**1089**

B.E. (Information Technology) Third Semester
ITE-302: Data Structures

Time allowed: 3 Hours                                                Max. Marks: 50

NOTE: Attempt _five_ questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.

x-x-x

I.  Explain the following:-

a) What is data structure?

b) Difference between algorithm and protocols?

c) What is postfix notation?

d) Difference between linked stack and queue.

e) What is binary tree?

f) State two differences between B tree and Height balance tree.

g) What is a graph?

h) State the importance of sorting

i) What is a Hashing scheme?

j) How merge sort is different from Radix sort.                    (10x1)

## UNIT – I

II.  Explain the concept of Transverse, Insert and delete and sorting of data in data structures.                                                            (10)

III.  Explain Circular link list. Also explain sparse matrix representation using generalized list structure.                                                    (10)

IV.  Explain the concept of link list and how storage allocation and garbage collection is possible?                                                              (10)

## UNIT – II

V.  With the help of suitable diagrams, explain trees and their applications. Also state the advantages of B-Tree.                                                       (10)

P.T.O.

(2)

VI.     With the help of diagrams, explain spanning forests. What is the significance of Depth and Breadth first search?     (10)

VII.     Explain Indexed search and Sequential search.     (10)

*x-x-x*