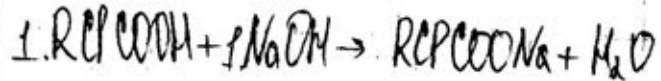




Т05-х11-14

Задача 11-1.

1 2 3 4 5
 7 9 2 8 3



$$n(NaOH) = 0,02 \text{ моль (по условию)}$$

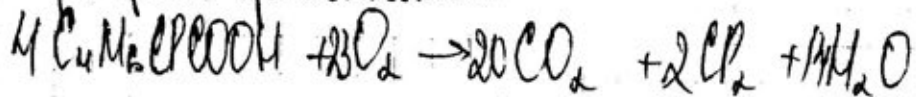
$$M(RCOOH) = 2,69$$

$$\text{если } n(NaOH) = 0,02 \Rightarrow n(RCOOH) = 0,02 \Rightarrow$$

$$\Rightarrow M = \frac{m}{\nu} = \frac{2,69}{0,02} = 134,5 \Rightarrow M(R) = 134,5 - M(C) - M(OO)$$

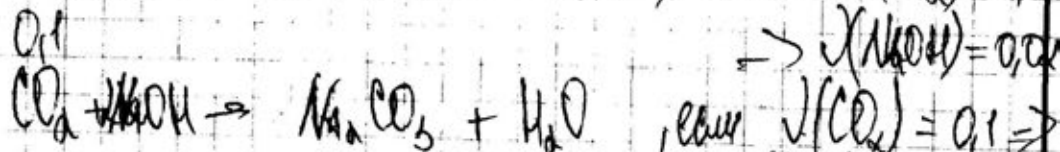
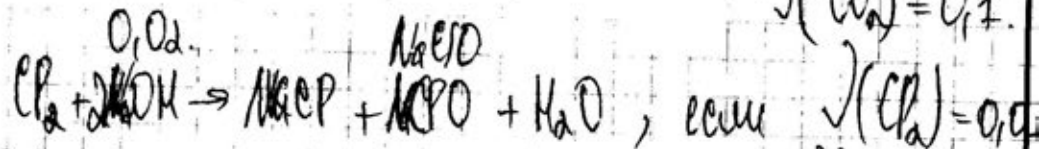
$$= 134,5 - 35,5 - 45 = 54 \Rightarrow R = C_4H_6 \text{ (возможно)}$$

Проверим расчетами.



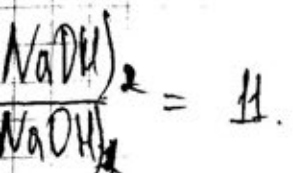
$$n(C_4H_6COOH) = 0,02 \text{ (по условию)} \Rightarrow n(C_2) = 0,01$$

$$n(CO_2) = 0,1$$

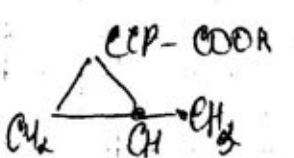
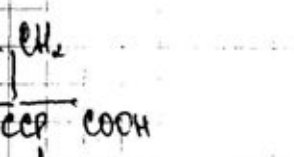
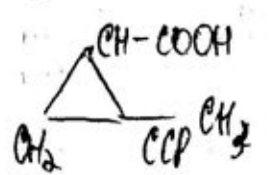
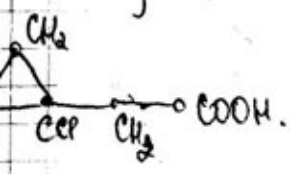


2000

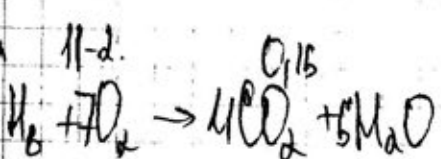
2000



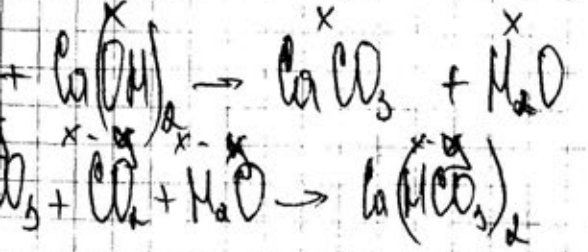
Маленькая форма формула милона = $C_4H_8O_2$



возможна м.к. или краиных



b) $\frac{1,792}{22,4} = 0,08 \Rightarrow V(CO_2) = 0,16$

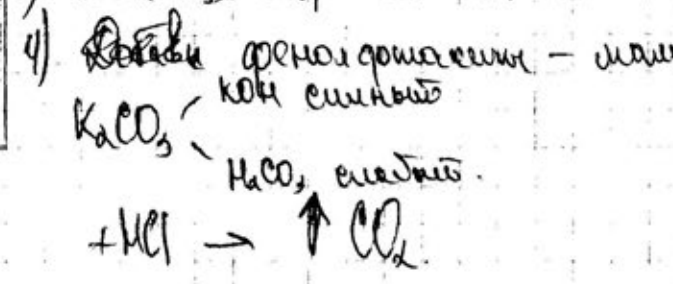


~~Пусть $V(CO_2) = x$~~
 Пусть $V(Ca(OH)_2) = x$
 Пусть $V(CaCO_3) = y$
 осталось

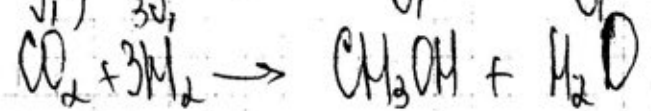
Российская Федерация
 Министерство образования
 Тюменская область
 Комитет по образованию
 администрации
 г. Тобольск
 " " 26 "

Задача 11-4.

3) $m(K_2CO_3) = 0,1 \cdot 138 = 13,8 г.$



Задача 11-5.



$P_1 V = \nu_1 RT$

$P_2 V = \nu_2 RT$

$P = P_1 + P_2 = \frac{RT}{V} (\nu_1 + \nu_2)$

$\frac{P}{RT} = \frac{\nu_1 + \nu_2}{V} = \frac{10 \cdot 10^6}{8,31 \cdot 600} = 2005$

$\frac{\nu_1}{\nu_2} = \frac{1}{4} \Rightarrow 4\nu_1 = \nu_2$

$\frac{\nu_1}{V} = 2005$

$\frac{\nu_1}{V} = 401$

V - const
 P_i - давление CO_2
 карбоната

ν_1 - моли CO_2

T = 600K

$P = 10 \cdot 10^6 Pa$

После реакции ($\nu_2 - \nu_1$) осталось водорода

P_3 - давление воды парциальное = $9 \cdot 10^4$ Па.

$$P_3 = \frac{RT}{V} (J_1 + J_2 + J_3)$$

$$\frac{3J_1}{V} = \frac{P_3}{RT}$$

$$J(\text{CH}_3\text{OH}) = J_1$$

$$J(\text{H}_2\text{O}) = J_2$$

$$J(\text{H}_2\text{O}_{\text{остаток}}) = J_3$$

$$\frac{J_1}{V} = 601 \cdot J_1 \cdot M(\text{CH}_3\text{OH})$$

$$M(\text{CH}_3\text{OH}) = 32 \cdot 10^{-3}$$

$$\frac{M}{V} = 601 \cdot 32 \cdot 10^{-3} = 19,25 \Rightarrow m = 19,25 \cdot V(\text{CH}_3\text{OH})$$

$$m(\text{H}_2) = 601 \cdot 2 \cdot 10^{-3} \cdot V = 0,601 V$$

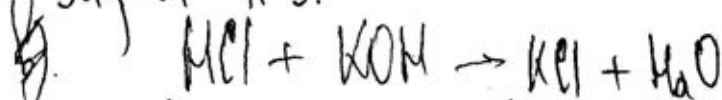
$$m(\text{H}_2\text{O}) = 601 \cdot 18 \cdot 10^{-3} \cdot V = 10,818 V$$

$$q(\text{CH}_3\text{OH}) = \frac{19,25 V}{30,667 V} = 0,627 \quad (\text{CH}_3\text{OH})$$

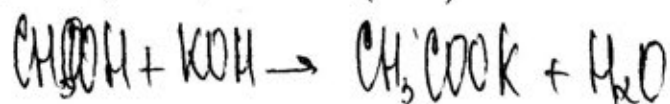
$$q(\text{CH}_3\text{OH}) = 0,627 = 62,7\%$$

$$M(\text{ep}) = 0,627 \cdot 32 + 0,02 \cdot 2 + 0,35 \cdot 18 = 26,404$$

Задача 4-3.



$$X(\text{KOH}) = 0,2 = X(\text{HCl})$$



$$1) \left. \begin{aligned} x+y &= 0,16 \\ 100(x-y) &= 162y \end{aligned} \right\} \left(m(\text{CaCO}_3) \cdot \nu(\text{CaCO}_3 \text{ reference}) = m(\text{Ca(HCO}_3)_2) \cdot \nu(\text{Ca(HCO}_3)_2) \right)$$

$$+ \begin{cases} 52x + 162y = 9,92 \\ 100x - 100y = 162y \end{cases}$$

$$162x = 9,92$$

$$x = 0,06123 \approx 0,06 \Rightarrow y = 0,1$$

$$m(\text{CaCO}_3) = 0,06 \cdot 100 = 6$$

$$m(\text{Ca(HCO}_3)_2) = \cancel{0,1} \cdot \cancel{162} = \cancel{12,72} \quad \text{g}$$

$$1) \left. \begin{aligned} x-y &= 0,16 \\ 100(y) &= 162(x-y) \end{aligned} \right\}$$

$$\begin{cases} x-y = 0,16 & / \times 262 \\ 262y - 162x = 0 \end{cases}$$

$$+ \begin{cases} 524x - 262y = 41,92 \\ 262y - 162x = 0 \end{cases}$$

$$362x = 41,92$$

$$x = 0,1158 \Rightarrow y = 0,0716$$

$$m(\text{Ca(HCO}_3)_2) = (x-y) \cdot 162 = 7,1604 \approx 7,16$$

$$m(\text{Ca(OH)}_2) = x \cdot 74 = 0,0973 \cdot 74$$

$$m(\text{p-p}) = 740 + 0,18 \cdot 44 - \frac{0,1158 \cdot 100}{115} = 735,54$$

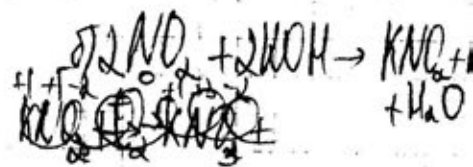
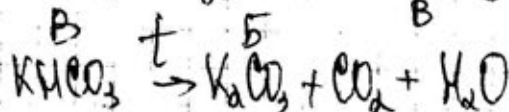
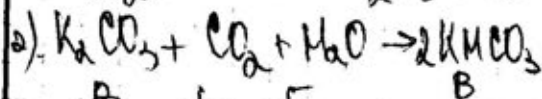
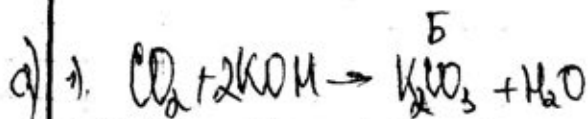
$$\omega = \frac{0,0973 \cdot 100}{735,54} \approx 0,01 = 1\% \quad (0,973\%)$$

Задача 11-ч.

9

$$\frac{r_c}{r_B} = 1,55 \pm 0,04 = \frac{M_c}{M_B}, \quad p_{10} = 29$$

$$M_c \cdot p_2 \in [43,79; 46,11] \Rightarrow \text{а) } A = \text{CO}_2 \text{ или } \text{б) } A = \text{NO}_2$$



$$\omega(\text{KOH}) = \frac{8}{56} = 0,1428 \Rightarrow$$

$\omega(\text{CO}_2) > \omega(\text{воздуха})$

$\Rightarrow \omega(\text{CO}_2) \text{ из 1 уравнения} = 0,0714 \Rightarrow \omega(\text{CO}_2) \text{ из 2 уравнения} = 0,0286$