

Code No: 181AE

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech I Year I Semester Examinations, January/February - 2024

C PROGRAMMING AND DATA STRUCTURES

(Common to CE, ME, AE, BT, MIE, PCE)

Time: 3 Hours

Max. Marks: 60

**Note:** This question paper contains two parts A and B.i) **Part - A** for 10 marks, ii) **Part - B** for 50 marks.

- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of **ten questions** (numbered from 2 to 11) **carrying 10 marks each**. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

**PART - A****(10 Marks)**

- 1.a) What is computer language? [1]
- b) What is an identifier? [1]
- c) Justify given statement, "array is static data structure". [1]
- d) Give any two array applications. [1]
- e) What is dangling pointer? [1]
- f) How to read a character from console? [1]
- g) What are text streams? [1]
- h) How do you access structure elements? [1]
- i) What are queue operations? [1]
- j) What is abstract data type? [1]

**PART - B****(50 Marks)**

2. What are primitive data types? Explain about each data type in detail with examples. [10]
- OR**
3. What is bitwise operator? Explain each bitwise operator with example and write a C program to illustrate use of bitwise operators. [10]
- 4.a) Write a C program to print below data:  
1  
23  
456  
78910
  - b) Distinguish between if-else and switch statement. [5+5]
- OR**
- 5.a) Write a recursive function to find factorial of given number.
  - b) Write a C program to find sum of digits of a given number. [5+5]

- 6.a) What is pointer to a pointer? How is it created? In which situations we create a pointer to pointer?
- b) What are memory allocation functions? Explain them. [5+5]
- OR**
7. List and explain string manipulation functions with examples. [10]
- 8.a) Write a program to merge the contents of two files.
- b) Write a C program which uses a structure to store information about 10 students and display the contents of those students whose branch is "cse". [5+5]
- OR**
9. Give example for type def and enumerated types and explain their significance. [10]
10. Simulate selection sort on given data and write C program for it: [10]  
3, 2, 6, 7, 1, 8
- OR**
11. What is a stack? Show array and linked representation of stack. What are the applications of stacks? [10]

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