Dec 2016
Bachelor of Computer Applications (BCA) Examination
III Semester
Data Structure Using C + +
Time 3 Hours] [Max. Marks 50
Note : Attempt all five questions. Solve any two parts from each question. All questions carry equal marks.
1. (a) What is Data Structures ? How data is processed on data structures?
(b) What is the procedure for calculating the address of any two dimensional array? Explain with the help of an example.
(c) Write short note on Sparse Matrix.
2. (a) Explain state and write a function for PUSH and POP operations.
(b) Define the following with example :
(i) Infix notation (ii) Polish notation (iii) Reverse Polish notation. .
(c) Write a method to convert an infix expression to postfix notation. • Show these steps to convert the following expression to postfix form :
(3 * * 2 * 5) / (3 * 2 - 3) + 5
3. (a) What are the limitations of linear queue and low removed in circular queue? Write the advantages of queue over stack.
(b) Explain the dynamic implementation of queue.
(c) What is D-queue? List various classes of D-queue. Explain its insertion and deletion operations with the help of examples.
4. (a) Write a program in C+ + to perform the following operations on singly link list :
(i) Append an element to the end of a list.
(ii) Delete the last element from a list.
(b) Differentiate between the linked list and circular linked list.
(c) Discuss the advantages and disadvantages of doubly linked list. Give an example to demonstrate insertion and deletion operations in DLL stored in array form.
5. (a) Define the following :
(i) Tree (ii) Binary Tree (iii) Complete Binary Tree (iv) Strictly Binary Tree (v) Extended Binary Tree
(b) Explain any two technique used to build hash function.
(c) Define indegree and outdegree of a node. How In adjacency matrix is used for finding the indegree and outdegree of node?