TDC Even Semester Exam., 2019

COMPUTER APPLICATION

(Honours)

(2nd Semester)

Course No. : BCAC–203

(Data Structure)

Full Marks : 35
Pass Marks : 12

Time : 2 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, selecting **one** from each Unit

UNIT—I

1. *(a)* What are the various operations that can be performed on an array? List and describe them. 5

(b) What does arr 3[2][5][3] mean? How many elements does it hold? 2

2. *(a)* What are the differences between array and linked list? 4

(b) Write a short note on 'Big O' notation. 3

UNIT—II

3. Define 'stack' with an example of insertion and deletion of elements. What are the operations that can be performed on a stack? Write a program to depict these operations. 7

4. Explain the following : 3+2+2=7

(a) Priority Queue

(b) Circular Queue

(c) Recursion

UNIT—III

5. What are the rules to traverse a non-empty binary tree in pre-order, in-order and post-order? What are the two ways by which we can represent a binary tree? 5+2=7

6. Write a program that finds the height of a binary tree. 7

UNIT—IV

7. *(a)* Write a program that finds the number of vertices in a graph. 5

(b) What is the difference between depth first search and breadth first search? 2

8. Explain linear search and binary search with examples. 3½+3½=7

UNIT—V

9. With an algorithm, explain how selection sort works. 7

10. What is bubble sort? What is its working principle? Explain with an example. 7

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