Problem 26.33

a.) The static charge that will produce a 10.0 kV potential will be:

$$Q = CV$$
$$= \left(1.50\text{x}10^{-10} \text{ F}\right)\left(1.00\text{x}10^{4} \text{ V}\right)$$
$$= 1.50\text{x}10^{-5} \text{ C}$$

b.) What voltage on the body will produce 250 microjoules?

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

$$\Rightarrow \quad V = \sqrt{\frac{2E}{C}}$$

$$\Rightarrow \quad V = \sqrt{2\frac{\left(250\text{x}10^{-6} \text{ J}\right)}{\left(1.50\text{x}10^{-10} \text{ F}\right)}}$$

$$= 1.83\text{x}10^{3} \text{ V}$$