MMTE-005 (P)

00751

M.Sc. MATHEMATICS WITH APPLICATIONS IN COMPUTER SCIENCE (MACS)

Term-End Practical Examination

June, 2013

MMTE-005 (P) : CODING THEORY

Time : 1½ hours *Maximum Marks : 40*

Note : *This question paper has **two** questions for **30** marks. Answer **both** of them. Remaining **10** marks are for the **viva-voce**.*

1. Write a C program for adding and multiplying elements of the finite field $\mathbf{F}_2[x]/<x^5+x^3+1>$. Use it to find the product of the elements $x^3+x+<x^5+x^3+1>$ and $x^4+x^2+<x^5+x^3+1>$. **15**

2. Write a C programme that does the following : **15**

(a) Finds all the possible code, word of a (7, 4) linear block code whose generator matrix is given below :

$$\begin{bmatrix} 1 & 0 & 0 & 0 & 1 & 0 & 1 \\ 0 & 1 & 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 1 & 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 & 0 & 0 & 1 \end{bmatrix}$$

(b) Calculate the syndrom table for the above code.

(c) Decode the message 1100110.
