

1	2	3	4	5	6	7	8	9	1
2	4	4	2	4	—	4	12	8	?

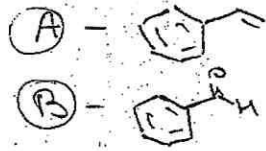
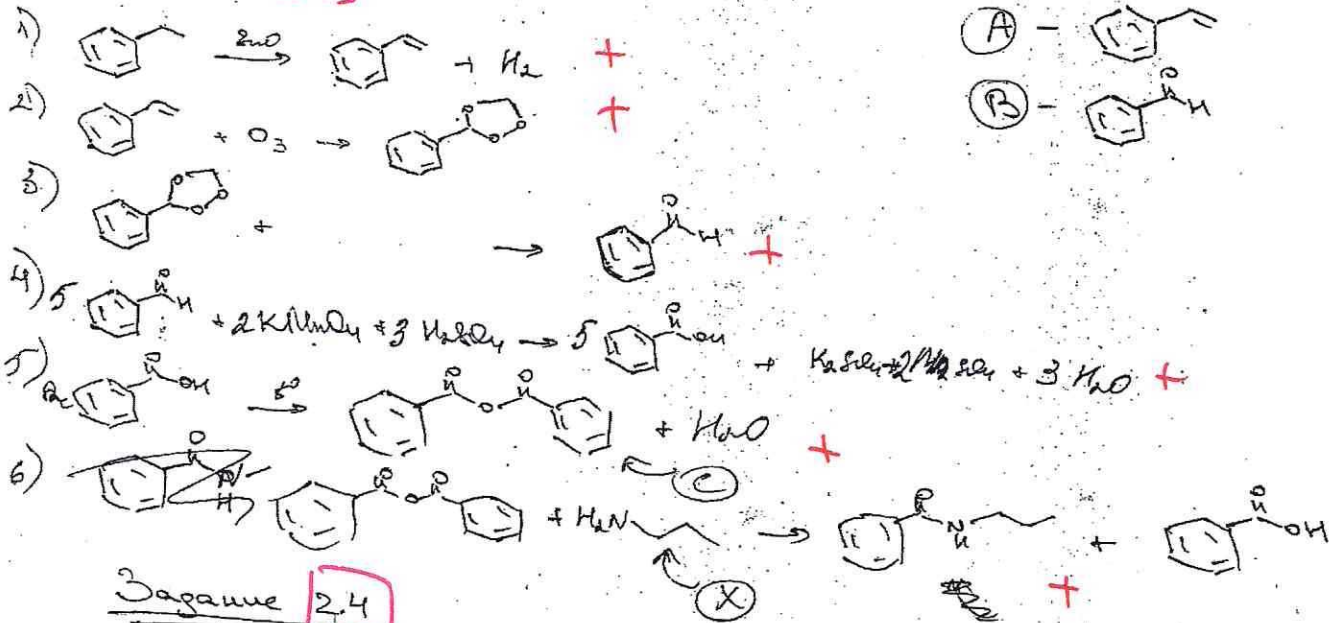
$\Sigma = 42$

Луган

ЧИСТОВИК
Лист № 1

ВСОП ХИМИЯ

Задача 8.4



Задача 2.4

$pV = nRT \rightarrow n = \frac{pV}{RT}$

$n_{CO_2} = \frac{99,9 \cdot 14,72}{8,314 \cdot 295} \approx 0,6 \text{ моль} \rightarrow n(C) = n_{CO_2} = 0,6 \text{ моль}$

$n_{H_2O} = \frac{13,5}{18} = 0,75 \text{ моль} \rightarrow n(H) = 2 \cdot n_{H_2O} = 2 \cdot 0,75 = 1,5 \text{ моль}$

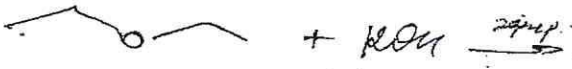
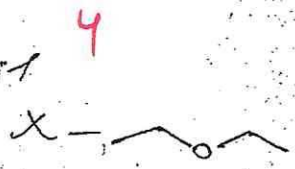
$n(O) = \frac{11,1 - 0,6 \cdot 12 - 1,5}{16} \approx 0,15 \text{ моль}$

$n(C) : n(H) : n(O) \approx 0,6 : 1,5 : 0,15 = 4 : 10 : 1$

X - C4H10O

$n_{XOH} = 0V = 1,25 \cdot 0,2 = 0,25 \text{ моль}$

$n(X) = \frac{15}{74} \approx 0,2 \text{ моль}$



Задача 3.4

$$V_{\text{шля}} = \pi r^2 h = \pi \frac{d^2}{4} h = 3,14 \cdot \frac{49}{4} \cdot 30 = 1153,95 \text{ см}^3 +$$

$$n_{\text{масса}}(\text{CH}_3\text{COOH}) = V_{\rho} = 50 \cdot 1,0666 = 53,33 \text{ г}$$

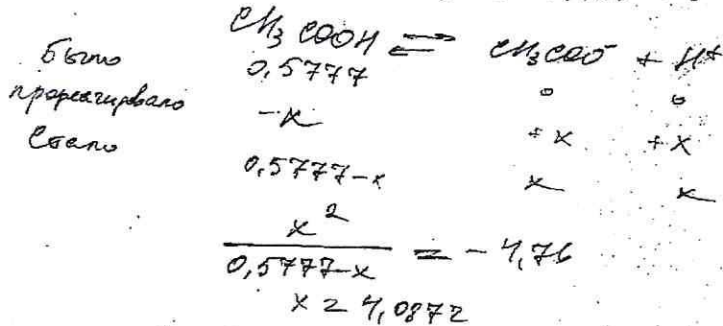
$$m(\text{CH}_3\text{COOH}) = 53,33 \cdot 0,65 = 34,6645 \text{ г}$$

$$n(\text{CH}_3\text{COOH}) = \frac{34,6645}{60} = 0,57774 \text{ моль} +$$



$$V_{\text{H}_2\text{O}} = 1153,95 \cdot 0,7 = 807,765 \text{ см}^3 +$$

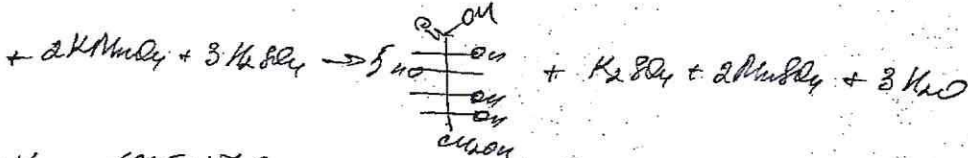
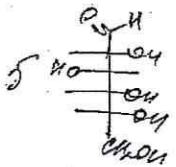
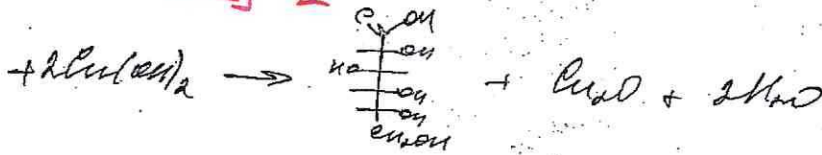
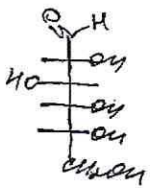
$$V_0 = V_{\text{H}_2\text{O}} + V(\text{CH}_3\text{COOH}) = 807,765 + 50 = 857,765 \text{ мл}$$



$$[\text{H}^+] = \frac{4,087}{8,57765 \cdot 10^{-4}} = 4764,947 \text{ М}$$

$$\text{pH} = -\lg[\text{H}^+] = 3,678$$

Задача 4.4

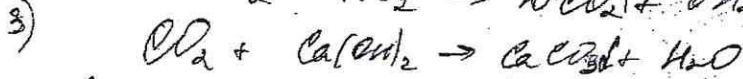
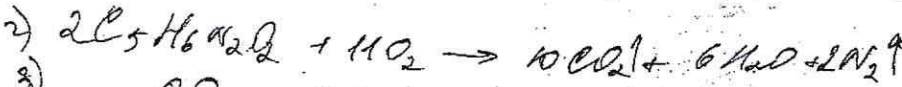
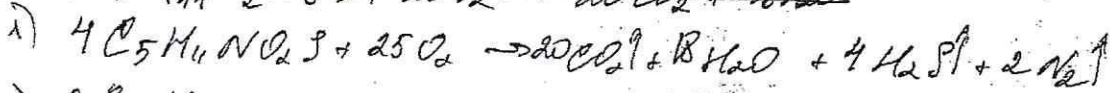
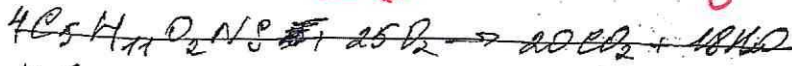


$$n = \frac{pV}{RT} = \frac{101,5 \cdot 251,8}{8,314 \cdot 283} = 1,2 \text{ моль}$$



Задание 9.4

8



Пусть $n(N_2) = n(O_2) = x$ моль

По уравнению 1: $n(N_2)_1 = \frac{1}{2} n(N_2) = \frac{1}{2} x$

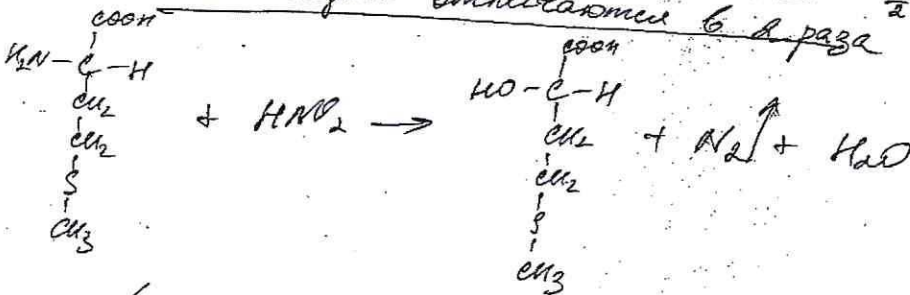
$\Rightarrow n(CO_2)_1 = 5n(N_2)_1 = \frac{5}{2} x$

$n(O_2)_2 = n(O_2) - n(O_2)_1 = x - \frac{1}{2} x = \frac{1}{2} x$

По уравнению 2: $n(CO_2)_2 = 5n(O_2)_2 = \frac{5}{2} x$

$\frac{m_{ос1}}{m_{ос2}} = \frac{n(CO_2)_1 M}{n(CO_2)_2 M} = \frac{n(CO_2)_1}{n(CO_2)_2} = \frac{\frac{5}{2} x}{\frac{5}{2} x} = 1$

Массы осадков отличаются в 6 раз



$n(C_5H_{11}NO_2) = \frac{14,9}{149} = 0,1$ моль

$n(N_2)_3 = n(C_5H_{11}NO_2) = 0,1$ моль

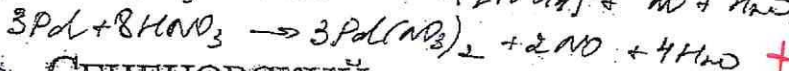
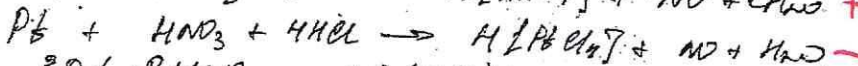
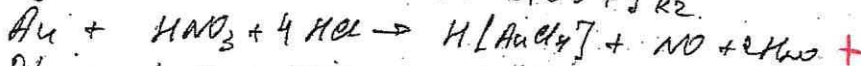
$V(N_2) = 0,1 \cdot 22,4 = 2,24$ л

Задание 5.4

4

$V = \frac{4}{3} \pi r^3 = \frac{4}{3} \cdot 3,14 \cdot 1,02^3 = 4,443 \text{ см}^3 = 4,443 \cdot 10^{-6} \text{ м}^3$

$m = \rho V = 4,443 \cdot 10^{-6} \cdot 13032 = 0,0579 \text{ кг}$



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Задача 10.4



$$n(Na_2S_2O_3) = \frac{8,8 \cdot 0,25}{1000} = 2,2 \cdot 10^{-3} \text{ моль}$$

$$n_{\text{окис}}(I_2) = \frac{1}{2} n_{\text{окис}}(Na_2S_2O_3) = \frac{1}{2} \cdot 2,2 \cdot 10^{-3} = 1,1 \cdot 10^{-3} \text{ моль}$$

$$M(Na_2S_2O_3) = 8,8 + 16 = 24,8 \text{ г/моль}$$

$$m(Na_2S_2O_3) = \frac{24,8 \cdot 0,25}{1000} = 6,2 \cdot 10^{-3} \text{ моль}$$

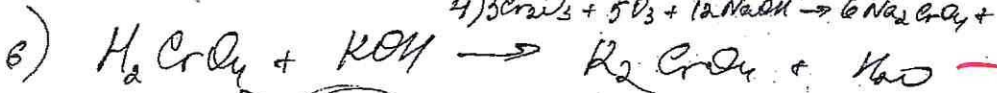
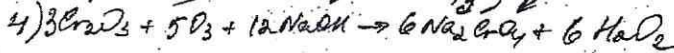
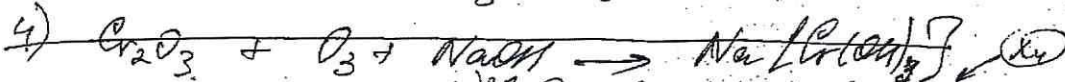
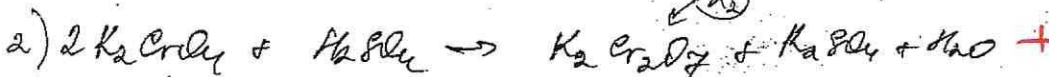
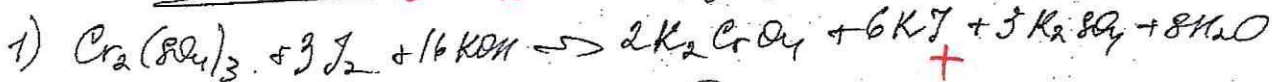
$$n_{\text{окис}}(I_2) = \frac{1}{2} n(Na_2S_2O_3) = 3,1 \cdot 10^{-3} \text{ моль}$$

~~$$n(I_2) = \frac{20 \cdot 0,1}{1000} = 2 \cdot 10^{-3} \text{ моль}$$~~

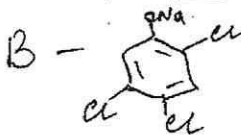
2

Задача 7.4

4



Задача 1.4



2

Пусть x моль

B - y моль

Тогда $n(Cl_2)_1 = 4x$

$n(Cl_2)_2 = 2y$



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