DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
B.TECH. SEMESTER VII [Information Technology]
SUBJECT: Data Structures & Algorithms (DSA)

Examination	**:Block Sessional**	**Seat No.**	**: _____**
Date	**: 19/04/2016**	**Day**	**:Tuesday**
Time	**:**	**Max. Marks**	**: 36**

INSTRUCTIONS:
1. Figures to the right indicate maximum marks for that question.
2. The symbols used carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

Q.1 Do as directed. **[12]**

(a) Draw Digital Search Tree (DST) using following data: **[2]**
00001 10011 00101 10010 00011 10100

(b) The post order traversal of binary tree is DEBFCA. Find pre order traversal. **[2]**

(c) In a circular queue the value of r will be... **[1]**
A) r=r+1 B) r=(r+1)% [QUEUE_SIZE – 1]
C) r=(r+1)% QUEUE_SIZE D) r=(r-1)% QUEUE_SIZE

(d) Explain two techniques of hashing with example **[2]**

(e) Write down real world application for the following data structure **[2]**
1) Doubly link list 2) graph 3) heap tree 4) Binary search tree

(f) Explain different tries structure with example. **[2]**

(g) The running time of quick sort largely depends on **[1]**
1) number of inputs 2) selection of pivot element 3) size of elements 4) space available

Q-2 Attempt any two from the following questions. **[12]**

[a] Write down algorithm for the following problem **[6]**
1) Insertion 2) Deletion 3) Insert Before

[b] Write down algorithm/Code to insert right child in threaded binary tree **[6]**

Q.3 Attempt the following questions. **[12]**

(a) Draw the Red black tree for the following data **[6]**
2,1,4,5,9,3,6
[note: show each tree during every insertion]

(b) Write down algorithm of DFS and show traversal of BFS and DFS on Graph given in figure **[6]**