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

Question Paper Code: 35406

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2019

Fifth Semester

Electronics and Communication Engineering

01UEC506 – INFORMATION THEORY AND CODING

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Define source coding theorem.
2. List the properties of mutual information.
3. State the principle of Psychoacoustic model.
4. State the term frequency masking?
5. Compare GIF and TIFF.
6. List the various standards of MPEG.
7. Define Hamming weight.
8. What is syndrome?
9. Draw the diagram of Block Encoder.
10. What is the significance of Turbo coding?

PART - B (5 x 16 = 80 Marks)

11. (a) A discrete memory less source has five symbols X1, X2, X3, X4 and X5 with probabilities 0.4, 0.19, 0.16, 0.15 and 0.15 respectively. Calculate a Shanna-Fano code for the source and code efficiency. (16)

Or

(b) Describe the different types of channels used in information coding techniques. (16)

12. (a) Deduce the Dynamic Huffman coding algorithm for the message "Malayalam". (16)

Or

(b) With neat illustrations explain linear predictive coding. (16)

13. (a) With the neat block diagram, explain the working of JPEG encoder and decoder. (16)

Or

(b) Explain briefly about I/B/P frames. (16)

14. (a) Show and verify whether $g(x) = 1 + x + x + x$ is a valid generator polynomial for generating a cyclic code for message [111]. (16)

Or

(b) Discuss in detail about cyclic codes. (16)

15. (a) (i) Discuss the development of code tree with example. (12)

(ii) Compare code tree with trellis diagram. (4)

Or

(b) Describe about sequential search and Viterbi algorithm for decoding of convolutional codes. (16)

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