

Electrochemistry  
Numerical

①

$$i = 3A$$

$$t = 20 \text{ min} \\ = 20 \times 60 \\ = \underline{\underline{1200 \text{ sec}}}$$

$$m = 4 \text{ gm}$$

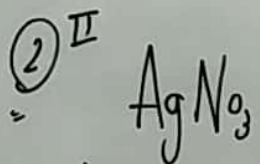
$$Z = ?$$

$$m = Z \cdot i \cdot t$$

$$4 = Z \times 3 \times 1200$$

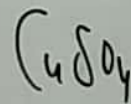
$$Z = \frac{1}{900} \text{ gm/Coulomb}$$

②<sup>II</sup>



$$m_{\text{Ag}} = 1.322$$

$$E_{\text{Ag}} = ?$$



$$m_{\text{Cu}} = 0.390 \text{ gm}$$

$$E_{\text{Cu}} = 31.8$$

$$\frac{m_{\text{Ag}}}{m_{\text{Cu}}} = \frac{E_{\text{Ag}}}{E_{\text{Cu}}}$$

$$\frac{1.322}{0.390} = \frac{E_{\text{Ag}}}{31.8}$$

$$E_{\text{Ag}} = \frac{1.322}{390} \times 31.8$$

3

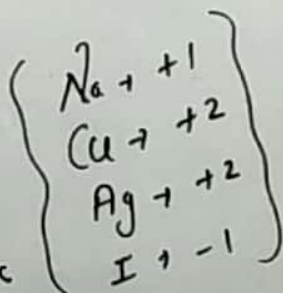
$$i = 0.5 \text{ A}$$

$$t = 30 \text{ min}$$

$$= 30 \times 60$$

$$= 1800 \text{ sec}$$

$$m = ?$$



$$\frac{m}{Q_{\text{tot}}} \times \text{Charge} = \frac{it}{96500}$$

$$\therefore \frac{m}{63.5} \times 2 = \frac{0.5 \times 1800}{96500}$$

$$m = 0.5 \times 1800 \times 63.5$$

4

Ag

$$m = 20.14$$

$$i = 5 \text{ A}$$

$$t = 70 \text{ min} = 70 \times 60$$

$$Z = ? \quad = 4200 \text{ sec}$$

$$m = Zit$$

$$20.14 = \cancel{Z} \times 5 \times 4200$$

5

$\text{AgNO}_3$        $\text{CuSO}_4$

$$E_{\text{Ag}} = 108 \quad E_{\text{Cu}} = 31.5$$

$$m_{\text{Ag}} = 45 \quad m_{\text{Cu}} = ?$$

$$\frac{m_{\text{Ag}}}{m_{\text{Cu}}} = \frac{E_{\text{Ag}}}{E_{\text{Cu}}}$$

$$\frac{45}{m_{\text{Cu}}} = \frac{108}{31.5}$$

6  $m = 10 \text{ gm}$

$$t = 1 \text{ hr} = 3600 \text{ sec}$$

$$i = ?$$

8.c

$$\text{at } \frac{m}{\omega t} \times \text{Charge} = \frac{it}{96500}$$

$$\frac{10}{127} \times 1 = \frac{i \times 3600}{96500}$$

$$7 \quad m = ?$$

$$i = 12 \text{ A}$$

$$t = 2 \text{ hr} = 2 \times 3600 \\ = 7200$$

$$\frac{m}{Q + wt} \times \text{Charge} = \frac{it}{96500}$$

$$\frac{m}{63.5} \times 2 = \frac{12 \times 7200}{96500}$$

8

$$i = 0.25 \text{ A}$$

$$t = 1 \text{ hr} = 3600 \text{ sec}$$

$$m = ?$$

$$\frac{m}{Q + wt} \times \text{Charge} = \frac{it}{96500}$$

$$\frac{m}{63.5} \times 2 = \frac{0.25 \times 3600}{96500}$$

5/1

$$i = 0.5 \text{ A}$$

$$t = 30 \times 60 = 1800 \text{ sec}$$

$$M = 1.006$$

$$Z = ?$$

$$M = Z \cdot i \cdot t$$

$$1.006 = Z \times \frac{0.5 \times 1800}{1000} \text{ } q_{00}$$

$$Z = \frac{1.006}{900} \text{ gm/Coulomb}$$