Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 90698

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 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. What the advantages and disadvantages of recursive function?
2. What are the building blocks of algorithms?
3. Evaluate the expression: 5+5//5–5*5**5%5.
4. Define arguments and parameters with example.
5. Differentiate break and continue statements.
6. What are fruitful functions and void functions?
7. Consider the string s ='Anna Univ'. What will be printed for the statements list(s) and s.split( )?
8. Perform push and pop operations using list.
9. Differentiate module and package.
10. How does python handle exceptions?

PART B — (5 × 16 = 80 marks)

11. (a) Discuss about the different problem solving strategies. (8+8)

Or

(b) Write down the iterative and recursive version of algorithm for solving the following problem: insert a card in a list of sorted cards. (8+8)

12. (a) (i) List the advantages of functions. Discuss about the types of functions python support with example. (4+6)

(ii) Write a python program to convert the first letter of every word into capital letter. (6)

Or

(b) (i) What are the types of python function arguments? Justify that a python function is always called by value. (5+5)

(ii) Write a python function to create and return a list containing tuples of the form (x,x^2,x^3) for all x between 1 to 10. (6)

13. (a) (i) List the properties of python strings and write down the functionalities of the following string modules. (2 +8)

isalnum( ), strip( ), join( ), str( )

(ii) Generate 10 integers randomly and store them in a list. Get a number from the keyword and display the position of all occurrences of the number in the list. (6)

Or

(b) (i) When to use recursion? Write a python program for binary search using recursion. (4+6)

(ii) What is string slicing in python, Write output for the following: (2+4)

```
s = 'Welcome to python'
s1 = s[::-1]
print("s1:", s1)
s2 = s[-16 : -4]
print("s2:", s2)
s3 = s[1 : 17 : 2]
print("s3:", s3)
s4 = s[-14 : 10]
print("s4:", s4)
```

14. (a) (i) List and explain any five list operations with example. (10)

(ii) A list contains names of circuit and non-circuit branches as its elements. Circuit branch names are stored as tuples. Write a python program to find out number of circuit and non-circuit branches the list. (6)

Or

(b) (i) Create a dictionary containing names of students and marks obtained by them in three subjects. Write a program to replace the marks in three subjects with the total in three subjects, average marks and report the topper of the class. (10)

(ii) List the properties of dictionaries. (6)

15. (a) Write a python program to read student's record which contains name and age of students and display them in sorted order by name. (16)

Or

(b) Write a python function count_words( ) to count the words "this" and "these" present in a text file and a line_count( ) function to count the number of lines which is not starting with an alphabet "T" in the same file. (16)