

Chapter 24 – Suggested problems

14, 16, 25, 32, 35, 39, 59, 60, 63, 64, 66, 71

Solutions of even suggested problems

- (14) (a) 20 pF
(b) 8.6 pF

- (16) (a) $Q = 9.75 \times 10^{-5} \text{ C}$
(b) $V_1 = 32.5 \text{ V}$, $V_2 = 19.5 \text{ V}$

- (32) (a) $Q = 2.4 \mu\text{C}$
(b) $Q = 2.4 \mu\text{C}$ in each capacitor
(c) 43.2 μF
(d) 150 nF $\rightarrow u = 19.2 \mu\text{J}$ 120 nF $\rightarrow u = 24 \mu\text{J}$
(e) 150 nF $\rightarrow 16 \text{ V}$ 120 nF $\rightarrow 20 \text{ V}$

- (60) (a) $V_{cd} = 70 \text{ V}$
(b) 105 V
(c) 315 μC

- (64) 7200 μC

(66) (a) $\frac{\epsilon_0 A}{d - a}$
(b) $C_0 \frac{d}{d - a}$

- (c) Metal slab has no effect if it is thin. $V = E y$, $Q = C V \rightarrow$ very large C