

9. Write short notes on following :

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- (i) Files and stream
- (ii) Application of sets

Roll No.

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

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 quick 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 linked 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