

QUESTION BANK
Unit Test-II

Program : - Computer Engineering Group

Program Code:- CM/IF

Course Title: - Data Structure Using C

Semester: - Third

Course Abbr & Code:-DSU (22317)

Scheme:I

Chapter 3 Stack and Queue(CO3)

2 marks:-

1. Sketch representation of queue as an array.
2. Sketch the diagram of circular queue.

4 Marks :-

3. Define circular queue. Also describe advantage of circular queue over linear queue.
4. Explain queue full and queue empty condition with suitable example.
5. Explain concept of priority queue with example.

Chapter 4 Linked List(CO4)

2 marks:-

6. Define the terms pointer and NULL pointer.
7. Define linked list with example.

4 Marks :-

8. Describe advantage of circular linked list over linear linked list with example
9. Create a Singly Linked List using data fields 10, 20, 30, 40, 50 and show procedure step-by- step with the help of diagram from start to end.
10. With example, describe how circular linked list works when a node is deleted from beginning of list.
11. Write a 'C' program to insert new node at the end of linear linked list.

12. Differentiate between linear linked list, circular linked list and doubly linked list. (Min. 4 points each).
13. Describe doubly linked list with suitable example.
14. Explain insertion at the beginning and at end operations on linked list with example.

Chapter 5—Tree and Graph(CO5)

2 marks:-

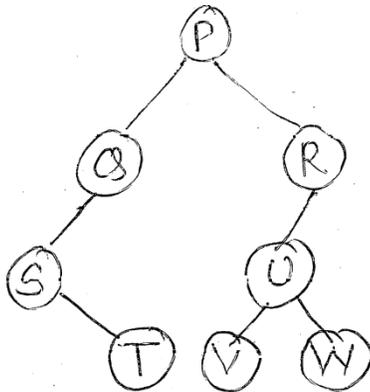
15. Define following terms :

- i)Height of tree
- ii)Degree of a node

16. Differentiate between tree and graph (Min. 2 points).
17. Define indegree and outdegree of a node in graph ?

4 Marks :-

18. Define binary tree. Traverse the following tree in inorder, preorder and postorder.



19. Draw tree structure for following expression:

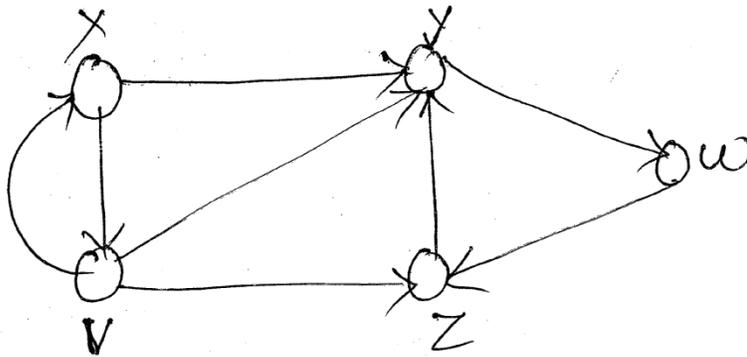
$$(11a^2 + 7b^3 + 5c)4 + (3a^3 + 4b^2 + 8c)3$$

20. Create a binary search tree using following elements:

25, 11, 95, 45, 65, 20, 22, 78, 5, 10, 98, 76.

21. Write an algorithm to insert a node in a binary search tree.

22. Consider the graph 'G' in following figure :



- i) Find indegree and outdegree of nodes Y and Z.
- ii) Find adjacency matrix A for the above graph.
- iii) Give adjacency list representation of above graph.

23. Describe Minimal Spanning tree.

24. Draw a binary search tree for given sequence and write postorder traversal of tree.

10 5 8 9 7 6 2 15.

25. Define : i) Complete graph ii) Directed graph iii) Weighted graph iv) Multigraph