

PHYSICAL SCIENCE
982-021-06 (982-020-03) Section C2
Winter 2006

Test #3
May 15, 2006

Name _____

ID Number _____

FOR THIS QUIZ, PLEASE USE 10 m/s^2 AS THE VALUE FOR ACCELERATION DUE TO GRAVITY ON EARTH!

MULTIPLE CHOICE: [2 MARKS EACH]

(Circle the letter of the one alternative that best completes the statement or answers the question)

5. An object is pulled northward with a force of 10 N and southward with a force of 15 N. The magnitude of the

12. If you plug an electric toaster rated at 110-V into a 220-V outlet, current in the toaster will be about

- (a) half what it should be.
- (b) the same as if it were plugged into 110-V.
- (c) twice what it should be.
- (d) more than twice what it should be.

13. When the distance between two charges is halved, the electrical force between the charges

- (a) is reduced by one-quarter.
- (b) is reduced by one-half.
- (c) is doubled.
- (d) is quadrupled.

14. When we say an appliance "uses up" electricity, we really are saying that

- (a) current disappears.
- (b) the main power supply voltage is lowered.
- (c) electric charges are dissipated.
- (d) electron kinetic energy is changed into heat.
- (e) electrons are taken out of the circuit and put somewhere else.

15. A difference between electric forces and gravitational forces is that electrical forces include

- (a) the inverse-square law.
- (b) repulsive interactions.
- (c) infinite range.
- (d) separation distance.

16. A 10 ohm resistor has 5 A current in it. What is the voltage across the resistor?

- (a) 5 V.
- (b) 10 V.
- (c) 15 V.
- (d) 20 V.
- (e) more than 20 V.

17. The electric power of a lamp that carries 2 A at 120 V is

- (a) 0.33 W
- (b) 2 W
- (c) 20 W
- (d) 60 W
- (e) 240 W

18. The fundamental force underlying all chemical reactions is

- (a) centripetal.
- (b) electrical.
- (c) gravitational.
- (d) nuclear.

26. Several paper clips dangle from the north pole of a magnet. The induced pole in the bottom of the lowermost paper clip is a
- (a) north pole.
 - (b) south pole.
 - (c) north or south pole – no difference really.
27. Electromagnetic induction occurs in a coil when there is a change in
- (a) electric field intensity in the coil.
 - (b) the coil's polarity.
 - (c) voltage in the coil.
 - (d) magnetic field intensity in the coil.
 - (e) electromagnetic polarity.
28. A step-up transformer has a ratio of 1 to 10. Neglecting slight losses, if 100 W of power go into the primary coil, the power coming from the secondary coil is
- (a) 1 W.
 - (b) 10 W.
 - (c) 100 W.
 - (d) 1000 W.
29. Surrounding every moving electron is
- (a) a magnetic field.
 - (b) an electric field.
 - (c) both of these
 - (d) none of these
30. Voltage can be induced in a wire by
- (a) moving a magnet near the wire.
 - (b) moving the wire near a magnet.
 - (c) changing the current in a nearby wire.
 - (d) all of these
31. Which pole of a compass needle points to a south pole of a magnet?
- (a) south pole.
 - (b) north pole.
 - (c) both of these
32. A transformer actually transforms
- (a) magnetic field lines.
 - (b) voltage.
 - (c) generators into motors.
 - (d) nonsafe forms of energy to safe forms of energy.

33. A kilogram is a measure of an object's

- (a) center of mass.
- (b) force.
- (c) gravity.
- (d) mass.
- (e) weight.

34. A heavy object and a light object are dropped at the same time from rest in a vacuum. The heavier object reaches the ground

- (a) sooner than the lighter object.
- (b) at the same time as the lighter object..
- (c) later than the lighter object.

