Reg. No. : | | | | | | | | | | | | |

Question Paper Code: 1066042

B.E. / B.Tech. DEGREE EXAMINATIONS, NOV / DEC 2024
Sixth Semester
Electronics and Communication Engineering
U20EC622 – MULTIMEDIA COMPRESSION TECHNIQUES
(Regulation 2020)

Time: Three Hours | Maximum: 100 Marks

Answer ALL questions

PART – A (10 x 2 = 20 Marks)

1. List the components of multimedia system.

2. Interpret the pixel depth and aspect ratio.

3. Distinguish between lossless and lossy compression techniques.

4. Identify the applications of LZW.

5. How does DPCM differ from PCM?

6. What are the benefits of Compression?

7. List the audio compression techniques.

8. What are the different delays suffered by CELP coders.

9. Differentiate MPEG-1 and MPEG-2 standards.

10. Point out the major features of H.263 standard.

PART – B (5 x 16 = 80 Marks)

11. (a) Explain the concept behind multimedia components and their characteristics. (16)

(OR)

(b) (i) Demonstrate the difference between unformatted text and formatted text using an example. (8)

(ii) Compare and contrast MIDI and digital audio. (8)

12. (a) Find Huffman code word of the given text “AAAAAAAAAABBBBBCCCSS” by using static Huffman tree. Calculate Entropy and derive the average number of bits per character for codeword? (16)

(OR)

(b) (i) Construct the difference between entropy encoding and source encoding with an example. (8)

(ii) Apply the LZW algorithm to compress a given string of text "ABABABC" with example. (8)

13. (a) Describe with the aid of a schematic diagram, the operation of a basic DPCM signal encoder and decoder. Include in your explanation the source of errors that can arise. (16)

(OR)

(b) Evaluate the effectiveness of Binary Tree Predictive and DCT coding approaches to image compression for different types of images. (16)

14. (a) Develop the CELP algorithm for compressing speech signals, and evaluate the quality of the compressed speech at different bitrates. (16)

(OR)

(b) (i) Implement the G.722 codec to encode and decode speech samples in a voice communication application. (8)

(ii) Apply frequency domain filtering to an audio signal compressed using MPEG Audio. (8)

15. (a) Elaborate on the various video compression standards, highlighting their supporting features, and provide relevant diagrams to illustrate their functionality. 16

(OR)

(b) (i) Describe the principle of MPEG 4 with diagrams of encoder and decoder. (8)

(ii) Give a brief note on H.263 video compression standard. (8)

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