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PRESIDENCY UNIVERSITY BENGALURU

Department of Research & Development

Mid - Term Examinations - AUGUST 2024

Odd Semester: Ph.D. Course Work

Course Code: ECE844

Course Name: Multimedia Compression and Communication

Department: ECE

Date: 12-08-2024

Time: 02.00pm to 03.30pm

Max Marks: 50

Weightage: 25%

Instructions:

- (i) Read all questions carefully and answer accordingly.
 - (ii) Do not write any matter on the question paper other than roll number.
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PART A (THOUGHT PROVOKING)

Answer all the Questions. Each question carries 5 marks.

(4Qx 5M= 20M)

1. DCT is a mathematical algorithm that breaks down an image into a series of cosine functions. Can you explain the JPEG compression process, including the steps involved and the role of each step in reducing image size.
2. Video compression is the process of reducing the total number of bits needed to represent a given image or video sequence. Can you describe the H.264/AVC video compression standard, including its main features and how it improves compression efficiency compared to earlier standards.
3. LPC is the most widely used method in speech coding and speech synthesis. Illustrate the difference between Linear Predictive Coding and code excited LPC?
4. Transmission media acts a physical interface for communication in networks. Define any four quality of service parameters related to multimedia transmission.

PART B (PROBLEM SOLVING)

Answer all the Questions. Each question carries 10 marks.

(3Qx 10M= 30M)

1. JPEG Encoder is an intraframe compression method where each video frame is compressed by using the data of the same frame. Explain the JPEG encoder with neat diagram.
2. Moving Pictures Expert Group 4 is a standard for audio and video coding compression. How does MPEG 4 compression work?
3. Encode the following data using static. Huffman coding and find the efficiency of the code with $m_1 = 0.4$, $m_2 = 0.15$, $m_3 = 0.15$, $m_4 = 0.15$, $m_5 = 0.15$.