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(Pages 2)

Name...........

Reg. No.............

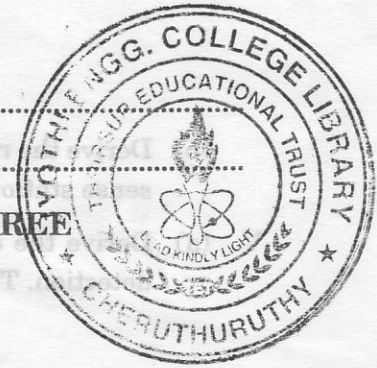# FOURTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, JUNE 2010

EC 04 406—ANALOG COMMUNICATIONS

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

Part A

I. (a) Explain VSB modulation with spectrum.

(b) Compare amplitude modulation and frequency modulation.

(c) Explain the concept of FDM with respect to the formation of a super group for a telephone system.

(d) Explain what is meant by chrominance signal in colour TV.

(e) Show that the power spectral density of a real valued random process is an even function of frequency.

(f) Define and explain ensemble averaging and time averaging of auto-correlation function.

(g) Draw the phasor diagram for AM wave with narrow-band noise for the case of low corrier to-noise ratio and explain.

(h) Explain what is meant by sampling.

(8 × 5 = 40 marks)

Part B

II. (a) Draw the block diagram of high level AM transmitter and explain the function of each block.

Or

(b) Draw the diagram of Fooster-Seeley discriminator and explain its operation.

III. (a) Draw the block diagram of transmitter and receiver of quadrature-carrier multiplexing system and explain its operation.

Or

(b) Draw the block diagram monochrome TV receiver and explain.

IV. (a) If a Gaussian process is applied to a linear filter then show that the random process developed at the output of the filter is also Gaussian.

Or

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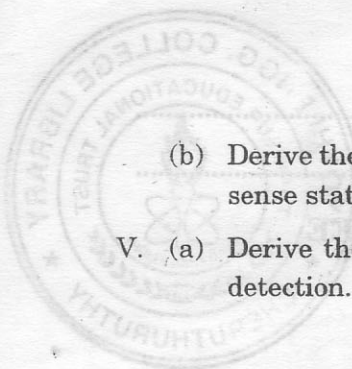
(b) Derive the relation among the power spectral density and auto-correlation function of a wide-sense stationary random process.

V. (a) Derive the output signal-to-noise ratio of AM system, the receiver of which uses envelope detection. The additive noise at the detector input is narrow band.

Or

(b) Derive the power spectral density of the noise at the FM receiver output and plot it.

$(4 \times 15 = 60 \text{ marks})$