

6(a)	series charges: $Q_s = Q_1 = Q_2$
	series p.d.s: $V_s = V_1 + V_2$
	parallel charges: $Q_s = Q_1 + Q_2$
	parallel p.d.s: $V_s = V_1 = V_2$
6(b)(i)	$E = \frac{1}{2} CV^2$
	$\text{p.d.} = [(2 \times 19 \times 10^{-3}) / (470 \times 10^{-6})]^{1/2}$ $= 9.0 \text{ V}$
6(b)(ii)	$E = Q^2 / 2C$ or $C = Q / V$
	$Q = (19 \times 10^{-3} \times 2 \times 470 \times 10^{-6})^{1/2}$ or $Q = 470 \times 10^{-6} \times 9.0$ $Q = 4.2 \times 10^{-3} \text{ C}$
	total charge unchanged
	total capacitance = $(470 + 180) \times 10^{-6} \text{ (F)}$
6(b)(iii)	$E = Q^2 / 2C = (4.23 \times 10^{-3})^2 / (2 \times 650 \times 10^{-6}) \quad (= 0.014 \text{ J})$
	$E = 14 \text{ mJ}$