

**CERTIFICATE IN MOBILE APPLICATION  
DEVELOPMENT (CMAD)  
Term-End Examination  
December, 2022**

**BCS-094 : PROGRAMMING USING PYTHON**

*Time : 3 hours*

*Maximum Marks : 75*

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**Note :** *Question number 1 is **compulsory**. Attempt any **three** questions from the rest of the questions.*

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1. (a) Briefly discuss the features of Python programming. Also compare Python with Java as a programming language. 6
- (b) Discuss the following data types of Python programming language, with suitable example code for each : 6
- (i) Lists
  - (ii) Tuples
  - (iii) Dictionaries
- (c) How do Lambda functions differ from Built-in functions ? Discuss the functionality of the following Built-in functions : 6
- (i) `bool([x])`
  - (ii) `divmod(a, b)`
  - (iii) `chr(i)`
  - (iv) `abs(x)`

- (d) Differentiate between Overloading and Overriding in Python. Give suitable code for each. 6
- (e) What do you understand by `_init_` method of a class in Python ? Discuss the utility of `_init_` method, with suitable code in Python. Support your code with suitable comments. 6
- 2.** (a) Differentiate between the following and give suitable examples for each : 8
- (i) Functional Testing and Non-Functional Testing
  - (ii) Black Box Testing and White Box Testing
- (b) What is Software Testing ? How is it related to software reliability ? Discuss the term “Boundary Value Analysis” in context of software testing. 7
- 3.** (a) What is Data Encapsulation ? Compare Public, Private and Protected access specifiers, with the help of a Python program. 7
- (b) Discuss the term Profilers in Python. How is profiling performed for a function that takes single argument ? List and explain the meaning of all the columns produced in the profile result. 8

4. (a) Write Python code to create a database file and a table, named “Test\_Details” with three columns “Test\_ID”, “Test\_Type”, “Test\_Date”. Support your code with suitable comments. 7
- (b) What are Exceptions in Python ? Differentiate between Built-in exceptions and User-defined exceptions. Discuss the set of exceptions used as base classes for many of the Built-in exceptions. 8
5. (a) Draw the Block diagram for the architecture of Kivy. Discuss the core provider, input provider and graphics components in the Kivy architecture. 8
- (b) What is Tkinter ? Create a GUI using Tkinter; to display a message “Hello World” in the message box, when the “Welcome” button is pressed. Incorporate suitable comment in your code. Also discuss the meaning and execution of each statement involved in your program. 7
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