R20 Regulation *Subject code: 3E2AC*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech II Semester Regular Examinations, September 2021

C PROGRAMMING FOR PROBLEM SOLVING

(Common to CE & EEE)

Maximum Marks: 70 Date:15.09.2021 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 Define bit and byte. How these are useful in computer programming?
2 Explain conditional, arithmetic and relational operators?
3 Differentiate between one dimensional and two-dimensional arrays.
4 What is a recursion? Write its advantages.
5 What are the advantages of arrays in C programming?
6 Is it possible to assign a constant to a pointer variable? Illustrate.
7 Differentiate between structure and union
8 Write the importance of typedef.
9 Differentiate between binary file and text file.
10 What is the use of fseek () function?

Part-B

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

11 a) What are bitwise and logical operators? Explain about bitwise and logical operators with suitable programming example. (5M)
b) What are variables and constants? What are the rules for declaring the variables? (5M)

OR

12 a) Write a C program to illustrate switch and if-else statements. (5M)
b) Discuss increment and decrement operators available in C. (5M)

13 Explain Stacks and Queues with suitable examples. (10M)

OR

14 a) Explain in detail storage classes available in C language with examples. (5M)
b) Write a program to implement matrix multiplication using arrays. (5M)

15 a) Explain pointers to functions in detail with suitable examples. (5M)
b) Write a C program to find sum of the digits of any given positive integer. (5M)

OR

16 a) Illustrate different ways of declaring and initializing arrays and string variables. (5M)
b) Explain memory allocation functions in detail. (5M)

17 a) What is a union? For what kind of applications are unions being useful? Explain the unions with an example. (5M)
b) Write a program to find second highest and smallest number in the given array. (5M)

OR

18 a) Is it possible to nest the structure? Explain with example. (5M)
b) Explain the command line arguments with an example. (5M)

19 a) Explain about file I/O functions. (5M)
b) Explain the following with example:(i) rewind( ) (ii) fseek() (iii) ftell( ) (5M)

OR

20 a) Write a C program to create a text file and read the text from the created file and count the number of vowels and consonants present in the file. (5M)
b) Write a C program to read and display the contents of a file. (5M)