Total No. of printed pages = 4

Et-501/CE-II /5th Sem/2016/N

COMMUNICATION ENGINEERING - II

Full Marks – 70

Pass Marks – 28

Time – Three hours

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

Answer question No.1 and any *four* from the rest.

1. (a) Fill in the blanks : 1×5=5

(i) In synchronous detector, the received signal is multiplied with ——— signal to recover the message.

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

(iii) In radio receivers, the AGC signal is generated in ——— stage.

[Turn over

(iv) According to Sampling Theorem, the sampling frequency is ——— than or equal to ——— the maximum signal frequency .

(v) The Beat frequency oscillator in a communication is used for receiving ———.

(b) Answer the following : 3×3=9

(i) Give reason why the local oscillator frequency is kept higher than the incoming signal frequency in AM receivers.

(ii) Explain why a limiter circuit is used in FM receivers.

(iii) Mention the causes of frequency drift in Master oscillator in AM transmitters.

2. (a) With the neat circuit diagram, describe a circuit that can detect an amplitude modulated signal and also generate AGC. 7

(b) What is diagonal clipping ? Explain the causes and ways to contain diagonal clipping in AM detectors. 1+6=7

3. (a) Draw the block diagram of AM broadcast transmitter and describe each block. 7

(b) What is neutralization ? Draw and explain a neutralization circuit used in amplifiers of AM transmitters. 7

4. (a) Explain how the problems in Tuned Radio Frequency (TRF) receivers are overcome in superheterodyne receivers. 7

(b) Draw and describe the FM receiver. 7

5. (a) What is image frequency ? Explain the conditions for image frequency rejection in AM receivers. 1+3=4

(b) Mention the advantages of double frequency conversion in communication receivers. 5

(c) Explain the utility of Pre-emphasis and De-emphasis circuits in FM systems. 5

6. (a) With necessary diagrams, describe in brief the different Digital to Analog modulations. 7

(b) Explain the method of quantization in Pulse Code Modulation (PCM) and hence define quantization error. 7

7. Write short notes on any *two* : 2×7=14

(a) Single sideband (SSB) transmitter

(b) Diversity reception

(c) Ratio detector

(d) Frequency Division Multiplexing.