



End Term Examination (December 2019)

School: School of Engineering

Program: B. Tech Computer Engineering

Course: Data Structure

Course Code: CSC232

Semester: III

Max Marks: 40

Duration (mins.): 90

Attempt any 4 of the following:

1. Answer the following questions:

[10]

(Each question carries 2 Marks)

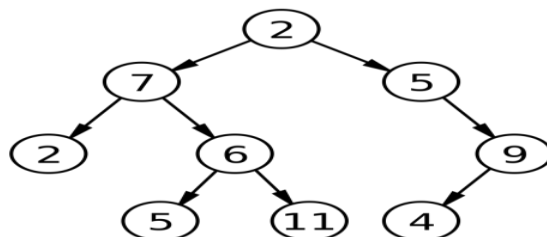
- When will overflow and underflow occur in a stack?
- Draw and explain LIFO and FIFO mechanism.
- Analyze the graph in Q.3 (a) and find in-degree and out-degree for all the vertices.
- How to determine whether the tree is a balanced binary tree? Draw and explain.
- What are different data structures? Show using classification diagram.

2. Answer the following questions:

[10]

(Each question carries 5 Marks)

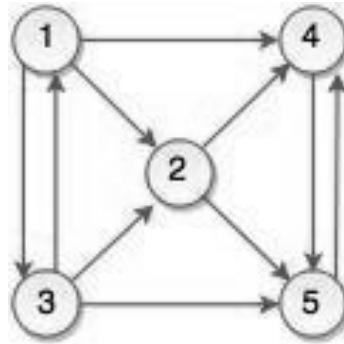
- Observe the following tree and find BFS and DFS (in-order, pre-order and post-order).



b. What is Queue data structure? Explain insertion and deletion operation in queue with example and diagram.

3. Answer the following questions: [10]
(Each question carries 5 Marks)

a. In the given graph, find the adjacency list and adjacency matrix for each vertex.



b. What is Circular Linked List? State the advantages of Circular Linked List over Doubly Linked List and Singly Linked List. Also write advantages of Linked List over an Array.

4. Solve the following: [10]
Convert following Infix expression into Prefix expression using Tabular method.

$$a - b / c * d + e * f / g$$

5. Solve the following: [10]
Sort the following list using merge sort.

List = {87, 96, 27, 35, 48, 99, 41, 73, 17, 09}

Then from the sorted list, find element '27' using binary search method.
