



KNOWLEDGE PROBE

How Electronic Circuits and Systems Work

Learning Objectives

1. Explain the difference between analog and digital signals.
 2. Define both DC and AC signals.
 3. Explain what a voltage source does.
 4. List common sources of input signals.
 5. List common types of output devices.
 6. List at least five common ways in which electronic signals are processed.
 7. Explain the operation of a common electronic product or system using the input-process- output model.
 8. Name the three components of the simple circuit model and tell what they do.
 9. List several common loads.
 10. List several common control devices.
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1. An analog signal is one that varies
 - a. As pulses
 - b. In discrete increments or steps
 - c. Smoothly and continuously
 - d. None of the above
 2. A digital signal is one that varies
 - a. As on-off pulses
 - b. In many discrete increments or steps
 - c. Smoothly and continuously
 - d. None of the above
 3. A DC signal is one whose
 - a. Direction of current flow is always the same
 - b. Polarity is always the same
 - c. Direction of current flow reverses periodically
 - d. Polarity reverses periodically
 - e. A and B above
 - f. C and D above
 - g. None of the above
 4. An AC signal is one whose
 - a. Direction of current flow is always the same
 - b. Polarity is always the same
 - c. Direction of current flow reverses periodically
 - d. Polarity reverses periodically
 - e. A and B above
 - f. C and D above
 - g. None of the above



5. An analog signal may be
 - a. AC
 - b. DC
 - c. Either of the above
 - d. None of the above

6. A digital signal may be
 - a. AC
 - b. DC
 - c. Either of the above
 - d. None of the above

7. Output signals generated by electronic circuits or equipment may be either AC or DC.
 - a. True
 - b. False

8. Output signals generated by electronic circuits or equipment may be either analog or digital.
 - a. True
 - b. False

9. What term describes how input signals are manipulated to produce outputs?
 - a. Handled
 - b. Massaged
 - c. Processed
 - d. Treated

10. Filtering is an example of a type of processing.
 - a. True
 - b. False

11. A typical input from a sound system used by a rock or country music band would come from a
 - a. CD
 - b. Microphone
 - c. Speaker
 - d. Spot light

12. The processing performed by the sound system would be
 - a. Amplification
 - b. Mixing of multiple inputs
 - c. Tone adjustment
 - d. All of the above



13. The output signal of the sound system operates
 - a. Speakers
 - b. Spot lights
 - c. Tape recorder
 - d. Turntable

14. The purpose of the voltage source in a circuit is to
 - a. Control current flow
 - b. Generate current flow
 - c. Impede current flow
 - d. Serve as the output

15. In a basic electrical circuit, the current is controlled by
 - a. Changing its shape
 - b. Changing its timing
 - c. Decreasing it
 - d. Increasing it
 - e. All of the above

16. Which of the following is NOT a typical type of circuit load?
 - a. Antenna
 - b. Battery
 - c. Light
 - d. Memory
 - e. Motor

17. The control element in a circuit may NOT be a
 - a. Circuit
 - b. Manual switch
 - c. Power supply
 - d. Transistor

18. The input signal of a digital camera comes from a
 - a. Battery
 - b. Light responsive sensor
 - c. Liquid crystal display (LCD) screen
 - d. Memory chip

19. What is the load output of a digital camera?
 - a. Liquid crystal display (LCD) screen
 - b. Memory chip
 - c. Both of the above
 - d. None of the above



20. A cell phone contains both a radio transmitter and receiver. Name the input signal source and load for each respectively.
- Antenna-speaker, microphone-speaker
 - Microphone-antenna, antenna-speaker
 - Microphone-speaker, antenna-battery
 - Speaker-antenna, microphone-keyboard