Q.22 Sort the following list of elements using heap sort. Show result after each step. (CO5)

26   10   32   79   61   15   7

SECTION-D

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

Q.23 Define Array. Give the different types of Arrays? Explain how element of two dimensional arrays are stored in memory? (CO2)

Q.24 Write short note on any two? (CO1)
a. Structured Programming
b. Data types in c
c. Program development life cycle(PDLC)

Q.25 Covert the following expressions into postfix notation using Stack (CO3)

A+B*C+D/E-F

2nd Sem. / Artificial Intelligence and Machine Learning

Subject : Principles of Data Structure

Time : 3 Hrs.   M.M. : 60

SECTION-A

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

Q.1 The essential condition which is checked before deletion in a linear queue is ? (CO3)
a) Underflow   b) Overflow
c) Front value   d) Rear value

Q.2 Linked list is considered as an example of _____ type of memory allocation. (CO2)
a) Dynamic   b) Static
c) Compile time   d) Heap

Q.3 What is the other name for a postfix expression? (CO3)

a) Normal polish Notation
b) Reverse polish Notation
c) Warsaw notation
d) Infix notation

Q.4 Which of the following is not an application of stack? (CO3)

a) evaluation of postfix expression

b) conversion of infix to postfix expression

c) line at ticket counter

d) All of the above

Q.5 Which of the following operations can be performed on a Singly linked list (CO2)

a) Insertion   b) Deletion

c) Traversal   d) All of the above

Q.6 To obtain a prefix expression, which of the tree traversals is used ? (CO4)

a) Level-order traversal

b) Pre-order traversal

c) Post-order traversal

d) In-order traversal

SECTION-B

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

Q.7 When the function calls itself it is called _____ (CO3)

Q.8 The identifier whose value does not change during execution of program is called _____ (CO1)

Q.9 Expand the term LIFO _____ (CO3)

Q.10 For a linear array A[15,16,17,_____, 125]. Find the total number of elements in the array. (CO2)

Q.11 Define

i) Degree of a Tree

ii) Terminal node (CO4)

Q.12 What is the precondition for performing binary search operation on a given list of elements. (CO5)

SECTION-C

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

Q.13 Explain the various types of data structures. (CO1)

Q.14 Give five differences between a Array and a Linked list (CO2)

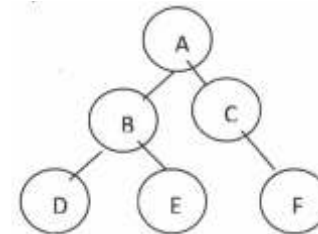Q.15 Define the terms a) Dqueue b) Data Structure c) Circular queue d) local variables (CO3)

Q.16 Give algorithm for adding a element in the beginning of the linked list. (CO2)

Q.17 Explain primitive and non primitive data structures. (CO1)

Q.18 Give algorithm for deleting an element from the stack. (CO3)

Q.19 What is the limitation of a linear queue. How is it removed. (CO3)

Q.20 Give in order, post order and pre order traversal of the following tree. (CO4)

Q.21 Give differences between sequential search and binary search. (CO5)