

### WARNING

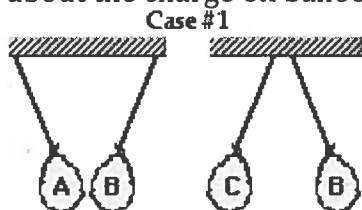
This guide is not the only thing you should use to study. It does not provide you with everything you need. You should also rely on your textbook, homework, and classroom notes. Use everything you can for the best results.

**TEST: Friday June 1, 2018**

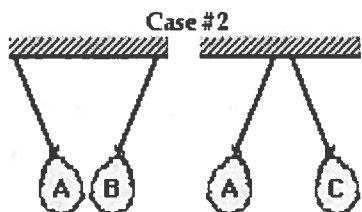
#### Topic 1: Static Electricity - Textbook pg. 34-41 - Binder pg. 26-32

- What is static electricity? *Charges build-up on an object but do not continuously flow.*
- In regards to electrical charges, like charges repel and unlike charges attract.
- How does an uncharged object become charged? *By gaining or losing electrons*
- How is static electricity transferred during charging by friction?  
*Electrons are transferred by rubbing one uncharged object to another.*
- How is static electricity transferred during charging by conduction?  
*Transfer of electrons from a charged object to another by direct contact*
- How is static electricity transferred during charging by induction?  
*Transfer of electrons from a charged object to an uncharged object without touching.*
- What is static discharge?  
*The loss of static electricity as electric charges transfer from one object to another.*
- On two occasions, the following charge interaction between balloons A, B, and C are observed. In each case, it is known that balloon B is charged negatively. Based on these observations, what can you conclude about the charge on balloon A and C for each case?

*Example: Lightning*



Object	Conclusive evidence to conclude the charge is +, -, neutral
A	+
B	negative
C	-



Object	Conclusive evidence to conclude the charge is +, -, neutral
A	+
B	negative
C	+

#### Topic 2: Electric Currents - Textbook pg. 44-51 - Binder pg.33-40

- What is an electric current? *Continuous flow of electrons (charges) through a material.*
- Explain why electric current cannot exist if an electric circuit is broken.  
*Charges cannot flow because the path is no longer complete.*
- Define conductor and insulator. *→ material through which charges cannot flow easily.*  
*↳ Material that charges can flow through easily*
- What are 3 materials that are good conductors?  
*Copper, Aluminium, Salt Water*
- What are 3 materials that are insulators?  
*Rubber, Glass, wood*
- What are two examples of voltage sources? *Batteries & Generators.*

15. What is resistance? *Measure of how difficult it is for charges to flow through a material.*
16. State whether each factor increases or decreases resistance.

- a. A wire with a long length = Increases      d. A wide wire: Decreases  
 b. A short wire = Decreases      e. High Temperature: Increases  
 c. A thin diameter = Increases      f. Low Temperature: Decreases

**Topic 3: Batteries – Textbook pg. 54-57- Binder pg. 41-43**

17. What are three parts of an electrochemical cell?  
*2 different metals (electrodes), electrolyte, & 2 terminals (+ & -)*
18. What is an electrolyte?  
*A substance that conducts electric current.*
19. What are electrodes?  
*2 different metals (One becomes positively charged, one becomes negatively charged)*
20. Would a current be produced if both terminals had the same charge? Explain your answer.  
*No, if both had the same charge, no voltage would exist and therefore no current is produced*

**Topic 4: Electric Circuits – Textbook pg. 60-66 – Binder pg. 44-49**

21. What are three basic features of an electric circuit?  
*Energy (Voltage) Source, Device, & conducting wires*

22. What units are used to measure the following:

- a. Voltage - Volts (V)  
 b. Current - Amps (A)  
 c. Resistance - Ohms ( $\Omega$ )

23. What is the formula for Ohm's Law?

$$\text{Current} = \frac{\text{Voltage}}{\text{Resistance}}$$

$$\begin{aligned} \text{Current} &= I \\ \text{Voltage} &= V \\ \text{Resistance} &= R \end{aligned}$$



24. According to Ohm's Law, if voltage increases what happens to the current? Increases

25. According to Ohm's Law, if resistance decreases what happens to the current? Increases

26. The voltage of a car battery is 12 volts. When the car is started, the battery produces a 40-amp current. What is the resistance of the car battery?

$$R = \frac{V}{I} = \frac{12V}{40A} = 0.3\Omega$$

27. How is a parallel circuit different from a series circuit?

*Series circuit = one path for current*

*Parallel circuit = Several paths for current*

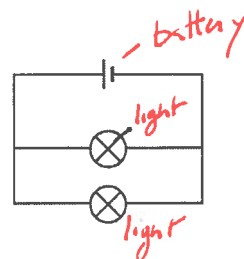
28. If you remove one bulb from a string of lights, all the lights will go out. Are the lights a parallel or series circuit?

*Series, the current stops because part of its path has been removed.*

29. Refer to the diagram: Is the drawing a parallel or series circuit?

Label the battery and light bulbs

*Parallel*



30. Draw a diagram of a series circuit that includes a battery, one resistor, and two light bulbs. Place a switch so that it controls both light bulbs.

