Total No. of printed pages = 6

END SEMESTER EXAMINATION – 2022

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 with suitable words : 1×10=10

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

   (b) In the locked state of PLL, the phase error between input and output is _____.

[Turn over

(c) In a transmitter _____ oscillator is used.

(d) The superheterodyne principle provides selectivity at _____ stage.

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

(f) Peak detector is also called _____ detector.

(g) Radar sets use the echo to determine the direction and distance of the _____.

(h) Two binary values are represented by different frequency in _____.

(i) PPM is _____ modulation technique.

(j) Squelch circuit is used in-between _____ and the _____ amplifier.

2. Write true or false : $1 \times 10 = 10$

(a) Quantization noise occurs in PCM.

(b) Class-A amplifier is preferable for use in low level modulation.

(c) Morse code is a binary code.

(d) Amplitude limiter reduces the amplitude of the received signal.

(e) Neutralization is used in RF amplifier to improve selectivity.

(f) Duty cycle of a radar is the ratio of pulse width to pulse repetition time.

(g) Mixer is also known as modulator.

(h) Non-coherent detection involves detection of carrier and then demodulation of message.

(i) STALO stands for stable L-band output.

(j) The 2G cellular network uses digital modulation format.

3. Specify the correct answers : $1 \times 5 = 5$

(a) In NBFM, the modulation index is

(i) less than 1

(ii) greater than 1

(iii) None of (i) and (ii)

(b) Deemphasis circuit uses

(i) high pass

(ii) low pass

(iii) None of (i) and (ii)

(c) AFC stands for

(i) Automatic frequency control

(ii) Automatic force control

(iii) Automatic fluid control

(d) Noise generated in a resistor is known as

(i) Partition noise

(ii) Thermal noise

(iii) Flicker noise

(e) The number of voltage levels present in a PWM signal is

(i) 0

(ii) 1

(iii) 2

PART – B

Marks – 45

4. (a) What is radio transmitter ? Classify its different types. 1+3=4

   (b) With the help of block diagram explain the working of AM transmitter. 5

5. (a) Distinguish between AM and FM receiver. 3

   (b) Explain briefly the different types of diversity reception utilized in communication. 6

6. (a) Compare between Foster Seely discriminator and Ratio detector used for FM detection. 3

   (b) Define the terms : (i) Noise limiter, (ii) Squelch, (iii) AFC, (iv) Tuning, (v) BFO and (vi) AGC. 6

7. (a) What is PSK ? Distinguish between PSK and FSK. 1+3=4

   (b) Draw the block diagram of binary PSK system and explain the functions of each block. 5

8. (a) Explain briefly the frequency reuse concept in cellular system. 3

(b) Differentiate between soft and hard handoff process. 3

(c) List some advantage of CDMA system over GSM. 3

9. (a) What is a radar system ? Why it is used ? 1+2=3

(b) Classify the different types of radar. 3

(c) Distinguish between coherent and non-coherent MTI radar. 3

10. Write short notes on any *three* : 3×3=9

(a) Phase locked loop

(b) Transit time noise

(c) SSB receiver

(d) Preemphasis circuit.