2023

COMPUTER SCIENCE — HONOURS — PRACTICAL

Paper : DSE-B-2P

(Programming in Python Lab)

Full Marks : 30

Set - I

Marks Distribution

Source Code	:	15
Output	:	05
Sesional	:	04
Viva voce	:	06
		30

Answer *any one* question.

1. Write a program in Python to create a Graph class to store and manipulate graphs. Perform the functions given below :

   (a) Read an edge list file, where each edge (u, v) appears exactly once in file.

   (b) Print the degree information of each node.

   Consider the above graph as undirected, unweighted graph.

2. Write a program in Python that fills an empty list with n integers, where n is also an user input. Then find the longest chain of monotonically ascending or descending set of values in the list. Here choice of ascending or descending order must be inputted by user. Output "NIL" if no such order found in list.

   Say : i/p list [1, 3, 0, 2, 3, 4, 5]

   choice ascending, o/p [0, 2, 3, 4, 5]

3. Write a Python program to accept two file names as command line arguments where one of them is a source file and has some couple of lines of text data and rest is a blank text file. Then copy the content of source file into another adding number of vowels of the line at the end of each line. Report if source file is blank or not found.

4. Write a Python class to perform addition and multiplication of two complex number objects.

5. Write a Python dictionary that stores full name and CGPA informations of 10 final year students. Then do the following :

   (a) Print the names as initials with surname, say Arindam Biswas becomes A. Biswas.

   (b) Display details of the student with highest CGPA.

   (c) Display names of students with CGPA below 3.0 out of 10.0, if any.

6. Write a Python function that reads a text file and do the following operations :

   (a) Read any character from user input that is supposed to be found at least once in that input file.

   (b) If inputted character is not found in file, then report the issue and ask to re-enter other character.

   (c) Remove every occurrences of the inputted character, store and display the rest of file content.

7. Write a Python class to implement Queue data structures with the required functions as : enque(e), dequeue( ) and is Empty( ) that checks if the queue is empty.

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