

10

10-1 (10)
 « »
 20% HCl , 1,1 / 60% HNO₃
 1,37 / , « ».
 « » - , - ,

1.

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|---|--|----|
| 1 | « » 1 HNO ₃ () : 3 HCl() HNO ₃ ()- 65-68%, HCl()-32-35% | 1 |
| 2 | 1 : m= n _(HNO3) M _(HNO3) m= 1 63 \ = 63 m - HNO ₃ = m(-)\ w = 63 \ 0,6 = 105 () V - (HNO3) = m - \ = 105 \ 1,37= 76,64 () | 1 |
| 3 | 1 : m= n _(HCl) M _(HCl) m= 3 36,5 \ =109,5 m - HCl = m(-)\ w = 109,5 \ 0,2 = 547,5 () V - (HCl) = m - \ = 547,5 \ 1,1= 497,7 () | 1 |
| 4 | : HNO ₃ () : HCl() 76,64 : 497,7 1: 6,5 | 3 |
| 5 | « » Au + HNO ₃ () + 3 HCl() = AuCl ₃ + NO + 2H ₂ O 3 Pt + 4 HNO ₃ () + 12 HCl() = 3 PtCl ₄ + 4NO + 8 H ₂ O | 2 |
| 6 | « » , HNO ₃ () HCl() : « » , . 6 HCl() + 2 HNO ₃ () = 3 Cl ₂ + 2NO + 4H ₂ O 3 HCl() + HNO ₃ () = NOCl + 2Cl + 2H ₂ O NOCl = NO + Cl 2NO + O ₂ = 2NO ₂ | 2 |
| | | 10 |

10-2 (15)

4,48 (. .)

1,6

2.

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|---|---|----|
| 1 | <p>1) $\text{CuSO}_4 + 2\text{NaOH} = \text{Cu(OH)}_2 + \text{Na}_2\text{SO}_4$ 2) $\text{Cu(OH)}_2 \xrightarrow{t} \text{CuO} + \text{H}_2\text{O}$ 3) $\text{CuO} + \text{C} = \text{CO} + \text{Cu}$ 4) $\text{Cu} + 2\text{H}_2\text{SO}_4 \xrightarrow{t} \text{CuSO}_4 + \text{SO}_2 + 2\text{H}_2\text{O}$ 5) $\text{C} + 2\text{H}_2\text{SO}_4 \xrightarrow{t} \text{CO}_2 + 2\text{SO}_2 + 2\text{H}_2\text{O}$ 6) $2\text{H}_2\text{S} + \text{SO}_2 = 3\text{S} + 2\text{H}_2\text{O}$</p> | 6 |
| 2 | <p style="text-align: right;">SO_2 1,6</p> <p style="text-align: center;">(6)</p> <p>$n(\text{SO}_2) = 1,6 / 2 = 0,8$</p> | 1 |
| 3 | <p style="text-align: right;">CO_2</p> <p>$n(\text{CO}_2) = V / V_m = 4,48 / 22,4 = 0,2$ ()</p> | 1 |
| 4 | <p>(5): $n(\text{CO}_2) = 0,2$ (), $n(\text{SO}_2) = 0,4$ (),</p> <p>(4): $n(\text{SO}_2) = 0,8 - 0,4 = 0,4$ ()</p> | 2 |
| 5 | $n(\text{SO}_2) = n(\text{Cu}) = n(\text{CuO}) = n(\text{Cu(OH)}_2) = n(\text{CuSO}_4) = 0,4$ () | 3 |
| 6 | $m(\text{CuSO}_4 \cdot 5\text{H}_2\text{O}) = n \cdot M = 0,4 \cdot 250 = 100$ () | 2 |
| | | 15 |

10-3 (15)

75
411 .
540
20% 540

3.

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|---|--|----|
| 1 | <p>1) $Mg + H_2SO_4 = MgSO_4 + H_2$ 2) $2Al + 3H_2SO_4 = Al_2(SO_4)_3 + 3H_2$</p> | 2 |
| 2 | <p>Mg , $MgSO_4$ m_1 $\sqrt{24} = m_1 \sqrt{120}$ $m_1 = 120 \sqrt{24} = 5$</p> | 1 |
| 3 | <p>Al (75-), m_2 $m_2 = 342 (75-) \sqrt{54} = 475-6,33$</p> | 1 |
| 4 | <p>$m_1 + m_2 = 411$ $5 + 475-6,33 = 411$ $= 48,18$. . Mg = 48,18 Al = $75 - 48,18 = 26,82$</p> | 2 |
| 5 | <p>Mg : Al $48,18 : 26,82$ $1,79 : 1$</p> | 1 |
| 6 | <p>Al = 540 , : : 540 $= 540 \cdot 1,79 = 966 ()$ Mg</p> | 2 |
| 7 | <p>Al $2Al + 2 NaOH + 6H_2O = 2 Na[Al(OH)_4] + 3H_2$</p> | 2 |
| 8 | <p>$n(Al) = m \sqrt{27} = 540 \sqrt{27} = 20 ()$</p> | 1 |
| 9 | <p>$n(NaOH) = n(Al) = 20 ()$ $m(NaOH) = n M = 20 \cdot 40 = 800 ()$ $m(- NaOH) = m(-) \sqrt{w} = 800 \sqrt{0,2} = 4000 ()$</p> | 3 |
| | | 15 |

10-4 (10)

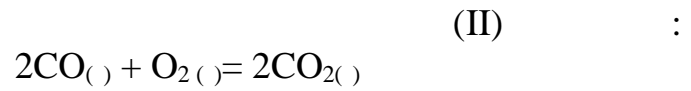
500 5%

25° 1,24 10⁵ 40 .

4.

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| 1 | <p>1) - n 2</p> $PV=nRT$ $n= PV \backslash RT$ $T=25+273=298()$ $= 1,24 \cdot 10^5 = 1,24 \cdot 10^2 ()$ $n=1,24 \cdot 10^2 () \cdot 40 () \backslash 8,314 (\backslash) \cdot 298() = 2 ()$ | 2 |
| 2 | <p>2)</p> $2\text{NaNO}_3 + 6 \text{H}_2\text{O} - 4\text{H}_2 + 2\text{NaOH} + 2\text{O}_2 + 2\text{HNO}_3$ | 3 |
| 3 | <p>3)</p> $m(\text{NaNO}_3) = m(-) \cdot w = 500 \cdot 0,05 = 25 ()$ | 1 |
| 4 | <p>,</p> $m(\text{O}_2) = n M = 2 \cdot 32 = 64 ()$ $n(\text{H}_2) = 4$ $m(\text{H}_2) = 4 \cdot 2 = 8 ()$ | 2 |
| 5 | $w(\text{NaNO}_3) = 25 \backslash 500 - 64 - 8 = 0,058 \quad 5,8\%$ | 2 |
| | | 10 |

10-5 (10)



4 ?

55° 25°

3?

5.

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|---|--|----|
| 1 | $V = K [\text{CO}]^2 [\text{O}_2]$ <p>K- [CO] [O₂] -</p> <p>4 , 4 , 4</p> | 2 |
| 2 | $V = K \sqrt[4]{[\text{CO}]^2 \sqrt[4]{[\text{O}_2]}} = \sqrt[4]{64[\text{CO}]^2 [\text{O}_2]}$ <p>:</p> | 3 |
| 3 | $V_2 \setminus V_1 = \sqrt[4]{10}$ <p>- t-</p> | 3 |
| 4 | $V_2 \setminus V_1 = 3^{(55-25)\setminus 10} = 3^3 = 27$ <p>: . .</p> <p>27 .</p> | 2 |
| | | 10 |

10-6 (10)

2,07
14.

Cu,Fe)

(Pd

6.

| | | |
|---|--|----|
| 1 | <p>« (IV) »</p> $3 nH_2n + 2KMnO_4 + 4H_2O \rightarrow 3CnH_2n(OH)_2 + 2MnO_2 + 2KOH$ | 3 |
| 2 | <p>n (nH_{2n}) : n (MnO₂) 3: 2 2 m(MnO₂) \ 3 m(nH_{2n}) = 2,07 2 \ 87 \ 3 (14 n) = 2,07 n=2 2 4- ()</p> | 3 |
| 3 | <p>M_x= D M(H₂) = 14 2 =28 (\) M (2 4) =28 (\)</p> | 1 |
| 4 | <p>2 4+ [O] CH₃COH - 2 4+ [O] CH₃CO H 2C=CH₂-O-COCH₃</p> | 3 |
| | | 10 |

10-7 (10)

(I)

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_____ : H₂SO₄ (), HCl (), HNO₃(), H₂O(.)

: NaOH, Ca(OH)₂, NH₄ H,

: Na₂CO₃ , AgNO₃, KI , Na₂SO₄ .

7.

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|---|---|----|
| 1 | <p>1 :) PbCl₂) Pb²⁺ : Pb²⁺ + KI = PbI₂ + 2 K⁺ K₂[PbI₄], « » (« ») Pb²⁺ + Na₂SO₄ = PbSO₄ + 2 Na⁺</p> | 3 |
| 2 | <p>2 :) AgCl AgCl + 2NH₄ H = [Ag(NH₃)₂]Cl + 2 H₂O) Ag⁺ [Ag(NH₃)₂]Cl + 2 HNO₃ = AgCl + 2 NH₄NO₃ [Ag(NH₃)₂]Cl + KI = AgI + KCl + 2 NH₃</p> | 3 |
| 3 | <p>3 : (I) 2Hg₂Cl₂ + 4NH₄ H = [Hg₂O NH₂]Cl + 3H₂O + 2Hg + 3NH₄Cl</p> | 4 |
| | | 10 |