KNOWLEDGE PROBE 2: DATA ACQUISITION SYSTEMS
Types of Data Acquisition Systems

Learning Objectives
1. Describe components of a data acquisition system.
2. Determine the sampling rate of data acquisition systems.
3. Describe packaging arrangements used for data acquisition systems.

1. Which type of computer is NOT commonly used in DAQ systems?
   a. Laptop
   b. Mainframe
   c. PC
   d. PDA

2. The most common form of DAQ system is packaged as a
   a. Clear plexiglas box
   b. Plug-in board
   c. Single IC
   d. Standing rack housing

3. Which of the following is typically not a part of the DAQ product?
   a. ADC and MUX
   b. Computer
   c. I/O and connector
   d. Signal conditioning

4. What is the name of the DAQ interface used with laptop computers?
   a. ISA bus
   b. PCI bus
   c. PCMCIA bus
   d. RS-232

5. What is a typical number of analog inputs on a standard plug-in DAQ?
   a. 2
   b. 4
   c. 16
   d. 256

6. Most DAQ boards include a variable gain amplifier.
   a. True
   b. False

7. What is the typical digital input voltage range?
   a. 0 to +1 volt
   b. 0 to + 5 volts
   c. -3 to + 3 volts
   d. -10 to +10 volts

8. Analog input voltages may be
   a. Positive
   b. Negative
   c. Either of the above
   d. None of the above

9. What is a common sampling rate for a typical DAQ board?
   a. 1 kS/s
   b. 10 kS/s
   c. 25 kS/s
   d. 200 kS/s

10. What is the sampling rate for each input on a 32 input multiplexer driving an ADC with a sampling rate of 500 kS/s?
   a. 15.625 kS/s
   b. 32 kS/s
   c. 200 kS/s
   d. 500 kS/s

11. What is the amplitude resolution of an ADC with an input voltage range of 5 volts and 14-bits?
   a. 76 µV
   b. 305 µV
   c. 1.22 mV
   d. 3.46 mV

12. What is a common interface used to connect an external DAQ system to a PC or laptop?
   a. GPIB
   b. RS-232
   c. USB
   d. Any of the above