

**R18**

Code No: 151AC

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech I Year I Semester Examinations, December – 2019/January - 2020

PROGRAMMING FOR PROBLEM SOLVING

(Common to CE, ME, ECE, EIE, MCT, MMT, AE, MIE, PTM)

Time: 3 hours

Max. Marks: 75

Note: This question paper contains two parts A and B.

Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b as sub questions.

**PART – A**

(25 Marks)

- 1.a) Name any five features of C programming Language. [2]
- b) How to declare, define and initialize a pointer? [2]
- c) Define preprocessor directive. [2]
- d) What is meant by function prototype? [2]
- e) What are the advantages of bubble sort? [2]
- f) Write any two bitwise operators with examples. [3]
- g) What are the applications of an array? [3]
- h) Differentiate between text files and binary files. [3]
- i) What are the limitations of using recursive functions? [3]
- j) How does linear search differ from binary search? [3]

**PART – B**

(50 Marks)

- 2.a) What is the importance of precedence and associativity in evaluating an expression?
- b) How is 'switch' used as a multi-way selection statement? Explain with suitable example. [5+5]

**OR**

- 3.a) State the purpose of unary and conditional operators.
- b) What is the significant of 'break' and 'continue' statements?
- c) Discuss about command-line arguments. [10]

- 4.a) Using two dimensional array, write a C program to find the inverse of a 2x2 matrix.
- b) Demonstrate the usage of self referential structures using a program. [5+5]

**OR**

5. List and explain various basic string functions available in C. [10]
6. Demonstrate the following functions with a correct syntax and code:  
a) ftell()    b) fseek()    c) rewind() [10]

**OR**

- 7.a) Write a C program that prints a specified number of records from the beginning of a given file.
- b) Write a C program to illustrate define, undef directives. [5+5]

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8. Discuss various methods of passing parameters to functions with suitable C code. [10]

**OR**

9.a) How to handle memory leaks and dangling pointers?

b) Write a C program that uses `calloc()` to create a memory block for storing `n` integers and print the stored contents. [5+5]

10.a) Write an algorithm for finding the maximum number of an array elements.

b) Explain how linear search works and mention its pros and cons. [5+5]

**OR**

11.a) Write a C program to demonstrate how insertion sort works.

b) Write a C program to find whether a given number is prime or not. [5+5]

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