Department of Computer Science & Engineering

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End semester Examination 2018
MCA II semester
Data structure **CS32101**

M.M : 60 Time 180 Minutes

Attempt ALL Questions
Show all the intermediate steps if required

Question 1[6]

A programming language provides two functions ALLOCATED (X) and FREE(X) for the maintenance of the linked list structure. ALLOCATED (X) allots a node with address X for use in the linked list structure and FREE(X) frees the node with address X used in the application to the avail list. Assuming the AVAIL list to be maintained as a linked stack, **write procedures to implement the functions ALLOCATE and FREE**

Question 2[6]

Write short note on any **two** of the following
(a) Trie (b) Red Black Tree (c) Threaded Binary Tree

Question 3[6]

4. Explain height balanced tree ? Create a AVL tree using following data in order 1,26,2,25,3,24,4,23,5,22,6

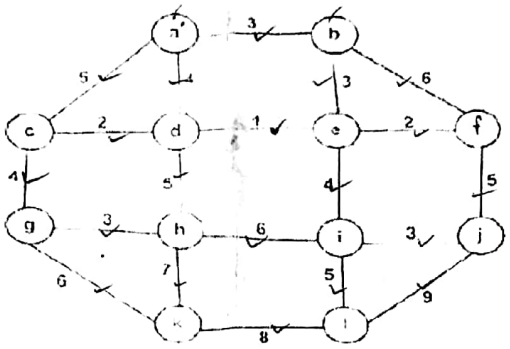
Question 4[10]

5. (a) What are properties of multiway search trees? create a 5 way B Tree of the following data : 50,72,96,94,107,26,12,11,92,10,25,51,16,17,95.

(b) Compare B tree and B+ Tree

Question 5[8]

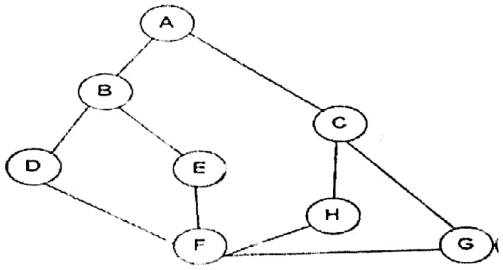
6. Consider the graph given below. Find the minimum spanning tree of this graph using (a) Prim's algorithm, (b) Kruskal's algorithm,.



(b) Compare Between Prim's and Kruksal's algorithm

Question 6[8]

(a) Differentiate Between DFS and BFS . Write algorithm for implementing DFS.
(b) Give adjacency matrix and adjacency list representation of the graph given below



Question 7[16]

(a) A doubly linked list can be made circular by adjusting appropriate pointers. Suggest the pointer adjustment.
(b) Write an algorithm to search an item from a sorted linked list.
(c) Write down C Program for Sequential search and Binary search Technique.
(d) Evaluate following expression P: 5,6,2, +,*,12,4,/,-