

BACHELOR OF TECHNOLOGY (CBCS) (2020 COURSE)
Computer Science & Engineering
B.Tech.Sem - III :SUMMER : 2023
SUBJECT : NON-LINEAR DATA STRUCTURES

Day : Tuesday

Time : 02:30 PM-05:30 PM

Date : 09-05-2023

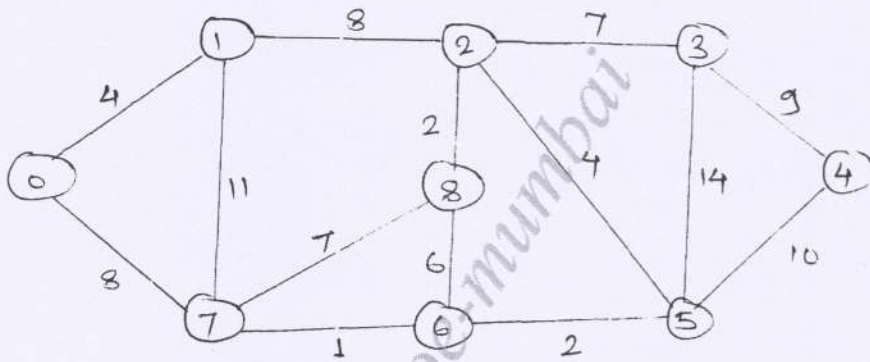
S-24292-2023

Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 4) Assume suitable data if necessary.

- Q.1 What is meant by minimum spanning tree? Develop MST using Kruskal's [10] algorithm.



OR

- Q.1 What is graph? Explain the different graph traversal algorithm with example. [10]
- Q.2 What is tree traversal in data structures. Draw tree for the following: [10]
In order : $D \rightarrow B \rightarrow E \rightarrow A \rightarrow F \rightarrow C \rightarrow G$
Preorder : $A \rightarrow B \rightarrow D \rightarrow E \rightarrow C \rightarrow F \rightarrow G$

OR

- Q.2 Explain Threaded binary trees with suitable examples. Also give advantages [10] and disadvantages of the same.
- Q.3 What is B+ Tree? Give its use, advantages and applications. Differentiate [10] between B+ Tree and B Tree.

OR

- Q.3 What is AVL tree? Build an AVL tree with the following values: [10]
15, 20, 24, 10, 13, 07, 30, 36, 25.

P.T.O.

- Q.4 Consider the following list of unsorted numbers which are to be sort using heap sort. [10].
82, 90, 10, 12, 15, 77, 55, 23.

OR

- Q.4 What is Huffman code, which heap is used in Huffman coding? [10]

| Character | Frequency |
|-----------|-----------|
| a | 10 |
| b | 05 |
| c | 02 |
| d | 14 |
| e | 15 |

- Q.5 What is hashing? What is the role of hash function? Explain the various types of hashing. [10]

OR

- Q.5 Write short note on Collision Resolution Strategies. [10]

- Q.6 Explain Boyer Moore Algorithm with example. [10]

OR

- Q.6 What is KMP algorithm, give its complexity? Explain the same with example. [10]

* * * *

090523-e-coe-mumbai