B.E. (Electronics Engineering) Eighth Semester (C.B.S.)

Elective-III : Data Compression & Encryption

P. Pages : 2 **NRJ/KW/17/4697**

Time : Three Hours * 0 2 5 2 * Max. Marks : 80

Notes :
1. All questions carry marks as indicated.
2. Solve Question 1 OR Questions No. 2.
3. Solve Question 3 OR Questions No. 4.
4. Solve Question 5 OR Questions No. 6.
5. Solve Question 7 OR Questions No. 8.
6. Solve Question 9 OR Questions No. 10.
7. Solve Question 11 OR Questions No. 12.
8. Due credit will be given to neatness and adequate dimensions.
9. Assume suitable data whenever necessary.
10. Diagrams and chemical equations should be given whenever necessary.
11. Illustrate your answers whenever necessary with the help of neat sketches.
12. Use of non programmable calculator is permitted.

1. a) Write down the steps involved in Shannon Fano coding with their merits and demerits. **7**

b) The eight source symbols A, B, C, D, E, F, G, H are given with their probabilities 1/30, 1/30, 1/30, 1/30, 2/30, 5/30, 5/30 & 12/30 respectively. Find out the average codeword length and entropy of the source. **7**

OR

2. a) Encode the string TENNESSE with dynamic Huffman coding. **8**

b) The string of characters with probabilities of e = 0.3, n = 0.3, • = 0.1, t = 0.2, w = 0.1 is given. Encode and decode this string with arithmetic coding. **6**

3. a) Explain the format of compressed data with layers. **8**

b) Explain ADPCM with neat block diagram. **5**

OR

4. a) Write a short note on frequency domain coding. **7**

b) Explain MPEG encoder and decoder with neat diagram. **6**

5. a) Explain gray code with example. **7**

b) Explain encoder and decoder of JPEG. **6**

OR

6.	a)	Explain different MPEG industrial standards.	**7**
	b)	Write a short note on video compression.	**6**
7.	a)	Explain the process of block Cipher principle.	**7**
	b)	Give the design rules of S-Box.	**7**

OR

8.	a)	Write a short note on steganography.	**7**
	b)	Explain the process of DES.	**7**
9.	a)	Explain Diffie Helman key exchange with mathematical equations.	**7**
	b)	Write short note on Chinese Remainder Theorem.	**6**

OR

10.	a)	Is it necessary to recover the secret key in order to attack MAC algorithms.	**7**
	b)	Give the general ideas behind digital signature standard scheme.	**6**
11.	a)	Define biometrics & distinguish between two broad categories of the techniques.	**7**
	b)	Write down the key features of secure electronic transaction.	**6**

OR

12.	a)	Write a short note on the following. i) Intruders ii) Viruses	**6**
	b)	What are the different antivirus techniques explain that.	**7**

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