

2. (a) The capacitance of the system is

$$C = \frac{q}{\Delta V} = \frac{70 \text{ pC}}{20 \text{ V}} = 3.5 \text{ pF}.$$

(b) The capacitance is independent of q ; it is still 3.5 pF.

(c) The potential difference becomes

$$\Delta V = \frac{q}{C} = \frac{200 \text{ pC}}{3.5 \text{ pF}} = 57 \text{ V}.$$