

M.Sc. (MATHEMATICS WITH APPLICATIONS IN COMPUTER SCIENCE)**M.Sc. (MACS)****Term-End Practical Examination**

00113

June, 2015**MMTE-005(P) : CODING THEORY***Time : $1\frac{1}{2}$ hours**Maximum Marks : 40*

-
- Note :** (i) *This question paper has **one** question worth 30 marks.*
(ii) *Remaining 10 marks are for the viva-voce.*
-

1. (a) Let

$$G = \begin{bmatrix} 1 & 2 & 0 & 1 & 2 & 0 & 1 & 2 \\ 0 & 0 & 1 & 1 & 2 & 2 & 1 & 0 \\ 0 & 0 & 0 & 1 & 2 & 1 & 2 & 1 \end{bmatrix}$$

- (i) Write a 'C' program to find all code words of the code generated by G. 10
(ii) Find the minimum distance of the code. 5
- (b) Write a 'C' program for adding and multiplying elements in the finite field $\mathbb{F}_2[x] / \langle x^5 + x^2 + 1 \rangle$. Use it to find the sum and product of the elements $x^2 + x + \langle x^5 + x^2 + 1 \rangle$ and $x^4 + x + \langle x^5 + x^2 + 1 \rangle$. 15
-