Seat No.	

[5559]-192

S.E. (Computer) (Second Semester) EXAMINATION, 2019

ADVANCED DATA STRUCTURES

(2015 PATTERN)

Time : 2 Hours   **Maximum Marks : 50**
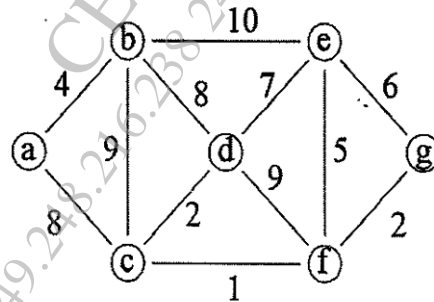
N.B:-
(i) Answer four questions
(ii) Draw neat diagrams wherever necessary
(iii) Figures to the right indicates full marks
(iv) Assume suitable data, if necessary

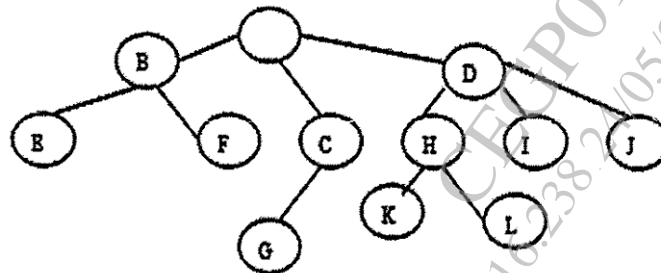1 **a** Generate binary tree for the following pre-order and in-order traversals: **6**
   Inorder : E A C K F H D B G
   Preorder : F A E K C D H G B

1 **b** Construct MST from the given data using Prims Algorithm.   **6**
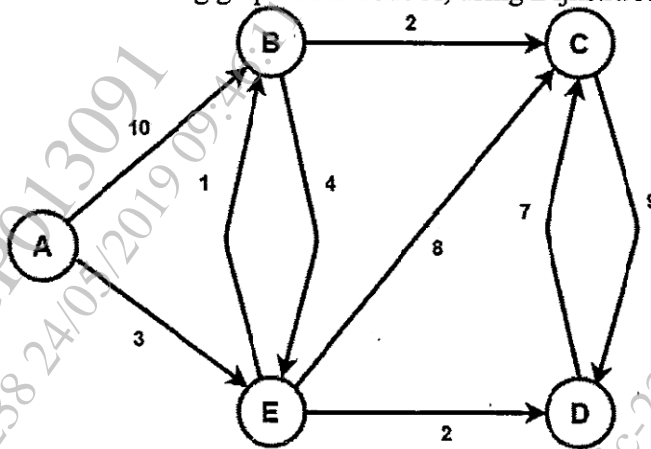

OR

2 **a** Convert the given general tree to its equivalent binary tree.   **6**

P.T.O.

2 b Find the shortest path in the following graph from node A, using Dijkstra Algorithm.   **6**

3 a Construct AVL tree for following sequence of keys   **6**
MAR, MAY, NOV, AUG, APR, JAN, DEC, JULY

3 b For the given set of values 35, 36, 25, 47, 2501, 129, 65, 29, 16, 14, 99. Create a hash table with   **6**
size 15 and resolve collision using open addressing techniques.

OR

4 a Find the Optimal Binary Search Tree for the given data using Dynamic Programming approach.   **6**
Explain the solution stepwise.

Index	0	1	2	3
Data	10	20	30	40
Frequency	4	2	6	3

4 b What is hash function? What are different characteristics of good hash function? Explain six   **6**
different types of hash function?

5 a Insert the following keys to a 5-way B tree   **8**
A G F B K D H M J E S I R X C L N T U P

5 b Explain with example   **6**
     i.   Red Black Tree
     ii.   Trie Tree

OR

6 a What is B+ tree? Construct a B+ tree of order 4 for the following data.   **8**
1, 4, 7, 10, 17, 21, 31, 25, 19, 20, 28, 42

6 b Explain with example   **6**
     i.   KD Tree
     ii.   Splay Tree

7 a Describe Indexed Sequential Access file organization method in detail. Also state the advantages **6** and disadvantages.

7 b Write pseudocode for two-way merge sort. **6**

<div align="center">OR</div>

8 a Describe Sequential Access file organization method in detail. Also state the advantages and **6** disadvantages.

8 b What is Linked Organization? Describe inverted Files and cellular partitions w. r. t. Liked **6** organization.