Reg. No. : ☐☐☐☐☐☐☐☐☐☐☐☐

Question Paper Code : 21184

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2023.

First Semester

Civil Engineering

GE 3151 – PROBLEM SOLVING AND PYTHON PROGRAMMING

(Common to All Branches)

(Also common to all branches for B.E (Part-Time) Regulations - 2023)

(Regulations 2021)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1.   What is Algorithm?

2.   What are the simple strategies for developing algorithms?

3.   List the various single valued data types in Python.

4.   What is an indentation in python? Give an example.

5.   Write a for loop that prints numbers from 0 to 57 using the range function in python.

6.   What is the fruitful function in python?

7.   What are List Comprehension? Mention its advantages.

8.   What is a tuple in python? Give an example.

9.   Write the significance of format operator.

10. How exceptions are handled in python?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the building blocks of algorithm, explain in detail. (6)

    (ii) Discuss the various process to the smallest value in the list a = [18, 52, 23, 41, 32] and write a simple python program for the same. (10)

Or

    (b) (i) Explain the logic of the Tower of Hanoi puzzle and write a simple python program for the same and mention the time complexity. (12)

    (ii) Define the computational problem and how these problems are classified. (4)

12. (a) (i) Explain the python interpreter and interactive mode in detail. (12)

    (ii) What operator has the highest precedence in Python? (4)

Or

    (b) (i) Write a python program to calculate the distance between two points. (8)

    (ii) Explain the different Boolean and bitwise operator types in Python? (8)

13. (a) (i) Illustrate the different types of control flow statements in Python with flowcharts. (12)

    (ii) Explain any two string formats available in Python. (4)

Or

    (b) (i) Discuss the binary search algorithm with time complexity and write a python to implement the same using the recursive method. (12)

    (ii) Why are strings in Python immutable? (4)

14. (a) (i) Discuss the differences and applications of List, Tuple, and Dictionary in Python. (12)

    (ii) Explain any cloning list technique in python. (4)

Or

    (b) (i) Discuss Python dictionaries and list some of their methods. (8)

    (ii) Write a simple sorting python program to sort different data types. (8)

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15. (a) (i) Explain in detail python files, their types, functions, and operations that can be performed on files with examples. (12)

   (ii) Differentiate between Python Modules and Packages. (4)

Or

(b) (i) Write a simple python program to count the number of words in the sentence using the split method and list other count methods. (12)

   (ii) What are command line arguments in python? (4)

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