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END SEMESTER EXAMINATION, NOVEMBER-2018

Semester – 5th

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) Synchronous detectors are basically used for detection of _____ signals.
 - (b) Envelope detector is also called _____ detector.

[Turn over

- (c) In Foster seeley discriminator when incoming signal frequency is greater than f_c the secondary circuit. behaves as _____ circuit.
- (d) A phase modulated wave with phase deviation $\Delta\phi$ produces a frequency deviation Δf , such that $\Delta f = \underline{\hspace{2cm}}$.
- (e) Squelch circuit is used in between _____ and the _____ amplifier.
- (f) The limiter circuit is used to keep the _____ of the FM wave constant.
- (g) A pre-emphasis circuit is used before _____.
- (h) The FM signals are _____ susceptible to noise.
- (i) RF amplifier is a tuned _____ amplifier.
- (j) In digital communication, the digital signals must be made to modulate the _____ carrier.

2. Write true or false : 1×10=10
- (a) Foster seeley discriminator is employed for demodulation of FM waves.
- (b) Envelope detector is a coherent detector.
- (c) In AM wave useful power is carried by sidebands.
- (d) As the modulation level is increased, the carrier power is increased.
- (e) In a radio receiver, noise is generally developed at RF stage.
- (f) In TV transmission, sound signal is frequency modulated.
- (g) Neutralization is used in RF amplifier to improve selectivity.
- (h) In ASK modulation, sinusoidal signal is transmitted when the digital signal is logic 0.
- (i) FSK employs two different carrier frequencies.
- (j) The process of rounding off the sampled signal is termed as quantization

3. Choose the correct answer :

1×5=5

(a) Demodulation of FM signals are done using

- (i) Envelope detector
- (ii) Practical diode detector
- (iii) Ratio detector
- (iv) None of the above

(b) PAM is a

- (i) Digital modulation technique
- (ii) Linear modulation technique
- (ii) Analog modulation technique
- (iv) Non-linear modulation technique

(c) A heterodyne frequency changes is called a

- (i) Modulator
- (ii) Mixer
- (iii) Demodulator
- (iv) Frequency translator

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(d) Standard AM radio broadcasts are confined to

- (i) MF (ii) HF
- (iii) VHF (iv) UHF

(e) Modulation is done in

- (i) Receiver
- (ii) Transducer
- (iii) Between transmitter and receiver
- (iv) Transmitter.

PART - B

Marks - 45

4. (a) What are the different types of AM detector ? 1

(b) Draw the neat diagram of envelope detector and explain the working. 6

(c) What are the differences between Foster seeley discriminator and Ratio detector ? 2

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5. (a) What are the different digital modulation techniques ? 1
- (b) Write what do you know about ASK and FSK. 6
- (c) State the advantages of digital transmissions. 2
6. (a) Define ASCII code. 2
- (b) What is binary code ? 2
- (c) How can you get PPM from PWM ? 5
7. (a) What is noise ? 2
- (b) Explain the different types of noise found in communication receiver. 5
- (c) Define the term noise limiter. 2
8. (a) What do you mean by superheterodyne ? 2
- (b) Draw the block diagram of FM receiver and explain each block. 7

9. (a) State the different methods used for cooling of transmitter tubes. 2
- (b) With the help of neat diagram, explain the working of a SSB transmitter. 7
10. (a) Compare between AM and FM. 4
- (b) Explain the different types of diversity reception utilized in communication. 5
11. (a) What do you mean by multiplexing ? What are the different types of multiplexing ? $2+2=4$
- (b) Discuss TDM with proper diagram. 5