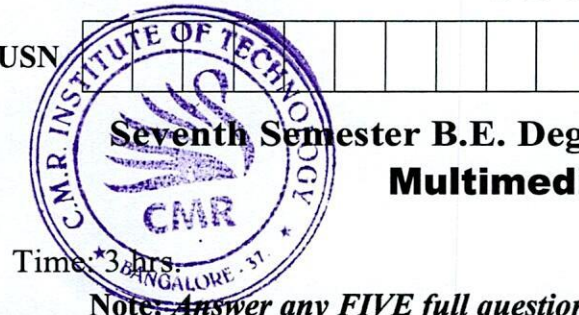


USN

18EC743



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

Multimedia Communication

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  $E = 0.3, N = 0.3, T = 0.2, W = 0.1, \bullet = 0.1$  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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