

Roll No.

Total No. Of Questions: 07]

BCA, SEM III, 2014
DATA STRUCTURES
PAPER CODE: BSBC 302

Time: 03 hours

PAPER ID:[B0229]

Maximum Marks : 60

Instructions to Candidates:

1. Section – A is compulsory.
2. Attempt any Four questions from Section-B.

Section – A

(10 X 2 = 20)

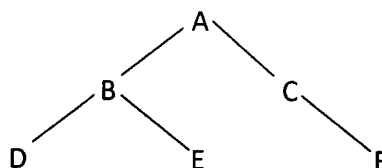
Q.1)

- a) Define data structures.
- b) What are doubly linked lists? Explain in brief with diagram.
- c) Describe in brief about the various data structure operations.
- d) What is Big O notation?
- e) What is the difference between row-major and column-major order?
- f) Differentiate between stacks and queues?
- g) Enlist various sorting algorithms?
- h) Define push and pop operations.
- i) What is depth of a tree?
- j) What are priority queues?

Section – B

(10 X 4 = 40)

- Q.2 a)** What is an algorithm? What are its characteristics?
- b)** How to find complexity of an algorithm? What is the relation between time and space complexity of an algorithm.
- Q.3** What are linked lists? How are linked lists stored in memory? Explain various types of linked lists with examples.
- Q.4** What is selection sort technique? Give algorithm and example in support of your answer.
- Q.5** What are stacks? How are stacks implemented in memory? What are the various stack operations? Write algorithms for each.
- Q.6** Differentiate between linear and binary search techniques. Explain with examples. Write an algorithm to perform linear search on a list of N numbers.
- Q.7** What are binary trees? Enlist various binary tree traversal techniques. Apply these techniques to traverse the following tree:



(10)