Total No. of printed pages = 3

Co-401/DSUC/4th Sem/2016/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) What do you mean by best case, average case and worst case complexity ? Explain with the help of linear search algorithm. 4+3=7

   (b) What is the minimum and maximum height of a binary search tree ? 3

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

   (b) Write an algorithm to perform binary search. 8

   (c) What is the complexity of binary search ? 2

[Turn over

3. (a) Differentiate between singly and doubly link list. 5

(b) Write an algorithm to insert an element at the beginning of a singly link list. 7

(c) What are the advantages of a circular link list ? 3

4. Define stack. Write algorithms to implement a stack using array. (push, pop and stackempty). 3+12=15

5. (a) List the demerits of linear queue. 3

(b) Write functions to implement circular queue using array. 12

6. (a) Differentiate between strictly and complete binary tree. 3

(b) List the properties of binary search tree. 4

(c) Write a function to insert an element in a binary search tree. 8

7. (a) Write an algorithm to implement insertion sort. 8

(b) Illustrate the steps of execution of bubble sort for the following array : 7

10 2 5 7 9

8. Write short notes on : 5×3=15

(a) Collision resolution technique in hashing.

(b) Binary tree traversal.

(c) Representation of graph in computer memory.