

Roll No.

Total Pages : 04

BT-8/D-13

8812

MULTIMEDIA COMMUNICATIONS

ECE-406-E

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) What is meant by Multimedia Communication ? Explain with an example. 4
- (b) Mention basic types of communication networks that are used to support multimedia communication services. 10
- (c) Briefly explain the following : 6
 - (i) Packetization delay
 - (ii) Mean Packet Transfer delay
 - (iii) Jitter.

2. (a) What is the difference between a bitonal image and a continuous-tone image ? 4
- (b) Determine the amount of memory required to store an image of the display size 1920×1080 . Also calculate the time to transmit the above image at a bit rate of 56 kbps. 6
- (c) With the help of proper diagram, describe the following digitization formats : 10
- (i) 4 : 2 : 2
 - (ii) 4 : 2 : 0
 - (iii) SIF
 - (iv) CIF
 - (v) Q-CIF.

Unit II

3. (a) The messages comprising seven different characters 'A' through 'G' are to be transmitted over a data link. The relative frequency of occurrence of each character is :
- A : 0.10, B : 0.25, C : 0.05, D : 0.32,
E : 0.01, F : 0.07, G : 0.2
- Derive the entropy of the messages and suitable set of codewords using static Huffman coding. 12
- (b) Write a note on Lempel-Ziv coding. 8

4. (a) What are digitized pictures ? Give the schematic of JPEG encoder and explain it in detail. 10
- (b) Explain differential encoding. Why is this encoding used for the compression of the DC coefficient in successive blocks. 10

Unit III

5. (a) Explain how a basic ADPCM scheme obtains improved performance over the DPCM scheme. 10
- (b) Discuss in detail code excited LPC. 10
6. (a) Explain the following :
- (i) I-frames
 - (ii) P-frames
 - (iii) B-frames. 3
- (b) With the help of proper diagram, explain how the motion vectors and prediction error are computed for a B-frame. 7
- (c) Write short notes on the following : 10
- (i) H.261
 - (ii) H.263.

Unit IV

7. (a) Show the structure of the domain name system and explain it. 10
- (b) What is recursive name resolution? Explain with an example the sequences of messages exchanges for a recursive name resolution. 10
8. Write short notes on the following :
- (a) MIME 10
- (b) World Wide Web. 10