Electric Charge: Like Charges Repel, Unlike Attract

Those sparks when you pull off a sweater come from electric charge. How rubbing moves electrons, what positive and negative mean, and why like charges repel.

Name: Date: Score: ____ / 19

A. Fill in the blanks

1. Rubbing transfers ____ from one body to another.

2. A body that loses electrons becomes ____.

3. A body that gains electrons becomes ____.

4. Like charges ____ each other.

5. Unlike charges ____ each other.

B. True or False

6. Rubbing creates new charge. True / False

7. Glass rubbed with silk becomes positive. True / False

8. Plastic rubbed with fur becomes negative. True / False

9. The total charge of a rubbed pair is zero if both began neutral. True / False

C. Assertion and reason

10. Assertion (A): The total charge of a neutral pair stays zero after rubbing.
Reason (R): Electrons only move from one body to the other.

(a) Both A and R are true, and R explains A
(b) Both A and R are true, but R does not explain A
(c) A is true, R is false
(d) A is false, R is true

Answer: _____

11. Assertion (A): A rubbed glass rod repels another rubbed glass rod.
Reason (R): Both carry the same kind of charge.

(a) Both A and R are true, and R explains A
(b) Both A and R are true, but R does not explain A
(c) A is true, R is false
(d) A is false, R is true

Answer: _____

D. Choose the correct option

12. Silk rubbed on glass becomes:

(a) positive
(b) negative
(c) neutral
(d) magnetic

Answer: _____

13. Two negative objects will:

(a) attract
(b) repel
(c) not act
(d) neutralise

Answer: _____

14. A positive and a negative object will:

(a) attract
(b) repel
(c) not act
(d) spin

Answer: _____

15. Sparks from a sweater come from:

(a) heat
(b) charge build-up and discharge
(c) magnets
(d) friction melting

Answer: _____

E. Numerical problems

16. A neutral rod gives 5 electrons to a cloth. What is the rod's charge, in units of e?

17. After rubbing, a body has +6 units of charge. What is its neutral partner's charge now?

F. Short answer questions

18. Why does a sweater spark when pulled off?

G. Match the columns

19. Match each item in Column A with the correct item in Column B.

Column A	Column B	Your answer
1. Glass with silk	(a) negative	1 → ____
2. Silk with glass	(b) negative	2 → ____
3. Plastic with fur	(c) positive	3 → ____
4. Fur with plastic	(d) positive	4 → ____

Detailed solutions

1. electrons

2. positive

3. negative

4. repel

5. attract

6. False. It only moves electrons.

7. True. It loses electrons to the silk.

8. True. It gains electrons.

9. True. Charge only moved.

10. (a) R explains A.

11. (a) R explains A.

12. (b) negative. It gains electrons.

13. (b) repel. Like charges repel.

14. (a) attract. Unlike charges attract.

15. (b) charge build-up and discharge. Charge builds up, then discharges.

16. It lost 5 electrons. **Answer: +5**

17. The total stays 0. **Answer: −6**

18. Rubbing moves electrons so opposite charges build up on the sweater and shirt; they discharge as a spark.

19. 1 → (d), 2 → (a), 3 → (b), 4 → (c). Each rubbed object matches its charge.