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Max. Marks : 80

4. a) What is doubly linked list? Write an function to perform following operation on doubly linked list. 8
- i) insert a node at the end
 - ii) display the nodes
- b) Write a short note on : 6
- i) Circular linked list
 - ii) Dynamic memory allocation.

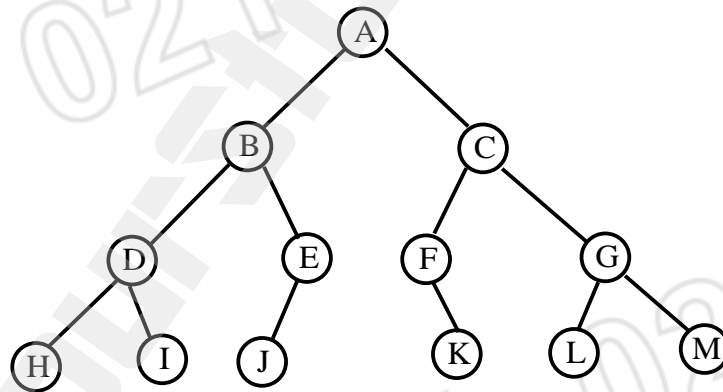
5. a) Write the procedure to perform push & pop operation on stack. 6
- b) Convert following infix expression to postfix form : 7
- i) $(A + B) * C / D + E \wedge F / G$
- ii) $(A - B) * X + Y / (F - C * E) + D$

OR

6. a) Write the difference between plain & circular queue. Write a C function to perform insert and delete operation on circular queue. 7
- b) Write a short notes on : 6
- i) Multiple stack & queue
- ii) Priority queue
7. a) What is Binary Search tree? For the given sequence, create a binary search tree 6+1
12, 11, 10, 16, 14, 18, 15, 13, 20, 19 =7
- b) Explain the following terms with an example. 6
- i) AVL Tree
- ii) Threaded Binary Tree

OR

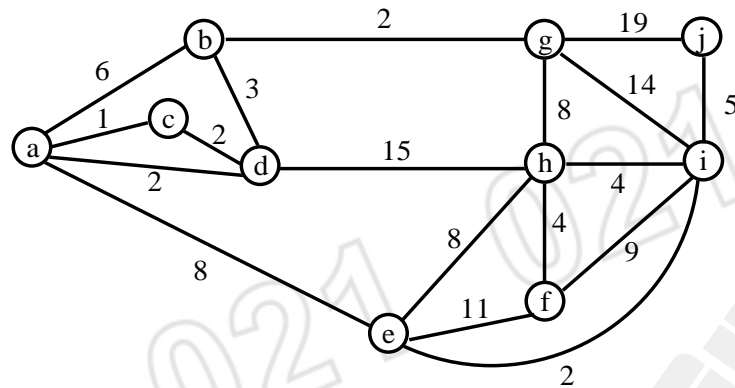
8. a) Find preorder, postorder and inorder for the following. 6



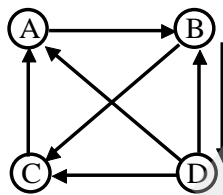
- b) Given the following keys : 7
10, 70, 60, 20, 110, 40, 80, 130, 100 construct a B Tree of order 5 from the above keys.
Explain step by step.
9. a) Write an algorithm for depth first search and breadth first search. Also discuss its complexity. 8
- b) Define following terms with example 6
- i) Topological sorting
- ii) Critical path

OR

10. a) What is the weight of a minimum spanning tree of the following graph? Show stages in establishing a MST. 9



- b) Write down adjacency matrix, adjacency list & adjacency multi list for the following graph. 5



11. a) What is Hashing? Explain division method for hashing to store the values in Hash tables and size 11, 25, 45, 97, 101, 102, 162, 197, 202. 7
- b) Explain various hashing techniques with example. 6

OR

12. Write a short notes on **any four**. 13

- i) Sorting with disk and tapes.
- ii) Collision Handling Mechanism.
- iii) Direct Access File.
- iv) Files and records.
- v) Indexed sequential files.



~ **Sam Walton**

