



1483/III

BCA (Part-II) (IIIrd Semester) Examination,

(BCA 303 : Data Structure)

Paper : III

Time : Three Hours]

[Maximum Marks :70

1328

- Note:** (i) Answer **five** questions in all.
- (ii) Question No. **1** is **compulsory**.
- (iii) Answer remaining four questions, selecting **two** from each Section **A** and **B**.
- (iv) All questions carry equal marks.

1. Answer all parts of the following: -

- (a) Define Abstract data types.
- (b) What are the differences between primitive and non-primitive data structures?
- (c) Explain the conditions to check whether a circular queue is full as well as empty.
- (d) Consider A [5.....50] base address 300, size of element is 4 bytes.

the find the address of A [15] in C.

Section-A

2. Show the steps of evaluating a postfix expression as give: -

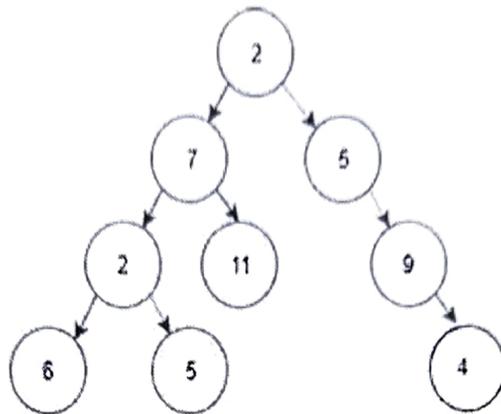
5 , 6 , 2 , + , * , 12 , 4 , / , -

3. What is Sparse Matrix in data Structure? Explain Sparse Matrix representation with Suitable example.

4. Solve the following Queue operations step by step using array representation where array size is 5.

- | | |
|-----------------|---------------------|
| (i) empty | (ii) insert A, B, C |
| (iii) delete | (iv) insert D, E |
| (v) delete B, C | (vi) insert F |
| (vii) delete D | (viii) insert G, H |
| (ix) delete E | (x) delete F |
| (xi) insert K | (xii) delete G, H |
| (xiii) delete K | |

5. For the tree below, Write the in order, pre-order, post-order traversal.



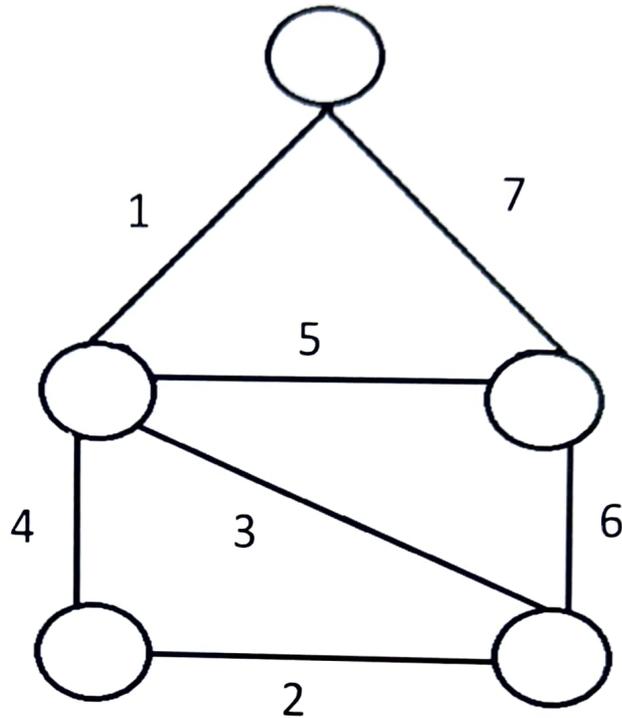
Section-B

6. (a) Write a Kruskal's algorithm with suitable example.
- (b) Sort the given array elements using selection Sort:-

| | | | | | | |
|----|----|----|---|----|----|----|
| 12 | 29 | 25 | 8 | 32 | 17 | 40 |
|----|----|----|---|----|----|----|

7. (a) Explain Binary Tree. Discuss various types of Binary Tree.
- (b) Write the algorithm to implement DFS and BFS traversal.

8. (a) What is the minimum cost spanning tree for the give graph:



- (b) Give the memory representation of the Graph.
9. Write notes on any two of the following: -
- (a) PUSH and POP Stack operations.
 - (b) Tree Terminologies.
 - (c) Linear Search.
 - (d) Difference between Array and Linked List.

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