SRK/KW/14 – 7007

Fourth Semester B. E. (CT) (C.B.S.) Examination

DATA STRUCTURE AND PROGRAM DESIGN

Paper–II

Time : Three Hours] [Max. Marks : 80

N. B. : (1) Same answer book must be used.
(2) All questions carry marks as indicated.
(3) Assume suitable data wherever necessary.

1. (a) Write a program to implement quick sort algorithm. 7

(b) Define Data structure. Give different types of data structure with example. 6

OR

2. (a) Write a program to implement Binary Search algorithm recursively. 7

(b) Explain the nud if 3 tuple form truth proper example. 6

3. (a) Write a program to implement basic operators on stack data structure. 7

(b) Give various applications of stack data structure. 6

OR

4. (a) Explain with example :—

(i) Queue (ii) Circular Queue

(iii) Priority Queue (iv) Dequeue. 13

5. (a) Write a function to :—

(a) Search a number in a singly linked list.

(b) Insert a node at beginning.

(c) Insert a node at end.

(d) Count no. of nodes in a sigly linked list. 10

(b) Explain in detail concept of Dynamic memory allocation. 4

OR

6. (a) Write a short note on :—

(a) Circular linked list.

(b) Generalized list. 6

(b) Write a program to implement various insertion and deletion operation of a doubly linked list. 8

7. (a) Explain concept of Threaded Binary Tree. with suitable example. 6

(b) Write a program to implement various operation of BST. 7

OR

8. (a) From a given prefix expression draw a binary tree :—

(1) +a*−bc↑d*ef

(2) ***+a*bc*+def 6

(b) Write a program to traversal a tree in any one traversal technique. 7

9. (a) Define graph along with its following basic concepts :—

(1) Types of graph.

(2) Arc

(3) edge

(4) Path

(5) Adjacent Vertices

(6) Cycle

(7) Loop

(8) Strongly Connected Graph

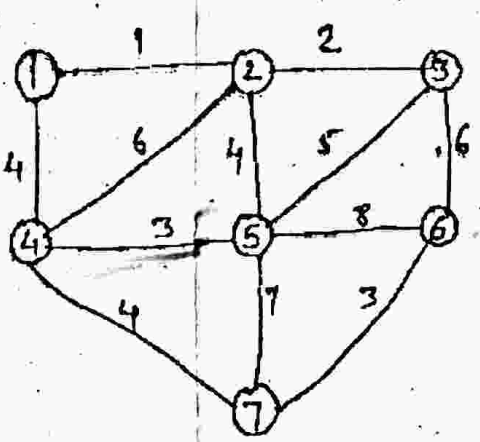
(9) Weakly connected graph. 10

(b) Give application of graph data structure. 4

OR

10. (a) Write a program to implement BFS. 7

(b) Find cost of MST for given graph using Krushkal's Algo



7

11. (a) Give different hashing techniques with example. 7

(b) Explain different file organisation. 6

OR

12. Write short note on :—

(i) Sorting with disks and tapes.

(ii) Storage structure on tapes.

(iii) Storage structure on disks. 13