

II ( )

11

- 4

1. 264 Hg<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub>, 20 %, 6 % .  
 (I) ? ?  
 1. ?  
 2. ?  
 :

( , )	
Hg <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> + Fe = Fe(NO <sub>3</sub> ) <sub>2</sub> + 2Hg (1)	2
M(Fe(NO <sub>3</sub> ) <sub>2</sub> ) = 180 / ; (Hg) = 201 / ; M(Fe) = 56 / ; M(Hg <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> ) = 526 / .	1
Hg <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> : m(Hg <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> ) = 0,2 · 264 = 52,8 ( )	1
,	1
.	1
(1): 56 Fe - 2 · 201 Hg } m <sub>1</sub> (Hg) = 7,18X X - m <sub>1</sub>	1
: m(p-p) = 264 + X - 7,18X = 264 - 6,18X ( )	2
Hg <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> : m(Hg <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> ) = 0,06 · (264 - 6,18X) = 15,84 - 0,37X	1
Hg <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> , : m(Hg <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> ) = 52,8 - (15,84 - 0,37 ) = 36,96 + 0,37	1
56 Fe 526 Hg <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> } (1), : - (36,96 + 0,37 ) } = 4,1; m(Fe) = 4,1 .	2
29,4 (7,18 · 4,1)	2
238,7 (264 - 6,18 · 4,1)	2
(II):	2
56 Fe - 180 Fe(NO <sub>3</sub> ) <sub>2</sub> } 4,1 - } = 13,18; m(Fe(NO <sub>3</sub> ) <sub>2</sub> ) = 13,18 .	
(II) : (Fe(NO <sub>3</sub> ) <sub>2</sub> ) = m(Fe(NO <sub>3</sub> ) <sub>2</sub> ) : m(p-p) = 13,18 : 238,7 = 0,055 (5,5 %)	1
	0
	20

2.

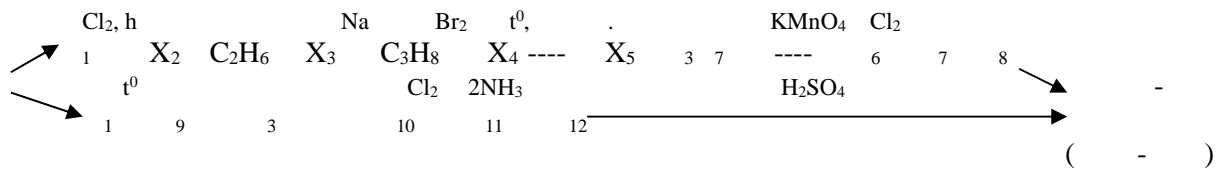
( . . ).

2,16 .

- 1.
- 2.

(	,	)	
$2 \text{ C}_2\text{H}_5 + 3 = 2 \text{ C}_2\text{H}_5 + 2 + 2$	(1)		2
$+ \text{Ag}_2\text{O} = 2\text{Ag} + 2 + 2$	(2)		2
$+ \text{Ag}_2\text{O} = 2\text{Ag} + 2 + 2$	(3)		2
$M(\text{C}_2\text{H}_5) = 74 / ; (\text{C}_2\text{H}_5) = 46 / ; (\text{Ag}) = 108 /$			1
$(\text{C}_2\text{H}_5)$	(3)		2
45 X	$- 2 \cdot 108 \text{ Ag}$ $- 2,16$	$\left. \vphantom{\begin{matrix} - 2 \cdot 108 \text{ Ag} \\ - 2,16 \end{matrix}} \right\} X = 0,46 ; m(\text{C}_2\text{H}_5) = 0,46 .$	
46 0,46	$- 22,4$ $-$	$\left. \vphantom{\begin{matrix} - 22,4 \\ - \end{matrix}} \right\} = 0,224 ; V(\text{C}_2\text{H}_5) = 0,224 .$	2
$44,576$	$2(44,8 - 0,224)$	(1)	1
74	$- 22,4$ $- 44,576$	$\left. \vphantom{\begin{matrix} - 22,4 \\ - 44,576 \end{matrix}} \right\} = 147,26 ; m(\text{C}_2\text{H}_5) = 147,26 .$	2
$m(\text{C}_3\text{H}_7\text{OH}) = 150 - m(\text{C}_2\text{H}_5) - m(\text{HCOOH}) = 150 - 147,26 - 0,46 = 2,28$	( )		2
$(\text{HCOOH}) = m(\text{HCOOH}) : m(\text{C}_2\text{H}_5) = 0,46 : 150 = 0,0031$	(0,31 %)		2
$(\text{C}_3\text{H}_7\text{OH}) = m(\text{C}_3\text{H}_7\text{OH}) : m(\text{C}_2\text{H}_5) = 2,28 : 150 = 0,0152$	(1,52 %)		2
			0
			20

3.



(	,	)	
-	-	:	1
$+ 2 \text{ C}_2\text{H}_5$	$\xrightarrow{t^0, \text{Ni}}$	$\text{X}_1$	1

$4 + \text{Cl}_2 \xrightarrow{h} \text{CH}_3\text{Cl} + \text{HCl}$ X <sub>2</sub>	1
$2\text{CH}_3\text{Cl} + 2\text{Na} \rightarrow \text{CH}_3\text{-CH}_3 + 2\text{NaCl}$	1
$\text{CH}_3\text{-CH}_3 + \text{Cl}_2 \xrightarrow{h} \text{CH}_3\text{-CH}_2\text{Cl} + \text{HCl}$ X <sub>3</sub>	1
$\text{CH}_3\text{-CH}_2\text{Cl} + \text{CH}_3\text{Cl} + 2\text{Na} \rightarrow \text{CH}_3\text{-CH}_2\text{-CH}_3 + 2\text{NaCl}$	1
$\text{CH}_3\text{-CH}_2\text{-CH}_3 + \text{Br}_2 \xrightarrow{h} \text{CH}_3\text{-CH(Br)-CH}_3 + \text{HBr}$ X <sub>4</sub>	1
$\text{CH}_3\text{-CH(Br)-CH}_3 \xrightleftharpoons{t^0} \text{CH}_3\text{-CH}_2\text{-CH}_2\text{-Br}$ X <sub>5</sub>	1
$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-Br} + \text{H}_2\text{O} \rightarrow \text{CH}_3\text{-CH}_2\text{-CH}_2\text{-OH} + \text{HBr}$	1
$5\text{C}_3\text{H}_7\text{OH} + 4\text{KMnO}_4 + 6\text{H}_2\text{SO}_4 \rightarrow 5\text{C}_2\text{H}_5\text{-COOH} + 4\text{MnSO}_4 + 2\text{K}_2\text{SO}_4 + 11\text{H}_2\text{O}$ 6	2
$\text{CH}_3\text{-CH}_2\text{-COOH} + \text{Cl}_2 \rightarrow \text{CH}_3\text{-CH(Cl)-COOH} + \text{HCl}$ 7	1
$\text{CH}_3\text{-CH(Cl)-COOH} + 2\text{NH}_3 \rightarrow \text{CH}_3\text{-CH(NH}_2\text{)-COOH} + \text{NH}_4\text{Cl}$ 8 ( )	1
$2 \text{C}_4 \xrightarrow{t^0} \text{C}_2\text{H}_2 + 3\text{H}_2$ X <sub>9</sub>	1
$\text{C}_2\text{H}_2 + \text{H}_2\text{O} \xrightarrow{\text{Hg}^{2+}, \text{H}_2\text{SO}_4} \text{CH}_3\text{COH}$	1
$5\text{CH}_3\text{COH} + 2\text{KMnO}_4 + 3\text{H}_2\text{SO}_4 \rightarrow 2\text{CH}_3\text{COOH} + 2\text{MnSO}_4 + \text{K}_2\text{SO}_4 + 9\text{H}_2\text{O}$ X <sub>10</sub>	2
$\text{CH}_3\text{COOH} + \text{Cl}_2 \rightarrow \text{CH}_2(\text{Cl})\text{-COOH} + \text{HCl}$ X <sub>11</sub>	1
$\text{CH}_2(\text{Cl})\text{-COOH} + 2\text{NH}_3 \rightarrow \text{CH}_2(\text{NH}_2)\text{-COOH} + \text{NH}_4\text{Cl}$ ( ) 12	1
$\text{CH}_3\text{-CH(NH}_2\text{)-COOH} + \text{CH}_2(\text{NH}_2)\text{-COOH} \rightarrow 2\text{NCH(CH}_3\text{)CONHCOOH}$ ( )	1
	0
	20

4.

(V)



:

( , )	
- ,	2
,	

	(V)	
	4	2
(1) (2), (3):		2
$P_4( ) + 6Cl_2( ) = 4 I_3( )$		2
+		2
$4PCl_3( ) + 4Cl_2( ) = 4 Cl_5( ), 4 \cdot \frac{0}{4}$		2
$P_4( ) + 10Cl_2( ) + 4 I_3( ) = 4 I_3( ) + 4 Cl_5( )$		2
$P_4( ) + 10Cl_2( ) = 4 Cl_5( ) (3)$		2
	(V),	2
$^0(1) \quad ^0(2):$		6
$^0( I_5) = [ ^0(1) + 4 \cdot ^0(2)]/4 = [-1224 + 4 \cdot (-93)]/4 = -399 /$		0
		20

5.

1. , , , , , . : ,
2. ?
3. .
- :

( , )	
$8HI + H_2SO_4 = 4I_2 + H_2S + 4H_2O$	1 2 2
(II)	1
$\xrightarrow{H_2SO_4( )}$ CO + H <sub>2</sub> O	2 2
$\xrightarrow{t^0, H_2SO_4( )}$ <sub>2 2 4</sub> + CO + H <sub>2</sub> O	1 2 1
$H_3PO_3 + 2HNO_3 = H_3PO_4 + 2NO_2 + H_2O$	1 2 1
,	2
	0
	20