B.E. Sem. VII (Rev.) EXTC. Nov. Dec. 2006

[REVISED COURSE] Data Compression & C

1/5200-06. YM-5

(3 Hours) [Total Marks :

NOTE: 1.QUESTION NO.1 IS COMPULSORY.
2.ATTEMPT ANY **FOUR** OF THE REMAINING **SIX** QUESTIONS.
3.ASSUME SUITABLE DATA WHEREVER REQUIRED.

1	A	What are uniquely decodable codes?What are the tests performed to determine them.	05
	B	What is 'motion compensation' with respect to video compression.	05
	C	Compare symmetric and public key cryptography.	05
	D	What are 'active' and 'passive' attacks on the security of a system.	05
2	A	A source emits letters from an alphabet A={m,n,o,p,q} with Probabilities {0.1,0.3.0.3,0.15,0.15} respectively.	
		1.Find the Shannon Fano code for the above source.	04
		2.Find the Huffman code using the minimum variance method.	04
		3.Compare the average length and redundancies for both the codes.	02
	B	Describe the various authentication requirements for communication across the network.Explain different authentication functions.	10
3	A	With S={w,x,y,z} and P {0.4,0.3,0.1,0.2} respectively, we encode the message 'w x y y z' .Using arithmetic coding generate a tag for encoding and also decipher the tag to decode the sequence.	10
	B	What is the significance of 'prime numbers' in public key cryptography.Explain the RSA algorithm with a suitable example.	10
4	A	Given an initial dictionary consisting of letters a, b, r, y, \b. Encode using LZW algorithm a\bbar\barray\bby\barrayar\bbay.Also decode using The encoding sequence to get back the string.	10
	B	Show DES decryption is an inverse of DES encryption .What is 'meet in the middle' attack?Why is the middle part in triple DES 'decryption'.	10
5	A	Explain the various steps involved in the image compression in JPEG.Why is DCT more popular as compared to other transforms for image compression.	10
	B	Discuss the various steps involved in the Key Exchange in symmetric encryptionusing Key Distribution Center.	10
6	A	Give a suitable scheme for speech compression.Discuss the MPEG audio encoder and decode systems.	10
	B	Suggest a suitable scheme for secure communication between users A and B covering issues of confidentiality and authentication.Justify your choice.	10
7		Write notes on (any TWO) a)PPM method of text compression b)Vector quantization c)Digital Signatures	20