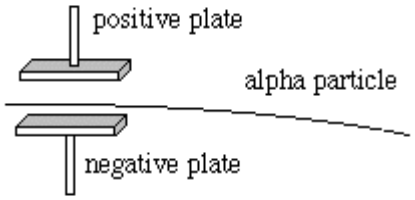
ELECTRIC FIELD & CAPACITOR
MODEL SOLUTION

1.



Electric field, E = V / d
$= 2000 / 10 \times 10^{-3}$
$= \underline{2.0 \times 10^{5}\ V\ m^{-1}}$

Electric force, F = QE
$= [2 \times 1.6 \times 10^{-19}][2.0 \times 10^{5}]$
$= \underline{6.4 \times 10^{-14}\ N}$

2. Capacitors in Parallel
Charge on C_1, Q = CV
$= 12\mu \times 6$
$= \underline{72\mu C}$

Energy $= \frac{1}{2} CV^2$
$= \frac{1}{2} \times 12\mu \times 6^2$
$= \underline{216\ \mu J}$

Capacitors in Series
Charge on C_2, Q = CV
$= [12^{-1} + 12^{-1}]^{-1}\ \mu \times 6$
$= \underline{36\ \mu C}$

Total energy stored on C_1 and $C_2 = \frac{1}{2} [12^{-1} + 12^{-1}]^{-1}\ \mu \times 6^2$
$= \underline{108\ \mu J}$

PREPARED BY MR.DERYK NG
UCSI UNIVERSITY
A LEVEL ACADEMY