24032

B. Tech 3rd Semester (CS & IT)

Examination – December, 2017

DATA STRUCTURE USING 'C'

Paper : CSE-201-F

Time : Three Hours]   [*Maximum Marks : 100*

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Attempt *five* questions in all, selecting *one* question from each Section.. Question No. 1 is *compulsory.*

1. (a) How to design and develop algorithm ? Also discuss briefly objective of this.   5

   (b) What are the pointer variables ? Which type of role play by the pointer in data structure ?   5

   (c) Discuss different types of operations performed on binary trees by taking suitable example.   5

   (d) Explain AVL trees.   5

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9. Write short notes on following :   20

   (i) Files and stream

   (ii) Application of sets

SECTION – A

2. (a) How to measure complexity of algorithm, also discuss different types of notation for this purpose. **10**

(b) Distinguish between merge sort and quiek sort by taking suitable examples. **10**

3. (a) Define structure and union by taking suitable example. **10**

(b) What is deque ? Write a program that implement deques. **10**

SECTION – B

4. (a) Why doubly link list is better than linked list ? Justify it by taking suitable example. **10**

(b) Discuss different types of operation performed on liked list by taking suitable examples. **10**

5. Write a program to implement stack by using linked list, where you will specify push and pop operation. Also include condition to check full or empty. **20**

SECTION – C

6. (a) Explain Binary search algorithm and compare it with linear search algorithm. **10**

(b) What is threaded binary tree ? Discuss with help of examples. **10**

7. (a) Write an algorithm that inserts an edge into a directed graph represented using a suitable example. **10**

(b) Draw the directed graph that corresponds to the following adjacency matrix : **10**

	V0	V1	V2	V3
V0	0	1	1	0
V1	0	0	1	1
V2	0	0	0	1
V3	1	0	0	0

Also write adjacency list corresponding to the graph.

SECTION – D

8. Discuss different types of file organization by taking suitable example. Also specify which type of file organization is better than other, why ? **20**