

Name: \_\_\_\_\_

Period: 1 2 3 4 5 6

## Chapter 17 Review

### Section 17.1

**Part A: Define the following terms.**

magnetic: \_\_\_\_\_

permanent magnet: \_\_\_\_\_

magnetic field: \_\_\_\_\_

magnetic declination: \_\_\_\_\_

**Part B: Answer the following questions.**

1. Suppose you put a magnet on a metal desk. Is the desk a magnet or magnetic material? Explain.

magnetic material because does not maintain magnetism when not connected to a permanent magnet.

2. What happens to a magnet if it cut in half? Does it still have the same poles?

Maintains N & S poles because of the arrangement of the atoms.

3. Is it possible to have a magnetic south pole without a magnetic north pole? Explain.

No it is not because of the atoms that make up the material. Atoms have N & S pole & (matter contains atoms)

4. Is Earth's magnetic pole at the same location as the geographic North Pole? Explain.

NO, magnetic declination.  
tilt of E.

### Section 17.2

**Part A: Define the following terms.**

electromagnet: \_\_\_\_\_

right hand rule: \_\_\_\_\_

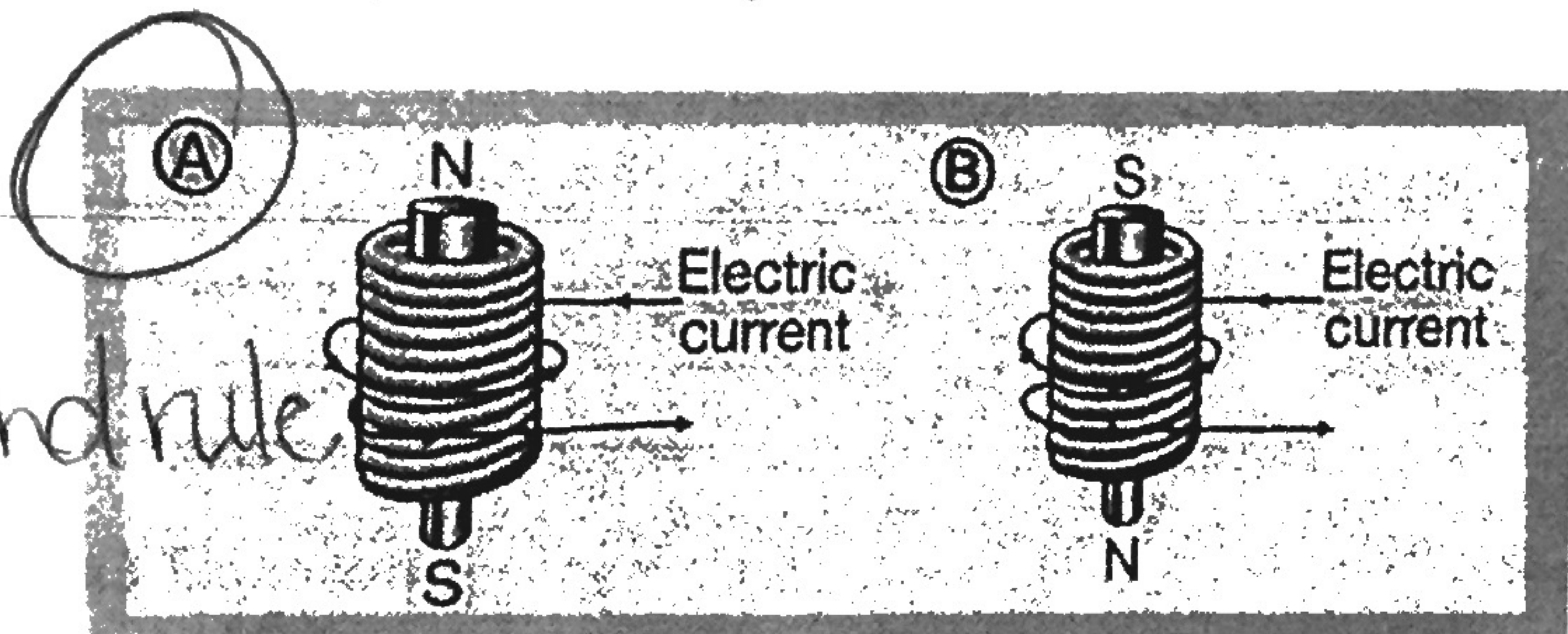
Part B: Answer the following questions.

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5. Which of the following will NOT increase the strength of an electromagnet, made by wrapping a wire around an iron nail?

- ① increase the amount of coils around nail.
- ② increase voltage.

6. Which picture shows the correct location of the north and south poles of the electromagnet? Choose A or B and explain how you arrived at your choice.



Right-hand rule

### Section 17.3

Part A: Define the following terms.

electric motor: \_\_\_\_\_

rotor: \_\_\_\_\_

commutator: \_\_\_\_\_

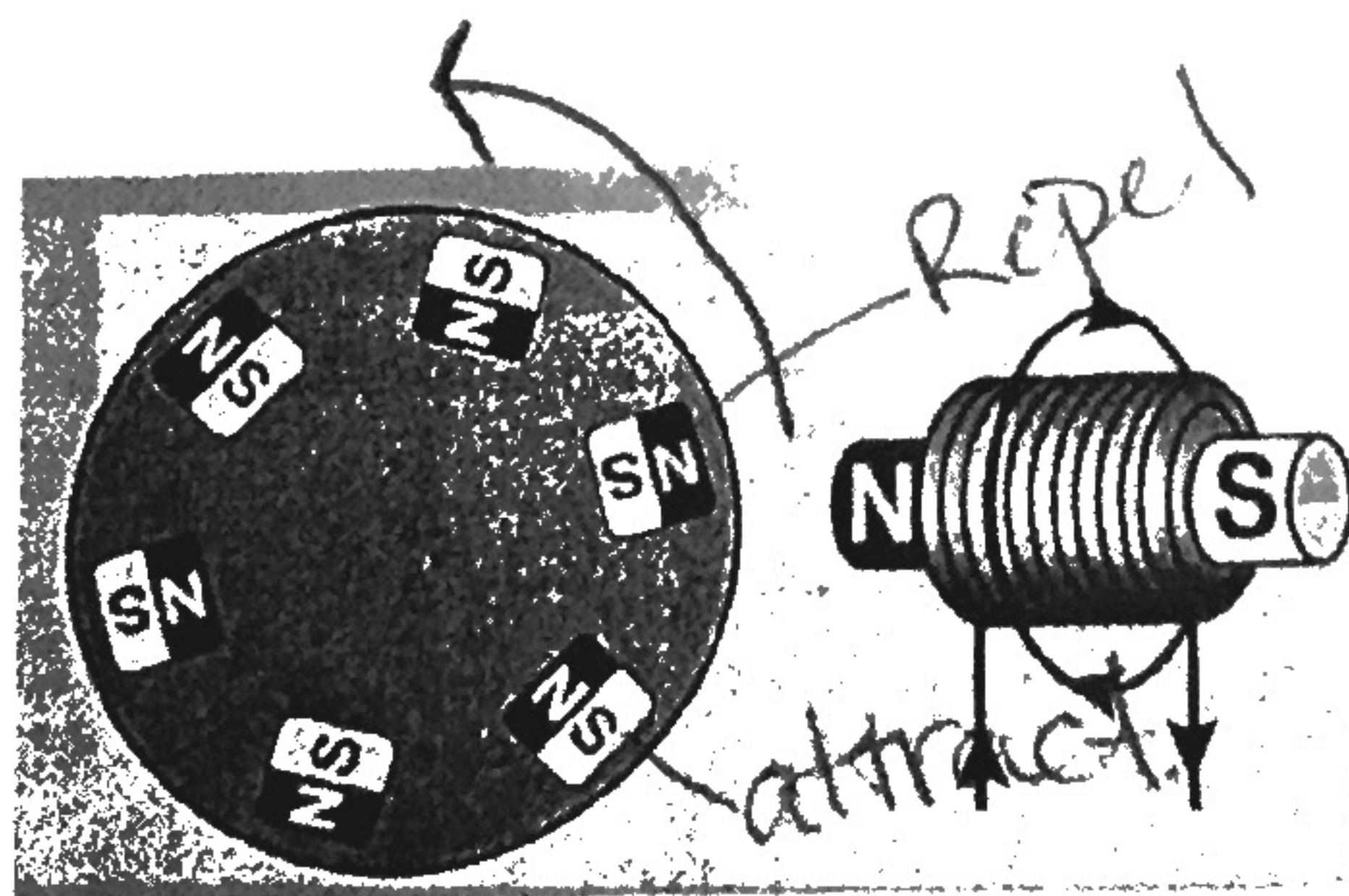
generator: \_\_\_\_\_

electromagnetic induction: \_\_\_\_\_

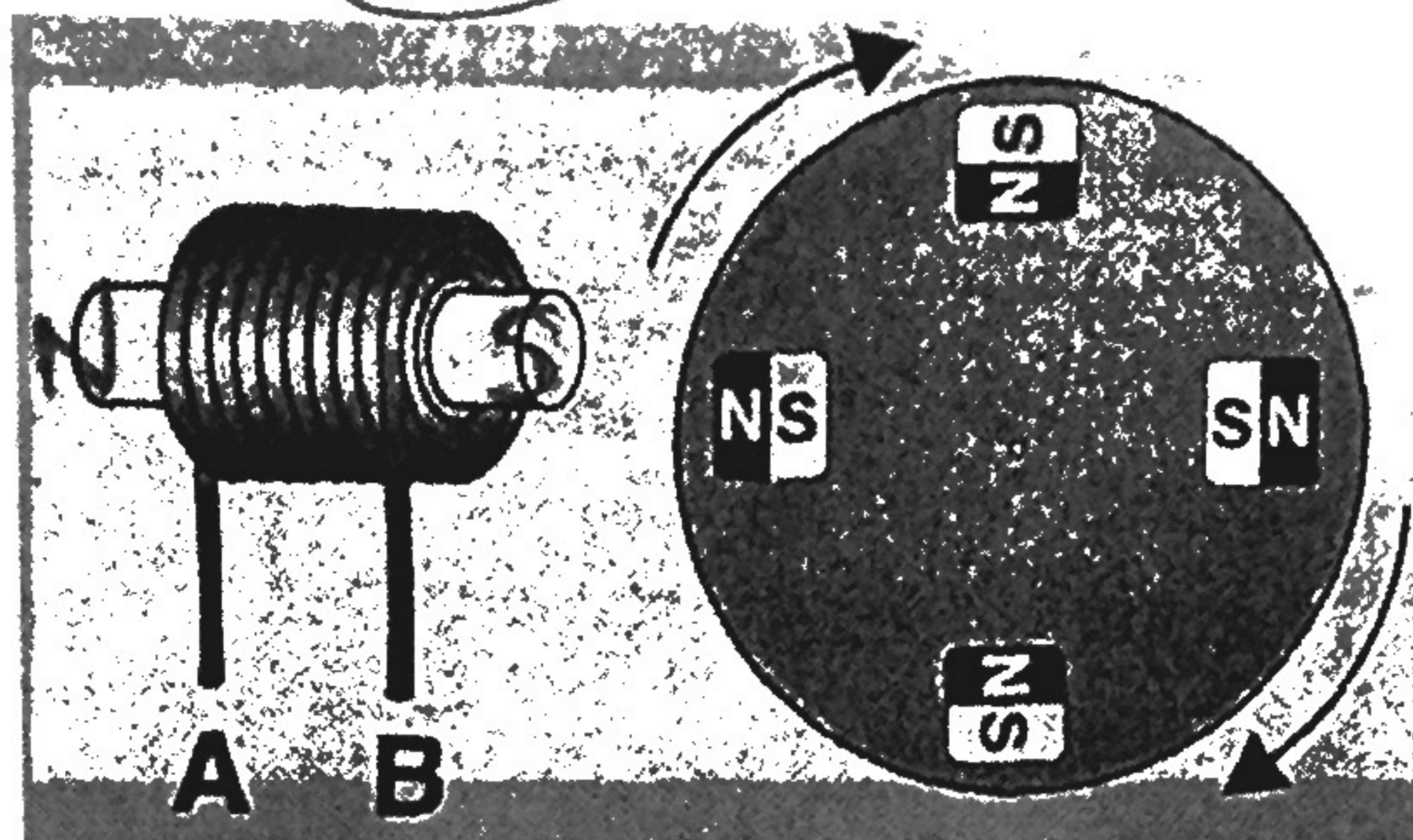
Part B: Answer the following questions.

7. Using a magnet to create an electric current in a wire is called electromagnetic induction

8. At the instant shown below, the electromagnet in the motor has its north pole facing the rotor that holds the permanent magnets. In which direction is the rotor spinning?



9. The rotor in the motor below is spinning clockwise. Is the direction of the current in the electromagnet from A to B or from B to A?



**Section 17.4**

**Part A: Define the following terms.**

nonrenewable resource: \_\_\_\_\_

fossil fuel: \_\_\_\_\_

renewable resource: \_\_\_\_\_

hydroelectric: \_\_\_\_\_

biomass: \_\_\_\_\_

solar energy: \_\_\_\_\_

electrical power: \_\_\_\_\_

kilowatt-hour: \_\_\_\_\_

**Part B: Answer the following questions.**

10. Some of the energy that comes from burning a fossil fuel can be turned into electricity, but most of the energy is lost. Explain why this is a true statement and identify the unusable or lost energy.

lost, unusable energy, heat  
lost due to heat production.

11. What is the difference between a nonrenewable and renewable resource? Give three examples of each.

Nonrenewable	Renewable
• coal, oil	- hydroelectric - solar
natural gas	- wind

12. How much does a 1,500-watt hair dryer use every second?

13. A student used three appliances in her dormitory room: a 1,200-watt iron, which she uses 3.5 hours per month; a lamp with a 100-watt bulb, which she uses 125 hours per month; and a 700-watt coffee maker, which she uses 15 hours per month.

a. How many kWh of electrical energy are consumed in one month by each appliance?

$$1,200 \text{ watts} = 1.2 \text{ kilowatts} \times 3.5 \text{ hrs} = 4.2 \text{ kWh}$$

$$100 \text{ watts} = .10 \text{ kilowatts} \times 125 \text{ hrs} = 12.5 \text{ kWh}$$

$$700 \text{ watts} = .70 \text{ kilowatts} \times 15 \text{ hrs} = 10.5 \text{ kWh}$$

b. If the local utility company charges \$0.15 cents per kWh of electrical energy consumed, how much does it cost per month to operate each appliance?

$$4.2 \text{ kWh} \times .15 = \$0.63 \text{ - Iron}$$

$$12.5 \text{ kWh} \times .15 = \$1.88 \text{ - lamp}$$

$$10.5 \text{ kWh} \times .15 = \$1.58 \text{ - Coffee maker}$$