Solution to Problem 10 of the 2001 Physics GRE

July 13, 2012

The equivalent capacitance of two capacitors in series is given by

$$\frac{1}{C_{eq}} = \frac{1}{C_1} + \frac{1}{C_2}$$

If we let $C_1 = 3 \ \mu$ F and $C_2 = 6 \ \mu$ F, then

$$C_{eq} = 2 \ \mu \ F$$

The energy stored in a capacitor is

$$\frac{1}{2}CV^2$$

So, if we let $C = C_{eq} = 2 \ \mu$ F and V = 300 V, then we find that 0.09 J is stored in the capacitor. Therefore, answer (A) is correct.