

No. of Printed Pages : 2 **MMTE-006(P)(Set-II)**

**M. Sc. (MATHEMATICS WITH  
APPLICATIONS IN COMPUTER  
SCIENCE) [M. SC. (MACS)]  
Term-End Practical Examination  
June, 2025**

**MMTE-006(P)(Set-II) : CRYPTOGRAPHY**

*Time : 1½ Hours*

*Maximum Marks : 40*

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- Note :** (i) *The question paper has two questions worth 30 marks. Attempt both of them.*
- (ii) *The remaining 10 marks are for viva-voce.*
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1. The following text was encrypted using a shift cipher :

UVTIP GKZEX JYZWK TZGYV IZJVR  
JPQQQ

Write a program in C language that print all possible shifts. Use your program to decrypt the above encrypted text and find the encryption and decryption keys.                      15

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

- (b) Write a program in GP that decrypt using Vigenere cipher. Decrypt the following text :

QDLM TPI WAOOECBOT UNUNCI  
 BJW PNF WVR TRE CAXERBGAD  
 using the key 'MARKTWAIN'.                      10

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