Write an algorithm for selection sort with suitable **(b)** example. 6

OR

What do you mean by Sorting ? Write the Bubble 10. (p) Sort algorithm. 6

4

(q) What is Searching ? Explain BINARY SEARCH algorithm with example. 6

B.C.A. Part-II (Semester-III) Examination

DATA STRUCTURE

Paper-3ST1

Time-Three Hours]

[Maximum Marks-60

AM-232

- What is Stack ? Explain the algorithm to push element 1. (a) into it with suitable example. 6
 - Transform each of the following expressions into prefix **(b)** operation.
 - (i) (A-B/C) * (D*E-F)
 - (ii) $(A^*B^+(C/D)) F$
 - (iii) (A+B-D)/(E-F) + G. 6

OR

- 2. (p) What is Data Structure ? Explain the types of Data Structure with example. 6
 - (q) What is Array? Explain the algorithm to insert an element into the array. 6
- 3. (a) What do you mean by Recursion ? Explain with example. 6

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 (b) Write an algorithm for converting infix expression to postfix form with example.

OR

- 4. (p) Write an algorithm to find the factorial of a given number N using Recursion. 6
 - (q) Differentiate between the iteration and recursion.
 Explain with example.
- 5. (a) What is Queue ? Explain the algorithm to delete an element from queue. 6
 - (b) What is Linked List ? Explain memory representation of Linked List. 6

OR

- 6. (p) Explain the terms :
 - (i) Circular Queue
 - (ii) Deque
 - (iii) Priority Queue.
 - (q) Write the algorithm to insert node at the begining of a Linked List.
 6
- 7. (a) Explain the term Binary Tree with its diagrammatic representation. 6

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6

(b) State the preorder and postorder traversing of the binary tree given below.



OR

8. (p) Construct binary tree for the following algebraic expression E :

E = (a-b) / ((p*d)+g) 6

(q) Define the following terms with example :

(i) Root

- (ii) Depth of Tree
- (iii) Level of Tree. 6

6

9. (a) What is Hashing ? Explain hashing with suitable example. 6

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