Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**End Semester Examination – Nov/Dec– 2017**

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| **Code :** | **17EC3002** | **Duration :** | **3hrs** |
| **Sub. Name :** | **DATA COMPRESSION TECHNIQUES** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Point out the significant aspects of different multimedia data. Show the necessity for compression of these data. | CO1 | 10 |
| b. | Differentiate lossy and lossless compression techniques. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Summarize the various check points to be noted during the compression approaches. Point out the difference between scalar and vector quantization techniques. | CO2 | 10 |
| b. | Encode the sequence A=[a, b, c, d, e, f, g] with the probability values [0.2, 0.05, 0.15, 0.05, 0.25, 0.3] respectively using Shannon-Fano coding technique. | CO3 | 10 |
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| 3. | a. | Encode the sequence A=[f, g, h, k, m, n] with the probability values [0.05, 0.15, 0.15, 0.2, 0.25, 0.2] using Huffman coding approach. | CO3 | 10 |
|  | b. | The tag value of an encoded dataset A= {1,2,3} is given by 0.765625. Using this tag value, decode the sequence which consists of 4 numerals. Assume the interval as [0, 0.8] for ‘1’, [0.8, 0.82] for ‘2’ and [0.82, 1] for ‘3’. | CO3 | 10 |
| (OR) | | | | |
| 4. | a. | Encode the sequence ‘wabbawabbawabbawabbawooxwooxwoox’ using diagram coding technique. Assume a sample dictionary with any 5 entries and the corresponding code. | CO3 | 10 |
|  | b. | Encode the sequence ‘dabracacabradabracacabracabradabraca’ using the LZ78 algorithm. | CO3 | 10 |
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| 5. | a. | Encode the sequence ‘…ghtghttghhhtgghtght….’ using the LZ77 approach. Consider a window size of 12 with ‘5’ as the size of the search buffer. | CO3 | 10 |
|  | b. | Using LZW algorithm, encode the following sequence:  ‘absabsabstgrrgttsagtrgtrtrgabssabsabsab’. Use your own initial dictionary. | CO3 | 10 |
| (OR) | | | | |
| 6. | a. | With neat block diagram, discuss the subband coding method for speech compression applications. | CO4 | 10 |
|  | b. | Explain the G.722 algorithm for speech compression applications with a neat flow diagram. | CO4 | 10 |
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| 7. | a. | Frame a methodology for speech compression using channel vocoders. | CO4 | 10 |
|  | b. | With neat block diagram, discuss the JPEG compression approach used for static images. | CO5 | 10 |
| (OR) | | | | |
| 8. | a. | With neat diagram, explain the MPEG compression methodology for motion pictures. | CO6 | 10 |
|  | b. | With a numerical example, discuss the SPIHT coding methodology used for image compression. | CO5 | 10 |
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|  | | **Compulsory**: |  |  |
| 9. | a. | Draw the block diagram of H.261 encoder and explain the operations of different blocks of the encoder. | CO6 | 10 |
|  | b. | Point out the technical concepts of motion estimation and motion compensation methods. | CO6 | 10 |

ALL THE BEST