

# Electronics Information

## *Subtest 6: Electronics Information*

**Time** 9 minutes for 20 questions

**Directions** This test contains questions to challenge your knowledge of electrical, radio, and electronics information. Select the correct response from the choices given and then mark the corresponding space on your answer sheet.

1. Ohm's law states
  - (A) Voltage = Current  $\times$  Resistance
  - (B) Amperes = Current  $\times$  Resistance
  - (C) Voltage = Resistance  $\div$  Amperes
  - (D) Ohms = Current  $\div$  Voltage
2. A resistor's first three color bands are brown, black, and red. What is its value?
  - (A) 1,000 ohms
  - (B) 500 ohms
  - (C) 500 volts
  - (D) 50 volts
3. In the U.S., all metal equipment, electrical or not, connected to a swimming pool must be
  - (A) freestanding.
  - (B) bonded together.
  - (C) certified.
  - (D) none of the above
4. Voltage can also be expressed as
  - (A) watts.
  - (B) amps.
  - (C) current.
  - (D) electrical potential difference.
5. Newer cell phones contain a removable memory card, which is often called a
  - (A) SIM card.
  - (B) DIM chip.
  - (C) PIN card.
  - (D) PIN chip.
6. Made from a variety of materials, such as carbon, this inhibits the flow of current.
  - (A) resistor
  - (B) diode
  - (C) transformer
  - (D) generator
7. This is a type of semiconductor that only allows current to flow in one direction. It is usually used to rectify AC signals (conversion to DC).
  - (A) capacitor
  - (B) inductor
  - (C) diode
  - (D) transformer
8. Radar can operate at frequencies as high as
  - (A) 100,000 Hz.
  - (B) 100,000 kHz.
  - (C) 100,000 MHz.
  - (D) 500,000 MHz.
9. What do AC and DC stand for in the electrical field?
  - (A) amplified capacity and differential capacity
  - (B) alternating current and direct current
  - (C) accelerated climate and deduced climate
  - (D) none of the above
10. Changing AC to DC is called what?
  - (A) capacitance.
  - (B) impedance.
  - (C) rectification.
  - (D) induction.

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11. A 5,000 BTU air conditioner can efficiently cool up to 150 square feet, or a 10-foot x 15-foot room. What does BTU stand for?
  - (A) basic thermal unit
  - (B) basic temperature unit
  - (C) British thermal unit
  - (D) none of the above
12. Which is the most correct definition of current?
  - (A) the measure of electrical pressure
  - (B) the amount of electricity used in a heater
  - (C) the electricity used in heating a kilo of water
  - (D) the presence of electron flow
13. A device that transforms energy from one form to another is called
  - (A) a capacitor.
  - (B) a transducer.
  - (C) a transformer.
  - (D) magic.
14. Which one of the following is an active element?
  - (A) 15 k $\Omega$  resistor
  - (B) 10 mH inductor
  - (C) 25 pF capacitor
  - (D) 10 V power supply
15. A light bulb is 60 watts. Operated at 120 volts, how much current does it draw?
  - (A) 0.5 amperes
  - (B) 5.0 amperes
  - (C) 50.0 amperes
  - (D) 7,200 amperes
16. A number-12 wire, compared to a number-6 wire,
  - (A) is longer.
  - (B) is shorter.
  - (C) is smaller in diameter.
  - (D) is larger in diameter.
17. A fuse with a higher-than-required rating used in an electrical circuit
  - (A) improves safety.
  - (B) increases maintenance.
  - (C) may not work properly.
  - (D) is less expensive.
18. Neutral wire is always
  - (A) whitish or natural.
  - (B) black.
  - (C) green with stripes
  - (D) blue.
19. To measure electrical power, you would use a(n)
  - (A) ammeter.
  - (B) ohmmeter.
  - (C) voltmeter.
  - (D) wattmeter.
20. What will happen if you operate an incandescent light bulb at less than its rated voltage?
  - (A) The bulb will burn brighter and last longer.
  - (B) The bulb will burn dimmer and last longer.
  - (C) The bulb will burn brighter but won't last as long.
  - (D) The bulb will burn dimmer but won't last as long.

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## Answers

### Subtest 6: Electronics Information Answers

The Electronics Information subtest is important only if you plan on a career that requires a solid score in this area (check Appendix A to see whether the jobs you're interested in require a score in this subtest). Otherwise, spend your time studying for the math- and word-related ASVAB subtests. If you do need to score big on this test and you missed more than five answers, start brushing up. Start by reviewing the corresponding chapter in this book (Chapter 13).



If you need even more study, check out *Electronics For Dummies* by Gordon McComb (Wiley) or consider enrolling in a quick course at a community college. You can also find additional practice questions in Chapter 15.

1. **A.** Ohm's law states that Voltage ( $E$ ) = Current ( $I$ )  $\times$  Resistance ( $R$ ). All other answer are incorrect expressions of this law.
2. **A.** You read a resistor's color bands from left to right. The first band denotes the first digit, the second band denotes the second digit, and the third band denotes the subsequent number of zeros. In this example, brown is one, black is zero, and red means there are two additional zeros.
3. **B.** Heaters, pumps, stairs, diving boards, railings, and rebar, among other things, must be bonded together by a minimum #8 wire for safety purposes.
4. **D.** *Voltage* is commonly used as a short name for electrical potential difference, and it is measured in volts.
5. **A.** SIM stands for *Subscriber Identity Module*. The card contains information such as your phone number, your billing information, and your address book. The card makes it easier to switch from one cell phone to another.
6. **A.** A resistor is so named because it resists (or inhibits) the flow of current.
7. **C.** A diode has two terminals, the anode and the cathode, which is why it's called a *diode*. It restricts current flow to only one direction.
8. **C.** Radar can operate as high as 100,000 MHz (megahertz).
9. **B.** *Current* is the flow of charged particles. The difference between *alternating current* (AC) and *direct current* (DC) is that the electrons in an AC circuit regularly reverse their direction. In a DC circuit, electrons always flow in the same direction.
10. **C.** Changing AC to DC is a process called *rectification*.
11. **C.** A British thermal unit (BTU) is a measure of heat energy.

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12. **D.** *Current* is the presence of electron flow.
13. **B.** *Transducers*, which transform energy, can be switches, strain gauges, temperature sensors, or inductive switches.
14. **D.** *Active elements* are electronic devices that can create energy (such as voltage supplies and current supplies). *Passive elements* are electronic devices that cannot create energy.
15. **A.** Power = Current  $\times$  Voltage or, written another way, Current = Power  $\div$  Voltage. Plug in the numbers and do the math: 60 watts  $\div$  120 volts = 0.5 amperes.
16. **C.** The larger the number, the smaller the diameter of the wire.
17. **C.** Because fuses are designed to prevent current overload at a specific level, a fuse with a high rating may allow a higher current to flow through a circuit not designed to work at that higher current, possibly causing damage to the circuit.
18. **A.** Neutral wire is always whitish or natural colored.
19. **D.** Electrical power is measured in watts, so you use a wattmeter. An ammeter measures amps (current). An ohmmeter measures ohms (resistance). A voltmeter measures volts (voltage).
20. **B.** The bulb will burn dimmer because its full potential isn't used; it'll last longer for the same reason.