Total No. of printed pages = 3

Co-401/DSUC/4th Sem/2014/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 No.1 and any *four* from the rest.

1. (a) Differentiate between space and time complexity.

   (b) What is a sparse matrix ?

   (c) List two merits of circular queue.

   (d) What is recursion ? Name the data structure used in recursion.

   (e) What is stable sort ? 5×2=10

2. (a) Write an algorithm to perform bubble sort. 10

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(b) What are the merits of quick sort over selection sort ? 5

3. (a) Write function to insert an element in the head of a singly link list. 6+6=12

(b) What are the merits of circular link list ? 3

4. (a) Differentiate between linear search and binary search. 5

(b) Write a C function to perform linear search. 7

(c) List any three string manipulation function. 3

5. (a) What is tree traversal ? Write algorithm for in order and post order traversal. 2+10=12

(b) Define heap. 3

6. (a) Write a function to insert an element in a binary search tree. 10

(b) How we store a node of a binary search tree in computer memory ? 5

7. (a) Define queue. Write functions to insert an element in a queue. 2+5=7

(b) Write a function to compute the value of a postfix expression using stack. 8