



DBB-003-007202 Seat No. _____
M. C. A. (Sem. II) (CBCS) Examination
May / June - 2015
CCA - 2002: Data structure and Algorithm

Faculty Code : 003
Subject Code : 007202

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 Answer the following multiple choice questions : **15**

- (1) _____ Is a pile in which items are added at one end and removed from the other.
(a) Stack (b) Queue
(c) List (d) None of the above.
- (2) Sparse matrices have _____
(a) Many zero entries (b) Many non-zero entries
(c) Higher dimension (d) None of the above.
- (3) The postfix expression for $* + a b - c d$ is?
(a) $ab + cd - *$ (b) $ab cd + - *$
(c) $ab + cd * -$ (d) $ab + - cd *$
- (4) In a priority queue insertion and deletion takes place at
(a) front, rear end (b) only at rear end
(c) only at front end (d) any position
- (5) Sort which compares adjacent elements in a list and switches where necessary is _____.
(a) Insertion sort (b) Heap sort
(c) Bubble sort (d) Quick sort

- (12) Binary search algorithm can be applied to
- (a) Sorted linked list (b) Sorted binary trees
(c) Sorted linear array (d) Pointer array
- (13) Which of the following sorting algorithm is of divide-and-conquer type?
- (a) Bubble sort (b) Insertion sort
(c) Quick sort (d) All of the above
- (14) Hashing collision resolution techniques are
- (a) Huffman coding, linear hashing
(b) Bucket addressing, Huffman coding
(c) Chaining, Huffman coding
(d) Chaining, Bucket addressing
- (15) Recursive problems are implemented using _____.
- (a) Queue (b) Stack
(c) Linked list (d) String

2 Attempt **any five** of the following : **15**

- (1) What is primitive data structure?
- (2) State the principle of stack and give its two applications.
- (3) What is array of structure? Explain with brief example.
- (4) What are sparse matrices?
- (5) Define: linked allocation. List applications of linked linear list.
- (6) What is priority queue? How it is different from queue.

3 Attempt **any three** of the following : **15**

- (1) What is hashing? List various hashing functions and explain any one in detail.
- (2) Explain reversing and copy string to other string without using built-in function.
- (3) What is singly linked linear list? Write algorithm / program to delete node from singly linked linear list from particular location.
- (4) Explain in detail application of trees.

4 Attempt **any two** of the following : **15**

- (1) What is tree? Explain preorder, inorder and postorder traversal of a binary tree taking suitable example.
- (2) What is queue? How it is different from stack? Explain various operations on queue.
- (3) What is binary search? State advantage of binary search against sequential search. Write algorithm / program to demonstrate binary search.

5 Attempt **any one** of the following : **10**

- (1) List out various sorting techniques. Explain Radix sort and Bubble sort in detail.
- (2) Define: doubly linked linear list. Explain with example various operations on doubly linked linear list such as creating list, insert node in a list (k^{th} position), delete node (from k^{th} position) from a list.