Paper Code: HCSCR3052T	Data Structures (Theory)	Marks: 60
Serial Number	Topic	Number of Periods
	Group A	**26**
1	Concept of different data structures, ADT	3
2	Basic ideas on complexity analysis, Big-Oh, Small-Oh, Big-Omega, Small Omega, Big-Theta notations	4
3	Ideas about recursion, comparative study with iteration	2
4	Different representation and applications of array, address translation	3
5	Representation of linked lists, different types, different operations on each of the types	6
6	Definition of stack, array and linked list representations, applications on reverse polish notations	4
7	Definition of queue, array and linked list representations, different types	4
	Group B	**26**
8	Definition of binary tree, quantitative properties, types, array and linked representation, different traversals, definition of threaded binary tree, advantages	6
9	Definition of binary search tree, properties, different operations, definition and properties of AVL Tree	5
10	Linear and binary searches, advantages and disadvantages	2
11	Internal and external sorting, in-place sorting, stable sorting, different sorting algorithms – Bubble, Selection, Insertion, Shell, Merge, Quick and Heap	9
12	Definition of hashing, advantages, different hash functions, collision resolution techniques, applications	4
	Total	**52**

Reference Books:

1. Horowitz and Sahni – Fundamentals of Data Structures in C – Orient Longman Pvt. Ltd.
2. Reema Thareja – Data Structures using C – Oxford Publications
3. Srivastava and Srivastava – Data Structures Through C in Deprth – BPB Publications
4. Data Structure in C, Horowitz & Sahni, Silicon Press
5. Data Structures & Program Design in C, R. Kruse, Pearson Education
6. Data Structures using C, A. M. Tenenbaum, Pearson Education
7. Data Structures with C, Lipschutz, TMH

Paper Code: HCSCR3052P	Data Structures (Practical)	Marks: 40