Regulation R20

Subject code: 3P3FC

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY
(Autonomous, Accredited by NAAC with 'A' Grade)

B. Tech III Semester Supplementary Examinations, July 2022

DATA STRUCTURES

(Information Technology)

Maximum Marks: 70 Date:29.07.2022 **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 10 questions. Answer any 5 questions which carries 10M.
4. Each question carries 10marks and may have a, b, c, d as sub questions.

Part-A

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

1 Define function
2 Define Polymorphism
3 State different types of linked list.
4 List the applications of stack
5 What is Binary Tree?
6 What is Max Heap
7 Define hash function.
8 What is merge sort
9 Write short notes on DFS?
10 What is Red- Black Trees?

Part-B

Answer all the questions (5 X 10M 5=50Marks)

11 Explain parameter passing methods with an example. [10]

OR

12 What is inheritance? Explain various types of inheritance with an example program. [10]

13 Explain circularly linked list and its operations with an example. [10]

OR

14 Convert the following expression into postfix expression using stack
a.((A+B)*C-(D-E)^(F+G))
b. (A+B)*(C$(D-E)+F)-G [10]

15 Explain tree traversals with an example. [10]

OR

16 Define a Max heap. Construct a max heap for the following: [10]
12,15,9,8,10,18,7,20,25

17 Explain quick sort with suitable example. [10]

OR

18 Rearrange the following numbers using quick sort procedure. 42,12,18,98,67,83,8,10,71. [10]

19 Construct an AVL tree for the following elements 10,20,15,3,2,16,18,26. [10]

OR

20 Explain Red-Black Trees and AVL Trees with suitable example? [10]