C 31984 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
JUNE 2007

EC 04 604—DIGITAL COMMUNICATION

(2004 admissions)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

I. (a) State and explain sampling theorems for low-pass and band-pass signals.

(b) Explain about slope overload distortion.

(c) Explain about eye diagram with neat diagram.

(d) State Gram-Schmidt orthogonalization procedure.

(e) Define Gaussian random process and explain its properties.

(f) Explain about symbol synchronization.

(g) Explain coherent ASK systems.

(h) Compare the performance of PSK and FSK.

(8 × 5 = 40 marks)

Part B

II. (a) Derive the signal to quantization noise ratio for PCM system with uniform quantizer.

Or

(b) Draw the block diagram of adaptive delta modulation system and explain.

III. (a) Draw the block diagram of duo-binary signalling scheme without and with pre-code and explain with example.

Or

(b) Define and explain the following :—

(i) L^2-Space.

(ii) Inner product space.

(iii) Norm.

(iv) Signal space diagram.

(15 marks)

Turn over

IV. (a) Derive the optimum receiver structure for detecting binary signal in the presence of AWGN.

Or

(b) Derive the bit error rate for matched filter.

V. (a) Draw the block diagram of binary FSK system and explain.

Or

(b) (i) Derive the Power Spectra of PSK signal and explain. (8 marks)

(ii) What are the advantages and disadvantages of MSK system ? (7 marks)

[4 × 15 = 60 marks]