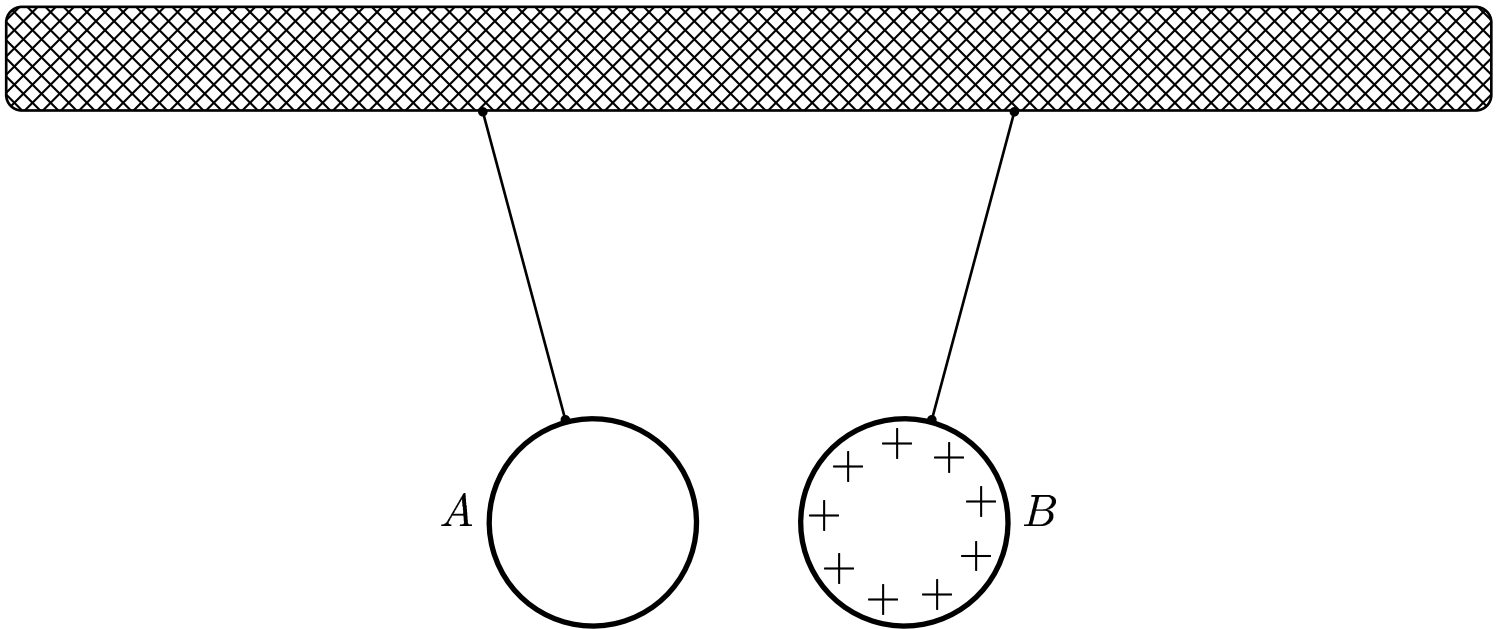


Given two conducting spheres A and B . There are positive charges on B ; i.e., $Q_B > 0$. The set up is in static equilibrium.



What is the sign of the net charge on A ?

- A) negative
- C) neutral

- B) positive
- D) negative or neutral

E) positive or neutral

Coulomb's law is $\vec{F}_{AB} = k \frac{Q_A Q_B}{r^2} \hat{r}_{AB}$, which tells us that unlike charges attract. Consequently, if $Q_B > 0$ then $Q_A < 0$; i.e., negative.

However if the net charge on sphere B is neutral, the influence of the positive charge on sphere A will polarize sphere B , such that the right-hand side of sphere A will become negative and the left-hand side of sphere A will become positive. This will produce an attractive force between sphere A and sphere B .

The answer is “negative or neutral”.

Answer **D**.