Total No. of printed pages = 3

Co-401/DSUC/4th Sem/2013/N

DATA STRUCTURE USING C

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer question number 1 and any *five* from the rest.

1. Answer the following short questions : 5×2=10

   (a) Differentiate LIFO and FIFO.

   (b) What is recursion ?

   (c) What is stable sort ?

   (d) Define forest in the context of tree.

   (e) State pointer variable.

2. (a) Describe time-space complexity of an algorithm ? Give one example. 4+2=6

   (b) Explain the searching techniques – sequential search and binary search. 3+3=6

[Turn over

3. What is tree traversal ? Write algorithms for in-order and post-order traversal. 2+10=12

4. (a) Define the following string operations : 4×2=8

   (i) String concatenation

   (ii) String copy

   (iii) String compare

   (iv) String length.

   (b) Write an algorithm for transposing a 3×3 matrix. 4

5. Compare : 3×4=12

   (a) Stack and queue data structure.

   (b) Single and double linked list.

   (c) Sequential and direct file organisations.

6. (a) Illustrate all the polish notations with the example for each. 6

   (b) What do you understand by garbage collection ? 3

   (c) What is directed and undirected graph ? 3

7. (a) Write an algorithm for implementing circular queue. 7

(b) Describe the concept of merging two lists. 5

8. Write short notes on any *three* : 3×4=12

(a) Index sequential file organisation

(b) Quick sort

(c) Binary search tree

(d) Matrix multiplication.