

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

Term-End Practical Examination

00138

June, 2017

MMTE-005(P) : CODING THEORY

Time : $1\frac{1}{2}$ Hours

Maximum Marks : 40

Note : (i) *This question paper has two questions worth 30 marks.*
(ii) *The remaining 10 marks are for the viva-voce.*

1. Write a 'C' program for computing the CRC, with CRC polynomial $x^{12} + x^{11} + x^3 + x^2 + x + 1$.

Compute the CRC for the following message using the program above :

11001 10111 11001 11010 10001 10111.

Assume that the messages are 8 bits long.

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2. Write a program to find the sum and product of elements in the finite field $F_2[X]/\langle x^5 + x^3 + 1 \rangle$. Use it to find the sum and product of the elements $x^3 + x + 1 + \langle x^5 + x^3 + 1 \rangle$ and $x^4 + x^2 + x + \langle x^5 + x^3 + 1 \rangle$.

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