

## KRISHNA KANTA HANDIQUI STATE OPEN UNIVERSITY

PGDCA/MCA/M Sc. IT 2<sup>nd</sup> Sem. Examination, 2015

Paper Code : 06

Paper : Data Structure Through C Language

Time: 2 hours Maximum marks: 50

The figures in the margin indicate full marks for the questions

- 1 Answer any three questions from the following : 2×3=6
- Distinguish between data and information using an example.
  - What do you mean by time-space complexity of an algorithm?
  - What is the significance of NULL pointer in a linked list?
  - Write the Pre-fix notation of  $A + (b * c) - (a/b \wedge c - D)$
- 2 Answer any three questions from the following : 4×2=8
- Explain insertion and deletion operations of Queue.
  - Write time complexity of the following algorithms –
    - Binary search
    - Linear search
    - Insertion sort
    - Selection sort
  - Write the algorithm for DFS.
- 3 Write a program to create linked list and remove all the duplicate elements of the list. The list should have unique elements. 6
- 4 Answer any three questions from the following 10×3=30
- Write a program to implement binary search techniques
  - Write a program to perform following stock operations.

- (i) Create a stock with item code and quantity

Item Code	Quantity
001	450
002	0
003	487
004	101
005	500

- (ii) Delete items having quantity zero and update the stock.

- c (i) Write a program to insert nodes into a binary search tree and traverse them in post order.

- (ii) Construct binary search tree for the following data

Inorder : F E A C D G H B I

Postorder : E F C D H I B G A

- d (i) Describe spanning tree

- (ii) Explain the difference between Stack and Queue with one example.

- (iii) What do you mean by complete graph?

- (iv) Distinguish between single link list and circular link list.