R20 Regulation *Subject code:* 3E1AI

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech I Semester Regular Examinations, July 2021

C PROGRAMMING FOR PROBLEM SOLVING

(Common to ME,ECE,CSE,CSE(AI&ML),CSE(DS) & IT)

Maximum Marks: 70 Date:18.07.2021 Duration: 3 hours

Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

1 Construct infinite loop using while.
2 Solve and evaluate the expression: (x>y) + ++a || !c
3 Summarize how multidimensional arrays are useful.
4 Demonstrate which technique of searching an element in the array do you prefer to use and in which situation.
5 How can you return more than one value from a function?
6 List out the disadvantages of pointers.
7 Define self-referential structure.
8 Solve: Is it possible to initialize the structure members during the structure definition? Justify your answer.
9 What are the modes of file accessing?
10 Define command line argument. State its applications.

Part-B

Answer All the following questions. (5X10M=50 Marks)

11 a) Construct a program to print the following pattern: (7M)

```
1
1 2 1
1 2 3 2 1
1 2 3 4 3 2 1
1 2 3 4 5 4 3 2 1
```

b) Apply swapping of two numbers without using a temporary variable concept to write a program. (3M)

OR

12 a) Build a program to perform addition, subtraction, division, integer division, multiplication, and modulo division on two integer numbers using switch case. (7M)
b) Construct a program to find the largest of two numbers using ternary operator. (3M)

13 a) Develop a program to find the second largest number using an array of n numbers using sorting techniques. (5M)

b) Build a program to find whether the array of integers contains a duplicate number. (5M)

OR

14 a) Utilize binary search technique, Write a program. (5M)

b) Write a Recursive function for Factorial of a given number. (5M)

15 a) Construct a C program using pointers to read in an array of integers and print its elements in reverse order. (5M)

b) Experiment with Dynamic memory allocation programs. (5M)

OR

16 a) Solve Towers of Hanoi problem with c program. (7M)

b) Demonstrate how are arrays passed to the functions. (3M)

17 a) Construct Mark sheets for students containing name, register number, marks of subjects. Write a program to read the details of name, register number, marks of subjects for 25 students, calculate the percentage and display the name, register number, marks and percentage of all students, display the highest percentage student's details. (8M)

b) Build a structure to store date, which includes day, month and year. (2M)

OR

18 a) Build a structure called book with book name, author name and price. Write a C program to read the details of book name, author name, and price of 200 books in a library and display the total cost of the books and the book details whose price is above Rs.500. (8M)

b) Make use of a program to differentiate between Union and structure concept. (2M)

19 a) Construct a program for preprocessor directives. (5M)

b) Write a C program to copy contents of one text file to another. (5M)

OR

20 a) Define binary file with examples. (5M)

b) Build a C program to perform bank transactions using random file accessing. (5M)