



1. What is single conditioning in the context of data acquisition?

- a) The process of conditioning only one type of signal
- b) Conditioning a single sensor signal for data acquisition
- c) Limiting data acquisition to a single source
- d) Converting analog signals to digital signals

Answer: b) Conditioning a single sensor signal for data acquisition

Explanation: Single conditioning involves preparing one sensor signal for data acquisition, often involving amplification, filtering, and conversion to digital format.

2. Why is single conditioning necessary in data acquisition systems?

- a) To simplify the system design
- b) To reduce noise and interference
- c) To increase the number of input channels
- d) To decrease the sampling rate

Answer: b) To reduce noise and interference

Explanation: Single conditioning helps to minimize noise and interference in the signal, ensuring accurate data acquisition.

3. Which component is commonly used for signal amplification in single conditioning?

- a) Transistors
- b) Capacitors



- c) Op-amps
- d) Resistors

Answer: c) Op-amps

Explanation: Operational amplifiers (op-amps) are frequently used for signal amplification in single conditioning due to their high gain and versatility.

4. What is a primary purpose of protection circuitry in single conditioning?

- a) To prevent damage to the sensor
- b) To enhance signal clarity
- c) To amplify the signal
- d) To reduce power consumption

Answer: a) To prevent damage to the sensor

Explanation: Protection circuitry safeguards the sensor from potential damage due to overvoltage, overcurrent, or other harmful conditions.

5. What is the role of filtering in single conditioning?

- a) To increase signal amplitude
- b) To decrease signal clarity
- c) To remove unwanted frequencies
- d) To introduce noise

Answer: c) To remove unwanted frequencies



Explanation: Filtering removes unwanted frequencies, such as noise, from the signal to ensure accurate data acquisition.

6. In the context of Wheatstone bridge, what does it primarily measure?

- a) Voltage
- b) Current
- c) Resistance
- d) Frequency

Answer: c) Resistance

Explanation: A Wheatstone bridge is primarily used to measure resistance, often in strain gauges and other sensors.

7. How do digital signals differ from analog signals in data acquisition?

- a) Digital signals are continuous, while analog signals are discrete
- b) Digital signals are discrete, while analog signals are continuous
- c) Digital signals are immune to noise, while analog signals are not
- d) Analog signals require more processing than digital signals

Answer: b) Digital signals are discrete, while analog signals are continuous

Explanation: Analog signals represent continuous variations in voltage or current, while digital signals are discrete, represented by binary values.

8. What is the function of a multiplexer in data acquisition systems?



- a) To amplify signals
- b) To filter signals
- c) To select and route multiple signals
- d) To convert analog signals to digital

Answer: c) To select and route multiple signals

Explanation: A multiplexer selects and routes multiple analog or digital input signals to a single output.

9. What is the purpose of data acquisition in the context of digital signal processing?

- a) To convert digital signals to analog
- b) To analyze and process digital signals
- c) To filter out noise from analog signals
- d) To amplify analog signals

Answer: b) To analyze and process digital signals

Explanation: Data acquisition captures and prepares data for digital signal processing, where analysis and processing take place.

10. What are some common methods used in digital signal processing?

- a) Amplification and attenuation
- b) Filtering and modulation
- c) Sampling and quantization
- d) Demodulation and encoding



Answer: c) Sampling and quantization

Explanation: Sampling involves measuring the signal at discrete time intervals, while quantization involves mapping these samples to discrete amplitude values, essential processes in digital signal processing.

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