**(Printed Page 01)**

**Roll No\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**BCA - 3214**

**B.C.A. (III Semester) Examination, Dec-2018**

**COMPUTER APPLICATION**

**Date Structure Using C and C+**

*Time Allowed: Three Hours Maximum Marks: 70*

**Note:** Answer **all** questions.

**Q.1.** Attempt any **SIX** of the following- **5\*6=30**

1. What are the advantages and disadvantages of Pointers over Arrays?
2. What is the difference between Stack and Queue? Explain.
3. Define "Binary Tree". How many types of traversals are possible on a Binary tree explain each?
4. Explain array Implementation of a linked lists.
5. What is an Array? Explain how the array variables are initialized?
6. What are the advantages of doubly linked list over single linked list.
7. Explain Binary Search Technique and tell how many comparisons it will do to search an element.
8. What is Stack? What are the operations performed by the Stack?

**Q.2.** What is an Algorithm? Write an algorithm for printing table of a given positive integer. Also

draw the flow chart for the same.  **10**

**OR**

Write a C program to add two matrices of dimension 3\*3 and store the result in another matrix.

**Q.3.** What do you mean by Queue? Write an algorithm to insert and delete an element in a queue. **10**

**OR**

Transform each of the following expression into Prefix and Postfix.

1. **(A+B) \* C + D / (E + F \* G) - H**
2. **A \* B / C + ( D + E - (F \* ( G / H )))**

**Q.4.** Explain the concept of Doubly Linked List. Write a function in C language to insert an element at the specified position in a doubly linked list.  **10**

**OR**

Draw a Binary Tree from the given In-order and Preorder Traversals.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pre Order** | **A** | **B** | **D** | **H** | **E** | **I** | **C** | **F** | **J** | **G** | **K** | **L** |
| **In-Order** | **H** | **D** | **B** | **I** | **E** | **A** | **F** | **J** | **C** | **K** | **G** | **L** |

**Q.5.** Write a C program to search an element from a list of integer numbers using linear Search technique.  **10**

**OR**

Define the concept of B-Tree by using suitable example in detail.