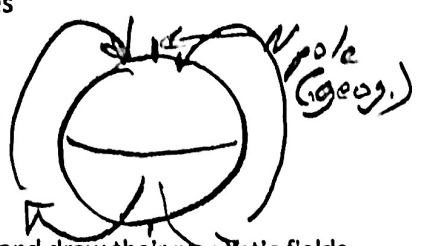
Physics 200 (Stapleton)
Electricity and Magnetism
2018-2019 Quiz Review

Name: Answers

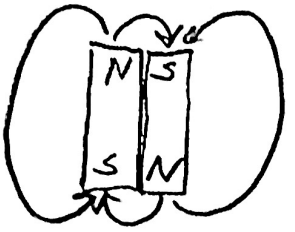
1. What is the symbol for magnetic field? B

2. The rightmost magnet is twice as strong as the leftmost magnet. Draw the magnetic field lines surrounding the two magnets.

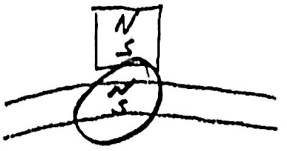
3. Sketch a diagram of the Earth's magnetic field.



4. Label the remaining poles of the two magnets and draw their magnetic fields.



5. Show the poles of the magnetized section of the steel string adjacent to the magnet.



6. When the right hand rule is applied with curled fingers, what part of the right hand indicates...
   a. Direction of the magnetic field — Toward Finger tips
   b. Direction of Current — Toward Thumb tip

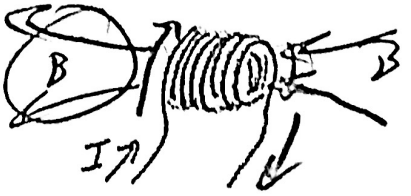
7. When the right hand rule is applied with straight fingers, what indicates the direction of the force applied to a moving charge? Direction palm is facing

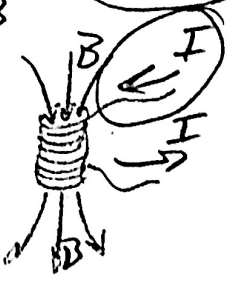
8. What symbol represents a direction pointing into the paper? What symbol represents "out of the paper?"

9. Use the symbols from number 8 to show the direction of the magnetic field around the wire.

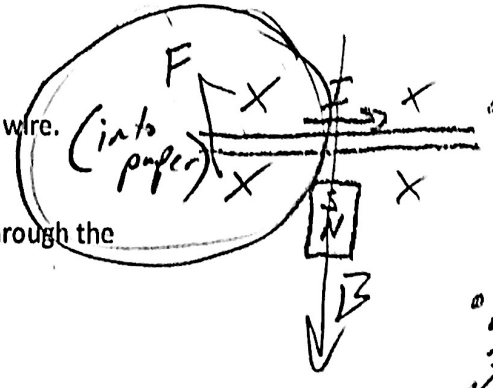
11. Show the direction of the solenoid's magnetic field.

12. Show the direction of the solenoid's current.

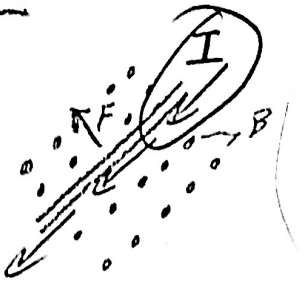




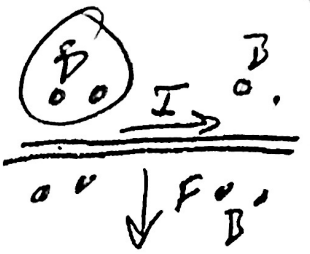
13. Show the direction of the force acting on the wire.



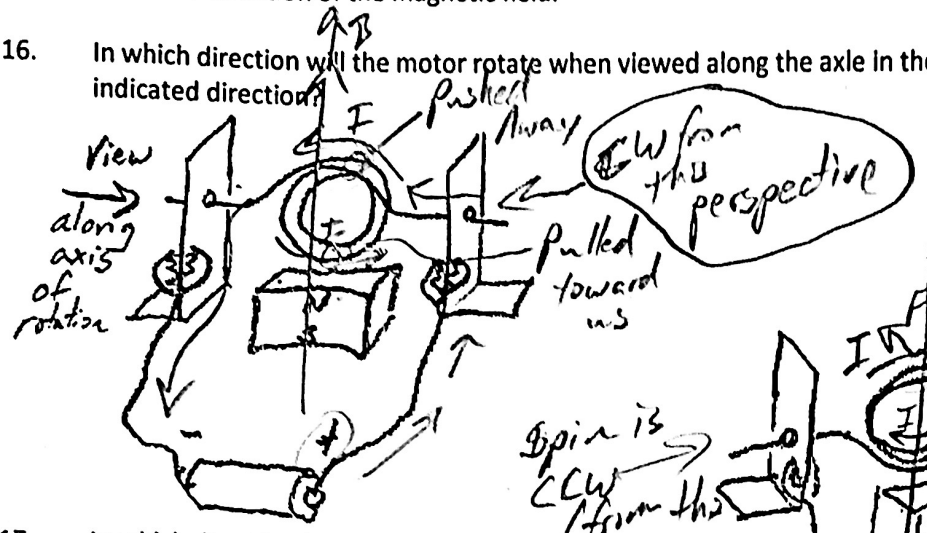
14. Show the direction of the current traveling through the wire.



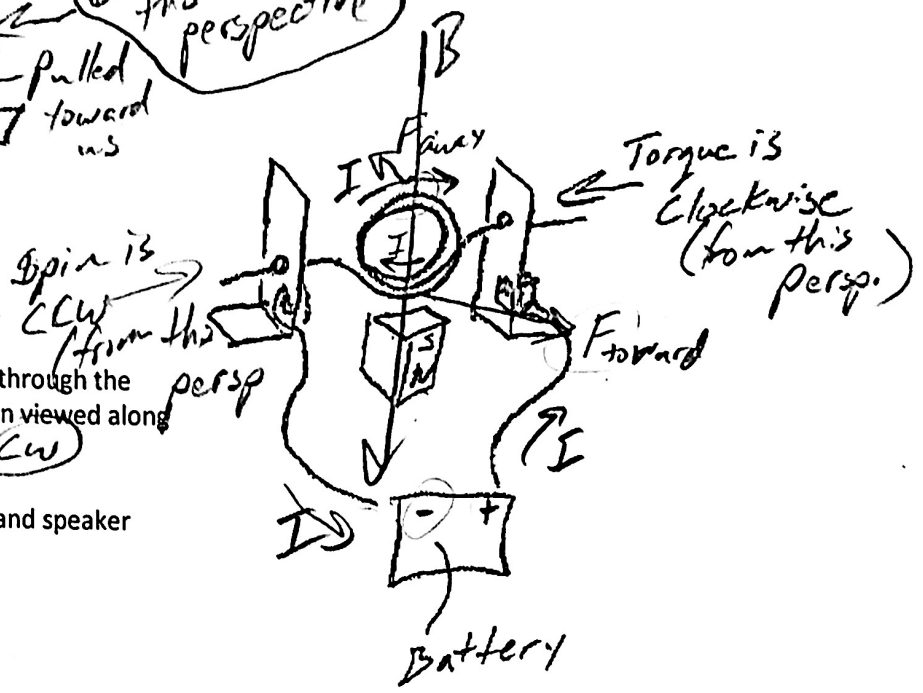
15. Show the direction of the magnetic field.



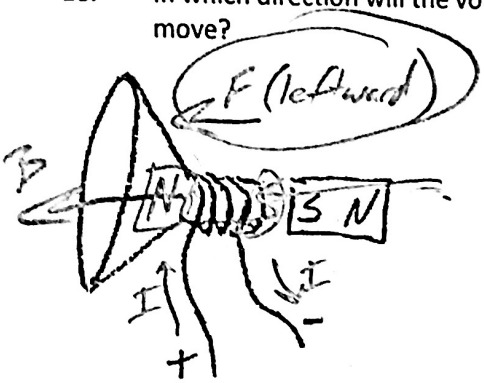
16. In which direction will the motor rotate when viewed along the axle in the indicated direction?



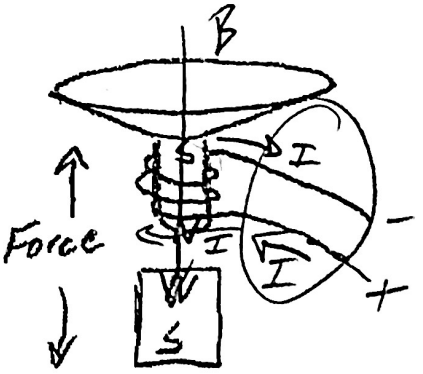
17. In which direction is current flowing through the motor coil? Torque is clockwise when viewed along the axle in the indicated direction. (CW)



18. In which direction will the voice coil and speaker move?



19. In which direction is current flowing through the voice coil?



20. Define magnetic flux.

A measure of the magnetic field lines passing through a given area (e.g. through a coil)

21. According to Lenz's law, what is the relationship between magnetic flux and the current induced in a coil?

When flux through a coil changes, an electric current is "induced" in the coil, such that the magnetic field created by the new current opposes the change in flux.