Exam.Code:0004
Sub. Code: 0392

2071
B.A./B.Sc. (General) Fourth Semester
Computer Science
CS-08: Data Structure

Time allowed: 3 Hours

Max. Marks: 30

NOTE: *Attempt five questions in all, including Question No. IX (Unit-V) which is compulsory and selecting one question each from Unit I -IV.*

x-x-x

UNIT – I

I. What is data structure? Explain types of array, with memory representation, applications and operations on array in detail. Explain with suitable example. (6)

II. What is stack? Discuss memory representation, application and operations on stacks? Explain by taking an example. (6)

UNIT - II

III. a) What is queue? Discuss its complexity and memory representation.

b) What is major difference between single and double linked list? (2x3)

IV. a) Discuss space complexity, time complexity for stacks and queue.

b) Explain the comparison of various linked lists. (2x3)

UNIT - III

V. What is the tree in data structures? Discuss difference between binary tree, terminal tree and binary search tree? (6)

VI. a) What are the Graph's memory represent and time complexity, speed complexity and trade off if any.

b) Difference between DFS and BFS. (2x3)

UNIT - IV

VII. What are the memory requirements in binary and linear search? Explain algorithm of linear search and binary search with example. (6)

P.T.O.

VIII. a) What is selection sort and quick sort by taking an example?

b) Also explain in brief the quick sort. (2x3)

UNIT - V

IX. Attempt the following:-

a) Explain binary search.

b) Write note on insertion sorting.

c) What is the difference between a graph and a tree? (3x2)

x-x-x