

DATA STRUCTURES
(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Describe about system life cycle.
 - (b) What is an abstract data type? Give two examples for ADT.
 - (c) Write applications of heap sort.
 - (d) Discuss about Selection trees.
 - (e) State various operations performed on graphs.
 - (f) What is a dictionary? List its operations.
 - (g) Define priority queue. Give two applications of it.
 - (h) Write about minimum heap.
 - (i) Discuss about Splay trees.
 - (j) Write applications of multi-way search trees.

PART – B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 What is double linked list? Write code for insertion of a node, deletion of a node and search a node.

OR

- 3 (a) List different operations on stack.
(b) Write a C code to represent Queue as an array and perform insertion and deletion on it.

UNIT – II

- 4 Explain how to implement merge sort on a given n numbers and show its complexity.

OR

- 5 (a) Quick sort is not effective when compared with merge sort in some case. Justify it with an example.
(b) Write about various tree traversal techniques.

UNIT – III

- 6 (a) Distinguish between static and dynamic hashing.
(b) Explain how a graph can be represented as a Linear List.

OR

- 7 (a) Describe about Graph abstract data type.
(b) How a graph is represented as a hash table.

UNIT – IV

- 8 Write a program to Implement heap as a priority queue.

OR

- 9 (a) What is Fibonacci heap? Explain its functionality.
(b) Describe about single ended priority queue.

UNIT – V

- 10 What is an OBST? Implement its operations.

OR

- 11 Write short notes on the following:
- (a) AVL trees.
 - (b) B+ trees.