the students should have:

- Understood the basic and advanced concepts of PHP
- Understood the programming and OOP's concepts of PERL
- Understood Usage of MySQL along with PHP and PERL

Course Outcomes:

At the end of the course, students will be able to

CO1 Apply the concepts of PHP
CO2 Implement the OOP's concept in programming
CO3 Implement Database connectivity with MySQL and XML
CO4 Develop the dynamic webpage
CO5 Apply the fundamentals of PERL language

UNIT-I

Introducing PHP: History - Unique Features - Basic Development Concepts - Creating Your First PHP Script - Sample Applications. **Using Variables and Operators:** Storing Data in Variables - Understanding PHP's Data Types - Setting and Checking Variable Data Types - Using Constants - Manipulating Variable with Operators - Handling Form Input. **Controlling Program Flow:** Writing Simple Conditional Statements - Writing More Complex Conditional Statements - Repeating Actions with Loops - Working with String and Numeric Functions.

UNIT-II

Working with Arrays: Storing Data in Arrays - Processing Array with Loops and Iterators - Using Arrays with Forms - Working with Array Functions - Working with Date and Times. **Using Functions and Classes:** Creating User - Defined Functions - Creating Classes- Using Advanced OOP Concepts. **Working with Files and Directories:** Reading Files - Writing Files - Processing Directories - Performing Other File and Directory Operations.

UNIT-III

Working with Databases and SQL: Introducing Databases and SQL - Using PHP's MySQLi Extension - Adding or Modifying Data - Handling Errors - Using PHP's SQLite Extension - Using PHP's PDO Extension. **Working with XML:** Introducing XML - Using PHP's Simple XML Extension - Using PHP's DOM Extension.

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UNIT-IV

Working with Cookies, Sessions and Headers: Working with Cookies - Working with Sessions - Using HTTP Headers. **Handling Errors:** Handling Script Errors - Using Exceptions - Logging Errors - Debugging Errors. **Securing PHP:** Sanitizing Input and Output - Securing Data - Validating User Input - Configuring PHP Security.

UNIT-V

PERL (Practical Extraction and Report Language): Introduction - Advantages and Working Environment of PERL – Variables – Strings – Statements – Subroutines – Files - Packages and Modules – Object Oriented PERL.

TEXTBOOK:

1. Vikram Vaswani, PHP A Beginner's Guide, McGraw Hill Education(India) Pvt.. Ltd., Delhi, 2014. (UNIT-I to IV)
2. M.N. Rao, Fundamentals of Open Source Software, PHI Learning Pvt. Ltd., Delhi, 2015. (UNIT-V)

BOOKS FOR REFERENCE:

1. Steven Holzner, PHP: The Complete Reference, Tata McGraw Hill Publishing Company Limited, New Delhi, 2008.
2. Luke Welling, Laura Thomson, PHP and MySQL Web Development, 4th Edition, Pearson Education, 2009.
3. Steve Suehring, Tim Converse and Joyce Park, PHP6 and MySQL Bible, Wiley Publishing, 2009.
4. Steven Holzner, PERL Black Book, 2nd Edition, O'Reilly Media, Paraglyph Press, 2001.
5. R. Allen Wyke and Donald B Thomas, PERL A Beginner's Guide, McGraw Hill, 2001.

QUESTION PAPER PATTERN		
SECTION – A	**SECTION - B**	**SECTION - C**
10 × 1 = 10 Marks (Multiple Choice, Four options) Two questions from each unit	**5 × 7 = 35 Marks** (Either or choice) Two questions from each unit	**3 × 10 = 30 Marks** (Answer any three Questions) One question from each unit

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Sem.	Course Code	CORE PAPER – XIII PROGRAMMING LOGIC AND DESIGN	Total Marks: 100		Hours Per Week	Credits
III	17PBHCT303		CIA:25	ESE:75	4	3

Objective(s): On successful completion of the course the students should have:

- Understood the primary structures of writing program
- Gained knowledge to design programs logics using the essential concepts

Course Outcomes:

At the end of the course, students will be able to

CO1 Remember and view the basics of program structure
CO2 Represent programming logics using controls, loops and arrays
CO3 Modularize the programs and handle files.
CO4 Understand and define and OOP structure and GUI concepts
CO5 Draw and generate UML diagrams and database tables

UNIT-I

An Overview of Computers and Programming: Understanding Computer Systems - Understanding Simple Program Logic - Understanding the Program Development Cycle - Using Pseudo code Statements and Flowchart Symbols - Using a Sentinel Value to End a Program - Understanding Programming and User Environments - Understanding the Evolution of Programming Models. **Elements of High-Quality Programs** : Declaring and Using Variables and Constants - Performing Arithmetic Operations - Understanding the Advantages of Modularization - Modularizing a Program - Creating Hierarchy Charts - Features of Good Program Design. **Understanding Structure**: The Disadvantages of Unstructured Spaghetti Code - Understanding the Three Basic Structures - Using a Priming Input to Structure a Program - Understanding the Reasons for Structure - Recognizing Structure - Structuring and Modularizing Unstructured Logic.

UNIT-II

Making Decisions : Boolean Expressions and the Selection Structure - Using Relational Comparison Operators - Understanding *AND* Logic - Understanding *OR* Logic - Understanding *NOT* Logic - Making Selections within Ranges - Understanding Precedence When Combining AND and OR Operators. **Looping:** Understanding the Advantages of Looping - Using a Loop Control Variable - Nested Loops - Avoiding Common Loop Mistakes - Using a for Loop - Common Loop Applications - Comparing Selections and Loops. **Arrays**: Storing Data in Arrays - How an Array Can Replace Nested Decisions - Using Constants with Arrays - Searching an Array for an Exact Match - Using Parallel Arrays - Searching an Array for a Range Match - Remaining within Array Bounds - Using a for Loop to Process an Array.

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UNIT-III

File Handling and Applications: Understanding Computer Files - Understanding the Data Hierarchy - Performing File Operations - Understanding Control Break Logic - Merging Sequential Files - Master and Transaction File Processing - Random Access Files. **Advanced Modularization Techniques**: The Parts of a Method - Using Methods with no Parameters - Creating Methods that Require Parameters - Creating Methods that Return a Value - Passing an Array to a Method - Overloading Methods - Using Predefined Methods - Method Design Issues: Implementation Hiding, Cohesion, and Coupling - Understanding Recursion.

UNIT-IV

Object-Oriented Programming: Principles of Object - Oriented Programming - Defining Classes and Creating Class Diagrams - Understanding Public and Private Access - Organizing Classes - Understanding Instance Methods - Understanding Static Methods - Using Objects. **Event-Driven GUI Programming**: Multithreading, and Animation - Understanding Event - Driven Programming - User-Initiated Actions and GUI Components - Designing Graphical User Interfaces - Developing an Event-Driven Application - Understanding Threads and Multithreading - Creating Animation.

UNIT-V

System Modeling with the UML: Understanding System Modeling -What is the UML - Using UML Use Case Diagrams - Using UML Class and Object Diagrams - Using Other UML Diagrams - Deciding When to Use the UML and Which UML-Diagrams to Use. **Using Relational Databases**: Understanding Relational Database Fundamentals - Creating Databases and Table Descriptions - Identifying Primary Keys - Understanding Database Structure Notation - Working with Records within Tables - Creating Queries - Understanding relationships Between Tables -Recognizing Poor Table Design - Understanding Anomalies, Normal Forms, and Normalization - Database Performance and Security Issues.

TEXTBOOK:

Joyce Farrell, Programming Logic and Design, Comprehensive Version, Cengage Learning, Eighth Edition, 2015.

BOOKS FOR REFERENCE:

1. Tonny Gaddis, Programming Logic and Design, Pearson Education, Second Edition, 2011.
2. Jo Ann Smith, Microsoft Visual Basic Programs to accompany programming logic and design, Cengage Learning, Eighth Edition, 2015.
3. Anil Bikas Chaudhuri, The Art of Programming through Flowcharts and Algorithms, Firewall Media, India, 2005.

QUESTION PAPER PATTERN		
SECTION - A	SECTION - B	SECTION - C
10 × 1 = 10 Marks (Multiple Choice, Four options) Two questions from each unit	5 × 7 = 35 Marks (Either or choice) Two questions from each unit	3 × 10 = 30 Marks (Answer any three Questions) One question from each unit

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Sem.	Course Code	CORE PRACTICAL – V OPEN SOURCE PROGRAMMING LAB	Total Marks: 100		Hours Per Week	Credits
III	17PBHCP306		CIA:40	ESE:60	5	4

Objective(s): On successful completion of the course the students should have:

- Practical knowledge in Query Processing using MySQL
- Practical knowledge in PHP, PERL and MySQL programming

Course Outcomes:

At the end of the course, the students will be able to:

CO1 Implement the MySQL queries
CO2 Develop forms using HTML and using PHP scripts to store and retrieve data
CO3 Create a PHP Scripts for validation, file handling
CO4 Implement session and cookies
CO5 Develop an application using PERL and establish connectivity with a MySQL

1. Perform the following tasks using MySQL utility:

a) Create a database and Switch/set the default database.

b) Use the SHOW statement to find out the list of the databases and tables.

c) Execute the following MySQL commands

(i) ego(\G)

(ii) delimiter (\d)

d) Create the Supplier table with field as id, name, status and city.

e) Modify the Supplier table to add a new column 'productid'.

f) Check the properties of table.

g) Insert 3 supplier details into supplier table.

h) Find the number of suppliers in the table.

i) Find the duplicate names using self join.

j) Find the duplicate names using grouping.

k) Delete a supplier by their id=1.

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2. Create the Student Database in various programmes & books adopted for each programme using MySQL with proper primary and foreign keys.

STUDENT	regno: string	name: string	major: string	bdate: date
PROGRAMME	coursecode :int	coursename: string	dept: string	
ENROLL	regno: string	coursecode: int	sem: int	marks: int
TEXT	book-ISBN: int	book-title: string	publisher: string	author: string
BOOK_ADOPTION	coursecode :int	sem: int	book-ISBN: int	

Write the queries in MySQL for the following statements:

a. Enter at least five tuples for each relation.

b. Produce a list of text books (include Coursecode, Book-ISBN, Book-title) in the alphabetical order for courses offered by the 'CSPG' department that use more than two books.

c. List any department that has all its adopted books published by a specific publisher.

3. Write a program using PHP to categorize the names based on gender and arrange it according to the alphabets and number of words in a name.

4. Write a program in PHP to print the count of the given word as an independent word in a text file WCOUNT.TXT. For example, if the content of the file WCOUNT.TXT is "There was a peacock in the zoo. The peacock was very beautiful." and the word to be counted is 'peacock' then 2 should be the program output.

5. Create a PHP form with Name, Register number, Batch, Address, E-mail and Phone numbers text fields. On submitting, store the values in MySQL student table. Retrieve and display the data based on Name.

6. Write a PHP program to insert the details of the 4 users who register with the website by using registration form and implement validation for the given input.

7. Write a PHP program to implement the files upload and download based on the given criteria:

(i) File should be less than 50KB (ii) File should be in PDF or Word format

8. Write a PHP program to implement session and cookies.

9. Write a Perl program to keep track of the number of visitors visiting the college web page and to display the count of visitors, with proper headings.

10. Write a Perl program to insert Name, Age, Gender, Marital Status, Educational Qualification, Occupation and Annual Income information entered by the user into a MySQL table and to display the current contents of this table.

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Sem.	Course Code	CORE PAPER – XVI PYTHON PROGRAMMING	Total Marks: 100		Hours Per Week	Credits
IV	17PBHCT401		CIA:25	ESE:75	4	4

Objective(s): On successful completion of the course the students should have:

- Understood the basic concepts and various data types of Python
- Understood about the files, functions and modules
- Understood the GUI, Web and Database programming

Course Outcomes:

At the end of the course, students will be able to

CO1 Apply basic concepts of Python programming
CO2 Implement strings, list and tuples data type
CO3 Define functions and handle exceptions
CO4 Import modules and packages to create an application
CO5 Develop games and web applications using the GUI and DB-API

UNIT-I

Welcome to Python: Introduction – Origins – Features - Downloading and Installing Python - Running Python - Python Documentation - Comparing Python - Other Implementations. **Getting Started:** Program Output, the print Statement - Program Input and the raw_input()Built-in Function. **Python Basics:** Statements and Syntax - Variable Assignment – Identifiers - Basic Style Guidelines - Memory Management - First Python Programs. **Numbers:** Introduction – Integers - Double Precision Floating Point Numbers - Complex Numbers – Operators - Built-in and Factory Functions - Other Numeric Types.

UNIT-II

Sequences: Strings, Lists and Tuples: Sequences – Strings - Strings and Operators – String - Only Operators - Built-in Functions - String Built-in Methods - Special Features of Strings – Unicode – Lists – Operators - Built-in Functions - List Type Built - in Methods - Special Features of Lists – Tuples - Tuple Operator and Built-in Functions - Special Features of Tuples. **Mapping and Set Types:** Mapping Type: Dictionaries - Mapping Type Operators - Mapping Type Built-in and Factory Function - Mapping Type Built-in Methods - Dictionary Keys - Set Types - Set Types Operators - Built-in Functions - Set Type Built-in Methods.

UNIT-III

Conditional and Loops: if Statement - else Statement - elif Statement - Conditional Expressions - while Statement - for Statement - break Statement - continue Statement - pass Statement - Iterators and the iter() Function - List Comprehensions. **Files and Input / Output:** File Objects - File Built-in Functions - File Built-in Methods - File Built-in Attributes - Standard Files – Command Line Arguments - File System - File Execution.

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Errors and Exceptions: Introduction - Exceptions in Python - Detecting and handling Exceptions – Context Management - Exceptions as Strings - Raising Exceptions – Assertion - Standard Exceptions.

UNIT-IV

Functions and Functional Programming: Functions - Calling Functions - Creating Functions - Passing Functions - Formal Arguments - Variable-Length Arguments -Functional Programming - Variable Scope – Recursion – Generators. **Modules** – Modules and Files – Namespaces - Importing Modules - Features of Module Import - Module Built-in Functions – Packages - Other Features of Modules.

UNIT-V

Regular Expressions: Introduction - Special Symbols and Characters - REs and Python. **Internet Client Programming:** Internet Clients - Transferring Files - Electronic Mail. **Multithreaded Programming:** Python, Threads and the Global Interpreter Lock – thread module. **GUI Programming:** Introduction - Tkinter and Python Programming. **Web Programming:** Web Surfing with Python: Creating Simple Web Clients. **Database Programming:** Introduction - Python Database Application Programmer's Interface (DB-API).

TEXTBOOK:

Wesley J.Chun, Core Python Programming, Second Edition, Prentice Hall, 2006.

BOOKS FOR REFERENCE:

1. M.N. Rao, Fundamentals of Open Source Software, PHI Learning Pvt. Ltd., Delhi, 2015.
2. Mark Summerfield, Programming in Python 3, Second Edition, Pearson Education, 2011.
3. Michael Dawson, Python Programming for the Absolute Beginner, Third Edition, Cengage Learning, 2010.
4. Mark Lutz, Learning Python, Fourth Edition, O'Relly, 2000.

QUESTION PAPER PATTERN		
SECTION - A	**SECTION - B**	**SECTION - C**
10 × 1 = 10 Marks	**5 × 7 = 35 Marks**	**3 × 10 = 30 Marks**
(Multiple Choice, Four options)	(Either or choice)	(Answer any three Questions)
Two questions from each unit	Two questions from each unit	One question from each unit

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Sem.	Course Code	CORE PRACTICAL – VII PYTHON PROGRAMMING LAB	Total Marks: 100		Hours Per Week	Credits
IV	17PBHCP410		CIA:40	ESE:60	5	4

Objective(s): On successful completion of the course the students should have:

- Practical knowledge in implementing the basic concepts in Python
- Practical knowledge in developing a game in GUI
- Practical knowledge in Query Processing using Python with MySQL

Course Outcomes:

At the end of the course, students will be able to

CO1 Implement dynamic and interactive Python applications
CO2 Develop programs using different data types in python
CO3 Implement mail merge concepts in Python
CO4 Develop games using GUI
CO5 Develop a Python application and establish connectivity with a MySQL

1. Write a Python program that will store the schedule for a given day for a particular TV station. The program should ask you for the name of the station and the day of the week before asking you for the name of each show and the start and stop times. Once the schedule is complete it should be displayed as a table.

2. Develop a python program to illustrate the different SET operations.

3. Write a Python program to find whether the outside is it gloomy or not.

4. Write a program that generates Quiz for revision using Python.

5. Create a body of the mail content and recipients list, store it separately in a text file and implement the merge mail concept using Python.

6. Write a Python Program to check a given sentence is a pangram or not using function/Module.

7. Develop a program of threading; include methods of thread class using Python.

8. Write a python program to find the color of the text and update the score using GUI.

9. Write a Python program to create a Stay Alive Game using GUI.

10. Create an employee table to store and retrieve a data using Python with MySQL.

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