

Часть 1

Олимпиада: **Химия 11 класс (1 часть)**

Шифр: **21300302**

ID профиля: **810214**

Вариант 2

Задача 1.

Ученые

Данная, что 5-окисл

$$2O_2 \quad \frac{8x}{2+8x} = 0,48$$

$$2 = 8,666x$$

$$x = 1, \quad y = 2,666 -$$

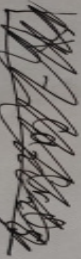
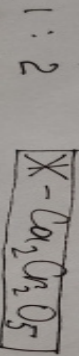
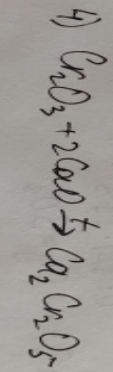
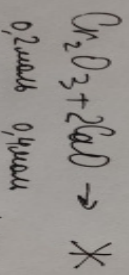
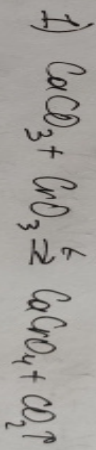
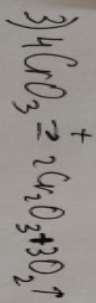
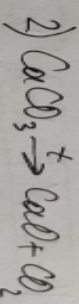
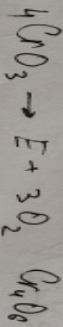
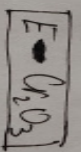
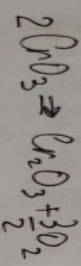
$$x = 2, \quad y = 17,332 -$$

$$x = 3, \quad y = 25,998 -$$

$$x = 4, \quad y = 34,66 -$$

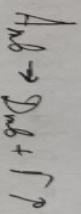
$$x = 5, \quad y = 43,33 -$$

$$x = 6, \quad y = 52 -$$



$$0,2 \cdot (52 \cdot 2 + 48) + 0,4 \cdot 56 = 52,82$$

$$\frac{V(I)}{V_m} = \frac{896}{22,4} = 0,4 \text{ моля}$$

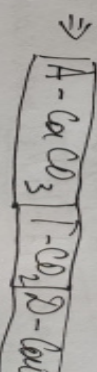


Данная $n(A):n(I) = 1:1$,

$$\text{масса } H(A) = \frac{4}{9} Q = 100 \text{ моля}$$

$$100 - 48 = 52 = 40 + 12 \Rightarrow$$

$$16 \cdot 3$$



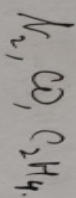
Задача 2.

Условие

Оребуется, что $X = 0,8$

$$\rho = 1,25 \cdot 10^{-3} \text{ г/см}^3 = 1,25 \text{ г/л}$$

$$\rho = \frac{M}{V_m} \Rightarrow M = \rho \cdot V_m = 1,25 \cdot 22,4 = 28 \text{ г/моль}$$

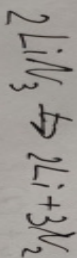
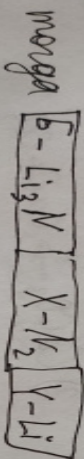


Газовый карманно-кислотный анализ $\Rightarrow$

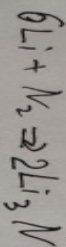
$\Rightarrow$ присутствием S^{2-} или Li^+

Каждый элемент, что это Li^+ ,

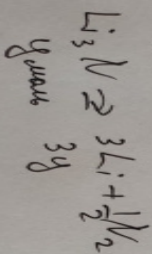
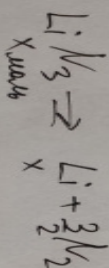
масса $[A - Li] N_3$, так как $Li + N_2 \Rightarrow 2Li_3N$,



$PV = nRT$



$$n = \frac{Z_{40} \cdot 44,848}{0,0821 \cdot 293} = 1,815 \text{ моль}$$



$$\begin{cases} 49x + 35y = 50,2 \\ (x + 3y) \cdot \frac{1}{2} = 1,815 \text{ моль} \end{cases}$$

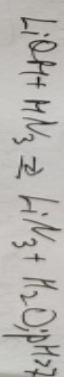
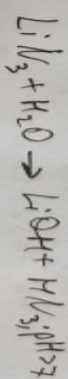
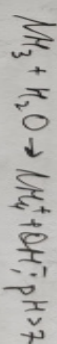
$x = 0,2049 \text{ моль}$

$y = 1,117 \text{ моль}$

$m(LiN_3) = 10,04012 = 49,0209 \text{ г}$

$w(LiN_3) = \frac{10,04012 \cdot 100\%}{50,2} = 20,08\%$

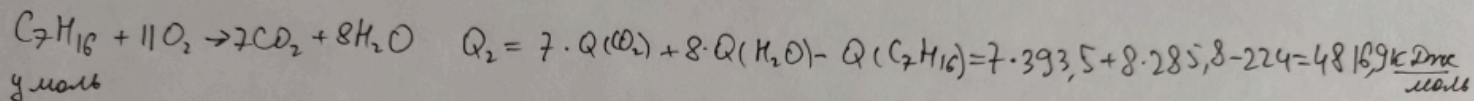
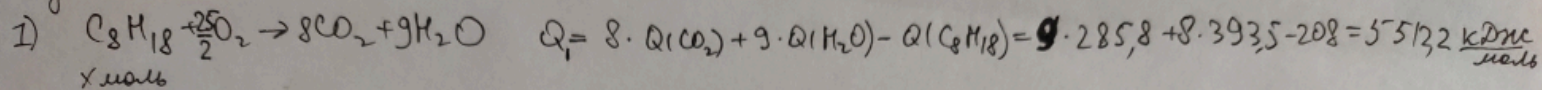
$w(Li_3N) = 100\% - w(LiN_3) = 79,92\%$



2

Задача 3.

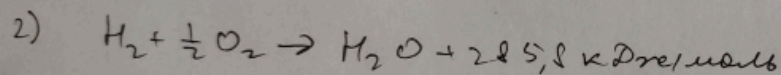
Условие



$$\begin{cases} x \cdot 5512,2 + y \cdot 4816,9 = 3333,8 \\ \frac{114x}{0,69} + \frac{100y}{0,684} = 100 \end{cases} \quad \begin{aligned} x &= 0,5650 \text{ моль} \\ y &= 0,0456 \text{ моль} \end{aligned}$$

$$V_1 = \frac{0,5650 \cdot 114}{0,69} = 93,35 \text{ мл}$$

$$\text{Октановое число} = \frac{93,35 \text{ мл}}{100 \text{ мл}} \cdot 100 = 93,35$$



$$0,1 \text{ л} - 3333,8 \text{ кДж}$$

$$40 \text{ л} - 1333520 \text{ кДж}$$

$$V(\text{H}_2) = \frac{1333520}{285,8} \cdot 22,4 \text{ л/моль} = \underline{104516,613 \text{ л}}$$

3) Rem

(3)

Часть 2

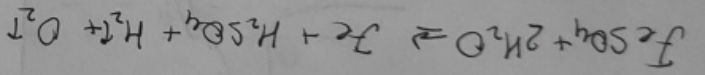
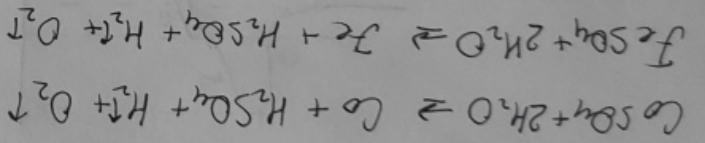
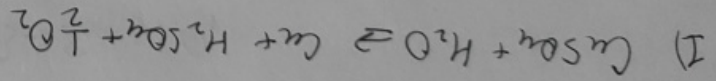
Олимпиада: **Химия 11 класс (2 часть)**

Шифр: **21300302**

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Вариант 2

Wernicke
Bergstr.



Es gab keine an der Elektrode, wenn
es am weiter ausgebaut wurde, dann
Heraus CuSO₄, wenn CuSO₄, wenn FeSO₄

$$m = \frac{M \cdot I \cdot t}{F \cdot n} = \frac{64 \cdot (63,5 + 96) \cdot 3 \cdot 10 \cdot 60 \cdot 60}{96500 \cdot 2}$$

(4)

термодинамический

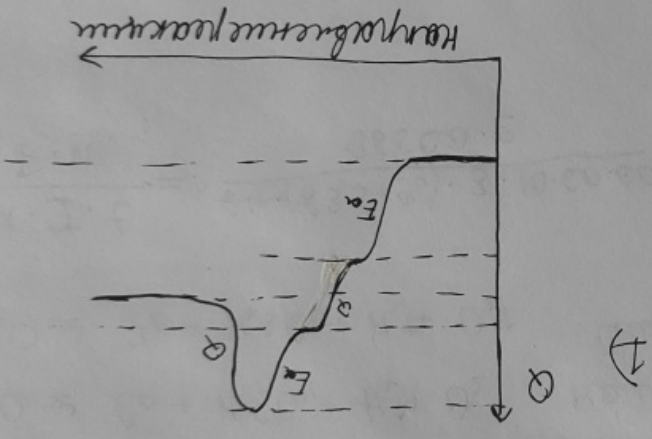
2) $Q > Q_{\text{нормальное}}$

$$-Q_1 + 1,5Q_1 = 0,5Q_1$$

3) $k_1 = A \cdot e^{-\frac{E_a}{RT}}$

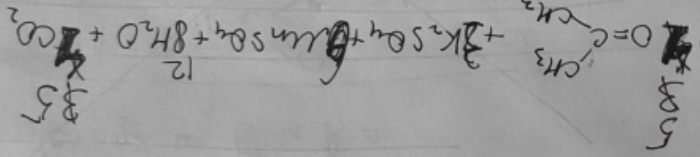
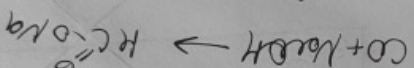
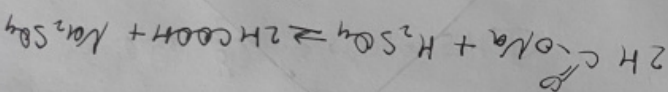
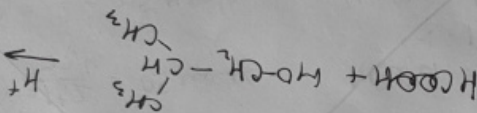
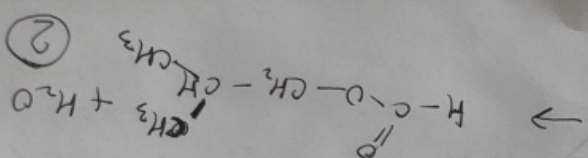
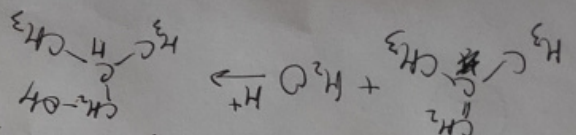
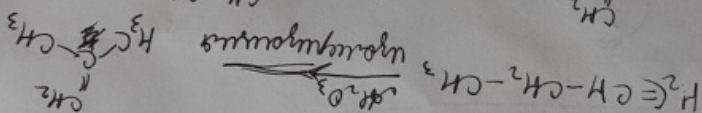
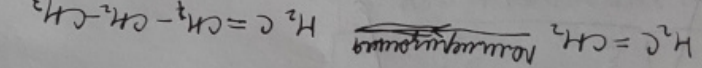
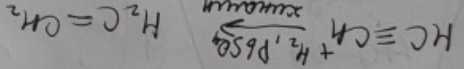
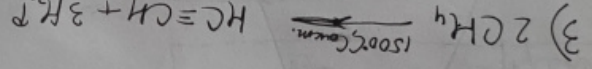
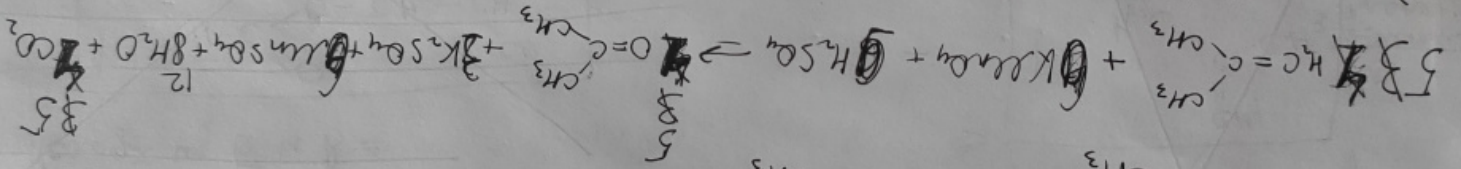
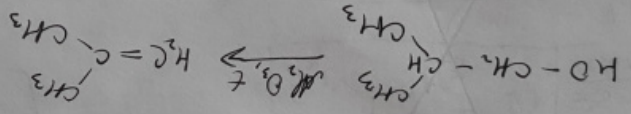
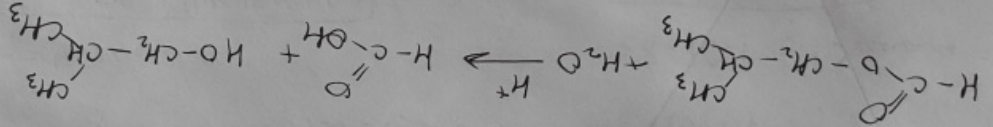
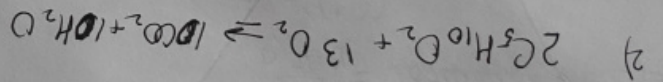
$$\ln k_1 = \ln A - \frac{E_a}{RT}$$

$$E_a = \ln \frac{k_1}{A} \cdot RT$$

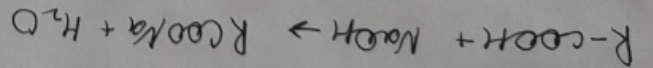


3

термобик
загаран 4.

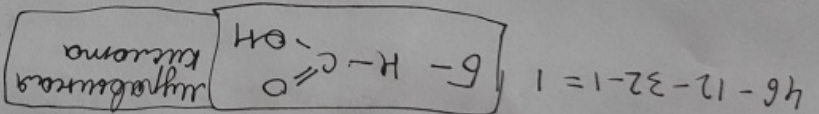


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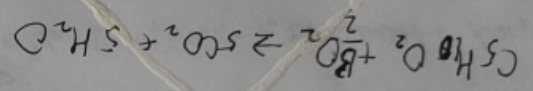
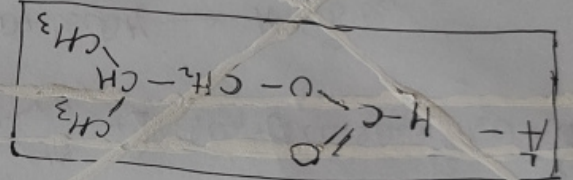


$$n(RCOOH) = C \cdot V = n(RCOOH) = 2 \text{ mmol} / 20 \cdot 0,05 \text{ L} = 0,1 \text{ mmol}$$

$$M(RCOOH) = \frac{m}{n} = \frac{4,6}{0,1} = 46 \text{ g/mol}$$



Wasserstoff 6 u B



$$n(CO_2) = \frac{11,2}{22,4} = 0,5 \text{ mmol}$$

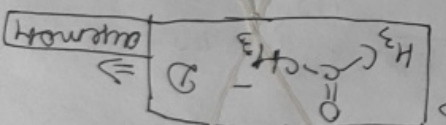
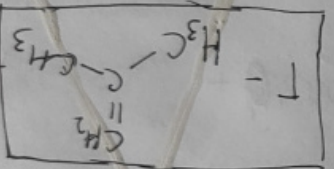
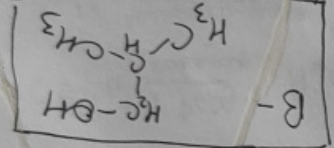
$$n(H_2O) = \frac{9}{18} = 0,5 \text{ mmol}$$

$$n(CO_2) : n(H_2O) = 1 : 1$$

$$M(A) = \frac{10,2}{\frac{1}{5}} = 51,0 \text{ g/mol}$$

I

⇒



$$58 - 16 - 12 = 30 \text{ g/mol} \Rightarrow$$

$$\frac{M(10)}{n(10)} = 58 \text{ g/mol}$$

$$\frac{16}{0,275 \text{ g}} = 58 \text{ g/mol} = 1(10) =$$