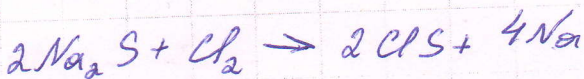
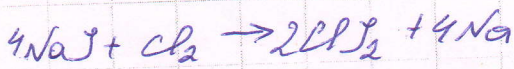
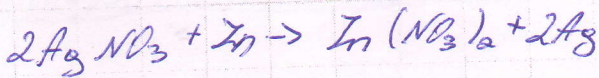
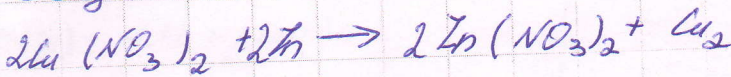


Задача №3.

$m(\text{HNO}_3) = 5\text{г}$ $\rho = 1,219 \text{ г/см}^3$ $V(\rho) = 20\%$ $m(\text{H}_2\text{SO}_4) = ?$ $m(\text{H}_2\text{SO}_4) = \frac{1,54}{3,142}$	$\text{HNO}_3 \rightarrow \text{H}_2\text{SO}_4$ $\frac{5}{63} = \frac{x}{98}$ $\frac{5 \cdot 98}{63} = 7,7$ $V(\text{H}_2\text{SO}_4) = \frac{7,7}{100} \cdot 100 = 7,7$ $x = 20$ $\frac{15,7 \cdot 20}{100} = 3,14$	$V = \rho m$ $V = 1,219 \cdot 1,54$ $V(\text{H}_2\text{SO}_4) = \frac{1,87}{3,14}$
---	--	--

Задача 4



Задача 3

③

Дано:

$$t = 2 \text{ мм}$$

$$T = 15^\circ\text{C}$$

$$k = 0,024 \text{ Вт} \cdot \text{м}^{-1} \cdot \text{К}^{-1}$$

$$d = 0,25 \text{ мм}$$

$$A = 0,15 \text{ м}^2$$

$$M = 7 \text{ м.д.} - ?$$

Решение:

$$\frac{Q}{t} = \frac{kA(T_1 - T_2)}{d}$$

$$Q = mdg$$

$$m = \frac{Q}{dg} = \frac{1,512}{3,36 \cdot 10^5} = 0,45 \cdot 10^{-5}$$

2

Дано:

$$L_f = 3,36 \cdot 10^5 \text{ Дж К}^{-1}$$

$$C_s = 4186 \text{ Дж кг}^{-1} \text{ К}^{-1}$$

$$m = 12 \text{ мм}^{-1}$$

$$Q = ?$$

Решение:

$$Q = m C_s \Delta T \quad \left\{ \begin{array}{l} Q = 1 \cdot 4186 \\ Q_1 = 4186 \end{array} \right.$$

$$Q = m L_f \quad \left\{ \begin{array}{l} Q_2 = 3,36 \cdot 10^5 \cdot 1 \\ Q_2 = 3,36 \cdot 10^5 \end{array} \right.$$

$$Q_2 = 3,36 \cdot 10^5 \cdot 1$$

$$Q_2 = 3,36 \cdot 10^5$$

$$\Delta Q = 4182,64 \cdot 4186 - 3,36 \cdot 10^5$$

$$Q = 4182,64 \cdot 10^5$$

Задача 4

2 Дано:

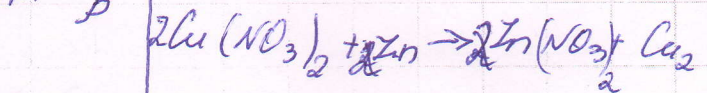
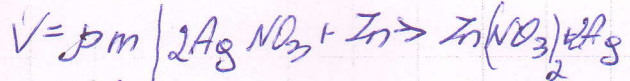
$$V(p \text{ AgNO}_3 + \text{Cu(NO}_3)_2) - 100 \text{ мм}$$

$$\rho(p) - 1,132 \text{ г/мл}$$

$$V(\text{Na}_2\text{CO}_3) - 10 \text{ мм} \quad 5 \text{ мм}$$

$$V = \rho m$$

$$m = \frac{V}{\rho}$$

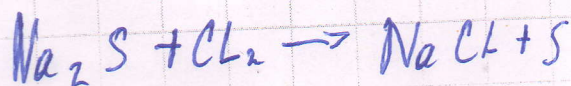
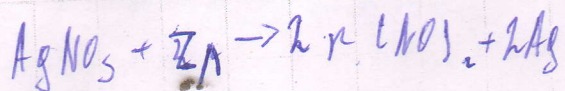
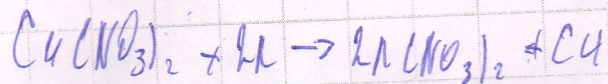


ch-002(1)

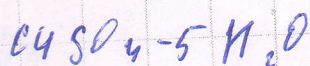
Шифрды ұйымдастырушы толтырады
Шифр заполняется организатором

Қатысушының шешімдерін толтыруға арналған өріс / Поле для заполнения решений участника Парақ / Страница №

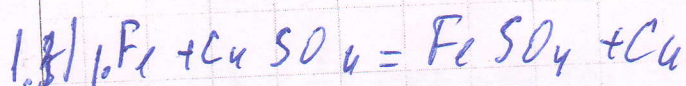
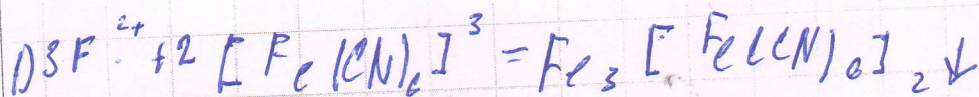
N24



N1.4



N1,2



$$2. \Delta m = -m(\text{Fe}) + m(\text{Cu}) = -56x + 64x = 8x = 1.53$$

$$x = 0.19 \text{ моль}$$

$$1. \text{M}: 398; 472$$

$$2. \text{M}: 33; 522$$

$$3. \text{M}: 28; 202$$

$$4. \text{M}: 8; 412$$

$$5. \text{M}: 4; 247$$

Парақтың артқы жағын толтырмаңыз / Обратную сторону листа не заполнять

2.1

$$\Delta_r H_6 = 0.45 \Delta_r H_1 - 0.45 \Delta_r H_3 - 1.5 \Delta_r H_4 + \Delta_r H_2 = 159.2 \text{ кДж}$$

$$\Delta_r H_7 = 0.5 \Delta_r H_5 + 0.5 \Delta_r H_6 = -42.55 \text{ кДж}$$

2.2

$$E_{об}(x_{н}) = 2 E(x_{в}) + \frac{1}{3} \Delta_r H_2 = 315 \text{ кДж}$$

2.3

$$M_{\text{жоспа}} = 0.621 \cdot 26 = 16.2$$

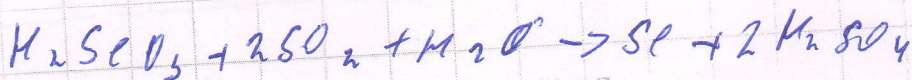
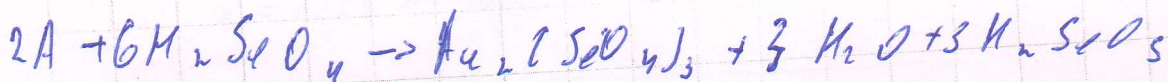
$$P_0 = \sum_{i=2}^8 p(x_i) = 50 \cdot \text{кПа}$$

Қорытынды

$$16.2 = 6.2 \rightarrow 2 = 3.2 \text{ (с)}$$

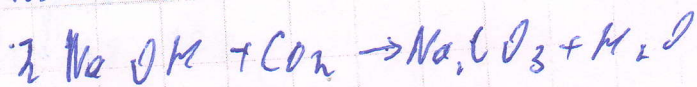
№ 3

5.2

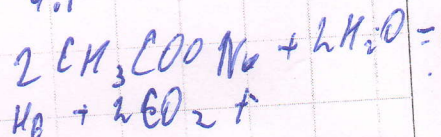


№ 4

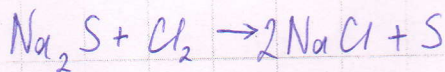
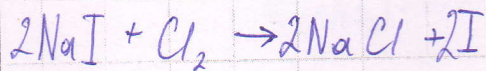
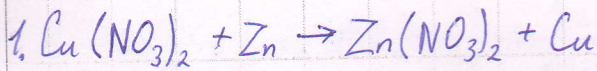
4.2



4.1



Задача №4.



2. $100 \text{ мл} \cdot 1,18 \text{ г/мл} = 118 \text{ г}$
 $m(\text{Zn}) = 118 \text{ г}$

3. Дано:

$$t = 2 \text{ мин.}$$

$$S = 0,15 \text{ м}^2$$

$$R = \frac{\kappa A (T_f - T_x)}{d}$$

$$R = \frac{0,084 \text{ Вт} \cdot \text{м}^{-1} \cdot \text{К}^{-1} \cdot 0,15 \text{ м}^2}{15^\circ\text{C} / 0,25} = 0,756$$

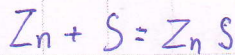
Задача №1.

1) Дано:

$$m(\text{Zn}) = 70 \text{ г}$$

$$m(\text{S}) = 30 \text{ г}$$

Решение:



$W(\text{ZnS}) = ?$

$$W(\text{Zn}) = \frac{Ar(\text{Zn})}{M(\text{с.в})} = \frac{65}{97} \cdot 100\% = 67\%$$

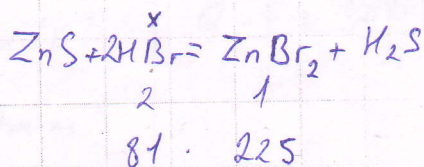
$$3) \frac{M_1 \cdot V_1 + M_2 \cdot V_2}{V_1 + V_2}$$

$$M_{\text{ср.}} = \frac{2 \cdot 1 + 4 \cdot 1}{1 + 1} = 3$$

$$d(\text{Gel}) = \frac{3}{2} = 1,5$$

2) $n(\text{HBr}) = ?$

$$W(\text{S}) = \frac{32}{97} \cdot 100\% = 33\%$$



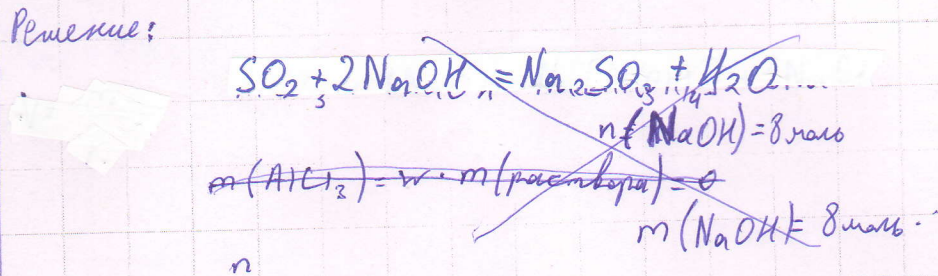
$$\frac{2 \cdot 225}{81} = 6 \text{ моль}$$

Задача №2

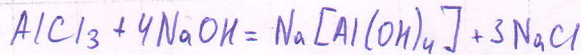
1. Дано: $m(\text{HNO}_3) = 52$ Решение: $n(\text{HNO}_3) = \frac{m}{M} = \frac{52}{632/\text{моль}} = 0,08 \text{ моль}$

$m(\text{H}_2\text{SO}_4) = ?$ $N = N_A \cdot n$
 $N(\text{HNO}_3) = 6,022 \cdot 10^{23} \text{ моль}^{-1} \cdot 0,08 \text{ моль} = 0,48 \cdot 10^{23}$ $N(\text{HNO}_3) = N(\text{H}_2\text{SO}_4)$
 $m(\text{H}_2\text{SO}_4) = \frac{N \cdot M}{N_A} = \frac{0,48 \cdot 10^{23} \cdot 982/\text{моль}}{6,022 \cdot 10^{23} \text{ моль}^{-1}} = 7,812$ Ответ: $m(\text{H}_2\text{SO}_4) = 7,812$

2. Дано: $W(\text{раств.}) = 20\%$
 $\rho = 1,2192 \text{ г/мл}$



$V(\text{Na}) = ?$



$m(\text{AlCl}_3) = w \cdot m = 0,05 \cdot 40 = 22$

$n(\text{AlCl}_3) = m/M = \frac{22}{133,5} = 0,165 \text{ моль}$

$m(\text{NaOH}) = n \cdot M = 0,66 \cdot 40 = 2,64$

$w(\text{NaOH}) = 2,64 / 0,2 = 13,2$

$V = m/\rho = 13,2 / 1,2 = 11 \text{ мл}$

Задача №3

Дано:
 1. $m(\text{H}_2\text{O}) = 1,7 \text{ кг}$
 $\Delta t = 25^\circ\text{C}$
 $c = 4186 \text{ Дж/кг}\cdot\text{K}$

Решение:

$Q = c \cdot m \cdot \Delta t$

$Q = 4186 \text{ Дж/кг}\cdot\text{K} \cdot 1,7 \text{ кг} \cdot 25^\circ\text{C} = 1779,05 \text{ Дж}$

Ответ: $Q = 1779,05 \text{ Дж}$

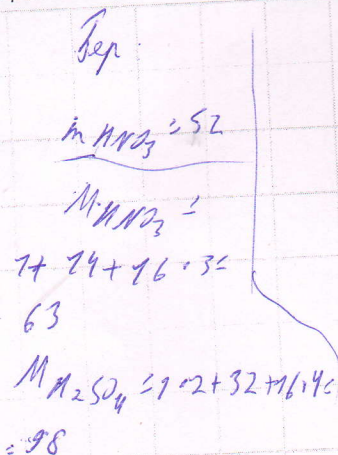
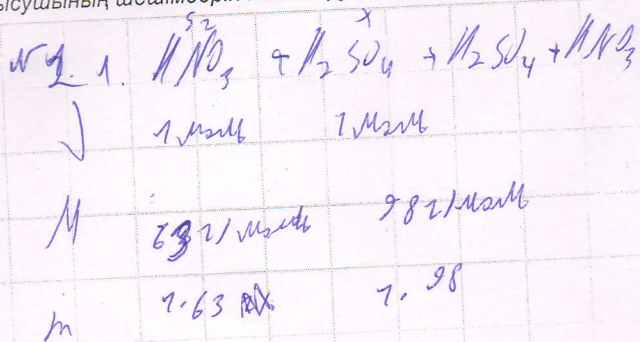
$Q = ?$

2. Дано:
 $c = 4186 \text{ Дж/кг}\cdot\text{K}$
 $\lambda = 3,36 \cdot 10^5 \text{ Дж/кг}$
 $\rho = 12 \text{ г/мл}$

Решение:

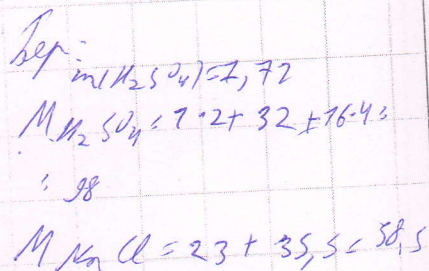
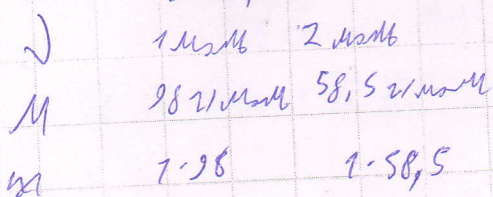
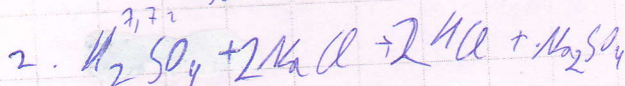
$Q = \frac{R \cdot \lambda}{\rho \cdot c} = \frac{3,36 \cdot 10^5}{12 \cdot 4186} = 0,006$

Ответ: $0,006$



$$\frac{5}{1.63} = \frac{x}{1.98}$$

$$x = \frac{5 \cdot 1.98}{1.63} = 7.72$$



$$\frac{7.72}{1.98} = \frac{x}{1.58,5}$$

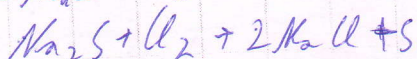
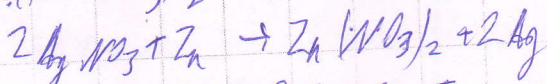
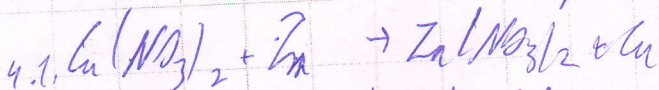
$$x = \frac{7.72 \cdot 1.58,5}{1.98} = 4,5$$

4,5 = 20%

$x = 100\%$

$$x = 4,5 \cdot \frac{100}{20} = 22,5$$

$$V = \frac{m}{\rho} = \frac{22,5}{1,219} = 26,6$$



1. $Zn + S \rightarrow ZnS$
6

Бер:
 $m(Zn+S) = 100g$
 $m_{Zn} = 200g$
 $W(Zn) = ?$
 $W(S) = ?$
 $W(ZnS) = ?$

$W(Zn) = \frac{m_{Zn}}{m_{сұж}} \cdot 100\%$

$W(Zn) = \frac{200}{70} \cdot 100\% = 285,7\%$

$W(S) = \frac{200}{30} \cdot 100\% = 666,7\%$

$W(ZnS) = \frac{200}{100} \cdot 100\% = 200\%$

2. $ZnS + HBr \rightarrow ZnBr_2 + H_2S$

$сұж = m_{сұж} + m_{HBr}$
 $сұж = 100 + 81 = 181g$

3. $Q_{(H_2O)} = \frac{M(H_2O)}{M(H_2O)} \cdot 225 = 56,25$

$M(ZnBr_2) = 65 + 80 \cdot 2 = 225$

$HBr = 1$
 $M(HBr) = 1 + 80 = 81$

3.1. $T_1 = 25^\circ C$

$T_2 = 100^\circ C$

$m = 1,7kg$

$c = 4186 J/kg \cdot K$

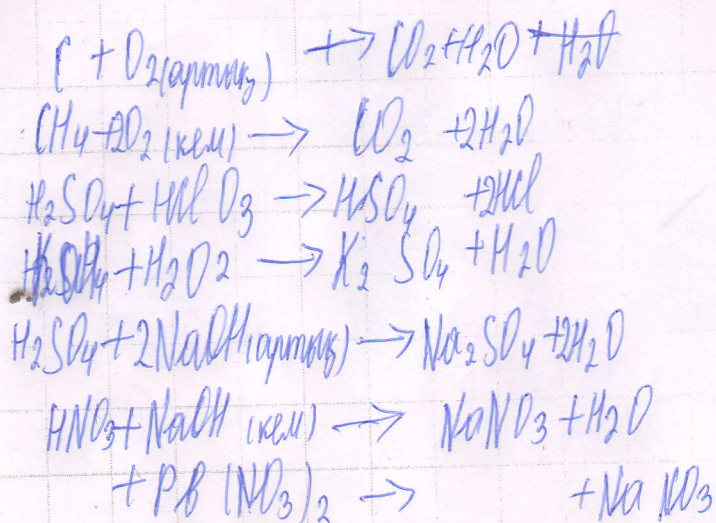
Q-1

$Q = mc \Delta T$

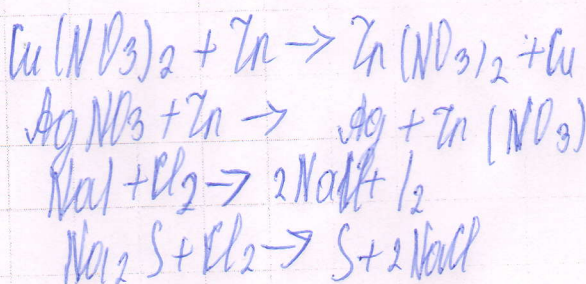
$\Delta T = T_2 - T_1 = 100 - 25 = 75^\circ$

$Q = 1,7 \cdot 4186 \cdot 75 = 533715 J$

№1



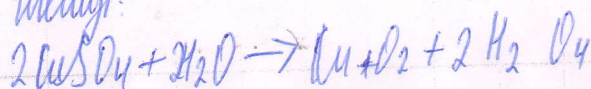
№3



№5

Д/к:
CuSO₄
m(O₂) - 6,72г
Т/к: m(Cu)

Шешуі:



ch-005/2

Шифрды ұйымдастырушы толтырады
Шифр заполняется организатором

Қатысушының шешімдерін толтыруға арналған өріс / Поле для заполнения решений участника Парақ / Страница №

$\sqrt{0,9}$

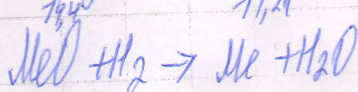
Б/ки:

$$m(\text{MeO}) = 14,42$$

$$m(\text{Me}) = 11,29$$

$$\text{T/K: Me - ?}$$

Шешуі:



$$x + 16$$

$$14,4 \cdot x = 11,2(x + 16)$$

$$14,4 \cdot x = 11,2x + 179,2$$

$$3,2x = 179,2$$

$$x = 562$$

Жауабы: Fe

$\sqrt{0,4}$

Задача 2.

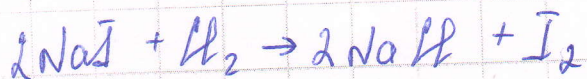
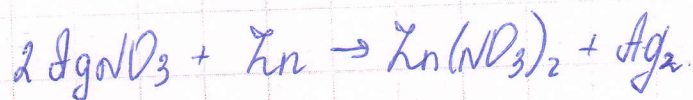
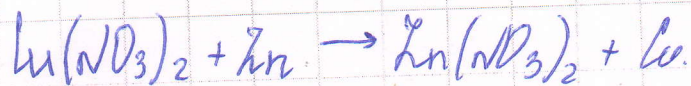
Дано

$$m(\text{мет}) = 142.$$

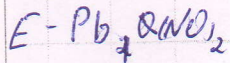
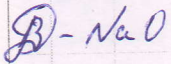
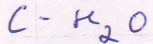
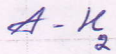
$$m(\text{окс}) = 4,472.$$

$$\omega(\text{мет}) = 68,4\%$$

Задача 3.



№1



№2

Дано:

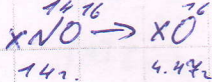
xNO
 $m(NaX) = 14г.$

$m(XO) = 4,4г.$

$W(X) = 68,4\%$

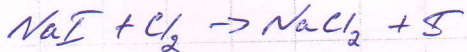
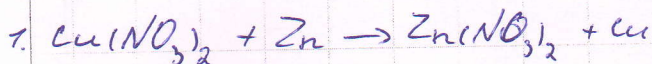
X - ?

Решение:



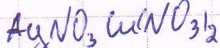
$X = \frac{30 + 16}{14 + 4,4} = 2,49г.$

№3



2.

Дано:



$V_{раств} = 100мл.$

$W(AgNO_3) = 50\%$

$W(Cu(NO_3)_2) = 50\%$

$V_{раств} = 1,18л$

$10мл$ на $5мл$ $ClNa$

$m(Zn) = ?г.$

Решение:

$m_{раств} = \rho \cdot V = 1,18 \cdot 100 = 118г.$

$m(AgNO_3) = 118г \cdot 50\% = 59г.$

$m(Cu(NO_3)_2) = 118г \cdot 50\% = 59г.$

$V(ClNa) = \frac{100}{20} \cdot 5 = 50мл$

№4
Дано:

$$k_1 = 1 \text{ c}^{-1}$$

$$k_2 = 2,5 \text{ c}^{-1}$$

$$A_0 = 2 \text{ моль л}^{-1}$$

Решение:

$$[A]_t = \frac{k_1}{k_2 - k_1} (e^{-k_1 t} - e^{-k_2 t}) [A]_0$$

$$[B]_t = \frac{k_1}{2,5e^{-1} - 1e} (e^{-1t} - e^{-2,5t}) 2 \text{ моль л}^{-1}$$

$$[B]_t = \frac{1}{1,5e^{-1}} (e^{-1t} - e^{-2,5t}) 2 \text{ моль л}^{-1}$$

$$[B]_t = \frac{1}{1,5} (1,602 \cdot 10^{-72} k_1^{-1} e^{-1t} - 1,602 \cdot 10^{-72} k_1^{-1} e^{-2,5t}) 2 \text{ моль л}^{-1}$$

$$[B]_t = \frac{1}{1,5} (1,602 \cdot 10^{-20} e^{-1t} k_1) - 1,602 \cdot 10^{-22,5} e^{-2,5t}) 2 \text{ моль л}^{-1}$$

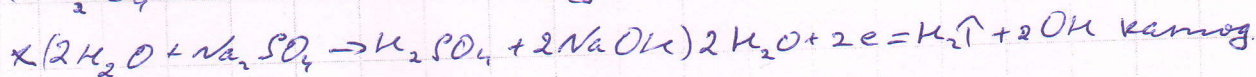
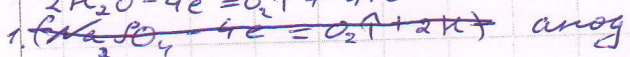
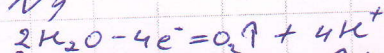
$$[B]_t = \frac{1}{1,5} \cdot 1,602 \cdot 10^{-22,5} e^{-2,5t} \cdot 2 \text{ моль л}^{-1}$$

$$[B]_t = \frac{1}{1,5} \cdot 1,602 \cdot 10^{-22,5} e^{-2,5t} \cdot 2 \text{ моль}$$

$$[B]_t = 2,136 \cdot 10^{-22,5} e^{-2,5t}$$

$$[B]_{t=2} = 2,136 \cdot 10^{-22,5} e^{-2,5 \cdot 2} = 4,272 \cdot 10^{-22,5} e^{-5}$$

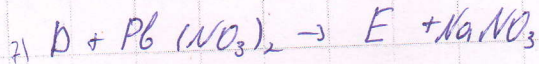
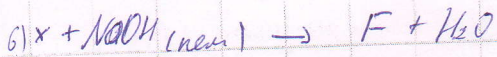
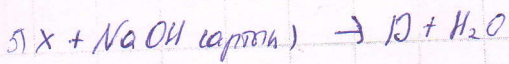
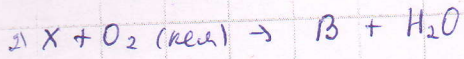
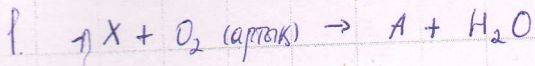
№5



2. Потенциалы - что они лучше приводит ток

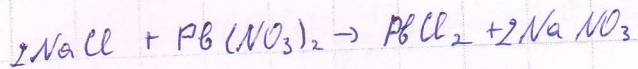
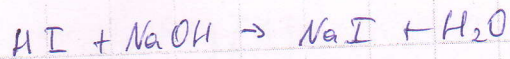
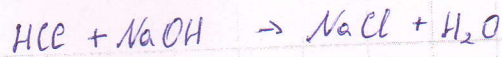
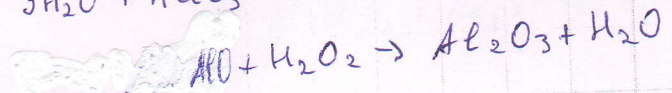
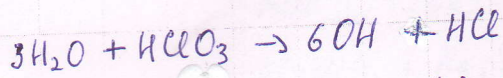
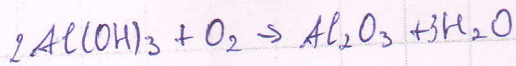
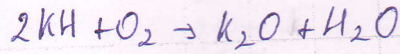
3.

4.



$w_E = 86,61\%$

$w_{NaNO_3} = 13,39\%$



2. *Берилсени:*

$M_{MeNO_3} = 142$

$m_{MeO} = 4,472$

$w_{Me} = 68,4\%$

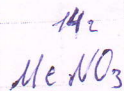
143?

$mer. zat = \frac{w \cdot ep - si}{100}$

$mer. zat = \frac{68,4\% \cdot 4,47}{100}$

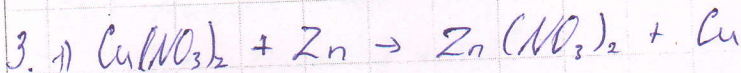
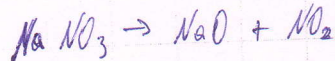
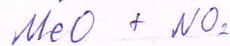
$mer. zat = 3,06$

$14 - 3,06 = 11$



$w_{Me} = 68,4\%$

$4,472$



h-008/2)

Шифрды ұйымдастырушы толтырады
Шифр заполняется организатором

Қатысушының шешімдерін толтыруға арналған өріс / Поле для заполнения решений участника Парақ / Страница №

3.2) $v = 100 \text{ мм}$

$m_{Zn} = ?$

$\rho = 7,18 \text{ г/см}^3$

$v = 10 \text{ мм}$

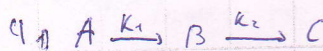
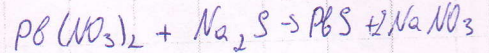
$M = 5$

3) $v = 50 \text{ мм}$

$\rho_{Al} = ?$

$0,6 \text{ мм}$

$0,1 \text{ мм}$



$[B](t) = \frac{k_1}{k_2 - k_1} (e^{-k_1 t} - e^{-k_2 t}) [A]_0$

$[B](t) = \frac{1 \text{ с}^{-1}}{2,5 \text{ с}^{-1} - 1 \text{ с}^{-1}} (e^{-1t} - e^{-2,5t}) [2 \text{ моль л}^{-1}]$

$k_1 = 1 \text{ с}^{-1}$

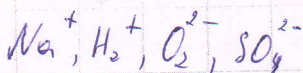
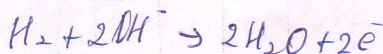
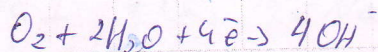
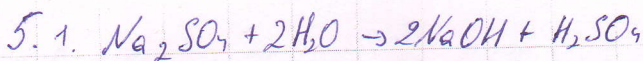
$k_2 = 2,5 \text{ с}^{-1}$

$[A]_0 = 2 \text{ моль л}^{-1}$

$[A](t) = [A]_0 e^{-k_1 t}$
 $[A](t) = [2 \text{ моль л}^{-1}] e^{-t}$

2) $[A]_0 = [A](t) + [B](t) + [C](t)$

$r_C = k_2 [B](t)$

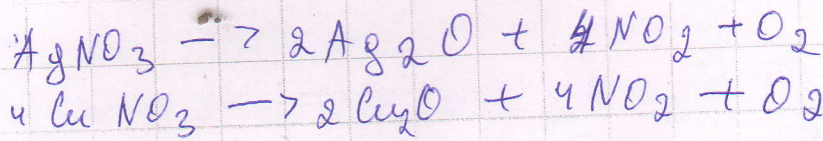
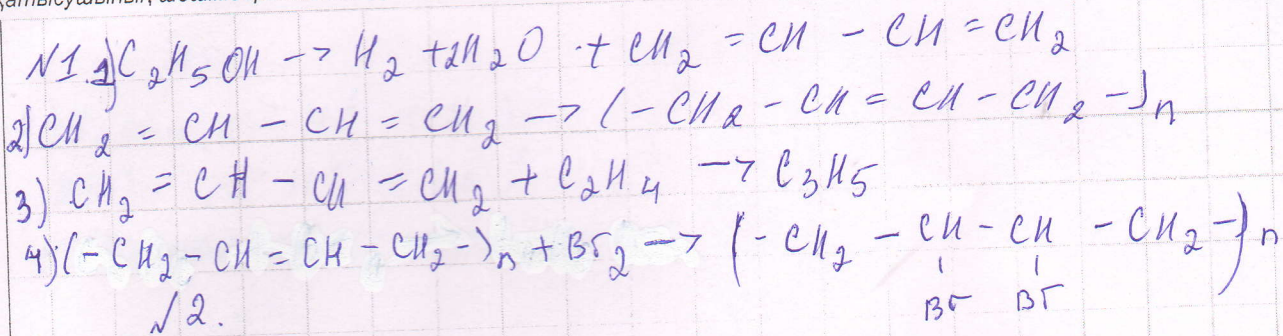


2. сәбес: она сүттеі онгірісіңге қарғандо

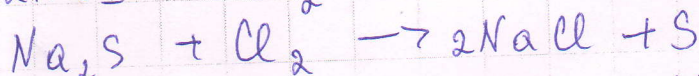
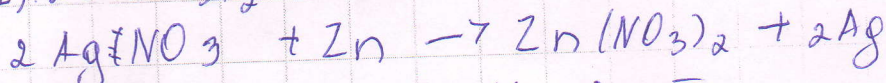
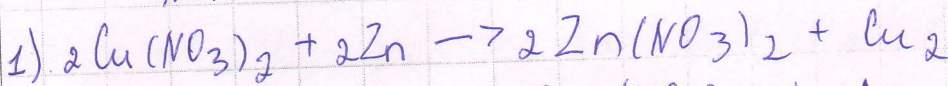
3.

$I = 1,78 \text{ А}$

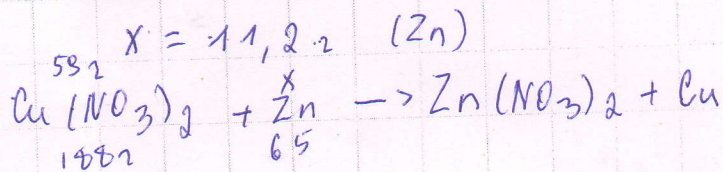
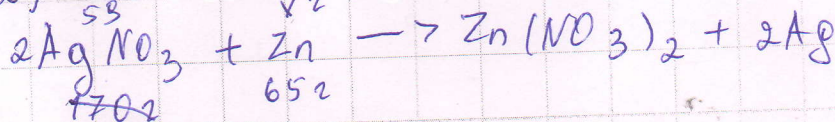
$t = 10,5 \text{ мин}$



N4.



2) $100 \text{ г} \cdot 1,14 \text{ г} = 114 \text{ г} \quad 114 : 2 = 57 \text{ г}$

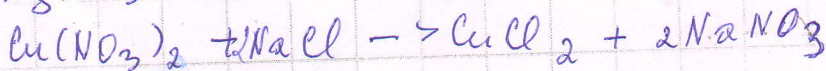
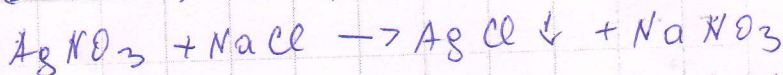


$x = 20,3 \text{ г} \cdot (Zn)$

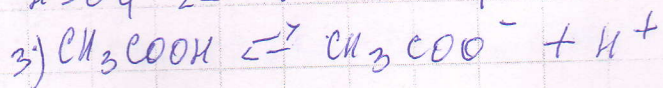
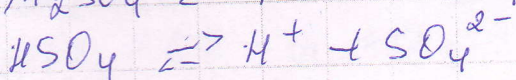
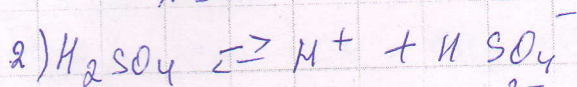
$m(2AgNO_3) = 108 + 14 + 48 = 170 \cdot 2 = 340$

$m(Cu(NO_3)_2) = 64 + (14 + 48) \cdot 2 = 188 \text{ г}$

$\Sigma(Zn) = 11,2 + 20,3 = 31,5 \text{ г} (Zn)$

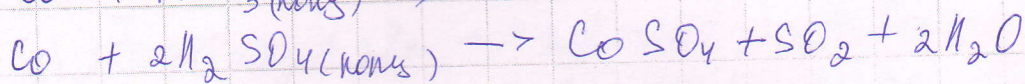
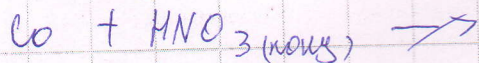
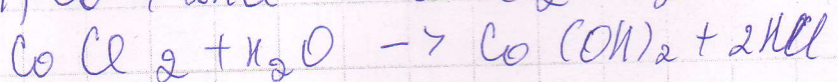
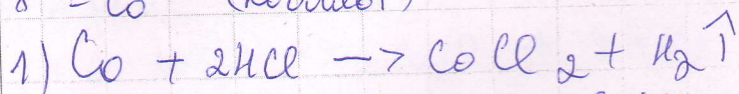


N5

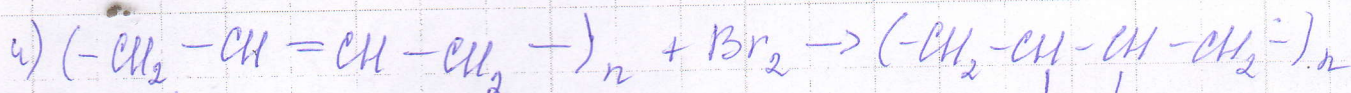
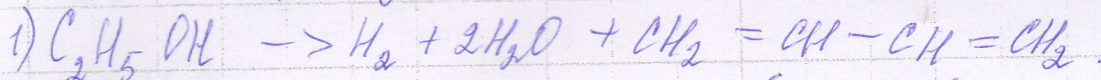


N3

x = Co (кобальт)

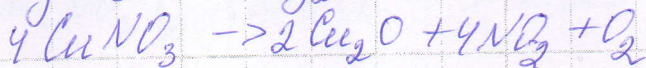
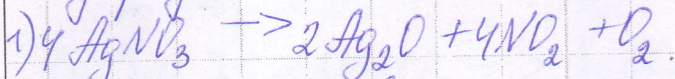


№1. Иштанар неден таланадыр

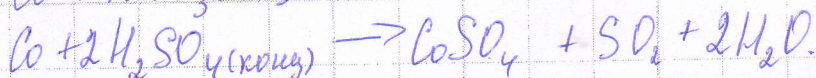
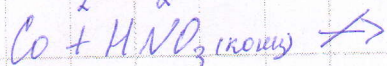
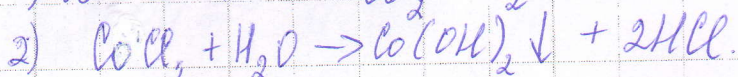
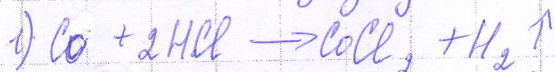


2 есең. Ыспанардағы боспақтар.

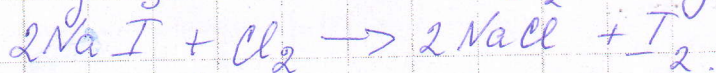
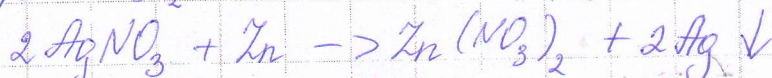
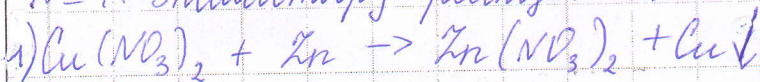
ыдырауы



№3 есең Ызың металл.

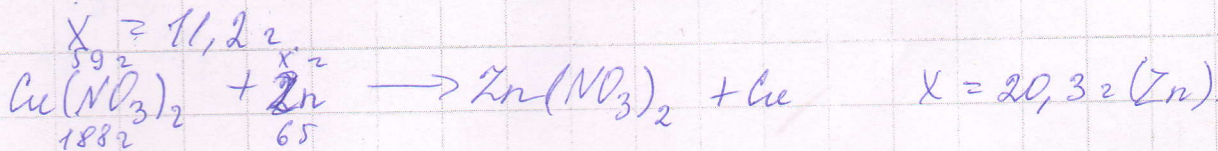
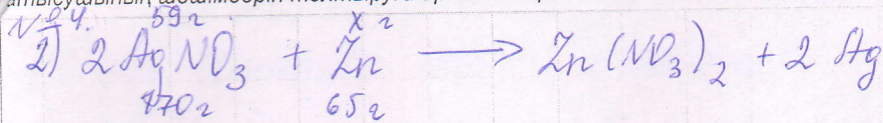


№4. Алмастыру реакциясең.



2) $100 \text{ мл} \cdot 1,18 \text{ г/мл} = 118 \text{ г}$

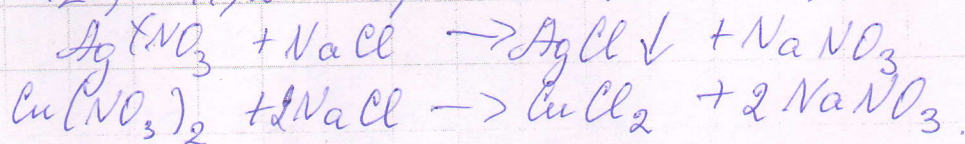
$118 : 2 = 59 \text{ г}$



$$m(2AgNO_3) = 108 + 14 + 48 = 170 \cdot 2 = 340z$$

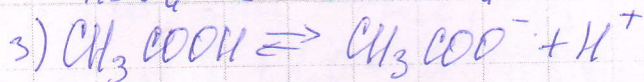
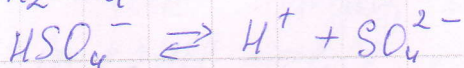
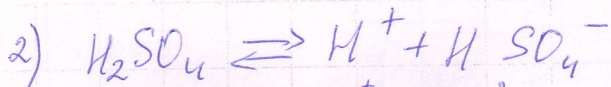
$$m(Cu(NO_3)_2) = 64 + (14 + 48) \cdot 2 = 188z$$

$$\Sigma(Zn) = 11,2 + 20,3 = 31,5z (Zn)$$

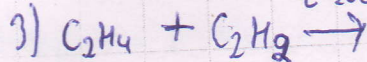
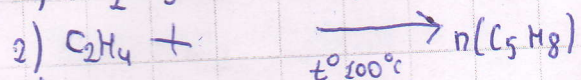


№5.

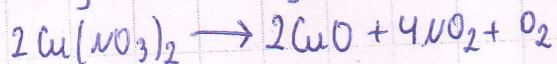
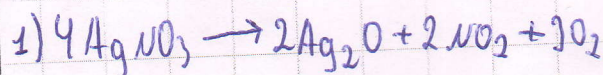
1)



№ 1 есеп.



№ 2 есеп.



2)

$$m(\text{носна}) = 2 \cdot 21,25 = 42,50 \text{ г}$$

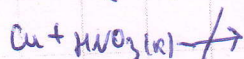
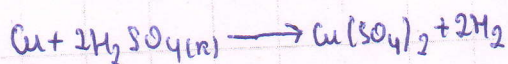
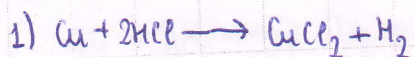
$$3) W(Ag) = \frac{108}{170} \cdot 100\% = 64\%$$

$$W(N) = \frac{14}{170} \cdot 100\% = 8\%$$

$$W(O_2) = \frac{32}{170} \cdot 100\% = 19\%$$

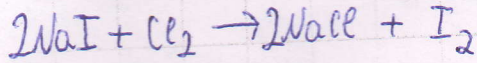
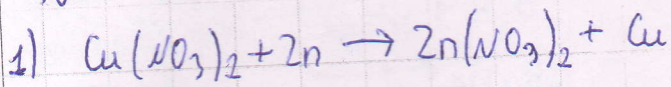
$$W(Cu) = \frac{64}{188} \cdot 100\% = 34\%$$

№ 3 есеп.

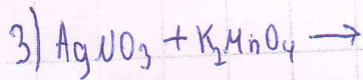
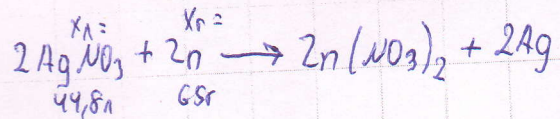
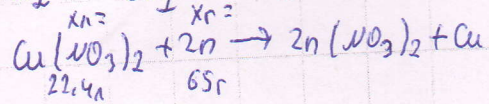
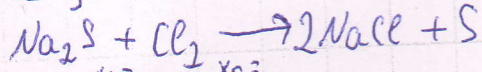
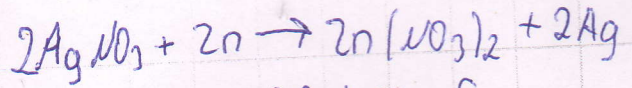


2) Белсенділігі төмен (негіз негіз)

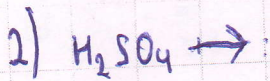
№4 есеп.



2) $V(\text{ерітінгі}) = 100 \text{ мл}$, $\rho(\text{ерітінгі}) = 1,18 \text{ г/мл}$
 $m(Zn) = ?$



№5 есеп.



$pH = -\log 0,1 \text{ моль} = 1$

$pOH = 13$

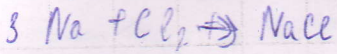
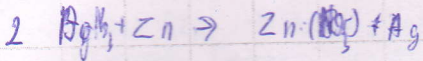
3)



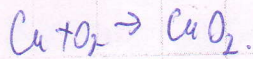
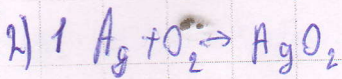
4) $pCO = 1,0$

$pH_2 = 2,0$

1) 1 деадирирование и адидрирование атаола в кристальна металлизация.

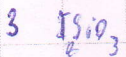
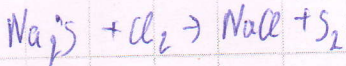
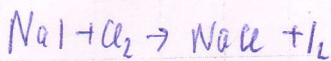
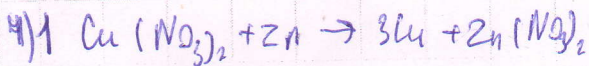


4 $B_T \times T_K = T_{01} + 243.15$



2 $Ag + O_2 \rightarrow Ag_2O$

$$\frac{108 \cdot 2}{16} \cdot x = \frac{108 \cdot 6.92 \cdot 10^{-23}}{16} = \frac{108 \cdot 6.92}{2 \cdot 16} = \frac{108 \cdot 3.46}{16} = 40.15 \text{ моль.}$$



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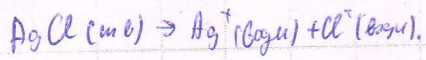
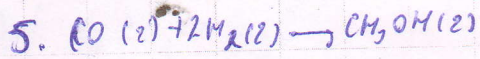
Шифрды ұйымдастырушы толтырады
Шифр заполняется организатором

Қатысушының шешімдерін толтыруға арналған өріс / Поле для заполнения решений участника Парақ / Страница №

3.

1) X менен Cl_2 → түрлі еден
электронды қысым сәтіндері.
X менен Cl_2 → зерттеу еден.
электронды қысым

2)



(ТТр, K_{sp}) AgCl $1,77 \cdot 10^{-10}$

(CH_3COOK) $0,1 \text{ моль л}^{-1}$ pOH $9,46$

Парақтың артқы жағын толтырмаңыз / Обратную сторону листа не заполнять