



Semester End Examination - January 2022

Course Code : CSE 203 Course Name : Data Structures And Algorithms

School of Engineering & Information Technology

Programme: B.Tech (CSE & CSE-AI & ML) (Regular & Lateral)

Semester: III

Time: 3 hrs

Max. Marks:100

PART – A (10 questions X 2 marks = 20 Marks)

Answer ALL the Questions

1. Attempts all parts. All parts carry equal marks. Write answer of each part in short.
- a. Define structure and linear array. [2]
- b. Why linked lists are more efficient than linear array? [2]
- c. Define complexity and Big O(oh) notations. [2]
- d. Explain the approach of stack and queue. [2]
- e. Explain sparse matrix. How it is stored in memory. [2]
- f. What process of insertion & deletion is called in stack? [2]
- g. Write the syntax for initialization of a linear array. [2]
- h. Write the average time complexity of merge sort. [2]
- i. Explain self-referential pointer with example. [2]
- j. Define binary search tree. [2]

PART – B (4 questions X 5 marks = 20 Marks)

(Answer all question)

Answer ALL the Questions

2. Write the algorithm to evaluate the postfix expression. [5]
3. Write an algorithm and program as well for implementing the linked queue. [5]
4. Write a program to merge two linear array in to one. [5]
5. Write an algorithm to delete a node containing a value from doubly linked list. [5]

PART – C (3 questions X 10 marks = 30 Marks)

Answer Three out of Four Questions

6. What is divide & conquer approach? Write quick sort algorithm with divide & conquer. [10]
7. Write Warshal algorithm for finding the shortest path in the graph. [10]
8. Write algorithm for preorder and post order traversal in a BST. [10]
9. Explain and program the procedure of non-recursive& recursive versions to compute factorial of a number. [10]

PART – D (2 questions X 15 marks = 30 Marks)

Answer Two out of Three Questions

10. What is AVL tree? How insertion and deletion can be performed in AVL tree. [15]
11. Draw a binary tree which has following traversal [15]
In order : D J G B A E H C F I Preorder : A B D G J C E H F I
12. Write & explain Dijkstra's algorithm for finding the shortest path. [15]