

Sr No.	Question	Marks	CO
Chapter-1			
1	Explain data structure along with their types in detail.	7	CO1
2	What do you mean by Abstract Data Types?	4	CO1
3	Compare primitive and non primitive data structures.	3	CO1
4	Define Data Structure and differentiate between linear and nonlinear data structures.	4	CO1
5	Explain time and space complexity of an algorithm.	4	CO1
6	Explain primitive, non-primitive, linear and non-linear data structures.	3	CO1
7	Write short note on performance analysis and performance measurement of an algorithm.	4	CO1
8	Write an algorithm for finding average of given numbers. Calculate time complexity.	3	CO1
9	Differentiate: Static and Dynamic Memory Allocation	4	CO1
Chapter-2			
1	Explain Row major ordering and Column major ordering.	4	CO2
2	Write a C function to implement following operations on array (1) Insertion at First (2) Deletion at specific position (3) Deletion from First		
3	Explain Sparse matrix and its representation.	4	CO2
Stack			
1	Write a pseudocode for PUSH and POP operations of stack.	7	CO2
2	Differentiate between Stack and Queue.	4	CO2
3	Explain algorithm for Tower of Hanoi with example.	7	CO2
4	Evaluate the following postfix expression in tabular form showing stack after every step: (a) 9 3 4 * 8 + 4 / - (b) 5 6 2 + * 1 2 4 / - +	7	CO2
5	Consider the stack S of characters, where S is allocated 8 memory cells. S: A,C,D, F, K, _, _, _ Describe the stack as the following operations take place. Pop(), Pop() ,Push(L), Push(P), Pop(), Push(R), Push (S), Pop()	4	CO2
6	What is top of stack? Why stack is called LIFO list?	3	CO2
7	Write an algorithm to evaluate postfix expression. Explain working of the algorithm using appropriate example.	7	CO2
8	Write a C Program to implement Stack with all necessary overflow and underflow condition (Use array as data structure). 1)PUSH 2) POP 3) DISPLAY.	7	CO2
9	Explain an algorithm for infix to postfix conversion using appropriate example.	7	CO2
10	Convert the following infix expressions to their prefix and postfix equivalents 1. A*B+C/D 2. (A*B)+(C/D)-(D+E)	4	CO2

11	Convert following infix expressions to the postfix expressions. Shows stack trace. $A/B\$C+D*E/F-G+H (A+B)*D+E/(F+G*D)+C$	7	CO2
12	What is Stack? Write down algorithms for performing PUSH,POP and PEEP operations on a stack.	7	CO2
13	Write a 'C' program to reverse a string using stack.	4	CO2
Queue			
1	Perform following operations in a circular queue of length 4 and give the Front, Rear and Size of the queue after each operation. 1) Insert A, B 2) Insert C 3) Delete 4) Insert D 5) Insert E 6) Insert F 7) Delete	4	CO2
2	Compare: (2) Circular queue and Simple Queue.	3	CO2
3	Write an algorithm to implement insert and delete operations in a simple queue.	7	CO2
4	Write a program to implement circular queue using array. 1) ENQUEUE 2) DEQUEUE 3) DISPLAY	7	CO2
5	Write algorithm for inserting and deleting an element in circular queue.	7	CO2
6	State disadvantages of simple queue. How to overcome it?	3	CO2
7	Explain Dequeue in detail.	4	CO2
8	Explain Priority queue in detail.	4	CO2
9	What is priority queue? Discuss its applications and implementation details	7	CO2
10	Explain advantages of circular queue over Simple queue.	4	CO2
11	Enlist applications of stack and queue.	3	CO2
Linked List			
1	Write user defined C function to insert and delete a node at/from specific location in singly linked list.	4	CO2
2	Write 'C' functions to: (1) insert a node at the end (2) delete a node from the beginning (3) TRAVERSE (to display the data in nodes) of a doubly linked list.	7	CO2
3	Write an algorithm for INSERT operation to insert a node at a given position in a Link list.	7	CO2
4	Write a program to implement a circularly linked list.	7	CO2
5	Write down advantages of linked list over array and explain it in detail.	4	CO2

6	Write and explain algorithm for deletion in Singly Linked List.	7	CO2
7	Write a 'C' function to 1) deletion of a node at location 'LOC' from a singly linked list. 2) insert a node at location 'LOC' of a singly linked list.	7	CO2
8	Write an algorithm to find length of a simple link list.	4	CO2
9	Write 'C' functions to: (1) insert a node at the end (2) delete a node from the beginning of a singly linked list.	4	CO2
Chapter-5			
1	Write a 'C' program for bubble sort.	7	CO4
2	Write a 'C' program for selection sort.	7	CO4
3	Apply merge sort and selection sort for the following data: 9, 7, 5, 11, 12, 2, 14, 3, 10, 6	7	CO4
4	Write an algorithm for Bubble sort.	4	CO4
5	Write an algorithm for Selection sort.	4	CO4