## CHAPTER 4 DATA STRUCTURES

One	e mark questions:	
1.	What is data structure?	(U)
2.	What is primitive data structure?	(U)
3.	Give an example for primitive data structure.	(U)
4.	What is non-primitive data structure?	(U)
5.	Give an example for non-primitive data structure.	(U)
6.	What is linear data structure?	(U)
7.	Give an example for linear data structure.	(U)
8.	Define traversing an array.	(U)
9.	Define searching.	(U)
10.	Define sorting.	(U)
11.	Define inserting.	(U)
12.	Define deleting.	(U)
13.	What is an array?	(U)
14.	What is a stack?	(U)
15.	What is push in stack?	(U)
16.	What is pop in stack?	(U)
17.	Which order stack follows?	(U)
18.	Give an example for static memory representation.	(U)
19.	Give an example for dynamic memory representation.	(U)
20.	What is a queue?	(U)
21.	Which order does the queue data structure follow?	(U)
22.	What is enqueue?	(U)
23.	What is dequeue?	(U)
24.	What is linked list?	(U)
25.	How do we establish linearity in linked list?	(U)
26.	Name the type of memory allocation use by the linked list.	(U)
27.	What is non-linear data structure?	(U)
28.	Give an example for non-linear data structure.	(U)
29.	What is a node?	(U)
30.	What is parent node?	(U)
31.	What is a child node?	(U)
32.	What is the height of a tree?	(U)
33.	What is the depth of a tree?	(U)
34.	What is a root node?	(U)
35.	What is internal node?	(U)
36.	What is binary tree?	(U)
37.	What is a complete tree?	(U)
38.	What is a graph?	(U)

39.	Name the data structure that is called LIFO list.	(A)
40.	Name the data structure that is called FIFO list.	(A)
41.	Which operator is used to allocate the memory dynamically?	(A)

## Two marks questions:

1.	What are the two types of data structures?	(U)
2.	Mention the different operations performed on primitive data structure.	(U)
3.	What is linear and non-linear data structure?	(U)
4.	What is an array? Mention the different types of arrays.	(U)
5.	Mention two types of searching techniques.	(U)
6.	Write any two applications and arrays.	(A)
7.	What are PUSH and POP operations on stacks?	(U)
8.	Write the memory representation of queues using arrays.	(A)
9.	What is the purpose of new and delete operators?	(U)
10.	Mention the various operations performed on stacks.	(A)
11.	Mention the various operations performed on queues.	(A)
12.	What are enqueue and dequeue in queues?	(A)
13.	What are the different types of linked lists?	(A)

## Three marks questions:

1.	Give the memory representation of one-dimensional array.	(A)	
2.	Write an algorithm for traversing an array.	(A)	
3.	Write the memory representation arrays in row-major order.	(A)	
4.	Write the memory representation arrays in column-major order.	(A)	
5.	Consider the array A of order 25 x 4 with base value 2000 and one word per		
	memory location. Find the memory address of A[12][3] in row-major order.	(A)	
6.	Consider the array A of order 25x4 with base value 2000 and one word per		
	memory location. Find the address of A[12][3] in column-major order.	(A)	
7.	What are the advantages of arrays?	(A)	
8.	What are the disadvantages of arrays?	(U)	
9.	Explain the memory representation stacks using array.	(U)	
10.	Write an algorithm for push operation.	(U)	
11.	Write an algorithm for POP operation.	(U)	
12.	Write any three applications of stacks.	(A)	
13.	Write any three applications of queues.	(A)	
14.	Explain the memory representation of queues using array.	(U)	
15.	Explain types of linked list.	(U)	
16.	Define the following: a. Tree b. Graph c. Root node.	(U)	

## Five marks questions:

1.	What is primitive data structure? Explain the different operations performed	
	on primitive data structure.	(U)
2.	Explain the different operations performed on linear data structure.	(U)

Write an algorithm for searching an element using linear search method.	(A)
Write an algorithm for searching an element using binary search method.	(A)
Write an algorithm for inserting an element into the array.	(A)
Write an algorithm for deleting an element from the array.	(A)
Explain the different operations performed on stacks.	(A)
Write the applications of stacks.	(A)
What is a queue? Explain different types of queues.	(U)
Explain the different operations performed on queues.	(U)
Write an algorithm to insert an item into the queue.	(A)
Write an algorithm to delete an item from the queue.	(A)
Write the applications of queues.	(A)
What are the operations performed on the linked list?	(U)
Define the following : a. Root Node b. Leaf Node c. Height	
d. Depth e. Internal node.	(U)
	Write an algorithm for searching an element using linear search method.Write an algorithm for searching an element using binary search method.Write an algorithm for inserting an element into the array.Write an algorithm for deleting an element from the array.Explain the different operations performed on stacks.Write the applications of stacks.What is a queue? Explain different types of queues.Explain the different operations performed on queues.Write an algorithm to insert an item into the queue.Write an algorithm to delete an item from the queue.Write the applications of queues.Write the applications performed on the linked list?Define the following : a. Root Nodeb. Leaf Nodec. Heightd. Depthe. Internal node.