MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi, Accredited by NAAC & Affiliated to Anna University)
Rasipuram - 637 408, Namakkal Dist., Tamil Nadu.

Department of Electronics and Communication Engineering
Question Bank - Academic Year (2020-21)

Course Code & Course Name : 19GES23 & ANALOG AND DIGITAL COMMUNICATION
Name of the Faculty : Dr. J. Kirubakaran
Year/Sem/Sec : II / III

Unit-I: AMPLITUDE MODULATION
Part-A (2 Marks)

1. Write the advantage of modulation
2. What is the need for modulation?
3. Draw the envelop of AM.
4. What is phase modulation? Give its mathematical expression.
5. Draw the frequency spectrum of FM.
6. Define Modulation index and percent modulation for an AM wave.
7. Give the bandwidth of AM.
8. What is angle modulation? Give its mathematical expression.
9. Describe the USB and LSB.
10. What is frequency modulation?

Part-B (16 Marks)

1. What is the principle of Amplitude modulation? Derive expression for the AM wave and draw its spectrum. (16)
2. With the help of neat diagram explain AM Envelop and equation of AM wave. (16)
3. Explain and derive the expression of Amplitude Modulation power distribution. (16)
4. What is the principle of Angle modulation? Explain DSB-SC modulated signal. (16)

5.(i). With the help of neat diagram explain VSB signal. (8)

(ii). With the help of neat diagram and explain Super heterodyne receiver. (8)

Unit-II : ANGLE MODULATION
Part-A (2 Marks)

1. Define bit rate.
2. Differentiate FM form PM.
3. State the advantage of frequency modulation.

4. Define angle modulation.
5. Give two applications of FM signal.
6. Differentiate Narrowband and Wideband FM.
7. State the advantage of FM stereo receives.
8. What is frequency modulation?
9. Compare Pre-emphasis and de emphasis FM.
10. Give the difference between standard AM and FM systems.

Part-B (16 Marks)

1. What is the principle of Angle modulation? Explain frequency deviation and percent modulation. (16)
2. With the help of neat diagram explain AM current distribution. (16)
3. Describe the frequency analysis of angle modulated waves. (16)
4. Explain and derive Narrowband and wideband FM. (16)
5. Draw the block diagram of FM Broadcast receivers and explain the operation. (16)

Unit-III : PULSE MODULATION

Part-A (2 Marks)

1. List the four predominant methods of pulse modulation.
2. What are the disadvantages of digital transmission?
3. Give the concept of delta modulation PCM**.**
4. What is the purpose of the sample and hold circuit?
5. List the predominant methods of pulse modulation
6. Define quantization error.
7. Recall the internal quantum efficiency.
8. Differentiate PAM and PWM
9. State the sampling theorem for band-limited signals of finite energy.
10. What is PPM?

Part-B (16 Marks)

1. What is multiplexing? Explain Time Division Multiplexing with neat diagram. (16)
2. With a neat block diagram explain Pulse modulation techniques. (16)
3. With a neat block diagram explain PAM (Single polarity, double polarity). (16)
4. Explain Pulse modulation techniques. Briefly explain PAM, PWM, PPM pulse modulation techniques with suitable diagram. (16)
5. With a neat block diagram explain PPM generation. (16)

Unit-IV : PULSE DIGITAL MODULATION

Part-A (2 Marks)

1. List the four predominant methods of pulse modulation.
2. What are the disadvantages of digital transmission?
3. Give the concept of delta modulation PCM**.**
4. What is the purpose of the sample and hold circuit?
5. List the predominant methods of pulse modulation
6. Define quantization error.
7. Recall the internal quantum efficiency.
8. Differentiate PCM and DPCM.
9. State the sampling theorem for band-limited signals of finite energy.
10. What is pulse code modulation?

Part-B (16 Marks)

1. Explain PCM sampling with necessary diagrams and circuits. Write a note on aliasing and quantization. With a neat block diagram explain Delta modulation. (16)
2. With a neat block diagram explain DPCM transmitter and receiver. (16)
3. With a neat block diagram explain Adaptive Delta modulation. (16)
4. Explain Pulse modulation techniques. Briefly explain DPCM transmitter and receiver. (16)
5. With a neat block diagram explain PCM transmitter and receiver. (16)

Unit-V : Unit-V : DIGITAL MODULATION SCHEMES

Part-A (2 Marks)

1. Define bit rate.
2. Differentiate BPSK form DPSK.
3. State the advantage of frequency shift keying.
4. Draw the power spectral density of PSK signal.
5. Give two applications of BPSK.
6. Differentiate FSK and PSK.
7. State the advantage of frequency shift keying.
8. What is frequency modulation?
9. Compare QASK and QPSK.
10. Give the difference between standard FSK and MSK.

Part-B (16 Marks)

1. Draw the block diagram of FSK transmitter and receiver and explain the operation. (16)

How is the required bandwidth calculated for FSK.

2. Discuss in detail about BPSK transmitter and Receiver and also obtain the minimum double sided Nyquist bandwidth. (16)

3. With the help of block diagram and explain the operation of QPSK transmitter section. (16)

4. Explain and derive the expression of Amplitude shift keying. (16)

5. Draw the block diagram of ASK transmitter and receiver and explain the operation. (16)

Course Faculty **HoD**