No. of Printed Pages : 2 **MMTE-005(P)(Set-II)**

M. SC. (MATHEMATICS WITH APPLICATIONS IN COMPUTER SCIENCE) [M. SC. (MACS)]

Term-End Practical Examination

December, 2024

MMTE-005(P)(Set-II) : CODING THEORY

Time : $1\frac{1}{2}$ Hours *Maximum Marks : 40*

Note : *(i) The question paper has two questions worth 30 marks.*

(ii) Attempt both of them.

(iii) The remaining 10 marks are for the viva-voce.

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1. (a) Write a 'C' program for computing CRC with CRC polynomial $x^9 + x^2 + 1$. 10

   (b) Compute the CRC for the following message using the above program : 10

   1001 1001 1010 0011 1011 1001 1010 1000

2. Write a 'C' program to find the minimum distance of the code over $\mathbf{Z}_5$ whose generator matrix is given by : 10

$$\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & 3 & 1 & 0 \\ 0 & 1 & 0 & 0 & 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 0 & 0 & 2 & 2 & 0 \\ 0 & 0 & 0 & 1 & 0 & 4 & 0 & 2 \\ 0 & 0 & 0 & 0 & 1 & 1 & 4 & 2 \end{bmatrix}$$

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