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NAME OF THE EXAMINATION: III B.TECH I SEM REGULAR (R-20)

BRANCH: ECE -'A & B' SECTION A.Y:2024-25

NAME OF THE SUBJECT: DC

Quiz

1. What is the primary purpose of Delta Modulation?

- A) To convert analog signals to digital signals
- B) To convert digital signals to analog signals
- C) To convert analog signals to digital and vice versa
- D) To modulate digital signals for transmission

Answer: A) To convert analog signals to digital signals

2. In Delta Modulation, how is the input signal represented?

- A) By its absolute value
- B) By the difference between successive samples
- C) By the average of all previous samples
- D) By the integral of the input signal

Answer: B) By the difference between successive samples

3. What type of quantizer is used in Delta Modulation?

- A) Multi-level quantizer
- B) Two-level quantizer
- C) Adaptive quantizer
- D) None of the above

Answer: B) Two-level quantizer

4. Which of the following is a source of noise in Delta Modulation?

- A) Granularity
- B) Slope overload
- C) Both A and B
- D) None of the above

Answer: C) Both A and B

5. Granular noise in Delta Modulation occurs when:

- A) The step size is too large
- B) The step size is too small
- C) The sampling rate is too low
- D) The input signal has rapid changes

Answer: B) The step size is too small

6. Slope overload distortion can be minimized by:

- A) Decreasing the step size
- B) Increasing the step size
- C) Decreasing the sampling rate
- D) Increasing the sampling rate

Answer: B) Increasing the step size

7. The demodulator in Delta Modulation is typically:

- A) A low-pass filter
- B) An integrator
- C) A differentiator
- D) A quantizer

Answer: B) An integrator

8. To achieve high signal-to-noise ratio in Delta Modulation, it is necessary to:

- A) Under-sample the input signal
- B) Over-sample the input signal
- C) Use a large step size
- D) Use a small step size

Answer: B) Over-sample the input signal

9. In Delta Modulation, the bit rate is:

- A) Equal to the sampling frequency
- B) Equal to the modulating frequency
- C) Equal to the Nyquist rate

- D) None of the above

Answer: A) Equal to the sampling frequency

10. Delta Modulation is a form of:

- A) Pulse Code Modulation (PCM)
- B) Differential Pulse Code Modulation (DPCM)
- C) Adaptive Delta Modulation (ADM)
- D) None of the above

Answer: B) Differential Pulse Code Modulation (DPCM)

11. Adaptive Delta Modulation (ADM) differs from standard DM by:

- A) Using a fixed step size
- B) Varying the step size based on the input signal
- C) Using multiple bits per sample
- D) None of the above

Answer: B) Varying the step size based on the input signal

12. The main advantage of Adaptive Delta Modulation over standard DM is:

- A) Higher bit rate
- B) Better tracking of rapidly changing signals
- C) Simpler implementation
- D) None of the above

Answer: B) Better tracking of rapidly changing signals

13. In Delta Modulation, the step size is denoted by:

- A) δ
- B) Δ
- C) σ
- D) θ

Answer: A) δ

14. The maximum slope that Delta Modulation can track is given by:

- A) δ / Ts
- B) $\delta \times$ Ts
- C) Ts / δ
- D) $\delta \times$ Ts^2

Answer: A) δ / Ts

15. The primary disadvantage of Delta Modulation is:

- A) High bandwidth requirement
- B) Susceptibility to slope overload distortion
- C) Complexity of implementation
- D) None of the above

Answer: B) Susceptibility to slope overload distortion

16. Delta Modulation is best suited for:

- A) High-fidelity audio transmission
- B) Voice communication where quality is not the primary concern
- C) High-speed data transmission
- D) None of the above

Answer: B) Voice communication where quality is not the primary concern

17. In Delta Modulation, the output signal is:

- A) A continuous analog signal
- B) A discrete digital signal
- C) A continuous digital signal
- D) None of the above

Answer: B) A discrete digital signal

18. The main purpose of oversampling in Delta Modulation is to:

- A) Increase the bit rate
- B) Improve the signal-to-noise ratio
- C) Reduce the step size
- D) None of the above

Answer: B) Improve the signal-to-noise ratio

19. The process of converting the digital signal back to analog in Delta Modulation involves:

- A) Sampling
- B) Quantization
- C) Integration
- D) Differentiation

Answer: C) Integration

20. Delta Modulation is particularly effective in:

- A) High-speed data networks
- B) Low-bandwidth communication systems
- C) High-fidelity audio systems
- D) None of the above

Answer: B) Low-bandwidth communication systems

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