

Duration: 3 Hours



Max. Marks: 80

Instructions:

- (1) Question no 1 is Compulsory
- (2) Write any Three from Remaining
- (3) Assume suitable data if necessary

Question No.		Max. Marks
Q 1 (a)	Explain Prefix code and Kraft Inequality	04
Q 1 (b)	Write difference between GIF and JPEG	04
Q 1 (c)	Define following terms 1.Code Efficiency 2.Hamming Distance 3.Minium Distance (d_{min}) 4.Hamming Weight	04
Q 1 (d)	Three Security Goals in Cryptography.Explain	04
Q 1 (e)	State and explain Fermat,s Little theorem with suitable example and use	04
Q2 (a)	State Chinese Remainder Theorem using it solve for X. $X = 2 \text{ MOD } 3$ $X = 3 \text{ MOD } 5$ $X = 2 \text{ MOD } 7$	10
Q2 (b)	Describe DES	05
Q2 (c)	What is Information rate And write properties of Information	05
Q3 (a)	For (7,4) linear block code $H = \begin{bmatrix} 1 & 1 & 1 & 0 & 1 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 & 1 & 0 \\ 1 & 1 & 0 & 1 & 0 & 0 & 1 \end{bmatrix}$ Find 1. Generator matrix 2. All code vectors 3. Number of error that can be detected and corrected	10
Q3 (b)	Differentiate between block cipher and stream cipher	05
Q3 (c)	With block diagram explain JPEG Encoder	05
Q4 (a)	Derive Huffman code for the source having $p(x) = \{0.07, 0.08, 0.04, 0.26, 0.14, 0.09, 0.07, 0.25\}$. Find coding efficiency and redundancy.	10
Q4 (b)	With example explain Convolution code	05
Q4 (c)	Explain Diffie- Hellman Algorithm .Which attack it is vulnerable to?	05
Q5 (a)	Encode the string using LZW Technique abracadaba	10
Q5 (b)	Compare Symmetric and Asymmetric key cryptography.	05
Q5 (c)	Use the Euclidean,s algorithm to find gcd (1819,3587).	05
	Write short notes	
Q6 (a)	RSA algorithm	05
Q6 (b)	Cyclic and Prefix codes	05
Q6 (c)	Lossy and Lossless Compression	05
Q6 (d)	Shannon's Limit	05