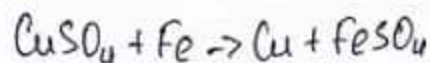


9-2



Бер:

$$V(\text{CuSO}_4) = 70 \text{ мл} = 0,07 \text{ л}$$

$$C(\text{CuSO}_4) = 0,64$$

$$M(\text{Fe}) = 56$$

$$T/K \text{ } m_{\text{Fe}} - ?$$

$$V = \frac{m}{M}$$

$$V(\text{Fe}) = \frac{m}{M} = 0,125 \text{ моль}$$

$$V = C \cdot V$$

$$V(\text{CuSO}_4) = 0,6 \cdot 0,07 = 0,042 \text{ моль}$$

$$m(\text{Cu}) = V \cdot M = 0,042 \cdot 64 = 2,688 \text{ г}$$

$$m(\text{Fe}) = V \cdot M = 0,042 \cdot 56 = 2,352 \text{ г}$$

$$m = 2,352$$

$$m = (8 - 0,042 \cdot 56) + 0,042 \cdot 64 = 8 - (2,352 + 2,688) = 8 - 5,04 = 2,958 \text{ г}$$

9-3

Бер:

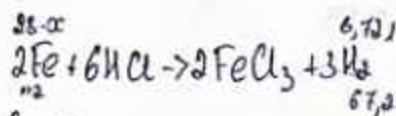
$$m(\text{Fe}) = 2,56 \text{ г}$$

$$V(\text{H}_2) = 6,72 \text{ л}$$

$$T/K \text{ } V(\text{H}_2) - ?$$

$$\omega(\text{Cu}) - ?$$

$$\omega(\text{Fe}) - ?$$



$$M(\text{Fe}) = 2 \cdot 56 = 112 \text{ г/моль}$$



$$V = \frac{V}{V_m}$$

$$V(\text{H}_2) = \frac{6,72}{22,4} = 0,3 \text{ моль}$$

$$28,0 \text{ Fe} \xrightarrow{\quad} 6,72 \text{ H}_2$$

$$112 \text{ Fe} \xrightarrow{\quad} 67,2 \text{ H}_2$$

$$28 - x = \frac{112 \cdot 6,72}{67,2}$$

$$28 - x = 11,2$$

$$x = 28 - 11,2$$

$$x = 16,8 \text{ Cu}$$

$$m(\text{Fe}) = 28 - 16,8 = 11,2$$

$$\omega(\text{Fe}) = 28 - 16,8 = 11,2$$

$$\omega(\text{Cu}) = \frac{16,8}{28} \cdot 100\% = 60\%$$

$$\text{Найдём: } \nu(\text{H}_2) = 0,1 \text{ моль}$$

$$\omega(\text{Cu}) = 60\%$$

$$\omega(\text{Fe}) = 40\%$$

4.

Бер:

$$\omega(\text{H}_2\text{SO}_4) = 25,56\%$$

$$\rho(\text{H}_2\text{SO}_4) = 1,042 \text{ г/мл}$$

$$V(\text{H}_2\text{SO}_4) = 120 \text{ мл}$$

$$\omega(\text{KOH}) = 18,15\%$$

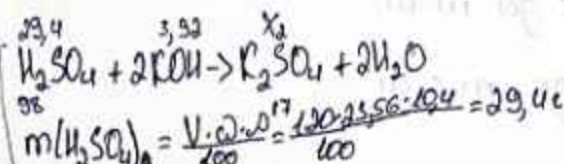
$$\rho(\text{KOH}) = 1,08 \text{ г/мл}$$

$$V(\text{KOH}) = 200 \text{ мл}$$

$$T/\text{г } \nu(\text{KOH}) - ?$$

$$m(\text{K}_2\text{SO}_4) - ?$$

$$\omega(\text{K}_2\text{SO}_4) - ?$$



$$m(\text{H}_2\text{SO}_4) = \frac{V \cdot \rho \cdot \omega}{100} = \frac{120 \cdot 1,042 \cdot 25,56}{100} = 29,4 \text{ г}$$

$$m(\text{KOH}) = \frac{200 \cdot 1,08 \cdot 18,15}{100} = 39,22$$

$$\mu(\text{H}_2\text{SO}_4) = 1 \cdot 2 + 32 + 16 \cdot 4 = 98 \text{ г/моль}$$

$$\mu(\text{KOH}) = 39 + 16 + 1 = 56 \text{ г/моль}$$

$$\nu(\text{H}_2\text{SO}_4) = \frac{29,4}{98} = 0,3 \text{ моль}$$

$$\nu(\text{KOH}) = \frac{39,22}{56} = 0,7 \text{ моль}$$

$$\mu(\text{K}_2\text{SO}_4) = 39 \cdot 2 + 32 + 16 \cdot 4 = 174 \text{ г/моль}$$

$$\begin{array}{r} 3,92 \\ 112 \end{array} \text{ — } x$$

$$x = 6,092 \text{ K}_2\text{SO}_4$$

5.

Бер:

$$m = 3,92$$

$$C = 13,22 \text{ оксиг}$$

$$\text{H}_2\text{O} = 2,7$$

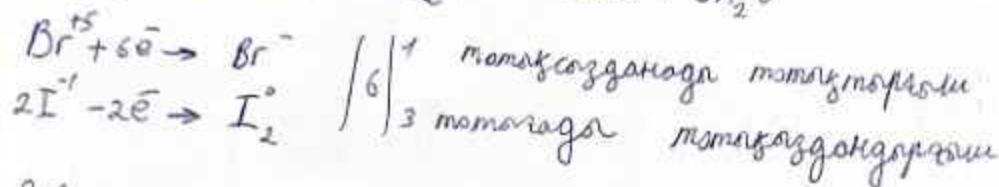
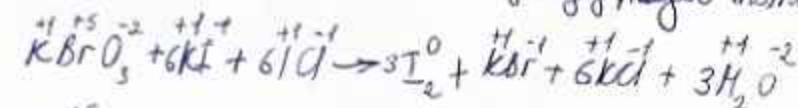
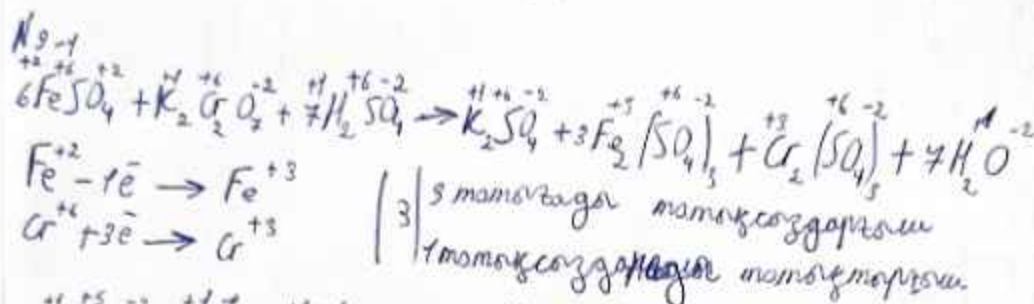
$$\text{брутто } \text{FeSO}_4 \cdot x\text{H}_2\text{O} = 39$$

$$1. \frac{3,92}{56} = 0,1 \text{ моль}$$

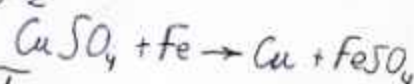
$$2. 13,22 + 2,7 \cdot 2 = 15,92$$

$$\frac{15,92}{56} = 0,41 \text{ моль}$$

$$3. \text{С.о.с. } \text{H}_2\text{O} = 39$$



9-2



Дер:

$$V(\text{CuSO}_4) = 70 \text{ мл} = 0,07 \text{ л}$$

$$C(\text{CuSO}_4) = 0,6 \text{ М}$$

$$n(\text{Fe}) = 82$$

$$T/K \text{ } m_{\text{осад}}(\text{Fe}) - ?$$

$$V = \frac{n}{C}$$

$$V(\text{Fe}) = \frac{82}{56} = 1,46 \text{ ММ}$$

$$V = C \cdot V$$

$$V(\text{CuSO}_4) = 0,6 \cdot 0,070 = 0,042 \text{ МММ}$$

$$m(\text{Cu}) = V \cdot M = 0,042 \cdot 64 = 2,688 \text{ г}$$

$$m(\text{Fe}) = V \cdot M = 0,042 \cdot 56 = 2,352 \text{ г}$$

$$m = 8 \cdot 2,35$$

$$m = 18,8 + 0,042 \cdot 56 + 0,042 \cdot 64 = 5,648 + 2,688 = 8,336$$

9-3

Дер:

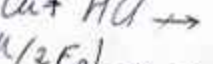
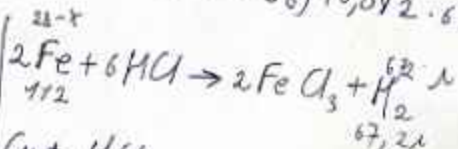
$$m(\text{осад}) / \text{Cu} + \text{Fe} = 282$$

$$V(\text{роз}) = 6,72 \text{ л}$$

$$T/K \text{ } V(\text{роз}) - ?$$

$$Q(\text{Cu}) - ?$$

$$Q(\text{Fe}) - ?$$



$$M(2\text{Fe}) = 2 \cdot 56 = 112 \text{ г/моль}$$

$$V = \frac{V}{V_m}$$

$$V(\text{H}_2) = \frac{6,72}{67,2} = 0,1 \text{ МММ}$$

$$28 - x \text{ Fe} \xrightarrow{112} 6,72 \text{ л H}_2$$

$$x \text{ Fe} \xrightarrow{67,2} 6,72 \text{ л H}_2$$

$$28 - x = \frac{112 \cdot 6,72}{67,2}$$

$$28 - x = 11,2$$

$$x = 28 - 11,2$$

$$x = 16,8 \text{ г Cu}$$

$$m(\text{Fe}) = 28 - 16,8 = 11,2 \text{ г}$$

3-1

Тер:

$$\omega(H_2SO_4) = 23,56\%$$

$$\rho(H_2SO_4) = 1,042 \text{ g/ml}$$

$$V(H_2SO_4) = 120 \text{ ml}$$

$$\omega(KOH) = 18,15\%$$

$$\rho(KOH) = 1,082 \text{ g/ml}$$

$$V(KOH) = 200 \text{ ml}$$

$$T/K \quad \rho(KOH) - ?$$

$$m(K_2SO_4) - ?$$

$$\omega(K_2SO_4) - ?$$

