

B.E. Information Technology
THIRD YEAR SECOND SEMESTER SUPPLEMENTARY EXAM - 2023

Subject: **Multimedia Coding & Communications**

Time: 3 hours

Full Marks: 100

Different parts under the same CO should be answered together.

<p>CO1 [30]</p>	<p>1. Write Short Note on: [4 x 5 = 20] a. Hypermedia b. XML and SMIL c. Frame Metaphor d. Multimedia Authoring</p> <p>2. Briefly illustrate about MIDI message. [5] 3. Explain different phases of multimedia presentation. [5]</p>
<p>CO2 [30]</p>	<p>4. Differentiate between following terms with example. [5 x 2 = 10] a. Run length coding and Dictionary based coding b. Variable length coding and Fixed length coding</p> <p>5. Show the step by step execution of the Huffman coding to compress an image. Also, show how to calculate the compression achieved using the Huffman coding. [5+2 = 7]</p> <p>6. Illustrate with example, how arithmetic coding overcomes Huffman's problem? [6]</p> <p>7. Below is a grey scale image X where grey levels are ordered from 0 to 6. X is represented using the following matrix:</p> <pre style="margin-left: 40px;"> 0 0 0 0 0 0 0 0 0 0 1 1 2 3 3 3 0 1 1 3 3 3 4 4 0 1 3 3 5 5 4 4 0 2 3 3 5 5 5 4 0 0 2 3 3 4 6 6 0 0 0 2 2 3 4 4 X = 0 0 0 0 0 0 0 0 </pre> <p>Show the step by step execution of the Huffman coding to compress the image. Also, calculate the compression achieved using the Huffman coding. [7]</p>

Or
 Execute encoding and decoding of the arithmetic coding on the symbol "CAEE\$" using the following probability distribution: [7]

Symbol	Probability	Range
A	0.2	[0, 0.2)
B	0.1	[0.2, 0.3)
C	0.2	[0.3, 0.5)
D	0.05	[0.5, 0.55)
E	0.3	[0.55, 0.85)
F	0.05	[0.85, 0.9)
\$	0.1	[0.9, 1.0)

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| CO3
[15] | 9. What is rate distortion theory? What is quantization? [4 + 3 = 7] |
| | 10. Explain different distortion measures for lossy compression techniques. [8]
Or |
| | 11. What are the different forms of quantization in lossy compression? [8] |

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| CO4
[15] | 12. What is negative compression? What are the types of compression? Discuss the significance of DCT for JPEG Image compression. [4+4+7 = 15] |
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| CO5
[10] | 13. Explain different characteristics of multimedia data? What are the different parameters to determine the quality of service for multimedia data transmission, explain? Explain about Multimedia over IP. [2+5+3 = 10] |
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