

ШИФР 30331

Класс 9 Вариант 1 Дата Олимпиады 24.02.18

Площадка написания КНИТУ

Задача	1	2	3	4	5	6	$\Sigma$		Подпись
							Цифрой	Прописью	
Оценка	5	5	5	5	5	5	30	Тридцать	М.

№1. В-во А.

м. трасъв. возьмем за 100г  $\Rightarrow m(K) = \frac{m \cdot \text{трасъв}}{100\%}$

$$m(K) = \frac{38,67\% \cdot 100\text{г}}{100\%} = 38,67\text{г}$$

$$m(N) = \frac{13,85\% \cdot 100\text{г}}{100\%} = 13,85\text{г}$$

$$m(O) = \frac{47,48\% \cdot 100\text{г}}{100\%} = 47,48\text{г}$$

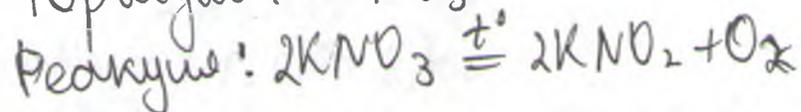
$$\nu(K) = \frac{m}{M} = \frac{38,67\text{г}}{39\text{г/моль}} = 0,99\text{ моль}$$

$$\nu(N) = \frac{m}{M} = \frac{13,85\text{г}}{14\text{г/моль}} = 0,98\text{ моль}$$

$$\nu(O) = \frac{m}{M} = \frac{47,48\text{г}}{16\text{г/моль}} = 2,96\text{ моль}$$

$$\nu(K) : \nu(N) : \nu(O) = 1 : 1 : 3$$

Формула:  $KNO_3$



№2  $m_1 = \frac{200\text{г} \cdot 10\%}{100\%} = 20\text{г}$

$$m_2 = \frac{400\text{г} \cdot 20\%}{100\%} = 80\text{г}$$

$$m_{\text{трасъв-а}} = m_1 + m_2 = 20\text{г} + 80\text{г} = 100\text{г}$$

$$m_{\text{р-ра}} = 200\text{г} + 400\text{г} = 600\text{г}$$

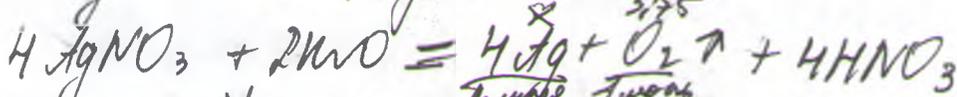
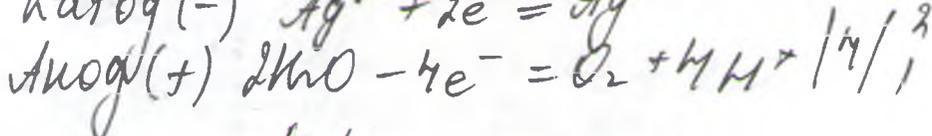
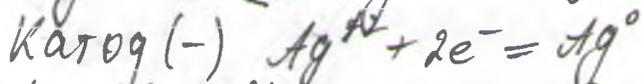
$$w(KNO_3) = \frac{m_{\text{в-ва}}}{m_{\text{р-ра}}} \cdot 100\% = \frac{100\text{г}}{600\text{г}} \cdot 100\% = 16,67\%$$



Использовать только эту сторону листа,  
обратная сторона не проверяется!

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№3.



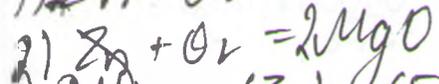
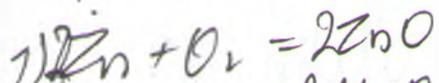
$$V(O_2) = \frac{V}{V_m} = \frac{8,4 \text{ л}}{22,4 \text{ л/моль}} = 0,375 \text{ моль}$$

$$V(Ag) = 4 \cdot V(O_2) = 0,375 \text{ моль} \cdot 4 \text{ моль} = 1,5 \text{ моль} \cdot x$$

$$m(Ag) = V \cdot M = 1,5 \cdot 108 \text{ г/моль} = 162 \text{ г}$$

Ответ:  $m(Ag) = 162 \text{ г}$ .

№4.	Zn	Mg	ZnO	MgO
$M, \text{ г/моль}$	65	24	81	40



$$2m_{Mg} \quad m(Zn) = 65x$$

$$m(Mg) = 24y$$

$$Zn - x$$

$$Mg - y$$

м.к.  $V(Zn) = V(ZnO)$   
 $V(Mg) = V(MgO)$

$$\begin{cases} 65x + 24y = 15,4 \\ 81x + 40y = 20,2 \end{cases} \Rightarrow \begin{cases} x = 0,2 \\ y = 0,1 \end{cases}$$

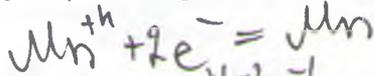
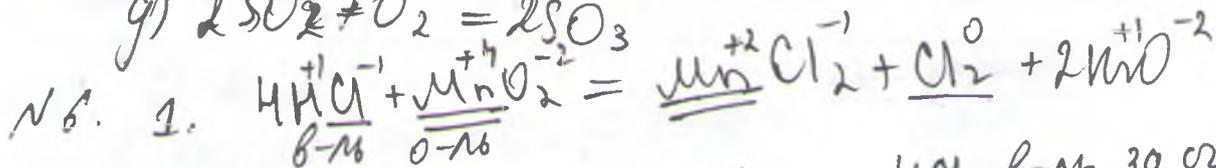
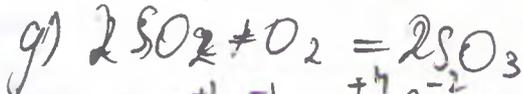
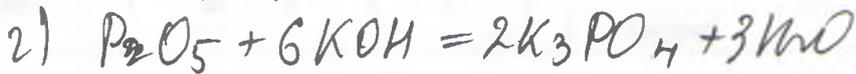
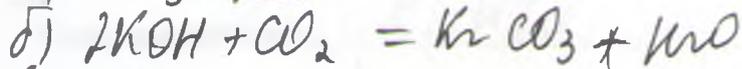
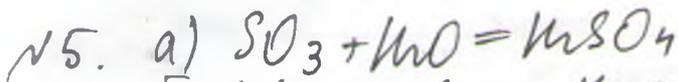
$$m(Zn) = 65 \cdot 0,2 = 13 \text{ г}$$

$$m(Mg) = 24 \cdot 0,1 = 2,4 \text{ г}$$

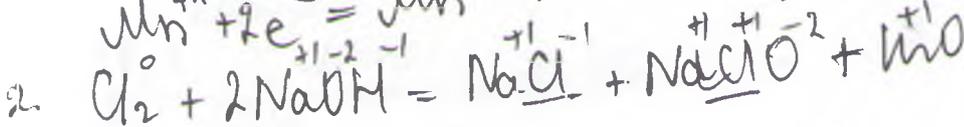
$$w(Zn) = \frac{13}{15,4} \cdot 100\% = 84,42\%$$

$$w(Mg) = \frac{2,4}{15,4} \cdot 100\% = 15,58\%$$

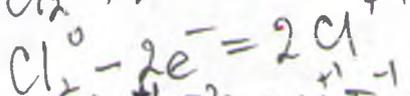
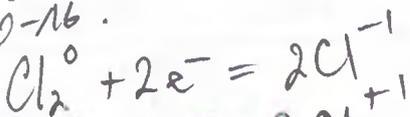
Ответ:  $w(Mg) = 15,58\%$ ;  $w(Zn) = 84,42\%$ .



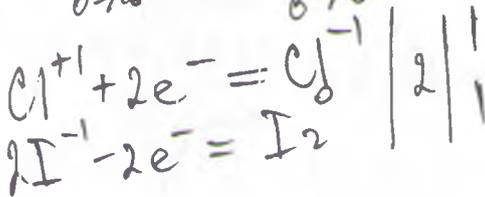
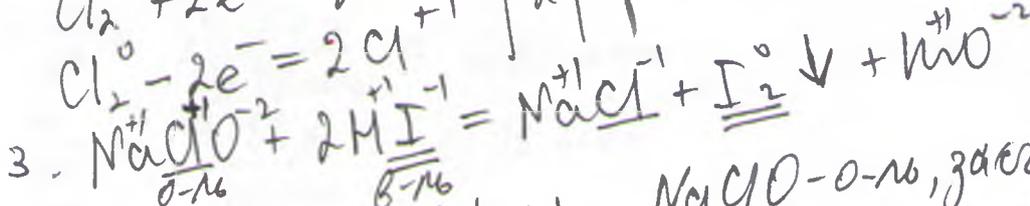
HCl - в-ль, за счёт  $Cl^{-1}$   
MnO<sub>2</sub> - о-ль, за счёт  $Mn^{+7}$



в-ль  
о-ль.



$Cl_2^0$  - в-ль  
 $Cl^0$  - о-ль.



NaClO - о-ль, за счёт  $Cl^{+1}$   
HI - в-ль, за счёт  $I^{-1}$