Roll No .....

MEDC - 201

M.E./M.Tech., II Semester

Examination, December 2015

System Programming

Time : Three Hours

Maximum Marks : 70

Note: Attempt any five questions. All questions carry equal marks. Assume Data/Value if required.

1. a) Explain the different operations to be performed on data structures.
   b) Differentiate between the iteration and recursion with example.

2. a) Write a program to find the smallest number of an array.
   b) How we can declare Array of structures? Write also limitation of Linear Arrays.

3. a) Give Postfix form for

   $A + (B * C - (D / E \wedge F) *) * H$

   b) Write C program to accomplish POP stack operation.

4. a) Suppose the following values are inserted into a binary tree, in the order given.

   12, 7, 9, 10, 22, 24, 30, 18, 3, 14, 20

   Draw a diagram of the resulting binary tree.

   b) What is generalized list? What are the applications of link list?

5. a) How do you represent a queue in computer memory? What are the disadvantages of a queue?
   b) Draw different type of tree.

6. a) Write an Algorithm to sort *n* numbers in ascending order using Merge sort, and compute its time complexity.
   b) Write a pseudocode of the dynamic programming algorithm for solving optimal binary search tree and determine its time and space efficiencies.

7. a) What are the different methods of hashing?
   b) Differentiate between the linear and binary search.

8. Write short note on :
   a) AVL tree
   b) Assembler
   c) Operating system.

******