( )

(K_2CO_3)

($CaSO_4$ $2H_2O$) (Na_2CO_3)

Cl_2

( )

$NaHCO_3$ NH_4NO_3 Na_2SO_4 CH_3OH

( )

Na_2CO_3 $CO_3^{2-} + 2H_2O$ $H_2CO_3 + 2OH^-$ $NaHCO_3$ $HCO_3^- + H_2O$ $CO_3^{2-} + H_3O^+$

$HS^- + H_2O$ $H_2S + OH^-$ $F^- + H_2O = HF + OH^-$

( )

	KNO_3	H_2SO_4	$BaSO_4$	$HClO_4$
	NH_3 H_2O	$CaCO_3$		C_2H_5OH
	SO_2		H_2O	CH_3COOH

( )

CH_3COOK Na_2CO_3 $CuCl_2$

( )

pH = 2 pH = 12

0.1 mol L^{-1} 0.06 mol L^{-1} H_2SO_4 pH = 2

( )

SO_2 SO_3 H_2 $I_2(g)$

( )

mol L^{-1} pH = 4

mol L^{-1}

mol L^{-1} mol L^{-1}

( )

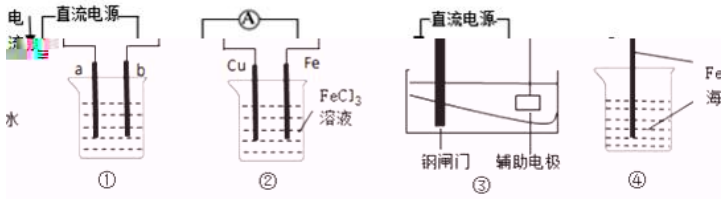
pH = 13 K^+ Mg^{2+} Cl SO_3^{2-}

$c(H^+)/c(OH^-) = 1$ 10^{12} Cu^{2+} Na^+ Cl NO_3^-

Fe^{3+} NH_4^+ Cl SO_4^{2-}

$c(OH^-) = 1.0$ 10^{-12} mol L^{-1} Al^{3+} NH_4^+ Cl SO_4^{2-}

( )



$AgNO_3$

$Cu + 2Fe^{3+} = Cu^{2+} + 2Fe^{2+}$

( )

$CaSO_4$

( )

0.1mol L ^{1} CH_3COOH

CH_3COONa $\frac{c(CH_3COO^-)}{c(CH_3COOH)\ c(OH^-)}$

$c(H^+) = c(OH^-)$

$AgNO_3$ $c(Ag^+)$ $c(Cl^-)$

( )

		H_2CO_3	
	K = 1.8 10 ^{4}	K_1 = 4.3 10 ^{7} K_2 = 5.6 10 ^{11}	K = 4.9 10 ^{10}

HCOOH سي t h ŭ سي H_2CO_3

0.1mol L ^{1} HCOONa سس NaCN

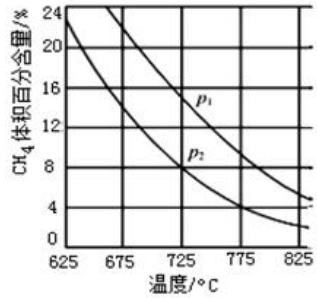
$K = \frac{c(HCOOH)}{c(HCOO^-)\ c(H^+)}$

H_2CO_3 $H_2CO_3 + 2CN^- = 2HCN + CO_3^{2-}$

$CH_4(g) + H_2O(g)$ $CO(g) + 3H_2(g)$ CH_4

( )

p_1 سي p_2 H سس 0



CH_4

$2A(g) + B(g)$ $xC(g) + 2D(g)$

1.0mol L ^{1} c_A c_B = 2 v_C =

0.125mol L ^{1} min ^{1} ( )

v_A = 0.25mol L ^{1} min ^{1}

x = 1

$Na_2S_2O_3 + H_2SO_4 = Na_2SO_4 + SO_2 + S + H_2O$

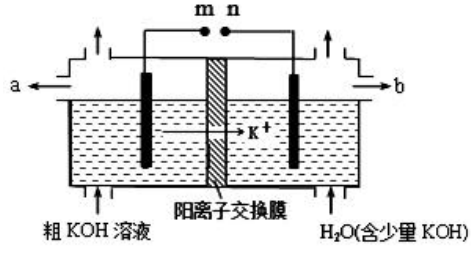
	/	$Na_2S_2O_3$		H_2SO_4		H_2O
		V/mL	c/(mol L ^{1})	V/mL	c/(mol L ^{1})	V/mL
			0.1		0.1	
			0.2		0.1	
			0.1		0.2	
			0.2		0.1	
			0.1		0.1	

( )

$Na_2S_2O_3$ V_1 = 10mL

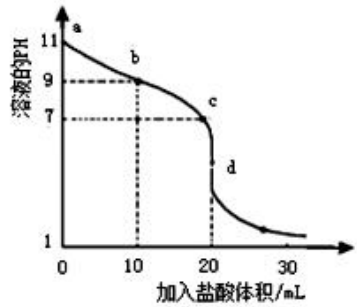
( )

4OH 4e $= 2H_2O + O_2$



0.1000mol L ^{1} 20.00mL

( )



c(Cl) سي ۋ(M^{+}) سي ۋ(ۉH) سي ۋ(H^{+})

K_b 1 10 ^{5}

c(M^{+}) = c(Cl) = c(H^{+}) = c(OH)

c(MOH) + c(H^{+}) = c(OH)

(1)S_8

S(s，单斜) $\underset{>\ 95.4\ ^\circ C}{\overset{<\ 95.4\ ^\circ C}{\rightleftharpoons}}$ S(s，斜方) H = 0.398kJ

mol S( ) S( ) _____ (S( ) S( ))

(2) (kJ mol ^{1})

	H H	H Cl

$H_2(g) + Cl_2(g) = 2HCl(g)$ H = 183kJ mol ^{1} Cl_2 ____kJ mol ^{1}

(3) 6.72L$C_2H_2(g)$ $O_2(g)$ $CO_2(g)$ $H_2O(l)$ 389.7kJ

C_2H_2

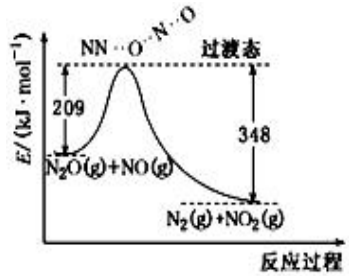
(4) C( ) + $O_2(g) = CO_2(g)$ H_1 = a kJ mol ^{1}

$H_2(g) + \frac{1}{2}O_2(g) = H_2O(l)$ H_2 = b kJ mol ^{1}

$CH_4(g) + 2O_2(g) = CO_2(g) + 2H_2O(l)$ H_3 = c kJ mol ^{1}

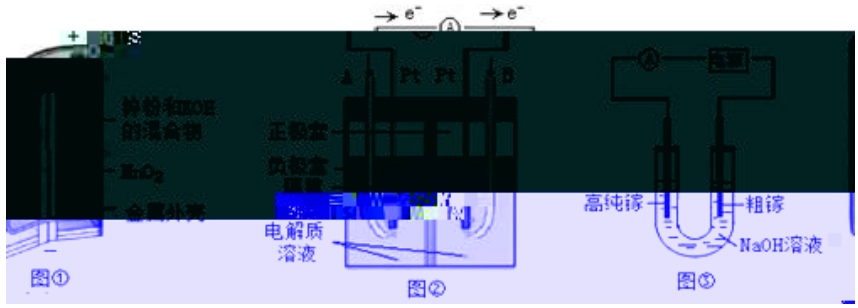
C( ) $H_2(g)$ $CH_4(g)$ H _____

kJ mol ^{1} ( )



(5) N_2O N_2 NO_2

N_2 _____



(1) ___ (MnO_2)

( )

(2) _____

(3)

_____ ( )

Ga^{3+} GaO_2 GaO_2 _____

(4) ( )

a.NaCl b.Fe_2O_3 c.Cu_2S d.Al_2O_3

(CH_3OCH_3)

H_2 $2CO(g) + 4H_2(g)$

$CH_3OCH_3(g) + H_2O(g)$ H سي 0

(1) S 0(=)

(2) ( )

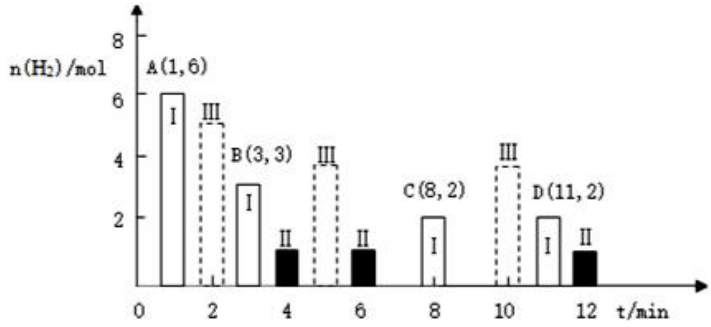
a. b.

c.v (H_2) = 4v (CH_3OCH_3) d.

(3) _____

a. $H_2O(g)$ b.

c. d.



(4)T

8molH_2 H_2

( )

T

H_2

v(H_2) =_____ ___ K = __ _

H_2 K __ K (=

=)

H_2 -

Na^+ A^2 HA H^+ OH H_2O H_2

(1)H_2A _____ ( ) H_2A $\frac{c(H\ )}{c(H_2A)}$ ____ (

)

(2) Na_2A _____

Na_2A ____(=)7 _____ ( )

Na_2A _____ ( )

a. b.KOH c. d.

$K_{sp}(CuA)$ = 1.3 10^{36} 20mL1mol L $^1Na_2A$ 10mL1mol L $^1CuCl_2$

Cu^{2+} _____ mol L ^{1}.(A^2)

(3) 10mL1.00mol L ^{1} H_2A 10mL1.00mol L ^{1}

_____ ( )

a.c$(A^2\ )$ + c(HA) + c(H_2A) = 1mol L ^{1}

b. c(Na^+) (t A) (H^+) $(A^2\ )$ (H)

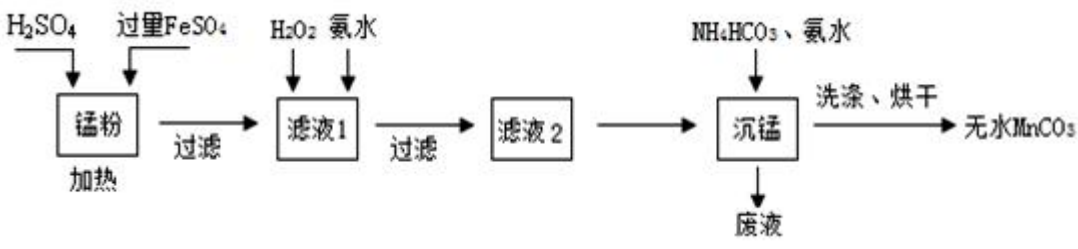
c. c(Na^+) + c(H^+) = c(OH) + c(HA) + c$(A^2\ )$

d.25 n(H^+) n(OH)

(4) 0.1mol L ^{1} Na_2 $\frac{c(Na^+)}{c(A^2\ )+c(HA\ )+c(H_2A)}$ = ___

(MnO_2 $Mn(OH)_2$)

$(MnCO_3)$



$2H_2SO_4 + MnO_2 + 2FeSO_4 = MnSO_4 + Fe_2(SO_4)_3 + 2H_2O$

K_{sp}( ) (25)

	$Mn(OH)_2$	$Fe(OH)_2$	$Fe(OH)_3$
K_{sp}	10^{-13}	10^{-17}	10^{-38}

(1) $FeSO_4$ _____

(2) H_2O_2 Fe^{2+} _____

_____ (

l0 $^{-5}$mol L $^{-1}$) $c(Mn^{2+}) = 0.1$mol L $^{-1}$

_____

(3) _____

_____ ( )

_____

(4) _____

1.0g

25.00mL 2 3

0.1000mol L $^{-1}$

	/mL	/mL	
	25.00	1.50	21.40
	25.00	2.50	22.60
	25.00	0.60	23.20

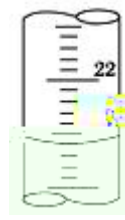
(1) _____ ( )

a. b. c.

(2) _____

(3) _____

(4) _____ ( )



a.

b.

c.

d.

(5) _____ ( )

2018—2019

18 1 12 2 13 18 3 42

	1	2	3	4	5	6	7	8	9
	D	B	C	A	B	A	C	D	B
	10	11	12	13	14	15	16	17	18
	C	B	D	B	A	C	D	C	B

6 58

19 9

H

20 10

21 9

22 12

23 10

24 8