

( -4 ; 110)

) I: NaCl:

- 1)  $\text{NaCl} + \text{AgNO}_3 \rightarrow \text{AgCl}\downarrow + \text{NaNO}_3$ ;
- 2)  $2\text{NaCl} + \text{Pb}(\text{NO}_3)_2 \rightarrow \text{PbCl}_2\downarrow + 2\text{NaNO}_3$ ;

) I-2: Na<sub>2</sub>SO<sub>4</sub>:

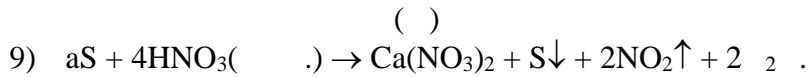
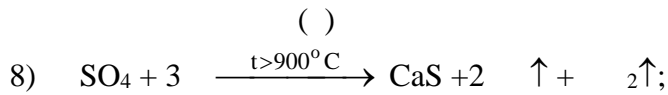
- 3)  $\text{Na}_2\text{SO}_4 + 2\text{AgNO}_3 \rightarrow \text{Ag}_2\text{SO}_4\downarrow + 2\text{NaNO}_3$ ;
- 4)  $\text{Na}_2\text{SO}_4 + \text{Ba}(\text{NO}_3)_2 \rightarrow \text{BaSO}_4\downarrow + 2\text{NaNO}_3$ ;
- 5)  $\text{Na}_2\text{SO}_4 + \text{Ca}(\text{NO}_3)_2 \rightarrow \text{CaSO}_4\downarrow + 2\text{NaNO}_3$ ;
- 6)  $\text{Na}_2\text{SO}_4 + \text{Pb}(\text{NO}_3)_2 \rightarrow \text{PbSO}_4\downarrow + 2\text{NaNO}_3$ ;

) I-3: Na<sub>2</sub>O<sub>3</sub>:

- 7)  $\text{Na}_2\text{O}_3 + 2\text{AgNO}_3 \rightarrow \text{Ag}_2\text{O}_3\downarrow + 2\text{NaNO}_3$ ;
- 8)  $\text{Na}_2\text{O}_3 + \text{Ba}(\text{NO}_3)_2 \rightarrow \text{BaO}_3\downarrow + 2\text{NaNO}_3$ ;
- 9)  $\text{Na}_2\text{O}_3 + \text{Ca}(\text{NO}_3)_2 \rightarrow \text{CaO}_3\downarrow + 2\text{NaNO}_3$ ;
- 10)  $\text{Na}_2\text{O}_3 + \text{Fe}(\text{NO}_3)_2 \rightarrow \text{FeO}_3\downarrow + 2\text{NaNO}_3$ ;
- 11)  $\text{Na}_2\text{O}_3 + \text{Pb}(\text{NO}_3)_2 \rightarrow \text{PbO}_3\downarrow + 2\text{NaNO}_3$ ;
- 12)  $\text{Na}_2\text{O}_3 + \text{Zn}(\text{NO}_3)_2 \rightarrow \text{ZnO}_3\downarrow + 2\text{NaNO}_3$ .

I Ag<sup>+</sup> Pb<sup>2+</sup>,  
 NaCl.  
 Na<sub>2</sub>SO<sub>4</sub> Ag<sup>+</sup>, Ba<sup>2+</sup>, Ca<sup>2+</sup> Pb<sup>2+</sup>. Ag<sup>+</sup>  
 Pb<sup>2+</sup>, , 2 Ba<sup>2+</sup> Ca<sup>2+</sup>.  
 : , I - Ag<sup>+</sup> Pb<sup>2+</sup>; , 2 - Ba<sup>2+</sup> Ca<sup>2+</sup>; 3 Fe<sup>2+</sup> Zn<sup>2+</sup>.  
 : (15 ) -12 ( I ; I ).  
 -3 ( I ) .  
 2  
 , 2- - (S).  
 :

- 1)  $2\text{S} + \text{Cl}_2 \xrightarrow{t=130^\circ\text{C}} \text{S}_2\text{Cl}_2$ ;  
( )
- 2)  $\text{S}_2\text{Cl}_2 + 2\text{KF} \xrightarrow{t=145^\circ\text{C}} \text{S}_2\text{F}_2 + 2\text{KCl}$ ;  
( )
- 3)  $2\text{S}_2\text{F}_2 \xrightarrow{t>180^\circ\text{C}} \text{SF}_4 + 3\text{S}$ ;  
( )
- 4)  $\text{SF}_4 + 2\text{H}_2\text{O} \rightarrow \text{SO}_2 + 4\text{HF}$ ;  
( )
- 5)  $\text{SO}_2 + \text{Cl}_2 \xrightarrow{(\text{h}\epsilon)} \text{SO}_2\text{Cl}_2$ ;  
( )
- 6)  $\text{SO}_2\text{Cl}_2 + 2\text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_4 + 2\text{HCl}$ ;  
( )
- 7)  $\text{H}_2\text{SO}_4 + \text{CaO} \rightarrow \text{CaSO}_4\downarrow + 2\text{H}_2\text{O}$  ;



$\text{H}_2\text{SO}_4, - \text{SO}_4, - \text{S}.$   
 $: - \text{S}, - \text{S}_2\text{Cl}_2, - \text{S}_2\text{F}_2, - \text{SF}_4, - \text{SO}_2, - \text{SO}_2\text{Cl}_2, -$   
 $\text{S}.$   
 $: - \text{S}, - \text{S}_2\text{Cl}_2, - \text{S}_2\text{F}_2, - \text{SF}_4, - \text{SO}_2, - \text{SO}_2\text{Cl}_2, - \text{H}_2\text{SO}_4, - \text{SO}_4, -$

$: (20)$

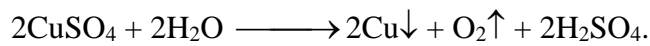
$-3$ ,  
 $( I ) - 9$ ,  
 $, , , , , , ( I ) - 8$

3

1.

$(-): u^{2+} + 2^- u ;$  (1)

$(+): 2 \text{ } - 4^- \text{ } + 4^+ .$  (2)



2.

6.35 ( 0.1 ) :  
 $\frac{1}{0.1}$  2  $^-$ ,  
 $\frac{1}{0.1}$  0.2  $^-$ .

3.

$n(\bar{^-}) = I(\text{ } ) t(\text{ } ) / F(\text{ } / \text{ } );$   
 $t(\text{ } ) = n(\bar{^-}) \cdot F(\text{ } / \text{ } ) / I(\text{ } );$   
 $t(\text{ } ) = 0.2(\text{ } ) \cdot 96500(\text{ } / \text{ } ) / 0.2(\text{ } );$   
 $t = 96500 \text{ } 26 \text{ } 47 .$

4.

$0.2$   $^-$ ,  
 $\frac{1}{y}$  4  $^-$ ,  
 $0.05$  0.2  $^-$ .

5.

$V = \frac{nRT}{p}$ ,

$V - (\text{ }^3), n - (\text{ } ), R - (8.314$   
 $/(\text{ } \cdot \text{ })), - (\text{ } ), - (\text{ } ).$ ,  $n=0.05$ ,  $=298$ ,  $=$   
 $\Sigma - = 99980 - 3172.6 = 96807.4$  (  $\Sigma$  )  
 $(\text{ } )$  (  $\text{ } \cdot \text{ } )$ .

$$V = \frac{0.05 \cdot 8.314 \cdot 298}{96807.4} = 0.00128 \text{ m}^3 = 1.28 \text{ L}$$

: (15) ; 26 47 ,  $V(\text{O}_2) = 1.28$  .

( 1.5 )  
 $-3$  ;  
 $-1$  ;  
 $-4$  ;  
 $-2$  ;  
 $-5$  .

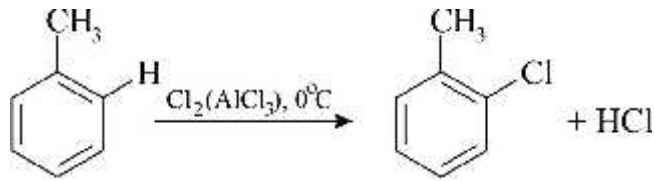
4

1.

1.1.

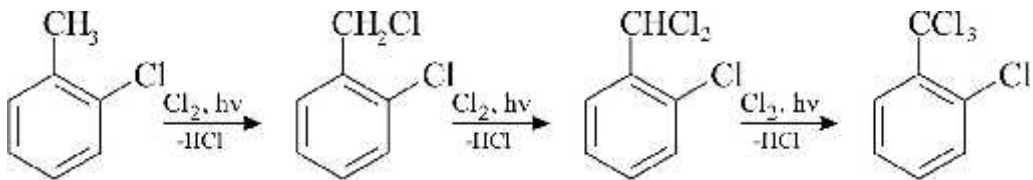
$\text{AlCl}_3$  ( )

( ):

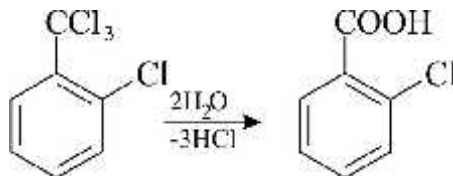


1.2.

( ) .

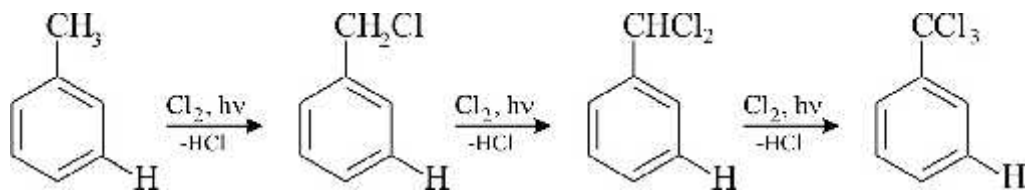


1.3.

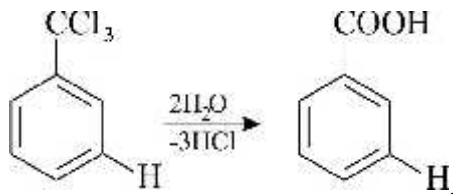


2.

2.1.

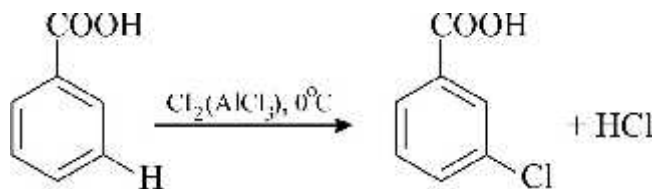


2.2.



2.3.

( II- ),  
AlCl<sub>3</sub> ( )

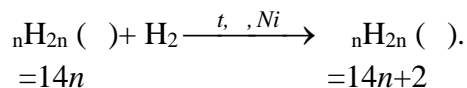


:(16 )

( 2<sup>-6</sup> ; )-6<sup>-4</sup> ;

5

1.



(ω ) :

$$\omega ( ) = \frac{2n}{14n} = \frac{1}{7} = 0.143, \quad \omega ( ) = \frac{2n+2}{14n+2}$$

$$\omega ( ) = \omega ( ) + 0.057 = 0.143 + 0.057 = 0.2.$$

$$\omega ( ) = \frac{2n+2}{14n+2} = 0.2,$$

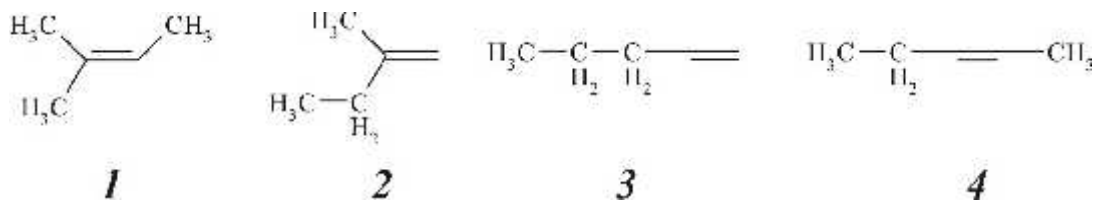
$$2n+2 = 2.8n+0.4,$$

$$1.6 = 0.8n,$$

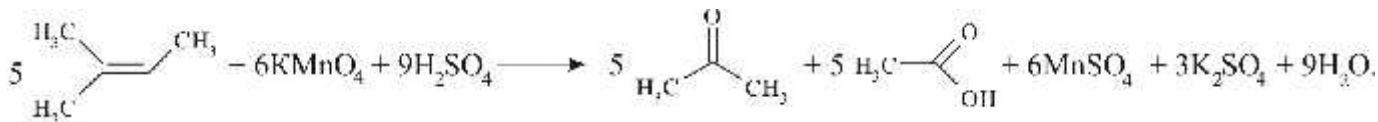
$$n = 2.$$

, - 2 4 ( ), - 2 6 ( ).

2.



- 1,1,2-



(ω)

$$\omega \left( \begin{array}{c} \text{O} \\ || \\ \text{H}_3\text{C}-\text{C}-\text{CH}_3 \end{array} \right) = \frac{16}{58} = 0.2759 (27.59\%), \quad \omega \left( \begin{array}{c} \text{O} \\ || \\ \text{H}_3\text{C}-\text{C}-\text{OH} \end{array} \right) = \frac{32}{60} = 0.5333 (53.33\%).$$

$$\omega \left( \begin{array}{c} \text{O} \\ || \\ \text{H}_3\text{C}-\text{C}-\text{OH} \end{array} \right) / \omega \left( \begin{array}{c} \text{O} \\ || \\ \text{H}_3\text{C}-\text{C}-\text{CH}_3 \end{array} \right) = \frac{0.5333}{0.2759} = 1.93.$$

1.93

135.1

$$135.1 \cdot 0.3 = 40.53$$

1.93

1.93

115.8

$$\eta = \frac{40.5}{115.8} \cdot 100\% = 35\%.$$

: - , - , - 1,1,2- , - , η = 35%.

: (15 )

-4 ;

-1 ;

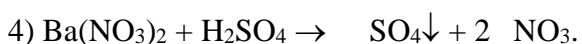
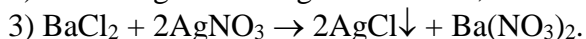
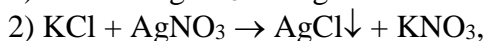
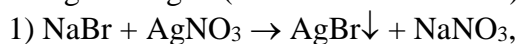
-3 ;

-3 ;

-4 .

6

AgCl AgBr ( 12.37 ):



$\text{Ba}(\text{NO}_3)_2$ ,

$$n(\text{Ba}(\text{NO}_3)_2) = n(\text{BaSO}_4) = \frac{m(\text{BaSO}_4)}{M(\text{BaSO}_4)} = \frac{4.66}{233} = 0.02 ( \quad ).$$

