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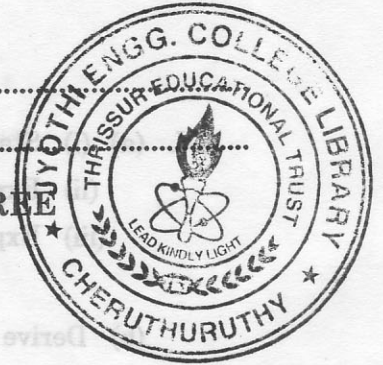
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Name.....

Reg. No.....

**SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2010**

**EC 04 604—DIGITAL COMMUNICATION
(2004 admissions)**



Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

- I. (a) What is meant by companding ? Explain.
(b) Explain the generation of PPM signal.
(c) Explain about eye diagram.
(d) State the properties of matched filter.
(e) Explain about MAP detector.
(f) Explain briefly about symbol synchronization.
(g) Explain the generation of FSK signals.
(h) A binary PSK signal is applied to a correlator supplied with a phase reference that differs from the exact carrier phase by ' θ ' radians. Determine the effect of phase errors ' θ ' on the average bit error rate of the system.

(8 × 5 = 40 marks)

Part B

- II. (a) (i) Explain the method for detecting pulse width modulated signal with neat diagrams.

(8 marks)

- (ii) Explain what is meant by uniform quantization and non-uniform quantization.

(7 marks)

Or

- (b) (i) Draw the block diagram of adaptive delta modulation system and explain in detail.

(9 marks)

- (ii) What are quantization noises in delta modulation systems ? Explain.

(6 marks)

- III. (a) Explain duo-binary signalling scheme without and with precoder.

Or

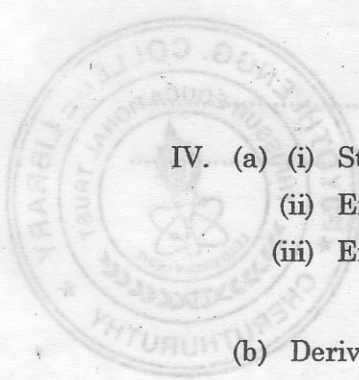
- (b) (i) With neat sketch, explain about eye diagram.

(6 marks)

- (ii) Draw the block diagram of base band data transmission system and explain.

(9 marks)

Turn over



- IV. (a) (i) State and prove any one property of Gaussian random process. (6 marks)
- (ii) Explain what is meant by correlation receiver. (4 marks)
- (iii) Explain about optimum threshold detection. (5 marks)

Or

- (b) Derive the transfer function of matched filter for coloured noise.

- V. (a) Draw the block diagrams for MSK transmitter and receiver and explain with geometrical representation.

Or

- (b) (i) Compare the performance of ASK, PSK and FSK signals. (8 marks)
- (ii) Derive the power spectra of FSK signals. (7 marks)

[4 × 15 = 60 marks]

(ii) A binary FSK signal is applied to a correlator supplied with a phase reference that differs from the exact carrier phase by θ radians. Determine the effect of phase error θ on the average bit error rate of the system.

(8 × 5 = 40 marks)

Part B

- II. (a) (i) Explain the method for detecting pulse width modulated signal with neat diagrams. (8 marks)
- (ii) Explain what is meant by uniform quantization and non-uniform quantization. (7 marks)

Or

- (b) (i) Draw the block diagram of adaptive delta modulation system and explain in detail. (9 marks)
 - (ii) What are quantization noises in delta modulation systems? Explain. (6 marks)
- III. (a) Explain the binary signalling scheme without and with precoder.

Or

- (b) (i) With neat sketch, explain about eye diagram. (6 marks)
- (ii) Draw the block diagram of base band data transmission system and explain. (9 marks)