THIRD SEMESTER MODEL EXAMINATION

BSc and BCA

DATA STRUCTURE USING C

Time: 2 Hours **Maximum: 60 Marks**

Section A (Short Answer Type Questions)

Each correct answer carries a maximum of 2 marks.

Ceiling 20 marks.

1. Define Data Structure.
2. What is meant by subscripted variable in a linear array?
3. Define Sparse matrix.
4. Define linked list?
5. Explain Stack.
6. Convert following infix expression to postfix expression:
   a) ((a + b) / d) – ((e - f) + g)
   b) 12 / 3 * 6 + 6 – 6 + 8 / 2
7. Node is collection of ……..
8. Write the following prefix notation to expression tree in step by step.
   + * 2 6 / 3 8
9. What is a direct graph? Explain.
10. Define unordered linear search.
11. The number of interchanges required to sort 5, 1, 6, 2, 4 in ascending order using Bubble sort is ……
12. What is the complexity of selection sort? Explain.

Section B (Short Essay Type Questions)

Each correct answer carries a maximum of 5 marks.

Ceiling 30 marks.

13. List out areas in which Data Structures are applied? Explain with example.
14. Define a two dimensional array. How it is represented in memory?
15. Write a program to implement stack using linked list.
16. How to evaluate a postfix expression using stack? Write algorithm with suitable example.
17. What are the different string operations? Explain each with example.

18. What is expression tree? Represent the following expression using a tree? Convert on the result that you get when this tree is traversed in Preorder, Inorder and Postorder.

    (a – b) / ((c * d) + e)

19. Write a program to delete all duplicate elements from one dimensional array.

Section C (Short Answer Type Questions)

Answer any one question

Correct answer carries 10 Marks

20. a) What are the different types of notations? Explain each.
    b) Write short note on
        i) Priority queue
        ii) Creation of binary search tree.
21. a) How to represent a tree using an array?
    b) Define two way linked list.
    c) Write note on Array Vs linked list.