

Name \_\_\_\_\_

**MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**

- 1) The pitch of a musical sound depends on the sound wave's
  - A) wavelength.
  - B) speed.
  - C) amplitude.
  - D) frequency.
  - E) all of these
  
- 2) As we become older, the frequency range of human hearing
  - A) decreases.
  - B) remains relatively constant.
  - C) increases.
  
- 3) As we grow older, we have the greatest difficulty hearing frequencies that are
  - A) low. B) high. C) mid-range.
  
- 4) The loudness of a musical sound is a measure of the sound wave's
  - A) speed.
  - B) frequency.
  - C) amplitude.
  - D) wavelength.
  - E) all of these
  
- 5) A decibel is a measure of a sound's
  - A) loudness.
  - B) frequency.
  - C) wavelength.
  - D) speed.
  - E) all of these
  
- 6) A main difference between gravitational and electric forces is that electrical forces
  - A) obey the inverse-square law.
  - B) repel or attract.
  - C) act over shorter distances.
  - D) attract.
  - E) are weaker.

**Figure 22-A**



- 7) A balloon will stick to a wooden wall if the balloon is charged
  - A) positively. B) negatively.
  - C) either positively or negatively. D) None of the above choices are correct.

- 8) When a car is struck by lightning, the resulting electric field inside the car is
- A) zero.
  - B) normally huge for a time longer than the lightning stroke itself.
  - C) normally huge, but for a brief time.
  - D) small enough to be safe for an occupant inside.
- 9) If you comb your hair and the comb becomes positively charged, then your hair becomes
- A) uncharged.
  - B) negatively charged.
  - C) positively charged.
- 10) Two charged particles held close to each other are released. As they move, the force on each particle increases. Therefore, the particles must have
- A) the same mass.
  - B) the same size.
  - C) the same sign.
  - D) opposite signs.
  - E) impossible to answer without additional information
- 11) Electrons are made to flow in a wire when there is
- A) a potential difference across its ends.
  - B) more potential energy at one end of the wire than the other.
  - C) an imbalance of charges in the wire.
- 12) Which statement is correct?
- A) Current is the primary cause of voltage.
  - B) Charge flows in a closed circuit.
  - C) Voltage flows through an open or a closed circuit.
  - D) Resistance flows through an open circuit.
- 13) The primary source of electrons in an ordinary electrical circuit is
- A) the back emf of motors.
  - B) the electrical circuit itself.
  - C) a dry cell, wet cell or battery.
  - D) the power station generator.
  - E) none of these
- 14) When two lamps are connected in parallel to a battery, the electrical resistance that the battery senses is
- A) less than the resistance of either lamp.
  - B) more than the resistance of either lamp.
  - C) none of these
- 15) When two lamps are connected in series to a battery, the electrical resistance that the battery senses is
- A) less than the resistance of either lamp.
  - B) more than the resistance of either lamp.
  - C) none of these
- 16) The source of all magnetism is
- A) moving electric charge.
  - B) tiny domains of aligned atoms.
  - C) tiny pieces of iron.
  - D) ferromagnetic materials.
  - E) none of these

- 17) Moving electric charges will interact with  
A) only a magnetic field. B) an electric field or a magnetic field.  
C) only an electric field. D) none of these
- 18) Like kinds of magnetic poles repel while unlike kinds of magnetic poles  
A) repel also. B) attract. C) may attract or repel.
- 19) An iron rod becomes magnetic when  
A) the net spins of its electrons are in the same direction.  
B) its atoms are aligned having plus charges on one side and negative charges on the other.  
C) its electrons stop moving and point in the same direction.  
D) positive ions accumulate at one end and negative ions at the other end.  
E) none of these
- 20) An iron nail is more strongly attracted to the  
A) north or south pole – no difference really.  
B) north pole of a magnet.  
C) south pole of a magnet.