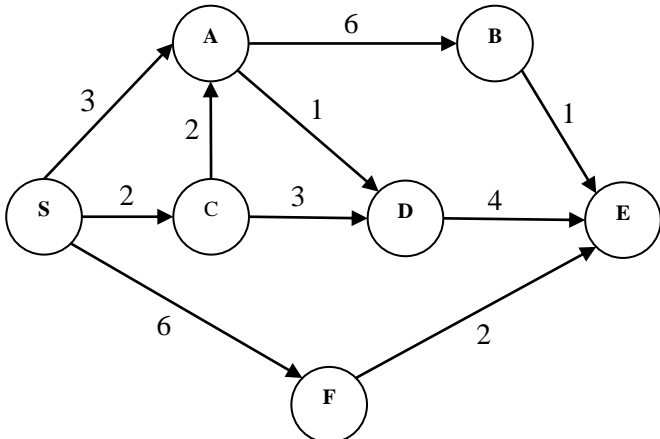
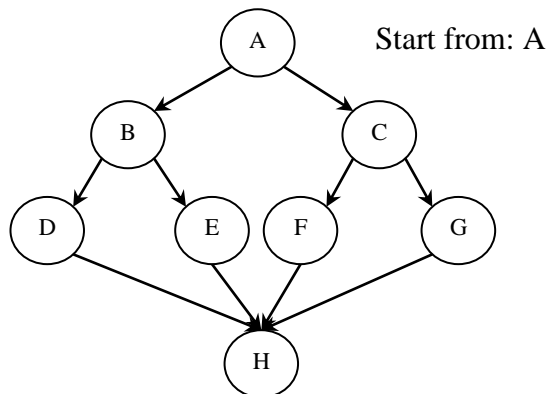




Sr. No.	Unit No.	Question	BL	CO
1	1	Define Data Structure. Give differences between linear and nonlinear data structures.	U	CO1
2	1	Discuss various types of data structures with example.	R	CO1
3	1	What is time and space analysis? State and explain time analysis for linear search and binary search method.	U	CO1
4	1	Give differences between primitive and non-primitive data structures.	U	CO1
5	1	What is Complexity of an algorithm? Explain Time and Space Complexity.	U	CO1
6	1	List and explain various operations on data structures.	U	CO1
7	1	What is Algorithm? Discuss best, worst and average case analysis of an algorithm.	U	CO1
8	1	Give differences between Array and Link list.	U	CO1
9	1	Define Array. State and explain applications of Array.	U	CO1
10	1	Explain array representation of a sparse matrix.	U	CO1
11	1	Consider matrix A having 25*4 dimension, suppose base address of the matrix is 200 and Word byte size is 4. Calculate the address of A[12,3] using Column Major Order.	A	CO1
12	2	Write algorithms for PUSH and POP operations of stack.	U	CO2
13	2	Write recursive algorithm to compute factorial of a given number. Which data structure can be used to implement this algorithm?	A	CO2
14	2	Evaluate the following postfix expression in tabular form showing stack after every step. 7 6 + 4 * 4 10 + - 5 +	A	CO2
15	2	What is top of stack? Why stack is called LIFO list?	U	CO2
16	2	Convert the following infix expressions to their prefix and postfix equivalents. 1. $A*B+C/D$ 2. $(A*B)+(C/D)-(D+E)$	A	CO2
17	2	Evaluate the following postfix expression using stack. $53+62/*35*+$	A	CO2
18	2	What is stack? Explain operations on stack in detail.	U	CO2
19	2	Evaluate the following postfix expression in tabular form: 3 5 * 6 2 / +	A	CO2
20	2	Write algorithm for inserting an element in circular queue.	U	CO2
21	2	Illustrate the working of priority queue with suitable example.	U	CO2
22	2	State disadvantages of simple queue. How to overcome it?	A	CO2
23	2	Write an algorithm for INSERT, DELETE and DISPLAY function of Circular Queue.	U	CO2
24	2	Distinguish between stack and queue.	A	CO2
25	2	Write an algorithm to perform insert and delete operations on simple queue.	U	CO2
26	2	What is queue? Explain operations on queue in detail.	U	CO2
27	3	Write algorithm for deleting a node from a singly linked list.	U	CO3
28	3	List the advantages of a doubly linked list over singly linked list.	A	CO3
29	3	Write an algorithm for INSERT operation to insert a node at a given position in	U	CO3



		a Link list.		
30	3	Write an algorithm to find length of a simple link list.	U	CO3
31	3	Write an algorithm to insert a node in a Circular Link List at the FIRST position.	U	CO3
32	3	Write and Explain algorithm for insertion in doubly linked list.	U	CO3
33	4	Construct BST for following sequence and find inorder traversal for the same. 35, 46, 29, 2, 24 ,68, 44, 57, 1, 22, 79, 71	A	CO4
34	4	Explain insertion and deletion in B-tree with example.	U	CO4
35	4	Explain rotation rules for AVL tree.	U	CO4
36	4	Construct AVL tree for following sequence: 10, 20, 30, 40, 50, 60, 70 ,80 Construct 5-way order tree from 1 to 20.	A	CO4
37	4	Give the detailed note on Threaded Binary Tree.	U	CO4
38	4	Construct the Binary Tree from the given two traversals. Preorder Traversal: 7, 1, 0, 3, 2, 5, 4, 6, 9, 8, 10 Inorder Traversal: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	A	CO4
39	4	Define the following: 1. Sibling 2. Adjacency Nodes 3. Binary Search Tree	R	CO4
40	4	Explain Prim's algorithm with suitable example.	U	CO4
41	4	Write algorithms for BFS and DFS traversals.	A	CO4
42	4	Explain Kruskal's algorithm with suitable example.	U	CO4
43	4	Explain In-degree and Out-degree by taking an example.	U	CO4
44	4	<p>Apply Dijkstra's algorithm for the following graph with node S as the starting node:</p> 	A	CO4
45	4	Find BFS and DFS of the following Graph:	A	CO4



46	4	Explain Breadth First Search Operation.	U	CO4
47	4	Explain Depth First Search Operation.	U	CO4
48	5	Explain how the collision occurs in Hashing. Also state and explain different Collision Resolution Techniques in detail.	U	CO5
49	5	Explain the working of Folding method of hashing in detail.	U	CO5
50	5	Explain the working of Multiplicative Hashing in detail.	U	CO5
51	5	What is hashing? What are the qualities of a good hash function? Explain any two hash functions in detail.	U	CO5
52	5	Using hash function Kmod7, insert following sequence of keys in the hash table (Using Separate Chaining) 50,700,76,85,92,73,101	U	CO5
53	5	Using hash function Kmod7, insert following sequence of keys in the hash table: (Using Linear and Quadratic Probing) 50,700,76,85,92,73,101	U	CO5
54	5	Explain collision in context of Hashing. Discuss Collision Resolution Techniques.	U	CO5
55	5	Write algorithm for Bubble sort method.	U	CO5
56	5	Write algorithm for Merge sort method.	U	CO5
57	5	Write an algorithm for quick sort.	U	CO5
58	5	Explain Binary Search with example.	U	CO5
59	5	Write an algorithm for selection sort.	U	CO5
60	5	Compare sequential searching with binary searching in detail.	A	CO5
61	5	Explain the working of Insertion sort by taking following array as an example: 77, 33, 44, 11, 88, 22, 66, 55	A	CO5
62	5	Search the number 50 from the given data using binary search technique. Illustrate the searching process. 10, 14, 20, 39, 41, 45, 49, 50, 60	A	CO5
63	5	Apply merge sort algorithm to the following elements: 20, 10, 5, 15, 25, 30, 50, 35	A	CO5
64	5	Give the similarities and dissimilarities between Quick sort and Merge sort techniques.	A	CO5