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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

January / February 2025 Semester End Main Examinations

Programme: B.E. **Semester: V**

Branch: Electronics & Telecommunication Engineering **Duration: 3 hrs.**

Course Code: 23ET5PCMMC **Max Marks: 100**

Course: MULTIMEDIA COMMUNICATION

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

		UNIT - I	CO	PO	Marks
1	a)	What are the elements of multimedia communication? State the basic types of communication network that are used to provide multimedia communication services.	CO1		**08**
	b)	Explain the working principle of modern telephone networks. Discuss the key components involved in the operation of a telephone network, including the role of switching systems, transmission media, and signaling protocols.	CO1		**06**
	c)	Briefly explain interactive applications over internet.	CO1		**06**
		OR			
2	a)	With the help of diagram, describe the main components of PSTN and show how a highspeed modem provides multiple services in addition to basic telephony.	CO1		**06**
	b)	Highlight the significance of "Data Networks" Justify for most widely deployed networks X.25 and the Internet even low bit rate data applications.	CO1		**06**
	c)	With neat schematic, illustrate interactive television cable and satellite broadcast networks.	CO1		**08**
		UNIT - II			
3	a)	Define three types of texts. Discuss the Hypertext that enables integrated set of documents.	CO2	PO1	**08**
	b)	Derive the time to transmit the following digitized images at both 64 kbps and 1.5 Mbps. i) a 640 x 480 x 8 VGA- compatible image. ii) a 1024 x 768 x 24 SVGA -compatible image.	CO2	PO1	**06**

		c)	Explain Lempel-Ziv-Welsh coding algorithm for words in the texts being transferred.	*CO2*	*PO1*	**06**
			OR			
	4	a)	Explain the meaning of the following terms, relating to the compression technique: i) Lossy and lossless ii) Source and entropy encoding	*CO1*		**06**
		b)	Illustrate Huffman coding procedure for encoding to the given data" AAAABBCD".	*CO2*	*PO1*	**10**
		c)	What do you mean by: i) Aspect ratio ii) Quantization intervals.	*CO1*		**04**
			UNIT - III			
	5	a)	Starting from the principles of GIF compression, show the three-color image capture methods and standardized format transfer of data.	*CO1*		**10**
		b)	With the help of block diagram describe JPEG encoder.	*CO1*		**10**
			OR			
	6	a)	Compare GIF and TIFF formats.	*CO1*		**08**
		b)	What is EOL, with some examples mention run length possibilities.	*CO1*		**06**
		c)	With the help of schematic elaborate the process of JPEG decoding.	*CO1*		**06**
			UNIT - IV			
	7	a)	With relevant sketch and example explain the principle of DPCM operation.	*CO1*		**12**
		b)	Give the meaning of i) Perceptual coding ii) Sensitive of ear and iii) Frequency masking and iv) Temporal masking.	*CO1*		**08**
			OR			
	8	a)	With the help of a neat diagram, explain LPC encoder and decoder.	*CO1*		**08**
		b)	Compare MIDI versus Digital Audio.	*CO1*		**06**
		c)	Describe the terms of Audio Processing: i) Prediction error ii) calculation for LPC and iii) Dolby Audio coders.	*CO1*		**06**
			UNIT - V			
	9	a)	With neat sketch explain essential features of MPEG-4 coding method.	*CO1*		**10**

		b)	Explain terms: Graph paper, Simple shapes, Grayscale color, RGB Color and Color Transparency.	*CO1*		**10**
			OR			
	10	a)	A digitized video is to be compressed using the MPEG-1 standard assuming a frame sequence of: IBBPBBPBBPBBI… and average compression ratio 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 digitization formats.	*CO2*	*PO1*	**10**
		b)	Discuss the Processing Application, Sketchbook, Coding, The First Sketch	*CO1*		**10**

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