**DHANALAKSHMI SRINIVASAN**

**INSTITUTE OF RESEARCH AND TECHNOLOGY**

**SIRUVACHUR-621113**

**DEPARTMENT OF CSE**

# QUESTION BANK

SUBJECT CODE: **CS6304**

SUBJECT NAME: **ANALOG AND DIGITAL COMMUNICATION**

## Part-B

## UNIT-I

## ANALOG COMMUNICATION

**1.Classification of noise?**

- -Internal noise
  - -shot noise
  - -thermal noise
  - -transit time noise
- -External noise
  - -Atmospheric noise
  - -Extraterrestrial noise
    - -solar noise
    - -cosmic noise
  - -Manmade noise

**2.Explain the principle of operation of internal noise with neat diagram?**

-Internal noise principle

-operation

-diagram

**3. Explain the principle of operation of external noise with neat diagram?**

-External noise principle

-operation

-diagram

**4.Explain how SSB is generated using amplitude modulation?**

-SSB modulation

-operation

-frequency domain description of SSB

-spectrum diagram

-advantages

-disadvantages

-application

**5.Comparison between FM and AM.**

-modulation index

-cost

-efficiency

-bandwidth

-transmission line

-equation wave

-%modulation

-distance communication

**6.Comparison between FM and PM**

-modulation index

-cost

-efficiency

-bandwidth

-transmission line

-equation wave

-%modulation

-distance communication

## UNIT-II

## DIGITAL COMMUNICATION

**1.With neat block diagram, explain binary FSK transmitter and receiver?**

-binary FSK

-with binary FSK

-Time domain

-bit rate, baud, bandwidth

-modulation index

-FSK transmitter diagram

-FSK receiver diagram

-operation

**2.With neat block diagram, explain binary PSK transmitter and receiver?**

-PSK Definition

-Binary PSK

-Transmitter and Receiver block diagram

-Operation

-Bandwidth consideration of BPSK

**3.With neat block diagram, explain binary QPSK transmitter and receiver?**

-Definition

-Transmitter and receiver block diagram

-operation

-Waveform

-bandwidth consideration of QPSK

**4.With neat block diagram, explain binary QAM transmitter and receiver?**

-Definition

-Transmitter and receiver block diagram

-operation

-Waveform

-bandwidth consideration of QAM

**5.With neat block diagram, explain binary ASK transmitter and receiver?**

-Definition

-Normalized binary waveform

-operation

-input and output waveform

-binary data scheme case 1 and case 2

**6.Compare the performance of PSK and FSK.**

-encoding scheme
-output possible
-minimum bandwidth
-bit rate
-bandwidth efficiency

**7.Compare QPSK and BPSK.**

-encoding scheme
-output possible
-minimum bandwidth
-bit rate
-bandwidth efficiency

**8.Give the generation and detection of FSK.**

-modulation index

-FSK transmitter diagram

-FSK receiver diagram

-operation

**9.Explain PSK.**

-modulation index

-FSK transmitter diagram

-FSK receiver diagram

-operation

**10.Explain how QPSK signal can be generated and recovered?**

-offset definition
-diagram
-operation
-conversional QPSK
-advantage and disadvantage

## UNIT-III

## DATA AND PULSE COMMUNICATION

**1.Explain the principle of PAM with neat blockdiagram?**

-pulse amplitude modulation principle

-block diagram

-operation

-waveform

**2.Explain PCM with neat block diagram?**

-pulse code modulation concept

-block diagram

-operation

-waveform

**3.Explain PPM.**

-pulse position modulation concept
-block diagram
-operation
-waveform

**4.Explain the principle PTM.**

-pulse time modulation principle
-block diagram

-operation
-waveform

**5.Derive the output signal to noise ratio in PCM.**

-wave form of output signal
-PCM code=sample voltage/revaluation
-SNR(db)=10log($V^2$/($q^2$/12))

## UNIT-IV

## SOURCE AND ERROR CONTROL CODING

**1.Explain about coding and decoding of linear block code?**

-Principle of block coding
-Systematic codes
-Non-systematic code
-line code
-Matrix representation

**2.Explain about hamming code?**

-check bit

-code words

-message

-code rate

**3.What are the cyclic codes? And explain the advantage and disadvantage?**

-subclass of linear block codes

-advantage

-easy

-act as a shift register

**4.Give the properties of cyclic codes?**

-hamming code

-BCH code

-RS code

**5.Explain convolution coding with block diagrams?**

-basic concept

-block diagram

-operation

-Important terms

-code rate

-length

-dimension

-polynomial expression

**6.Explain the concept of viterbi algorithm?**

-concept

-diagram

-operation

**7.Explain the concept of channel capacity coding?**

-channel capacity

-mutual information

-average mutual information

**8.Explain the procedure of channel coding theorem?**

-channel systematic

-channel entropy

-conditional probability.

## UNIT-V

## MULTI-USER RADIO COMMUNICATION

**1.Explain the concept of CDMA techniques and mention its advantages and disadvantages.**

-encoder and decoder

-block diagram

-operation

-data alignment

-advantage

-bandwidth

-impurity to interference

**2.Explain the applications of CDMA in wireless communication?**

-military and commercial

-spread spectrum

-mobile communication

-satellite communication

**3.What is geosynchronous satellite? Mention its advantages and disadvantages?**

-advantage

-expensive tracking equipment

-shadow 100%

-no transmission break

-effect of Doppler shift are negligible

-disadvantage

-higher transmitter power

-longer propagation delay

**4.What are the benefits of satellite communication systems?**

-efficient utilization of channel bandwidth

-used in radar communication

**5.Give notes on satellite sub-systems?**

-uplink model
-downlink model
-transponder
-diagram and its operation

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