



SHRI MATA VAISHNO DEVI UNIVERSITY, KATRA

School of Electronics & Communication Engineering

B. Tech. (ECE) Major Examination (Odd) 2022-23

Entry No: _____

Total Number of Pages: [01]

Date: 15.12.2022

Total Number of Questions: [04]

Course Title: Multimedia Communication Course Code: ECE 4190

Time Allowed 3.0 Hours

Max Marks: [50]

Section - A

Q1.	<p>a. We wish to develop a new Internet service, for doctors. Medical ultrasound is in the range 2-10 MHz; what should our sampling rate be chosen as? [1] CO1</p> <p>b. When a delay occurs during the playback of the stream is known as _____. [1] CO1</p> <p>c. Whenever the system receives the signal, a translator is needed to decode the signal and encode it _____ quality. [1] CO1</p> <p>d. Which of the method is correct for the Moving Picture Experts Group (MPEG) is used to compress _____. [1] CO3</p> <p>e. During Compression Audio and Video, each frame is divided into small grids, called picture elements or _____. [1] CO1</p> <p>f. Explain Mobility Management in brief. [2] CO4</p> <p>g. Explain Frequency Masking in brief. [2] CO3</p> <p>h. Draw MPEG Audio Frame Sizes. [2] CO3</p> <p>i. Explain Layers of MPEG Audio Layers with their data rates. [2] CO3</p> <p>j. Explain Phase Insensitivity in term of Vocoders. [2] CO2</p>	
Q2.	<p>a. In the implementations of TDMA systems such as GSM, an FDMA technology is still in use to divide the allocated carrier spectrum into smaller channels. Why is this necessary? [03] CO4</p> <p>b. Discuss the key differences between YouTube videos and the traditional movies/TV shows. How would they affect content distribution? [0313] CO4</p> <p>c. Describe how H.261 deals with temporal and spatial redundancies in video. [03] CO2</p> <p>d. Discuss how the advanced prediction mode in H.263 achieves better compression [03] CO2</p> <p>e. Explain Video Compression with Motion Compensation [03] CO2</p>	

Section - B

Q3.	<p>a. Draw and Explain in detail the JPEG Encoder. [05] CO2</p> <p>b. What are the advantages and disadvantages of Arithmetic Coding as compared to Huffman Coding? [03] CO1</p>	
Q4.	<p>a. A DMS has five symbols with probabilities 0.40, 0.19, 0.16, 0.15 & 0.1</p> <p>i. Construct Shano Fanno Code & Calculate Efficiency. [06] CO1</p> <p>ii. Repeat for Huffman Code & Compare the Results.</p> <p>b. State True or False. [01*6] CO4</p> <p>i. ADSL uses cable modem for data transmission. T T F F F F</p> <p>ii. To avoid overwhelming the network, TCP adopts a flow control mechanism. F</p> <p>iii. TCP flow control and congestion control are both window based. F</p> <p>iv. Out-of-order delivery won't happen with Virtual Circuit. T</p> <p>v. UDP has lower header overhead than TCP. T</p> <p>vi. Datagram network needs call setup before transmission. F</p>	

Course Outcomes

- CO1 Understand the basics of multimedia processing
- CO2 Understanding the principles of information representation and compression in multimedia.
- CO3 Understand Multimedia coding standards for Video
- CO4 Understand Multimedia Networking and Communication across Networks

Questions	Total	Total Number of Students (to be filled)
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SHRI MATA VAISHNO DEVI UNIVERSITY, KATRA

School of Electronics & Communication Engineering

B. Tech. (ECE) Minor-I Examination (Odd) 2022-23

Entry No:

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Date: 29.09.2022

Total Number of Pages:[01]

Total Number of Questions: [03]

Course Title: Multimedia Communication Course Code: ECE 4190

Time Allowed 1.5 Hours

Max Marks: [20]

Instructions / NOTE

- Attempt All Questions.
- Support your answer with neat sketches/diagrams, wherever appropriate.
- Assume any missing data to suit the case / derivation / answer.

Section - A

Q1.	a. Give the principle of Run length Encoding.	[1]	CO1
	b. State the features of best effort delivery.	[1]	CO1
	c. Differentiate between Linear & Non-linear Media.	[1]	CO1
	d. List the elements of Multimedia.	[1]	CO1
	e. The delay that occurs during the playback of a stream is called	[1]	CO2
	f. The problem with unicast delivery is that the _____	[1]	CO1
Q2.	g. _____type of streaming multimedia file is delivered to the client, but not shared?	[1]	CO1
	a. Why is data compression necessary for multimedia communication. Explain	[03]	CO2
	b. State the main objectives of Lossless and Lossy Compression Techniques.	[03]	CO2
	c. State & explain the factors that define QoS?	[02]	CO2

Section - B

Q3.	Given the eight symbols A, B, C, D, E, F, G, and H with probabilities 1/30, 1/30, 1/30, 2/30, 3/30, 5/30, 5/30, and 12/30, draw three different Huffman trees with heights 5 and 6 for these symbols and calculate the average code size for each tree.	[05]	CO2
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CO	Questions Mapping	Total Marks	Total Number of Students (to be appeared in Exam)
CO1	1(a, g)	7	
CO2	1(f), 2(a, b, c), 3(a, b)	13	
CO3			
CO4			

SHRI MATA VAISHNO DEVI UNIVERSITY, KATRA

School of Electronics & Communication Engineering
B. Tech. (ECE) Minor-II Examination (Odd) 2022-23

Entry No:

Date: **10.09.2022**

Total Number of Pages: [01]

Total Number of Questions: [03]

Course Title: Multimedia Communication Course Code: ECE 4190

Time Allowed 1.5 Hours

Max Marks: [20]

Instructions / NOTE

- iv. Attempt All Questions.
- v. Support your answer with neat sketches/diagrams, wherever appropriate.
- vi. Assume any missing data to suit the case / derivation / answer.

Section - A																																																																			
Q1.	a. What is sound? Explain the Characteristics of Sound.	[1]	CO2																																																																
	b. Write is the full form of MIDI?	[1]	CO2																																																																
	c. Classify MIDI Messages?	[1]	CO2																																																																
	d. Explain Irrelevancy Reduction in detail.	[2]	CO2																																																																
	e. How many pixels are in medical Image?	[1]	CO2																																																																
Q2.	a. Explain the need of Interlacing in Analog Video?	[03]	CO3																																																																
	b. NTSC video has 525 lines per frame and 63.6μs per line, with 20 lines per field of vertical retrace and 10.9μs horizontal retrace.	[01]	CO3																																																																
	(a) Where does the 63.6μs come from?	[01]	CO3																																																																
	(b) Which takes more time, horizontal retrace or vertical retrace? How much more time?	[01]	CO3																																																																
	c. Explain Croma Sub- Sampling Technique in detail.	[03]	CO3																																																																
Section - B																																																																			
Q3.	(a) JPEG uses the Discrete Cosine Transform (DCT) for image compression.	[03]	CO2																																																																
	i. What is the value of $F(0, 0)$ if the image $f(u, v)$ is as below?																																																																		
	ii. Which AC coefficient $F(u, v)$ is the largest for this $f(u, v)$? Why? Is this $F(u, v)$ positive or negative? Why?																																																																		
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	(b) Show in detail how a three-level hierarchical JPEG will encode the image above, assuming that	[03]	CO2																																																																
	i. The encoder and decoder at all three levels use Lossless JPEG.																																																																		
	ii. Reduction simply averages each 2×2 block into a single pixel value.																																																																		
	iii. Expansion duplicates the single pixel value four times.																																																																		

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CO	Questions Mapping	Total Marks	Total Number of Students (to be appeared in Exam)
CO1			
CO2	Q1, Q3	12	104
CO3	Q2	08	104
CO4			