ELT 101: Basic Electricity: AC/DC

Unit 10 Exam: Magnetism and electromagnetism

NAME_____

DATE _____

Circle the most correct answer (2 points each for a total of 30 points)

1) With bar magnets:
   A. like poles attract each other and unlike poles repel each other
   B. unlike poles attract each other and like poles repel each other
   C. there are no north and south poles on a bar magnet
   D. none of the above

2) A commercial permanent magnet will last indefinitely if it is not subjected to:
   A. a strong demagnetizing field
   B. physical shock
   C. high temperatures
   D. all of the above

3) The ability of a material to concentrate magnetic flux is called its:
   A. induction
   B. permeability
   C. Hall effect
   D. diamagnetic

4) A magnet that requires current in a coil to create the magnetic field is called a(n):
   A. permanent magnet
   B. electromagnet
   C. solenoid
   D. either B or C

5) The geographic North Pole of the earth has:

A. no magnetic polarity

B. south magnetic polarity

C. north magnetic polarity

D. none of the above

6) With an electromagnet:

A. more current and more coil turns mean a stronger magnetic field

B. less current and fewer coil turns mean a stronger magnetic field

C. if there is no current in the coil, there is no magnetic field

D. both A and C

7) A conductor will have an induced current or voltage only when there is:

A. a stationary magnetic field

B. a stationary conductor

C. relative motion between the wire and the magnetic field

D. both A and B

8) The magnetic field surrounding a solenoid is:

A. like that of a permanent magnet

B. unable to develop north and south poles

C. one without magnetic flux lines

D. unlike that of a permanent magnet

9) A vertical wire with electron flow into this page has an associated magnetic field which is:

A. clockwise

B. counterclockwise

C. parallel to the wire

D. none of the above

10) In a magnetized material, magnetic domains:

A. are in random alignment

B. have the same polarity

C. oppose each other

D. are aligned

11) A solenoid is a mechanical switch activated by a magnetic coil.

A. true

B. false

12) The function of a relay is to:

A. allow a high power device to control a low power device

B. allow a low power device to amplify power

C. allow a low power device to control a high power device

D> none of the above

13) Which of the below are an advantage a DC motor offers over an AC motor?

A. higher torque

B. reversibility

C. variable speed

D. all of the above

14) A DC motor requires more maintenance than an AC motor.

A. true

B. false

15) The two main types of AC motors are:

A. fixed and variable

B. DC and AC

C. single and polyphase

D. wye and delta

16) Single phase motors have the advantage that they are self-starting.

A. true

B. false

17) What happens to a 3-phase motor when it loses one phase?

A. it immediately stops

B. it keeps running, but less efficiently

C. it speeds up

D. none of the above

18) You can reverse the direction of rotation on a 3-phase motor by switching any two sets of power connections.

A. true

B. false

19) Which of the below methods can be used to start a single-phase motor?

A. shaded pole

B. split phase capacitor

C. split phase inductor

D. all of the above

20) A squirrel cage motor requires brushes.

A. true

B. false

21) A DC motor uses _____ rings and an AC motor uses _____ rings.

A. split, slip

B. slip, split

C. one, two

D. two, one

22) A stator is the rotating part of a motor.

A. true

B. false

23) When a 3-phase motor loses one of its phases we call this:

A. mono-phasing

B. single-phasing

C. dual-phasing

D. multi-phasing

24) Which method below can be used to determine the North pole of an electromagnet?

A. the right hand rule for coils

B. the left hand rule for coils

C. the Maxwell rule for coils

D. the Tesla rule for coils

25) Materials that are not magnetic are classified as:

A. dia-magnetic

B. para-magnetic

C. terra-magnetic

D. penta-magnetic

Points possible:

Multiple choice:	38
True/false	12
Total	50

***** end of unit 10 exam *****