

- Q.1** Salts of A (atomic mass 7), B (atomic mass 27) and C (atomic mass 48) were electrolyzed using the same amount of charge. It was found that when 2.1 g of A was deposited, the mass of B and C deposited were 2.7g and 7.2g. The valencies of A, B and C respectively.
- (A) 2, 3 and 2
(B) 1, 3 and 2
(C) 2, 6 and 3
(D) 3, 1 and 2
- Q.2** A current of 3 A was passed for 2 h through a solution of CuSO_4 , 3 g of Cu^{2+} ions were discharged at cathode. The current efficiency is
- (A) 21.5%
(B) 42.2%
(C) 10%
(D) 40.01%
- Q.3** How many faradays are required to reduce one mol of MnO_4^- to Mn^{2+} :-
- (A) 1
(B) 2
(C) 3
(D) 5
- Q.4** Three faradays of electricity was passed through an aqueous solution of iron (II) bromide. The mass of iron metal (at. mass 56) deposited at the cathode is -
- (A) 56 g
(B) 84 g
(C) 112 g
(D) 168 g

SOLUTION

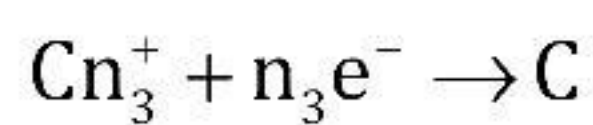
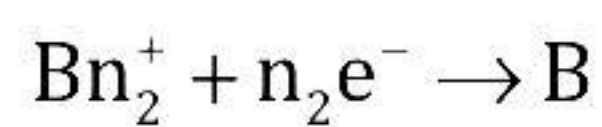
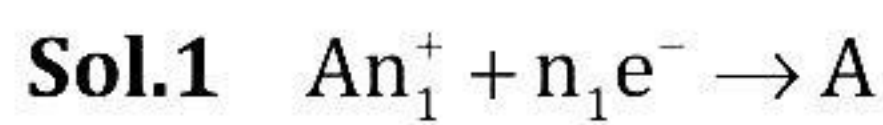
(CHEMISTRY)

ELECTROCHEMISTRY

DPP – 09

CLASS –12th

TOPIC – PRACTICE QUESTIONS



Since charged is same

\therefore Eq wt is same

$$\therefore \frac{2.1}{n_1} = \frac{2.7}{n_2} = \frac{7.2}{n_3}$$

$$\therefore \frac{3 \times n_1}{10} = \frac{1 \times n_2}{10} = \frac{3 \times n_3}{2 \times 10}$$

$$\therefore n_1 \frac{n_2}{3} = \frac{n_3}{2}$$

$$\therefore n_1 = 1$$

$$\therefore n_2 = 3$$

$$\therefore n_3 = 2$$

Option B is correct.

Sol.2 According to law of electrolysis, Mass deposited = Zit

$$\text{Or } i = \frac{m \times 96500}{t \times \text{Eq.wt}};$$

$$Z = \frac{\text{Eq.wt}}{96500};$$

$$\text{Eq.wt} = \frac{\text{At.wt}}{\text{oxidation number}};$$

$$\therefore i = \frac{3 \times 96500 \times 2}{63.5 \times 7200};$$

1.266 A

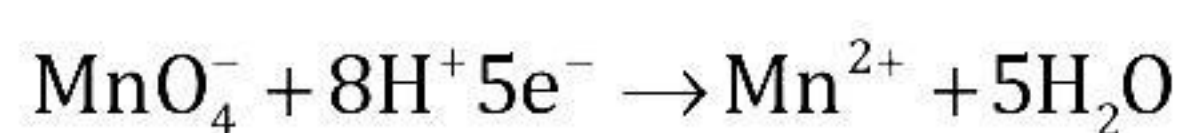
Efficiency of current is given by,

$$= \frac{\text{Current used}}{\text{Total Current passed}} \times 100$$

$$= \frac{1.255}{3} \times 100 = 42.22\%$$

Hence, option B is correct

Sol.3 Correct option

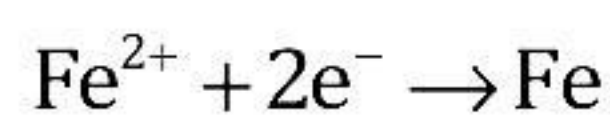


1 mole of MnO_4^- requires 5 mole of electrons = 5 faradays.

Sol.4 correct option is B

3 Faradays of electricity was passed through an aqueous solution of iron (II) bromide.

3 F of electricity = 3 moles of electrons



2 moles of electrons gives 1 mole of Fe

3 moles of electrons gives = $\frac{3}{2}$ moles of Fe

$$= \frac{3}{2} \times 56 = 84\text{g}$$

Hence, 84 g of iron metal is deposited at the cathode.