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MMT-001 (P)

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M.Sc. (MACS) PROGRAMME

Term-End Examination

December, 2011

MMT-001 (P) : PROGRAM AND DATA STRUCTURE

Time : 2 hours *Maximum Marks : 50*

Note : *There are **two** questions in this paper totalling **40** marks. Answer both of them. Remaining **10** marks are for the **Viva-Voce.***

1. Write a function that finds the transpose of a square matrix. Use the function and the relation $A = \frac{1}{2}\left(A - A^T\right) + \frac{1}{2}\left(A + A^T\right)$ Where A^T is the transpose of A. **15**

to write a program in 'C' language that writes a square matrix as the sum of a symmetric matrix and a skew symmetric matrix. use the program to write the matrix $\begin{bmatrix} 1 & 2 & 4 & 5 & 3 \\ 3 & 2 & 1 & 4 & 5 \\ 2 & 3 & 1 & 5 & 4 \\ 5 & 4 & 1 & 3 & 2 \\ 4 & 1 & 3 & 2 & 5 \end{bmatrix}$ as the sum of a square matrix and a skew symmetric matrix.

2. Write a program in 'C' language that implements a list using array. The elements of the list are strings. Do the following operations : 25

(a) Add the strings "red", "blue", "orange", "black" and "green" in positions 1, 2, 3, 4 and 5, respectively.

(b) Insert "yellow" at the first position.

(c) Insert "purple" at the fourth position.

(d) Remove "orange" from the list.

(e) Print all the elements in list in the order in which they are stored.
