

Reg. No. :

**Question Paper Code : 20695**

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2022.

First Semester

Civil Engineering

GE 8151 — PROBLEM SOLVING AND PYTHON PROGRAMMING

(Common to All branches)

(Regulations 2017)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Differentiate pseudo-code and algorithm.
2. Define recursion.
3. Differentiate interpreter and compiler.
4. Write a Python code to swap two numbers.
5. Write down the syntax of if and if-else statements.
6. With the help of an example, define array and create an array to print your name.
7. What are the advantages of tuple over list?
8. Define dictionary with an suitable notation.
9. Differentiate the concept of global and local values.
10. In Python, how do you use import statements and packages?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the building blocks of an algorithm ? Explain.  
(ii) Write an algorithm to find the minimum in a list.

Or

- (b) (i) What are the components of constructing a flowchart? Explain.  
(ii) Brief about the simple strategies for building an algorithm.

12. (a) With appropriate examples, go over the various operators in Python in detail.

Or

- (b) Develop a Python program to solve the following problems  
(i) Create a programme that converts Fahrenheit degrees to Celsius degrees  
(ii) Create a programme that swaps the values of two variables without using any temp variables.

13. (a) What is the difference between call by value and call by reference, and how do you illustrate it with an example?

Or

- (b) Create a user defined python programme to create a simple calculator. Using the users input to evaluate the following arithmetic functions: add, subtract, multiply, and divide.

14. (a) Explain the fundamental List Operations in depth, including the required syntax.

Or

- (b) Create a python program that uses a user-defined sort technique function to sort a 10-element array.

15. (a) Discuss with suitable examples

- (i) Open a File  
(ii) Write to a File  
(iii) Close a file.

Or

- (b) Write a python program with proper syntax to count word, lines, and vowels in a file.