

Ch 2 (5abc, 17, 25, 32, 37, 42, 45)

2-5abc

- a) GOOD CONDUCTOR - FEW VALENCE ELECTRONS (≤ 3) MEANS MORE FREE ELECTRONS, ALLOWING FREE FLOW OF CURRENT
- b) COPPER -
- 1) RELATIVELY INEXPENSIVE
 - 2) EASILY FORMED INTO WIRES
- c) INSULATOR - FULL (OR NEARLY FULL) VALENCE SHELL

2-17

GIVEN: 360 J READ TO TX IS C OF CHG

READ: BATTERY VOLTAGE

SOLN:

$$V = \frac{W}{Q} = \frac{360 \text{ J}}{15 \text{ C}} = \boxed{24 \text{ V}}$$



2-25

GIVEN: 250 μC OF CHARGE PASSES THROUGH AMMETER IN 5 msec

READ: CURRENT READING

SOLN:

$$I = \frac{Q}{t} = \frac{250 \times 10^{-6} \text{ C}}{5 \text{ msec}} \left| \frac{1000 \text{ msec}}{\text{sec}} \right| \frac{1 \text{ A}}{1 \text{ C/sec}} = 0.05 \text{ A} = \boxed{50 \text{ mA}}$$

2-32

READ: AT 8 AMPS, HOW LONG DOES IT TAKE $312 \times 10^{19} e$ TO PASS

SOLN

$$I = \frac{Q}{t} \Rightarrow t = \frac{Q}{I} = \frac{312 \times 10^{19} e}{8 \text{ AMPS}} \left| \frac{1 \text{ C}}{6.24 \times 10^{18} e} \right| = \boxed{62.4 \text{ sec}}$$

2-37GIVEN: A BATTERY IS RATED AT 1400 MAhREQD: How long will battery last at 28mA DISCHARGESOLN

$$\text{life} = \frac{\text{Capacity}}{\text{discharge}} = \frac{1400 \times 10^{-3} \text{ Ah}}{28 \times 10^{-3} \text{ A}} = \boxed{50 \text{ hrs}}$$

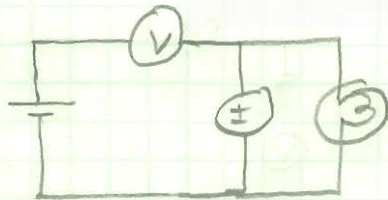
2-42REQD: DETERMINE METER READINGSOLN:

a) + 25V

b) + 25V

c) + 14V

d) - 6V

2-45GIVENREQD: FIX CIRCTSOLN