Reg. No. : | E | N | G | G | T | R | E | E | . | C | O | M |

Question Paper Code : 51224

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2024.

First Semester

Civil Engineering

GE 3151 – PROBLEM SOLVING AND PYTHON PROGRAMMING

(Common to all Branches)

(Also Common to PTGE 3151 – Problem Solving and Python Programming for
B.E. (Part-Time) First Semester – All Branches – Regulations – 2023)

(Regulations 2021)

Time : Three hours   Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate Algorithm and Pseudo code.

2. Write any two disadvantages of flowchart?

3. What is the difference between interactive mode and script mode?

4. Mention the features of lists in python.

5. What is 'len' function? Give example for how it is used on strings.

6. How to split strings and what function is used to perform that operation?

7. What is range( ) function and how it is used in lists?

8. What are the advantages of 'Tuple' over 'List'?

9. What is module and package in Python?

10. List few common exception types.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the steps involved in program development cycle.   (8)

        (ii) Write the algorithm, pseudocode and draw the flowchart for the
             following :

             (1) Guess an integer number in a range.   (4)

             (2) Towers of Hanoi.   (4)

Or

(b) (i) Explain the design structures in pseudo code. (8)

(ii) Write the algorithm, pseudocode and draw the flowchart for the following :

(1) To find the sum of square root of any three numbers. (4)

(2) To find the sum of first 100 integers. (4)

12. (a) Write the following python programs

(i) Test whether a given year is leap year or not (8)

(ii) To convert Celsius to Fahrenheit. (8)

Or

(b) Write the following python programs

(i) To find whether a given number is Armstrong number or not (8)

(ii) To print Fibonacci series. (8)

13. (a) (i) Explain call by value and call by reference in python. (8)

(ii) How to perform a user input in Python? Explain with example. (8)

Or

(b) (i) Briefly explain about function prototypes. (8)

(ii) Write a program to check whether entered string is palindrome or not. (8)

14. (a) What are the basic list operations that can be performed in Python? Explain each operation with its syntax and example. (16)

Or

(b) What is Dictionary? Explain Python dictionaries in detail discussing its operations and methods. (16)

15. (a) (i) Write a program to enter a number in Python and print its octal and hexadecimal equivalent. (8)

(ii) Explain in detail about namespaces and scoping. (8)

Or

(b) Explain in detail about Python Files, its types, functions and operations that can be performed on files with examples. (16)

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Reg. No. : | E | N | G | G | T | R | E | E | . | C | O | M |

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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