PreAP: Due Fri., May 12 (Assigned Wed.., May 8)
Reg. Due Thurs., May 11 (Assigned Tues., May 9)

Magnetism 7

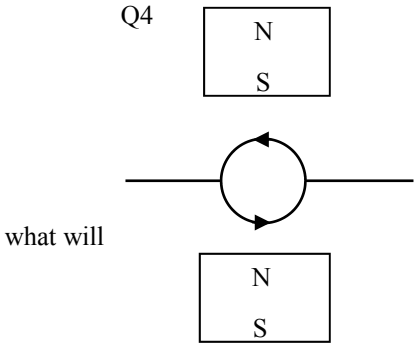
1. What is inside the casing of the two motors we have in the classroom?

2. The part that moves inside the casing has what around it?

3. How do these two parts cause the motor to move?

4. Use the diagram at the right to answer the following.
   A) Which direction is the wire loop's magnetic field?
   B) So, which way will the wire loop turn?
   C) After the loop has turned, if the current in the loop remains constant, what will happen to the loop?
   D) If as the loop turns, if the current stops, what happens to the loop?
   E) If the loop turns over, will the loop want to keep turning or go back?

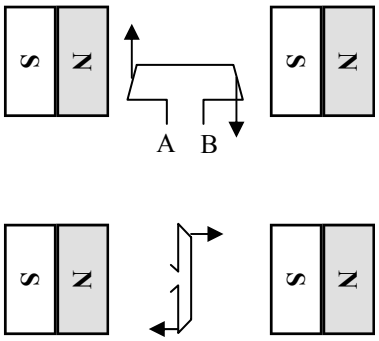
Q4



5. A loop of wire is turned in between two magnets as shown at the right.
   A) Is the moving loop the force or the charge for the right-hand rule?
   B) If the loop is turned clockwise as shown, will the current come out end A or end B?
   C) Comparing the loop when it is horizontal and when it is vertical, which position produces the most emf (induced voltage)?

6. Of the two wire loops at the right which one will produce an emf when closed: the horizontal one or the vertical one?

7. Give three ways that an emf can be produced in a wire loop.



DC motor questions.

8. Draw our DC motor we created in class below.

9. A motor needs a force to turn. What kind of force caused our motor to move?

10. What caused our motor to move?
    (Be specific – describe all parts and how it works; at least 3 parts.)

11. Why did we bend the tops of the paperclips?

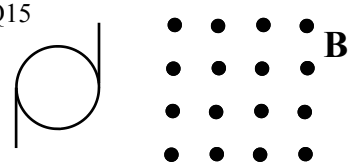
12. What did the bottom of the paperclip do for the motor?

13. Why did we have to scratch off part of the insulation on the ends of the loop wire?

14. Why did we scratch off only half of the insulation from one side of the wire loop?

Magnetism 7

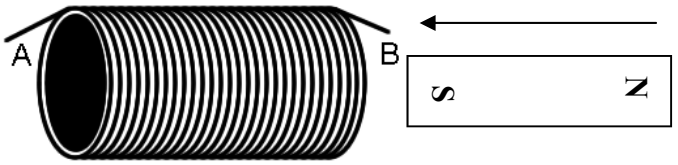
Q15



15. A) The magnetic field is going which direction?
    B) If the loop of wire is moved into the B a current is produced in the loop. What is changing to cause the emf?
    C) Which direction will the current be: clockwise or counterclockwise?

16. A pivoting wire apparatus can lift 10 paperclips when put into a magnetic field. 40 paperclips have a mass of 18 grams. Find the magnetic force of the apparatus.

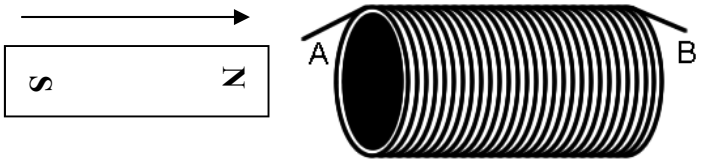
Q17



17. A) When the magnetic is moved into the _____ describe the direction of the induced magnet.
    B) So, which direction will the current come out?

18. A) When the magnetic is moved into the _____ describe the orientation of the induced magnet.
    B) So, which direction will the current come out?
    C) If an ammeter is put on the coils so that the red wire (which positive or negative?) is attached to A, will the ammeter read positive or negative current?

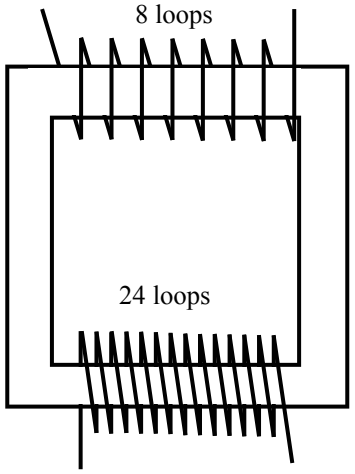
Q18



19. A magnet is pulled out of coils of wire (40 loops) which causes a change of magnetic field of -38 T in 4 seconds. An induced emf of 24 volts and loops are oriented at 0 degrees.
    A) Find the area of each loop.

    B) Find the radius of each loop (each loop is a circle).

20. A) The device at the right is called a _____.
    B) If 240 volts DC are put on the top of the device, how much current comes out at the bottom?
    C) Regardless of how much voltage is put on the top, will it create a magnetic field?
    D) How does the magnetic flux of the top compare to the magnetic flux of the bottom?



21. If I put AC voltage on the bottom of the device.
    A) The primary is which side?
    B) If I put voltage on the bottom side, which side is the secondary?
    C) If I put voltage on the top side, would it increase or decrease voltage?
    D) To make it a step-down transformer on which side would I put the voltage?

22. If I put 120 V AC on the bottom, what voltage will I get out on top?

23. Using your answer from above, if the input current is 6 amps, what will be the output current?