

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

54
ref.

1.4 Пусть $n(\text{MgZn}_2(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}) = x$; $n(\text{Ca}_{10}(\text{PO}_4)_6\text{Cl}_2) = y$.

$$\begin{array}{l|l} n(\text{O}) = 12x & n(\text{O}) = 24y \\ n(\text{P}) = 2x & n(\text{P}) = 6y \end{array}$$

$$\Sigma n(\text{O}) = \frac{N(\text{O})}{N_A} = \frac{8,6688 \cdot 10^{23}}{6,02 \cdot 10^{23}} = 1,44$$

$$\Sigma n(\text{P}) = \frac{N(\text{P})}{N_A} = \frac{1,5652 \cdot 10^{23}}{6,02 \cdot 10^{23}} = 0,26.$$

+

$$\begin{cases} 12x + 24y = 1,44 \\ 2x + 6y = 0,26 \end{cases}$$

$$\begin{aligned} 2x &= 0,26 - 6y ; \\ x &= 0,13 - 3y \end{aligned}$$

$$\begin{aligned} 12(0,13 - 3y) + 24y &= 1,44 \\ 1,56 - 36y + 24y &= 1,44 \\ 1,56 - 12y &= 1,44 ; \\ -12y &= -0,12 \\ 12y &= 0,12 \\ y &= 0,01 ; x = 0,1. \end{aligned}$$

$$m(\text{MgZn}_2(\text{PO}_4)_2 \cdot 4\text{H}_2\text{O}) = n \cdot M = 0,1 \cdot 416 = 41,6.$$

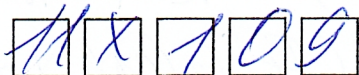
$$m(\text{Ca}_{10}(\text{PO}_4)_6\text{Cl}_2) = n \cdot M = 0,01 \cdot 1041 = 10,41$$

$$\Sigma m(\text{образца}) = 41,6 + 10,41 = 52,01$$

Ответ: 52,01



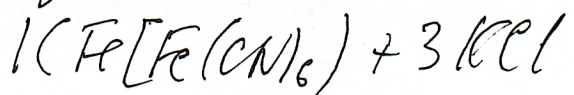
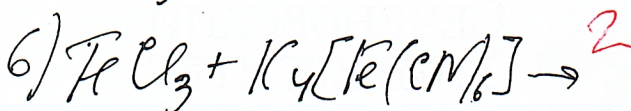
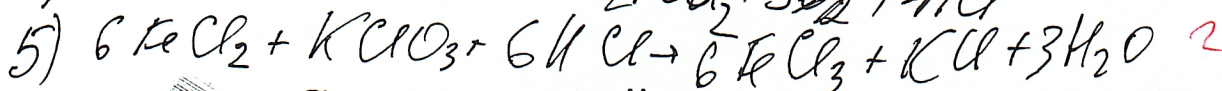
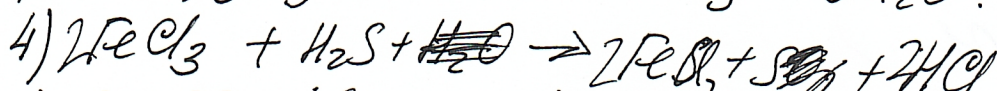
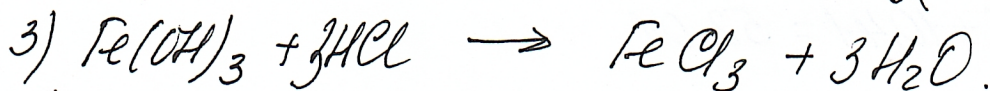
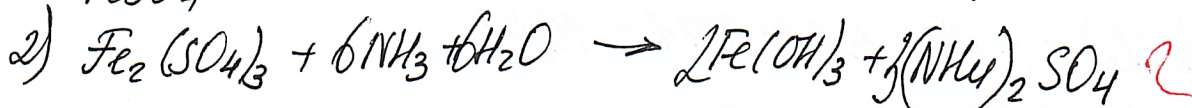
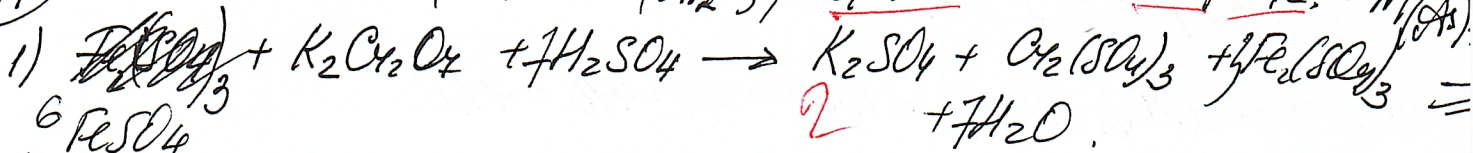
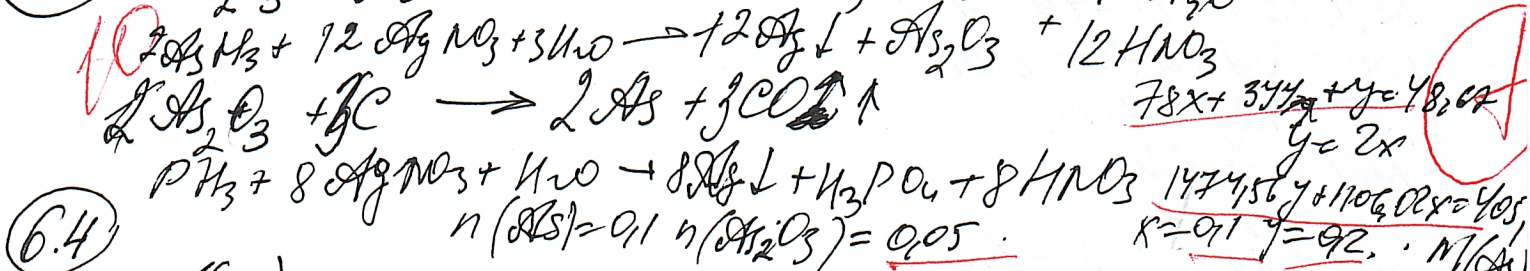
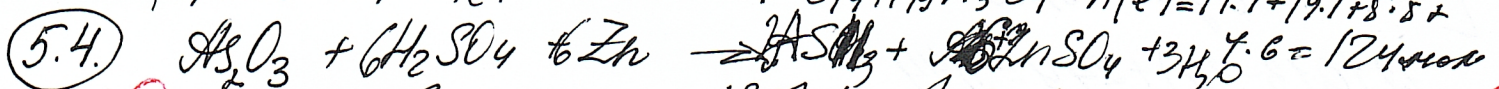
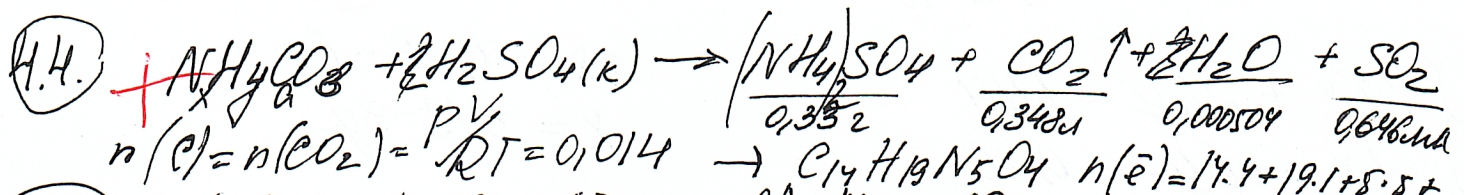
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2.4) $M(\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}) = 382 +$
 $M(\text{H})$ в веществе = 20
 $n(\text{H})$ в веществе = 20 моль +
 $n(\text{O})$ в веществе = 17 моль +
 $m(\text{O}) = nM = 17 \cdot 16 = 272 \text{ г.}$
 $m(\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}) = 382 \cdot 1 = 382 \text{ г.}$
 $W(\text{O}) = \frac{272}{382} \cdot 100 = 71,2\%.$
 Ответ: 71,2 %.

38

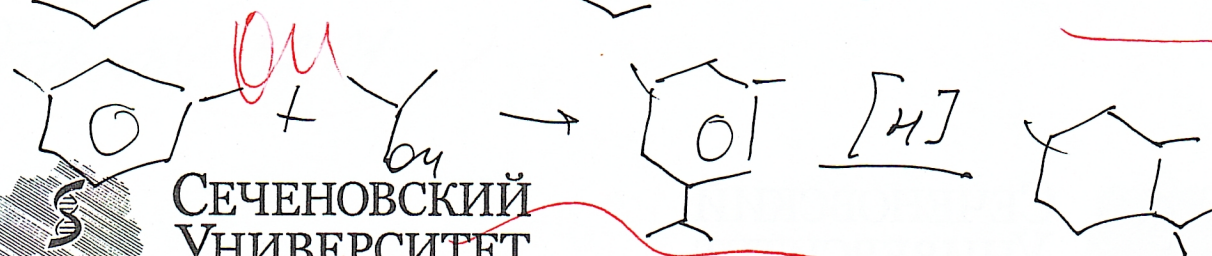
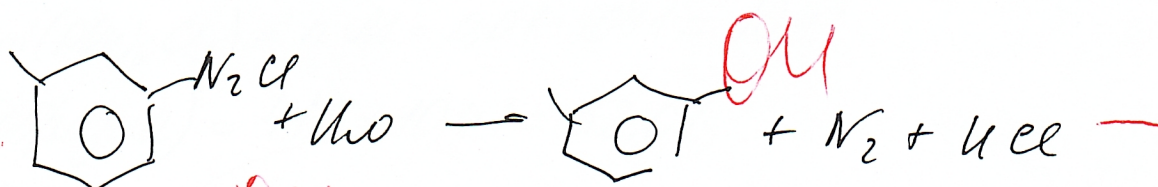
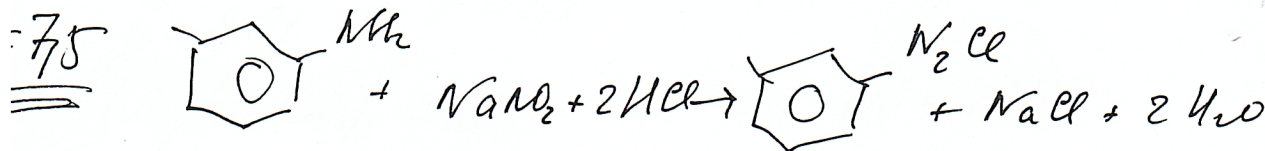
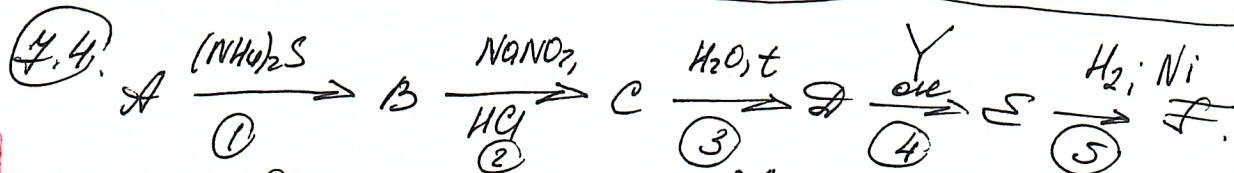
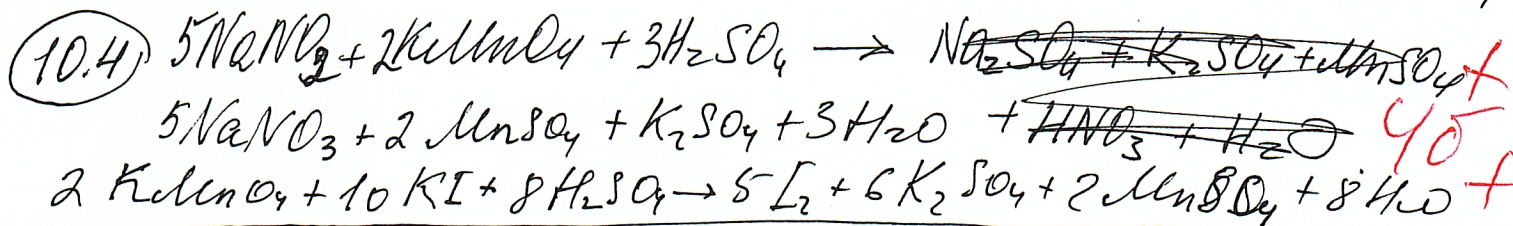
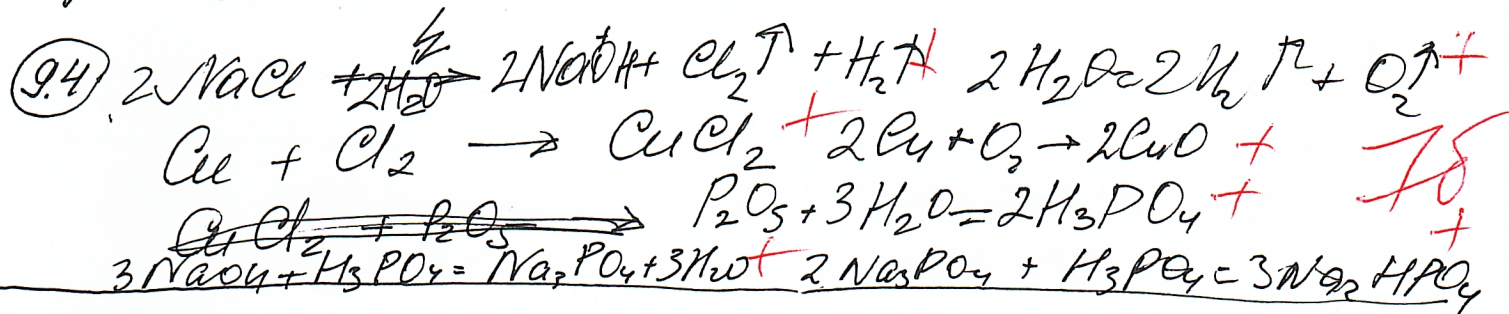
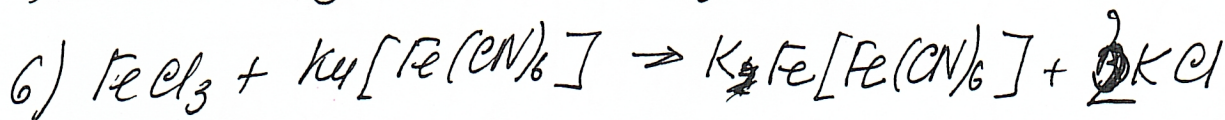
3.4) Ответ: 15



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