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Question Paper Code: 31445

B.E. / B.Tech. DEGREE EXAMINATION, NOVEMBER 2015

Fourth Semester

Electronics and Communication Engineering

01UEC405 – ANALOG COMMUNICATION

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Give one commercial service that uses the VSB modulation technique. Justify the selection of VSB for that application.
2. Draw the frequency spectrum of AM.
3. Define single tone modulation.
4. List some methods of FM signal generation.
5. Write about the mean and covariance.
6. Define random process.
7. A receiver connected to an antenna whose resistance is 50Ω has an equivalent noise resistance of 30Ω . Calculate the receiver's noise figure in decibels and its equivalent noise temperature.
8. Why Pre-emphasis and De-emphasis circuits are used in FM technique?
9. How can measure the Quantization error?
10. State the two corrective measures to combat the effects of Aliasing.

PART - B (5 x 16 = 80 Marks)

11. (a) Demonstrate the schematic diagram of AM signal generator and detection using envelope detection. Draw the modulated and demodulated signals for under modulated, critically modulated and over modulated conditions. (16)

Or

- (b) (i) Compare different amplitude modulation schemes. (6)
(ii) Write in detail about Non-linear distortion and frequency translation. (10)
12. (a) (i) Compare narrow band and wideband FM. (6)
(ii) Define phase modulation and discuss it. (10)

Or

- (b) (i) Describe the indirect method generating frequency modulation technique, with the help of block diagram. (8)
(ii) How do you demodulate an FM signal? Explain. (8)
13. (a) Explain the properties of Gaussian process. (16)

Or

- (b) (i) Describe the properties of Auto-correlation functions (10)
(ii) State and explain central limit theorem. (6)
14. (a) Explain the operation of super heterodyne receiver with neat block diagram. Draw the time domain signal at the output of each block. (16)

Or

- (b) (i) Discuss the external noises associated in receiver systems. (8)
(ii) Explain the noise in DSBSC systems using coherent detection. (8)
15. (a) (i) Describe time division multiplexing scheme with a typical example. (8)
(ii) Discuss the sampling process. (8)

Or

- (b) With neat block diagram explain the PAM and PWM systems in detail. (16)