

N1.	3	2f
N2.	1	2f
N3.	3	2f
N4.	2	2f
N5.	1	2f
N6.	1	2f
N7.	1	0
N8.	1	0
N9.	2	2
N10.	3	2

Задача

Решено:

$W(H_3PO_4) = 9,8\%$

$m(H_3PO_4) = 200 \text{ г}$

$V(KOH) = 439,8 \text{ мл}$

$\rho(KOH) = 1,04 \text{ г/см}^3$

$W(KOH) = 5\%$

W(соед) - ?

$M(H_3PO_4) = 98 \text{ г/моль}$

$M(KOH) = 56 \text{ г/моль}$

$m(H_3PO_4) = 0,098 \cdot 200 = 19,6 \text{ г}$

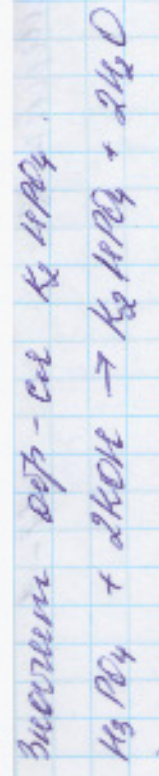
$V(H_3PO_4) = \frac{19,6}{98} = 0,2 \text{ л (мл)}$

$m(KOH) = 439,8 \text{ мл} \cdot 1,04 \text{ г/см}^3 =$
 $= 448,032 \text{ (г)}$

$m(KOH) = 448,032 \cdot 0,05 =$
 $= 22,4016 \text{ (г)}$

$V(KOH) = \frac{22,4016}{56} = 0,4 \text{ л (мл)}$

$V(H_3PO_4) : V(KOH) = 0,2 \text{ мл} : 0,4 \text{ мл} =$
 $1 : 2$



$\nu(K_2HPO_4) = \nu(H_3PO_4) = 92,2 \text{ моль}$

$m(K_2HPO_4) = 92,2 \cdot 174 = 34,8 \text{ г}$

$$W(K_2HPO_4) = \frac{m(K_2HPO_4)}{m(H_3PO_4) + m(KOH)} = \frac{34,8}{200 + 449,032} =$$

$\frac{34,8}{649,032} = 90,5701 \cdot 100\% = 54\%$

Ответ: $W(K_2HPO_4) = 54\%$

Задача 3

Рано:

$m(NaOH) = 11,2 \text{ г}$

$V(NaOH) = 59,82 \text{ мл}$

$W(NaOH) = 10\%$

$\rho(NaOH) = 1,092 \text{ г/мл}$

$W(HCOOC_2H_5) = ?$

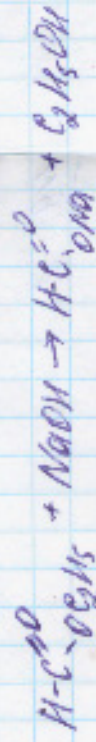
$W(CH_3COOC_2H_5) = ?$

$\nu(CH_3COOC_2H_5) = 80\% \text{ моль}$

$m(HCOOC_2H_5) = 74 \text{ моль}$

$m(NaOH) = 40 \text{ г/моль} \quad \nu(HCOOC_2H_5) = \frac{11,2 \cdot x}{74}$

$\nu(NaOH) = \nu(HCOOC_2H_5) + \nu(CH_3COOC_2H_5)$



$m(NaOH) = V(NaOH) \cdot \rho(NaOH) =$

$= 59,82 \cdot 1,09 = 56 \text{ г/мл}$

$m(NaOH) = 56 \cdot 0,1 = 5,6 \text{ г}$

$\nu(NaOH) = \frac{m(NaOH)}{M(NaOH)} = \frac{5,6}{40} =$

$= 0,14 \text{ моль}$

Рано $m(CH_3COOC_2H_5) = x^2,$

$\nu(CH_3COOC_2H_5) = 80\% \text{ моль} \quad m(HCOOC_2H_5) = 11,2 - x^2$

$M(HCOOC_2H_5) = 74 \text{ моль} \quad \nu(CH_3COOC_2H_5) = \frac{x}{74}$

$\nu(NaOH) = \nu(HCOOC_2H_5) + \nu(CH_3COOC_2H_5)$

$9,14 = \frac{x}{74} + \frac{11,2 - x}{74}$

$x = 4,425 \text{ г}$

$W(CH_3COOC_2H_5) = \frac{4,425}{11,2} \cdot 100\% = 39,51\%$

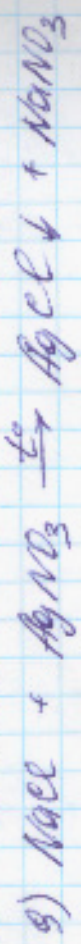
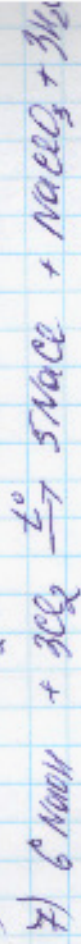
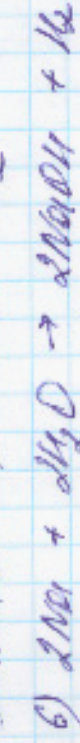
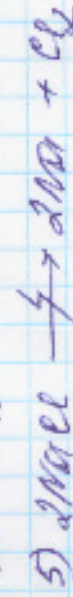
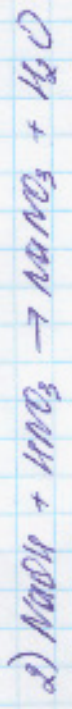
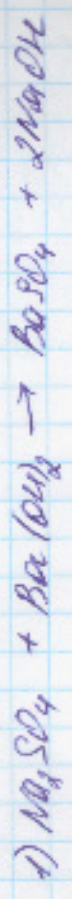
$= 42,2\%$

$W(HCOOC_2H_5) = 100\% - 42,2\% = 57,8\%$

Ответ: $W(HCOOC_2H_5) = 57,8\%$

$W(CH_3COOC_2H_5) = 42,2\%$

Задача 4



Задача 15

