C 58362 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
JUNE 2009

EC 04 604—DIGITAL COMMUNICATION

(2004 admissions)

Time : Three Hours Maximum : 100 Marks

Part A

Answer **all** *questions.*

I. (a) Explain the generation of PAM signal.

(b) Discuss what is granular noise ?

(c) What is meant b scrambling ? Explain.

(d) Define the following terms :

(i) Norm. (ii) Inner product.

(e) Explain what is meant by threshold detection ?

(f) Explain maximum likelihood detector.

(g) What are the drawbacks of binary PSK signals.

(h) Compare the performance of FSK system with MSK system.

(8 × 5 = 40 marks)

Part B

II. (a) (i) Draw the block diagram of TDM system and explain. (7 marks)

(ii) Explain the following formats with examples :

(i) NRZ (ii) Machester. (8 marks)

Or

(b) (i) Derive the signal to quantization noise ratio for PCM system. (10 marks)

(ii) What is differential encoding ? Explain. (5 marks)

III. (a) Draw the block diagram of modified duo-binary signalling scheme and explain with and without procoder.

Or

(b) (i) Define and explain the following terms :

1 L^2 space.

2 Inner product space.

3 Normal space. (9 marks)

(ii) Explain the criteria for matched filter. (6 marks)

Turn over

IV. (a) Derive the optimum receiver for detecting known signals in the presence of additive non-white Gaussian noise.

Or

(b) Explain about carrier and symbol synchronization techniques.

V. (a) Explain the generation and detection of binary PSK signal with neat block diagrams and signal space diagram.

Or

(b) (i) Derive the power spectral density and bandwidth of MSK signals. (8 marks)

(ii) Explain the continuant of phase in MSK signals. (7 marks)

[4 × 15 = 60 marks]