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EX–601

B. E. (Sixth Semester) EXAMINATION, June, 2012

(Electrical & Electronics Engg. Branch)

COMMUNICATION ENGINEERING

(EX–601)

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt any *five* questions. All questions carry equal marks. Assume necessary data if missing.

1. (a) What is Fourier transform ? How is it different from Laplace transform ? Write the *five* properties of each using examples.

   (b) Consider a triangular wave of duration –T to T, find the Fourier transform of it. Assume amplitude is unity.

Or

2. (a) What is Central limit theorem ? Consider any *two* functions and find their joint PDF.

   (b) Write and explain the Gaussian density function. How is this function helpful in making Rayleigh PDF ?

3. (a) Describe the working of the vestigial sideband modulation with the help of necessary equations and sketches.

P. T. O.

(b) What are the differences between narrowband FM and wideband FM ? Explain the different approaches to generate them.

Or

4. (a) Draw the spectrum of FM and explain the bandwidth, capacity, sidebands, frequency diviation, phase deviation.

(b) What is pre-emphasis and de-emphasis ? Draw their diagrams and explain them in details. Also write their advantages and disadvantages.

5. (a) What are the drawbacks of TRF receiver ? Explain any *one* strong method to solve the problems of TRF receiver.

(b) Explain the different factors that affect the selection of Intermediate frequency. What is image rejection ratio ?

Or

6 (a) Explain the Superheterodyne receiver with the help of neat sketches and derivations to generate 98.4 MIlz.

(b) Draw and explain the RF section used in communication receivers.

7 (a) Differentiate with the help of neat diagram between sampling and quantization. Write and explain the need of non-uniform quantizer.

(b) In a binary PCM system, the output signal-to-quantizing-noise ratio is to be held to a minimum of 40 dB. Determine the number of required levels and find the corresponding output signal-to-quantizing-noise ratio.

Or

8 (a) Sketch the QPSK waveform for the sequences 1101010111 assuming the carrier frequency to be equal to the bit rate.

(b) What is Companding ? Compare A-Law and, u-Law.

9. (a) Draw the block diagram of the Satellite and explain it. Also explain the different types of Satellites.

(b) What is link calculation ? Why is it necessary for satellites ?

Or

10. Write the short notes on the following :

(a) Satellite eclipes

(b) Satellite frequency bands