KNOWLEDGE PROBE ANSWER KEY: Switching Power Supplies
SMPS: Advantages, Disadvantages, and Troubleshooting

Objectives

1. State the major benefits of switching power supplies.
2. State the main disadvantages of switching power supplies and how to overcome them.
3. State the main approach to troubleshooting and servicing power supplies today.
4. Explain a basic approach to troubleshooting power supplies.

Questions

1. State the PRIMARY advantage of a switching power supply over linear supplies.
   a. Low cost
   b. Small size
   c. Less weight
   d. Efficiency

2. What is the main disadvantage of a switching power supply?
   a. Switching noise
   b. Low efficiency
   c. Higher cost
   d. Greater complexity

3. The efficiency of a switching power supply is almost always
   a. Less than 50%
   b. Greater than 80%
   c. Greater than 90%
   d. Not an issue in power supplies

4. Power supplies are usually repaired rather than just replaced.
   a. True
   b. False

5. In troubleshooting a power supply, what is the usually the first step?
   a. Check for AC input
   b. Validate or try to repeat the problem
   c. Turn off main power to prevent electrocution
   d. Locate the documentation

6. What test instrument is the primary troubleshooting tool?
   a. Oscilloscope
   b. Spectrum analyzer
   c. Function generator.
   d. Analog or digital multimeter