

DATA STRUCTURES

(Common to CSE and IT)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) What is meant by garbage collection?
 - (b) What is meant by asymptotic notation?
 - (c) Explain how address of an element in array is calculated.
 - (d) What is meant by abstract data type?
 - (e) What is the difference between full binary tree and complete binary tree?
 - (f) What is an articulation point in a graph?
 - (g) What is the difference between internal sorting and external sorting?
 - (h) Define a B-tree.
 - (i) What are self-referential structures?
 - (j) What is meant by collision in hashing?

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

UNIT – I

- 2 List out at least ten differences between array and linked list w.r.t. storage, accessing, size etc.

OR

- 3 Write a procedure to add two polynomials using linked lists.

UNIT – II

- 4 Write a procedure to evaluate an expression using stacks.

OR

- 5 Explain working of priority queues with an example.

UNIT – III

- 6 Explain insertion and deletion of a new element in height balanced tree.

OR

- 7 Write a procedure for topological sorting in a graph.

UNIT – IV

- 8 Give a procedure for heap sort and analyze its complexity.

OR

- 9 Explain merge sorting with examples and analyze its complexity.

UNIT – V

- 10 Explain linked list collision resolution.

OR

- 11 Explain Fibonacci search using an example.
