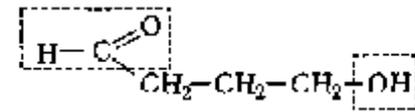
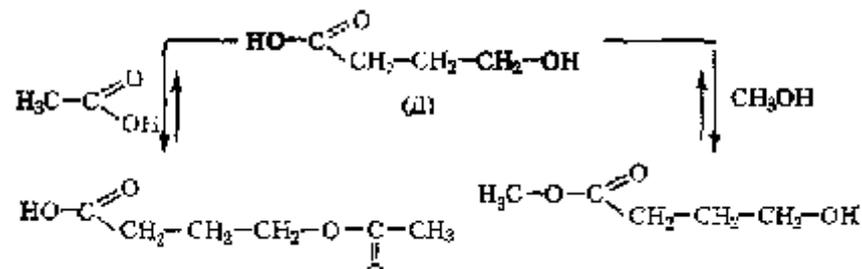


1.

4 802

<p>()</p>	
<p>,</p>	<p>1</p>
<p>()</p> $\text{CH}_3\text{COONa} \xrightarrow{\text{NaOH (сильная)}} \text{CH}_4 \uparrow + \text{Na}_2\text{CO}_3$ $2\text{CH}_3\text{CH}_2\text{OH} \xrightarrow[\text{-H}_2\uparrow]{2\text{Na}} 2\text{CH}_3\text{CH}_2\text{ONa}$	<p>1 1</p>
<p>():</p> $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \text{O} - \text{C}_6\text{H}_5 \xrightarrow{\text{NaOH, H}_2\text{O}} \text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \text{ONa} + \text{CH}_3\text{CH}_2\text{OH}$ <p>(A) (B) (F)</p>	<p>4 3</p>
<p>,</p>	<p>1</p>

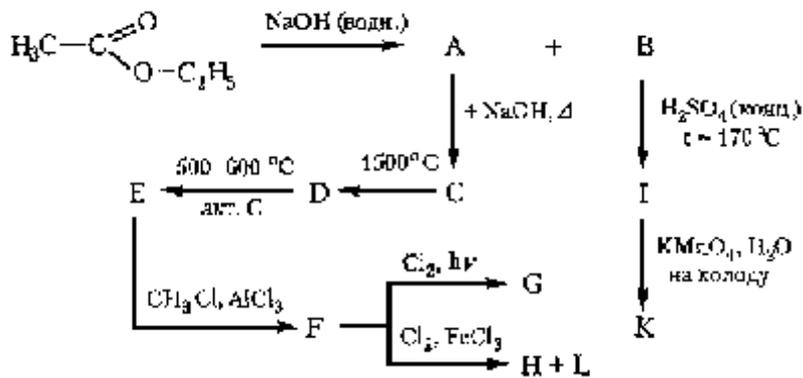
	2
$\text{H}-\text{C}(=\text{O})-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{OH} \xrightarrow[\text{-2Ag} \downarrow]{\text{Ag}_2\text{O} \text{ (2AgMnO}_4 \cdot 3\text{-p)}}$ $\text{HO}-\text{C}(=\text{O})-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{OH}$ <p>(B) (D)</p>	3
	4
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> $\text{H}-\text{C}(=\text{O})-\text{CH}_2-\underset{\text{OH}}{\text{CH}}-\text{CH}_3$ </div> <div style="text-align: center;"> $\text{H}-\text{C}(=\text{O})-\underset{\text{OH}}{\text{CH}}-\text{CH}_2-\text{CH}_3$ </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> $\text{H}-\text{C}(=\text{O})-\underset{\text{CH}_3}{\text{CH}}-\text{CH}_2-\text{OH}$ </div> <div style="text-align: center;"> $\text{H}-\text{C}(=\text{O})-\underset{\text{OH}}{\text{C}}(\text{CH}_3)_2$ </div> </div>	4
	0
	20

2. 4,9 / 7,6 /
 (II). (),
 50% 400³

()	
m(H ₂ SO ₄) = C · V = 4,9 / · 400000 = 1960000	2

$m(\text{FeSO}_4) = C \cdot V = 7,6 / \cdot 400000 = 3040000$	2
$+ 2 = ()_2,$	2
$\text{H}_2\text{SO}_4 + \text{Ca}(\text{O})_2 = \text{CaSO}_4 + 2\text{H}_2\text{O} \quad (1)$	1
$\text{FeSO}_4 + \text{Ca}(\text{O})_2 = \text{CaSO}_4 + \text{Fe}(\text{O})_2 \quad (2)$	1
$\text{H}_2\text{SO}_4 + \text{CaO} + \text{H}_2\text{O} = \text{CaSO}_4 + 2\text{H}_2\text{O}$ $\text{FeSO}_4 + \text{CaO} + \text{H}_2\text{O} = \text{CaSO}_4 + \text{Fe}(\text{O})_2$	
$n(\text{H}_2\text{SO}_4) = m(\text{H}_2\text{SO}_4) : M(\text{H}_2\text{SO}_4) = 1960000 : 98 / = 20000$	2
$n(\text{FeSO}_4) = m(\text{FeSO}_4) : M(\text{FeSO}_4) = 3040000 : 152 / = 20000$	2
1: $n(\text{H}_2\text{SO}_4) = n[\text{Ca}(\text{O})_2] = n() = 20000$	1
2: $n(\text{FeSO}_4) = n[\text{Ca}(\text{O})_2] = n() = 20000$	1
40000 .	2
$: m() = n() \cdot M() = 20000 \cdot 56 / =$ $2240000 = 2,24$	2
$: (2,24 \cdot 100\%) : 50\% = 4,48$	2
	0
	20

3.



:

() , ()	
() . () — (C).	2
$\text{H}_3\text{C}-\text{C} \begin{matrix} \text{=O} \\ \text{ONa} \end{matrix} \xrightarrow[\text{Na}_2\text{CO}_3]{\text{NaOH, спирт}} \text{CH}_4$ <p style="text-align: center;">A C</p> $2\text{CH}_4 \xrightarrow{1500^\circ\text{C}} \text{HC}\equiv\text{CH} + 3\text{H}_2$ <p style="text-align: center;">D</p>	2
(D):	

$3\text{HC}\equiv\text{CH} \xrightarrow{500-600^\circ\text{C, акт. C}} \text{C}_6\text{H}_6$ <p style="text-align: center;">E</p>	<p style="text-align: right;">(): 2</p>
$\text{C}_6\text{H}_6 \xrightarrow[\text{-HCl}]{\text{CH}_3\text{Cl, AlCl}_3} \text{C}_6\text{H}_5\text{CH}_3$ <p style="text-align: center;">F</p>	<p style="text-align: right;">(F): 2</p>
<p style="text-align: center;">(G) (H) —</p> <p style="text-align: center;">⋮</p> $\text{C}_6\text{H}_5\text{CH}_3 \xrightarrow[\text{-HCl}]{\text{Cl}_2, \text{UV}} \text{C}_6\text{H}_5\text{CH}_2\text{Cl}$ <p style="text-align: center;">G</p>	<p style="text-align: right;">2</p>
<p style="text-align: center;">() — (III) —</p> $\text{C}_6\text{H}_5\text{CH}_3 \xrightarrow[\text{-HCl}]{\text{Cl}_2, \text{FeCl}_3} \text{C}_6\text{H}_4(\text{Cl})\text{CH}_3 + \text{Cl}-\text{C}_6\text{H}_4-\text{CH}_3$	<p style="text-align: right;">2</p>
<p style="text-align: center;">()</p> <p style="text-align: center;">(1), () () ():</p> $\text{CH}_3\text{CH}_2\text{OH} \xrightarrow[\text{-H}_2\text{O}]{t=170^\circ\text{C}, \text{H}_2\text{SO}_4(\text{конц})} \text{H}_2\text{C}=\text{CH}_2$ <p style="text-align: center;">B I</p> $\text{H}_2\text{C}=\text{CH}_2 \xrightarrow[\text{-KOH, -MnO}_2]{\text{KMnO}_4, \text{H}_2\text{O}} \text{H}_2\text{C}(\text{OH})-\text{CH}_2(\text{OH})$ <p style="text-align: center;">K</p>	<p style="text-align: right;">2 2 2</p>
	<p style="text-align: right;">0</p>
	<p style="text-align: right;">20</p>

4.

(, %)

	Na	Al	O	H
1	28,05	32,93	39,02	—
2	19,50	22,88	54,24	3,39
3	22,01	25,84	49,76	2,39
4	14,94	17,53	62,33	5,19

1- , 2- —
 , 3- —
 , 4- —
 . , ?
 :

(,)	
(%) :	
1) $n(\text{Na}) : n(\text{Al}) : n(\text{O}) = (28,05/23) : (32,93/27) : (39,02/16) = 1,2 : 1,2 : 2,4 = 1 : 1 : 2$ — NaAlO_2 .	2
2) $n(\text{Na}) : n(\text{Al}) : n(\text{O}) : n(\text{H}) = (19,50/23) : (22,88/27) : (54,24/16) : (3,39/1) = 0,86 : 0,85 : 3,39 : 3,39 = 1 : 1 : 4 : 4$ — $\text{NaAlO}_2 \cdot 2\text{H}_2\text{O}$, NaAlO_4H_4 , $\text{Na}[\text{Al}(\text{OH})_4]$.	2
3) $n(\text{Na}) : n(\text{Al}) : n(\text{O}) : n(\text{H}) = (22,02/23) : (25,84/27) : (49,76/16) : (2,39/1) = 0,96 : 0,96 : 3,11 : 2,39 = 4 : 4 : 13 : 10$ — $\text{Na}_4[\text{Al}_4\text{O}_3(\text{OH})_{10}]$, $4\text{NaAlO}_2 \cdot 5\text{H}_2\text{O}$.	2
4) $n(\text{Na}) : n(\text{Al}) : n(\text{O}) : n(\text{H}) = (14,94/23) : (17,53/27) : (62,33/16) : (5,19/1) = 0,64 : 0,64 : 3,9 : 5,19 = 1 : 1 : 6 : 8$ — $\text{NaAlO}_2 \cdot 4\text{H}_2\text{O}$, $\text{Na}[\text{Al}(\text{OH})_4] \cdot 2\text{H}_2\text{O}$.	2
:	
$\text{N}_2 + \text{O}_3 \rightarrow 2\text{NO}_2 + \text{O}_2$	2
$\text{Al}_2(\text{SO}_4)_3 + 8\text{NaOH} = 2\text{Na}[\text{Al}(\text{OH})_4] + 3\text{Na}_2\text{SO}_4$	2
$4\text{Al}(\text{OH})_3 + 4\text{NaOH} = \text{Na}_4[\text{Al}_4\text{O}_3(\text{OH})_{10}] + 3\text{H}_2\text{O}$	2
$2\text{Al} + 2\text{NaOH} + 10\text{H}_2\text{O} = 2\text{Na}[\text{Al}(\text{OH})_4] \cdot 2\text{H}_2\text{O} + 3\text{H}_2$	2
1) , , , 4 (1)	
1) NaAlO_2 ; 2) $\text{NaAlO}_2 \cdot 2\text{H}_2\text{O}$; 3) $4\text{NaAlO}_2 \cdot 5\text{H}_2\text{O}$; 4) $\text{NaAlO}_2 \cdot 4\text{H}_2\text{O}$	
	0
	20

5.

-1,3. , ?
 :

(,)	
1. , $\text{CH}_3\text{—CHBr—CH}_2\text{Br}$	2

$ \begin{array}{l} \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{H}_2\text{C} \text{---} \text{CH}_2 \end{array} + \text{Br}_2 \quad \text{2Br-CH}_2\text{-CH}_2\text{Br} \\ \\ 3- \quad + 2\text{Br}_2 \quad \text{CH}_3\text{-CBr}_2\text{-CHBr}_2 \\ \\ 2= \quad - \quad =\text{CH}_2 + 2\text{Br}_2 \quad \text{2Br-} \quad \text{Br-} \quad \text{Br-CH}_2\text{Br} \end{array} $	<p>2</p> <p>2</p> <p>2</p>
<p>2.</p> <p style="text-align: center;">, . . . (sp-)</p> <p>3- + [Ag(NH₃)₂]OH 3- Ag + 2NH₃ + H₂O</p>	<p>3</p>
<p>3.</p> <p style="text-align: center;">1,4</p> <p style="text-align: center;">-1,3,</p> <p style="text-align: center;">:</p> $ \begin{array}{c} \text{HC-CH} \\ \diagup \quad \diagdown \\ \text{H}_3\text{C} \quad \text{CH}_2 \end{array} + \text{SO}_2 \longrightarrow \begin{array}{c} \text{Cyclopentane ring} \\ \text{with } \text{S(=O)}_2 \text{ group} \end{array} $	<p>3</p>
<p>4.</p> <p>3 6,</p> <p>3 3- 2= 2 + 2KMnO₄ + 4H₂O = 3CH₃-CH₂(OH)-CH₂(OH) + 2KOH + 2MnO₂</p> $ \begin{array}{c} \text{CH}_2 \\ \diagup \quad \diagdown \\ \text{H}_2\text{C} \text{---} \text{CH}_2 \end{array} + 2\text{KMnO}_4 + 4\text{H}_2\text{O} = 3\text{CH}_2(\text{OH})\text{-CH}_2\text{-CH}_2(\text{OH}) + 2\text{KOH} + 2\text{MnO}_2 $ <p style="text-align: center;">t°</p>	<p>3</p> <p>3</p>
	<p>0</p>
	<p>20</p>