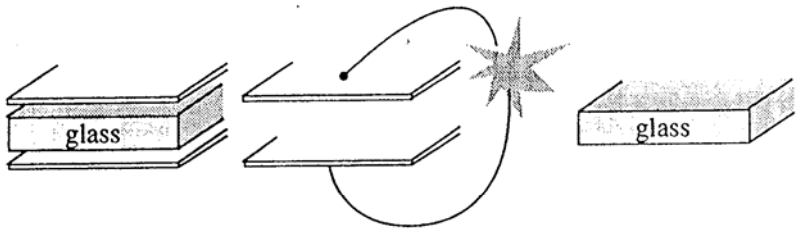
Phys 5C Clicker Answers 4-16-08

QUESTION 1: A slab of glass is inserted between the plates of a capacitor. The system is then charged. The glass between the plates is removed before the capacitor is discharged.



The spark produced upon discharge will be

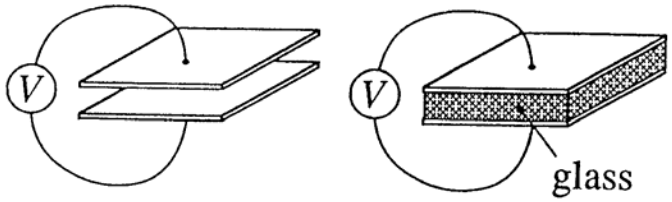
1. bigger

2. smaller

3. the same as it would have been if the glass were left in place

Stored energy is ½ Q^2/C. Removing the glass decreases C by a factor K, so with Q fixed it increases the energy by the same factor. Also, V = Q/C increases by factor K when the glass is removed.

QUESTION 2. A parallel plate capacitor is attached to a battery which maintains a constant potential difference of V between the plates. While the battery is still connected, a glass slab is inserted so as to just fill the space between the capacitor plates.



The stored energy will

1. increase

2. decrease

3. remain the same

Stored energy is ½ CV^2. Here V is constant. When the glass is inserted, C increases by a factor K, so the stored energy increases by the same factor.