

100

90

1 8 1 4 I 5 8

2

H 1 B 9 C 12 16

I 42

( 18 1 12 2 13

18 3 42 )

1

A B C D

A. A. A. B.

B. C. H<sub>2</sub>C<sub>3</sub>

C. 2 C. D. D

2

A. H<sub>2</sub> B.  C. HI D. 

B HF ⇌ H<sup>+</sup>+F A. H<sub>2</sub>

A B.  K<sup>+</sup> B C. HI

H<sup>+</sup> C D.  H<sup>+</sup> H

D

3 2C ( )+2 ( ) ⇌ 2C<sub>2</sub>( )+ 2( ) H= 748.6 J<sup>-1</sup>

A  
B  
C  
D

A  $H < 0$  A.  
A B.  
B C. C D.  
D

4  
A  
B  
C  
D

C A.  
A B. B C.  
C D.  
D

5

A B F<sub>4</sub> F  
C D

B A. H<sub>4</sub><sup>+</sup> A B. F<sub>4</sub>  
F F<sup>2+</sup> B C. A<sup>3+</sup>  
A (H)<sub>3</sub> C D. C<sub>3</sub><sup>2</sup>  
 $+H_2 \rightleftharpoons HC_3 + H$  C<sub>3</sub><sup>2</sup> B<sup>2+</sup>

B C<sub>3</sub>

c(H)

D

6

A A C<sub>3</sub>

B F<sub>4</sub>

C<sub>2</sub>C<sub>3</sub>

D KH<sub>3</sub>

C A.A C<sub>3</sub>

A (H)<sub>3</sub> HC HC

A B.F<sub>4</sub>

F<sub>2</sub>(<sub>4</sub>)<sub>3</sub> B

C. <sub>2</sub>C<sub>3</sub>

H

C D.KH<sub>3</sub>

KH<sub>4</sub>

KH<sub>4</sub> D

7

$2 \text{ H}_2 + \text{H}_2 = 2 \text{ H}_2 + 2 \text{ H}_2$

	/	$2 \text{ H}_2 + \text{H}_2$		$\text{H}_2 + \text{H}_2$		$\text{H}_2$
		V/ L	c/ L <sup>-1</sup>	V/ L	c/ L <sup>-1</sup>	V/ L
A	25	5	0.1	10	0.1	5
B	25	5	0.2	5	0.2	10
C	35	5	0.1	10	0.1	5
D	35	5	0.2	5	0.2	10

D

20 L D

$2 \text{ H}_2 + \text{H}_2$

D

D

8

E 1

	H H	F F	H F	H C	H I
E/( J <sup>-1</sup> )	436	157	568	432	298

A  $432 > E(\text{H B}) > 298$

B  $\text{H}_2(\text{g}) + \text{F}_2(\text{g}) \rightleftharpoons 2\text{HF}(\text{g}) \quad H = 25 \text{ J mol}^{-1}$

C

H F

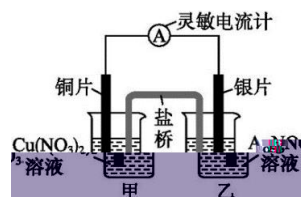
D  $\text{HI}(\text{g}) = \text{H}(\text{g}) + \text{I}(\text{g}) \quad H = +298 \text{ J mol}^{-1}$

H

B A.  $E(\text{H C}) = 432 \text{ J mol}^{-1}$   $E(\text{H I}) = 298 \text{ J mol}^{-1}$   $E(\text{H I}) < E(\text{H C})$

B)  $< E(H^+ / C) - A$

B.  $H^+ E(H^+ / H) + E(F^+ / F) - 2E(H^+ / F) - 543 J$



11

H HC

3:2

H 13

A 0.50 L<sup>-1</sup> B 0.05 L<sup>-1</sup> C 0.017 L<sup>-1</sup> D 0.01 L<sup>-1</sup>

H

A

H=13

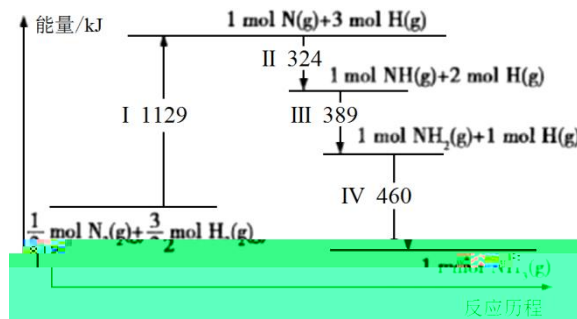
H

$$c(\text{H}^+) = \frac{3Vc - 2Vc}{3V + 2V} = 0.1 \text{ mol/L}$$

$$c(\text{H}^+) = c(\text{HC}) = 0.50 \text{ L}^{-1} \quad \text{A}$$

12  $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g})$

$\text{H}_3(\text{g})$



A I B  $2\text{H}_2$  H<sub>3</sub>

C  $\text{H}(\text{g}) + 2\text{H}(\text{g}) \rightleftharpoons \text{H}_3(\text{g}) \quad H = 849 \text{ J}^{-1}$  D

C A.

I

A

B. II

1  $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g}) \quad H = 849 \text{ J}^{-1}$  B C.  $\text{H}(\text{g}) + 2\text{H}(\text{g}) \rightleftharpoons \text{H}_3(\text{g})$

III + I  $H = 849 \text{ J}^{-1}$  C D.

D

13  $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g}) \quad H = a \text{ J}^{-1}$

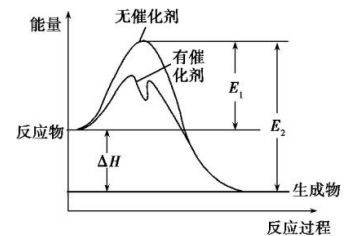
$E_1$

$E_2$

A  $2\text{H}_2$  H<sub>3</sub>

B  $a = E_2 - E_1$

C



D 1 2( ) 3 H<sub>2</sub>( )

J

D A.

A B.  $a = E_2 E_1$  B C.

C D. 1 2( )

3 H<sub>2</sub>( )

2 H<sub>3</sub>( )

J D

14

H	11	11	3	3

A H

B  $c(\text{CH}_3\text{C}^+) > c(\text{H}^+) > c(\text{H})$

C  $c(\text{H}^+) = c(\text{H})$

D 10 H > > >

H

D A.

H<sub>3</sub> H<sub>2</sub> c( H )

) H H<sub>4</sub><sup>+</sup> H H<sub>3</sub> H<sub>2</sub> c( H )

H A B. CH<sub>3</sub>C H CH<sub>3</sub>C

CH<sub>3</sub>C H B C.

C D. 10 H

H H > > > D

15

A

B A C<sub>3</sub> F

A<sup>3+</sup> F

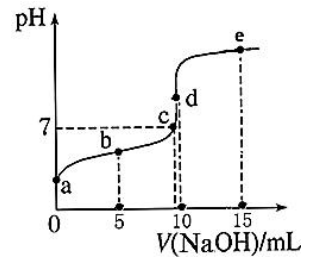
C 2 L 0.1 L<sup>1</sup>A<sub>3</sub> 0.1 L<sup>1</sup> C

0.1 L<sup>-1</sup> I K(A C)<sup>-</sup> > K(A I)<sup>-</sup>  
 D F C<sub>3</sub> F C<sub>3</sub>

C A. A  
 B. c(A<sup>3+</sup>) > c<sup>3</sup>(H  
 ) < K A (H)<sub>3</sub> B C. 0.1 L<sup>-1</sup> C  
 A<sub>3</sub> 0.1 L<sup>-1</sup> I A C  
 A I C D. F C<sub>3</sub> F C<sub>3</sub> D

16 0.1 L<sup>-1</sup> H 10 L 0.1 L<sup>-1</sup> HA

A 3 HA  
 B >  
 C c( ) = c(A )  
 D c(A ) > c( ) > c(H ) > c(H )



D A. 3 0.1 L<sup>-1</sup> HA H=3 HA A B.  
 HA A A > B C.  
 c( ) + c(H ) = c(A ) + c(H ) c( ) = c(A ) C D. A  
 A c( ) > c(A ) > c(H ) > c(H ) D

17 C<sub>2</sub>( ) 3H<sub>2</sub>( ) ⇌ CH<sub>3</sub> H( ) H<sub>2</sub>( ) H < 0 T<sub>1</sub>

2 L 1 C<sub>2</sub> 3 H<sub>2</sub> 5  
 C<sub>2</sub> 20%  
 A  $\frac{1}{48}$   
 B 5 v(H<sub>2</sub>) = 0.06 L<sup>-1</sup> s<sup>-1</sup>  
 C T<sub>2</sub> C<sub>2</sub> 10% T<sub>1</sub> > T<sub>2</sub>  
 D 1 C<sub>2</sub> 3 H<sub>2</sub> C<sub>2</sub> 20%

B A.

$$K = \frac{25}{1728} \quad A$$

B. 5

C 2

20%

0.2

H<sub>2</sub>

0.6

$v(\text{H}_2) = 0.06$

L<sup>-1</sup>

1 B

C.

T<sub>2</sub>

C 2

10%

T<sub>2</sub>

T<sub>1</sub> < T<sub>2</sub>

C

D.

1

C 2

3

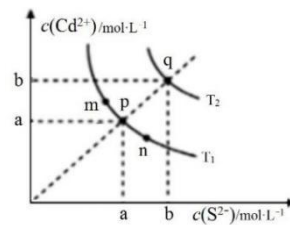
H<sub>2</sub>

C 2

D

18

(C )





19 8

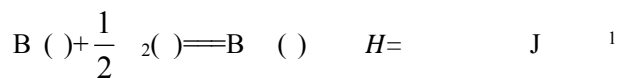
1

K H

2 A<sub>2</sub>(<sub>4</sub>)<sub>3</sub> HC<sub>3</sub>

3 (B) 1

62.70 J



4 F C<sub>3</sub>

H=5  $c(\text{F}^{3+}) = \quad \text{L}^{-1} \quad K_f(\text{H})_3 = 4.0 \cdot 10^{-38}$

1

2

3

4

H=5

20 10 25

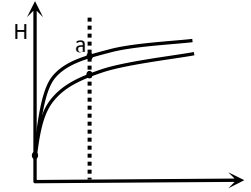
	CH <sub>3</sub> C <sub>2</sub> H <sub>5</sub>	HF	H <sub>2</sub> C <sub>2</sub> O <sub>4</sub>
	$1.8 \cdot 10^{-5}$	$3.5 \cdot 10^{-4}$	$K_1 = 5.9 \cdot 10^{-2}$ $K_2 = 6.5 \cdot 10^{-5}$

1



c(HF) 0.01 L<sup>-1</sup> > = <

c(CH<sub>3</sub>C ) c(F ) > = <



$\frac{c(H^+) \cdot c(CH_3C )}{c(CH_3C H)}$

c(H<sup>+</sup>) c( H )

5 0.1 L<sup>-1</sup>



1

2

3

H

H

H

H

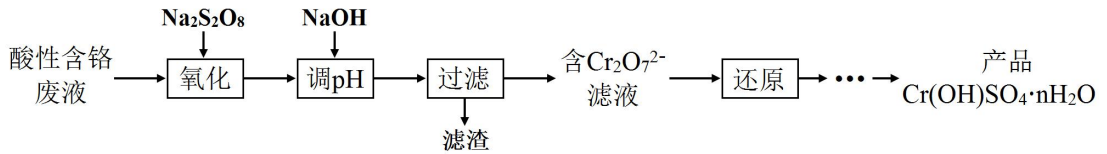
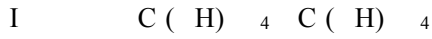
c(CH<sub>3</sub>C ) c(F )

4

c(H<sup>+</sup>) c(CH<sub>3</sub>C ) c(CH<sub>3</sub>C H)

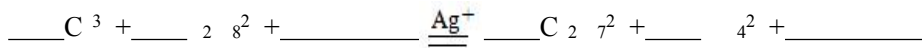


21. 10

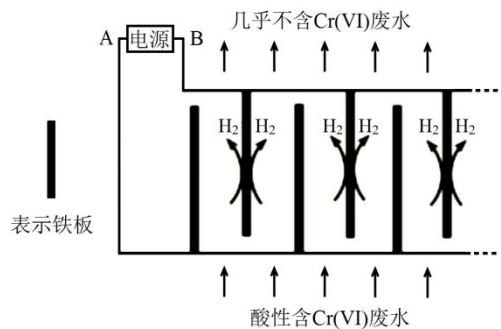
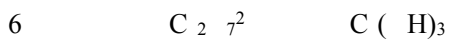


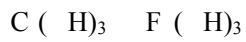
$c(+) = 0.1 L^{-1}$

	H	H
$F^{3+}$	1.4	3.0
$C^{2+}$	4.2	6.7
$C^{3+}$	4.0	6.8

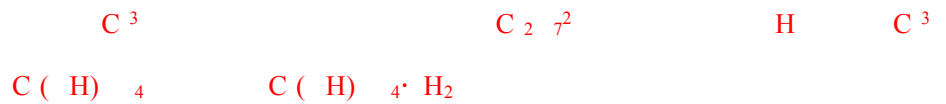


5 B

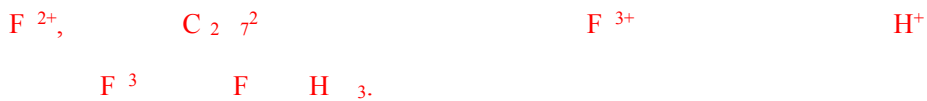




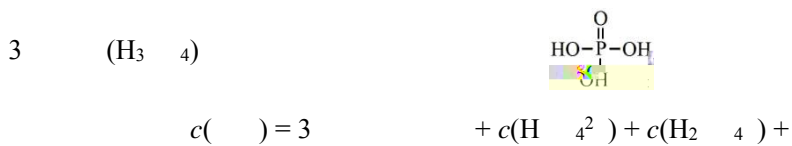
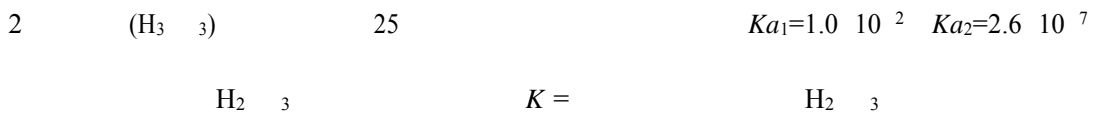
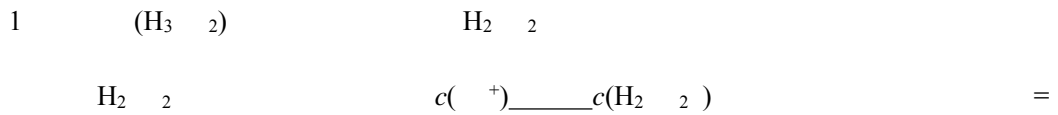
I

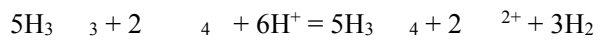


II



22 14



0.10 L<sup>-1</sup>

1	0.60	22.50
2	1.50	23.60
3	1.80	21.80

L<sup>-1</sup>

1  $\text{H}_2\text{O}_2$   $\text{H}_2\text{O}_2$

$c(\text{H}^+)$   $c(\text{H}_2\text{O}_2)$

2  $\text{H}_2\text{O}_3^{2-}$

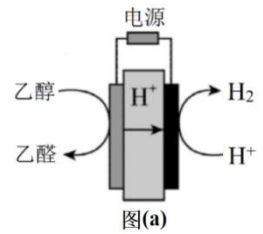
3  $(\text{H}_3\text{O}^+)$

3 4

4

23 13

1



2



	CH <sub>3</sub> CH <sub>2</sub> H (g)	CH <sub>3</sub> CH (g)	H <sub>2</sub> (g)
<i>H</i> / (J mol <sup>-1</sup> )	1366.8	1166.4	285.8

$$H = \text{J mol}^{-1}$$

3

$$n(\text{g}) \quad (t/\text{h}) \quad (p/\text{atm})$$

( )

$$p_1 = 0.15$$

1

*p*<sub>2</sub>

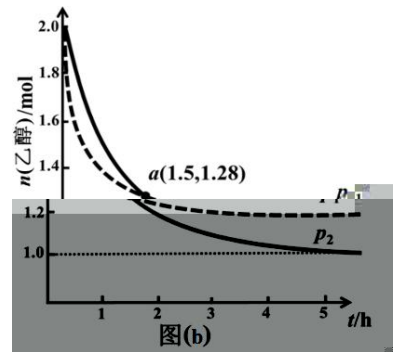
*K*

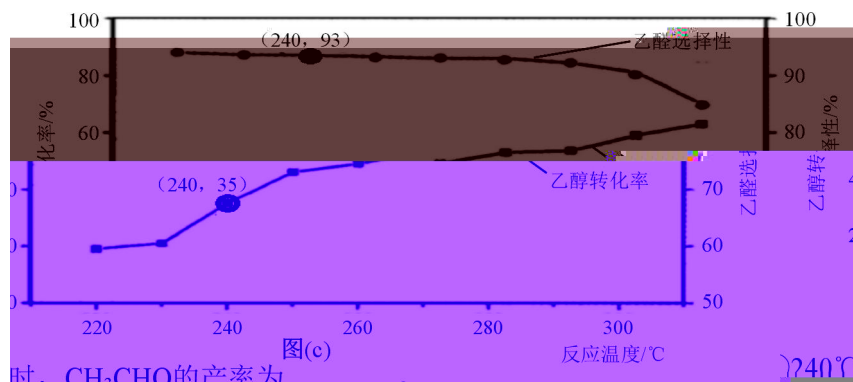
4

$$\text{CH}_3\text{CHO 的选择性} = \frac{\text{生成的CH}_3\text{CHO 的物质的量}}{\text{转化的CH}_3\text{CH}_2\text{OH 的物质的量}} \times 100\%$$

C

( )





图(c)

280

H

1

2

3

2

K

4

240

280