D 32679 (Pages : 2) Name.....

Reg. No.....

FIFTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION DECEMBER 2012

Electrical and Electronics Engineering

EE 04 501—ANALOG AND DIGITAL COMMUNICATIONS

(2004 Scheme)

Time : Three Hours Maximum : 100 Marks

Answer **all** *questions.*

Part A

I. (a) Explain the response of LTI system.

(b) Define sampling and reconstruction and explain.

(c) Draw and explain in brief the FM transmitter.

(d) Compare pulse modulation and FM.

(e) Explain PCM method of modulation.

(f) Define the following :

(i) Average probability error. (ii) Bit error rate.

(iii) Modulation index.

(g) Explain Shanon's source loading theorems.

(h) Define the Hartley theorem and explain it.

(8 × 5 = 40 marks)

Part B

II. (a) Explain the response of LTI system with white Gaussian noise.

Or

(b) State and prove two properties of Gaussian random process.

(15 marks)

III. (a) Draw the circuit of ring modulator and explain.

Or

(b) Derive the SNR at the output of FM transmitter and receiver.

(15 marks)

Turn over

IV. (a) Draw the block diagram of differential PCM system and explain.

Or

(b) Draw the block diagram of binary base band system and also derive expression for ISI.

(15 marks)

V. (a) Derive the expression for channel capacity of an additive white Gaussian band limited channel.

Or

(b) Explain with the neat sketch the operation of frequency division multiple access system.

(15 marks)

[4 × 15 = 60 marks]