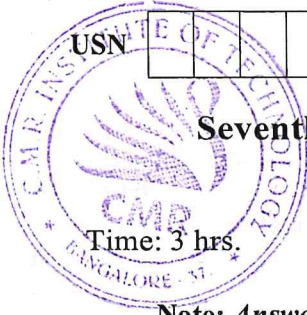


# CBCS SCHEME

15EC741



## Seventh Semester B.E. Degree Examination, Aug./Sept. 2020 Multimedia Communication

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

- 1 a. Define the term multimedia and give the basic form of representation of each media. (06 Marks)
- b. Explain with the aid of the diagram, how a PSTN can support range of multimedia common applications. (10 Marks)

OR

- 2 a. Discuss the term interactive television with the help of diagram. (08 Marks)
- b. Define the key application parameters that relate to the networks. (05 Marks)
- c. The web page size is 100 Mbits, calculate the minimum time to transmit the file using :
  - i) PSTN and 28.8 Kbps modem
  - ii) ISDN at 64 Kbits per seconds (Kbps)
  - iii) Cable modem at 27 Mbps. (03 Marks)

### Module-2

- 3 a. Describe the function of signal encoder with the associated waveforms. (08 Marks)
- b. What do you understand by the terms
  - i) Color gamut
  - ii) Additive color mixing
  - iii) Subtractive color mixingGive application of both color mixing methods. (08 Marks)

OR

- 4 a. How is formulated text different from unformatted text? Discuss the origin of the term WYSIWYG? (06 Marks)
- b. Derive the bit rate and the memory requirements to store each frame that results from the digitization of both a 525 – line and a 625 – line system assuming a 4 : 2 : 2 format. Also find the total memory required to store a 1.0 hour move /video. (10 Marks)

### Module-3

- 5 a. The character string “AAAABBCD” is to transmitted using Huffman encoding :
  - i) Derive the Huffman code tree
  - ii) Determine the savings in transmission bandwidth over normal ASCII and binary coding. (06 Marks)
- b. Give a brief description of the five main stages associated with the baseline mode of operation of JPEG. (10 Marks)

OR

- 6 a. Discuss the main features of Distributed Multimedia Systems (DMS) and give its broad applications. (06 Marks)
- b. Describe the functions of multimedia operating systems with respect to real-time processing and QoS based resource management. (10 Marks)

**Module-4**

- 7 a. With a neat schematic, explain the principle of operation of Differential Pulse Code Modulation (DPCM). (08 Marks)
- b. Describe the MPEG perceptual encoder/decoder implementation with neat schematic. (08 Marks)

OR

- 8 a. What do you understand by the terms :  
 i) Motion estimation  
 ii) Motion compensation  
 iii) I-frame, B-frame and 'D' frames  
 iv) GOP  
 v) Predication span. (10 Marks)
- b. A digitized video is to be compressed using the MPEG-1 standard. Assuming a frame sequence of :  
 IBBPBBPBBPBBBI . . . .  
 and average compression ratios of 10 : 1(I) 20 : 1(P) and 50 : 1(B).  
 Derive the average bit rate that is generated by the encoder for both the NTSC and PAL standards. (06 Marks)

**Module-5**

- 9 a. Give the benefits of packet switching over circuit switching. (04 Marks)
- b. Explain the construction and reconstruction mechanisms of packet voice. (08 Marks)
- c. Write the structure of video signal in packet video. (04 Marks)

OR

- 10 a. Write the block diagram of video streaming architecture. (04 Marks)
- b. Discuss various compression mechanisms and requirements imposed by streaming applications on the video encoder and decoder. (08 Marks)
- c. Give the causes of video end-to-end delays in ATM networks. (04 Marks)

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