

Roll No

MEDC - 201**M.E./M.Tech., II Semester**

Examination, July 2015

System Programming**Time : Three Hours****Maximum Marks : 70****Note :** i) Attempt any five questions.

ii) All questions carry equal marks.

1. a) Discuss the various steps in problem solving with digital computer algorithm? Take any example to elaborate your answer. 7
b) What is recursion? Differentiate it with iteration? Write a recursive algorithm to generate fibonacci series. 7
2. a) How are multidimensional array represented in a computer? Illustrate your answer with example. Also generate formula to calculate the address of an element of the array. 7
b) Distinguish between static memory allocation and dynamic memory allocation. Also explain how to implement them. 7
3. a) Show how a polynomial can be represented using linked list. Write an algorithm to add two polynomials containing minimum of four terms. 7
b) Explain B-tree with insertion and deletion operations performed on it by using suitable example of data list. 7
4. a) Explain the operation of inserting an element at the front, middle and at the rear in a doubly linked list. 7
b) What is circular queue? Write an algorithm to insert an item in queue. Write another function for printing elements of queue in reverse order. 7
5. a) Distinguish between linear and binary search algorithm. Also write an algorithm for non recursive binary search algorithm? 7
b) Explain divide and conquer strategy giving its control abstraction. What will be the recurrence relation if the problem is equally subdivided. 7
6. a) What are decision tree? Explain the concept of decision tree for sorting algorithm. 7
b) Write a program in 'C' for Heap sort that should also print the number of passes, the number of comparisons in each pass and total number of comparisons to sort n elements. 7
7. a) What is meant by intermediate code? Explain the various intermediate code generation. 7
b) Explain the design of a Two pass assembler with the help of flow chart. 7
8. Write short notes: 14
 - a) Editors
 - b) AVL Tree
 - c) Hash search
 - d) Compiler Vs Interpreter