

Second Semester Examination – 2007

DATA STRUCTURE USING 'C'

Full Marks – 70

Time – 3 Hours

Answer Question No. 1 which is compulsory  
and any **five** from the rest.

The figures in the right-hand margin indicate marks.

...power of knowledge

1. Answer the following questions : 2×10

(a) Minimum number of queues needed to  
implement the priority queue ?

(b) A binary tree with 10 nodes has exactly  
\_\_\_\_\_ null nodes.

6

7. Discuss the difference between selection  
and bubble sort. Write your answer with their  
algorithm using C-Language notation. 10
8. Differentiate among pre-order, in-order, post-  
order tree traverse with their algorithms and  
proper examples. 10



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Handwritten marks and scribbles.

(c) Tree is non-linear data structure. *True / False.*

(d) Queue is the data structures used to perform recursion. *True / False..*

(e) Convert the expression  $(A+B) - C / (D - E)$  to equivalent Prefix notations.

(f) Define 'two-way merge sort'.

(g) Differentiate between stack and queue.

(h) Fibonacci number is an example of \_\_\_\_\_ data structure.

(i) Differentiate between linear and non-linear data structure.

(j) Define 'Circular Linked List'.

2. Write down insert and delete algorithms of the stack using C-Language notation with proper examples. 10

3. Write algorithm using C-Language notation : 10

(i) for deleting an element at the end of the Circular-linked-list.

(ii) For inserting an element at the start of the Double-linked-list.

4. Write short notes on : 10

(i) B-tree

(ii) Breadth First Traversal with algorithm.

5. Convert the infix to its prefix form of the following expression with proper explanation : 10

$$(a+b*c/d)+(e+f\uparrow d)/(a+c*d)$$

6. (i) Discuss the Heap sort with suitable examples. 5

(ii) Write short notes on compaction with proper examples. 5