**Multiple Choice Questions with Answers**

**Subject:** Analog and Digital Communication

1. **Analog Communication: Basic Concepts**
2. **Analog Communication: Modulation, De-modulation and Detection**
3. **Analog Communication: Transmitter, Receiver and Channel**
4. **Digital Communication: Basic Concepts**
5. **Digital Communication: Modulation, De-modulation, Coding and De-coding**

**Analog Communication: Basic Concepts**

1. Which of the following are the examples of analog communication technology?
2. Photocopiers
3. Audio tapes
4. Emails
5. Both a and b

**Ans: (d)** Analog communication technology includes Photocopiers, Audio Tapes, Old telephones, etc.

1. An analog signal is represented in \_\_\_\_\_\_ form.
2. Time domain
3. Frequency domain
4. Both a and b
5. None of the above

**Ans: (c)** An analog signal is represented in both time and frequency domain.

1. The full-duplex is a \_\_\_\_\_\_\_\_\_ system.
2. Unidirectional communication
3. Bidirectional communication
4. Multidirectional communication
5. None of the above

**Ans: (b)** The full-duplex is a bi-directional communication system. In this system the transmitter and receiver can send the signal simultaneously. Example: Telephone communication system.

1. How many types of electric communication systems are there?
2. One
3. Two
4. Three
5. Four

**Ans: (c)** There are 3 types of electric communication system, simplex, half-duplex and full duplex.

**Analog Communication: Modulation, De-modulation and Detection**

1. The amplitude modulation is the process in which amplitude of the carrier signal changes with respect to \_\_\_\_\_\_\_\_\_\_\_\_\_ signal
2. Modulating signal
3. Carrier signal
4. Suppressed carrier modulating signal
5. None of the above

**Ans: (a)** In amplitude modulation, the amplitude of the carrier signal changes with the amplitude of modulation signal

1. The advantages of the modulation are \_\_\_\_\_\_\_
2. High energy of the carrier
3. Noise can be reduced
4. Multiplexing is possible
5. All of the above

**Ans: (d)** In modulation, the energy of the carrier signal is high, noise can be reduced, SNR can be improved and multiplexing is possible.

1. In \_\_\_\_\_\_ modulation the phase of the carrier signal is modulated by the message signal
2. Pulse modulation
3. Phase modulation
4. Amplitude modulation
5. Frequency modulation

**Ans: (b)** In phase modulation, the phase of the carrier signal is modulated by the message signal. It is one type of angle modulation.

1. The double side band suppressed carrier comes under \_\_\_\_\_ modulation
2. Frequency modulation
3. Analog pulse modulation
4. Amplitude modulation
5. Digital pulse modulation

**Ans: (b)** In amplitude modulation, we have some problems regarding bandwidth as well as transmitted power. This problem is solved by DSB-SC (Double side band-Suppressed Carrier).

1. In baseband signal the audio frequency signal range is around \_\_\_\_\_\_\_\_
2. 0-20 KHz
3. 10-20 KHz
4. 5-10 KHz
5. 0-20 MHz

**Ans: (a)** In baseband signal, the audio frequency signal range is around 0-20KHz.

1. In base band signal the frequency range of amplitude modulation is around \_\_\_\_\_\_\_\_
2. 550KHz-1650KHz
3. 500KHz-1600KHz
4. 520 KHz-1620KHz
5. 400 KHz-1650KHz

**Ans: (a)** In baseband signal, the frequency range of amplitude modulation is around 550KHz-1650KHz.

1. The side band cancellation in filter method is done by using \_\_\_\_\_\_
2. Filter
3. Phase shifter of 90 deg
4. Phase shifter of 180 deg
5. None of the above

**Ans: (a)** The sideband cancellation in the filter method is done by using filter .

1. The frequency range of modulating signal in narrow band frequency modulation is between \_\_\_\_\_\_\_\_
2. 30 Hz - 15 KHz
3. 15 Hz - 30 KHz
4. 30 Hz - 3 KHz
5. 3 Hz - 15 KHz

**Ans: (c)** The frequencing range of modulating signal in narrow-band frequency modulation is between 30 Hz – 3kHz.

**Analog Communication: Transmitter, Receiver and Channel**

1. What is the function of the transmitter?
2. Transmits signal to the receiver
3. Accepts signal from the transducer
4. Accepts input from information source
5. Transmits signal over a channel.

**Ans: (d)** the function of the transmitter is to transmits signals over the channel.

1. Which of the following channels are used in analog communication?
2. Point to point
3. Broadcast channel
4. Narrowband channel
5. Wideband channel
6. Both a and b

**Ans: (d)** point to point channel and broadcast channel are used in analog communication.

1. Which of the following are examples of point-to-point channel?
2. Wire lines
3. Microwave links
4. Optical fibers
5. All the above

**Ans: (d)** some of the examples of the point to point channels are wire lines, microwave links, optical fibers.

1. The additive white Gaussian noise \_\_\_\_\_\_\_
2. Requires infinite power
3. Requires finite power
4. Doesn’t require power
5. None of the above

**Ans: (d)** the additive white gaussian noise requires infinite power because it has uniform power spectral density for each frequency value up to infinity, so it is practically unrealizable.

1. Which noise comes under internal noise?
2. Resistor noise
3. Transient noise
4. Shot noise
5. All of the above

**Ans: (b)** the internal noise is the noised that are generated inside the receiver or an amplifier, the resistor, shot, and transient noise are the internal noises.

1. The industrial noise occurs in the range around \_\_\_\_\_\_\_\_
2. 300MHz-600MHz
3. 1MHz-600MHz
4. 200MHz-600MHz
5. None of the above

**Ans: (b)** the industrial noise is basically a manmade noise, it occurs in the range around 1MHz-600MHz

**Digital Communication: Basic Concepts**

1. Digital communication is represented in \_\_\_\_\_\_ form.
2. 0’s
3. 1’s
4. Both a and b
5. None of these

**Ans: (c)** Digital communication is represented in 0’s and 1’s form, where 0 is a low signal and 1 is a high signal.

1. Which of the following are the examples of digital communication technology?
2. Photocopiers
3. Audio tapes
4. Emails
5. Both a and b

**Ans: (c)** Digital communication technology includes emails, wikis.

1. The rearrangement of the data sequence is called \_\_\_\_\_
2. Line encoding
3. Scrambling
4. QAM
5. None of the above

**Ans: (b)** The rearrangement of the data sequence is called scrambling, and it prevents un authorized data.

1. The issues in FDMA and TDMA resolved by \_\_\_\_\_\_\_\_\_\_\_
2. Space Division Multiple Access
3. Code Division Multiple Access
4. Both a and b
5. None of the above

**Ans: (b)** In FDMA and TDMA the bandwidth is limited and due to limited bandwidth we can observe narrowband spectrum and concentrated spectrum all these issues solved by using CDMA.

**Digital Communication: Modulation, De-modulation, Coding and De-coding**

1. In amplitude shift keying the 1 and 0 is denoted by \_\_\_\_\_\_\_
2. Acosωt, 1
3. Acosωct, 0
4. A cosωt,0
5. None of the above

**Ans: (b)** In amplitude shift keying the 1 is denoted by Acosωct and 0 is denoted by 0.

1. The line encoding is classified into \_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Unipolar, Bipolar
3. Unipolar, polar
4. Unipolar, Bipolar, Polar
5. None of the above

**Ans: (c)** The line encoding is classified into three types they are polar line encoding, unipolar line encoding, and bipolar line encoding.

1. In unipolar line encoding 1 and 0 is represented as \_\_\_\_\_\_\_\_
2. 0 →1, 1 →-p(t)
3. 0 →0, 1 →p(t)
4. 0 →0, 1 →-p(t)
5. None of the above

**Ans: (b)** In unipolar line encoding 1 represented as p(t) and 0 represented as 0.

1. The bit change corresponds to 450 phase change in \_\_\_\_\_\_\_\_\_
2. Quadrature Phase Shift Keying
3. Quadrature Phase Shift Keying
4. Amplitude Shift Keying
5. Binary Phase Shift Keying

**Ans: (a)** The bit change corresponds to 450 phase change in Quadrature phase shift keying.

1. \_\_\_\_\_\_\_\_\_\_ is the non-coherent mode of binary phase shift keying.
2. Quadrature Phase Shift Keying
3. Differential Phase Shift Keying
4. Amplitude Shift Keying
5. Binary Phase Shift Keying

**Ans: (b)** The differential phase shift keying is the non-coherent mode of binary phase-shift keying, where the output encoded bit depends upon the previous bit.

1. If the frequency of carrier signal is modified in accordance to the message signal then it is called as \_\_\_\_\_\_\_\_\_\_
2. Quadrature Phase Shift Keying
3. Differential Phase Shift Keying
4. Frequency Shift Keying
5. Binary Phase Shift Keying

**Ans: (c)** In case of frequency shift keying the frequency of the carrier signal changes according to the message signal.

1. The code efficiency in block code is denoted by \_\_\_\_\_\_\_\_
2. kn
3. k/n
4. k+n
5. None of the above

**Ans: (b)** The code efficiency in block code is given as k/n.

1. \_\_\_\_\_\_\_\_ parity check detects only one error
2. Horizontal parity check
3. Vertical parity check
4. Longitudnal parity check
5. None of the above

**Ans: (b)** The vertical parity check detects only one error.