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F.E.
Programming and Problem Solving
(2019 Pattern) (Semester - I) (110005)

Time :2½ Hours]   **[Max. Marks : 70**

Instructions: *1) Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.*
                    2) Figures to the right indicate full marks.
                    3) Neat Diagrams must be wherever necessary.
                    4) Assume suitable data wherever necessary.

Q1) a)   Define a function with suitable example? Explain need for a function. **[6]**

     b)   Differentiate between local and global variables. **[6]**

     c)   Write a program using function to find square of a number. **[5]**

<p align="center">OR</p>

Q2) a)   Explain the following types of function arguments with examples: **[6]**

         i)   default arguments   ii)   keyword arguments

     b)   Explain user defined module and package in Python. **[6]**

     c)   Write a program to perform addition of two numbers using lambda function. **[5]**

Q3) a)   Explain string indexing and slicing with suitable example. **[6]**

     b)   Explain the following with suitable example. **[6]**

         i)   ord() and chr() function   ii)   in and not in operators on string

     c)   What is the output of the following statement for the given string?
         st = "Python is an interpreted programming language" **[5]**

         i)   print (st [12:20])

         ii)   print (st [:: – 1])

         iii)   print ("an" not in st)

         iv)   print (st [17])

         v)   print (st [0:23])

Q4) a) Explain string format method with suitable example. **[6]**

b) Explain following string methods with example. **[6]**

    i) title()

    ii) capitalize()

    iii) lower()

c) Write a program to display a string and count characters in the string using a loop. **[5]**

Q5) a) What is programming paradigm? Explain the following Programming Paradigms in detail **[6]**

    i) Monolithic Programming

    ii) Procedural Programming

b) Explain the following concepts with example. **[6]**

    i) Object variable

    ii) class variable

c) Write a python program to create a class Employee with the attributes Name, emp_id, and salary and display data of 2 employees. **[6]**

Q6) a) Explain the following features **[6]**

    i) Class

    ii) Inheritance

    iii) Polymorphism

b) Explain class method and self-object with suitable example. **[6]**

c) Write a program to create class Car with two attributes name and cost. Create 3 objects and display information. **[6]**

Q7) a) What is a file? Explain relative and absolute path of a file. **[6]**

b) Explain the following file handling methods. **[6]**

    i) write()

    ii) tell()

    iii) seek()

c) Explain the following file access modes **[6]**

    i) r ii) w iii) a iv) rb v) wb vi) r+

<center>OR</center>

Q8) a) Explain any 3 directory methods with example. **[6]**

b) Explain text and binary files with example. **[6]**

c) Explain any 3 dictionary methods with example. **[6]**

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