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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.