

Electricity Review

① B

② C

③ D

④ C

⑤ A

⑥ D

⑦ A

⑧ C

⑨ A

⑩ B

⑪ C

⑫ A

⑬ B

⑭ electrons

⑮ Series

⑯ omit

⑰ $V = \frac{P}{I}$

$$P = 5.00 \text{ W}$$

$$I = 5.00 \text{ A}$$

$$V = \frac{5.00 \text{ W}}{5.00 \text{ A}} = \boxed{1.00 \text{ V}}$$

⑱ $I = V/R$

$$V = 120 \text{ V}$$

$$R = 280 \Omega$$

$$I = \frac{120 \text{ V}}{280 \Omega} = \boxed{0.430 \text{ A}}$$

⑲ omit

⑳ Ampere

㉑ High

$$25) a) \frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$$

$$R_T = \frac{1}{4.0\Omega} + \frac{1}{6.0\Omega} + \frac{1}{10.0\Omega} = \boxed{1.94\Omega}$$

$$b) I_T = I_1 + I_2 + I_3$$

$$3A + 2.0A + 1.2A = \boxed{6.20A}$$

$$26) V = IR$$

$$R = 1.0 \times 10^5 \Omega$$

$$I = 0.015 A$$

$$V = (0.015 A)(1.0 \times 10^5 \Omega)$$

$$= 1500 V$$

$$\boxed{1.50 \times 10^3 V}$$

$$27) F_e = \frac{k q_1 q_2}{r^2}$$

$$q_1 = 4.0 \times 10^{-6} C$$

$$q_2 = -8.0 \times 10^{-6} C$$

$$r = 0.03 m$$

$$F_e = \frac{(8.99 \times 10^9 \frac{N \cdot m^2}{C^2})(4.0 \times 10^{-6} C)(-8.0 \times 10^{-6} C)}{0.03^2}$$

$$= -319.6 N$$

$$\boxed{-3.20 \times 10^2 N}$$

$$28) I = q/t$$

$$q = 10.0 C$$

$$I = 2.25 A$$

$$t = \frac{q}{I} = \frac{10.0 C}{2.25 A} = \boxed{4.44 s}$$

$$29) P = \frac{V^2}{R}$$

$$R = 45 \Omega$$

$$P = 80W$$

$$V = \sqrt{RP} = \sqrt{(45\Omega)(80W)} \\ = \boxed{60.0V}$$

$$30) I = V/R$$

$$V = 120V$$

$$R = 55 \Omega$$

$$I = \frac{120V}{55\Omega} = \boxed{2.18A}$$

$$31) I = q/t$$

$$I = 0.83A$$

$$\# e = 1.90 \times 10^{22}$$

$$q_e = (1.90 \times 10^{22})(1.6 \times 10^{-19}C) = 3040C$$

$$t = q/I = \frac{3040C}{0.83A} = 3662 \\ = \boxed{3.66 \times 10^3 s}$$

$$32) F_e = \frac{Kq_1q_2}{r^2} = \frac{Kq_1q_2}{2^2}$$

- ① $F = \text{quadruple the force}$
 ② $F = \text{double the force}$