

[Total No. of Questions - 9] [Total No. of Printed Pages - 3]

Dec-24-0099 (CBCS/NEP)
CSPC-312 (Python Programming)
[CS, CSE, AILM, CS AIDS]

B.Tech. 3rd

Time : 3 Hours

Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

SECTION - A
(Attempt one question)

1. (a) What is python? How is python interpreted? What are the tools that help to find bugs? What are python-decorators? (6)
- (b) Explain the working and purpose of loops. Discuss Break and continue with example. Write a python program to convert time from 12 hour to 24 hour format. (6)

OR

2. (a) Describe the concept of exception handling in Python. How does it improve the robustness of a program, and what are the common exception-handling constructs? (6)
- (b) Explain Expression evaluation and float representation with example. Write a python program to check if a given number is Fibonacci number. (6)

SECTION - B
(Attempt one question)

3. (a) A 5 digit integer is entered through the keyboard. Write a function to calculate the sum of the 5 digit number both without recursion and using recursion. What are the cons of using functions? (6)

2

CSPC-312

- (b) Explain how to format strings in Python. Discuss the different methods of string formatting, including f-strings, the format () method, and the % operator, with examples. (6)

OR

4. (a) Explain the concept of passing parameters to functions. Discuss positional, keyword, and default parameters with examples of their usage. (6)
- (b) Discuss the various string methods available in Python. Provide examples of commonly used methods such as upper (), lower (), strip (), and replace (), and explain their functionality. (6)

SECTION - C
(Attempt one question)

5. (a) What are lists in Python, and how do they differ from other data structures such as tuples and sets? Discuss the characteristics that make lists a versatile choice for data storage. (6)
- (b) Explain how to create a dictionary in Python. What are the different ways to initialize a dictionary, and how can you include various data types as keys and values? (6)

OR

6. (a) Describe how to iterate over a dictionary in Python. What techniques can be used to loop through keys, values, or key-value pairs, and how can you use dictionary comprehensions? (6)
- (b) What is list slicing in Python? Explain how to access a subset of a list using slicing, and provide examples to illustrate its usage. (6)

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SECTION - D
(Attempt one question)

7. (a) Discuss how to access elements in a tuple. What methods can be used to retrieve individual elements or slices of a tuple? (6)
- (b) How can you read and write binary files in Python? Discuss the differences in handling text files versus binary files and provide examples. (6)

OR

8. (a) Discuss the various methods available for adding and removing elements from a set in Python. Provide examples of methods such as add(), remove(), and discard(). (6)
- (b) How can you handle large files in Python without consuming too much memory? Discuss techniques such as chunking and using generators. (6)

SECTION - E
(All questions are compulsory.
Each question carries 2 marks)

9. (i) Mention five benefits of using Python.
- (ii) Differentiate between fruitful function and void functions.
- (iii) What is the difference between python arrays and lists?
- (iv) What is the significance of immutability in tuples?
- (v) Define floor division with example.
- (vi) How is memory managed in python? (6×2=12)