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HBO-1181 Seat No._____

B. C. A. (Sem. IV) Examination

April / May – 2015

BCA - 401 : Data Structure

Time : Hours] [Total Marks : 70

1 (a) Answer the following : 6

(i) Explain the term Data Structure.

(ii) Define : Array and algorithm.

(iii) List out string manipulation functions.

(b) Answer the following : (any two) 12

(i) Explain linear and non-linear data structure with its advantage and disadvantage.

(ii) Explain time and space efficiency of an algorithm with example.

(iii) Write an algorithm/program to compare two strings.

2 (a) Answer the following : 5

(i) Explain queue wth example.

(ii) Explain linked list as a data structure.

(iii) What is circular queue ?

(b) Answer the following : (any two) 12

(i) Write an algorithm for stack operations.

(ii) Write an algorithm to create a reverse linked list.

(iii) Write an algorithm to remove an element from singly linked list.

3 (a) Define following terms : 6

(i) Graph

(ii) Loop

(iii) Null Graph

(iv) Leaf node

(v) Isolated node

(vi) Binary tree

(b) Answer the following : (any two) 12

(i) Explain tree traversal algorithm with example.

(ii) explain B-tree and B+ tree with example.

(iii) Explain BFS with algorithm and example.

4 (a) Explain the following : 5

(i) Hashing functions

(ii) Collision

(b) Answer the following : (any two) 12

(i) What is sorting and write an algorithm to sort data using shell sort.

(ii) Explain quick sort with suitable example.

(iii) Explain sequential and index file organization in detail.

Push :-