Roll. No…………………………

1223010

**B.Tech(Integrated M.Tech/MBA) 3rd Semester Examination
Jan.2014
Data Structure and Applications
Subject Code: CSL-205**

Time Allowed: 03 hours.   Maximum Marks: 100
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Before answering the question paper the candidate should ensure that they have been supplied the correct question paper. Complaints in this regard, if any, shall not be entertained after the examination.

Note: Question No. 1 is Compulsory and attempt two questions from each section. All questions carry equal marks.

1(a) What do you mean by data structure? Discuss the basic operation of data structure.

 (b) Difference between static and dynamic implementation of linked list.

 (c) What is a circular queue? Explain its insertion algorithm with example.

 (d) Discuss Binary search tree.   (5 x 4 = 20)

SECTION -A

2 (a) What is a stack? Discuss its operation with the help of examples.
                                                            (10)

 (b) Convert X: A+(B*C-(D/E - F)*G)*H into postfix form.   (10)

3. Write algorithm for quick sort? Show how many key comparisons are made in its worst case and best case .   (20)

4. Write algorithm for insertion and deletion operation performed on circular queue.   (20)

SECTION-B

5. What is the height balanced tree? Consider the following list of elements 3,5,11,4,9,12,7,2,6,10. Create height balanced tree for above list of elements .   (20)

6. What is a graph? How it can be stored in memory? Explain breadth first traversal and depth first traversal with the help of examples.
                                                            (20)

7(a) Insert the following elements into an initially empty B- tree of order 5:   (10)
     a,g,f,b,k,c,h,n,q,r,t,m,v,e.

 (b)What is DEQUE? Explain its :   (5*2)

     (i) Deletion of an element from the rear end of the queue.

     (ii) Deletion of an element from the front end of the queue.