

B.Tech I Year II Semester (R15) Regular Examinations May/June 2016

**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.

\*\*\*\*\*