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