



Reg. No. :

--	--	--	--	--	--	--	--	--	--	--	--

Question Paper Code : X10335

B.E./B.Tech. DEGREE EXAMINATIONS, APRIL/MAY 2021
Sixth Semester
Electronics and Communication Engineering
EC 8002 – MULTIMEDIA COMPRESSION AND COMMUNICATION
(Regulations 2017)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions

PART – A

(10×2=20 Marks)

1. Perform DPCM on a data sequence {9, 11, 11, 11, 14, 13, 15, 17, 16, 17, 20, 21} and compute its compression ratio.
2. Define vector quantization.
3. Represent GIF interlaced mode.
4. Indicate the resolution of Tagged image file format.
5. If the original image is 256×256 pixels, 8 bits/pixel, it would occupy 65,536 bytes. After compression it occupies 6554 bytes. Calculate the compression ratio.
6. For the image shown below, compute the degree of compression that can be achieved using horizontal run length coding, assuming 2 bits to represent the pixel value and 2 bits to represent the run length.

$$\begin{bmatrix} 3 & 3 & 3 & 2 \\ 2 & 3 & 3 & 3 \\ 3 & 2 & 2 & 2 \\ 2 & 1 & 1 & 0 \end{bmatrix}$$

7. Identify the working principle of cache.
8. Indicate the significance of quality services and metrics in multimedia communication.
9. Give the streaming characteristics for continuous media data.
10. Represent Jitter in multimedia communication.



PART – B

(5×13=65 Marks)

11. a) Discuss the encoder and decoder schematic of linear predictive coding with its vocal tract excitation parameters.

(OR)

- b) Explain the Code Excited Linear Predictive coding with respect to bit rate, total coder delay. Also discuss the applications of various CELP based standards.

12. a) Design the ITU-T H.263 encoder with neat sketch and explain its Motion Compensation Algorithms.

(OR)

- b) Draw and describe the simplified block diagram representing the basic strategy and frame structures used in all three layers of MPEG coding algorithms.

13. a) With a decoder algorithm explain the decoder implementation of integer arithmetic coding. Also for the encoded binary sequence 1100010010000000, decode the sequence with parameters given in table below, and $m = 8$.

Count (1) = 40	Scale 3 = 0
Count (2) = 1	
Count (3) = 9	
Total count = 50	

(OR)

- b) A sequence is encoded using LZW algorithm and the initial dictionary shown in the table below.

Index	Entry
1	a
2	b
3	h
4	i
5	s
6	t

The encoder output sequence as follows : Decode the sequence.

6	3	4	5	2	3	1	6	2	9
11	16	12	14	4	20	10	8	23	13



14. a) Discuss in detail about the Quality of Service Architecture with services and mechanisms for quality of service management and control of continuous media flows in multiservice networks.

(OR)

- b) Enumerate the significance of network performance parameters and also explain the factors that affect the performance of the network.

15. a) Discuss in detail about the streaming of video and audio in multimedia communication.

(OR)

- b) With neat sketch, discuss the protocol functions, packet header and message types of RTP Control Protocol (RTCP).

PART – C

(1×15=15 Marks)

16. a) Encode and decode the following sequence using the LZ77 algorithm cabracadabrarrarrad.

Assume a window size of 13 with look-ahead buffer size of 6 and search buffer of size 7.

(OR)

- b) Consider the message {a a r d v a r k}, where alphabet consist of 26 lower case letters of English alphabet (e=4 and r=10). Encode and decode the sequence using Adaptive Huffman Coding.
-