

5E5047

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B.Tech. V Semester (Main/Back) Examination, Nov./Dec. - 2017

Electrical and Electronics Engg.

5EX6.2 A Principal of Communication System

Common with EE

Time : 3 Hours

Maximum Marks : 80

Min. Passing Marks : 26

Instructions to Candidates :

Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.

Unit - I

1. a) Explain cause and effects of atmospheric and solar noise. (8)
- b) Define transistor signal-to-noise ratio and noise figure of a receiver. (8)

OR

2. a) An amplifier operating on a frequency range from 18-20MHz, MHz has a $10k\Omega$ input resistance. Find the rms noise voltage at the input to this amplifier if the ambient temperature is 17°C . (8)
- b) If each stage has a gain of 10dB and noise figure of 10dB. Determine the overall noise figure of a two stage cascaded amplifier. (8)

Unit - II

3. a) Derive the power relations of single tone amplitude modulated wave. (8)
- b) Explain the square law diode modulation method for AM generation. (8)

OR

4. Prove that balanced modulator produces an output consisting of standards only. With the carrier removed. (16)

Unit - III

5. a) Differentiate between narrow band and wideband FM. (8)
b) Explain the varactor diode modulator in detail. (8)

OR

6. Write technical note on following : (8×2=16)
a) Pre emphasis and de-emphasis
b) PLL demodulator.

Unit - IV

7. Explain the noise calculation for AM-systems. Also discuss the threshold effect in envelope detector. (16)

OR

8. Discuss the super heterodyne receiver. (16)

Unit - V

9. a) Explain Nyquist rate and Nyquist interval with suitable example. (8)
b) What is aliasing? How it is reduced. (8)

OR

10. Write technical note on : (8×2=16)
a) PWM
b) PPM

