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Question Paper Code: 45406

B.E. / B.Tech. DEGREE EXAMINATION, AUGUST 2021

Fifth Semester

Electronics and Communication Engineering

14UEC506 – INFORMATION THEORY AND CODING

(Regulation 2014)

Duration: 1:45 hour   Maximum: 50 Marks

PART A - (10 x 2 = 20 Marks)

(Answer any ten of the following questions)

1. What is meant by discrete memoryless channel?

2. Define on perceptual coding.

3. State motion compensation.

4. Write about cyclic codes for error correction.

5. What are convolutional codes?

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.

11. Give the Kraft McMillan inequality for instantaneous code.

12. List the properties of mutual information.

13. Compare LZ and LZW coding.

14. What is Dolby AC3?

15. What is TIFF?

PART – B (3 x 10= 30 Marks)

(Answer any three of the following questions)

16.   Generate Shannon-Fano binary, Quaternary codes with probabilities 0.5, 0.25, 0.125, 0.0625, 0.03125, 0.015625, 0.0078125 and 0.0078125. Calculate its efficiency in each case. (10)

17.   Discuss the encoding procedure of LZW compression. Also construct an encoding table for any sentence. (10)

18.   With a neat schematic, describe JPEG encoder and decoder. (10)

19.   For a (7, 4) code with generator matrix $G = \begin{vmatrix} 1 & 1 & 0 & 1 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 & 1 & 0 & 0 \\ 1 & 1 & 1 & 0 & 0 & 1 & 0 \\ 1 & 0 & 1 & 0 & 0 & 0 & 1 \end{vmatrix}$

    (i) Find all possible code words. (10)

20.   Discuss on convolutional turbo codes. (10)

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