2008 ANDHRA UNIVERSITY

B.E/B.TECH DEGREE EXAMINATIONS

DATA STRUCTURE

(ELECTRONICS AND COMMUNICATION ENGINEERING)

TIME: 3 HOUR
MARK: 70

Question No.1 Is Compulsory And Answer Any Other 5 Questions
All Questions Carry Equal Marks

1
a)Give the address of an element in a z-dimensional array given the row number

i)column number ii)the size of the array (mXn)

b)Represent the following polynomial using linked lit 10x3-2x2+3x2y=y3

c)Define the term hash function and give example

d) Define a circular queue. Calculate the number of elements 'n' the circular Queue in terms of Front, Rear, pointers and the size of the Queue 'N'

e)Convert the following infix expression to prefix form (a*b-c)/(d+e)

f)write the different tree-traversals techniques

g)when the input is already sorted , what is the running time of insertion sort?

2)
a)write recursive as well as non-recursive versions of routines for towers of Hanoi problem and compare their efficiencies

b)How do you implement a non-homogeneous list in c?

3)
a)Implemetn th ADT stack using templates in c++

b)Use the above template to evaluate a given postfix expression

4)
a)Implement the ADT circular list in C

b)Write a C program to solve Josephus Problem using circular lists

5)
a)Construct the binary tree whose preorder sequence is ACBIHEDGF and Inorder sequence is CIHBEADFG

b)Discuss alternatives on approaches of representation of binary trees and their suitability to given application

6)
a)Discuss Various approaches to collision handling in Hash tables

b)What are multiway search trees and discuss the alternatives of inserting nodes into them?

7)
a)Write prim's algorithm to find the minimal spanning tree and estimates its time complexity

b)write kruskal's algorithm and explain

8)
a)convert a tree into its equivalent binary tree

b)Represent a graph as linked list and write its adjacency matrix