

OR

1. Derive the expression for NBFM signal and give the block diagram for its output generation. (8)
2. Write a short note on frequency and phase modulation with their analogies. (8)

Unit - III

1. Explain differential pulse code modulation and compare it with PCM on the basis of bit transmission rate. (16)

OR

1. Draw the block diagram of Adaptive Delta Modulation. Explain its working and compare with PCM. (8)
2. A PCM system uses a uniform quantizer followed by a V bit encoder. Show that RMS signal to quantization noise ratio given as $(1.8+6V)$ dB. (8)

Unit - IV

1. Write a short note on modulation and demodulation techniques of PPM. (10)
2. Explain various PAM formats like Unipolar RZ & NRZ, Polar RZ & NRZ signals for sequence 1100101011001011001. (6)

OR

1. Explain the cause of Inter Symbol Interference (ISI) and the methods to remove it. (10)
2. Describe the natural sampling of generation of PAM signal in detail. (6)

Unit - V

1. Explain the generation and reception of BPSK signal. (8)
2. Calculation the error probability for ASK modulation technique. (8)

OR

1. Describe minimum shift keying and explain with reason why it is named so. (8)
2. Compare ASK, PSK and FSK. (8)