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Question Paper Code: 35046

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2017

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. What is Shannon limit?
3. What is Dolby AC3?
4. State the term frequency masking?
5. Compare GIF and TIFF.
6. Distinguish between motion compensation and estimation.
7. Define Hamming weight.
8. Give the properties of syndrome polynomial.
9. Draw the diagram of Block Encoder.
10. Define turbo code.

PART - B (5 x 16 = 80 Marks)

11. (a) Apply the Shannon-Fano algorithm to a source which generates symbols x_1, x_2, x_3, x_4 with the probabilities $1/8, 1/2, 1/4$ and $1/8$ respectively. Calculate the code efficiency. (16)

Or

- (b) Describe the different types of channels used in information coding techniques. (16)
12. (a) Discuss the encoding procedure of LZW compression. Also construct an encoding table for any sentence. (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 $g(x) = 1 + x + x^2 + x^3$ 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) Describe the principle of turbo coding. (16)

Or

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