Model Question Paper with effect from 2021(CBCS Scheme)

USN | | | | | | | | | | |

7th Semester B.E. Degree Examination

Multimedia Communication

TIME: 03 Hours **Max. Marks: 100**

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

		Module -1	*Bloom's Taxonomy Level	COs	Marks
Q.01	a	**List** the different types of Multimedia Networks and **Explain** any two of them in detail with relevant diagrams.	L2	1	10
	b	**Develop** the propagation delay associated with the following communication channels given velocity of propagation for case(i) and (ii) as $2*10^8$ m/s and (iii) $3*10^8$ m/s. i) A connection through a private telephone network of 1 km. ii) A connection through a PSTN of 200km. A connection over a satellite channel of 50000km.	L3	1	5
	c	**Explain** types of Multipoint conferencing.	L2	1	5
		OR			
Q.02	a	**Explain** with neat diagram, the Interactive television Application for both cable and satellite network.	L2	1	10
	b	**Summarize** the Network QoS parameters associated with Circuit Switched and Packed Switched Network.	L2	1	8
	c	**Find** the maximum block size that should be used over a channel which has a mean BER probability of 10^{-4}, if probability of a block containing an error and hence being discarded is to be 10^{-1}.	L1	1	2
		Module-2			
Q. 03	a	**Explain** the Signal Encoder design and Quantization operation of digitization principles in detail.	L2	4	10
	b	With schematic **Explain** Audio Synthesizer.	L2	4	05
	c	**Solve** for the time taken to transmit the following digitized images at both 64Kbps and 1.5Mbps. i) A 640*480*8 VGA compatible image. A 1024*768*24 SVGA compatible image.	L1	4	05
		OR			
Q.04	a	**Explain** the principle operation of a PCM Speech Codec, with a block diagram also explain the Compressor and Expander.		4	10

	b	With the aid of diagram, **summarize** following digitization formats. i)4:2:2 ii)SIF	L2	4	04
	c	With the help of architecture, **Explain** the Raster scan principles.	L2	4	06
		Module-3			
Q. 05	a	**Demonstrate** the following terms. 1) Run-length Encoding 2) Statistical Encoding 3) Tagged Image file format 4) Graphics Interchange format	L2	5	12
	b	A message comprising of a string of characters with probabilities e=0.3, n=0.3, t=0.2, w=0.1, .=0.1 is to be encoded. The message to be sent is 'went.'. **Construc**t the encoded version of the character '**went.**' using Arithmetic coding principles.	L3	5	8
		OR			
Q. 06	a	With a neat block diagram **Explain** the JPEG encoder and decoder.	L2	5	12
	b	A series of messages is to be transferred between two computers over a PSTN. The messages comprise just the characters A through H, analysis has shown that the relative frequency of occurrence of each character is as follows: A and B = 0.25, C and D =0.14, E,F,G and H=0.055. **Develop** codeword set using Huffman coding.	L3	5	8
		Module-4			
Q. 07	a	With the help of frame sequences, **Explain** the meaning of following types of compressed frame and the reason for their use. i)I-frame ii)B-frame and iii)P frame	L2	4	10
	b	With a neat block diagram, **explain** Adaptive Differential PCM and Linear Predictive Coding.	L2	4	10
		OR			
Q. 08	a	**Summarise the** MPEG-4 coding principles in detail with the help of relevant diagrams.	L2	4	13
	b	A digitized video is to be compressed using the MPEG-1 standard. Assuming a frame sequenceof: IBBPBBPBBPBBI... and average compression ratios of 10:1 (I), 20:1 (P) and 50:1 (B), **develop** the average bit rate that is generated by the encoder for both the NTSC and PAL digitization formats.	L3	4	7
		Module-5			
Q. 09	a	**Summarize** the principle of operation of CSMA/CD.	L2	3	12
	b	**Explain** the architecture of Transparent bridge.	L2	3	8
		OR			
Q. 10	a	**Summarize** the layers of LAN protocols.	L2	3	10
	b	With the aid of networking components, **Explain** FDDI.	L2	3	10

*Bloom's Taxonomy Level: Indicate as L1, L2, L3, L4, etc. It is also desirable to indicate the COs and POs to be attained by every bit of questions.

Model Question Paper-1 with effect from 2021(CBCS Scheme)

USN | | | | | | | | | | |

7th Semester B.E. Degree Examination

Subject : Multimedia Communication

TIME: 03 Hours **Max. Marks: 100**

Note: 01. Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

		Module -1	*Bloom's Taxonomy Level	COs	Marks
Q.01	a	With a neat diagram explain the Telephone network and Broadcast Television networks.	L2	1	10
	b	Explain the working principle of circuit mode of operation of multimedia communication.	l2	1	06
	c	List the different types of Multimedia networks used to provide Multimedia services.	L1	1	04
		OR			
Q.02	a	Briefly explain network QOS associated with circuit switched and packet switched network.	L2	1	10
	b	Explain the communication modes to transfer data stream.	L2	1	06
	c	Determine the propagation delay associated with the following communication channels. Assume that the velocity of propagation of a signal in that case of (i) 4 (ii) 2x10^8 m/s and (iii) 3x10^8 m/s. 1. A connection through a private network of 1km. 2. A connection through a PSTN of 200km. 3. A connection over a satellite channel of 50,000km	L3	1	04
		Module-2			
Q. 03	a	With a neat diagram, explain the signal encoding and decoding using PCM principles.	L2	2	10
	b	With the help of a diagram, explain how the digital image produced by a scanner or digital camera is captured and stored within the memory of a computer.	L2	2	10
		OR			
Q.04	a	Explain the 4:2:2 and 4:2:0 digitization formats.	L2	2	10
	b	Derive the time to transmit the following digital images at both 64Kbps and 1.5Mbps. i) A 640X480X8 VGA- compatible image. ii) A 1024X768X24 SVGA-compatible image.	L3	2	10
		Module-3			
Q. 05	a	Explain JPEG coding Principles with neat diagram.	L2	3	10
	b	A message and its probability of occurrence of each character is as follows A and B=0.25, C and D= 0.14, E,F,G and H =0.055. 1.Find the minimum average number of bits per character using Shannon's formula. 2.Construct Huffman code tree and derive a code word set.	L3	3	10
		OR			
Q. 06	a	With neat diagram explain GIF and TIFF image Formats.	L2	3	10
	b	Explain the following terms related to compression: i) Lossless and lossy compression	L2	3	10

		ii) Source and entropy encoding.			
Module-4					
Q. 07	a	With a neat diagram, explain video compression principles	L2	4	10
	b	Explain MPEG-4 coding principles.	L2	4	10
OR					
Q. 08	a	Explain H.261 encoding formats.	L2	4	10
	b	Explain how better sound quality can be obtained by using sub band DPCM with the help of block diagram of encoder and decoder.	L2	4	10
Module-5					
Q. 09	a	Discuss Ethernet formats applicable for multimedia communication.	L2	5	10
	b	With neat diagram explain FDDI Networking component.	L2	5	10
OR					
Q. 10	a	Explain packet audio and video in the network environment	L2	5	10
	b	Explain format of IPV6 with extension header	L2	5	10

*Bloom's Taxonomy Level: Indicate as L1, L2, L3, L4, etc. It is also desirable to indicate the COs and POs to be attained by every bit of questions.