

CBCS SCHEME - Make-Up Exam

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BEC/BTE613A



Sixth Semester B.E./B.Tech. Degree Examination, June/July 2025

Multimedia Communication

Time: 3 hrs.

Max. Marks: 100

*Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.*

Module – 1			M	L	C
Q.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	L2	CO1
	b.	Explain with a neat diagram, the interactive television application for both cable and satellite network.	10	L2	CO1
OR					
Q.2	a.	Explain the working principle of circuit mode and packet mode of operation in multimedia networks. List the salient features of each type.	8	L2	CO1
	b.	Explain : i) Integrated services digital networks ii) Broadband multiservice networks.	8	L2	CO1
	c.	Derive the maximum block size that should be used over a channel which has mean BER probability of 10^{-4} if the probability of a block containing error and hence being discarded is to be 10^{-1} .	4	L3	CO1
Module – 2					
Q.3	a.	With a neat block diagram, explain PCM signal encoding and decoding method.	10	L2	CO2
	b.	Discuss the different types of text representation.	10	L2	CO2
OR					
Q.4	a.	With the help of a diagram, explain how a digital image produced by a scanner or digital camera is captured and stored within the memory of a computer and also three methods of RGB signal generation.	10	L2	CO2
	b.	Assuming the CD-DA standard is being used. Derive: i) The storage capacity of a CD-ROM to store 60 minutes of multimedia title. ii) The time to transmit a 30 sec portion of the title using a transmission channel of bit rate 64 Kbps and 1.5 Mbps.	10	L3	CO2
Module – 3					
Q.5	a.	Explain Huffman coding procedure for encoding to the given data "AAAABBCD".	12	L3	CO3
	b.	Explain in detail each stage of JPEG encoder with neat diagram.	8	L2	CO3

OR

Q.6	a.	Explain the meaning of the following terms relating to text compression algorithms: i) Static coding ii) Dynamic/Adaptive coding	8	L2	CO3
	b.	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, • = 0.1. The word needed to be transmitted is went.	12	L3	CO3
Module – 4					
Q.7	a.	Explain adaptive differential PCM with sub-band encoder and decoder schematic.	10	L2	CO3
	b.	With the help of example frame sequences, explain the meaning of following types of compressed frame and the reasons for their use: i) I & P frames only ii) I-, P- and B- frames iii) PB - frames	10	L3	CO3
OR					
Q.8	a.	Explain H.261 video encoder principles with implementation schematic and FIFO buffer operation.	10	L2	CO3
	b.	Solve a digitized video to be compressed using the MPEG-1 standard assuming a frame sequence of IBBPBBPBBPBBBI 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.	10	L3	CO3
Module – 5					
Q.9	a.	Explain CSMA/CD worst-case collision detection with neat figure.	10	L2	CO4
	b.	Explain Token ring network frame formats with field descriptions.	10	L2	CO4
OR					
Q.10	a.	Explain transparent bridge schematic with its architecture and application example.	10	L2	CO4
	b.	Explain FDDI networking components with neat figure.	10	L2	CO4
