



USN

--	--	--	--	--	--	--	--	--	--

10EC/TE841

Eighth Semester B.E. Degree Examination, Feb./Mar.2022
Multimedia Communication

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Name the basic types of communication networks that are used to provide multimedia communication services. With a diagram, explain the meaning of following terms relating to a switched telephone network:
 - (i) POTS. (10 Marks)
 - (ii) Local Exchange / End office. (10 Marks)
 - (iii) PBX. (10 Marks)
 - (iv) Mobile Switching center. (10 Marks)
 - (v) IGE. (10 Marks)
- b. With the aid of diagram, explain the principle of operation of CO packet-mode network. (10 Marks)
- 2 a. State the meaning of following types of Texts:
 - (i) Unformatted / Plaintext (06 Marks)
 - (ii) Formatted / rich text. (06 Marks)
 - (iii) Hyper text. (06 Marks)
- b. With the help of diagrams describe the Raster Scan operation associated with the TV/Computer monitors. (08 Marks)
- c. Assuming the CD-DA standard is being used, derive
 - (i) The storage capacity of a CD-ROM to store a 60 minutes multimedia title. (06 Marks)
 - (ii) The time to transmit a 30 second portion of the title using a transmission channel of bit rate 64 kbps and 1.5 Mbps. (06 Marks)Given that bit rate of CD-DA digitization standard is 1.411 Mbps. (06 Marks)
- 3 a. Explain the meaning of following terms:
 - (i) Run-length encoding. (04 Marks)
 - (ii) Statistical encoding. (04 Marks)
- b. The following character string is to be transmitted using Huffman coding : AAAABBCD
 - (i) Derive the Huffman code tree. (06 Marks)
 - (ii) Write the codeword derived for each character. (06 Marks)
- c. With the aid of a diagram, identify the five main stages associated with the baseline made of operation of JPEG Encoder. Briefly explain the role of Quantization. (10 Marks)
- 4 a. Explain the principle on which LPC codes are based. Draw the LPC encoder and decoder schematic. Explain the perception parameters and Vocal tract excitation parameters that are used. (10 Marks)
- b. Explain the meaning of following terms with respect to video compression:
 - (i) Moving pictures and MPEG. (10 Marks)
 - (ii) Motion estimation. (10 Marks)
 - (iii) Motion compensation. (10 Marks)
 - (iv) I, P and B frames (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.

PART – B

- 5 a. Explain the following terms relating to CSMA/CD multimedia access control method:
- (i) Multiple access.
 - (ii) Broadcast mode.
 - (iii) Collision.
 - (iv) Carrier sense. (08 Marks)
- b. With the aid of Transparent Bridge architecture, explain the operation of a bridge including the meaning of the terms:
- (i) Promiscuous mode.
 - (ii) Forwarding database
 - (iii) Bridge learning (12 Marks)
- 6 a. With the help of diagram, explain IP adjunct protocols. (10 Marks)
- b. In relation to the IP datagram / packet format, explain the role of following header fields:
- (i) IHL
 - (ii) TOS
 - (iii) Total length and Identification
 - (iv) flag bits.
 - (v) Fragment offset (10 Marks)
- 7 a. Explain the meaning of following terms relating to B-ISDN networks:
- (i) Cells.
 - (ii) Statistical multiplexing.
 - (iii) Cell switching.
 - (iv) Asynchronous transfer mode. (08 Marks)
- b. With the aid of diagrams, explain the operation of following ATM switch Matrix types:
- (i) Time division bus
 - (ii) Fully connected. (12 Marks)
- 8 a. With the help of a diagram, explain the TCP segment format header fields. (12 Marks)
- b. Give a brief explanation of the four main functions performed by RTCP with diagram. (08 Marks)
