



21EC745

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
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. Define Multimedia. Discuss multimedia information representation. (05 Marks)
- b. Mention types of multimedia networks and describe Broadcast Television Networks and ISDN (Integrated Services Digital Networks) briefly. (15 Marks)

OR

- 2 a. Illustrate entertainment applications with neat sketch. (10 Marks)
- b. Interpret different communication modes and network types with neat diagrams. (10 Marks)

Module-2

- 3 a. Describe various types of text which are used to produce pages of document in detail. (10 Marks)
- b. Illustrate the following with neat sketches
 i) Digitized documents ii) Digitized pictures. (10 Marks)

OR

- 4 a. Explain the principle of operation of a PCM (Pulse Code Modulation) Speech codec encoding and decoding methods, compressor and expander characteristics. (10 Marks)
- b. Describe the following in digitalization formats
 i) 4 : 2 : 2 ii) 4 : 2 : 0 iii) SIF (Source Intermediate Format) iv) CIF (Common Intermediate Format) v) QCIF (Quarter CIF). (10 Marks)

Module-3

- 5 a. With the aid of an example, describe the rules that are followed to construct the static Huffman code tree for a transmitted character set. (08 Marks)
- b. A series of message to be between two computers over a PSTN. The messages comprising seven different characters, A through G, are to be transmitted over a data link. Analysis has shown that the relative frequency occurrence of each character is :
 A 0.10, B 0.05, C 0.05, D 0.32, E 0.01, F 0.07, G 0.2
 i) Derive the entropy of the message [Shannon's formula]
 ii) Use static Huffman coding to derive a codeword set and prove this is the minimum set by constructing the corresponding Huffman code tree. (12 Marks)

OR

- 6 a. Discuss the basic mode of operation of GIF (Graphics Interchange Format) (08 Marks)
- b. With the help of a diagram, identify the main stages of operations of JPEG and explain each stage of JPEG encoder. (12 Marks)

Module-4

- 7 a. Discuss LPC (Linear Predictive Coding) encoder and decoder with the help of a neat diagram. (10 Marks)
- b. Outline the meaning of motion estimation and compensation, with respect to video compression. (10 Marks)

OR

- 8 a. Discuss MPEG (Motion Pictures Expert Group) audio coders with neat diagram. (10 Marks)
- b. Describe the third order predictive DPCM (Differential Pulse Code Modulation) Signal encoder and decoder. (10 Marks)

Module-5

- 9 a. Describe the transmit and receive procedure followed by the CSMA/CD MAC sublayer, with the aid of flow diagram. (10 Marks)
- b. Illustrate in detail, with diagrams, the token ring wiring configuration, frame format, token format and field descriptions. (10 Marks)

OR

- 10 a. In relation to the timed token rotation protocol used with FDDI, explain the meaning of the terms :
 i) TTRT ii) TRT iii) THT iv) early/late token (08 Marks)
- b. Outline the operation of a Fast Ethernet switch and Gigabit Ethernet. (12 Marks)

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