**Unit 6, Lesson 3 & 4 Review Quiz**

**Multiple Choice**

*Identify the choice that best completes the statement or answers the question.*

\_\_\_\_ 1. What is static electricity?

|  |  |
| --- | --- |
| A | a flow of electrons |
| B | an electrostatic discharge |
| C | a repelling between electrons |
| D | a build up of electric charge on something |

\_\_\_\_ 2. The following table shows properties of the different parts of an atom.

|  |  |  |
| --- | --- | --- |
| **Part** | **Electric charge**  | **Ease of loss from an atom** |
| proton | positive | difficult |
| neutron | neutral | difficult |
| electron | negative | easy |
| nucleus | positive and neutral areas | difficult |

Imagine you rub a plastic object on a piece of fur, causing static electricity to form on both objects. The fur now has a positive charge. What happened to the plastic object?

|  |  |
| --- | --- |
| A | It lost protons. |
| B | It lost electrons. |
| C | It gained protons. |
| D | It gained electrons. |

\_\_\_\_ 3. A boy walks across a carpet on a cold day. Then he starts to touch a doorknob, and a spark jumps from his finger to the doorknob.



This spark is an example of which of the following?

|  |  |
| --- | --- |
| A | electric charge |
| B | electric current |
| C | static electricity |
| D | electrostatic discharge |

\_\_\_\_ 4. What is the main difference between an electric current and static electricity?

|  |  |
| --- | --- |
| A | Electrons in an electric current move by electrostatic discharge.  |
| B | Electric charges flow in an electric current but not in static electricity.  |
| C | Static electricity occurs in at least two objects. An electric current occurs in only one.  |
| D | Negative charges form static electricity. An electric current involves positive charges. |

\_\_\_\_ 5. Why are metals good conductors of an electric current?

|  |  |
| --- | --- |
| A | Metals do not melt easily. |
| B | A metal also conducts heat.  |
| C | Nonmetals do not conduct an electric current. |
| D | A metal contains electrons that can move through it easily. |

\_\_\_\_ 6. Why does an atom usually have a neutral charge?

|  |  |
| --- | --- |
| A | It contains no charged particles. |
| B | It contains equal numbers of protons and neutrons. |
| C | It contains equal numbers of electrons and protons. |
| D | It contains equal numbers of electrons and neutrons. |

\_\_\_\_ 7. An object has an electric charge of +12. It loses 10 electrons. What is the new electric charge on the object?

|  |  |
| --- | --- |
| A | –22 |
| B |  –2 |
| C |  +2 |
| D | +22 |

\_\_\_\_ 8. In a three-pronged plug, one flat prong carries current from the supply that enters the electrical outlet, and the other returns the current to the service panel of the building. The round prong helps protect people from electrical shocks.



What has a purpose similar to that of the round prong?

|  |  |
| --- | --- |
| A | a magnet |
| B | a generator  |
| C | a lightning rod |
| D | an electrical outlet |

\_\_\_\_ 9. A material that allows an electric current to flow through it is an electrical conductor. A material through which an electric current cannot flow easily is called an insulator. Which statement **best** describes the difference between an insulator and a conductor?

|  |  |
| --- | --- |
| A | An insulator has a static charge, and a conductor does not.  |
| B | A conductor contains more electrons than an insulator.  |
| C | A conductor is a metal, and an insulator is any material that is not a metal. |
| D | An insulator does not have electrons that are free to move, and a conductor does.  |

\_\_\_\_ 10. The balloons shown below are part of Waring’s investigation into positive and negative charges. He rubbed both balloons with a wool cloth.



What must be true of the balloons?

|  |  |
| --- | --- |
| A | They have the same charge. |
| B | They have opposite charges. |
| C | Neither of them has a charge. |
| D | One of them has a charge and the other does not. |

\_\_\_\_ 11. Jack is combing his hair. After a while, he notices that the comb attracts the hairs on his head as shown below.



Which explanation **best** describes why the hairs are attracted to the comb?

|  |  |
| --- | --- |
| A | Combing the hairs caused them to lose their static charge. |
| B | Combing the hairs caused the comb to lose its static charge. |
| C | Combing the hairs gave them a charge that is opposite the charge on the comb. |
| D | Combing the hairs gave them a charge that is the same as the charge on the comb. |

\_\_\_\_ 12. Lennon is observing how charged and uncharged objects can repel or attract each other. She hangs two balloons next to each other. The diagram below shows what she observed.



What could Lennon infer about the charge of the balloons?

|  |  |
| --- | --- |
| A | They are both uncharged. |
| B | One is charged and one is not. |
| C | They both have the same charge. |
| D | One is positively charged and one is negatively charged. |

\_\_\_\_ 13. Maya combs her hair with a plastic comb. This causes the comb to become negatively charged. Which of the following would all be attracted to the comb?

|  |  |
| --- | --- |
| A | a positively charged object and an uncharged object |
| B | a negatively charged object and an uncharged object |
| C | a positively charged object and a negatively charged object |
| D | a negatively charged object, a positively charged object, and an uncharged object |

\_\_\_\_ 14. Drew rubbed a balloon against his sweater. This caused the balloon to become negatively charged. Drew held the balloon above small strips of paper. Some of the strips moved upward and attached to the balloon. Other strips moved away from the balloon. Which statement explains why this occurred?

|  |  |
| --- | --- |
| A | Positively charged strips of paper were attracted to the balloon, while uncharged strips of paper were repelled by the balloon. |
| B | Negatively charged strips of paper were attracted to the balloon, while uncharged strips of paper were repelled by the balloon. |
| C | Positively charged strips of paper were attracted to the balloon, while negatively charged strips of paper were repelled by the balloon. |
| D | Negatively charged strips of paper were attracted to the balloon, while positively charged strips of paper were repelled by the balloon. |

**Short Answer**

 1. Glass tends to have a positive charge. Why might this explain why the screen on your TV becomes dusty before other furniture does?

 2. When you rub a balloon with a wool cloth, what are you giving the balloon?

 3. What happens when an object with a negative charge comes near another object with a negative charge?

**Unit 6, Lesson 3 & 4 Review Quiz**

**Answer Section**

**MULTIPLE CHOICE**

 1. D

 2. D

 3. D

 4. B

 5. D

 6. C

 7. D

 8. C

 9. D

 10. A

 11. C

 12. C

 13. A

 14. C

**SHORT ANSWER**

 1. Sample answer: The glass will attract any negatively charged dust particles because unlike charges attract each other.

Students’ answers should include:

• that some dust particles might be negatively charged

• that negative and positive charges attract

 2. Sample answer: You are giving the balloon a negative electric charge.

Students’ answers should include:

• that the balloon is acquiring a negative charge

• that the balloon is acquiring an electric charge

 3. Sample answer: Two charges that are the same repel one another. So, two objects with negative charges will repel one another.

Students’ answers should include:

• that two objects with the same charge will repel (or not attract) one another

• that two objects with negative charge will repel (or not attract) one another