

45 Lecture - CS302

Important Mcqs

1. **What is the basic principle of a successive-approximation analog-to-digital converter (SAR ADC)?**

- A. Comparing the input signal with the reference signal
- B. Iteratively adjusting the digital value until it closely matches the input signal
- C. Using a binary search algorithm to determine the digital value
- D. All of the above

Answer: D

What is the advantage of using a SAR ADC?

- A. High resolution
- B. High accuracy
- C. Low power consumption
- D. All of the above

Answer: D

What is the maximum resolution of a 10-bit SAR ADC?

- A. 1023
- B. 2047
- C. 4095
- D. 8191

Answer: C

Which of the following is not a limitation of SAR ADCs?

- A. Limited sampling rate
- B. Limited input voltage range
- C. Limited input frequency range
- D. High power consumption

Answer: D

Which of the following is not a component of a SAR ADC?

- A. Digital-to-analog converter (DAC)
- B. Sample-and-hold amplifier (SHA)
- C. Successive approximation register (SAR)
- D. Operational amplifier (Op-Amp)

Answer: D

What is the function of the sample-and-hold amplifier (SHA) in a SAR ADC?

- A. To amplify the input signal
- B. To sample the input signal at a fixed interval
- C. To hold the sampled signal until the end of the conversion process
- D. None of the above

Answer: C

What is the advantage of using a capacitive DAC in a SAR ADC?

- A. High resolution

- B. High linearity
- C. Low power consumption
- D. All of the above

Answer: D

What is the maximum conversion rate of a 12-bit SAR ADC with a clock frequency of 10 MHz?

- A. 100 kS/s
- B. 200 kS/s
- C. 500 kS/s
- D. 1 MS/s

Answer: A

Which of the following is a disadvantage of a SAR ADC?

- A. Slow conversion speed
- B. High cost
- C. Limited resolution
- D. All of the above

Answer: A

What is the disadvantage of using a SAR ADC in applications with a high input frequency?

- A. Low resolution
- B. High power consumption
- C. Limited input voltage range
- D. Limited sampling rate

Answer: D