KNOWLEDGE PROBE 4: DIGITAL SIGNAL PROCESSING
DSP Hardware and Software

Learning Objectives
1. Explain the basic techniques involved in DSP.
2. Name and explain the most common DSP processes.
3. Name five alternative ways DSP can be implemented.
4. List the most widely used applications and products incorporating DSP.

1. Any digital computer can do DSP.
   a. True
   b. False

2. DSP cannot be performed with standard digital logic.
   a. True
   b. False

3. The key specification of any computer or circuit performing DSP is
   a. Memory size
   b. Physical size
   c. Serial rather than parallel processing
   d. Speed

4. DSP is often implemented in a
   a. Embedded controller
   b. Embedded logic circuit
   c. FPGA
   d. all of the above

5. Most DSP is implemented in a(n)
   a. ASIC
   b. CPLD
   c. PC
   d. Programmable DSP

6. DSP chips use
   a. Harvard architecture
   b. Von Neumann architecture

7. The main feature of the Harvard architecture is
   a. Separate address and data memories and buses
   b. Separate instruction and data memories but a shared bus
   c. Single fast shared bus
   d. Use of cache memory

8. A primary feature or characteristic of a DSP chip is
   a. It has multiple ALUs
   b. It has register banks
   c. It is built in ADC
   d. It uses MAC circuits and barrel shifters

9. Which of the following is NOT a DSP chip manufacturer?
   a. Analog Devices
   b. Freescale
   c. Intel
   d. Texas Instruments

10. Floating point data representation is used for
    a. Greater precision of calculation
    b. Larger and smaller number representation
    c. Wider dynamic range
    d. All of the above

11. The two parts of a floating point number are the
    a. Fraction and adder
    b. Integer and fraction
    c. Mantissa and exponent
    d. Mantissa and fraction

12. Most DSP applications require floating point.
    a. True
    b. False