Digital Communication

Question Bank

Unit 3

Sr.No	Question	Marks
1	Explain BPSK transmitter with necessary mathematics. Sketch the BPSK waveform for given digital data: 1001101001	4
2	Explain Binary ASK transmitter and non-coherent ASK receiver with mathematical expressions and waveforms of ASK wave.	
3	Explain Coherent BPSK receiver with neat diagrams of carrier recovery and clock recovery circuits.	4
4	Explain costas loop with neat block diagram to demodulate the received BPSK signal.	
5	Draw and explain the block diagram of coherent BFSK receiver.	8
6	Draw and explain FSK Transmitter with necessary. Describe its Bandwidth Considerations.	8
7	Draw the block diagram of QPSK modulator and explain its operation. For QPSK modulator, construct the truth table, phasor diagram and constellation diagram.	8
8	Compare the following digital modulation technique on the basis of band width requirement and S/N ratio. 1. ASK 2. PSK 3. FSK	5
9	Draw the block diagram of 8-QAM modulator and explain its operation. For 8-QAM modulator, construct the truth table, phasor diagram and constellation diagram.	8
10	Explain in detail about the co-herent detection of QPSK signal with neat block diagram.	8
11	What are the differences between QAM and QPSK? Sketch the constellation diagrams of 4-QAM and QPSK signal.	5
12	Determine the : (i) peak frequency deviation (ii) minimum bandwidth (iii) baud for FSK signal with a mark frequency of 49 kHz, space frequency of 51 kHz, and input bit rate of 2 kbps.	5
13	Explain QPSK transmitter and receiver with the help of block diagrams. (repeat)	8
14	Explain the transmitter, receiver and constellation diagram of BPSK. (repeat)	8
15	Define bit rate and Baud rate & specify the relationship between them.	2
16	Draw the constellation diagrams of BPSK, QPSK, 8-PSK and 16-PSK. Explain the advantages of using high level M-ary digital modulation schemes.	5
17	Compare BASK, BFSK, BPSK, QPSK, 8-PSK, 16-PSK in term of no of bits per symbol and required transmission bandwidth.	6

18	Sketch the constellation diagrams of BASK, 4-QAM and 8-QAM digital modulation schemes. (repeat)	**3**
19	Distinguish coherent and non-coherent detection.	**2**
20	Explain how QPSK differs from PSK in term of transmission bandwidth and bit Information it carries?	**2**
21	What is the need of differential coding in BPSK? Explain the transmitter and receiver of DPSK with neat diagrams. Also show the transmission and reception of given digital data stream: 1 0 1 1 0 0 0 1 0 1 0 1	**8**
22	Explain the transmitter, receiver and constellation diagram of 8-QAM signal. (repeat)	**8**