Total No. of Questions :10]   *[Total No. of Printed Pages :3*

Roll No ....

EX-601
B.E. VI Semester
Examination, December 2012
Communication Engineering

Time : Three Hours

Maximum Marks : 100   *Minimum Pass Marks :35*

Note: *Total number of questions : 10.*
Attempt Five questions only
Assume suitable data if missing

1. (a) What is Fourier transform. Write and explain the
10 properties of Fourier transform.   10

   (b) Explain the different types of signals used in
   communication engineering. Also write their applications.
   10

OR

2. (a) Consider a triangular wave having duration -T/2 to +T/2,
   and amplitude A. Find the Fourier transform of it.   10

   (b) Write and explain the convolution, correlation, cross
   correlation and auto correlation using examples and
   sketches.   10

3.   Draw and explain the different methods used for SSB
   generation. Also derive the formulas used.   20

OR

4. (a) Write the differences between narrow band FM and wideband FM. Also explain their applications.   10

   (b) Draw and explain the block diagram of Armstrong method for the generation of FM.   10

5. (a) Explain how the use of an RF amplifier improves the signal to noise ratio of a super-heterodyne receiver.   10

   (b) Show AGC curves to illustrate the comparison and explain how delayed AGC may be obtained and applied. What does the delayed AGC control adjust?   10

OR

6. (a) Discuss automatic frequency control and metering in communications receivers. What is frequency synthesis. What are the situations in which it is advantageous to use a frequency synthesizer. What advantages does it have over the alternatives.   10

   b) Calculate the image frequency rejection of a double conversion receiver which has a first IF of 2MHz and second IF of 200KHz, an RF amplifier whose tuned circuit has a Q of 75 and which is tuned to a 30MHz signal.   10

7. (a) Please explain the of modulation and demodulation system using QAM. Draw the necessary sketches in your favour.   10

   (b) What are the sources of noise. Explain all in detail. What is effective noise temperature. Derive the formula of it.   10

OR

8. (a) Explain the Nyquist criteria used in sampling of waveforms. How the sampling is used in PCM. Also comment on type of sampler used. 10

   (b) Derive the formula of Signal to noise ratio for Amplitude modulation. 10

9. (a) Draw and explain the different types of satellites used in reality. 10

   (b) Please calculate the link budget of a typical satellite. Also comment on the reduction of power loss in satellites. 10

OR

10. Write short notes on the following: 20

    (a) TDMA and FDMA

    (b) transponders

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