Code No: **20CS4T04** **R20**

II B. TECH II SEMESTER REGULAR EXAMINATIONS, JUNE - 2022
SCIENTIFIC COMPUTING USING PYTHON
(CIVIL ENGINEERING)

Time: 3 hours Max. Marks: 70

Note: Answer **ONE** question from each unit **(5 × 14 = 70 Marks)**

UNIT-I

1. a) Explain the history of Python evolution. [7M]
   b) Explain about keywords used in Python. [7M]

(OR)

2. a) What are 4 built-in numeric data types in Python? Explain. [7M]
   b) How does a computer run a python programming? Explain with a neat diagram. [7M]

UNIT-II

3. a) What are Python assignment operators? Explain [7M]
   b) What are the different loop control statements available in Python? Explain with suitable examples. [7M]

(OR)

4. a) Write a Python program that calculates number of seconds in a day. [7M]
   b) Explain the precedence of operators in Python. [7M]

UNIT-III

5. a) Describe about variable length arguments with suitable program. [7M]
   b) What is a list in Python? How to create nested lists? Demonstrate how to create and print a 3-dimensional matrix with lists. [7M]

(OR)

6. a) What is a tuple? How literals of type tuple are written. [7M]
   b) Explain about fruitful functions with examples. [7M]

UNIT-IV

7. a) List out the types of modules and explain any two types in detail. [7M]
   b) What is a package? Explain how to install a packages via PIP. [7M]

(OR)

8. a) Write the applications of Matplotlib. [7M]
   b) Demonstrate pandas and Numpy module with examples. [7M]

UNIT-V

9. a) Write a program to draw shear force and bending moment diagram of a cantilever with point load at the centre. [7M]
   b) With an example demonstrate different line styles in a single graph. [7M]

(OR)

10. a) Define data visualization. Illustrate how data visualization is better than the traditional text based data methods. [7M]
    b) How gridlines can be used in Matplotlib. Explain it with the function and different options available. [7M]

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