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Total No. of Questions : 09

Total No. of Pages : 02

**MCA (Sem.-1)
PROGRAMMING IN PYTHON**

Subject Code : PGCA-1951

M. Code : 79036

Date of Examination : 16-12-2023

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C, have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Write short notes on :

- a) What is Python's main design philosophy?
- b) How do you declare a variable in Python?
- c) What is the purpose of the print() function in Python?
- d) How can you comment a single line in Python?
- e) What does the len() function do in Python?
- f) How do you create a list in Python?
- g) What does a Python set data structure contain?
- h) How do you define a function in Python?
- i) What is a module in Python?
- j) How do you handle an exception in Python?

SECTION-B

2. What is the purpose of an indentation in Python code, and how is it different from other languages?
3. What are data types in Python and can you provide examples of each?
4. Describe the use of list, set and dictionary comprehensions in Python.
5. Write a program that finds the largest element in a list of numbers without using built-in functions like max().

SECTION C

6. Discuss the concept of Object-Oriented Programming (OOP) in Python. How can you create and manipulate classes and objects in Python?
7. Write a Python program to find the factorial of a number using a recursive function.
8. Create a Python class representing a basic calculator with methods for addition, subtraction, multiplication and division.
9. Develop a Python script that calculates the area of various geometric shapes (e.g., circle, rectangle, triangle) based on user input.

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SECTION-A

1. Write Briefly :

- (i) Write an algorithm that accepts two numbers adds them and prints the result.
- (ii) Define an iterative statement.
- (iii) List four built-in tuples in Python.
- (iv) How do you assign a value to a tuple in Python?
- (v) What are the purposes of Pass statement in Python?
- (vi) What is slicing operator in Python? Give an illustrative example.
- (vii) Write a simple function to multiply two numbers in Python.
- (viii) In Python, how the values stored in Lists are accessed? Are these values need to be of the same type?
- (ix) How do you delete a file in Python?
- (x) What is the purpose of dictionary in Python?

SECTION-B

2. What are the data types supported by Python? Explain with examples.
3. What are the important features and limitations of Python? What are the applications of this language? Explain.
4. Write a Python program that sorts a dictionary by its values.
5. Explain expressions in Python with order of evaluation with an example.

SECTION-C

6. (i) Differentiate between global and local variables.
(ii) Narrate scope of a variable in a function.
7. Using datetime module, write a Python program to print 56th day after today. Also, print which day of the week and year that day is. (Eg: 14 Nov 2017, Tuesday the 318th day of 2017).
8. How to create, raise and handle user defined exceptions in Python.
9. What is a class? How classes and objects are created in Python? Explain.

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SECTION-A

1. Write short notes on:

- a. What do you mean by precedence and associativity of operators?
- b. What are user-defined exceptions? How are they created?
- c. Write a brief note on tuples.
- d. Discuss the history of Python.
- e. How are function arguments passed by reference?
- f. Explain the usage of continue statement.
- g. What is return statement used for?
- h. How are files renamed?
- i. How is a class created?
- j. What is a global variable? How is it used?

SECTION-B

2. Discuss the main application areas of Python. Explain the installation process and environment setup of Python. List the differences between Python and other popular programming languages.
3. Write a program to illustrate difference between implicit and explicit data type conversion in Python. Discuss in detail the input and output functions available in Python.
4. What are the various iterative statements used in Python? Write a program to find the greatest number from three numbers using if-elif-else statement. Write a program to calculate the sum and average of first 10 numbers using while statement.
5. Write a detailed note on lists. Demonstrate how lists are concatenated.

SECTION-C

6. What are recursive functions? How is recursion different from iteration? Write a program to calculate the factorial of a number recursively.
7. Write a detailed note on modules explaining how they are created and imported.
8. Discuss the attributes of file object. Explain the usage of read and write methods.
9. How are the objects created and destroyed in Python? What do you mean by garbage collection?

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