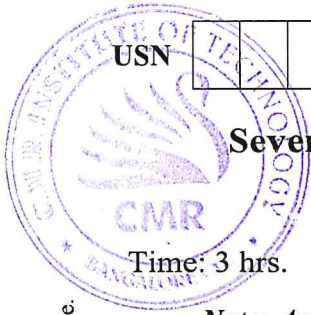


CBCS SCHEME

17EC741



Seventh Semester B.E. Degree Examination, July/August 2022 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. With the help of a diagram, describe the main components of PSTN and show how a high speed modem provides multiple services in addition to basic telephony. (10 Marks)
- b. Explain with a neat diagram, the interactive television application for both cable and satellite network. (10 Marks)

OR

- 2 a. Explain the working of CO packet switched network including routing table. (10 Marks)
- b. Determine the propagation delay associated with the following communication channels:
 - i) A connection through a private telephone network of 1km.
 - ii) A connection through PSTN of 200km
 - iii) A communication over a satellite channel of 50,000km.Assume that the velocity of propagation of a signal in the case of
i) 2×10^8 m/s ii) 2×10^8 m/s iii) 3×10^8 m/s. (10 Marks)

Module-2

- 3 a. Explain the principle of operation of a PCM speech codec, with a block diagram also explain the compressor and expander. (08 Marks)
- b. State the types of text that are used to produce pages of documents. Explain. (12 Marks)

OR

- 4 a. Derive the time to transmit the following digitized images at both 64Kbps and 1.5Mbps
 - i) $640 \times 480 \times 8$ VGA compatible image
 - ii) $1024 \times 768 \times 24$ SVGA compatible image(10 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. (10 Marks)

Module-3

- 5 a. How the coding operation takes place in arithmetic coding, consider the transmission of a message comprising a string of characters with probabilities $e = 0.3$, $n = 0.3$, $t = 0.2$, $w = 0.1$, $\bullet = 0.1$. The word needed to be transmitted is Went. (10 Marks)
- b. With the help of a block diagram, identify the stages associated JPEG encoder and explain. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

- 6 a. Compress the following string using LZW algorithm. "ABABBABCABABBA". (10 Marks)
 b. Discuss multimedia operating system with respect to CPU management, memory management, I/O management and file system management. (10 Marks)

Module-4

- 7 a. With the help of a schematic diagram, explain the operation of a basic DPCM signal encoder and decoder. (10 Marks)
 b. Explain the principles on which LPC codes are based, hence with the aid of a schematic diagram of an LPC encoder and decoder. (10 Marks)

OR

- 8 a. Explain with neat diagram of video compression principle. (08 Marks)
 b. Solve a digitized video to be compressed using the MPEG-1 standard assuming a frame sequence of: IBBPBBPBBPBBI... and average compression ratio of 10:1 → I frame, 20:1 → P frame 50:1 → B frame. Derive the average bit rate that is generated by the encoder for both the NTSC and PAL digitization formats. (12 Marks)

Module-5

- 9 a. Explain error resilient video coding. (07 Marks)
 b. Explain packet video in detail. (07 Marks)
 c. Explain video transport across generic network. (06 Marks)

OR

- 10 a. Explain packet audio and video in the network environment. (07 Marks)
 b. Write a short note on analytic mode based approach. (07 Marks)
 c. Write a short note on error losses ATM. (06 Marks)
