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

Total No. of Questions : 09

B.Tech.(3D Animation & Graphics) (2012 Onwards)

B.Tech.(CSE)/(IT) (2011 Onwards)

(Sem.–3)

DATA STRUCTURES

Subject Code :BTCS-304

Paper ID : [A1126]

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. **Write briefly:**

(a) What are the dangling pointers?

(b) How the complexity of an algorithm can be measured?

(c) What are the sparse matrices and how these are represented and stored?

(d) What are the advantages and disadvantages of linked lists?

(e) What are the circular queues? How insertion operation occurs in it?

(f) What is the difference between a general and a binary tree?

(g) What are the B-trees?

(h) How graphs are different from trees?

(i) Compare the complexities of linear and binary search.

(j) What are the different applications of heaps?

SECTION-B

2. Write short note on arrays.

3. What are the different representations of stacks? How recursion functions can be implemented using stacks?

4. What are the threaded binary trees? Discuss different operations of node insertion and deletion in these trees.

5. Discuss Depth First Search traversing technique for graphs with the help of suitable example. Write program for the same.

6. What is the use of Hash Tables? Discuss hashing in brief.

SECTION-C

7. What are doubly linked lists and what are their advantages? Write a program to insert and delete a node in a doubly linked list.

8. What are the different types of queues? Discuss basic operations for each type.

9. Discuss insertion sort in detail.