

Total No. of Questions : 8]

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Roll No

IT-303-CBGS
B.Tech., III Semester
Examination, December 2020
Choice Based Grading System (CBGS)
Data Structure

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

iii) In case of any doubt or dispute the English version question should be treated as final.

1. a) Define Pointers. Give advantages and disadvantages of Pointers.

b) Describe Tower of Hanoi Problems.

2. What do you mean by link list? Write a algorithm to insert and delete a node in singly linked list.

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3. a) Define data structure. Give its classification. Also explain
- b) Explain recursive algorithm. Write an algorithm to implement factorial of a number 'n'.
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4. a) Compare singly linked list and two-way header list.
- b) Insert these keys into an AVL tree:
149, 342, 206, 444, 523, 607, 301, 142, 183, 102, 157
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149, 342, 206, 444, 523, 607, 301, 142, 183, 102, 157
5. a) What are the advantages and disadvantages of circular linked list?
- b) Write an algorithm to insert a new node in linked list.
6. a) What do you mean by Array? Describe the storage structure of Array. Also explain various types of Array in detail.
- b) Show the result of inserting 10, 12, 1, 14, 6, 5, 8, 15, 3, 9, 7, 4, 11, 13, and 2, one at a time, in to an initially empty binary heap.
- 4, 11, 13, 2,

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Contd...

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7. a) Explain the working of merge sort and sort the following elements:
70, 20, 30, 40, 10, 50, 60

70, 20, 30, 40, 10, 50, 60

- b) Differentiate between AVL Tree and Binary Tree.
AVLQ' > Binary

8. Write short notes on.
a) Circular linked list
b) AVL tree
c) Sparse matrix

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