

[Time: 3 Hrs ]

[ Marks: 80 ]

Please check whether you have got the right question paper.

- N.B:
1. Question No 1 is compulsory.
  2. Attempt any three questions from remaining five questions.
  3. Assume suitable data where necessary.

- Q. 1** Answer **any four:** (20)
- a) What are different types of redundancies to be considered for text & image & video compression?
  - b) Solve using fermat's theorem  $6^{10} \bmod 11$
  - c) What is Denial of service (DOS) attack? Explain with suitable examples.
  - d) Consider a direct memoryless source with  $p(x_1) = 0.2$ ,  $p(x_2) = 0.4$ ,  $p(x_3) = 0.1$ ,  $p(x_4) = 0.2$ ,  $p(x_5) = 0.1$ . Find the code using minimum variance Huffman code.
  - e) Compare A law &  $\mu$  Law companding.
- Q. 2** a) Explain JPEG compression technique. (10)
- b) Explain update procedure for Adaptive Huffman code. (10)
- Q. 3** a) Apply Diffie-Hellman key exchange algorithm for  $g=7$ ,  $n=17$  select  $x=6$  &  $y=4$  find key  $k_1$  &  $k_2$  for diffie-Hellman Algorithm. (10)
- b) Encode and decode using LZW algorithm- 'RINKYPINKY'. (10)
- Q. 4** a) Explain Arithmetic modes of Block Transfer. (10)
- b) Explain Frequency & Temporal masking. (10)
- Q. 5** a) Explain H-264 encoder & decoder. (10)
- b) What are different types of fire wall explain them. (10)
- Q. 6** Write short note on **any two:** (10)
- 1) Biometric Authentication
  - 2) Hash & MAC functions
  - 3) Security Principles

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