Roll No. | | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 09

B.Tech.(Electronics & Computer Engg.) (2011 Onwards) (Sem.–4)

DATA STRUCTURES

Subject Code : BTCS-304

M.Code : 62020

Time : 3 Hrs. Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

SECTION-A

1. Answer briefly :

a) How pointers are used to store memory address?

b) What is memory leak in data structure?

c) What are the advantages of Linked List over arrays?

d) What is the complexity of an algorithm in data structure?

e) What are uses of B trees?

f) What is AVL tree, explain with example?

g) Give some applications of Trees.

h) Define a cycle in a graph.

i) What is double hashing?

j) Give the syntax of binary search.

SECTION-B

Q2 What is sparse matrix with example? How it is represented?

Q3 What are the tree traversal techniques? Explain each with an example.

Q4 What are Circular Queue and Priority Queue? Write an algorithm to insert and delete an element from a Circular Queue.

Q5 What are the tasks performed during *postorder* traversal?

Q6 Give the main property of a heap that is implemented as an array.

SECTION-C

Q7 a) Write an algorithm to implement the stack using Link List.

b) What is hashing? Discuss its types.

Q8 What is meant by traversing an array? Write an algorithm to insert an element at the specific position in an array.

Q9 Which sorting algorithm is best for small input data? Give the syntax by taking an example set. Compute the complexity of that algorithm.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.