

Total No. of printed pages = 2

**MCA 202103**

Roll No. of candidate

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**M.C.A. 1<sup>st</sup> Semester End-Term Examination**

**PROGRAMMING TECHNIQUES USING PYTHON AND JAVA**

**New Regulation (w.e.f 2020 - 21) &**

**New Syllabus (w.e.f 2020 -21)**

Full Marks - 70

Time - Three hours

The figures in the margin indicate full marks for the questions.

Answer Question No.1 and any *four* from the rest.

1. Answer the following: (MCQ / Fill in the blanks) (10 × 1 = 10)
- How main method in Java is different from other methods in a class?
  - Write the two (2) statements required to use the Scanner class in a Java Program.
  - Write the syntax of the enhanced for loop and explain.
  - Why interface and implementation methods are used in a pure class?
  - What is safe and stable state of an object?
  - How try-catch block in Java is different from Python?
  - Can overloading and overriding be written in one single pure class? Justify in short.
  - Differentiate concrete class, abstract class and interface class in Java.
  - Why dictionary is used in Python?
  - What is "first class citizen" in Python?
2. (a) How the three different attributes are used in Java? (2 × 3 = 6)
- (b) What is an event? How event is handled in a GUI program? State any three event handlers and explain their works. (1 + 1 + 3 = 5)
- (c) What is function documentation? How it is implemented in Python? Give example. (1 + 1 + 2 = 4)

[Turn over

3. (a) How the following string operations are performed in Python: (1×3=3)
- (i) Concatenation
  - (ii) Repeating string
  - (iii) Slice
- (b) On what purpose "static" keyword is used in defining a method and with a variable in Java? Write the four (4) different access / visibility modifier in Java. (2+4=6)
- (c) Write about different types of relationships exist among the classes in OOP. (3×2=6)
4. (a) What are wrapper classes in Java? Why they used. Explain how explicit and implicit data type conversion is performed in Java. (1+2+3=6)
- (b) How map function works in Python? Explain its syntax and give an example. (1+2=3)
- (c) Write the differences and applications of Set, Tuple and List in Python. (6)
5. (a) What is event handling in Java? Describe the different components in event handling in Java. (1+ 2 + 2=5)
- (b) Write down the advantages and disadvantages of Python language. (4)
- (c) Explain the different methods exist in a class. Write about the different access modifiers exist in a class in Java. (3+3 = 6)
6. (a) How jagged array is defined and implemented in Java? Show how enhanced for loop can be use to show elements of a jagged array. (2+3 = 5)
- (b) Write the benefits of inheritance? How polymorphism is achieved? Explain. (3+2=5)
- (c) How type of an object is checked in Python? What is isinstance() function? How is it used in Python? (2+1+2 = 5)
7. (a) How does substring method work in Java? Which class is required to import to use this method? (2+1 = 3)
- (b) Write down the work of layout manager. How a frame is created in Java? (3+3=6)
- (c) How Lambda function is used in Python? Show use of Lambda function with one argument and two arguments. (2+4 = 6)