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(Pages : 2)

Name.....

Reg. No.....

**FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, DECEMBER 2007**

Electrical and Electronics Engineering

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

Time : Three Hours

Maximum : 100 Marks

- I. (a) Define stationarity. Write the types of stationarity.
(b) Explain the characteristics of white noise. Differentiate this from other noise components.
(c) Explain the demerits of TRF receiver. Explain about selectivity of a receiver.
(d) Differentiate AM from FM Sketch the waveforms of AM and FM.
(e) What is an Optimum filter ? Write its characteristics.
(f) Explain the concept of an optimal receiver.
(g) Differentiate FEC scheme with ARQ. Explain their advantages.
(h) Explain the basic concepts of network protocols.
- (8 × 5 = 40 marks)
- II. (a) (i) State and derive Wiener-Khinchin theorem. (8 marks)
(ii) Explain in detail about energy signals and power signals. (7 marks)
- Or
- (b) (i) Explain the properties of Gaussian random process. (8 marks)
(ii) State and derive Wiener-Khinchin theorem. (7 marks)
- III. (a) (i) Draw a neat block diagram of AM transmitter and explain its principle of operation. (8 marks)
(ii) Differentiate AM from FM. Derive equations for both. (7 marks)
- Or
- (b) (i) Draw a neat block diagram of FM transmitter and explain its principle of operation. (8 marks)
(ii) Draw a neat sketch of Foster-Seeley discriminator and explain its principle. (7 marks)
- IV. (a) (i) Compare DPCM with DM. (8 marks)
(ii) Derive an expression for the impulse response of matched filter. (7 marks)

Or

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- (b) (i) Explain the principle of unscrambler with a neat sketch and equations. (8 marks)
(ii) Derive probability of error for FSK signaling scheme. (7 marks)
- V. (a) (i) Compare the performances of Huffman coding with Shannon's coding. (8 marks)
(ii) Compare the merits and demerits of ARQ with forward Error Correction. (7 marks)

Or

(b) Write technical notes on :

1 Syndrome calculator. (8 marks)

2 Network topologies. (7 marks)

[4 × 15 = 60 marks]