2021

COMPUTER SCIENCE — HONOURS

Paper : DSE-B-2

(Programming Using Python)

Full Marks : 50

The figures in the margin indicate full marks.

*Candidates are required to give their answers in their own words
as far as practicable.*

Answer *question no.* **1** and *any four* questions from the rest.

Section - I

1. Answer *any five* questions of the following : 2×5
   (a) What is the role of the function strip()?
   (b) How can we access the middle element of a string?
   (c) What is the role of the function–index?
   (d) Explain how string formatting works in Python.
   (e) Explain with examples how break and continue statements works.
   (f) How exception handling works in Python?
   (g) How an element can be detected from a dictionary?
   (h) What are different parameters in range?

Section - II

2. (a) Discuss polymorphism with suitable example with respect to Python.
   (b) State the purpose of enumerate() in Python.
   (c) State the differences between deep copy and shallow copy. 4+3+3

3. (a) Write a program in Python that takes input from user and calculate area and perimeter of a cylinder.
   (b) Explain mutability in Python.
   (c) What does the '%' operator do in Python? 4+4+2

4. (a) What is the use of Lambda expression? Explain how the map function works.
   (b) Explain different access modifiers that are available in Python. Create a simple function which takes a string as an input and returns its length. (2+2)+(3+3)

Please Turn Over

5. (a) Create a string with a value 'Computer Science'. Print the string as "cOMPUTER sCIENCE".

    (b) How the read function works? Explain the role of seek() function in context to read.   6+(2+2)

6. (a) Write a program in Python to display the pattern given below :

<div align="center">

1

0 1

1 0 1

0 1 0 1

1 0 1 0 1

</div>

    (b) Explain different types of operators in Python with examples.   5+5

7. (a) Write a recursive function to check whether the user given input value is a magic number or not.
(Note : Say $n = 1999$ digit sum of $n \Rightarrow 1+9+9+9 = 28 \Rightarrow 2+8 = 10 \Rightarrow 1+0 = 1$

    hence n is a magic number : that is 1999 is a magic number.)

    (b) What is the utility of append function? Explain with an example.   5+5

8. (a) Write a program in Python that can read a text file and display the number of characters, number of words, lines contained in the text file.

    (b) What are the usages of '\t' and '*' operators on string in Python? When the value error occurs in Python?   4+(2+2+2)

9. (a) How a tuple is created in Python, explain with Example.

    (b) Differentiate between Syntax error and exception.

    (c) What is the purpose of break and exception?

    (d) Explain the utility of doc string.   4+2+2+2

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