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(Pages : 2)

Name.....................

Reg. No....................

FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, DECEMBER 2004

EE 2K 502/PTEE 2K 403. ANALOG AND DIGITAL COMMUNICATION SYSTEMS

Time : Three Hours   Maximum : 100 Marks

*Answer **all** questions.*

1. (a) State and explain Wiener-Khinchin theorem.

   (b) What is Stationarity ? Explain. State the conditions for stationarity.

   (c) What is meant by modulation ? Explain its need.

   (d) Briefly explain the principle of single sideband suppressed carrier modulation.

   (e) What is an optimum filter ? Enumerate its properties.

   (f) Define and explain :

        (i) BR ; (ii) BER ; and (iii) BEP.

   (g) Define Entropy. What the entropy will be maximum ? Prove by equations.

   (h) What are the advantages of packet switching ? Explain.

                                                (8 × 5 = 40 marks)

2. (a) (i) What are ensemble and time averages ? Explain with examples.   (8 marks)

        (ii) Describe the process of "Sampling and Reconstruction".   (7 marks)

   Or

   (b) (i) Explain the response of LTI system to White Gaussian noise.   (9 marks)

        (ii) Differentiate Energy signals from Periodic signals.   (6 marks)

3. (a) What is TRF ? Explain the operating principle with a neat block diagram. Broadly distinguish TRF receiver from superheterodyne receiver.

   Or

   (b) Draw a neat block diagram of FM transmitter and explain its principle of operation.

                                                (15 marks)

4. (a) Explain in detail with neat sketches about PCM, DPCM and delta modulation. (15 marks)

   Or

   (b) (i) Distinguish Scrambler from unscrambler.   (8 marks)

        (ii) Briefly explain the concept of an Optimal receiver.   (7 marks)

Turn over

5. (a) Derive the mathematical representation of linear block codes. Enumerate its properties. How does it differ from other error control codes.

(15 marks)

Or

(b) Write technical notes on :

   (i) Circuit switching.

   (ii) DS-CDMA.

   (iii) Syndrome calculator.

(3 × 5 = 15 marks)

[4 × 15 = 60 marks]