QP Code : 29786

(3 Hours) **[Total Marks : 100**

N.B 1.Question No. 1 Is compulsory.

2.Attempt any four questions.out of the remaining six questions

1 a What are the various models used for data compression ? 05

b What are active and passive attacks? 05

c What is Biometric authentication? Explain with examples. 05

d What is the need for data compression? 05

2 a A source emits letter from an alphabet A={ a1 , a2 , a3 , a4, a5 } 10
with probabilities P(a1) = 0.15, P(a2) = 0.04, P(a3) = 0.26,
P(a4) = 0.05 and P(a5)=0.50.
   a) Calculate the entropy of this source
   b) Find the Huffman code for this source.
   c) Find the average length of the code in and its redundancy

b Explain the working of DES. 10

3 a Show the difference in the encoding procedure of LZ78 and LZW 10
with an example.
b How are keys distributed in conventional encryption systems? 10

4 a Discuss the various lossless techniques for image compression. 10
b Explain Chinese Remainder Theorem with an example. 10

5 a How is motion compensation used in video compression? 10
b What are the various aspects of Firewall design? 10

6 a Discuss the differences in compression schemes of JPEG and
JPEG 2000. 10
b What are digital signatures and how are they implemented ? 10

7. Write notes on[Any TWO] 20
   a Elliptic Curve Cryptography
   b MPEG Audio System
   c ADPCM Encoder and Decoder

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