BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - III Computer Science & Engineering : WINTER : 2024
SUBJECT: NON-LINEAR DATA STRUCTURES

Day : Tuesday
Date : 03/12/2024

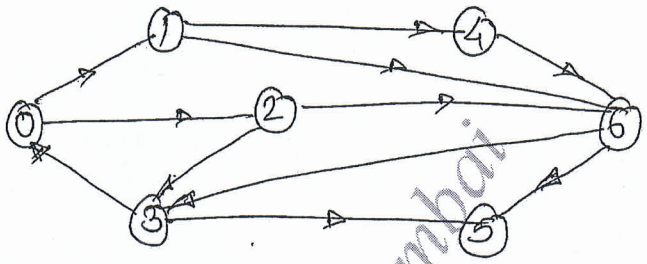
W-25310-2024

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.:

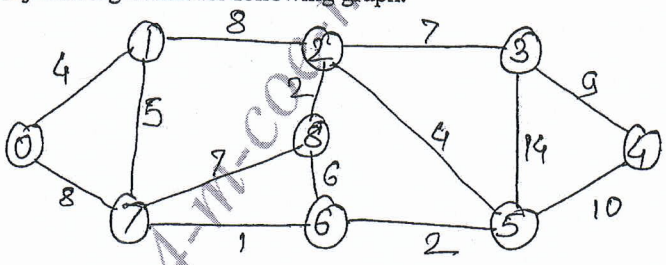
1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Use of non-programmable **CALCULATOR** is allowed.

Q.1 Define DFS of graph. and show the working of non-recursive DFS algorithms on following graph. **(10)**



OR

Explain Dijkstra algorithm for following graph. **(10)**



Q.2 Which are tree traversal methods. Construct binary tree for following values and apply traversal method on it. **(10)**
57, 18, 37, 92, 73, 87, 97, 15, 42, 39

OR

Explain Huffman algorithm in data structure. Construct a Huffman tree by using these nodes **(10)**

Values	Frequency
A	05
B	25
C	07
D	15
E	04
F	12

Q.3 What is Red Black Tree? What are the properties of Red Black Tree? Create a Red Black Tree by inserting the following sequence of numbers 8, 18, 5, 15, 17, 25, 40, and 10 **(10)**

OR

Explain AVL tree in detail. **(10)**

Q.4 Explain how to implement heap and apply insertion and deletion operations on it. **(10)**

OR

Explain binary heap with example. (10)

Q.5 List and explain collision Resolution Strategies. (10)

OR

Explain concept of hashing and discuss on rehashing with example. (10)

Q.6 Explain Brute- force pattern matching. (10)

OR

Explain how to implement dictionaries. (10)

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