

Which Statement *best* describes why tiny bits of paper are attracted to a charged rubber rod?

- A) Paper is naturally a positive material
- B) Paper is naturally a negative material.
- C) The paper becomes polarized by induction.
- D) Rubber and paper always attract each other.
- E) The paper acquires a net positive charge by induction.

An electroscope is initially given a negative charge. When a rod that is positively charged is brought near to the electroscope, but does not touch it, the leaves will

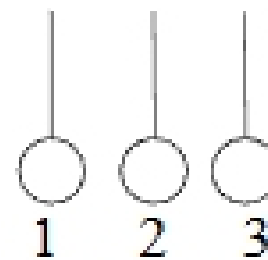
- A) move closer together.
- B) move farther apart.
- C) remain where they are.

Three styrofoam balls are suspended from insulating threads. Several experiments are performed and the following observations made:

- I) Ball 2 attracts 1, but has no effect on ball 3.
- II) Ball 1 is attracted to a negatively charged rod.

What are the charges on the balls?

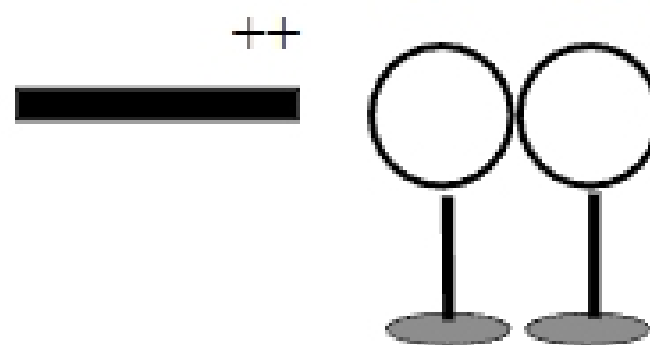
- |    |   |   |   |
|----|---|---|---|
|    | 1 | 2 | 3 |
| A) | + | - | 0 |
| B) | 0 | 0 | 0 |
| C) | + | 0 | 0 |
| D) | + | + | - |
| E) | 0 | + | - |



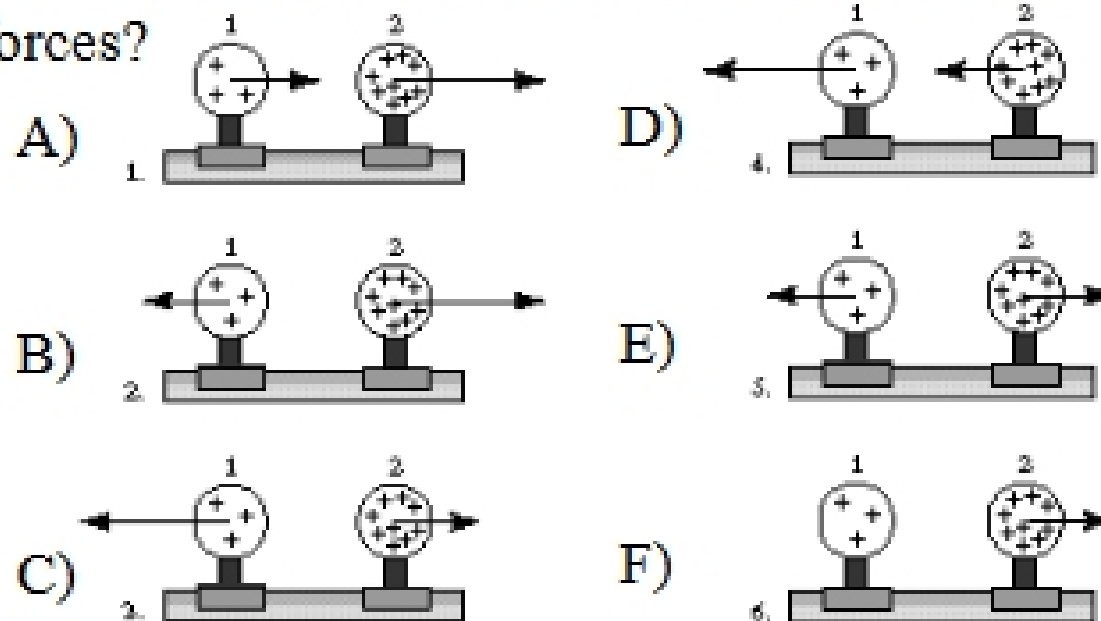
Two uncharged spheres, **I** and **II**, are at rest on insulating stands. A positively charged rod is held *near to, but not touching* sphere **A**. While the rod is in place, the two spheres are separated.

How will the spheres be charged, *if at all*?

- |    |          |           |
|----|----------|-----------|
|    | <b>I</b> | <b>II</b> |
| A) | +        | +         |
| B) | +        | -         |
| C) | -        | +         |
| D) | 0        | +         |
| E) | 0        | 0         |



Two uniformly charged spheres are fastened to and electrically insulated from frictionless pucks on an air table. The charge on sphere 2 is three times the charge on sphere 1. Which force diagram correctly shows the magnitude and direction of the electrostatic forces?



Four point charges, each with the same magnitude, but with varying signs are arranged at the corners of a square. Which of the arrows shows the directions of the net force that acts on the charge in the upper right hand corner?

