Total No. of printed pages = 6

END SEMESTER EXAMINATION – 2019

Semester : 5th (New)

Subject Code : Et-501

COMMUNICATION ENGINEERING – II

Full Marks – 70

Time – Three hours

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

Instructions :

1. *All* questions of PART – A are compulsory.
2. Answer any *five* questions from PART – B.

PART – A

Marks – 25

1. Fill in the blanks : 1×10=10

   (a) A PLL can also be used as _____.

   (b) In radio receiver the AGC signal is generated in _____ stage.

[Turn over

(c) Most popular IF for receiver tuning to 540 to 1650 kHz is _____.

(d) In servo control system _____ demodulation is used.

(e) A phase modulated wave with phase deviation $\Delta\phi$ produces a frequency deviation Δf such that $\Delta f =$ _____.

(f) Low level modulation circuit employs circuit like _____ modulation.

(g) Broadcast transmitters are required to transmit large _____ powers.

(h) In digital communication, the digital signals must be made to modulate the _____ carrier.

(i) The shape for the cellular region for maximum radio coverage is _____.

(j) The term RADAR stands for _____.

2. Write true or false : 1×10=10

(a) Peak detector is also called envelope detector.

(b) Foster seeley discriminator is employed for demodulation of FM waves.

(c) In ASK modulator, sinusoidal signal is transmitted when the digital signal is logic 0.

(d) The output power of AM broadcast is more than 100kW.

(e) The buffer amplifier is to provide isolation to the master oscillator from the succeeding power amplifier stages.

(f) FSK employs more than two different frequencies.

(g) In a RADAR system the transmitter of the radar is more sensitive than the receiver.

(h) Pulse radar determines the target range by measuring the round trip time of a pulsed microwave signal.

(i) BFO is used to receive the telegraph signal.

(j) In radio receiver noise is generally developed at IF stage.

3. Choose the correct answer : 1×5=5

(a) For demodulation of FM signal

(i) Envelope detector

(ii) Diode detector

(iii) Ratio detector

(iv) None of the above

(b) In Foster seeley discriminator when incoming signal frequency is greater than f_c the secondary circuit behaves as

(i) Resistive

(ii) Inductive

(iii) Capacitive

(iv) None of the above

(c) In harmonic generator if the order of harmonic is 4, then the power output as percentage of power is class C operation is

(i) 35% (ii) 27%

(iii) 25% (iv) 22%

(d) Radio capacity may be increased in cellular concept by

(i) increasing in radio spectrum

(ii) increasing the number of base stations and reusing the channels

(iii) Both (i) and (ii)

(iv) None of the above

(e) Super heterodyne principle provides selectivity at

(i) RF (ii) IF

(iii) Audio amplifier (iv) Before RF

PART – B

Marks – 45

4. (a) Define intelligence network ? 3

(b) Describe the GSM radio characteristics. 3

(c) Explain the process of handoff. 3

5. (a) Define ASCII code ? 2

(b) How can you get PPM from PWM ? 5

(c) What is Binary code ? 2

6. (a) What is Fading ? 3

(b) Explain space and frequency diversity reception. 3

(c) Compare AM and FM systems. 3

7. (a) What is pre-emphasis and de-emphasis circuits ? 3

   (b) Draw the block diagram of FM transmitter and explain. 6

8. (a) Describe TDM with proper diagram. 6

   (b) What are the characteristics of data transmission circuits ? 3

9. (a) What is master oscillator and why it is used in transmitter ? 2+2=4

   (b) Draw the block diagram of SSB transmitter and explain function of each block. 5

10. State the advantages of a super heterodyne receiver over TRF receiver and draw the super heterodyne receiver and explain. 3+6=9

11. Explain the working principle of the RADAR system. Compare the characteristics of A- scope radar and plane position indicator (PPI) RADAR. 6+3=9