Seat No:

GANPAT UNIVERSITY

B. TECH. SEM - IV (COMPUTER ENGINEERING/INFORMATION TECHNOLOGY)

REGULAR EXAMINATION MAY/JUNE - 2013

2CE403/2IT403: DATA STRUCTURES

[Time: 3 hrs.] [Total Marks: 70]

Instructions:

- Figure to the right indicates full marks.
- Assume suitable data if require.
- Each section must be answered in separate answer sheet.

Section - I

Q - 1 A Write a C UDF to delete first element from Circular Linked list. 6

B Write a C UDF to insert new element before a specific element in Singly Linked list. 6

OR

Q - 1 A First is the explicit pointer pointing to Doubly Linked list. Linked list currently contains given sequence of elements: **5, 10, 15, 20, 25**. Write an algorithm (one for each) to achieve followings sequence of elements status in Doubly linked list. 12

1. **5,10,15,20,25,30**
2. **5,10 ,20,25,30**

Q - 2 A Define Algorithm. Explain following conventions in algorithmic terminology with example 6

1) Introductory comments. 2) Algorithm Steps. 3) Assignment Operator.

B Write a pseudo code to convert given infix expression into postfix notation. 5

OR

Q - 2 A Write an algorithm to perform String recognization operation using **STACK** on a given string generated from language **L={ WCW^R | W ∈ {A ,B}, W^R is reverse of W, C is separator}** 6

B Discuss use of QUEUE data structure in BFS with example. 5

Q – 3 A Write a C UDF for following Stack operations: **POP,PEEP,CHANGE** 6

B Draw BFS and DFS Traversal sequence for given graph in figure. 1. 4

C Differentiate the terms: Graph & Tree 2

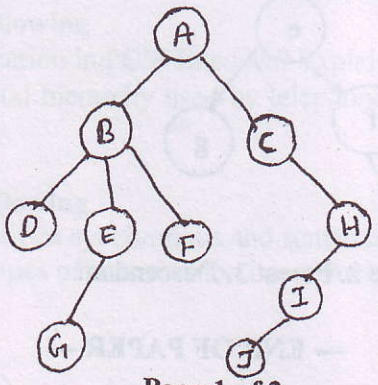


Figure: 1

SECTION-II

Q.4 A Write algorithm to insert an element in simple queue. **5**

B What is difference between array and queue? **3**

C Write an algorithm to display elements in circular queue. **4**

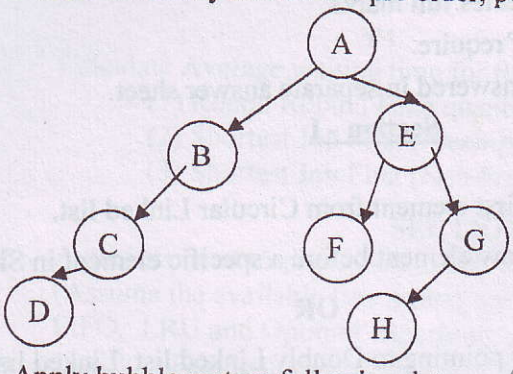
OR

Q.4 A Write algorithm to insert an element in left side in double ended queue. **5**

B What is difference between circular queue and simple queue? **3**

C Write an algorithm to delete element in circular queue. **4**

Q.5 A For Given Binary tree .Write pre order, post order and in order traversal sequence. **6**

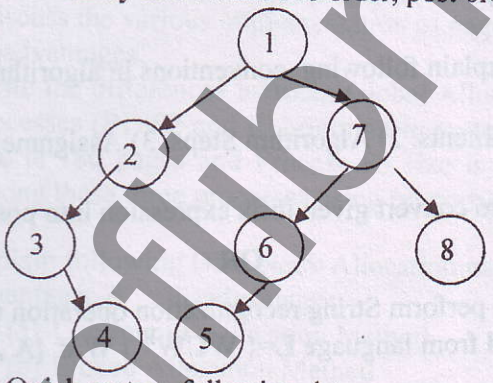


B Apply bubble sort on following data. **5**

12,23,67,10,3,88,56

OR

Q.5 A For Given Binary tree .Write Pre order, post order and in order traversal sequence. **6**

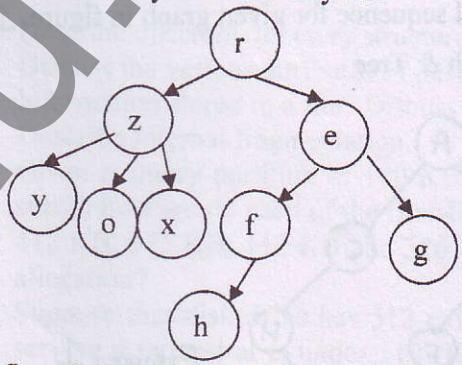


B Apply Quick sort on following data. **5**

40,56,43,78,90,23,67

Q.6 A Differentiate Complete binary tree and strict binary tree. **3**

B Convert M –ary tree to binary tree **6**



C Define: 1. Level in tree 2. Forest 3. Descendant **3**

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