Duration :3hrs **Max.Marks:80**

N.B. (1) Question No. 1 is compulsory.
(2)Attempt any three questions out of remaining five.
(3)Figures to the right indicate full marks.
(4)Assume suitable data if required and mention the same in answer sheet.

1. Solve any four **20**
(a) Explain test for unique decodability with suitable example
(b) What are the main features of MPEG-1?
(c) Explain Chinese Reminder theorem (CRT) with example.
(d) What are the limitations of JPEG? How to overcome these limitations?
(e) What are the various models used for data compression?

2. (a) A Source K= [a, b, c, d] has probabilities [0.7,0.05,0.15,0.1] respectively. Generate tag for the sequence [a c d b a] using Arithmetic coding. **10**
(b) What is the significance of prime numbers in public key cryptography? Explain RSA algorithm with suitable example. **10**

3. (a) What do you mean by secure hash algorithm (SHA) explain in detail. What are the characteristics of secure hash algorithm? **10**
(b) Explain modification detection code (MDC) and message authentication code (MAC) w.r.t. message authentication. **10**

4. (a) Take an alphabet string and show encoding procedure for LZ78 and LZW. Compare LZ78 and LZW **10**
(b) Explain update procedure and encoding for the adaptive Huffman coding algorithm with suitable diagram / examples. **10**

5. (a) Explain Triple DES with Two Keys in detail. **10**
(b) Explain Ceaser Cipher and multiplicative cipher with suitable examples and diagrams. **10**

6. Write short note on(any four) **20**
(a) SSL Architecture
(b) Intrusion detection system
(c) PGP
(d) JPEG LS
(e) H.261

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