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3rd Sem / Branch : Eltx, IC, Power Eltx, Elect. & Eltx. Engg
Subject:- Principles of Comm. Engg.

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 Modulation is not used_____
a) To differentiate between channel
b) To reduce bandwidth
c) For carrying message to long distance
d) To reduce height of antenna

Q.2 The function of a modulator is to
a) Separate two frequencies
b) Extract information from the carrier
c) amplify the audio frequency signal
d) impress the information onto carrier

Q.3 The modulation index of an AM signal increased from 0 to 1. The carrier power_____
a) Remains unchanged b) Doubled
c) Increases by 50% d) Gets quadrupled

Q.4 When E_1, E_2, E_3 _____etc. are the simultaneous modulating voltages, then total modulating voltage E_t will be

a) $E_t = E_1+E_2+E_3$_____
b) $E_t = E^2_1+E^2_2+E^2_3$_____
c) $E_t = (E^2_1+E^2_2+E^2_3$_____$)^{1/2}$
d) $E_t = (E_1E_2+E_2E_3+E_3E_4+$_____$)/E_1+E_2+E_3$

Q.5 SSB can be generated by?
a) Filter method b) Phase shift method
c) Weaver's method d) All of the above

Q.6 In FM, the frequency deviation is
a) Always constant
b) Directly proportional to modulating frequency
c) Inversely proportional to modulating frequency
d) Proportional to amplitude of modulating signal

Q.7 In frequency modulation, the modulation index is proportional to_____
a) W_m b) $1/W_m$
c) W^2_m d) None of the above

Q.8 A balanced modulator produces_____
a) AM b) DSB
c) SSB d) VSB

Q.9 Which of the following is the an indirect method of generating FM?
a) Armstrong modulator
b) Varactor Diode modulator
c) Reactance FET modulator
d) Reactance Bipolar Transistor modulator

Q.10 In all wave receiver, the intermediate frequency f is given by_____

a) f_0-f_s b) f_s-f_0

c) f_0-$2f_s$ d) $2f_s$-f_0

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 What is signal to noise ratio?

Q.12 What are sidebands? Why are they important?

Q.13 Why is over modulation undesirable?

Q.14 What do you mean by Guard band?

Q.15 What is the full form of DSB?

Q.16 What do you mean by Eigen values?

Q.17 Define the term "Noise figure".

Q.18 What is the diagonal clipping?

Q.19 What do you mean by PPM?

Q.20 Name any two direct method of FM generation.

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 What is the need of modulation in communication system?

Q.22 A 600watt carrier is modulated to a depth of 75%. Calculate the total power in the modulated wave.

Q.23 Derive an expression for amplitude modulation.

Q.24 Describe the vestigial side band modulation.

Q.25 What is pre-emphasis? What is its use?

Q.26 Compare frequency modulation and amplitude modulation.

Q.27 Which factors decide the bandwidth of a FM signal.

Q.28 Write a short note on AM transmitter.

Q.29 Draw the square law detector and explain its working.

Q.30 Write a short note on VCO

Q.31 Give comparison between balanced slope detector and phase discrimination.

Q.32 Discuss the working of phase locked loop FM demodulator.

Q.33 Define and explain sampling theorem.

Q.34 Distinguish between TDM and FDM

Q.35 Discuss the working principle of pulse width modulation.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 Discuss the block diagram of Super heterodyne receiver.

Q.37 Explain with diagram, the working of foster Seeley discriminator.

Q.38 What is the modulation index? Derive an expression for modulating index of an AM wave.