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

INSTRUCTIONS 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.

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SECTION-A

1. Write briefly :

a) Memory leaks

b) Data structure versus data type

c) Sparse matrix

d) Stacks and recursive functions

e) Linked representation of queue

f) AVL Tree

g) Representation of graph in memory

h) Rehashing

i) Algorithm complexity

j) Dynamic memory allocation

SECTION-B

2. How multidimensional arrays are stored in memory? Explain row major representation of an array.

3. What is meant by postfix expressions? How postfix expressions are evaluated by using stacks?

4. Explain the linked representation of queue and operations to be performed on it with the help of suitable example.

5. Discuss the operations on heap with the help of suitable example.

6. What is a hash table? Discuss the concept of collision resolution in hash table with the help of suitable example.

SECTION-C

7. Consider the following numbers are stored in an array A :
32, 51, 27, 85, 66, 23, 13, 57
Apply Bubble sort algorithm to the array A and show each pass separately.

8. Write the algorithm for pre-order tree traversal. Also show the steps of this algorithm on an example set of numbers.

9. What is a doubly-linked list? Write an algorithm to create a doubly-linked list and also write a function to insert a node in doubly-linked list.

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