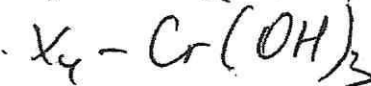
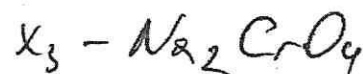
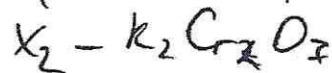
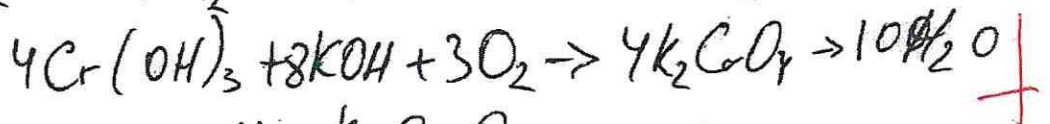
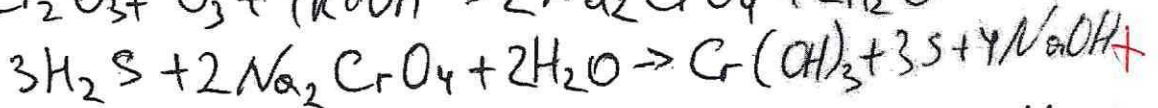
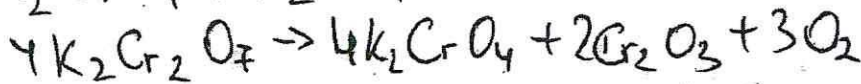
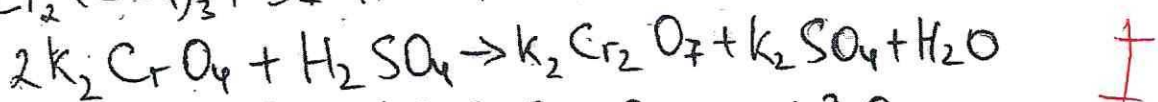
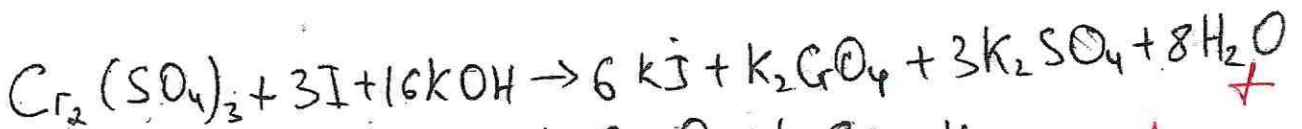


76/10

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

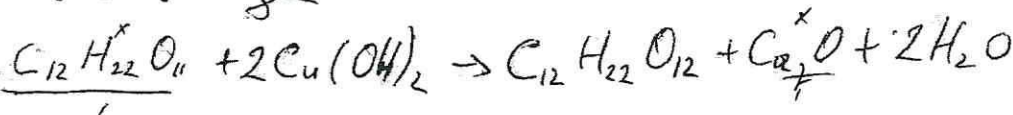
7.4



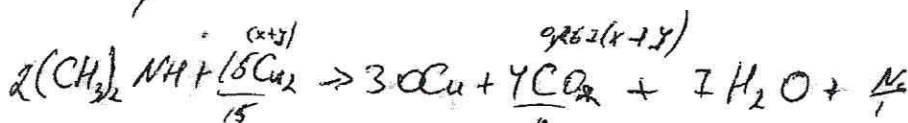
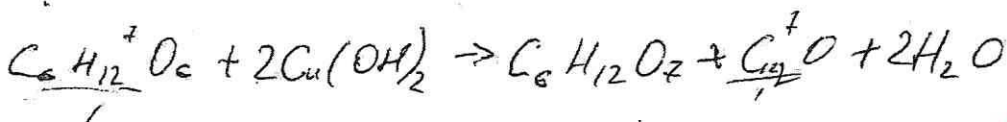
125

4.4

мольноза



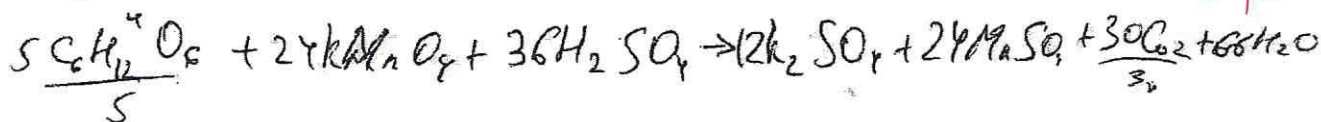
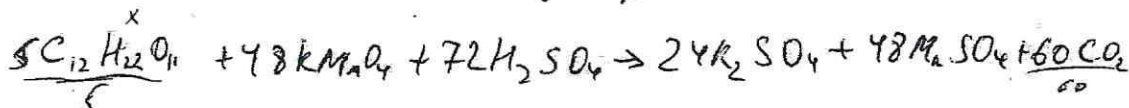
за юкоза



$$0,266(x+y) + 0,008(x+y) = \frac{6,12}{23,4} = 0,05$$

$$x+y = 0,15$$

$$J = [R \cdot x] = \frac{262}{141}$$



$$\begin{cases} x+y=0,15 \\ 12x+6y = \frac{PV}{RT} = \frac{1013 \cdot 27,8}{8,31 \cdot 283} = 1,2 \end{cases}$$

$$\begin{cases} x+y=0,15 \\ 12x+6y=1,2 \end{cases} \Rightarrow \begin{cases} x+y=0,15 \\ 2x+2=0,2 \end{cases} \quad \begin{matrix} x=0,05 \\ y=0,1 \end{matrix}$$

0,05 моль $C_{12}H_{22}O_{11}$
0,1 моль $C_6H_{12}O_6$

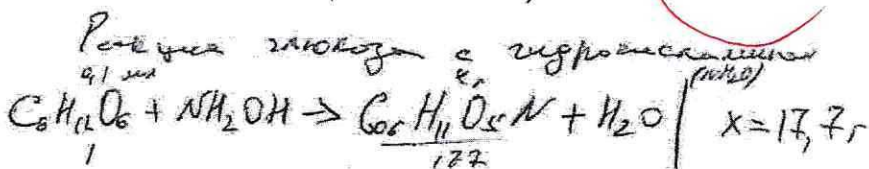
$$m(C_{12}H_{22}O_{11}) = J \cdot M = 0,05 \cdot 342 = 17,1 \text{ г } C_{12}H_{22}O_{11}$$

$$m(C_6H_{12}O_6) = J \cdot M = 0,1 \cdot 180 = 18 \text{ г } C_6H_{12}O_6$$

$$m_{\text{масса}} = m(C_{12}H_{22}O_{11}) + m(C_6H_{12}O_6) = 17,1 + 18 = 35,1 \text{ г}$$

70

СЕЧЕНОВСКИЙ
УНИВЕРСИТЕТ



$$\begin{matrix} 17,7 \text{ г} & - & 100\% \\ x \text{ г} & - & 90\% \end{matrix} \quad \left| \quad x = 15,93 \text{ г} \right.$$

11x208

$$\text{Архим: } m_{\text{масса}} = 35,1 \text{ г}$$

$$m(C_6H_{11}O_5N) = 15,93 \text{ г}$$

+

24

$$PV = \nu RT$$

$$\nu(CO_2) = \frac{PV}{RT} = \frac{98,9 \cdot 14,72}{8,31 \cdot (273+22)} = 0,6 \text{ моль } CO_2$$

$$m(C) = \nu \cdot M = 0,6 \cdot 12 = 7,2 \text{ г}$$

$$H_2O \quad \nu 13,5 \text{ г} = 13,5 \text{ г}$$

$$\nu(H_2O) = \frac{m}{M} = \frac{13,5}{18} = 0,75 \text{ м}$$

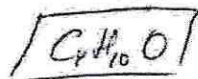
$$m(H) = 2 \nu(H_2O) \cdot M(H) = 2 \cdot 0,75 \cdot 1 = 1,5 \text{ г}$$

$$m(C) + m(H) = 7,2 + 1,5 = 8,7 \text{ г}$$

$$m(O) = m(x) - m(C, H) = 11,1 - 8,7 = 2,4 \text{ г}$$

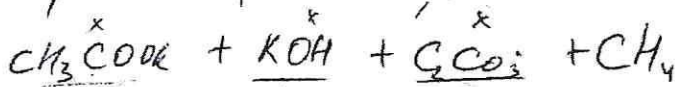
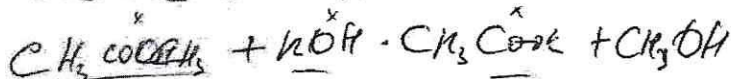
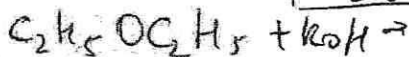
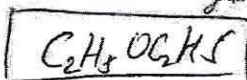
7,2	1,5	2,4
C	H	O
12	1	16

$$0,6 : 1,5 : 0,15$$



$$4 : 10 : 1$$

↓
группировка атомов



$$\nu_{KOH} = \frac{m_{KOH}}{100} = \frac{200 \cdot 1,25}{1000} = 0,25 \text{ моль}$$

$$\nu_{KOH}^{ок} = (0,25 - 2x) \text{ моль} \quad m(KOH) = 0,25 - 2x = 56 - 112x$$

$$\nu_{K_2CO_3} = x \text{ моль} \quad m(K_2CO_3) = 138x$$

$$m_{KOH}^{ок} + m_{K_2CO_3} = 14 - 112x + 138x = 14 + 26x$$

$$14 + 26x = 100 \%$$

$$m(K)_{KOH} = 39(0,25 - 2x) = 9,75 - 78x$$

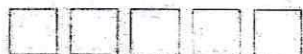
$$m(O)_{K_2CO_3} = 2x - 39 = 78x$$

$$m_{K}^{общ} = 9,75 - 78x + 79 = 88,75$$

$$14 + 26x = 100x$$

$$88,75$$

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УНИВЕРСИТЕТ



11x 208

$$975 = 58,73(14 + 26x)$$

$$975 = 822,22 + 1526,38x$$

$$x = \frac{975 - 822,22}{1526,38} \approx 0,1$$

$$m(C_{12}H_4O_2) = 0,1 \cdot M = 0,1 \cdot 74 = 7,4 \text{ г } C_{12}H_4O_2$$

$$m(C_2H_5OC_2H_5) = 15 - 7,4 = 7,6 \text{ г}$$

массовые доли $C_2H_5OC_2H_5$ в смеси:

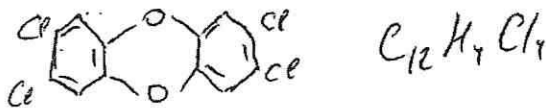
$$\frac{18 \text{ г} - 100 \text{ г}}{7,6 \text{ г} - x} \quad | \quad x = 50,66\%$$

ответ: $x - C_2H_5OC_2H_5$ составляет 50,66% в массовых долях

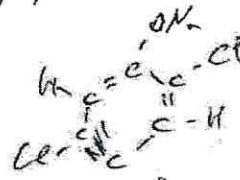
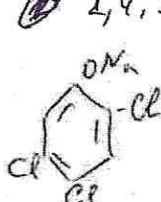
+100

1.7

а) 2,3,7,8-тетрахлордифенил-этер-диоксин



б) 2,4,5-трихлорфенол



$$C_{12}H_4Cl_4O_2 \rightarrow x \text{ моль}$$

$$C_6H_2Cl_3ONa \rightarrow y \text{ моль}$$

число атомов хлора

$$C_{12}H_4Cl_4O_2 \rightarrow 4Cl$$

$$C_6H_2Cl_3ONa \rightarrow 3Cl$$

СЕЧЕНОВСКИЙ
УНИВЕРСИТЕТ

□ □ □ □ □

число атомов в смеси

$$C_{12}H_4Cl_4 \rightarrow 20$$

$$C_6H_2Cl_3ONa \rightarrow 0$$

MX 205

Составляем уравнение.

$$J_{(Cl)}^{од} = 4x + 3y \quad J_{(O)}^{од} = 2x + y$$

$$\frac{J_{(Cl)}}{J_{(O)}} = 2,2 \quad \frac{4x + 3y}{2x + y} = 2,2$$

$$4x + 3y = 2,2(2x + y)$$

$$4x + 3y = 4,4x + 2,2y$$

$$0,4x = 0,8y$$

$$x = 2y$$

Пусть $y = 1$ моль, тогда $x = 2$ моль, ~~т.к.~~

Рассчитаем массу компонентов:

$$m(C_2H_4Cl_2O_2) \cdot M = 2 \cdot 322 = 644 \text{ г}$$

$$m(C_6H_2Cl_3ONa) \cdot M = 1 \cdot 219,5 = 219,5 \text{ г}$$

$$M_{см} = m(C_2H_4Cl_2O_2) + m(C_6H_2Cl_3ONa) = 644 + 219,5 = 863,5 \text{ г}$$

$$863,5 \text{ г} - 100 \%$$

$$644 \text{ г} - x$$

$$x = 74,56 \%$$

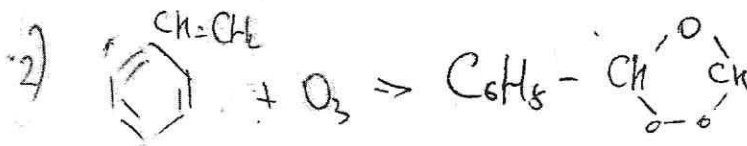
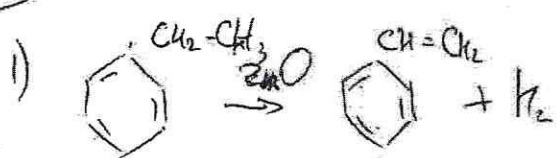
$$863,5 \text{ г} - 100 \%$$

$$219,5 \text{ г} - x$$

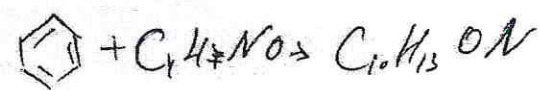
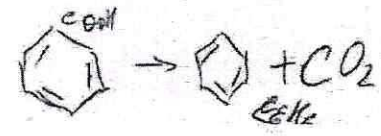
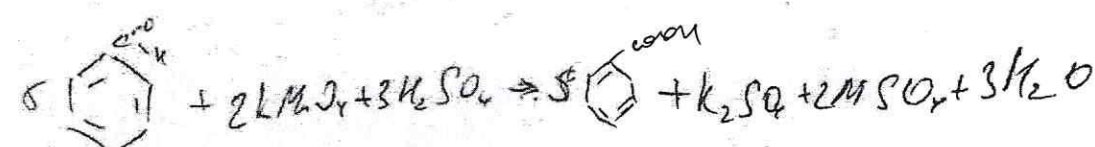
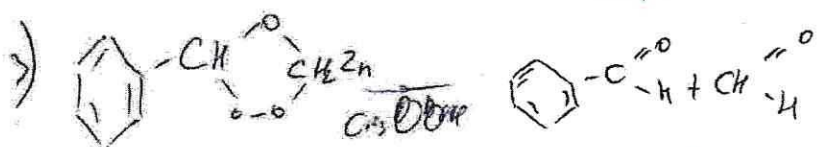
$$x = 25,42 \%$$

+ 60

8.4



СЕЧЕНОВСКИЙ
УНИВЕРСИТЕТ

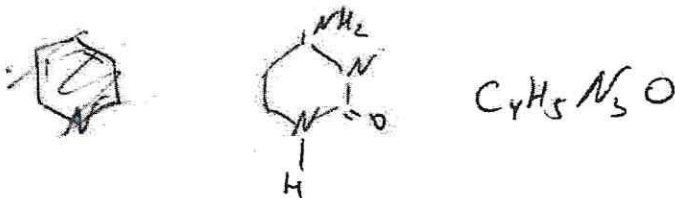


+
+
+ 100

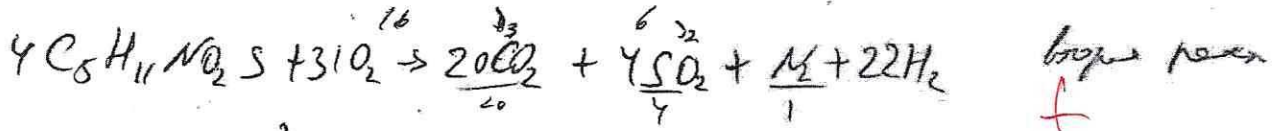
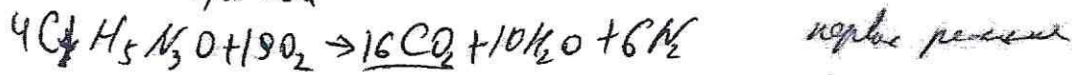
+

9.4

метоксина формула $C_5H_9NO_2S$
первичное основание, конъюнктивного характера



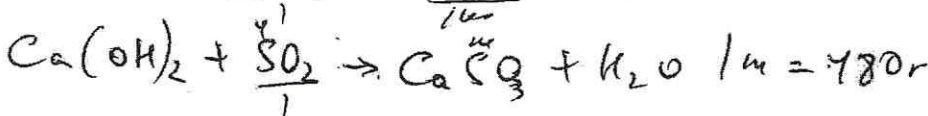
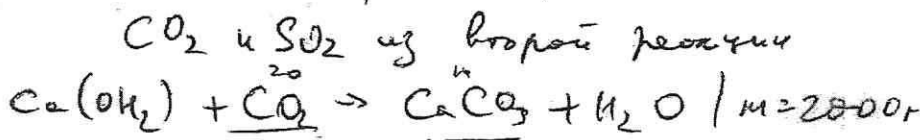
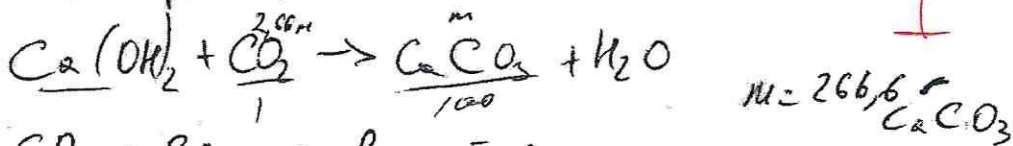
$\nu = 2,66 \text{ моль}$



$\nu_1(CO_2) = 2,66 \text{ моль}$ в первой реакции

$\nu_2(CO_2) = 20 \text{ моль}$
 $\nu_2(SO_2) = 4 \text{ моль}$ во второй реакции

Уравнения реакции



масса осадка первой реакции $m = 266,6 \text{ г}$

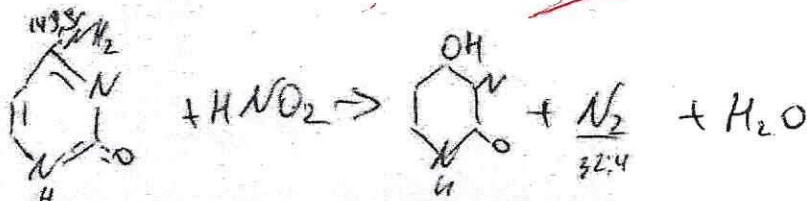
масса осадка второй реакции $m = 2800 \text{ г} + 480 \text{ г} = 2480 \text{ г}$

Составление:

СЕЧЕНОВСКИЙ
УНИВЕРСИТЕТ

$\frac{m(2)}{m(1)} = \frac{2480}{266,6} = 9,3 \text{ раза}$

АК 2025



$V = 2,24 \text{ л}$

3.4

$$pK_a = 4,76$$

$$pK = -\lg K_p$$

$$4,76 = -\lg x \cdot x = K_D = 1,7657 \cdot 10^{-5}$$

$$K_D = \frac{[CH_3COO^-][H^+]}{[CH_3COOH]} = \frac{x^2}{c_m} ; [H^+] = \sqrt{\frac{K_D}{c_m}}$$

$$m(CH_3COOH) = \frac{m \cdot V \cdot R}{100} = \frac{50 \cdot 60 \cdot 10 \text{ г}}{100} = 30 \text{ г}$$

$$S(CH_3COOH) = \frac{m}{\rho} = \frac{30 \text{ г}}{1,2 \text{ г/мл}} = 25 \text{ мл}$$

$$V(\text{шарик}) = S \cdot h = \pi R^2 \cdot h = 3,14 \cdot \left(\frac{7}{2}\right)^2 \cdot 30 = 1154 \text{ см}^3 = 1154 \text{ мл}$$

V_{H_2O}

$$\begin{array}{l} 1154 - 100\% \\ x - 70\% \end{array} \quad \left| \quad x = 808 \text{ мл} \right.$$

$$V_{CH_3COOH} + V_{H_2O} = 50 + 808 = 858 \text{ мл}$$

$$c_m(CH_3COOH) = \frac{S \cdot 1000}{V} = \frac{9,577 \cdot 1000}{858} = 11,16 \text{ М}$$

$$[H^+] = \sqrt{\frac{1,7657 \cdot 10^{-5}}{11,16}} = \sqrt{1,58 \cdot 10^{-6}} = 1,26 \cdot 10^{-3}$$

$$pH = -\lg [H^+] = -\lg 1,26 \cdot 10^{-3} = 2,28$$

Ответ: pH = 2,28.

5.4

P_{01}

$$P = 13032 \text{ Л/ч}^3 = 13032 \text{ ч}^3$$

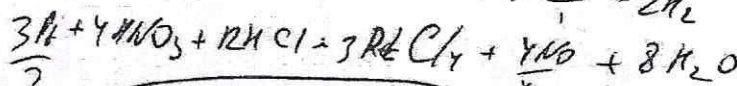
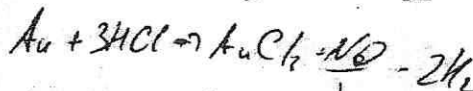
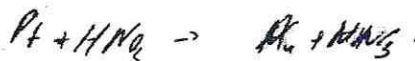
P_2

$$V_2 = \frac{4}{3} \pi R^3 = \frac{4}{3} \cdot 3,14 \cdot 1,01^3 = 4,443 \text{ см}^3$$

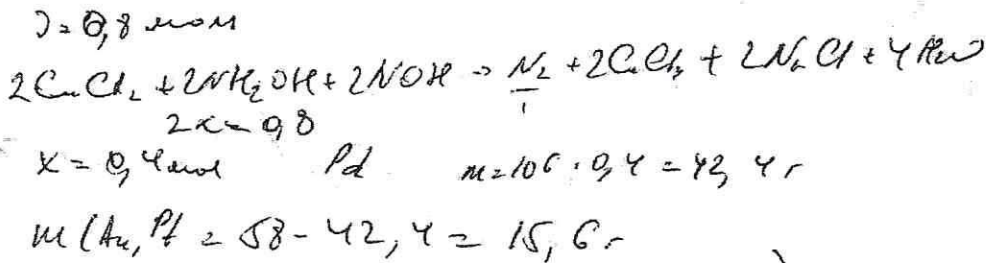
$$m = V \cdot \rho = 13,032 \cdot 4,44 = 58 \text{ г}$$

СЕЧЕНОВСКИЙ
УНИВЕРСИТЕТ

11/11/2018



$$\frac{2x}{y + 1332} = 8,34$$



$\frac{2x}{y + 1,33z} = 8,34$ $8,34(y + 1,33z) = 2 \cdot 0,4$
 $8,34(y + 1,33z) = 0,8$

$y + 1,33z = 0,096 \text{ моль}$

$\begin{cases} 187y + 185z = 15,6 \\ y + 1,33z = 0,096 \end{cases}$ $67,62z = 3313$ $z = 0,0428 \text{ моль Au}$
 $y = 0,03 \text{ моль Pt}$

$m(\text{Pt}) = 9,5358 \text{ г}$ $m(\text{Pd}) = 42,4 \text{ г}$
 $m(\text{Au}) = 5,91 \text{ г}$

$\begin{array}{l|l} 58x - 100x & 58x - 100x \\ 42,4x - x & 9,5358 - x \\ x = 93,100 = 43,1\% \text{ Pd} & x = 16,44\% \text{ Pt} \end{array}$ $\left. \begin{array}{l} 58x - 100x \\ 5,91x - x \\ x = 10,19\% \text{ Au} \end{array} \right\} - 60$

6.4) При получении 40% ной сульфидной кислоты
 ванадия сульфиды с серой вступают в реакцию
 $\text{H}_2\text{N}-\text{CH}-\text{C}-\text{N}-\text{CH}-\text{COOH} + 2\text{KBr} + \text{H}_2\text{O} \rightarrow \text{H}_2\text{N}-\text{CH}-\text{COOH}$
 R_1 R_2 R'_1

$M(\text{R}) = 240 - 80 - 74 = 86 \text{ г/моль}$
 $M(\text{R}) = 240 - 80 - 74 = 86 \text{ г/моль}$ $\text{H}_2\text{N}-\text{CH}-\text{COOH}$

СЕЧЕНОВСКИЙ
УНИВЕРСИТЕТ

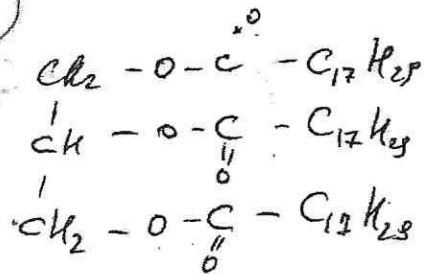
с р-р сульфидов металлов
 реагируют + KBr \rightarrow [продукты - KBr]

$M(\text{продукты}) = \frac{80}{0,18141} = 441$ $M = 441 - 21 = 360$

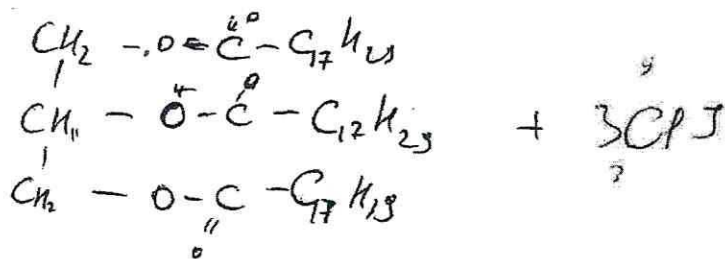
$M(\text{a}) = M(\text{g}) + M(\text{H}_2\text{O}) - M(\text{op}) = 360 + 18 - 165 = 213$

$M(\text{R}_1) = 213 - 16 - 13 - 45 = 139$

10.4



аллильное масло



45

