

Lecture Plan 1

Semester:- III Sem

Class:- ECS

Course Code:- ECS-201-E__

Subject:- Data structures

Unit:- I

S. No.	Topic :- Introduction, data structures ,classifications, data types,operations,abstract data types, static ,dynamic, examples applications	Time Allotted:-
1.	Introduction Syllabus and Books discussion The logical or mathematical model of a particular organization of data is called a data structure.	15
2	Division of the Topic Introduction, data structures ,classifications, data types,operations,abstract data types, static ,dynamic, examples applications	25
3.	Conclusion So, the choice of data structure depends on certain factors.	5
4	Question / Answer 1. What is data? 2. Why we use a structure for the data?	5

Assignment to be given:-

Applications of Data structures

Reference Readings:-

Data Structures – Schaum’s series

Lecture Plan 2

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E___

Subject:- Data structures and algorithms

Unit:- 1

S. No.	Topic :- Arrays ,dimension,subscript,defining and declaring arrays, accessing elements, single dimensional arrays	Time Allotted:-
1.	Introduction The simplest type of data structure is a linear array.	15
2	Division of the Topic Program illustrating the working of array. Arrays ,dimension,subscript,defining and declaring arrays, accessing elements, single dimensional arrays	25
3.	Conclusion Linear arrays are called one dimensional arrays because each element in such an array Is referenced by one subscript.Advantages and disadvantages of arrays.	5
4	Question / Answer 1. Types of arrays? 2. Define matrices in terms of arrays. 3. Write a program to sort elements in an array. Make use of function.	5

Assignment to be given:-

Write a program in 'c' to merge two sorted arrays.

Reference Readings:-

Data Structures – Schaum’s series, Pointers thru’ ‘C’ – Yashwant Kantekar

Lecture Plan 3

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 1

S. No.	Topic :- Two dimensional arrays and multidimensional arrays, addressing mechanisms and programs	Time Allotted:-
1.	Introduction A 2D-array is a collection of similar data elements where each element is referenced by two subscript.	5
2	Division of the Topic Two dimensional arrays and multidimensional arrays, Addressing mechanisms Illustrating the concept through a program	25
3.	Conclusion Two dimensional arrays are called matrices and tables in business applications.	5
4	Question / Answer 1. Difference between one dimensional arrays and two dimensional arrays. 2. Applications of 2-d arrays.	15

Assignment to be given:-

Write a program to find the transpose of a matrix.

Reference Readings:-

Data Structures – Schaum’s series, Pointers thru’ ‘C’ – Yashwant Kanetkar

Lecture Plan 4

Faculty:- _ Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E__

Subject:- Data structures and algorithms

Unit:- 1

S. No.	Topic :- Concept of structures and unions concepts in C language	Time Allotted:-
1.	Introduction Structure and union are used to store different types of elements collectively. Declaration of structure and union.(have already learned in previous semester)	5
2	Division of the Topic Concept of structures and unions concepts in C language Accessing structure elements using dot operator Concept of array of structures, nested structures, structure in a union and vice – versa	20
3.	Conclusion Application of structure in creation of file So, structure requires more memory than union.	15
4	Question / Answer 1. Give one example to show the difference between structure and union. 2. Difference of array and structure.	10

Assignment to be given:-

Write a program in 'C' to sort array of student structures on basis of their roll no.

Reference Readings:-

Data Structures – Schaum's series, Pointers thru' 'C' – Yashwant Kanetkar

Lecture Plan 5

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 1

S. No.	Topic :- Stacks ,operations, static or array based implementation of stacks and related algorithms	Time Allotted:-
1.	Introduction A stack, also called last-in first-out (LIFO) system, is a linear list in which insertions and deletions can take place only at one end, called the top. Application of stack.	15
2	Division of the Topic Stacks ,Push operations, Pop Operation, Top pointer Static or Array based implementation of stacks Infix to Postfix conversion	25
3.	Conclusion This structure is similar in its operation to a stack of dishes on a spring system. Towers of Hanoi	5
4	Question / Answer 1. Give some real time example for stack. 2. Limitation of array implementation of stack.	5

Assignment to be given:-

1. Write a algorithm to evaluate a postfix expression using stacks/
2. Write a program in 'C' to find reverse of a string.

Reference Readings:-

Data Structures – Schaum’s series, Pointers thru’ ‘C’ – Yashwant Kanetkar

Lecture Plan 6

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E__

Subject:- Data structures and algorithmsUnit:- 1

S. No.	Topic :- Mathematical expressions, notations and conversions	Time Allotted:-
1.	Introduction Mathematical functions and the notations appear very often in the analysis of algorithm and in computer science.	10
2	Division of the Topic Mathematical expressions, notations and conversions. Floor function Ceiling function Mod function Absolute Function Summation symbol Factorial Function	20
3.	Conclusion Problems were given to be solved.	5
4	Question / Answer 1. Define functions: a. floor b. ceiling c. modulo d. factorial function	15

Assignment to be given:-Write a program to find (a) 3^{-4} , $4^{7/2}$, $27^{-2/3}$ (b) $\log_2 64$, $\log_{10} 0.001$ Reference Readings:-

Data Structures – Schaum's series

Lecture Plan 7

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 2

S. No.	Topic :- Introduction to queues, array implementation of linear queue, basic Operations and circular queues.	Time Allotted:-
1.	<p>Introduction</p> <p>Queue is a linear list of elements in which deletions can take place only at one end, called the front, and insertions take place only at other end , called rear.</p> <p>Circular queue is a queue which does not has an end. It is circular in nature, its end has been connected to its starting point.</p>	15
2	<p>Division of the Topic</p> <p>Introduction to queues Array implementation of linear queue, Concept of front and rear pointers Basic operation – Add and Delete</p>	25
3.	<p>Conclusion</p> <p>Discussed the real time applications of queue. Eg. In operating systems it is used in implementation of CPU scheduling queues.</p> <p>Disadvantages of a linear queue. Advantages of circular queue over linear queue.</p>	5
4	<p>Question / Answer</p> <p>1. In computer systems , where queues are used? 2. Write a program to implement a linear queue using functions.</p>	5

Assignment to be given:-

1. Difference between queue, deque, priority queue and circular queue.
2. Write a program in 'C' to count the total number of elements present at any time in a circular queue.

Reference Readings:-

Data Structures – Schaum's series, Pointers thru' 'C' – Yashwant Kanetkar

Lecture Plan 8

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E__

Subject:- Data structures and algorithms

Unit:- 2

S. No.	Topic :- Static & dynamic data structures, their comparisons, advantages, concept of node as a structure, usage in 'C' language	Time Allotted:-
1.	Introduction Static means fixed and Dynamic implies moving i.e., that keeps changes. Implementation of dynamic structures using Pointers.	15
2	Division of the Topic Static & dynamic data structures Their comparisons – advantages and disadvantages Concept of a node as a structure Declaration of node in 'C'	25
3.	Conclusion Choice of static or dynamic data structure depends totally upon the requirement of time.	5
4	Question / Answer 1. Give two examples for both static data structure and dynamic data structure.	5

Assignment to be given:-

Write a program in 'C' to reverse a string using Pointers.

Reference Readings:-

Data Structures – Schaum's series, Pointers thru 'C' – Yashwant Kanetkar

Lecture Plan 9Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 2

S. No.	Topic: - Introduction to linked lists, header pointers, nodes, traversals, memory storage and address manipulations.	Time Allotted:-
1.	Introduction A linked list, or a one-way list, is a linear collection of data elements called nodes. Better than arrays – dynamic data structure. Applications	15
2	Division of the Topic Introduction to linked lists header pointers ,nodes , Implementation traversals Memory storage and address manipulations	25
3.	Conclusion Node of linked list can be divided into two parts: a. First part contains information. b. Link field or next pointer field. Insertion, addition are simpler than arrays Size can grow at run time. Accessing an element requires traversing the entire linked list....hence slow as compared to arrays.	5
4	Question / Answer 1. How an element is added or deleted to a linked list. 2. write a program in 'C' to merge two sorted linked lists.	5

Assignment to be given:-

Write a program in 'C' to reverse a linked list.

Reference Readings:-

Data Structures – Schaum's series, Pointers thru' 'C' – Yashwant Kanetkar

Lecture Plan 10

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 2

S. No.	Topic :- Proper implementation of linked list- freenode, insertnode, removenode, empty list	Time Allotted:-
1.	Introduction Operations which can be performed on linked list are: a. traversing a linked list b. searching a linked list c. insertion into a linked list d. deletion from a linked list	15
2	Division of the Topic Operations on linked lists, getnode, freenode, insertnode, removenode, empty list.	25
3.	Conclusion For all the operations to be performed on the linked list we have separate algorithm.	5
4	Question / Answer 1. Write down all algorithms which are meant for performing operations on linked list. 2. Revision on linked list.	5

Assignment to be given:-

Write a program in 'C' to add two polynomials using linked lists.

Reference Readings:-

Data Structures – Schaum's series, Pointers thru' 'C' – Yashwant Kanetkar

Lecture Plan 11

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 2

S. No.	Topic :- Linked implementation of stacks	Time Allotted:-
1.	Introduction Using linked list we have implemented the stack. The concept of node was taken for the implementation.	15
2	Division of the Topic Linked implementation of stacks. Concept of top pointer. Push and pop operation. Can grow to any size.	25
3.	Conclusion Stack is last-in first-out so in case of linked representations all the memory blocks are linked using the concept of links. Comparison of static stack and dynamic stack.	5
4	Question / Answer 1. Write a program in 'C' to reverse a linked list using stack.	5

Assignment to be given:-

Revise

Reference Readings:-

Data Structures – Schaum's series, Pointers thru 'C' – Yashwant Kanetkar

Lecture Plan 12Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E___Subject:- Data structures and algorithmsUnit:- 2

S. No.	Topic :- Linked implementation of queues Circular linked lists and operations	Time Allotted:-
1.	<p>Introduction</p> <p>Using linked list we have implemented the queue. Queue is a data structure having first-in first-out format.</p> <p>A circular linked list is a list where last node points back to the first node.</p>	15
2.	<p>Division of the Topic</p> <p>Linked implementation of queues. Circular linked lists and operations</p>	25
3.	<p>Conclusion</p> <p>The nodes in a queue are linked same as linked list in case of linked implementation of queues. Circular linked list, we use where we want continuity.</p>	5
4.	<p>Question / Answer</p> <ol style="list-style-type: none"> 1. Give one example to show the use of linked implementation of queue. 2. How is a circular queue different from circular linked list? 	5

Assignment to be given:-

Write an algorithm to implement circular queue.

Reference Readings:-

Data Structures – Schaum’s series, Pointers thru’ ‘C’ – Yashwant Kanetkar

Lecture Plan 13

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 2

S. No.	Topic :- Doubly linked lists and operations	Time Allotted:-
1.	<p>Introduction</p> <p>A doubly linked list is a linear collection of data elements, called nodes, where each node is divided into three parts:</p> <ol style="list-style-type: none"> information field forward pointer backward pointer 	15
2	<p>Division of the Topic</p> <p>Doubly linked lists and operations.</p>	25
3.	<p>Conclusion</p> <p>Doubly linked list is used where we have to move in both directions- forward and backward.</p> <p>Insertion and deletion is simpler compared to linear linked list.</p> <p>More memory is required for the extra pointer</p>	5
4	<p>Question / Answer</p> <ol style="list-style-type: none"> Write down algorithm for doubly linked list. 	5

Assignment to be given:-

Nil

Reference Readings:-

Data Structures – Schaum’s series, Pointers thru’ ‘C’ – Yashwant Kanetkar

Lecture Plan 14Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 2

S. No.	Topic :- Dequeues and priority queues, applications	Time Allotted:-
1.	Introduction A deque is a linear list in which elements can be added or removed at either end but not in the middle.	15
2	Division of the Topic Dequeues and priority queues Applications	25
3.	Conclusion A priority queue is a collection of elements such that each element has been assigned a priority and such that the order in which elements are deleted and processed comes from certain rules.	5
4	Question / Answer 1. Give any two applications of deque and priority queue.	5

Assignment to be given:-

Nil

Reference Readings:-

Data Structures – Schaum’s series, Pointers thru’ ‘C’ – Yashwant Kanetkar

Lecture Plan 15Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 3

S. No.	Topic :- Trees , basic terminology and definitions , Binary trees, representations , binary tree traversals	Time Allotted:-
1.	<p>Introduction</p> <p>Tree is a nonlinear data structure. So far, we have studied all linear data structure like strings, arrays, lists, stacks and queues.</p> <p>A binary tree T is defined as a finite set of elements, called nodes, such that</p> <p>a) T is empty.</p> <p>b) T contained a distinguished node R, called the root of T, & the remaining nodes of T form an ordered pair of disjoint binary trees T1 & T2.</p>	15
2	<p>Division of the Topic</p> <p>Trees</p> <p>Basic terminology and definitions</p> <p>Binary trees, representations , binary tree traversals</p>	25
3.	<p>Conclusion</p> <p>Tree is a nonlinear data structure having left child and right child.</p> <p>The binary tree is used since it can be maintained easily in the computer.</p>	5
4	<p>Question / Answer</p> <p>1. Define tree with example. Also mention various types of trees.</p> <p>2. Difference between tree and a binary tree.</p>	5

Assignment to be given:-

Write a program in in-order traversal using iterative method.

Write the no. of times a number occurs in the tree.

Reference Readings:-

Data Structures – Schaum's series

Lecture Plan 16Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 3

S. No.	Topic :- Tree traversal algorithms ,preorder traversal using stacks	Time Allotted:-
1.	<p>Introduction</p> <p>Tree can be traversed in three ways:</p> <ol style="list-style-type: none"> 1. Preorder 2. Inorder 3. Preorder 	15
2	<p>Division of the Topic</p> <p>Tree traversal algorithms, preorder traversal using stacks. Continuation of previous lecture.</p>	25
3.	<p>Conclusion</p> <p>We can also call three algorithm as node-left-right (NLR) traversal, the left-node-right (LNR) traversal and the left-right-node (LRN) traversal.</p>	5
4	<p>Question / Answer</p> <ol style="list-style-type: none"> 1. Write down the whole procedure step by step for tree traversing. 	5

Assignment to be given:-

Nil

Reference Readings:-

Data Structures – Schaum’s series

Lecture Plan 17Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 3

S. No.	Topic :- Binary search trees ,constructions , applications	Time Allotted:-
1.	Introduction Binary search tree enables one to search for and find an element with an average running time $f(n)=O(\log_2 n)$	15
2	Division of the Topic Binary search trees, Constructions, Applications.	25
3.	Conclusion If T is a binary tree then it is called binary search tree if each node has value which is greater than every value in the left subtree of N and is less than every value in the right subtree of N.	5
4	Question / Answer 1. Mention some of the applications of binary search trees. 2. write an algorithm to sort elements using merge sort/tree sort.	5

Assignment to be given:-

Write an algorithm to delete any node from a BST.

Reference Readings:-

Data Structures – Schaum's series

Lecture Plan 18Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E Subject:- Data structures and algorithmsUnit:- 3

S. No.	Topic :- Balanced trees ,Threaded trees, AVL trees	Time Allotted:-
1.	Introduction - Definition of balanced, threaded and AVL trees. Comparison of these three trees, Applications.	15
2	Division of the Topic Balanced trees - Implementation Threaded trees - Implementation AVL trees - Implementation	25
3.	Conclusion Searching of any node is faster in balanced and AVL trees as their height is balanced. Deletion of a node is simpler in threaded binary trees as inorder successor is stored in the thread pointer.	5
4	Question / Answer Illustrate the concept of heavy nodes with suitable example.	5

Assignment to be given:-

Write an algorithm to implement a threaded binary tree.

Reference Readings:-

Data Structures – Schaum's series

Lecture Plan 19Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 3

S. No.	Topic :- Applications of trees, mathematical expressions, recursion trees, concept of recursion and iteration	Time Allotted:-
1.	Introduction Explanation for Applications of trees, mathematical expressions, recursion trees, concept of recursion and iteration.	15
2	Division of the Topic Applications of trees, Mathematical expressions Recursion trees Concept of recursion and iteration	25
3.	Conclusion Gave a real time problem to show the application of trees.	5
4	Question / Answer 1. What are recursion trees? 2. Write down two applications for trees.	5

Assignment to be given:-

Nil

Reference Readings:-

Data Structures – Schaum's series

Lecture Plan 21

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 4

S. No.	Topic :- Minimum spanning trees , kruskals algorithm	Time Allotted:-
1.	Introduction Definition of spanning tree. Application of spanning tree.	15
2	Division of the Topic Types of Spanning trees. Finding spanning tree using kruskal's algorithm. Time Analysis of the algorithm.	25
3.	Conclusion Spanning tree is used to find reachability of one node from another with minimum number of edges. It is also used to find whether a graph is connected or not. Comparison of Prim's and Kruskal's algorithmm	5
4	Question / Answer 1. Difference between connected tree and strongly connected tree. 2. Application of MST.	5

Assignment to be given:-

Write an algorithm to create MST for a graph using kruskal's method.

Reference Readings:-

Data Structures – Horowitz Sahani

Lecture Plan 22Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 4

S. No.	Topic :- Shortest path algorithm	Time Allotted:-
1.	Introduction Given the adjacency matrix for a graph, find the shortest path from node i to node j.	15
2	Division of the Topic Finding shortest path using warshall's algorithm.	25
3.	Conclusion Comparison of various shortest the algorithms. Time complexity of Warshall's algorithm.	5
4	Question / Answer 1. What are the applications of shortest path algorithm. 2. Do all the algorithm work for both directed graph and undirected graph.	5

Assignment to be given:-

Application of graph in real situations.

Reference Readings:-

Data Structures – Schaum's series

Lecture Plan 23

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E__

Subject:- Data structures and algorithmsUnit:- 4

S. No.	Topic :- Tables, hashing ,applications and concept	Time Allotted:-
1.	Introduction What is hashing/ Various Techniques. Applications.	15
2	Division of the Topic Types of hashing---- Division method, Midsquare method, Folding method Collision resolution Open Addressing Chaining	25
3.	Conclusion Efficient searching technique where the time taken to find an element doesn't depend on the position of the element.	
4	Question / Answer 1. Compare all the hashing methods. 2. Write down some of the hash functions.	5
		5

Assignment to be given:-

Explain why hashing is efficient in searching?

Reference Readings:-

Data Structures – Schaum's series

Lecture Plan 24Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E Subject:- Data structures and algorithmsUnit:- 5

S. No.	Topic :- Concept of algorithm analysis, space and time complexity, Big oh notation and running times, Time complexity considerations	Time Allotted:-
1.	Introduction We have to find out the space complexity and time complexity. This is a step by step procedure through which we will be observing whole algorithm to find out complexity of that algorithm.	15
2	Division of the Topic Concept of algorithm analysis Space complexity Time complexity	25
3.	Conclusion Time complexity is an important constraint while designing efficient algorithm. Generally it is observed that if we try to reduce the time for an algorithm space requirement will increase.	5
4	Question / Answer 1. Find out space and time complexity for all the sorting algorithm.	5

Assignment to be given:-

Write a short note on space and time complexity

Reference Readings:-

Data Structures – Schaum’s series

Lecture Plan 25Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E__

Subject:- Data structures and algorithms

Unit:- 5

S. No.	Topic :- Best average and worst case analysis, divide and conquer methodology	Time Allotted:-
1.	Introduction Best, average and worst case analysis Divide and conquer methodology	15
2	Division of the Topic Illustrating the divide and conquer technique using binary search	25
3.	Conclusion Comparison between best, average and worst case analysis. Advantages and Disadvantages of divide and conquer	5
4	Question / Answer 1. Give one real time example for divide and conquer method. 2. Take one example and find out , average and worst case.	5

Assignment to be given:-

Write down algorithm for divide and conquer technique.

Reference Readings:-

Data Structures – Schaum's series

Lecture Plan 26Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E Subject:- Data structures and algorithmsUnit:- 6

S. No.	Topic :- Concept of searching and sorting methods Linear and binary search	Time Allotted:-
1.	Introduction Applications of Searching and Sorting methods Study of various search techniques---Linear and binary search	15
2	Division of the Topic Searching and Sorting methods Linear and binary search	25
3.	Conclusion All the searching and sorting methods perform well but we have studied advantages and disadvantages of all of them.	5
4	Question / Answer 1. Which one is best according to you---- linear search or binary search? 2. Find out the complexity of searching and sorting methods.	5

Assignment to be given:-

Write an algorithm to implement quick sort, merge sort and tree sort.

Reference Readings:-

Data Structures – Schaum’s series

Lecture Plan 27

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 6

S. No.	Topic :- Sorting algorithms, selection sort, insertion sort	Time Allotted:-
1.	Introduction Illustrating the working of selection and insertion sort through examples.	15
2	Division of the Topic Implementation of selection and insertion sort. Time and space complexity Comparison	25
3.	Conclusion Simple but suitable for small data only.	5
4	Question / Answer 2,5,19,-1,78,23,90,12,100,31,678,42 Sort the above data using selection sort and insertion sort.	5

Assignment to be given:-

Nil

Reference Readings:-

Data Structures – Schaum's series

Lecture Plan 28

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E__

Subject:- Data structures and algorithms

Unit:- 6

S. No.	Topic :- Bubble sort and analysis, Shell sort and analysis	Time Allotted:-
1.	Introduction Illustrating the working of bubble and shell sort through examples.	15
2	Division of the Topic Bubble sort and analysis Shell sort and analysis	25
3.	Conclusion Simple but suitable for small data only Time complexity of shell is same for best,average and worst case.	5
4	Question / Answer. Sort the following numbers : 23,1,78,-12,44,99,100,1,54,21,2	5

Assignment to be given:-

Write a short note on shell sort algorithm

Reference Readings:-

Data Structures – Schaum's series

Lecture Plan 29Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E

Subject:- Data structures and algorithms

Unit:- 6

S. No.	Topic :- Merge sort and analysis, Quicksort and analysis	Time Allotted:-
1.	Introduction Illustrating the working of Mergesort and Quicksort through examples.	15
2	Division of the Topic Merge sort and analysis Quicksort and analysis	25
3.	Conclusion Quicksort is most fastest and efficient sorting algorithm. It is also stable.	5
4	Question / Answer 1. Compare Mergesort and Quicksort.	5

Assignment to be given:-

Nil

Reference Readings:-

Data Structures – Schaum's series

Lecture Plan 30

Faculty:- Semester:- III Sem Class:- ECS1, IT Course Code:- ECS-201-E__

Subject:- Data structures and algorithmsUnit:- 6

S. No.	Topic :- Heapsort and analysis	Time Allotted:-
1.	Introduction Illustrating the working of Heapsort.	15
2	Division of the Topic Heapsort and analysis.	25
3.	Conclusion Heapsort is a way to sort elements in an efficient manner.	5
4	Question / Answer 1. Write down algorithm for Heapsort.	5

Assignment to be given:-

Write down time and space complexity for Heapsort.

Reference Readings:-

Data Structures – Schaum's series