# COER University
### END SEMESTER EXAMINATION, EVEN SEM 2022-23

Time : 3 hours          Total Marks : 100
Program Name : MCA          Semester : II
Course Name : Python Programming      Course Code : MCA202

**Note:** All questions are compulsory. No student is allowed to leave the examination hall before the completion of the time.

| Q. No 1 | Attempt Any Four Parts. Each Question Carries 5 Marks. | CO | BL |
|---|---|---|---|
| (a) | Explain the difference between the "is" and "==" operators in Python. Provide an example to illustrate the difference. | CO 1 | 2 |
| (b) | Write a Python program to implement the ternary operator using conditional statements. | CO 1 | 2,5 |
| (c) | Design a program to check if a given string is a palindrome. | CO 1 | 6 |
| (d) | Generate a program that prints out a multiplication table from 1 to 10. The program should use nested for loops to generate the table. | CO 1 | 2,5 |
| (e) | What is the difference between a local and a global variable in Python? Provide an example of each. | CO 1 | 2 |

| Q. No 2 | Attempt Any Four Parts. Each Question Carries 5 Marks. | CO | BL |
|---|---|---|---|
| (a) | Write a Python function that takes a list of integers as input and returns the sum of all the even numbers in the list. If the list is empty, the function should return 0. | CO 2 | 4 |
| (b) | Define a function and give an example. | CO 2 | 1 |
| (c) | Develop a python program to find second largest element in the user define list with 5 integers. | CO 2 | 5 |
| (d) | Define a module in Python. Explain how to use the math module in Python. | CO 2 | 1 |
| (e) | Explain math and random module in python with supporting examples. | CO 2 | 2 |

| Q. No 3 | Attempt Any Four Parts. Each Question Carries 5 Marks. | CO | BL |
|---|---|---|---|
| (a) | Apply inheritance in Python with an example. | CO 3 | 3 |
| (b) | Define overloading in Python. | CO 3 | 1 |
| (c) | Define a class Rectangle with two attributes length and breadth, and overload the __str__ method to print the dimensions of the rectangle. Also, define an __add__ method to add two rectangles and return a new rectangle with the dimensions as the sum of the dimensions of the two rectangles. | CO 3 | 6 |
| (d) | Write a program to print the below pattern<br>*<br>***<br>*****<br>******* | CO 3 | 6 |
| (e) | Create a Python program that uses inheritance to implement a common interface for different types of objects. For example, create a class hierarchy for different types of shapes, each with a common method to calculate the area. | CO 3 | 6 |

| Q. No 4 | Attempt Any Two Parts. Each Question Carries 10 Marks. | CO | BL |
|---|---|---|---|
| (a) | Explain the difference between a primary key and a foreign key in a relational database. Write a Python program to create two tables with a primary-foreign key relationship and insert data into them. | CO 4 | 4 |

| | | | | |
|---|---|---|---|---|
| b) | Write a Python program that reads configuration information from a file and uses it to connect to a MySQL database. Your program should do the following:<br><br>Read the following configuration information from a file called "config.ini":<br>      host: the hostname of the MySQL server<br>      user: the username to use when connecting to the server<br>      password: the password to use when connecting to the server<br>      database: the name of the database to connect to<br>Use the information in the config file to connect to the MySQL database.<br>Execute a SELECT query to retrieve all rows from a table called "employees".<br>Display the results of the query. | CO 4 | 6 |
| (c) | Explain the process of updating data in a database using Python. | CO 4 | 2 |

| Q. No 5 | Attempt Any Two Parts. Each Question Carries 10 Marks. | CO | BL |
|---|---|---|---|
| (a) | Develop a bar plot using matplotlib. | CO 5 | 6 |
| (b) | Add labels to the x- and y-axis to draw<br>`array value ([80, 85, 90, 95, 100, 105, 110, 115, 120, 125])in x`<br>`direction.`<br>`array value ([240, 250, 260, 270, 280, 290, 300, 310, 320, 330])`<br>`in y direction.` | CO 5 | 5 |
| (c) | Write a short note on the following also provide short program for each to support the answer.<br>  1. Bokeh Library<br>  2. NumPy<br>  3. Pandas | CO 5 | 5 |

------------------------------------------------End of Paper------------------------------------------------