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**PRESIDENCY UNIVERSITY**

**Bengaluru**

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| **Ph.D. Course Work End Term Examinations – JAN-FEB 2025** |
| **Date:** 31- 01- 2025 **Time:** 09:30 am – 12:30 pm |

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| **School:** SOE | **Program:** Ph.D. | |
| **Course Code :**ECE844 | **Course Name :** MULTIMEDIA COMPRESSION AND COMMUNICATION | |
| **Semester**: | **Max Marks**:100 | **Weightage**: 50% |

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| **CO - Levels** | **CO1** | **CO2** | **CO3** | **CO4** | **CO5** |
| **Marks** |  |  |  |  |  |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Do not write anything on the question paper other than roll number.*

**Part A**

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| **Answer ALL the Questions. Each question carries 10 marks. 6Q x 10M=60Marks** | | | | |
| **1** | Discuss the role of wavelet transforms in image compression within the JPEG 2000 standard. How do these transforms enhance compression efficiency, and what are the advantages over older image compression techniques? | **10 Marks** | **L2** | **CO1** |
| **2** | Describe the H.264/AVC video compression standard and its main characteristics. In what ways does it enhance compression performance over earlier video encoding technologies? | **10 Marks** | **L2** | **CO1** |
| **3** | Apply Huffman coding to calculate the minimum average bit length needed to encode the characters with the given probabilities: A and B = 0.25, C and D = 0.14, and E, F, G, and H = 0.055. | **10 Marks** | **L2** | **CO2** |
| **4** | Identify and explain four key quality of service (QoS) parameters that are crucial for multimedia transmission. | **10 Marks** | **L2** | **CO2** |
| **5** | Explain the various characteristics of data streams and their implications for real-time data processing and analysis. | **10 Marks** | **L2** | **CO3** |
| **6** | Explain the fundamental principle behind the vector quantization technique. How does it work in the context of data compression? | **10 Marks** | **L2** | **CO3** |

**Part B**

|  |  |  |  |  |  |
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| **Answer the Questions. Each question carries 20 marks 2Q x 20 = 40 Marks** | | | | | |
| **7.** |  | The Session Initiation Protocol (SIP) is a signaling protocol used to initiate, maintain, modify, and terminate communication sessions. Explain the Session Initiation Protocol (SIP) and describe its architecture. How does SIP support various communication functions such as session initiation, modification, and termination? | **20 Marks** | **L** | **CO** |
|  | | | | | |
| **8.** |  | Adaptive Differential Pulse Code Modulation (ADPCM) plays a crucial role in multimedia compression and communication. Explain the concept of Adaptive Differential Pulse Code Modulation (ADPCM) and its role in multimedia compression and communication. Include a block diagram to illustrate the process. | **20 Marks** | **L** | **CO** |

**\*\*\*\*\* BEST WISHES \*\*\*\*\***