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R02E 3122PC3 1802

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.

1. Answer the following questions : 2x10
- (a) Minimum number of queues needed to implement the priority queue ?
 - (b) A binary tree with 10 nodes has exactly _____ null nodes.

P.T.O.

(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

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

