Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Magnetism Practice Quiz

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. The induced voltage in a coil is proportional to
   a. the number of loops.
   b. the rate at which the magnet moves through those loops of coil.
   c. the rate at which the loops of coil move around the magnet.
   d. all of the above.

2. Changing the magnetic field intensity in a closed loop of wires induces
   a. current.
   b. voltage.
   c. both current and voltage.
   d. neither current nor voltage.

3. Electric current can best be induced in a wire by
   a. stretching the wire.
   b. moving a magnet up and down near the wire.
   c. setting the wire near a magnet.
   d. rotating the wire.
   e. none of the above

4. A magnet is moved in and out of a coil of wire connected to a high-resistance voltmeter. If the number of coils doubles, the induced voltage
   a. is the same.
   b. doubles.
   c. quadruples.
   d. halves.
   e. none of the above

5. A device consisting of a coil that is mechanically rotated in a stationary magnetic field is called
   a. a motor.
   b. a magnetic pole.
   c. a generator.
   d. a transformer.
   e. a dipole.

6. A generator is used to light a bulb. Energy for lighting the bulb actually comes from
   a. a plug where the generator is connected to the wall.
   b. a mechanical input to the generator.
   c. the magnet in the generator.
   d. the coil of wire.
   e. none of the above

7. A device that transforms electrical energy to mechanical energy is a
   a. generator.
   b. transformer.
   c. magnet.
   d. motor.
   e. none of the above

8. If a magnet is pushed into a coil, voltage is induced across the coil. If the same magnet is pushed into a coil with a greater speed
   a. a larger voltage is induced.
   b. a smaller voltage is induced.
   c. the same voltage is induced.

9. The principal reason voltage is induced in the loops of a generator coil is that the
   a. loops are rotating, changing the amount of magnetic field within the loops.
   b. size of the loops is changing.
   c. magnet's strength is changing.
   d. magnet is rotating.
   e. all of the above

10. The primary coil of a transformer has 100 turns on it and the secondary coil has 50 turns on it. This is
    a. a step-down transformer.
    b. a step-up transformer.
    c. either of the above, depending on relative input and output currents

11. The voltage across a transformer primary coil that has 50 turns is 25 V. What is the voltage across the secondary coil, which has 20 turns?
    a. 2 V
    b. 10 V
    c. 20 V
    d. 40 V
    e. 50 V

12. A step-up transformer has a ratio of 1:10. If 200 W of power goes into the primary coil, the power coming from the secondary coil is approximately
    a. 2 W.
    b. 20 W.
    c. 200 W.
    d. 2000 W.
    e. more than 2000 W.

13. The voltage across the input terminals of a transformer is 140 V. The primary has 20 loops and the secondary has 10 loops. The voltage the transformer puts out is
    a. 10 V.
    b. 70 V.
    c. 140 V.
    d. 280 V.
    e. none of the above

14. A certain transformer doubles input voltage. If the primary coil has 12 A of current, then the current in the secondary coil is
    a. 2 A.
    b. 6 A.
    c. 12 A.
    d. 24 A.
    e. none of the above

15. The source of all magnetism is
    a. moving electric charges.
    b. ferromagnetic materials.
    c. tiny domains of aligned atoms.
    d. tiny pieces of iron.
    e. none of the above

16. Moving electric charges will interact with
    a. an electric field.
    b. a magnetic field.
    c. both A and B
    d. none of the above

17. If the north pole of one magnet is brought near the south pole of another magnet, the poles will
    a. repel each other.
    b. attract each other.
    c. not interact with each other at all.

18. If you break a bar magnet in half, each half
    a. becomes a bar magnet with two poles.
    b. becomes unmagnetized.
    c. contains one magnetic pole.

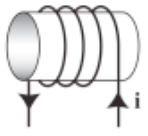
19. Magnetic field strength is
    a. strongest close to a magnet.
    b. constant everywhere around a magnet.
    c. strongest far from a magnet.

20. Magnetic fields are produced by
    a. moving particles of Earth.
    b. charges at rest.
    c. moving particles.
    d. moving charged particles.
    e. none of the above

21. When current passes through a wire, a magnetic field is created around the wire only if the
    a. wire is absolutely straight.
    b. wire is curved in a loop.
    c. current makes a complete loop.
    d. current comes from a battery.
    e. A magnetic field is always created around the wire.

22. Magnetic field lines surrounding a magnet are conventionally drawn
    a. from south to north.
    b. from north to south.
    c. either way.

23. A coil with a current is shown below. In the center of the coil, what direction does the magnetic field point?



    a. Up
    b. Down
    c. Left
    d. Right

Magnetism Practice Quiz
Answer Section

MULTIPLE CHOICE

1. ANS: D PTS: 1 DIF: L1 OBJ: 37.2 Faraday's Law
   KEY: faraday's law | induction | voltage BLM: knowledge
2. ANS: C PTS: 1 DIF: L2 OBJ: 37.1 Electromagnetic Induction
   STA: Ph.5.a KEY: induce | current BLM: comprehension
3. ANS: B PTS: 1 DIF: L2 OBJ: 37.1 Electromagnetic Induction
   STA: Ph.5.a KEY: current | wire | magnet BLM: comprehension
4. ANS: B PTS: 1 DIF: L2 OBJ: 37.1 Electromagnetic Induction
   STA: Ph.5.a KEY: magnet | coil | volt BLM: comprehension
5. ANS: C PTS: 1 DIF: L1
   OBJ: 37.3 Generators and Alternating Current STA: Ph.5.g | Ph.5.h
   KEY: coil | rotate | generator BLM: knowledge
6. ANS: B PTS: 1 DIF: L2
   OBJ: 37.3 Generators and Alternating Current STA: Ph.5.g | Ph.5.h
   KEY: generator | energy BLM: comprehension
7. ANS: D PTS: 1 DIF: L1
   OBJ: 37.3 Generators and Alternating Current STA: Ph.5.g | Ph.5.h
   KEY: electrical | mechanical BLM: knowledge
8. ANS: A PTS: 1 DIF: L2 OBJ: 37.1 Electromagnetic Induction
   STA: Ph.5.a KEY: magnet | coil | speed BLM: comprehension
9. ANS: A PTS: 1 DIF: L2
   OBJ: 37.3 Generators and Alternating Current STA: Ph.5.g | Ph.5.h
   KEY: volt | generator | magnet BLM: analysis
10. ANS: A PTS: 1 DIF: L2 OBJ: 37.5 Transformers
    STA: Ph.5.a | Ph.5.b KEY: coil | transformer
    BLM: comprehension
11. ANS: B PTS: 1 DIF: L2 OBJ: 37.5 Transformers
    STA: Ph.5.a | Ph.5.b KEY: voltage | transformer
    BLM: application
12. ANS: C PTS: 1 DIF: L2 OBJ: 37.5 Transformers
    STA: Ph.5.a | Ph.5.b KEY: step-up | power
    BLM: application
13. ANS: B PTS: 1 DIF: L2 OBJ: 37.5 Transformers
    STA: Ph.5.a | Ph.5.b KEY: transformer | voltage
    BLM: application
14. ANS: B PTS: 1 DIF: L2 OBJ: 37.5 Transformers
    STA: Ph.5.a | Ph.5.b KEY: voltage | current
    BLM: application
15. ANS: A PTS: 1 DIF: L1 OBJ: 36.3 The Nature of a Magnetic Field
    STA: Ph.5.e | Ph.5.f KEY: magnet | source
    BLM: knowledge

16. ANS: C PTS: 1 DIF: L1 OBJ: 36.3 The Nature of a Magnetic Field
STA: Ph.5.e | Ph.5.f KEY: electric | charge
BLM: knowledge
17. ANS: B PTS: 1 DIF: L1 OBJ: 36.1 Magnetic Poles
STA: Ph.5.e | Ph.5.f | CA.IE.1i KEY: south | north | magnet
BLM: knowledge
18. ANS: A PTS: 1 DIF: L1 OBJ: 36.1 Magnetic Poles
STA: Ph.5.e | Ph.5.f | CA.IE.1i KEY: half | magnet
BLM: knowledge
19. ANS: A PTS: 1 DIF: L1 OBJ: 36.2 Magnetic Fields
STA: Ph.5.f | CA.IE.1i KEY: strength | field
BLM: knowledge
20. ANS: D PTS: 1 DIF: L1 OBJ: 36.3 The Nature of a Magnetic Field
STA: Ph.5.e | Ph.5.f KEY: field | produce
BLM: knowledge
21. ANS: E PTS: 1 DIF: L2
OBJ: 36.5 Electric Currents and Magnetic Fields STA: Ph.5.g
KEY: current | wire | magnetic BLM: comprehension
22. ANS: B PTS: 1 DIF: L1 OBJ: 36.2 Magnetic Fields
STA: Ph.5.f | CA.IE.1i KEY: field | magnet | draw
BLM: knowledge
23. ANS: C PTS: 1