STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI – 600 086
(For candidates admitted during the academic year 2009-10)

SUBJECT CODE : CS/PC/AD24

M. Sc. DEGREE EXAMINATION, APRIL 2010
INFORMATION TECHNOLOGY
SECOND SEMESTER

COURSE   :   CORE
PAPER   :   ALGORITHMS AND DATA STRUCTURES
TIME   :   3 HOURS   MAX. MARKS : 100

SECTION – A

Answer all the questions :   **10 x 2 = 20**

1) What is an algorithm?

2) What is a pseudocode?

3) Define space and time complexity?

4) What is Linked List?

5) Define a complete Binary Tree?

6) Write a binary tree for the following Algebraic Expressions

$$E= (A-B)/ ((C*D) +E)$$

7) What is priority queue?

8) Define sorting and searching?

9) What are the disadvantages of Insertion Sort?

10) What is spanning tree?

SECTION – B

Answer any six of the following :   **6 x 5 = 30**

11) Write are the criteria to be satisfied by an Algorithm.

12) Define the following terms

    a. Recursive Function

    b. Direct Recursive Function

    c. Indirect Recursive Function

13) Write short notes on Queues?

14) Write short notes on Binary Trees?

15) Write the short notes on merge sort?

16) Write an algorithm for Depth First Search (DFS)?

17) Describe in detail about abstract data Type.

18) Brief on quick sorting.

SECTION – C

Answer any five of the following :   **5 x 10 = 50**

19) Write basic steps to develop a complete algorithm?

20) Explain the implementation of Stacks using Arrays?

21) Explain various operations on Arrays?

22) Explain linked representation of Binary tree in memory?

23) Explain Priority Queues (Heaps) Model?

24) Write an algorithm for Insertion Sort?

25) Explain shortest path algorithm with an example?

✳✳✳✳✳✳