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Question Paper Code: 41445

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

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. List any two advantages and disadvantages of analog communication.
2. Distinguish between DSB-SCAM and SSB-SC-AM.
3. Draw the phasor diagram of FM signal.
4. Differentiate narrow band FM and wideband FM.
5. Write down the equation for time-averaged autocorrelation function.
6. Write the expression for the expectation of a continuous random variable X having a density function $f(x)$.
7. Define noise figure.
8. Give the characteristics of superheterodyne radio receiver.
9. Compare FDM and TDM.
10. What is compander?

PART - B (5 x 16 = 80 Marks)

11. (a) Derive the expression for AM and its power and efficiency calculation. (16)

Or

(b) (i) Explain the coherent detection of DSB-SC wave with neat diagram. (8)

(ii) Draw and explain the operation of the frequency translation. (8)

12. (a) Explain any one type of generation and demodulation of FM signal. (16)

Or

(b) Explain with neat block diagram the Armstrong method of FM generation. (16)

13. (a) (i) Explain the properties of Gaussian process. (10)

(ii) Write short note on joint probability function of two discrete random variable. (6)

Or

(b) (i) Derive and express power spectral density. (8)

(ii) Define autocorrelation and explain its properties. (8)

14. (a) (i) Derive the expression of noise in DSB-SC system using coherent detection. (10)

(ii) Explain in detail about FM threshold effect. (6)

Or

(b) With neat diagram explain the super heterodyne receiver and its characteristics. (16)

15. (a) State and prove the sampling theorem. (16)

Or

(b) Explain with neat sketch the generation of PWM and PPM. (16)