

No. of Printed Pages : 4
Roll No.

221031

3rd Sem / ECE, ECE (For Speech and Hearing Impaired)

Subject : Analog and Digital Communication

Time : 3 Hrs.

M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 Modulator is a device used to
a) Separate two frequencies
b) Amplify the audio signals
c) Superimpose two low and high frequency signal
d) None of above
- Q.2 Vestigial sideband is most commonly used in.
a) Radio transmission b) TV transmission
c) Telephony d) All of above
- Q.3 The no. of sidebands in FM is.
a) zero b) 2
c) infinite d) 4
- Q.4 The range of modulation index in AM is
a) 0 to 1 b) 1 to 100
c) 1 to 1000 d) none of above

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- Q.5 Which one is not the advantage of FM over AM.
a) Lower bandwidth is required
b) Better noise immunity is there
c) Less modulating power is required
d) The transmitted power is more useful
- Q.6 Indicate which of the following system is not analog in nature
a) Pulse position modulation
b) Pulse Amplitude modulation
c) Pulse with modulation
d) Pulse code modulation

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 The quantizing and encoding are performed in the circuit which is called _____
- Q.8 The process by means of which information is extracted from the modulated signal is called _____
- Q.9 The full form of PSK is _____
- Q.10 In FM, the significant sideband increases with increase of frequency. (T/F)
- Q.11 In AM, all the information can be conveyed by the use of one sideband only, (T/F)
- Q.12 DSB-SC stands for _____

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SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 What is the need of modulation? Explain.
- Q.14 Explain the following terms along with waveforms:
a) Modulating signal b) carrier signal
- Q.15 Write a note on SSB-SC Modulating system.
- Q.16 What do you mean by frequency modulation. Also draw the waveforms.
- Q.17 Compare the FM and AM communication systems.
- Q.18 Draw and explain the block diagram of PCM modulation system.
- Q.19 Explain the narrow band FM and wide band FM.
- Q.20 Explain the modulation index in AM signal.
- Q.21 Explain the statement of sampling theorem.
- Q.22 Write a short note on PSK modulation technique.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Explain the basic block diagram and working principle of ASK modulation technique.
- Q.24 Derive an expression for an amplitude modulated wave. Also draw the waveforms.
- Q.25 Explain the different types of pulse modulation along with waveforms.

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SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 The process by mean of which information is extracted from the modulated signal is called (CO1)
- a) Modulation b) De-Modulation
c) Amplitude d) None of them
- Q.2 The process of transmitting two or more information signals simultaneously over the same channel is called? (CO1)
- a) Multiplexing b) Modulation
c) Detection d) Telemetry
- Q.3 Modulation index in term of $V_{\max}$ and $V_{\min}$. (CO2)
- a) $\frac{V_{\max} + V_{\min}}{V_{\max} - V_{\min}}$ b) $\frac{V_{\max} - V_{\min}}{V_{\max} + V_{\min}}$
c) $\frac{V_{\min} - V_{\max}}{V_{\min} - V_{\max}}$ d) $\frac{V_{\max} - V_{\min}}{V_{\max} + V_{\min}}$
- Q.4 In FM, If amplitude of the carrier wave is doubled, then what is the effect on the FM signal? (CO3)
- a) Double b) Four Times
c) Half d) No Effect

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- Q.5 A balanced modulator produces _____. (CO2)
- a) AM b) DSB
c) SSB d) VSB
- Q.6 The main advantage of PCM system is (CO5)
- a) Lower noise b) Lower power
c) Lower Bandwidth d) Lower frequency

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 Modulation is used to reduce bandwidth? (T/F) (CO1)
- Q.8 SSB-SC stands for _____? (CO2)
- Q.9 In FM modulation index is propotional to _____? (CO3)
- Q.10 What is the full form of TDM? (CO4)
- Q.11 Define sampling theorm? (CO4)
- Q.12 What do you mean by PSK? (CO5)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 Explain the block diagram of communication system (CO1)

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- Q.14 Give the classification of radio frequency spectrum. (CO1)
- Q.15 Explain VSB with block diagram. (CO2)
- Q.16 Explain frequency modulation in brief. (CO3)
- Q.17 Discuss various method of sampling. (CO4)
- Q.18 Describe the principle of Pulse Amplitude Modulation (PAM) (CO4)
- Q.19 Explain ASK with the help of block diagram. (CO5)
- Q.20 What is pre-emphasis and de-emphasis? (CO4)
- Q.21 Write a short note on the following- (CO3)
- a) Modulation Index b) Frequency Deviation
- Q.22 Distinguish between TDM and FDM. (Co4)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Write Comparison between FM and AM? (CO3)
- Q.24 Explain ASK, FSK and PSK which one is best among them? (CO5)
- Q.25 Describe the principle of Pulse Code Modulation PCM. (CO4)

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SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 FM stands for ____.
- a) Frequency modulation
 - b) Frequency Modulator
 - c) Frequent Frequent Multiplier
 - d) Frequency Mixer
- Q.2 Data transmitted for a given amount of time is called ____.
- a) Noise
 - b) Power
 - c) Frequency
 - d) Bandwidth
- Q.3 Amplitude Modulation suffers from ____.
- a) Side band Suppression
 - b) Intra Pulse Modulation
 - c) Cross Modulation
 - d) Carrier Suppression

Q.4 Balance modulator is used to produce _____.

- a) DSB b) VSB
- c) AM d) SSB

Q.5 A PWM signal can be generated by

- a) An astable multi vibrator
- b) A monostable multi vibrator
- c) Integrating a PPM signal
- d) Differentiating a PPM signal

Q.6 A PAM signal can be detected using

- a) Low pass filter b) High pass filter
- c) Band Pass filter d) All pass filter

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 PAM is analog modulation. (True/False)

Q.8 PCM stands for _____.

Q.9 Byte = _____ bites

Q.10 Unit of frequency is _____.

Q.11 QPSK stands for _____.

Q.12 Write full form of FSK.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Write short note on need for modulation.

Q.14 Write expression for an amplitude modulated wave.

Q.15 Compare ISB and VSB modulations.

Q.16 Compare FM and AM in communication systems.

Q.17 Write short note on FSK.

Q.18 Write short note on quantization.

Q.19 Explain Carson's Rule.

Q.20 Differentiate between analog and digital signals.

Q.21 Draw block diagram of QPSK modulator.

Q.22 Compare pre-emphasis and de-emphasis.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Draw basic block diagram of ASK. Explain working principle of ASK and write any three applications.

Q.24 Draw and explain the block diagram of digital and data communication.

Q.25 Write short note on :

- a) PAM b) PPM

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SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 The process by mean of which information is extracted from modulated signal is called _____ (CO1)

- a) Modulation b) Amplification
- c) Demodulation d) None of the above

Q.2 Which of the following is a type of modulation? (CO2)

- a) Frequency translation
- b) Amplitude modulation
- c) Demodulation
- d) All of the above

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Q.3 Compare the power efficiency of DSB-SC and SSB-SC modulation. (CO2)

- a) DSB-SC is more power efficient then SSB-SC
- b) SSB-SC is more power efficient then DSB-SC
- c) Both modulations have the same power efficient
- d) The power efficiency depend on the application

Q.4 In wideband FM, the modulation index is (CO3)

- a) Less than unity b) Equal to unity
- c) Greater than unity d) Zero

Q.5 Which type of demodulator is used in the frequency hopping technique? (CO4)

- a) Coherent
- b) Coherent and non-coherent
- c) Non-coherent
- d) None of the above

Q.6 Which one of the following is also called as ON-OFF keying? (CO5)

- a) ASK b) PSK
- c) FSK d) QPSK

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SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 UHF range extends from _____ to _____ (CO1)
- Q.8 Modulation is the process of changing _____, _____ or _____ of carrier signal according to modulating signal. (CO1)
- Q.9 Total power of AM wave in terms of carrier power is _____. (CO2)
- Q.10 In narrow band FM, modulation index is _____. (CO3)
- Q.11 Give full form of PCM _____. (CO4)
- Q.12 The process of rounding off the value of sampled signal is termed as _____. (CO4)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 Draw and explain the block diagram of a modern communication system. (CO1)
- Q.14 Explain working principle of PWM. (CO4)
- Q.15 Compare analog and digital communication systems. (CO4)

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- Q.16 Explain VSB with its block diagram. (CO2)
- Q.17 What is De-emphasis? What is its use? (CO2)
- Q.18 Explain noise triangle. (CO3)
- Q.19 With the help of block diagram explain ASK. (CO5)
- Q.20 Explain briefly ADAPTIVE DELTA modulation.
- Q.21 Explain the Carson's rule for FM. (CO2)
- Q.22 Explain the need for demodulation in communication systems. (CO1)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Derive the expression for FM wave and its frequency spectrum. Also draw the waveforms. (CO2)
- Q.24 Explain basic block diagram of FSK and its working principle. (CO5)
- Q.25 Draw and explain the block diagram of PCM system. (CO4)

(Note : Course outcome/CO is for office use only)

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