USN [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]   **18EC743**

Seventh Semester B.E. Degree Examination, Dec.2024/Jan.2025
Multimedia Communication

Time: 3 hrs.   Max. Marks: 100

Note: *Answer any FIVE full questions, choosing ONE full question from each module.*

Module-1

1 a. Explain the operational points of multipoint conferencing. **(07 Marks)**
   b. A webpage of 100 M bytes is being retrieved from a web server. Neglecting server and trunk delays. Calculate time taken to transfer the page over :
      i) PSTN modern operating at 28.8 Kbps
      ii) Primary rate ISDN access line of 27 Mbps **(06 Marks)**
   c. Explain the key QoS parameters associated with packet switching. **(07 Marks)**

OR

2 a. Explain the working principle of circuit mode of operation of multimedia networks. Also, list its salient features. **(07 Marks)**
   b. Describe the main components of PSTN. With the help of diagram. **(07 Marks)**
   c. Explain briefly movie on Demand and Near Movie on demand. **(06 Marks)**

Module-2

3 a. Describe briefly the design of a signal encoder used in analog to digital converters, with the necessary diagrams and waveforms. **(08 Marks)**
   b. Define three types of texts. Explain the hyper text that enables integrated set of documents. **(05 Marks)**
   c. Explain the raster scan operation associated with TV/computer. **(07 Marks)**

OR

4 a. Calculate the time taken to transmit the following digitized images at both 64 Kbps and 1.5 Mbps.
      i) $640 \times 480 \times 8$ VGA compatible image
      ii) $1024 \times 768 \times 24$ SVGA compatible image **(06 Marks)**
   b. Explain audio/sound synthesizer with a necessary diagram. **(06 Marks)**
   c. Describe the 4:2:0 digitization formats, state the temporal resolution, spatial resolution, bit rate and give an example. **(08 Marks)**

Module-3

5 a. Derive the code for the string "ABACADABACADABACABAB" using Huffman coding. Draw the Huffman code Tree. Determine the saving in transmission bandwidth over normal ASCII and binary coding schemes. **(08 Marks)**
   b. Explain the features of Graphics Interchange format. **(06 Marks)**
   c. Describe the role of image/block preparation in JPEG. **(06 Marks)**

OR

6 a. Explain Lempel – Ziv – Wash (LZW) algorithm with an example. **(06 Marks)**
   b. Derive the code for string "WENT". Comprising characters with the following probabilities E = 0.3, N = 0.3, T = 0.2, W = 0.1, • = 0.1 using arithmetic coding. **(08 Marks)**
   c. Explain the operation an of JPEG decoder. **(06 Marks)**

Module-4

7 a. Explain the design of a LPC encoder and decoder. **(07 Marks)**
   b. Describe MPEG – 4 coding principles with the help of a neat diagram. **(07 Marks)**
   c. Illustrate perceptual coding technique with a diagram. **(06 Marks)**

OR

8 a. Explain ADPCM subband encoder and decoder with necessary diagram. **(07 Marks)**
   b. Describe H.263 error tracking with neat diagram. **(06 Marks)**
   c. Explain frequency masking and temporal masking as applicable to auditory perception with a neat diagram. **(07 Marks)**

Module-5

9 a. Write the advantages of packet switching with respect to packet voice. **(05 Marks)**
   b. Describe the NTI scheme necessary diagram. **(07 Marks)**
   c. Explain the Integrated management Architecture for IP based networks with appropriate diagrams. **(08 Marks)**

OR

10 a. With neat diagram, explain integrated packet network. **(07 Marks)**
    b. Identify the various components of a multimedia operating systems and briefly describe them. **(07 Marks)**
    c. Explain the structures of a video signal. **(06 Marks)**

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