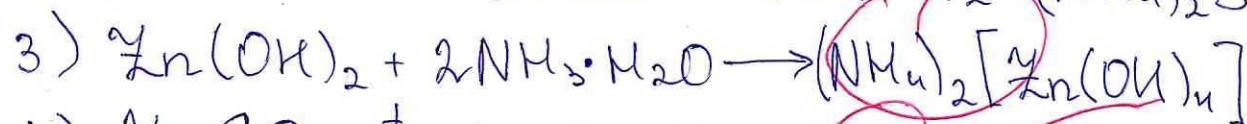
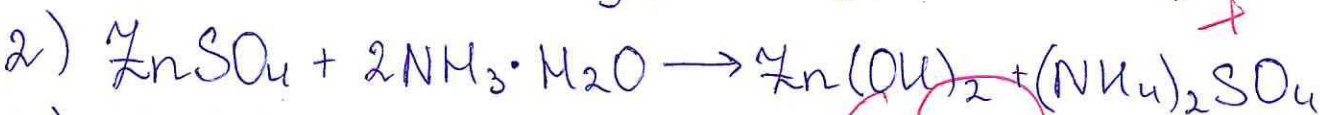


49

Задача 2.1.



1	2
2	4
3	4
4	5
5	8
6	6
7	6
8	1
9	12
10	2

Задача 4.1.



1) $n(Na_2XO_n) = \frac{20,6}{23 \cdot 2 + M(X) + 64} = \frac{20,6}{110 + M(X)}$ моль

$n(H_2XO_n) = \frac{16,2}{2 + 64 + M(X)} = \frac{16,2}{66 + M(X)}$ моль

$n(Na_2XO_n) = n(H_2XO_n) = \frac{20,6}{110 + M(X)} = \frac{16,2}{66 + M(X)}$

$20,6(66 + M(X)) = 16,2(110 + M(X))$

$1359,6 + 20,6M(X) = 1782 + 16,2M(X)$

$4,4M(X) = 422,4$

$M(X) = 96 \Rightarrow X \rightarrow Mo; H_2MoO_4; Na_2MoO_4$



$n(MoO_3) = \frac{14,4}{96 + 48} = 0,1$ моль

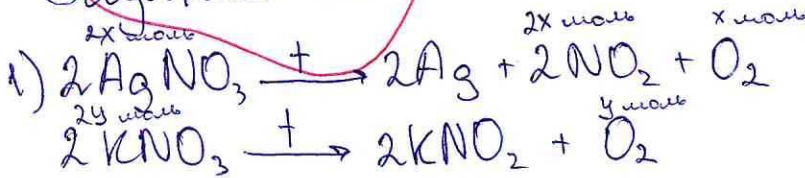
$n(HI) = 0,2$ моль

$m(HI) = 0,2 \cdot (1 + 127) = 25,6$ г

Ответ: $H_2MoO_4; 25,6$ г.



Задача 5.1



$$D_{\text{He}} = 10 \Rightarrow \frac{M_{\text{см}}}{M(\text{He})} = 10 \rightarrow M_{\text{см}} = 4 \cdot 10 = 40 \text{ г/моль}$$

$$M_{\text{см}} = \varphi_1 \cdot M(\text{NO}_2) + \varphi_2 \cdot M(\text{O}_2) = 40$$

$$\varphi_1 = 1 - \varphi_2 \Rightarrow (1 - \varphi_2) \cdot 46 + \varphi_2 \cdot 32 = 40$$

$$46 - 46\varphi_2 + 32\varphi_2 = 40$$

$$6 = 14\varphi_2$$

$$\varphi_2 = 0,43$$

$$\varphi_1 = 1 - 0,43 = 0,57$$

$$\varphi(\text{NO}_2) = \frac{V(\text{NO}_2)}{V(\text{NO}_2) + V(\text{O}_2)} = \chi(\text{NO}_2) = \frac{\nu(\text{NO}_2)}{\nu(\text{NO}_2) + \nu(\text{O}_2)} = 0,57$$

$$\varphi(\text{O}_2) = \frac{V(\text{O}_2)}{V(\text{NO}_2) + V(\text{O}_2)} = \chi(\text{O}_2) = \frac{\nu(\text{O}_2)}{\nu(\text{NO}_2) + \nu(\text{O}_2)} = 0,43$$

Пусть $\nu(\text{NO}_2) = 2x$ моль, тогда $\nu(\text{O}_2)$ из реакции с $\text{AgNO}_3 = x$ моль

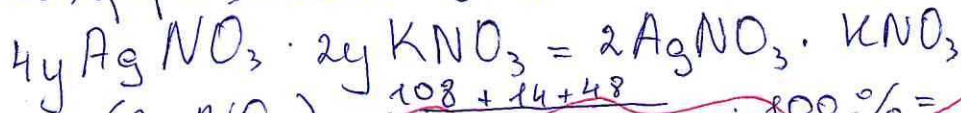
$\nu(\text{O}_2)$ из р-ции с $\text{KNO}_3 = y$ моль, тогда:

$$\left\{ \begin{array}{l} \frac{2x}{2x + x + y} = 0,57 \\ \frac{x + y}{2x + x + y} = 0,43 \end{array} \right. \rightarrow \left\{ \begin{array}{l} 2x = 0,57(3x + y) \\ x + y = 0,43(3x + y) \end{array} \right. \rightarrow \left\{ \begin{array}{l} 2x = 1,71x + 0,57y \\ x + y = 1,29x + 0,43y \end{array} \right.$$

$$\left\{ \begin{array}{l} 0,29x = 0,57y \\ 0,29x = 0,57y \end{array} \right. \rightarrow x = 2y$$



Коэффициенты в ст. ве: $2x \text{AgNO}_3 \cdot 2y \text{KNO}_3 \Rightarrow$

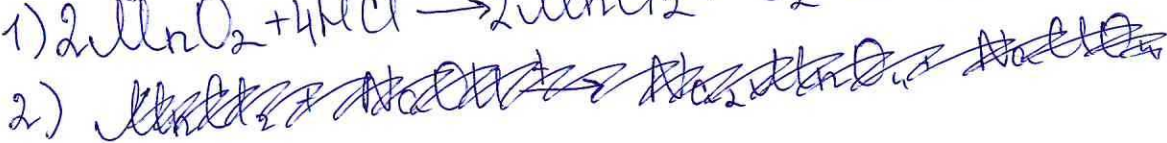


$$2) \omega(\text{AgNO}_3) = \frac{108 + 14 + 48}{108 + 14 + 48 + 39 + 14 + 48} \cdot 100\% = 62,73\%$$

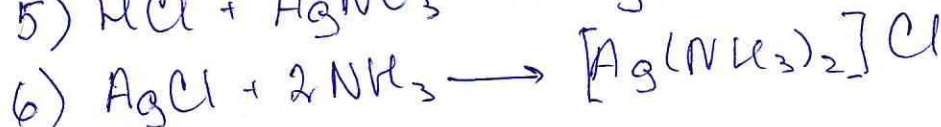
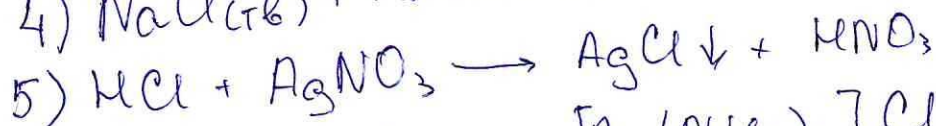
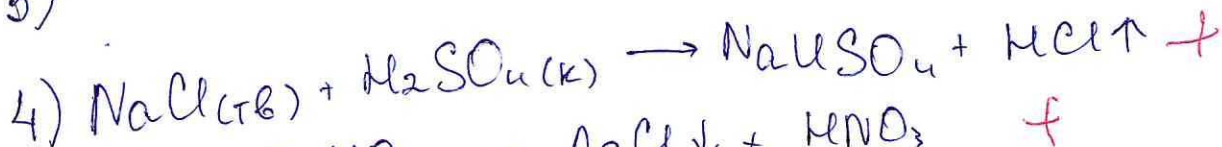
Ответ: 62,73%

арифм. средн!

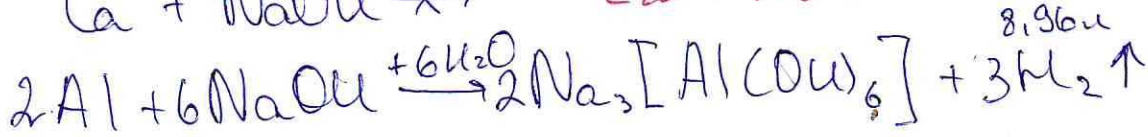
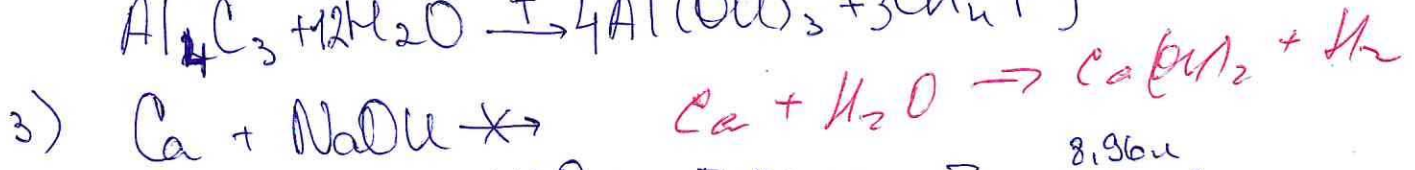
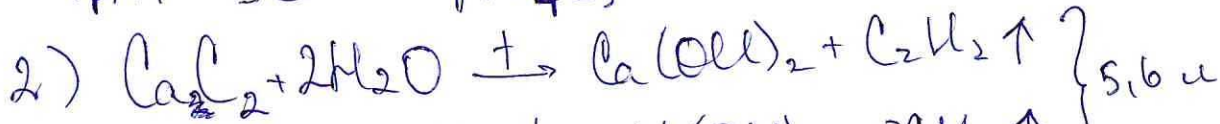
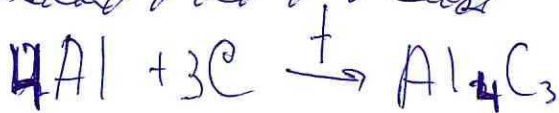
Задача 6.1.



3)



Задача 7.1.



1. $n(H_2) = \frac{8,96}{22,4} = 0,4$ моль

$n(Al) = 0,267$ моль

$n(Al_4C_3) = 0,067$ моль

$n(CH_4) = 0,201$ моль

$n_{CaC_2} = 5,6 : 22,4 = 0,25$ моль

$n(C_2H_2) = 0,25 - 0,201 = 0,049$ моль = $n(CaC_2) = n(Ca)$

2. $m(Al) = 0,267 \cdot 27 = 7,209$ г

$m(Ca) = 0,049 \cdot 40 = 1,96$ г

$m_{сплав} = 7,209 + 1,96 = 9,169$ г

Ответ: 9,169 г



Задача 1.1

$$1) \omega(B) = 100\% - 40\% - 28\% = 2\%$$

$$m(A) = 100 \cdot 0,7 = 70 \text{ г}$$

$$m(B) = 100 \cdot 0,02 = 2 \text{ г}$$

$$\nu(A) = \frac{70}{12 \cdot 12 + 1 \cdot 4 + 35,5 \cdot 4 + 2 \cdot 16} = 0,217 \text{ моль}$$

$$\nu(B) = \frac{2}{12 \cdot 6 + 1 \cdot 2 + 35,5 \cdot 3 + 16 + 23} = 0,009 \text{ моль}$$

$$\nu(Cl)_A = 0,217 \cdot 4 = 0,868 \text{ моль}$$

$$\nu(Cl)_B = 0,009 \cdot 3 = 0,027 \text{ моль}$$

$$\nu(Cl)_{\text{общ}} = 0,868 + 0,027 = 0,895 \text{ моль}$$

$$m(Cl)_{\text{общ}} = 0,895 \cdot 35,5 = 31,7725 \text{ г}$$

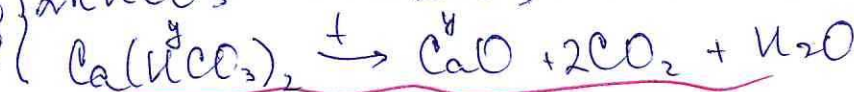
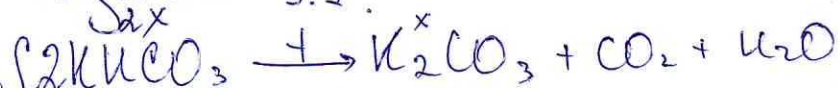
$$\omega(Cl) = \frac{31,7725}{100} \cdot 100\% = 31,7725\% \sim 31,77\%$$

Ответ: 31,77%

арифметическая средняя

окислительная

Задача 3.1



*по условию
Д. Д СаСО₃*

$$2x \cdot 100 + y \cdot 162 = 250$$

$$x = \frac{250 - 162y}{200}$$

$$x = 1,25 - 0,81y$$

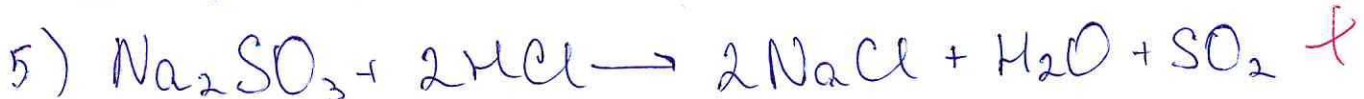
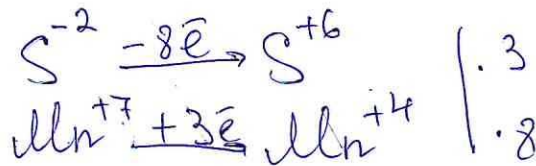


Задача 9.1.



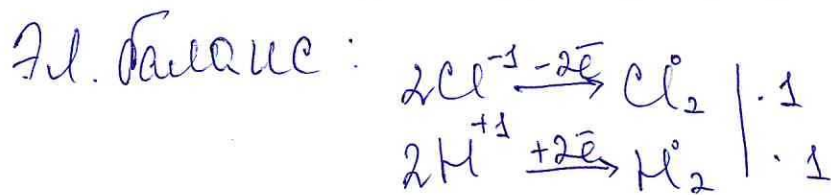
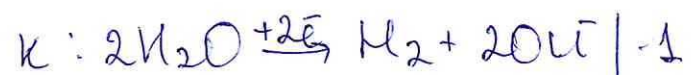
S^{-2} → восстановитель (H_2S)

N^{+5} → окислитель (HNO_3)



Cl^- → восстановитель

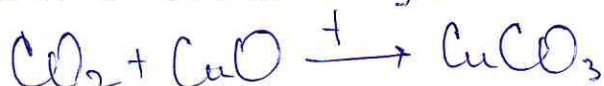
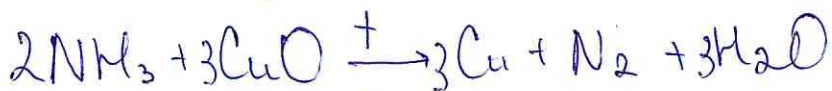
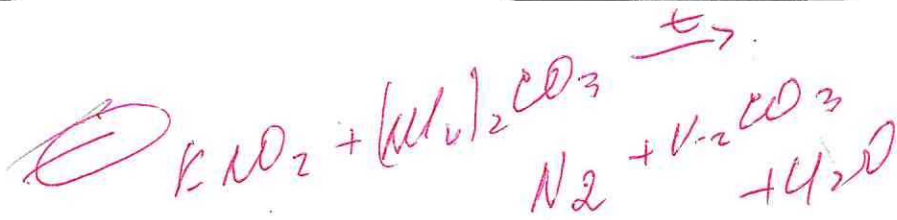
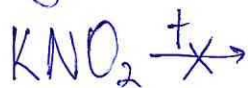
H^0 → окислитель



СЕЧЕНОВСКИЙ
УНИВЕРСИТЕТ

□ □ □ □ □

Задача 10.1



Пусть $\nu(\text{KNO}_2) = x$ моль, $\nu(\text{NH}_4)_2\text{CO}_3 = y$ моль, тогда:

$$\frac{2x + 3y}{x} = 8 \rightarrow 8x = 2x + 3y \rightarrow 6x = 3y \rightarrow 2x = y \Rightarrow$$

$$\Rightarrow \text{KNO}_2 : (\text{NH}_4)_2\text{CO}_3 = 2 : 1, \nu(\text{NH}_4)_2\text{CO}_3 = 2x$$

$$\Rightarrow \nu(\text{NH}_3) = 4x \text{ моль}, \nu(\text{CO}_2) = 2x \text{ моль} \Rightarrow$$

$$\Rightarrow V_{\text{газов-1}} = (4x + 2x) \cdot 22,4 = 134,4x \text{ л}$$

$$\nu(\text{N}_2) = 2x \text{ моль} \rightarrow V(\text{N}_2) = 44,8x \text{ л}$$

$$\frac{V(\text{N}_2)}{V_{\text{смеси-1}}} = \frac{44,8x}{134,4x} = \frac{1}{3} \rightarrow \text{уменьшился в 3 раза}$$

Ответ: объём уменьшился в 3 раза.

