(   )

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1

1.1.   .

1.2.   **A** – $Na[Al(OH)_4(H_2O)_2]$,   **B** –
                    Na_2SiO_3, **C** – $Al(OH)_3$, **D** –
          Al_2O_3, **E**   **F** – Na_3AlF_6 CaF_2.

1.3.   :
$Al_2O_3 + 2NaOH + 7H_2O \quad 2Na[Al(OH)_4(H_2O)_2]$
$\quad AlOOH + NaOH + 3H_2O \quad Na[Al(OH)_4(H_2O)_2]$ (– 1   ,
$\quad$ –   )
$SiO_2 + 2NaOH \quad Na_2SiO_3 + H_2O$
$Na[Al(OH)_4(H_2O)_2] \quad NaOH + Al(OH)_3 + 2H_2O$
$2Na[Al(OH)_4(H_2O)_2] + CO_2 \quad Na_2CO_3 + 2Al(OH)_3 + 5H_2O$
$2Al(OH)_3 \quad Al_2O_3 + 3H_2O$
$2Al_2O_3 \quad 4Al + 3O_2$

1.4.
$C + O_2 \quad CO_2$

                              18   , $1.5 \cdot 10^6$.
                        $1.5 \cdot 10^6$,
                              $2 \cdot 10^6$,
54   .

		5
	A – F (6)	6
(6)		6
		8
		25

2.1. X:

Соединение X $\xrightarrow{KMnO_4\ H_2SO_4}$ 3,3-диметил-2,7-диоксооктановая кислота + 2 пировиноградная кислота + 2 HOOC–COOH щавелевая кислота

2.2. –

.

:

HOOC–COOH $\xrightarrow{[O]}$ H₂O + CO₂

2.3. , ,
.

2.4. – :

– X: $_aH_bO_c$.

X :

$$C_aH_bO_c + \frac{2a + b/2 - c}{2}\ O_2 \longrightarrow a\ CO_2 + b/2\ H_2O$$
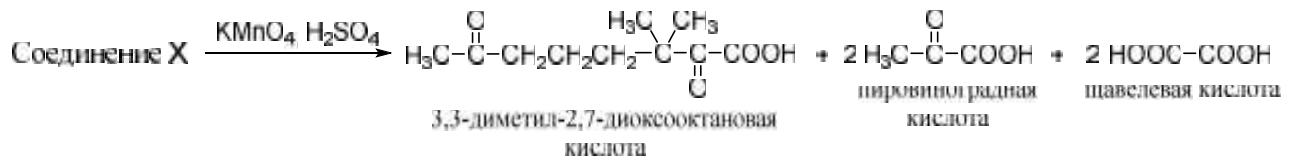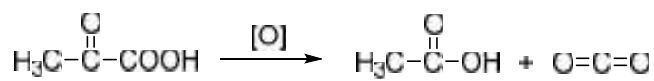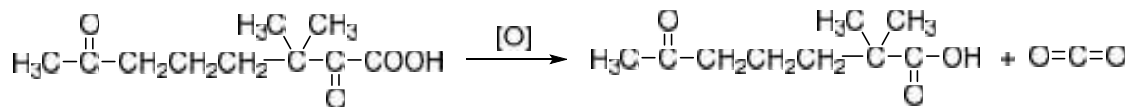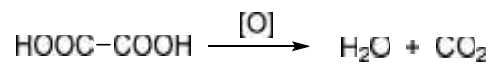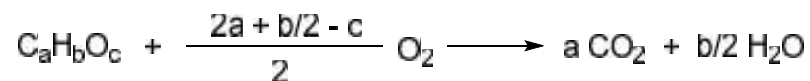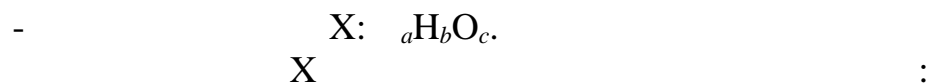
X

:

$$M = 12a + b + 16c = 286. \qquad (1)$$

:

$$n(O_2) = \frac{604.8}{1000 \cdot 22.4} = 0.027 \text{ моль}$$

$$n(CO_2) = \frac{448}{1000 \cdot 22.4} = 0.02 \text{ моль}$$

$$n(H_2O) = \frac{0.27}{18} = 0.015 \text{ моль}$$

:

$$\frac{n(O_2)}{n(CO_2)} = \frac{2a + b/2 - c}{2a} = \frac{0.027}{0.02} \qquad (2)$$

$$\frac{n(H_2O)}{n(CO_2)} = \frac{b/2}{a} = \frac{0.015}{0.02} \qquad (3)$$

(1) – (3) , $a = 20$,
$b = 30, c = 1.$ -   X $_{20}H_{30}O.$

_____:

CO_2 H_2O ,   X:
$n(C) = 0.020$ (CO_2),
$n(H) = 0.030$ (H_2O),
$n(O) = 0.040 + 0.015 - 0.054 = 0.001$ (
              CO_2 H_2O ,   ).
              -              $_{20}H_{30}O.$
      X (286 /   ).

2.5.   **X** –   (   ).

                              (   )

3,3- -2,7- , (1 3)	3
3,3- -2,7- , (2 3)	6
,	1
- **X**	7
X	6
X	2
	25

3

3.1.   ,
          ,   –   ,   –   .
                                                                         –   .
                                                    ,
                                                                    ,   –
          ,   «
          »,   ,   – 4–   ,
4–   –   .
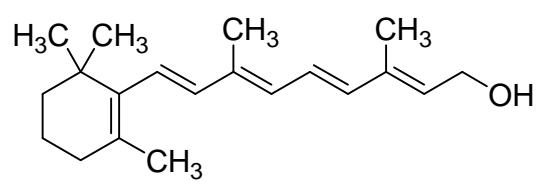
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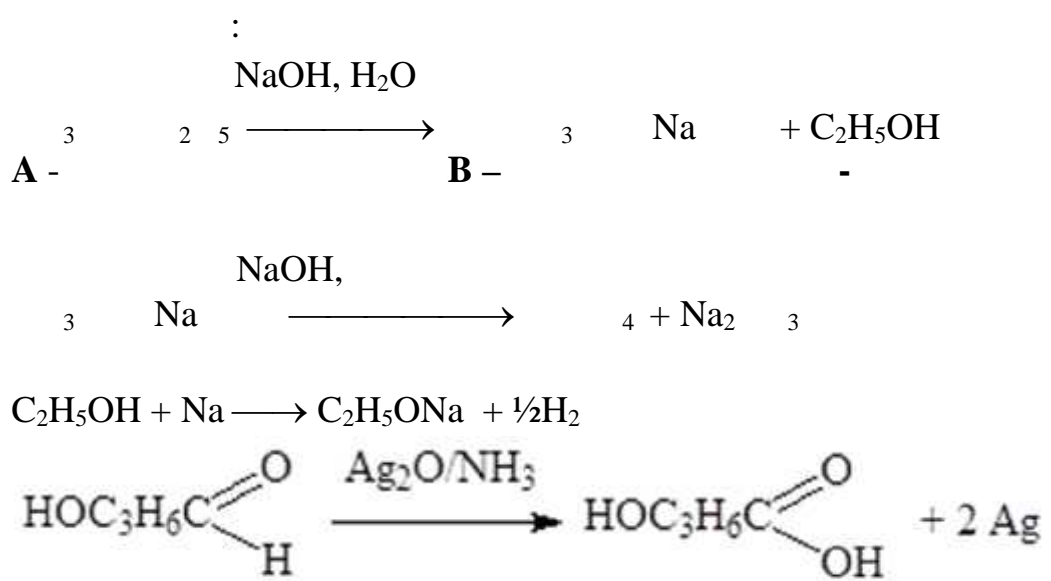   –
                            –   .
                    , $C_4H_8O_2$,
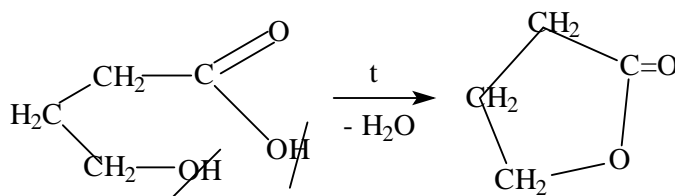   :
                                                                                                          ,
                                                              .
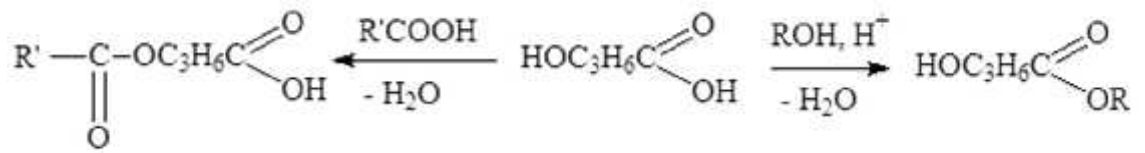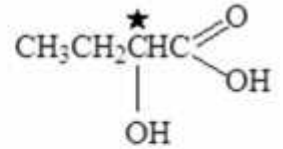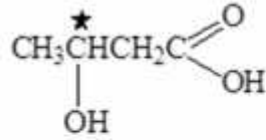
3.2.   :
                                    NaOH, H_2O
          3   2   5 $\longrightarrow$ 3   Na   + C_2H_5OH
     A -   **B** –   -

                                    NaOH,
          3   Na $\longrightarrow$ 4 + Na_2 3

$C_2H_5OH + Na \longrightarrow C_2H_5ONa + \frac{1}{2}H_2$

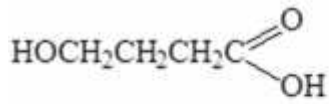   – 4-   – 4-

                                                              -   –

3.3.   :

4 -   3 -   2 -

\-   \-   \-
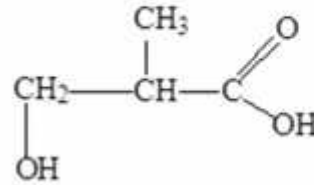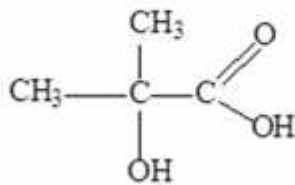
2-   -2-   2-   -3-

\-   \-

3.4.   2–

3–   .

– (6) – 1				6
– (6) – 1				6
(7) – 1				7
(4) – 1				4
(2) – 1				2
				25

4
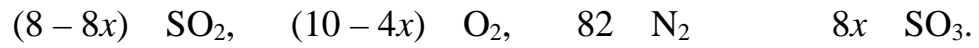
4.1.   :

$$K_p = \frac{p_{SO_3}^2}{p_{SO_2}^2 p_{O_2}},$$

p_{SO_2}, p_{O_2} p_{SO_3} –

.

x –   .

$(8 - 8x)$ SO_2, $(10 - 4x)$ O_2,   82 N_2 $8x$ SO_3.
                                                                            :
$$V = (8 - 8x) + (10 - 4x) + 82 + 8x = 100 - 4x.$$
     SO_2 2.5   .%   0.025,   . .:
$$\frac{8 - 8x}{100 - 4x} = 0.025, \qquad x = 0.70.$$
     ,   :
$$V = 100 - 4x = 100 - 4 \cdot 0.70 = 97.2 \quad .$$
                                                                                              :

$$p_{SO_2} = \{_{SO_2} P = \frac{V_{SO_2}}{V} P = \frac{8 - 8 \cdot 0.70}{97.2} \cdot 20 = 0.49 \qquad ,$$

$$p_{SO_3} = \{_{SO_3} P = \frac{V_{SO_3}}{V} P = \frac{8 \cdot 0.70}{97.2} \cdot 20 = 1.15 \qquad ,$$

$$p_{O_2} = \{_{O_2} P = \frac{V_{O_2}}{V} P = \frac{10 - 4 \cdot 0.70}{97.2} \cdot 20 = 1.48 \qquad .$$
                                               :
$$K_p = \frac{1.15^2}{0.49^2 \cdot 1.48} = 3.72 \ (\qquad ^{-1}).$$

4.2.   (IV) –
                                                 .

	3
	5
	5
	2
	5
	3
	2
	25