

Term End Examination

Dec 2023

CET1043B - Fundamentals of Data Structures

Question Paper ID: 027169

Faculty/School	Engineering and Technology	Term	Semester III
Program	SY B.Tech CSE/AIDS/CSF	Duration	2 Hours 30 Minutes
Specialization		Max. Marks	70

Section - 1 (7 X 10 Marks)

Answer any 7 questions

1	Explain static data structures and dynamic data structures with the help of examples. Write pseudo C code for polynomial multiplication.	10 marks	CO1	Remembering
2	To sort following set of the data, if we are having Quick Sort and Merge Sort available, which algorithm do you select for the following instance of the data to sort it in ascending order. Example 1- 0,1,2,3,4,5,6,7,8,9,10 Example 2-0,2,4,3,5,7,8,6,9,10,1 Example 3-10,9,8,7,6,5,4,3,2,1,0 Justify your answer with asymptotic notation	10 marks	CO4	Applying
3	Write pseudo C code for binary search (non-recursive). Apply your algorithm to the following numbers stored in array from A[0] to A[9] 19, 25, 31, 36, 50, 55, 59, 76, 90, 99 to search numbers 19 & 56.	10 marks	CO1, CO4	Applying
4	Compare Bubble sort, selection sort, insertion sort with respect to i) Time complexity ii) Storage requirement iii) Sort stability	10 marks	CO2, CO4	Remembering
5	A doubly linked list with numbers to be created. Write node structure and a 'C' function to create a doubly linked list and delete a node from any position in doubly linked list.	10 marks	CO1, CO3	Understanding
6	What is GLL? Give node structure of the GLL. Represent the following using Generalized Link list. (m, n, (o, p, q, (r, (s, t), u, (v), w), x))	10 marks	CO3	Understanding

7	Write a Pseudo C code to sort a given singly linked list and display a sorted linked list.	10 marks	CO3	Understanding
8	Convert the below expression into a postfix expression. Show all steps of the stack. $a + b / c * d ^ e + f$	10 marks	CO3	Understanding
9	Give a node declaration of stack using a linked list. Write push() and pop() functions using a Linked list.	10 marks	CO1, CO3	Understanding
10	Write a short note on 1. Double Ended Queue 2. Applications of Queue 3. Circular Queue vs Linear Queue	10 marks	CO2	Remembering

END OF QUESTION PAPER