19/3/24 ATKT

SYIT / Data structure

Duration: 2 ½ hrs. 732041123 Seat Number : _____

Marks: 75

Note: (1) All questions are compulsory.
(2) All questions carry equal marks.

Q.1	**Attempt any three of the following**		**(15M)**
	1	Explain abstract data type and write the advantages of ADT.	(CO1-U)
	2	List and explain different operations that can be performed on a data structure	(CO1-U)
	3	What is an Algorithm? Write the properties of an algorithm	(CO1-U)
	4	Write a program to accept that to arrays from the user and merge them and display the elements in sorted order.	(CO1-R)
	5	Explain Arrays. Discuss various type of Arrays	(CO1-A)
	6	What is sparse matrix? Explain types of sparse matrix	(CO1-R)
Q.2	**Attempt any three of the following**		**(15M)**
	1	How will you insert or not in a two way Linked list (Double linked list).	(CO1-U)
	2	Write an algorithm to delete or node in a singly linked list.	(CO1-R)
	3	What is linked list? Explain types of linked list..	(CO1-R)
	4	What are the applications of linked list?	(CO1-R)
	5	Write a short note on header linked list.	(CO1-U)
	6	Explain comparison between an array and a LinkedIn list.	(CO1-U)
Q.3	**Attempt any three of the following**		**(15M)**
	1	Define Queue. What are the applications of Queue?	(CO1-R)
	2	Convert the following infix expression into prefix and postfix expression: i) (a-b) * ((c+d) /e) ii) (a+b) * (c*d+e) /f	(CO1-R)
	3	Define stack. Discuss the basic operation is performed on the stack.	(CO1-R)
	4	Write an algorithm for converting infix to postfix.	(CO1-U)
	5	Write a program to implement the concept of Deque.	(CO1-A)
	6	Write a short note on queue operations.	(CO1-U)
Q.4	**Attempt any three of the following**		**(15M)**
	1	What are the algorithm steps of insertion sort method for the following data implement using insertion sort method. 89 12 45 78 23 67	(CO2-U)
	2	Write a algorithm for binary search In an array.	(CO2-U)
	3	Explain with examples the following terms: i) Degree of Node ii) Height of tree iii) Path	(CO1-R)
	4	Write a program to create the tree.	(CO1-A)
	5	Explain operation is performed on AVL tree.	(CO2-R)
	6	Write difference between liner search and binary search.	(CO1-E)
Q.5	**Attempt any three of the following**		**(15M)**
	1	List different hashing methods. Explain with examples any two of them.	(CO1-U)
	2	Write and explain the algorithm for the depth first search in a graph.	(CO1-U)
	3	Describe the collision resolution technique chaining.	(CO1-R)
	4	What is hashing? Explain the properties of hash function.	(CO1-U)
	5	What are the various way to find minimum spanning tree?	(CO1-U)
	6	What is graph? Explain the different ways to represent graph in memory.	(CO1-RU)

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