

Задание 1.2.

$$m(A) = 300 \cdot 0,84 = 252 \text{ г}$$

$$m(B) = 300 \cdot 0,16 = 48 \text{ г}$$

$$n(A) = \frac{252}{322} = 0,7826 \text{ моль}$$

$$n(B) = \frac{48}{219,5} = 0,2187 \text{ моль}$$

$$\Rightarrow m(C)_{6A} = 12 \cdot 0,7826 \cdot 12 = 112,6944 \text{ г}$$

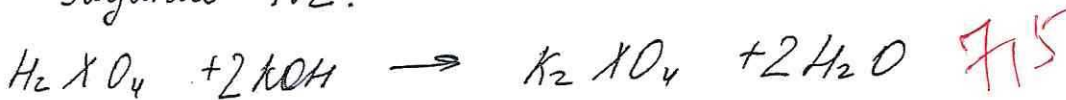
$$\Rightarrow m(C)_{6B} = 6 \cdot 0,2187 \cdot 12 = 15,7452 \text{ г}$$

$$\Rightarrow m(C) = 128,4396 \text{ г}$$

$$\omega(C) = \frac{128,4396}{300} \approx 42,813\%$$

1	2	3	4	5	6	7	8	9	10
4	4	0	7,5	10	7	4	10	2	2

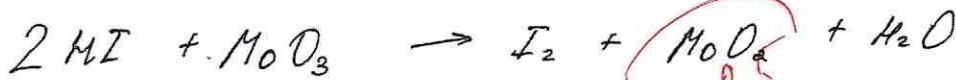
Задание 4.2.



$$n(H_2XO_4) = n(K_2XO_4)$$

$$\frac{32,4}{2 + 16 \cdot 4 + X} = \frac{47,6}{39 \cdot 2 + 16 \cdot 4 + X}$$

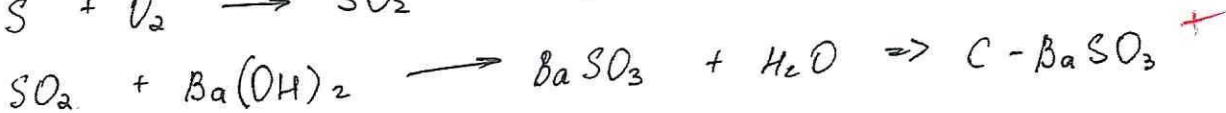
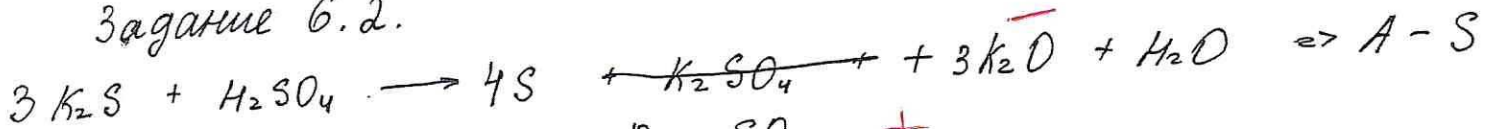
$$\Rightarrow X = 96 \Rightarrow X - Mo \Rightarrow H_2MoO_4$$



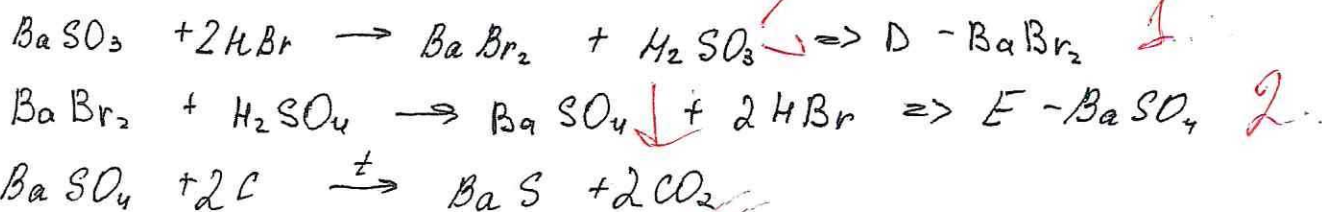
$$\frac{n(HI)}{2} = n(MoO_3)$$

$$\frac{28,8}{96 + 16 \cdot 3} = \frac{m(HI)}{2 \cdot 128} \Rightarrow m(HI) = 51,2 \text{ г}$$

Задание 6.2.



Задача 6.2. (продолжение)



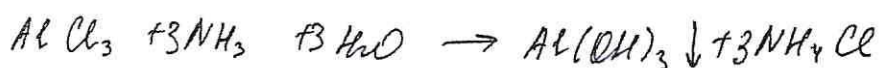
Задача 8.2.

$$M(\text{NH}_3) < M(\text{CO}) \Rightarrow \chi(\text{NH}_3) = 0,8 \Rightarrow M_{\text{смеси}} = 0,8 \cdot 17 + 0,2 \cdot 28 = 19,2 \text{ г.} \Rightarrow$$

$$\Rightarrow 79,2 = 19,2 \cdot \frac{V_{\text{смеси}}}{22,4} \Rightarrow V_{\text{смеси}} = 92,4 \text{ л.} \Rightarrow V(\text{NH}_3) = 73,92 \text{ л.}; V(\text{CO}) = 18,48 \text{ л.}$$

$$\Rightarrow n(\text{NH}_3) = 3,3; n(\text{CO}) = 0,825$$

$$m(\text{AlCl}_3) = 1068 \cdot 0,15 = 160,2 \text{ г.} \Rightarrow n(\text{AlCl}_3) = 1,2 \text{ моль}$$



$$\frac{3,3}{3} = n(\text{AlCl}_3) = 1,1 \text{ моль} = n(\text{Al}(\text{OH})_3) \Rightarrow m(\text{Al}(\text{OH})_3) = 85,8 \text{ г}$$

$$n(\text{NH}_4\text{Cl}) = n(\text{NH}_3) \Rightarrow m(\text{NH}_4\text{Cl}) = 3,3 \cdot 53,5 = 176,55 \text{ г}$$

$$m_{\text{р-ра}} = 1068 + 133,5(1,2 - 1,1) + 23,1 - 85,8 = 1018,65 \text{ г} \Rightarrow$$

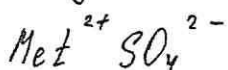
$$\Rightarrow \omega(\text{AlCl}_3) = \frac{133,5 \cdot 0,1}{1018,65} = 1,31\% \quad +$$

$$\omega(\text{CO}) = \frac{79,2 - 3,3 \cdot 17}{1018,65} = 2,2677\%$$

$$\omega(\text{NH}_4\text{Cl}) = \frac{176,55}{1018,65} = 17,332\% \quad +$$

108

Задача 9.2.



$$\frac{M(\text{Met})}{32 + 16 \cdot 4} = 1,427 \Rightarrow M(\text{Met}) = 137 \Rightarrow \text{Met} - \text{Ba} \Rightarrow \text{BaSO}_4 \quad 2.$$

Задача 10.2.

Смесь KNO_3 и $(\text{NH}_4)_2\text{CO}_3$

Пусть в смеси $n(\text{KNO}_3) = x$, $n((\text{NH}_4)_2\text{CO}_3) = y$

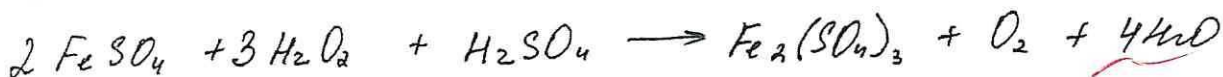
25

$$\frac{2x + 3y}{x} = 11 \Rightarrow 11x = 2x + 3y \Rightarrow 9x = 3y \Rightarrow y = 3x \Rightarrow$$

$$\Rightarrow \chi((\text{NH}_4)_2\text{CO}_3) = \frac{3x}{3x + x} = 0,75$$

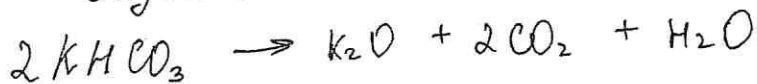


Задача 2.2.



4/8

Задача 3.2.



Пусть $m(\text{KHCO}_3) = x$, тогда $m(\text{CaK}_2\text{CO}_3) = 250 - x$



СЕЧЕНОВСКИЙ
УНИВЕРСИТЕТ

9 8 0 2 2

Задача 3.2. (продоиснение)

$$\frac{n(\text{KHCO}_3)}{2} = n(\text{K}_2\text{O})$$

$$\frac{x}{2 \cdot 100} = \frac{m(\text{K}_2\text{O})}{94} \Rightarrow m(\text{K}_2\text{O}) = 0,47x$$

$$n(\text{CaCO}_3) = n(\text{CaO})$$

$$\frac{250-x}{100} = \frac{m(\text{CaO})}{56} \Rightarrow m(\text{CaO}) = \frac{56(250-x)}{100} = 140 - 0,56x$$

$$m_{\text{остатка}} = 0,47x + 140 - 0,56x = 140 - 0,09x$$

$$140 - 0,09x \geq 0 \Rightarrow x = 250_2 \Rightarrow m(\text{KHCO}_3) = 250_2$$

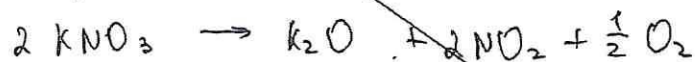
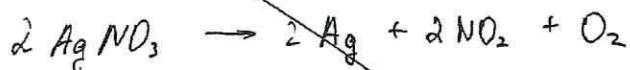
$$x \leq 250$$

$$m(\text{CaCO}_3) = 0_2.$$

—
min

Задача 5.2.

$$M_{\text{меш}} = 19,5 \cdot 2 = 39 \text{ г/моль}$$



Пусть $n(\text{AgNO}_3) = x$ моль, $n(\text{KNO}_3) = y$ моль

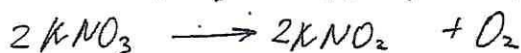
Тогда $n(\text{NO}_2) = x + y$, $n(\text{O}_2) = \frac{x}{2} + \frac{y}{4}$; $M_{\text{газов}} = x + 0,5x + y + 0,25y = 1,5x + 1,25y$

$$\frac{x+y}{1,5x+1,25y} \cdot 46 + \frac{0,5x+0,25y}{1,5x+1,25y} \cdot 32 = 39 \Rightarrow$$

$$\Rightarrow \frac{x+y}{1,5x+1,25y} = \frac{0,5x+0,25y}{1,5x+1,25y} = 0,5 \Rightarrow$$

Задача 5.2.

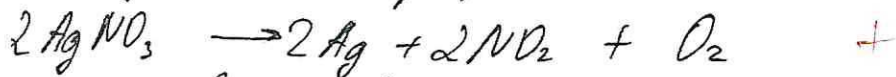
$$39 = 19,5 \cdot 2 = 46 \cdot 0,5 + 0,5 \cdot 32 \Rightarrow \text{Газы} - \text{NO}_2 \text{ и } \text{O}_2$$



СЕЧЕНОВСКИЙ
УНИВЕРСИТЕТ

9 X 0 2 2

Задача 5.2. (продолжение)



Пусть в смеси $n(\text{KNO}_3) = x$ моль; $n(\text{AgNO}_3) = y$ моль, тогда

$$n(\text{O}_2) = \frac{x}{2} + \frac{y}{2}; \quad n(\text{NO}_2) = y$$

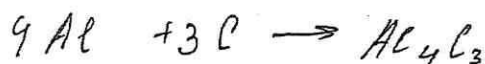
$$\frac{0,5x + 0,5y}{0,5x + 1,5y} = 0,5 \Rightarrow 0,25x = 0,25y \Rightarrow x = y$$

$$\omega(\text{AgNO}_3) = \frac{x \cdot 170}{170x + 101x} = 62,73\%$$

(+)

10

Задача 7.2.



Пусть в смеси $n(\text{Ca}) = x$, $n(\text{Al}) = y$

$$\frac{n(\text{H}_2)}{3} = \frac{n(\text{Al})}{2} \Rightarrow 0,4 = \frac{y}{2} \Rightarrow y = 0,8 \text{ моль}$$

$$\frac{n(\text{C}_2\text{H}_2)}{1} = n(\text{CaC}_2) = n(\text{Ca}) = \frac{x}{2}$$

$$\frac{n(\text{CH}_4)}{3} = n(\text{Al}_4\text{C}_3) = \frac{n(\text{Al})}{4} = \frac{0,8}{4} = 0,2 \Rightarrow n(\text{CH}_4) = 0,6$$

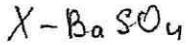
$$\frac{16,6}{22,4} = 0,74 + \frac{x}{2} \Rightarrow x = 0,3 \text{ моль}$$

$$\text{Масса} = 0,3 \cdot 40 + 0,8 \cdot 27 = 55,2 \text{ г.}$$

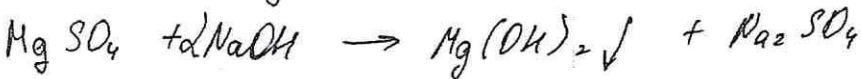
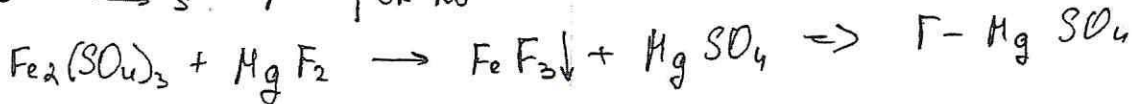
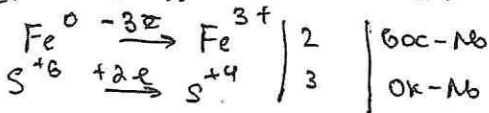
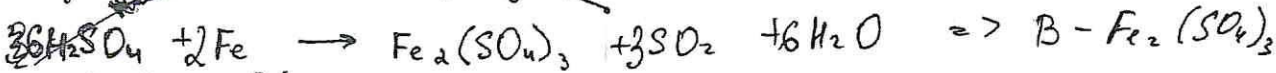
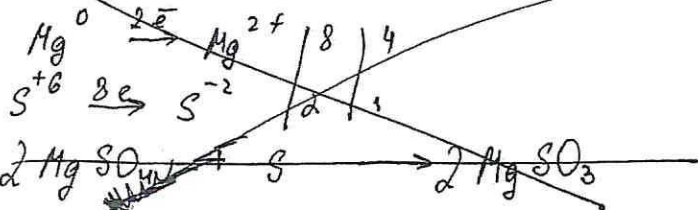
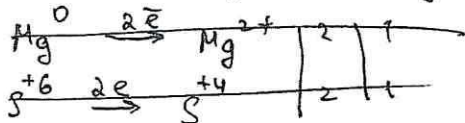
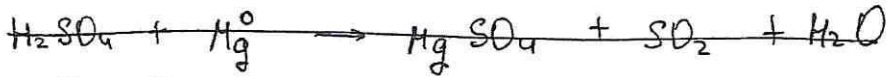
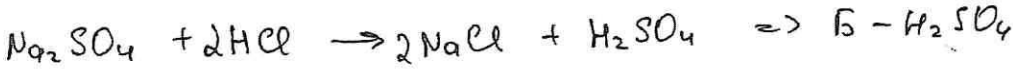
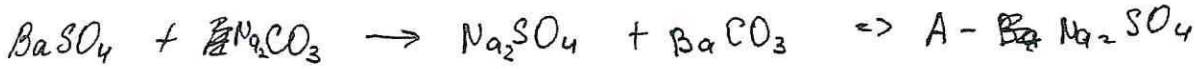
+ 45.



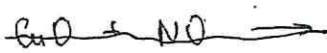
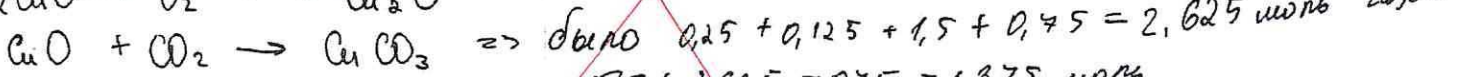
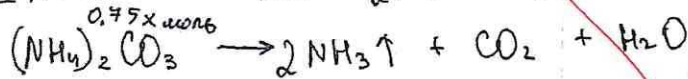
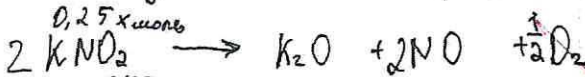
Задача 9.2. (продолжение)



1 случай (если имеется ввиду, что Б - H₂SO₄):



Задача 10.2. (продолжение)



стало: ~~0,25 + 0,125 + 1,5 + 0,75~~ = 1,875 моль

уменьшился в $\frac{0,75}{2,625} = 0,28571$ раз



СЕЧЕНОВСКИЙ
УНИВЕРСИТЕТ

9 8 0 2 2