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

00446

Term-End Examination

June, 2013

MMTE-006 (P) : CRYPTOGRAPHY

Time : 1½ hours   Maximum Marks : 40

Note : There are **two** questions in this paper totalling **30 marks.** Answer **both** of them. Remaining **10 marks** are for the viva-voce.

1. The following text was encrypted using a shift   **15** cipher. UVTIP GKZEX JYZWK TZGYV IZJVR JPQQQ. Write a programme in C language that prints all possible shifts. Use your programme to decipher the above encrypted text and find the encryption and decryption keys.

2. (a) Find the inverse of $\begin{pmatrix} \overline{2}, & \overline{14}, & \overline{2} \\ \overline{6}, & \overline{9}, & \overline{12} \\ \overline{1}, & \overline{3}, & \overline{2} \end{pmatrix} \in GL_3(83)$ **5**

    using G.P.

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(b) Write a programme in G.P. that decrypts   **10**
using Vigenire cipher. Decrypt the following
text :

"QDLM TPI WAOOECBOT UNUNCI BJW
PNF WVR TRE CAXERBGAD"
Using the key "MARKTWAIN".

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