B E | EXTC | sem - VII | Elective - DCE | 27/11/2014 (61) 35+26

QP Code :15372

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

N. B. : (1) Question **No.1** is **compulsory.**
(2) Attempt any **four** questions from remaining **six.**
(3) Assume **suitable** data wherever **necessary** with proper Justification.

1. (a) Discuss the basic data compression techniques with suitable examples. **20**
(b) Explain predictive coding techniques for compression.
(c) Explain Chinese remainder algorithm with example.
(d) What is the difference between MDC and MAC? Explain criteria for cryptographic hash function.

2. (a) Design a minimum variance huffman code for a source that put out letter from an alphabet A={a_1,a_2,a_3,a_4,a_5,a_6} with P(a_1)=P (a_2)=0.2, P(a_3)=0.25 , P(a_4)=0.05, P(a_5)=0.15, P(a_6)=0.15 **20**
Find the entropy of the source, avg. length of the code and efficiency. Also comment on difference between huffman code and minimum variance huffman code.
(b) Encode the following sequence using the LZ-77 algorithm barrayarbybybarrayarbbay. Assume you have a window size of 15 with look ahead buffer of size 7. Further more assume that c(a)=1, c(b)=2 , c(b)=3 c(r)=4, c(y)=5.

3. (a) Discuss the drawbacks of different conventional method in audio compression. **20**
Explain silence compression in lossy audio compression technique.
(b) Describe the format of μ -law encoder and decoder specified by G.711.
Find out the codeword for - 656 input sample using μ– law encoder specified by G.711
Give difference between μ– law and A law companding.

4. (a) Explain the attack on double DES. Discuss Triple DES with three keys and triple DES with two keys. **20**
(b) Explain steganography with example Distinguish between steganography and cryptography.

5. (a) State Fermat's little theorem and Euler's theorem. **20**
Find multiplicative inverse of following without using extended euclidean algorithm.
(i) 8^{-1} mod 77
(ii) 7^{-1} mod 15
Also explain the use of Euler's theorem in RSA cryptosystem.

[TURN OVER

Correction attached