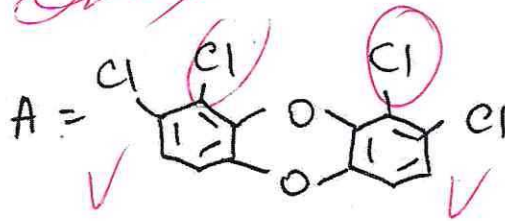
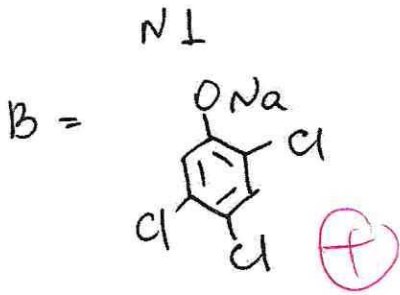


55 б.  
Дура



$$\frac{N_{Cl}}{N_{Na}} = 2,7273$$

Пусть  $\nu(A) = y$  ;  $\nu(B) = x$

$$\begin{cases} x + y = 1 \\ \frac{6x + 12y}{3x + 4y} = 2,7273 \end{cases}$$

$$\Rightarrow \begin{cases} x + y = 1 \\ 6x + 12y = 8,1819x + 10,9092y \end{cases}$$

$$\begin{cases} x + y = 1 \\ 2,1819x = 1,9092y \end{cases} \Rightarrow \begin{cases} x = 0,3333 \text{ моль} \\ y = 0,6667 \text{ моль} \end{cases}$$

$M_A = 322 \text{ г/моль}$ ;  $M_B = 219,5 \text{ г/моль}$

~~Пусть  $\nu(A) = x$  ;  $\nu(B) = y$~~

$$\begin{aligned} M_A &= 322 \cdot 0,6667 = 214,6774 \text{ г} \\ M_B &= 219,5 \cdot 0,3333 = 73,15935 \text{ г} \end{aligned} \quad \left. \vphantom{\begin{aligned} M_A \\ M_B \end{aligned}} \right\} M_{\text{см}} = 287,8367$$

$$w_A = \frac{M_A \cdot 100\%}{M_{\text{см}}} = 74,583\% \Rightarrow w_B = 25,417\%$$

Ответ: 74,583% - A; 25,417% - B



СЕЧЕНОВСКИЙ  
УНИВЕРСИТЕТ  
1111103

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

N2

$$m_x = 7,4 \text{ г} \quad \left| \quad 7,4 - \frac{8,96}{22,4} \cdot 12 - \frac{9}{18} \cdot 2 = m_o = 1,8 \text{ г}$$

$$V_{CO_2} = 8,96 \text{ л}$$

$$m_{H_2O} = 9 \text{ г}$$

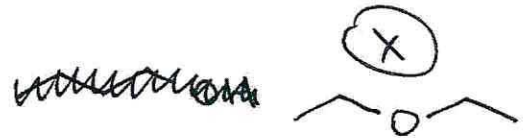
$$n_o = \frac{1,8}{16} = 0,1 \text{ моль}$$

$$n_c = \frac{8,96}{22,4} = 0,4 \text{ моль}$$

$$n_H = \frac{9}{18} \cdot 2 = 1 \text{ моль}$$

$$C : H : O = 0,4 : 1 : 0,1 = 4 : 10 : 1$$

$C_4H_{10}O$  - брутто-формула -



$$m_x = 12 \cdot 4 + 10 + 16 = 74 \text{ г/моль}$$

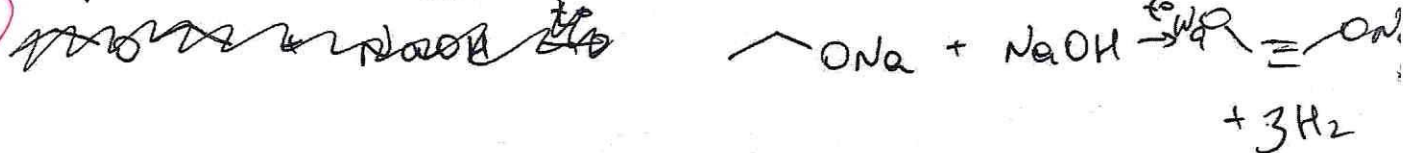
$$n_x = \frac{15}{74} = 0,2027 \text{ моль}$$

$$n_{NaOH} = 91 \cdot 10^{-3} \cdot 2,75 = 0,25025 \text{ моль}$$



$$m_{\text{неорг. ост.}} = \frac{23x}{0,45} = 51,1x \text{ г/моль} - NaCO_{NaO} \equiv \text{—ONa}$$

$$\text{при } x = 2 \quad m = 102 \text{ г/моль} - Na_2C_2O_2 \equiv \text{—ONa}$$



N3

$$D = 10 \text{ см}$$

$$h = 20 \text{ см}$$

$$a = 1 \text{ мм}$$

$$V_{\text{H}_2\text{O}} = 60\%$$

$$V_{\text{NH}_3} = 15,5 V_{\text{H}_2\text{O}}$$

$$\text{pH} = ?$$

$$V_{\text{ч}} = \pi \cdot r^2 \cdot h = 3,14 \cdot 10 \cdot 20 \cdot \frac{10}{2} = 3140 \text{ см}^3 \text{ или мл}$$

$$\rho_{\text{H}_2\text{O}} = 1 \text{ г/см}^3$$

$$V_{\text{H}_2\text{O}} = 3140 \cdot 0,6 = 1884 \text{ см}^3 \text{ или л}$$

$$m_{\text{H}_2\text{O}} = 1884 \text{ г}$$

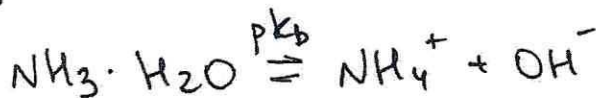
$$V_{\text{NH}_3} = 1884 \cdot 15,5 = 29202 \text{ мл} = 29,202 \text{ л}$$

$$= 29,202 \text{ л}$$

$$= 0,65183 \text{ моль}$$

$$\nu_{\text{NH}_3} = \frac{V}{V_m} = \frac{19,601}{2} \text{ моль} = 0,65183 \text{ моль}$$

$$\text{pH} + \text{pOH} = 14$$



$$K_b = \frac{[\text{NH}_4^+][\text{OH}^-]}{[\text{NH}_3 \cdot \text{H}_2\text{O}]}$$

Дана концентрация

$$\text{p}K_b = -\lg \left( \frac{[\text{NH}_4^+][\text{OH}^-]}{[\text{NH}_3 \cdot \text{H}_2\text{O}]} \right)$$

$$K_b = 1,7378 \cdot 10^{-5}$$

$$K_b = \frac{x^2}{\frac{19,601}{2} - x} = 1,7378 \cdot 10^{-5}$$

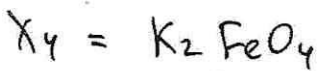
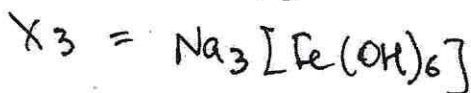
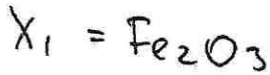
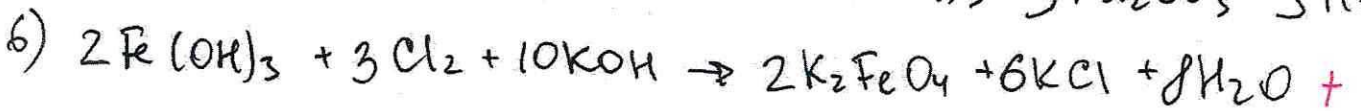
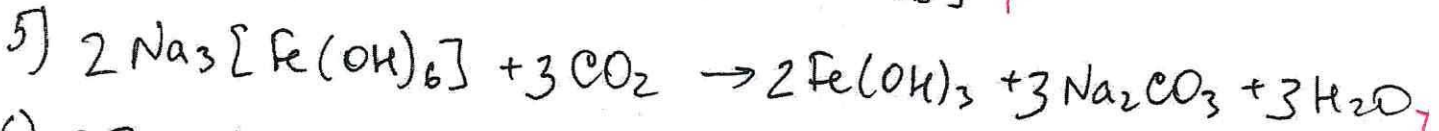
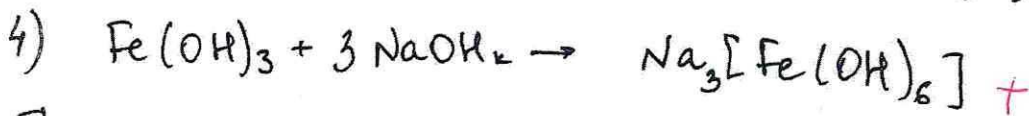
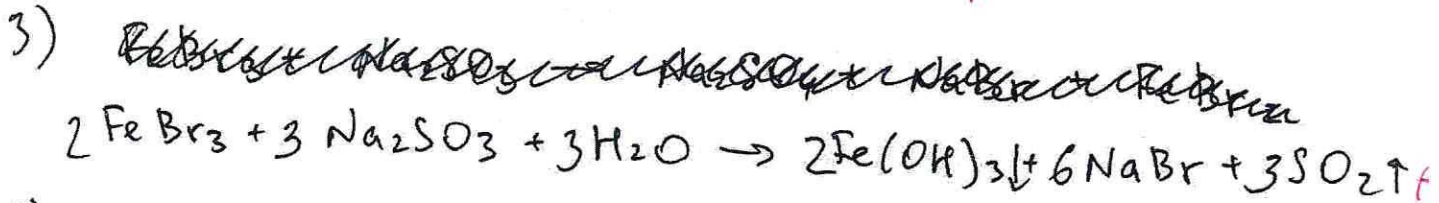
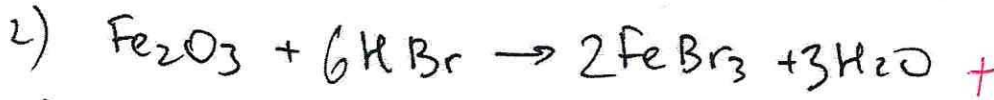
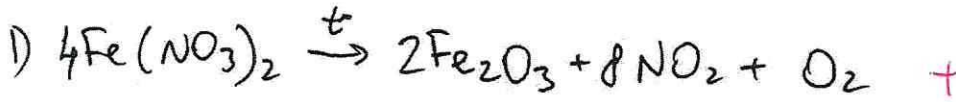
$$\Rightarrow x = 3,357 \cdot 10^{-3} \text{ моль} = \text{OH}^-$$

$$C_{\text{OH}^-} = \frac{\nu_{\text{OH}^-}}{V_p} = \frac{3,357 \cdot 10^{-3}}{0,942} = 0,00356 \text{ моль/л}$$

$$\text{pOH} = -\lg(C_{\text{OH}^-}) \approx 2,45 \Rightarrow \text{pH} = 14 - 2,45 = 11,55$$

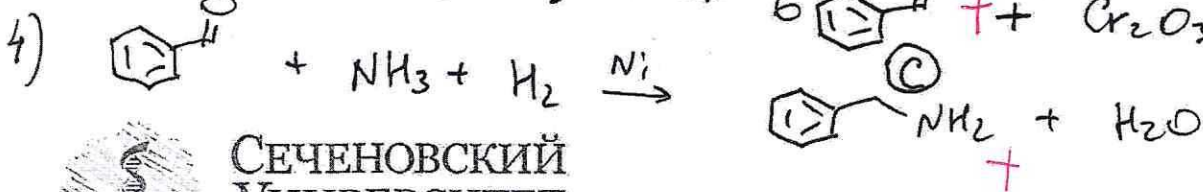
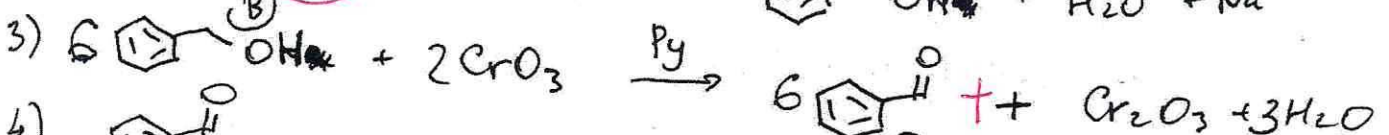
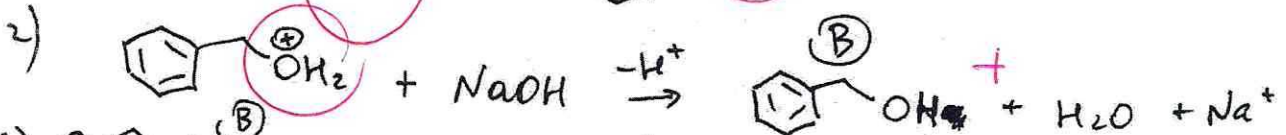
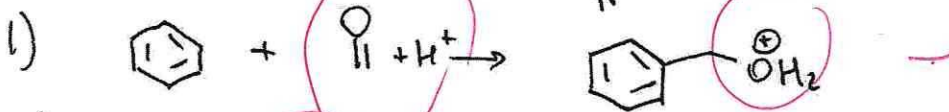
Ответ:  $\text{pH} \approx 11,55 = 11,5519$

N 7



N 8

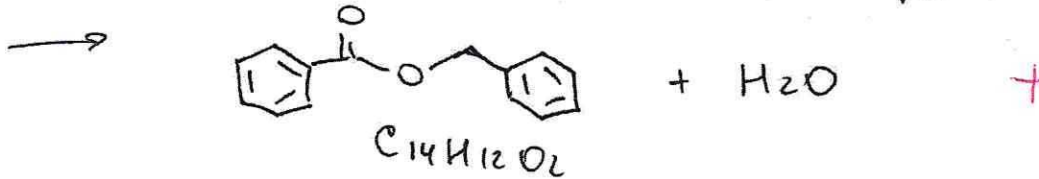
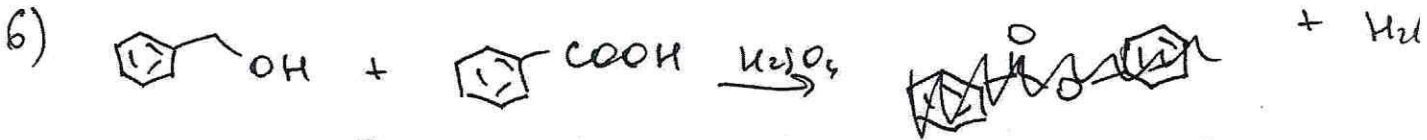
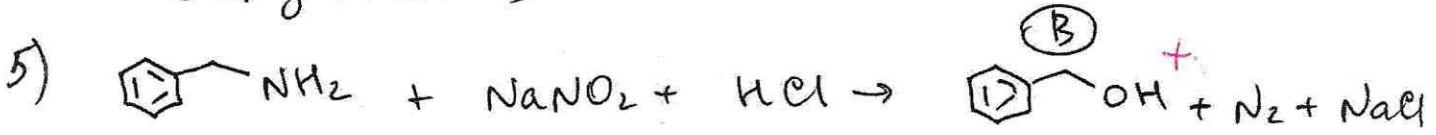
*исл /  $\text{ZnCl}_2$*



СЕЧЕНОВСКИЙ  
УНИВЕРСИТЕТ

11103

N 8 (продолжение)



N 10

$W_{OH} = 70\%$

$W_{минер.} = 25\%$

$I_p = 2,5 \text{ ммоль/кг}$

$M_n = 5 \text{ г}$

$V_{см.с.} = 30 \text{ мл}$  ( $AcOH : CH_3Cl = 3 : 2$ )

$V_{кел.р} = 0,5 \text{ мл}$

$V_{H_2O} = 30 \text{ мл}$

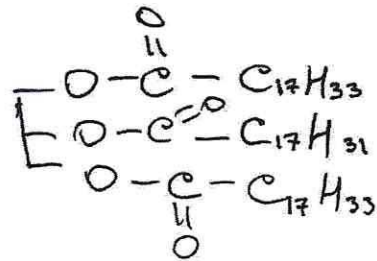
$C_{Na_2S_2O_3} = 0,01 \text{ М}$

$V_{кр.} = 5 \text{ мл}$

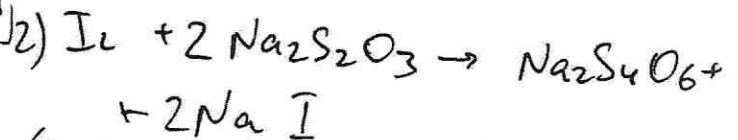
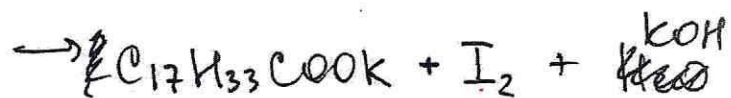
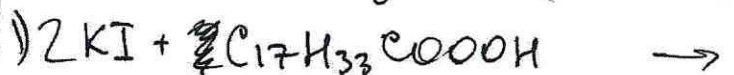
$V_1(Na_2S_2O_3) = 2,5 \text{ мл}$

$V_2(Na_2S_2O_3) = 0,1 \text{ мл}$

масло :



гидропероксид : ~~C17H33OO~~



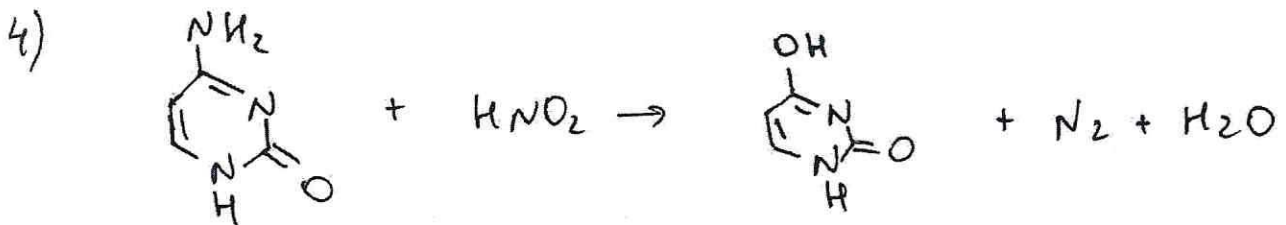
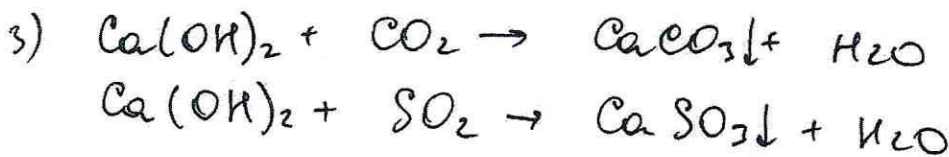
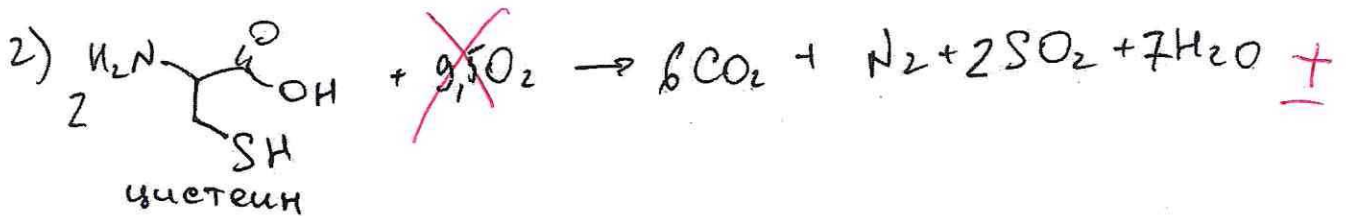
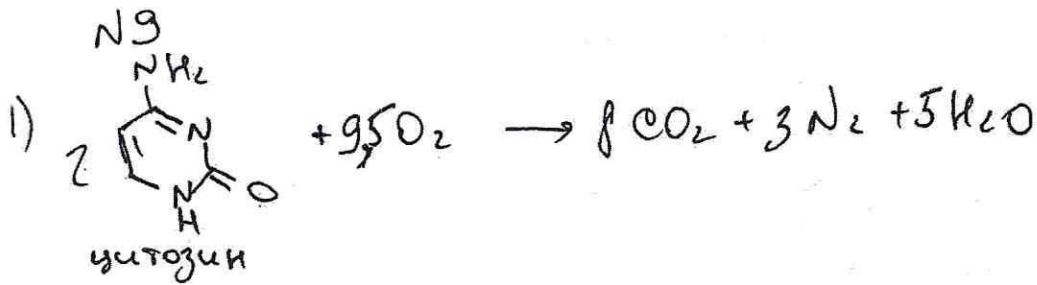
$\Delta_{Na_2S_2O_3} (\text{на } I_2 \text{ от пероксид.}) = (2,5 - 0,1) \cdot 0,01 \cdot 10^{-3} = 2,4 \cdot 10^{-5} \text{ моль}$

$\Delta_{I_2} = 1,2 \cdot 10^{-5} \text{ моль} = \Delta_{\text{пероксида}} = \Delta_{\text{актив. } O_2}$

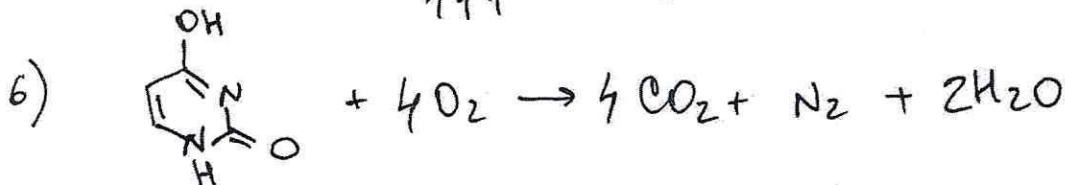
$P_I = \frac{1,2 \cdot 10^{-5}}{5 \cdot 10^{-3}} = 4,8 \text{ ммоль/кг} \rightarrow \text{такое масло несет в себе опасность}$

№10 (продолжение)

$$W_0 = \frac{1,2 \cdot 10^{23} \cdot 16 \cdot 10^{-27}}{5} \cdot 100\% = 0,00384\% \approx 0,004\%$$



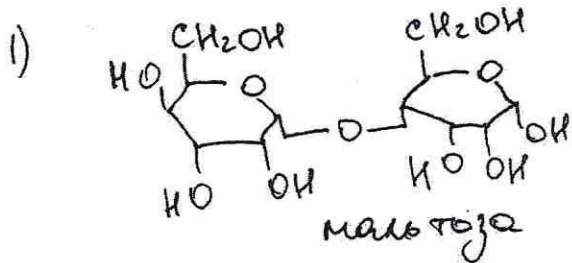
5)  $n_{\text{цитозина}} = \frac{24,2}{111} = 0,218 \text{ моль}$



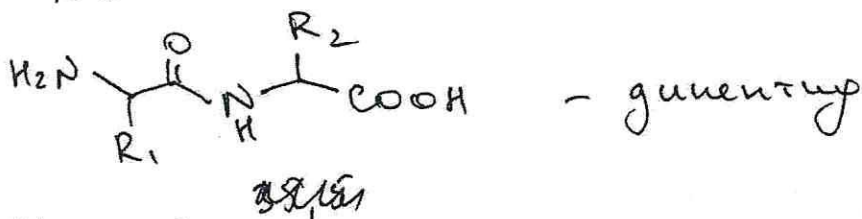
7)  $V_{\text{N}_2} = 22,4 \cdot 0,218 = 4,8832 \text{ л}$



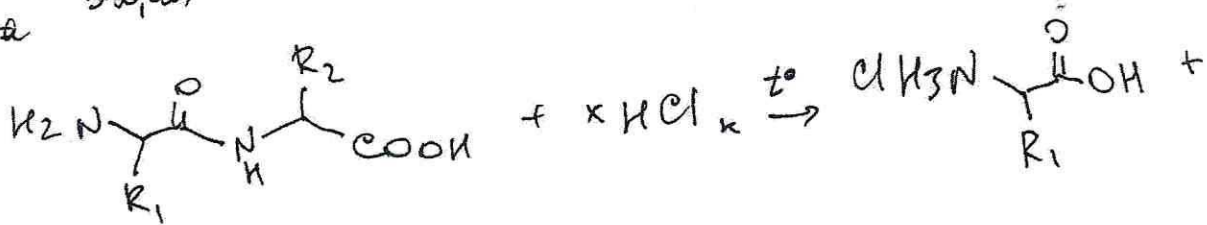
N 4



N 6



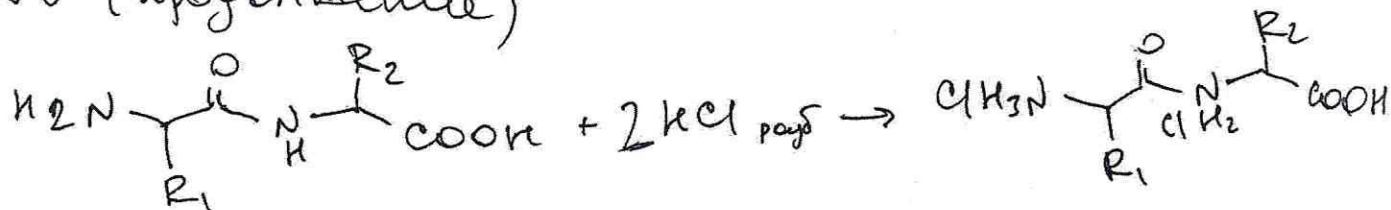
~~молочная кислота~~



$$M_{\text{max}} = \frac{35,5 \times}{0,2254} = 157,5 \text{ г / моль} \Rightarrow M_{R_1} = 157,5 - 35,5 - 12 \cdot 2 - 32 - 5 = 61 \text{ г / моль}$$



N 6 (продолжение)



$$M = \frac{35,5 \text{ г}}{0,105498} = 336,5 \text{ г/моль}$$

при  $n=2$   $M = 673 \text{ г/моль}$

$$M_{\text{R}_1+\text{R}_2} = 673 - 71 - 28 - 48 - 12 \cdot 4 - 8 = 470 \frac{\text{г}}{\text{моль}}$$

N 5

