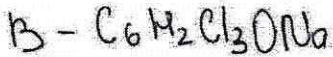
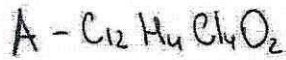


Задача 1.1



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

$m(B) = 100 \cdot 0,28 = 28 \text{ г}$ +

$M(A) = 322 \text{ г/моль}$

$m(Cl \text{ в } 1 \text{ моль } A) = 142 \text{ г}$

$M(B) = 219,5 \text{ г/моль}$

$m(Cl \text{ в } 1 \text{ моль } B) = 106,5 \text{ г}$

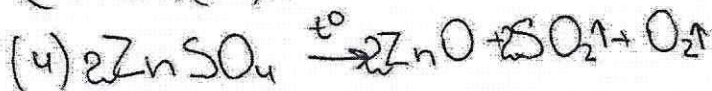
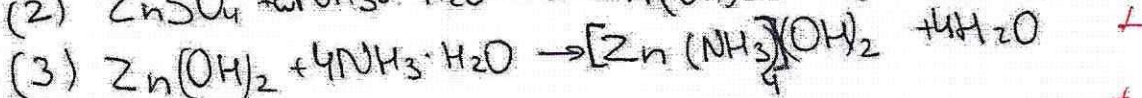
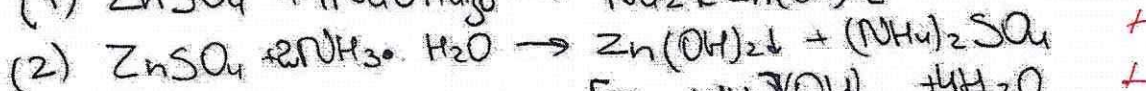
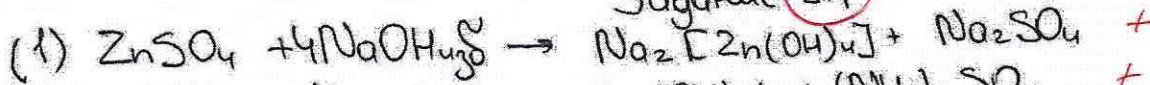
$\begin{array}{l} \text{в } 70 \text{ г } (A) - x \text{ (Cl)} \\ \text{в } 322 \text{ г} - 142 \text{ г (Cl)} \end{array} \Rightarrow x = 30,87 \text{ г}$

$\begin{array}{l} \text{в } 28 \text{ г} - x \text{ (Cl)} \\ \text{в } 219,5 \text{ г} - 106,5 \text{ г (Cl)} \end{array} \Rightarrow x = 13,59 \text{ г}$

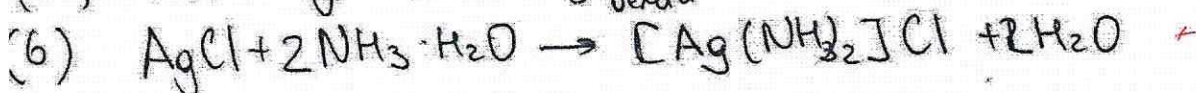
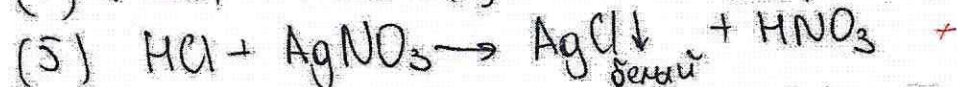
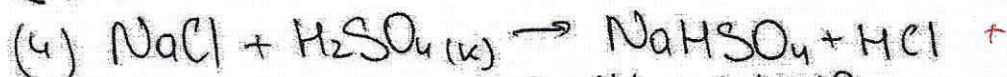
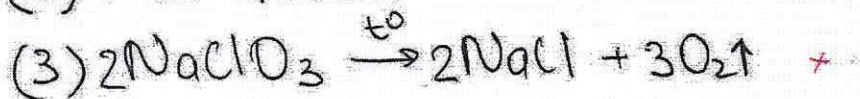
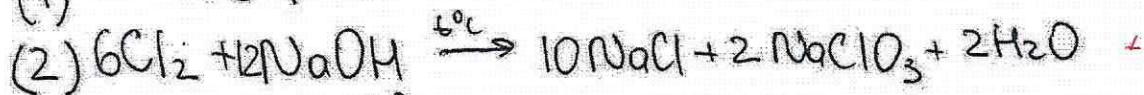
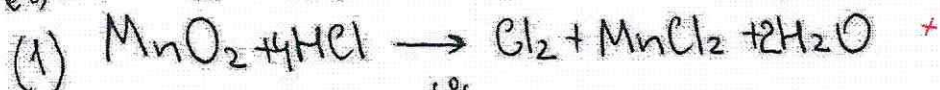
$\omega(Cl \text{ в реагенте}) = \frac{13,59 + 30,87}{100} = 0,4446 \text{ или } 44,46\%$

Ответ: 44,46%

Задача 2.1



Задача 6.1



A - HCl D - AgCl

B - Cl₂

C - NaClO₃

Задача 8.1

Пусть $\varphi(O) = x \Rightarrow \varphi(NH_3) = 3x$

⇓

$$3x + x = 1$$

$$x = 0,25$$

$$\varphi(O) = 25\% \Rightarrow \varphi(NH_3) = 75\%$$

$$M_{ф.м} = 0,25 \cdot 28 + 0,75 \cdot 17 = 19,75 \text{ г/моль}$$

В 19,75 г — 7 г (O)

В 55,3 г — x

$$\Rightarrow x = 19,6 \text{ г (n(O) = 0,7 моль)}$$

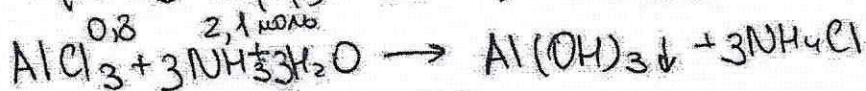
⇓

$$m(NH_3) = 35,7 \text{ г} \Rightarrow n(NH_3) = \frac{35,7}{17} = 2,1 \text{ моль}$$



Задание 8.1
(продолжение)

$$m(\text{AlCl}_3 \text{ в р-ре}) = 890 \cdot 0,12 = 106,8 \text{ г}$$



$$n(\text{AlCl}_3) = \frac{106,8}{27 + 35,5 \cdot 3} = 0,8 \text{ моль} \quad +$$

В H_2O AlCl_3

$$n(\text{Al}(\text{OH})_3) = 0,8 \text{ моль} \Rightarrow m = 54,6 \text{ г}$$

$$n(\text{NH}_4\text{Cl}) = 2,4 \text{ моль} \Rightarrow m = 112,35 \text{ г}$$

$$m(\text{H}_2\text{O}) = 19,6 \text{ г}$$

$$m_{\text{ост}}(\text{AlCl}_3) = 0,1 \cdot (27 + 35,5 \cdot 3) = 13,35 \text{ г}$$

(6)

$$\omega(\text{Al}(\text{OH})_3) = \frac{54,6}{54,6 + 112,35 + 19,6} = 0,0578 = 5,78\%$$

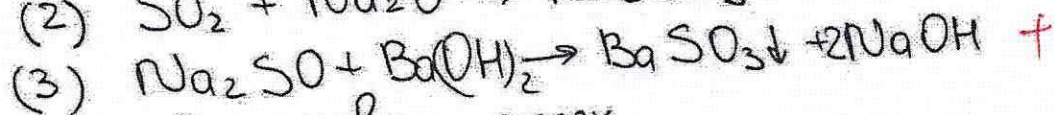
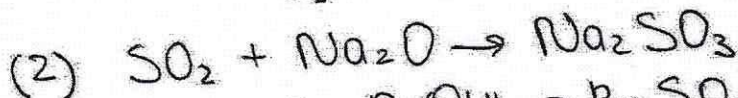
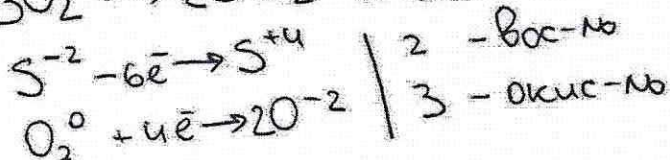
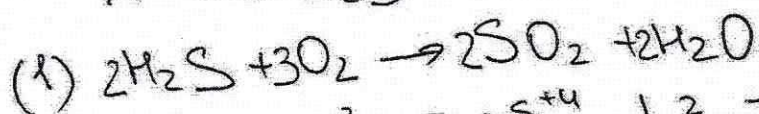
$$\omega(\text{NH}_4\text{Cl}) = \frac{112,35}{945,3} = 0,11885 = 11,885\% \quad -$$

$$\omega(\text{H}_2\text{O}) = \frac{19,6}{945,3} = 0,02 = 2\%$$

$$\omega(\text{AlCl}_3) = \frac{13,35}{945,3} = 0,014 = 1,4\% \quad \ominus$$

Задание 9.1

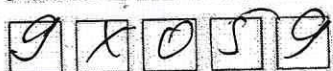
X - это H_2S

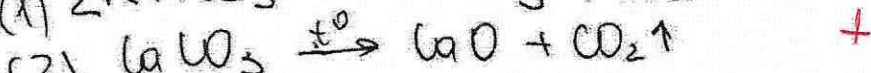
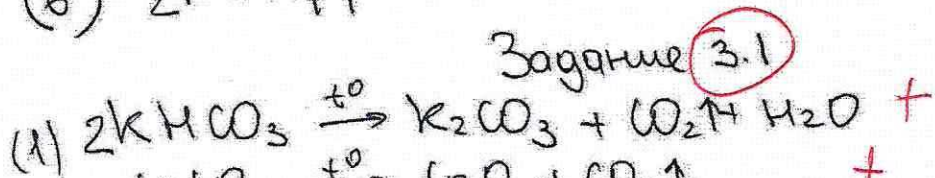
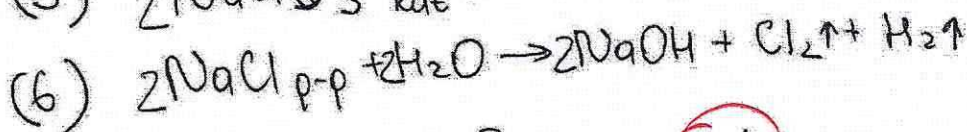
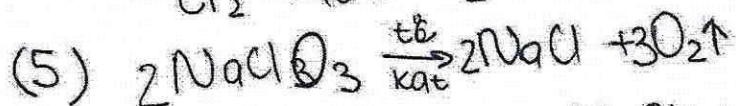
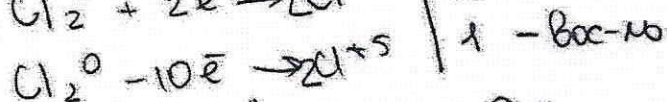
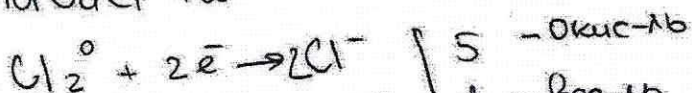
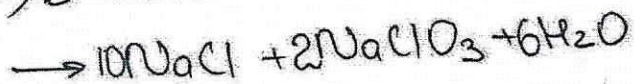
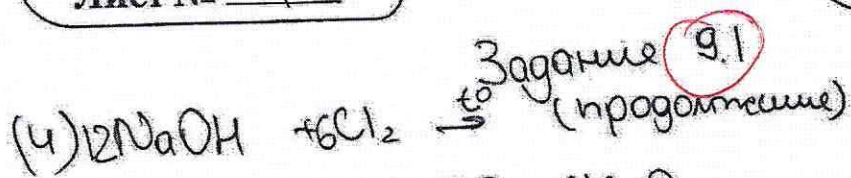


Отфильтруем осадок

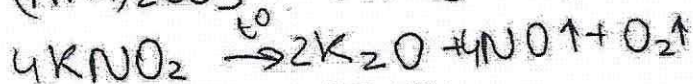
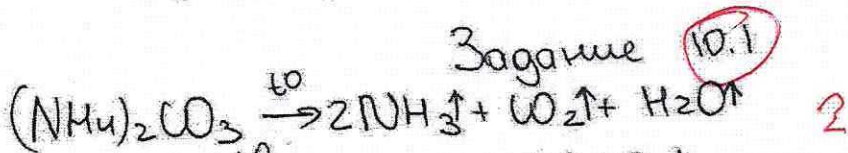


СЕЧЕНОВСКИЙ
УНИВЕРСИТЕТ

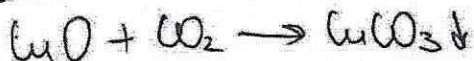




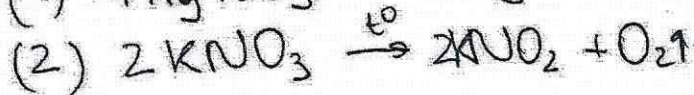
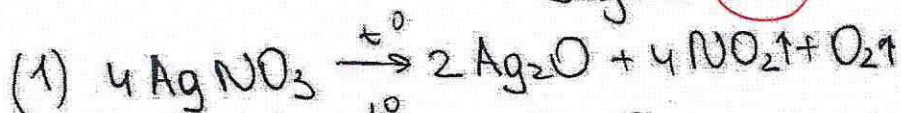
$M(\text{KHCO}_3) = M(\text{CaCO}_3) = 100 \text{ г/моль}$



~~2CaO + 2CO₂ → 2CaCO₃ ↓~~



Задача 5.1



$$D_{\text{не}} = 10 \Rightarrow M_{\text{ср. ш}} = 10 \cdot 4 = 40 \text{ г/моль}$$

$$\text{Пусть } \varphi = \chi(\text{NO}_2) = x \Rightarrow \varphi = \chi(\text{O}_2) = 1 - x$$

$$40 = 46x + 32 \cdot (1 - x)$$

$$40 = 46 + 32 - 32x$$

$$8 = 14x$$

$$x = 0,57$$

⇓

$$\chi(\text{NO}_2) = 0,57, \text{ а } \chi(\text{O}_2) = 0,43$$

~~Пусть тогда $n(\text{NO}_2) = 0,57$ моль, а $n(\text{O}_2) = 0,43$ моль~~

$$\text{Пусть тогда } m(\text{NO}_2) = 0,57 \cdot 46 = 26,22 \text{ г, а } m(\text{O}_2) = 13,76 \text{ г}$$

$$\text{Тогда } n(\text{NO}_2) = 0,57 \text{ моль, а } n(\text{O}_2) = 0,43 \text{ моль}$$

Из уравн. реакции (1) $n(\text{NO}_2) = n(\text{AgNO}_3)$

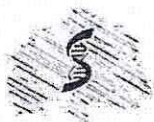
$$m(\text{AgNO}_3) = 96,9 \text{ г}$$

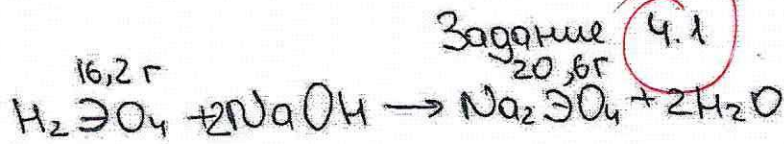
$$n(\text{которое обр. в результ. (1) реакц}) = \frac{0,57}{4} = 0,135 \text{ моль}$$

$$n(\text{которое обр. в результ. (2) реак}) = 0,43 - 0,135 = 0,295 \text{ моль}$$

$$\text{Тогда } m(\text{KNO}_3) = 0,295 \cdot 2 \cdot 101 = 59,59 \text{ г}$$

$$\omega(\text{AgNO}_3) = \frac{96,9}{59,59 + 96,9} = 0,6192 = 61,9\%$$





$$n(\text{H}_2\text{ЭО}_4) = n(\text{Na}_2\text{ЭО}_4)$$

сост урав.

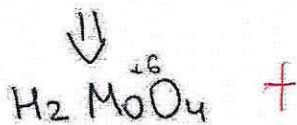
$$\frac{16,2}{2+x+64} = \frac{20,6}{46+x+64}$$

$$\frac{16,2}{x+66} = \frac{20,6}{110+x}$$

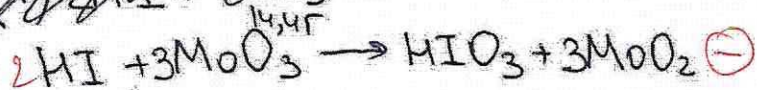
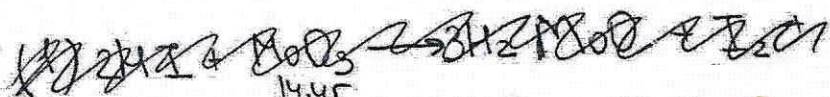
$$16,2x + 1782 = 20,6x + 1359,6$$

$$4,4x = 422,4$$

$$x = 96 \Rightarrow \text{Э} - \text{э} \text{т} \text{о} \text{ } \text{Mo}$$



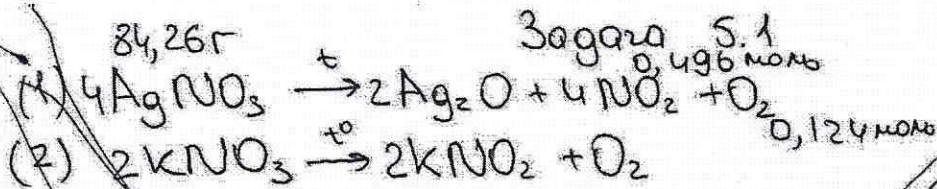
4,5



$$n(\text{MoO}_3) = \frac{14,4}{96+16 \cdot 3} = 0,1 \text{ моль}$$

$$n(\text{HI}) = \frac{1-3}{x-0,1} = 2x = 0,033 \text{ моль}$$

$$m(\text{HI}) = 0,033 \cdot 128 = 4,266 \text{ г}$$



$$D_{\text{не}} = 10 \Rightarrow M_{\text{ср. см}} = 4 \cdot 10 = 40 \text{ г/моль}$$

Пусть $\varphi(\text{NO}_2) = x \Rightarrow \varphi(\text{O}_2) = 1 - x$

$$40 = 46x + (1-x) \cdot 32$$

$$40 = 46x + 32 - 32x$$

$$8 = 14x$$

$$x = 0,57 \Rightarrow m = 22,8 \text{ г}$$

⇓

$$\varphi(\text{O}_2) = 0,43 \Rightarrow m \rightarrow 17,2 \text{ г}$$

$$n(\text{NO}_2) = \frac{22,8}{46} = 0,496 \text{ моль}$$

$$n(\text{AgNO}_3) = n(\text{NO}_2)$$

$$m(\text{AgNO}_3) = 84,26 \text{ г}$$

$$n(\text{O}_2 \text{ обр. в (1) реак}) = \frac{0,496}{4} = 0,124 \text{ моль}$$

$$m(\text{O}_2) = 3,968 \text{ г}$$

⇓

$$m(\text{O}_2 \text{ обр. в (2) реак}) = 17,2 - 3,968 = 13,232 \text{ г}$$

$$n(\text{O}_2) = 0,4135 \text{ моль}$$

$$m(\text{KNO}_3) = 0,4135 \cdot 2 \cdot 101 = 83,527$$

$$w(\text{AgNO}_3) =$$

