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**Question Paper Code : 41516**

B.E./B.Tech. DEGREE EXAMINATIONS, JANUARY 2022.

First Semester

Civil Engineering

GE 3151 – PROBLEM SOLVING AND PYTHON PROGRAMMING

(Common to All Branches)

(Regulations 2021)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

**PART A — (10 × 2 = 20 marks)**

1. Write an algorithm to accept two numbers, compute the sum and print the result.
2. Define an iterative statement.
3. Are comments executable statements in a Python program? How comments are included in a Python program?
4. Identify the operand (s) and operator (s) in the following expression:  
 $sum = a + b$ .
5. Name the two types of iterative statements supported by Python.
6. Define a recursive function.
7. In Python, how the values stored in a list are accessed? Should the elements of a list be of the same data type?
8. How Python's dictionaries store data? Give example.
9. Write the syntax for opening a file to write in binary mode.
10. What are the different modules in Python?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Draw a flow chart to accept three distinct numbers, find the greatest and print the result. (8)  
(ii) Draw a flow chart to find the sum of the series  
 $1 + 2 + 3 + 4 + 5 + \dots + 100.$  (8)

Or

- (b) State the Towers of Hanoi problem. Outline a solution to the Towers of Hanoi problem with relevant diagrams. (16)
12. (a) Outline the data types supported by Python with an example. (16)

Or

- (b) Name the types of operators supported by Python and outline any two with an example. (16)
13. (a) Outline the conditional branching statements in Python with an example. (16)

Or

- (b) (i) Outline while loop, break statement and continue statement in Python with an example. (12)  
(ii) Write a Python program using function to find the sum of first 'n' odd numbers and print the result. (4)
14. (a) Name the operations that can be performed on a list and outline any four with an example. (16)

Or

- (b) (i) Write separate Python programs to illustrate create, access, concatenate and delete operations in a tuple. (10)  
(ii) Write a Python program to create a dictionary and sort the content based on values in reverse order. (6)
15. (a) Name the different access modes for opening a file and present an outline of the same. (16)

Or

- (b) (i) What is an exception? Elaborate exception handling in Python. (8)  
(ii) Write a program to concatenate the contents of two files into a single file. Get the input for two files from the user and concatenate it. (8)