Q.21 What do you mean by Data structure ? Explain the various data structure operations. (CO1)

Q.22 Construct a binary tree whose traversals are as under: (CO4)

Preorder : A B D G H C E F I K J

Inorder : B G H D A E C I K F J

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Define Binary tree ? How a binary tree is represented in memory? Explain using suitable example.(CO4)

Q.24 List various Searching Techniques. Compare them and write algorithm of anyone. (CO5)

Q.25 Write down algorithm for insertion sort technique with suitable example . (CO5)

2nd Year / Artificial Intelligence & Machine Learning

Subject : Principles of Data Structures

Time : 3 Hrs.   M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Binary search is applied to the __list of elements (CO5)

   a) Unsorted   b) Sorted

   c) Both   d) None

Q.2 Doubly linked lists have___pointers with each node. (CO2)

   a) 1   b) 2

   c) 3   d) 4

Q.3 Which of the following sorting algorithm is of divide and conquer type? (CO5)

   a) Quick Sort   b) Selection Sort

   c) Bubble Sort   d) Insertion Sort

Q.4 Variable that stores address of another variable is called_____ (CO1)

a) Pointer   b) Array

c) Function   d) Stack

Q.5 FIFO stands for (CO3)

a) First in Last out   b) Last in Last out

c) Last in First out   d) First in First out

Q.6 Which of the following traversing algorithm is not used to traverse in a tree ? (CO4)

a) Post Order   b) Pre Order

c) Randomized   d) All of the above

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define Recursion. (CO3)

Q.8 The address field of last node in a linked list have ____value . (CO2)

Q.9 Tree is a non-linear data structure .(T/F) (CO4)

Q.10 The identifier whose value remain fixed during execution of program is called_____ (CO1)

Q.11 Give an example of sorting method which uses partitioning. (CO5)

Q.12 A collection of homogenous elements is called___ (CO2)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Differentiate between Array and Linked List (CO2)

Q.14 Write short note on Full Binary Trees , Complete Binary Tree and Extended Binary Tree (CO4)

Q.15 What is Primitive and Non Primitive Data structure? Explain any two Non primitive Data Structures. (CO1).

Q.16 Write a program in 'C' to find factorial of a number using recursion. (CO3)

Q.17 Sort the following list of elements using Selection sort. Show result after each step: (CO5)

18 17 10 21 17 52 14

Q.18 Explain with example how elements of two dimensional array are stored in memory. (CO2)

Q.19 Convert the following expression into postfix notation using stack: (CO3)

(A+B*(C-D))/E

Q.20 Write an algorithm for insertion at the end in a single linked list. (CO2)