Total No. of printed pages = 6

Et-501/CE-II/5th Sem/2017/N

COMMUNICATION ENGINEERING – II

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

PART – A

Answer *all* the questions.

1. Fill in the blanks with suitable words : 1×10=10

   (a) Harmonic generators use ——— amplifiers.

   (b) The sensitivity of radio receiver is determined by the gain of ——— amplifier.

   (c) In synchronous detector the received signal is multiplied with ——— to recover the messages.

   (d) A ——— circuit is used in AM broadcast transmitter to modulate the signal.

[Turn over

(e) In radio receiver the AGC signal is generated in ——— stage.

(f) According to Sampling theorem the sampling frequency is ——— than or equal to ——— the maximum signal frequency.

(g) V.S.W.R in a short circuited line equals ———.

(h) Most popular IF for receiver tuning to 540 to 1650 KHz is ———.

(i) Recovering the message signal from a modulated signal is called ——— .

(j) PAM signal is recovered by using ——— filter.

2. Write True or False : 10

(a) FM has no side band.

(b) De emphasis is used to attenuate lower frequency.

(c) FM / PM transmitter and receiver are more complex than AM

(d) In a radio receiver, if the intermediate frequency is too high then selectivity will be poor.

(e) Ratio detector is used for detection of AM signal.

(f) Digital signals represent values as discrete steps.

(g) The drawback of PCM system is its incompatibility with TDM.

(h) In pulse modulation system, the transmitted pulse have varying amplitude.

(i) The demodulation of SSB signal can be accomplished by envelope detection.

(j) A pilot carrier in SSB is provided to reduce noise.

3. Specify the correct answer : 5

(a) The main advantage of PCM system is

(i) lower bandwidth

(ii) lower power

(iii) lower noise

(b) TDM system

(i) needs lower bandwidth

(ii) uses simple circuit as compared to FDM

(iii) gives lower signal to noise ratio

(c) PPM is a

(i) Linear modulation technique

(ii) Digital modulation technique

(iii) Analog modulation technique

(d) Electromagnetic waves are reflected by ionosphere due to their interaction with

(i) Electrons

(ii) Protons

(iii) Ultraviolet rays

(e) In a radio receiver AGC voltage is proportional to

(i) IF

(ii) The amplitude of audio signal

(iii) The amplitude of the IF carrier

PART – B

Answer any *three* questions.

4. (a) Compare and contrast AM, FM and PM waves with the help of suitable wave forms. 6

(b) Discuss the construction and the working of Foster-Seely discriminator. 9

5. (a) With the help of neat block diagram explain the working of AM transmitter. 8

(b) What is noise ? Classify the different types of noise found in communication receivers. 3+4 = 7

6. (a) What do you understand by extension of Superheterodyne principle ? Discuss. 10

(b) Define the term :

Noise Limiter, Squelch, AFC, Tuning and B.F.O 5

7. (a) Draw the block diagram of a FM receiver and explain the function of each block. 8

(b) What is F.S.K and P.S.K.? Differentiate between F.S.K and P.S.K. 2+5=7

8. Write short notes on any *three* : 5×3=15

(a) Single Sideband transmitter.

(b) Time division multiplexing.

(c) Diversity reception.

(d) AGC.