

- 1.**
1. $3,32 \cdot 10^{-24}$ (), 4
 $t = 273^0$ $1,013 \cdot 10^5$
 2. $3,32 \cdot 10^{-24}$ (), 4
 $t = -136,5^0$ $1,013 \cdot 10^5$
 3. $4,98 \cdot 10^{-24}$,
 $t = 546^0$ $3,039 \cdot 10^5$
 4. $6,64 \cdot 10^{-24}$ (), 4
 $t = 0^0$ $5,065 \cdot 10^4$ ()
 5. $26,56 \cdot 10^{-24}$ (),
 $t = 273^0$ $2,026 \cdot 10^5$
 6. $26,56 \cdot 10^{-24}$ (),
 $t = 0^0$ $1,013 \cdot 10^5$
 7. $23,24 \cdot 10^{-24}$, 28
 $t = 819^0$ $2,026 \cdot 10^5$ ()
 8. $31,54 \cdot 10^{-24}$ (),
 $t = 0^0$ $5,065 \cdot 10^5$
 9. $66,4 \cdot 10^{-24}$, 100
 $t = 273^0$ $1,013 \cdot 10^6$ ()
 10. $66,4 \cdot 10^{-24}$ (),
 $t = 0^0$ $2,026 \cdot 10^5$ ()
- 2.**
11. - $-16,0 \cdot 10^{-19}$,
 12. s- - $-28,8 \cdot 10^{-19}$,
 13. - 2- $-16,0 \cdot 10^{-19}$,
- s-

14. 2^- $-28,8 \cdot 10^{-19}$,
 15. $+$ $-16,0 \cdot 10^{-19}$,
 16. $-$ $+$ $-28,8 \cdot 10^{-19}$,
 17. s^- 2^+ $-16,0 \cdot 10^{-19}$,
 18. s^- 2^+ $-28,8 \cdot 10^{-19}$,
 19. s^- 3^+ $-16,0 \cdot 10^{-19}$,
 20. $-$ 3^+ $-28,8 \cdot 10^{-19}$,
 -

3.

21. $-$,
 ($-$) .

$$\frac{-}{412} \quad \frac{-}{348} \quad \frac{=}{612} \quad \frac{\equiv}{838} \quad \frac{-1}{338} \quad \frac{\text{H-Cl}}{428} \quad \frac{-}{432}$$
 80 . () ,
 (+),
 (-).
 $4 \rightarrow 2 \quad 4^+ \dots$
 22. $-$,
 ($-$) .

$$\frac{-}{412} \quad \frac{-}{348} \quad \frac{=}{612} \quad \frac{\equiv}{838} \quad \frac{-1}{338} \quad \frac{\text{H-Cl}}{428} \quad \frac{-}{432}$$
 16 . () ,
 (+),
 (-).
 $4 \rightarrow 2 \quad 2^+ \dots$
 23. $-$,
 ($-$) .

$$\frac{-}{412} \quad \frac{-}{348} \quad \frac{=}{612} \quad \frac{\equiv}{838} \quad \frac{-1}{338} \quad \frac{\text{H-Cl}}{428} \quad \frac{-}{432}$$
 32 .
 ()
 (+), (-).

29. $\frac{412}{612} = \frac{348}{838} = \frac{338}{428} = \frac{432}{432}$ H-Cl

()²⁶ (+), (-).
 $2 \text{ } ^2 + \text{HCl} \rightarrow \dots$

30. $\frac{412}{612} = \frac{348}{838} = \frac{338}{428} = \frac{432}{432}$ H-Cl

()²⁸ (+), (-).
 $2 \text{ } ^4 + \text{HCl} \rightarrow \dots$

4.

31. 1. 2. 3. 4. 5.

32. 1. 2. 3. 4. 5.

33. 1. 2. 3. 4. 5.

34. 1. 2. 3. 4. 5. 6.

35. 1. 2. 3. 4. 5. 6.

36. 1. 2. 3. 4. 5.

37. 1. 2. 3. 4.

38. 1. 2. 3. 4. 5. 6.

39. 1. 2. 3. 4. 5. 6.

1. . 2. . 3. . 4. . 5. .
 6. .
 40. , .

1. . 2. . 3. . 4. . 5. .
 . 6. .

5.

41. 6,72 (. .) H₂ + Cl₂,
 D(₂)=12,5. , . 100 ,
 ω=8,0 % . (, . .) ,

42. 0,672 (. .) H₂ + Cl₂,
 D(₂)=12,5. , . 100 ,
 ω=0,8 % . (, . .) ,

43. 8,96 (. .) H₂ + Cl₂,
 D(₂)=9,625. , . 100 ,
 ω=8,0 % . (, . .) ,

44. 0,896 (. .) H₂ + Cl₂,
 D(₂)=9,625. , . 100 ,
 ω=0,8 % . (, . .) ,

45. 11,2 (. .) H₂ + Cl₂,
 D(₂)=7,9. , . 100 ,
 ω=8,0 % . (, . .) ,

46. 1,12 (. .) H₂ + Cl₂,
 D(₂)=7,9. , . 100 ,
 ω=0,8 % . (, . .) ,

47. 11,2 (. .) H₂ + Cl₂,
 D(₂)=7,9. , . 1000 ,
 ω=0,4 % , 1,00 / . (, . .)

48. 1,12 (. .) H₂ + Cl₂,
 D(₂)=7,9. , . 100 ,
 ω=0,4 % , 1,00 / . (, . .)

49. 1,12 (. .) H₂ + Cl₂,
 D(₂)=7,9. , . 100 ,

$\omega=0,56\%$, $1,00 /$ (,
 . .)
 50. $11,2$ (. .) $H_2 + Cl_2,$
 $D(_2)=7,9,$ 1000 ,
 $\omega=0,56\%$, $1,00 /$ (,
 . .)

6.

51. , .
- 1) . 2) . 3) . 4) . 5) (II).
 6) . 7) . 8)
52. , .
- 1) . 2) . 3) . 4) . 5) .
 6) . 7) . 8)
53. , .
- 1) . 2) . 3) . 4) .
 5) . 6) . 7) . 8)
54. , .
- 1) . 2) . 3) . 4) . 5) .
 6) . 7) . 8)
55. , .
- 1) . 2) . 3) . 4) . 5) .
 6) . 7) . 8)
56. , .
- 1) . 2) . 3) . 4) . 5) .
 6) . 7) . 8)
57. , .
- 1) . 2) . 3) . 4) . 5) . 6) .
 7) . 8)
58. , .
- 1) . 2) . 3) . 4) .
 5) . 6) . 7) . 8)
59. , .
- 1) . 2) . 3) . 4) . 5) .
 6) . 7) . 8)
60. , .
- 1) . 2) . 3) . 4) . 5) .
 . 6) . 7) . 8)

7.

61. $\text{KMnO}_4 + \text{H}_2\text{SO}_4 \rightarrow \text{CO}_2 + \dots$
62. $\text{KMnO}_4 + \text{H}_2\text{O} \rightarrow \dots + \dots$
63. $\text{KMnO}_4 + \text{H}_2\text{SO}_4 \rightarrow \dots$
64. $\text{KMnO}_4 + \text{H}_2\text{SO}_4 \rightarrow \text{CO}_2 + \dots$
65. $\text{K}_2\text{Cr}_2\text{O}_7 + \text{H}_2\text{SO}_4 \rightarrow \dots + \dots$
66. $6 \text{H}_2\text{SO}_4 + 5 \text{KMnO}_4 \rightarrow \dots$
67. $3 \text{H}_2\text{SO}_4 + 7 \text{KMnO}_4 \rightarrow \dots + \dots$
68. $\text{KMnO}_4 + \text{H}_2\text{SO}_4 \rightarrow \text{CO}_2 + \dots$
69. $1 \text{H}_2\text{SO}_4 + 4 \text{KMnO}_4 \rightarrow \dots + \dots$
70. $1,3 \text{H}_2\text{SO}_4 + \text{KNO}_2 \rightarrow \text{N}_2 + \dots + \dots$

8.

71. $\text{H}_2\text{O}, \text{Hg}^{2+}, \text{HCN}, \text{H}_2\text{O}, \text{H}^+$
 $\text{CaC}_2 \rightarrow \dots \text{A} \rightarrow \dots \text{B} \rightarrow \dots \text{C} \rightarrow \dots \text{D}$
72. $\text{H}_2\text{O}, 2 \text{HCl}, \text{H}_2\text{O}, 2 \text{NaOH}, 1 \text{C}_3$
 $\text{CaC}_2 \rightarrow \dots \text{A} \rightarrow \dots \text{B} \rightarrow \dots \text{C} \rightarrow \dots \text{D}$
73. $\text{H}_2\text{O}, \text{Hg}^{2+}, \text{Cu}(\text{OH})_2, \text{C}_3, \dots$
 $\text{CaC}_2 \rightarrow \dots \text{A} \rightarrow \dots \text{B} \rightarrow \dots \text{C} \rightarrow \dots \text{D}$
74. $\text{H}_2\text{O}, 1 \text{HCl}, \text{H}_2\text{O}, \text{NaOH}, \text{Cl}_2$
 $\text{CaC}_2 \rightarrow \dots \text{A} \rightarrow \dots \text{B} \rightarrow \dots \text{C} \rightarrow \dots \text{D}$

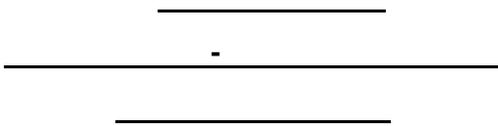
75. HCl 1 Cl_2 H_2O , NaOH CuO , t
 Al_4C_3 ----- È A ----- È B ----- È C ----- È D
76. H_2O C , 600 C_2H_4 , AlCl_3 KMnO_4 , H_2SO_4
 CaC_2 ----- È A ----- È B ----- È C ----- È D
77. H_2O , H^+ CuO , t $[\text{Ag}(\text{NH}_3)_2]\text{OH}$ $\text{C}_3\text{H}_7\text{OH}$, H_2SO_4
----- È A ----- È B ----- È C ----- È D
78. HCl 2 Cl_2 H_2O , 2 NaOH H_2 , Ni , t
 Al_4C_3 ----- È A ----- È B ----- È C ----- È D
79. H_2O C , 600 1 HNO_3 , H_2SO_4 Zn , HCl
 CaC_2 ----- È A ----- È B ----- È C ----- È D
80. Cl_2 H_2O , 2 NaOH KMnO_4 , H_2SO_4 2 CH_3OH , H^+
 C_2H_4 ----- È A ----- È B ----- È C ----- È D

9.

81. (50
, 4 % (.)) 1,12 (. .)
50 17 %
(%)
82. (50
, 8 % (.)) 2,24 (. .)
100 17 %
(%)
83. (50
, 12 % (.)) 3,36 (. .)
150 17 %
(%)
84. (50 ,
5,6 % (.)) 1,12 (. .)
50 17 %

	(%)				
85.	11,2 % (.))	2,24 (. .)		(50 ,
	100 17 %				
	(%)				
86.	12 % (.))	3,36 (. .)		(50 ,
	150 17 %				
	(%)				
87.	5,6 % (.))	1,12 (. .)		(50 ,
	50 17 %				
	(%)				
88.	5,6 % (.))	1,12 (. .)		(50 ,
	50 17 %				
	(%)				
89.	11,2 % (.))	1,12 (. .)		(50 ,
	100 17 %				
	(%)				
90.	11,2 % (.))	4,48 (. .)		(
200 ,	200 26,1 %				
	(%)				
10.					
91.				2,9	
	4,48 (. .)	4,5			
92.				3,7	
	4,48 (. .)	4,5			
93.				3,0	
	3,36 (. .)	3,6			
94.				3,8	
	3,36 (. .)	3,6			
95.				4,6	
	3,36 (. .)	3,6			
96.				11,6	
	13,44 (. .)	10,8			

97.	8,96	(. .)	7,2	.	12,0	.
98.	13,44	(. .)	10,8	.	14,8	.
99.	17,92	(. .)	14,4	.	14,4	.
100.	22,4	(. .)	21,6	.	14,4	.



10

10.1.1.

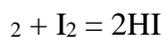
0,8 I₂

6 HI, 3 2
 $2 + I_2 = 2HI$

10.1.2.

1,2 0,7 ()

800° 8,4



HI -7 /

10.1.3.

3 %-

50 30 %-

10.1.4.

25°

23,76 . . .

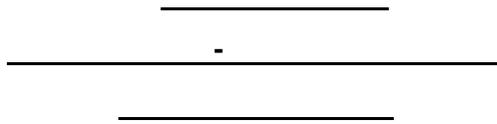
6 . ((NH₂)₂CO) 180 . ?

10.1.5.

2,06·10⁻³ -1.

25

95%.



10

10.2.1

99,5

$K_2Cr_2O_7, K_2CrO_4, Cr_2O_3$ -2068, -1398 -1141 /

10.2.2.

, 600°

$$2 \text{ } 2+ = 3 \text{ } ()$$

$$3 \text{ } () + = 3 \text{ } ()$$

$$,1 = 2,78 \cdot 10^{-9},$$

$$2 \text{ } 2+ \text{ } 3 \text{ } () = 2 \text{ } 3 \text{ } ()$$

$$,2 = 6,5 \cdot 10^{-6}.$$

10.2.3.

2 %-

1

1 / ³.

10.2.4.

0,0000138 ³/

1,013 · 10⁵

96,7 ° ,

$$\frac{dT}{dp} = 3,2567 \cdot 10^{-7} /$$

10.2.5.

296,813

297,148 /

25 °

20 /