B.TECH. DEGREE EXAMINATION, MAY 2012

Fourth Semester

Branch: Computer Science and engineering/ Information Technology

CS 010 403/IT 010 405 DATA STRUCTURES AND ALGORITHMS (CS, IT)

(Regular-2010 Admissions)

Time: Three Hours Maximum: 100 Marks

Answer* all *questions.

Part A

Each question carries 3 marks.

1.What is meant by Static Hashing?

2.Define a Queue.

3.State the application of linked lists.

4.Define a B Tree.

5.What is meant by sorting? Mention the various sorting algorithm.

(5 * 3 = 15 marks)

Part B

Each question carries 5 marks.

1.Explain Big-Oh notation with an example.

2.Explain in detail the enqueue operation in a queue.

3.Explain the process of polynomial division in linked lists.

4.Define a graph, an undirected, and a directed graph.

5.Explain in merge sort algorithm.

(5 * 5 = 25 marks)

Part C

Each full question carries 12 marks.

1.Explain time complexity of an algorithm.

Or

2. Explain space complexity of an algorithm.

(a) Explain priority queues in detail.

Or

Explain in brief the different ways to check whether the queue is empty or not?

3. Explain in brief insertion of nodes and deletion of nodes in various positions in a doubly linked list.

Or

Explain in brief insertion of nodes and deletion of nodes in various positions in a circular doubly linked list.

4. Explain a weakly connected graph and a weighted graph.

Or

Explain a complete binary tree and a right skewed binary tree.

5. Compare the sorting algorithms with respect to their best, average, and worst cases.

Or

Explain the radix sort and heap sort algorithm.

(5 * 12 = 60 marks)