

2026

COMPUTER SCIENCE — HONOURS

Paper : DSCC-14

(Programming in Python)

Full Marks : 75

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 three** from **Group - A** and **any five** from **Group - B**.

1. Answer **any five** questions : 2×5
- (a) What is the use of pop() method in dictionary?
 - (b) Write a lambda function to find the square of a number.
 - (c) How to perform string concatenation operation in Python?
 - (d) What is a frozen set in Python?
 - (e) What is the difference between .py and .pyc files?
 - (f) Write down purpose of findall() function in Python.
 - (g) What do you mean by class?
 - (h) What is the purpose of finally block?

Group - A

- 2. What is exception? Explain how exceptions are handled in Python with example. 1+4
- 3. Discuss how a list type can be used as a Queue in Python. Write appropriate code and example. 5
- 4. What is the use of Lambda expression? Explain how the map function works. 2+3
- 5. Write the syntax for creating a list. What is list indexing? What is the difference between append() and extend()? 1+2+2
- 6. Write a Python program to read a text file and create a dictionary containing frequency count of each word present in the file. 5

Please Turn Over

(6376)

Group - B

7. (a) Write down differences between 'pass' and 'continue' statement in Python.
(b) Write a Python program that takes two numbers and any operation type as {addition, subtraction, multiplication, division} as command line arguments and performs the corresponding operation using a function and returns the result. Write another function to display the result. 3+7
8. (a) Explain the use of nested if statement in Python with example.
(b) Explain the purpose of 'self' and '_init_()' in Python class.
(c) Write a Python program to create a list of numbers and display only prime numbers from the list using function display Prime(list). 2+4+4
9. (a) What is encapsulation?
(b) Write down the role of constructor in object creation. Give example in Python.
(c) Discuss how inheritance supports code reusability in Object Oriented Programming. 2+4+4
10. (a) Discuss the method to join two Python strings with example.
(b) Write down the use of split() in Python.
(c) How can you use the range() function to create and initialize a list in Python? 3+3+4
11. (a) What do you mean by string immutability in Python?
(b) Write a Python program that accepts a string containing at least 20 characters from user. Print the number of vowels present in it.
Then extract the first 5 characters using slicing and convert them to uppercase. Convert the remaining characters to lowercase, concatenate both parts, display the resultant string. 2+(3+5)
12. (a) How is a set different from a list in Python?
(b) Demonstrate the use of the following set methods— add(), remove(), union().
(c) Create two sets and perform the above operations with suitable output. 3+4+3
13. (a) Do you think that mutable objects are allowed as dictionary keys?
(b) Explain the zip() function in Python with a suitable example.
(c) Write a Python program to read a text file and count the number of lines present in it. Display error message using exception handling if the file does not exist. 3+2+5
14. (a) State the differences between deep copy and shallow copy.
(b) What does the '%' operator do in Python?
(c) Discuss the different modes to open a file in Python. 4+2+4