



BW-1671

Seat No. _____

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

April / May – 2014

BCA - 401 : Data Structure

Time : 3 Hours]

[Total Marks : 70

- 1** (a) Attempt following questions : **6**
- (i) What is primitive data structure ?
 - (ii) What do you mean by algorithm ?
 - (iii) Define array and string.
- (b) Attempt following questions : (any two) **12**
- (i) What is Data structure ? Explain non primitive data structure in detail.
 - (ii) List out string manipulation functions. Explain any two string manipulation function with example.
 - (iii) Explain Time and Space efficiency of an algorithm in detail.
- 2** (a) Attempt following questions : **5**
- (i) Write full form of IRD and ORD.
 - (ii) List out the application of stack and queue.
 - (iii) What is priority queue ?
 - (iv) Write a difference between singly linked list and doubly linked list.
 - (v) Evaluate following post fix expression
2, 3, *, 6, 6, +, +, 12, –
- (b) Attempt following questions : (any two) **12**
- (i) What is stack ? Write algorithms of stack operations.

- 3** (a) Define following terms : **6**
- (i) Graph
 - (ii) Tree
 - (iii) Leaf node
 - (iv) Degree of node
 - (v) Weighted graph
 - (vi) Forest
- (b) Attempt following questions : (any two) **12**
- (i) What is BST ? Write algorithms of tree traversal operations.
 - (ii) Write a short note on height and weight balanced tree.
 - (iii) Explain BFS with algorithm and example.
- 4** (a) Attempt following questions : **5**
- (i) What do you mean by sorting ? List out all sorting techniques.
 - (ii) Write a difference between bubble sort and selection sort.
 - (iii) List out all Hashing functions.
 - (iv) Explain the term : Collision
 - (v) What do you mean by sequential file ?
- (b) Attempt following questions : (any two) **12**
- (i) Explain Binary search with algorithm.
 - (ii) Explain radix sort with suitable example.
 - (iii) Explain selection sort with algorithm.