Question 2 / 16

The vapor pressure of water [Molar mass = 18.0 g/mol] over a 12.0 m sugar solution at 298 K is (pressure of pure water at 298 K = 23.8 mmHg)

1. ○ 28.9 mmHg
2. ○ 23.4 mmHg
3. ○ 19.6 mmHg
4. ○ 23.8 mmHg

| Previous | Next |

إضافة ملاحظة

Scanned with CamScanner

Question 3 / 16

Which energy conversion shown below takes place in a galvanic cell?

1. ○ mechanical to electrical
2. ○ chemical to mechanical
3. ○ electrical to chemical
4. ○ chemical to electrical

Previous	Next

إضافة ملاحظة

01 : 25 : 52

For a particular chemical reaction $\Delta H = 5.5$ KJ and $\Delta S = -25$ J/K. Under what temperature condition is the reaction spontaneous

1. ○ Not spontaneous at all Temperture
2. ○ When T is less than -220 K
3. ○ Spontaneous at all Temperture
4. ○ When T is less than 220 K

Previous	Next

إضافة ملاحظة

The Change in free energy ΔG at 298.15 K for the following cell: $Ag_{(s)}$ I $Ag^{+}_{(aq)}$ (0.42 M)

II $Ag^{+}_{(aq)}$ (0.84 M) I $Mg_{(s)}$ is (F = 96485 C/mol)

1. ○ -1718.8 J
2. ○ -3437.5 J
3. ○ +1718.8 J
4. ○ +3437.5 J

| Previous | Next |

إضافة ملاحظة

A gas absorbs 10.0 J of heat and performs 64.1 J of work. The change in its internal energy is

1. ○ -54.1 J
2. ○ +54.1 J
3. ○ -74.1 J
4. ○ +74.1 J

Previous   Next

إضافة ملاحظة

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Question 5 / 16

If $\triangle H_{vap}$ of water is 40.7 KJ/mol, the P_{vap} of water at 47 °C is

1. ○ 8.79 torr
2. ○ 12.4 torr
3. ○ 86.6 torr
4. ○ 61.3 torr

Previous   Next

Question 8 / 16

In which reaction is ΔS expected to be positive

1. $I_{2(g)} \rightarrow I_{2(s)}$

2. $2\,O_{2(g)} + 2\,SO_{(g)} \rightarrow 2\,SO_{3(g)}$

3. $CH_3OH_{(g)} + 3/2\,O_{2(g)} \rightarrow CO_{2(g)} + 2\,H_2O_{(l)}$

4. $CaCO_{3(s)} \rightarrow CaO_{(s)} + CO_{2(g)}$

Previous   Next

Scanned with CamScanner

The vapor pressure of pure water at 300 K is 23.76 mmHg and that of an urea solution is 22.98 mmHg. The molality of the urea solution is

1. ○ 1.6 m
2. ○ 1.9 m
3. ○ 23.2 m
4. ○ 0.4 m

Using the two reactions: $2\ Fe_{(s)} + 3/2\ O_{2\ (g)} \rightarrow Fe_2O_{3\ (s)}$ $\Delta G = -888$ KJ $4\ Fe_2O_{3\ (s)} + Fe_{(s)} \rightarrow 3\ Fe_3O_{4\ (s)}$, $\Delta G = -79$ KJ **The ΔG formation of $Fe_3O_{4\ (s)}$ is**

1. ○ -3631 KJ/mol
2. ○ +3631 KJ/mol
3. ○ -1210.3 KJ/mol
4. ○ -1157.7 KJ/mol

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إنهاء الاختبار

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Question 11 / 16

For the following reaction: $4\,Fe_{(s)} + 3O_{2(g)} \rightarrow 2Fe_2O_{3(s)}$, $\Delta G = -1481$ KJ. The ΔG formation of 15.0 g of $Fe_2O_{3(s)}$ [Molar mass = 159.7 g/mol] is

1. ○ -139.1 KJ
2. ○ -69.6 KJ
3. ○ +69.6 KJ
4. ○ +139.1 KJ

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إضافة ملاحظة

Scanned with CamScanner

Question 12 / 16

Which of the follwoing would you expect to have the highest boiling point

1. ○ N_2 (Mmass=28.0 g/mol)

2. ○ O_2 (Mmass=32.0 g/mol)

3. ○ H_2 (Mmass=2.02 g/mol)

4. ○ F_2 (Mmass=38.0 g/mol)

Previous	Next

Using the follwoing data 1/2 A → B ΔH =150. KJ/mol 3 B → 2 C + D ΔH = -125. KJ/mol E + A → 2 D ΔH = 450. KJ/mol The △H for B + D → E + 2 C

1. ○ -175 Kj/mol
2. ○ -225 KJ/mol
3. ○ -325 KJ/mol
4. ○ -275 KJ/mol

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إضافة ملاحظة

Scanned with CamScanner

Question 13 / 16

The work done by the reaction, $2 \, Na_{(s)} + 2 \, H_2O_{(l)} \rightarrow 2 \, NaOH_{(aq)} + H_{2(g)}$ if 0.24 g of Na react with excess amount of water to form H_2 at STP condition is ($R = 0.08206$ L. atm $(mol. \, K)^{-1}$)

1. ○ -11.9 KJ
2. ○ -31.5 KJ
3. ○ -0.12 KJ
4. ○ -23.8 KJ

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Scanned with CamScanner

The vapor pressure of water [Molar mass = 18.0 g/mol] over a 12.0 m sugar solution at 298 K is (pressure of pure water at 298 K = 23.8 mmHg)

1. ○ 28.9 mmHg
2. ○ 23.4 mmHg
3. ○ 19.6 mmHg
4. ○ 23.8 mmHg

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Scanned with CamScanner

Question 15 / 16

The pH of a 0.5 M solution of NaBr is

1. ○ 5.0
2. ○ 13.6
3. ○ 9.2
4. ○ 7.0

Previous   Next

01 : 13 : 31

For the reaction A + B → C + D, ΔH° = +40 kJ and ΔS° = +50 J/K. Therefore, the reaction under standard conditions is

1. ○ spontaneous at all temperatures.
2. ○ spontaneous at temperatures less than 10 K.
3. ○ spontaneous only at temperatures between 10 K and 800 K.
4. ○ spontaneous at temperatures greater than 800 K.
5. ○ nonspontaneous at all temperatures.

01 : 11 : 50

Using the information below, calculate $\Delta H°$ for PbO(s) PbO(s) + CO(g) →Pb(s) + CO$_2$ (g) $\Delta H°$ = -131.4 kJ $\Delta H°$ for CO$_2$ (g) = -393.5 kJ/mol $\Delta H°$ for CO(g) = -110.5 kJ/mol

1. ○ -283.0 kJ/mol
2. ○ +252.1 kJ/mol
3. ○ +283.0 kJ/mol
4. ○ -372.6 kJ/mol
5. ○ -151.6 kJ/mol

اضغط على الرقم للإنتقال مباشرة للسؤال

01 : 5 : 53

The normal boiling point of liquid X is less than that of Y, which is less than that of Z. Which of the following is the correct order of increasing vapor pressure of the three liquids at STP? Question 1/20

1. ○ X < Y < Z
2. ○ Y
3. ○ X
4. ○ Z < Y < X
5. ○ Y < Z < X

[Next]

For nitrous acid, HNO_2, $K_a = 4.0 \times 10^{-4}$. Calculate the pH of 0.68 M HNO_2.

1. ● 1.78
2. ○ 0.17
3. ○ 3.57
4. ○ 12.22
5. ○ none of these

00 : 42 : 59

It is found that 250. mL of a gas at STP has a mass of 1.44 g. What is the molar mass? (R = 0.082 L.atm/K.mol = 8.314 J/K.mol) Question 11 : 20

1. ○ 5.76 g/mol
2. ○ 11.2 g/mol
3. ○ 129 g/mol
4. ○ 22.4 g/mol
5. ○ 62.2 g/mol

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Half-reaction	E° (V)
Cr^{3+} (aq) + 3e⁻ → Cr (s)	-0.74
Fe^{2+} (aq) + 2e⁻ → Fe (s)	-0.440
Fe^{3+} (aq) + e⁻ → Fe^{2+} (s)	+0.771
Sn^{4+} (aq) + 2e⁻ → Sn^{2+} (aq)	+0.154

Using the table above, the standard cell potential (E°cell) for the galvanic cell based on the reaction below is $3Sn^{4+}$(aq) + 2Cr(s) → $2Cr^{3+}$(aq) + $3Sn^{2+}$(aq) Question 15

1. ○ +2.53
2. ○ -1.02
3. ○ +0.89
4. ○ +1.94
5. ○ -0.59

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Scanned with CamScanner

01 : 13 : 31

For the reaction $A + B \rightarrow C + D$, $\Delta H^\circ = +40$ kJ and $\Delta S^\circ = +50$ J/K. Therefore, the reaction under standard conditions is

1. spontaneous at all temperatures.
2. spontaneous at temperatures less than 10 K.
3. spontaneous only at temperatures between 10 K and 800 K.
4. spontaneous at temperatures greater than 800 K.
5. nonspontaneous at all temperatures.

| Previous | Next |

01 : 9 : 59

Exactly 235.4 J will raise the temperature of 10.0 g of a metal from 25.0°C to 60.0°C. What is the specific heat capacity of the metal?

1. ○ 1.49 J/g°C
2. ○ 13.1 J/g°C
3. ○ 0.673 J/g°C
4. ○ 56.3 J/g°C
5. ○ none of these

Previous   Next

01 : 13 : 31

For the reaction A + B → C + D, ΔH° +40 kJ and ΔS° +50 J/K. Therefore, the reaction under standard conditions is

1. ⊙ spontaneous at all temperatures.
2. ⊙ spontaneous at temperatures less than 10 K.
3. ⊙ spontaneous only at temperatures between 10 K and 800 K.
4. ⊙ spontaneous at temperatures greater than 800 K.
5. ⊙ nonspontaneous at all temperatures.

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إسحب على الرقم للانتقال مباشرة للسؤال

01 : 11 : 50

Using the information below, calculate ΔH° for PbO(s) PbO(s) + CO(g) → Pb(s) + CO₂ (g) ΔH° = 131.4 kJ ΔH° for CO₂ (g) = -393.5 kJ/mol ΔH° for CO(g) = -110.5 kJ/mol

1. = -283.0 kJ/mol
2. = +252.1 kJ/mol
3. = +283.0 kJ/mol
4. = -372.6 kJ/mol
5. = -151.6 kJ/mol

Half-reaction	E° (V)
$Cr^{3+}(aq) + 3e^- \rightarrow Cr(s)$	-0.74
$Fe^{2+}(aq) + 2e^- \rightarrow Fe(s)$	-0.440
$Fe^{3+}(aq) + e^- \rightarrow Fe^{2+}(s)$	+0.771
$Sn^{4+}(aq) + 2e^- \rightarrow Sn^{2+}(aq)$	+0.154

Using the table above, the standard cell potential (E°cell) for the galvanic cell based on the reaction below is $3Sn^{4+}(aq) + 2Cr(s) \rightarrow 2Cr^{3+}(aq) + 3Sn^{2+}(aq)$

1. +2.53
2. -1.02
3. +0.89
4. +1.94
5. -0.59

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01 : 05 : 30

For nitrous acid, HNO_2, $K_a = 4.0 \times 10^{-4}$. Calculate the pH of 0.68 M HNO_2.

1. ● 1.78
2. ○ 0.17
3. ○ 3.57
4. ○ 12.22
5. ○ none of these

<div style="text-align:center">Previous   Next</div>

01 : 13 : 31

For the reaction $A + B \rightarrow C + D$, $\Delta H° = +40$ kJ and $\Delta S° = +50$ J/K. Therefore, the reaction under standard conditions is

1. spontaneous at all temperatures.
2. spontaneous at temperatures less than 10 K.
3. spontaneous only at temperatures between 10 K and 800 K.
4. spontaneous at temperatures greater than 800 K.
5. nonspontaneous at all temperatures.

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Question 9 / 20

A substance contains 35.0 g nitrogen, 5.05 g hydrogen, and 60.0 g of oxygen. How many grams of hydrogen are there in a 156 g sample of this substance? (Molar mass of N, H and O are 14, 1 and 16 g/mol)

1. ○ 15.7 g
2. ○ 5.05 g
3. ○ 30.9 g
4. ○ 7.87 g
5. ○ 782 g

Previous   Next

00 : 48 : 45

Find the value of the equilibrium constant (K_c) (at 500 C) for $N_2(g) + 3H_2(g) \leftrightarrow 2NH_3(g)$ The value for K_p at 500 C is 1.5×10^{-8}. (R $= 0.082$ L.atm/K.mol $= 8.314$ J/K.mol)

1. ○ 7.5×10^{-2}
2. ○ 1.3×10^{-2}
3. ○ 9.6×10^{-2}
4. ○ 6.0×10^{-5}
5. ○ 2.5×10^{-2}

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$$C_{(s)} + CO_{2\,(g)} \rightleftharpoons 2CO_{(g)} \qquad K_p = 1.3 \times 10^{14}$$

$$CO_{(g)} + Cl_{2(g)} \rightleftharpoons COCl_{2(g)} \qquad K_p = 6.0 \times 10^{-3}$$

$$C_{(s)} + CO_{2(g)} + 2Cl_{2(g)} \rightleftharpoons 2COCl_{2(g)} \qquad K_p = ?$$
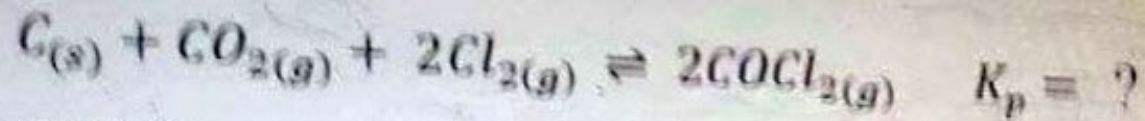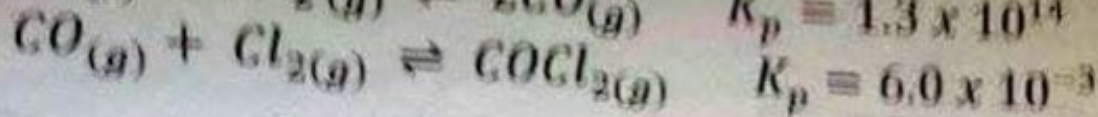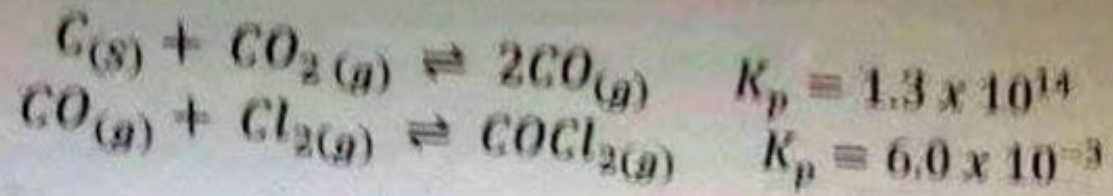
Question 9 / 12

Consider the following reactions and equilibrium constants at particular temperature What is K_p of the reaction

1. ⚪ 4.68 x 10^9
2. ⚪ 7.80 x 10^{11}
3. ⚪ 2.17 x 10^{16}
4. ⚪ 4.68 x 10^{20}
5. ⚪ 1.01 x 10^{22}

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إضغط على الرقم للإنتقال مباشرة السؤال
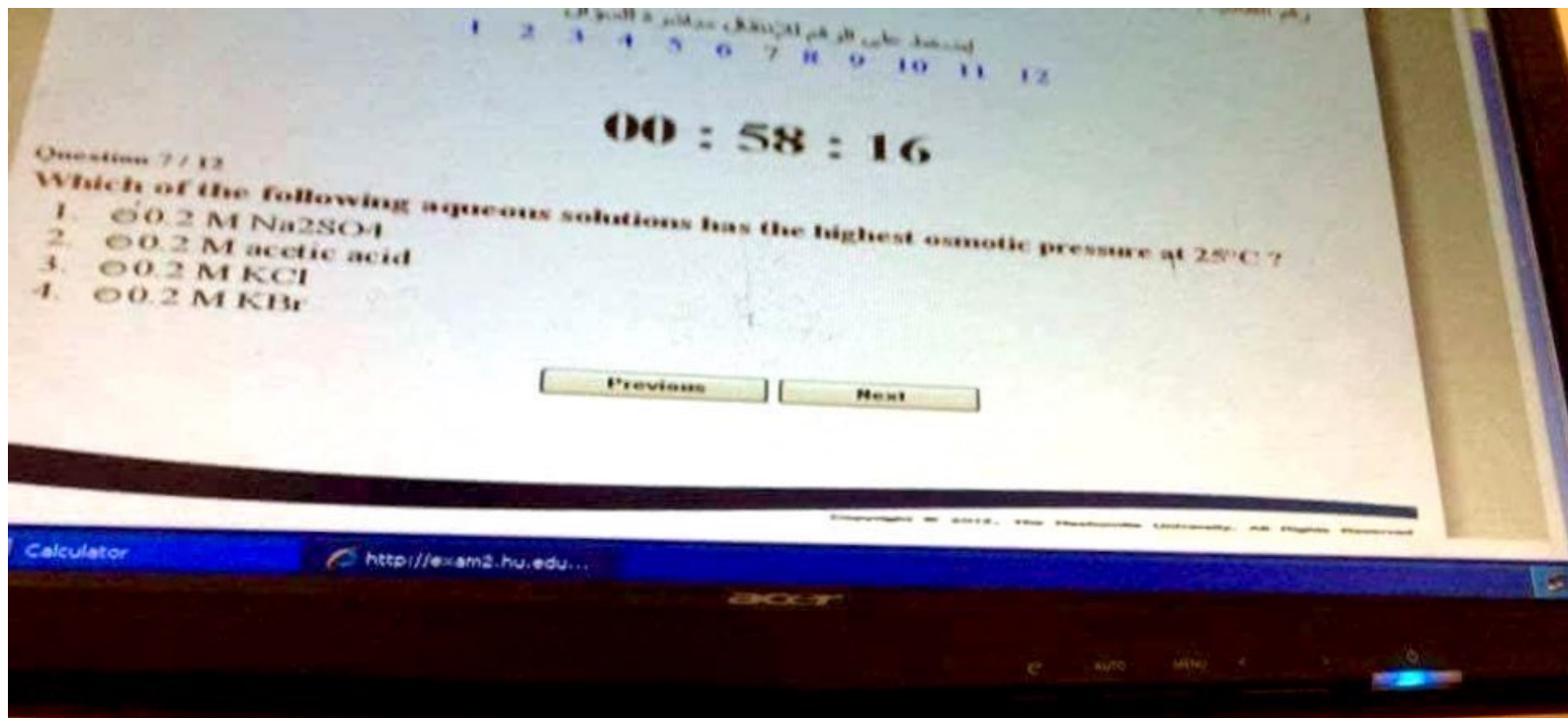
01 : 5 : 53

The normal boiling point of liquid X is less than that of Y, which is less than that of Z. Which of the following is the correct order of increasing vapor pressure of the three liquids at STP? Question 1/20

1. ⊙ X < Y < Z
2. ⊙ Y
3. ⊙ X
4. ⊙ Z < Y < X
5. ⊙ Y < Z < X

Next

00 : 58 : 16

Which of the following aqueous solutions has the highest osmotic pressure at 25°C ?

1. ⊙ 0.2 M Na2SO4
2. ⊙ 0.2 M acetic acid
3. ⊙ 0.2 M KCl
4. ⊙ 0.2 M KBr

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Calculator   http://exam2.hu.edu...

acer

01 : 13 : 58

A 0.20 M solution of $MgSO_4$ has an observed osmotic pressure of 7.7 atm at 25°C. Determine the observed van't Hoff factor for this experiment. ($R = 0.082$ L.atm/K.mol $= 8.314$ J/K.mol)

1. ⊙ 1.9
2. ⊙ 1.3
3. ⊙ 1.6
4. ⊙ 1.8
5. ⊙ 2.0

Previous   Next

01 : 13 : 31

For the reaction A + B → C + D, $\Delta H° = +40$ kJ and $\Delta S° = +50$ J/K. Therefore, the reaction under standard conditions is Question 5/20

1. spontaneous at all temperatures.
2. spontaneous at temperatures less than 10 K.
3. spontaneous only at temperatures between 10 K and 800 K.
4. spontaneous at temperatures greater than 800 K.
5. nonspontaneous at all temperatures.

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00 : 27 : 6

Question 11 / 12

The pH of a 0.1 M NaNO$_3$ solution is:

1. ○8.0
2. ○9.0
3. ○5.0
4. ○7.0
5. ⊚4.5

| Previous | | Next |

The reaction quotient (Q) for a system is 720. If the equilibrium constant for the system is 36, what will happen as equilibrium is approached?

1. ○ There will be a net gain in product.
2. ○ There will be a net gain in reactant.
3. ○ There will be a net gain in both product and reactant.
4. ○ There will be no net gain in either product or reactant.
5. ○ The equilibrium constant will decrease until it equals the reaction quotient.

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00 : 52 : 26

Question 10 / 12

The molar heats of sublimation and fusion of a certain compound are 60 kJ/mol and 10 kJ/mol, respectively. Calculate the molar heat of vaporization of the liquid compound

1. ○ 70 kJ/mol
2. ○ 50 kJ/mol
3. ○ -70 kJ/mol
4. ○ -50 kJ/mol
5. ○ 4.07 kJ/mol

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00 : 58 : 21

Question 5 / 12

The vapor pressure of water over a 8.0 m sugar solution at 25 °C is: ($P^\circ_{H_2O}$ at 25 °C is 20 mmHg, molar mass of water = 18.0 g/mol)
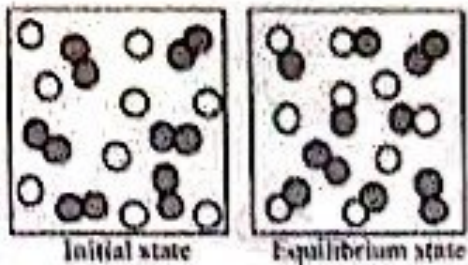
1. ○ 2.50 mmHg
2. ○ 33.9 mmHg
3. ○ 17.5 mmHg
4. ○ 35.0 mmHg
5. ○ 15.9 mmHg

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Initial state   Equilibrium state

Question 11 / 12

The following pictures represent the initial state and the equilibrium state for the gaseous state reaction of A_2 molecules (shaded "مظللة" spheres) with H atoms (unshaded "غير مظللة" spheres) to give AB molecules. What is the best balanced chemical equation for the reaction?

1. ○ $A_2 + B \rightleftharpoons A_2B$
2. ○ $A_2 + 2B \rightleftharpoons 2AB$
3. ○ $A_2 + 2B \rightleftharpoons A_2B_2$
4. ○ $6A_2 + 9B \rightleftharpoons 3A_2 + 3B + 6AB$

Consider the reaction $H_2 + I_2 \leftrightarrow 2HI$ whose K – 31.2 at a high temperature. If an equal amounts of reactants gives the concentration of the product to be 0.50 M at equilibrium. determine the equilibrium concentration of the H_2.

1. ○ $1.3 \times 10?1$ M
2. ○ 4.5×10^{-2} M
3. ○ 9.0×10^{-2} M
4. ○ 1.1×10^{1} M
5. ○ 8.0×10^{-3} M

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00 : 42 : 59

It is found that 250. mL of a gas at STP has a mass of 1.44 g. What is the molar mass? (R = 0.082 L.atm/K.mol = 8.314 J/K.mol)

1. ○ 5.76 g/mol
2. ○ 11.2 g/mol
3. ○ 129 g/mol
4. ○ 22.4 g/mol
5. ○ 62.2 g/mol

Previous   Next

01 : 05 : 30

For nitrous acid, HNO_2, $K_a = 4.0 \times 10^{-4}$. Calculate the pH of 0.68 M HNO_2.

1. ⦿ 1.78
2. ◉ 0.17
3. ◉ 3.57
4. ◉ 12.22
5. ◉ none of these

| Previous | Next |

One molecule of a compound weighs 2.13×10^{-22} g. Its molar mass is:

1. ⊙ 20 g / mol
2. ⊙ 72 g / mol
3. ⊙ 150 g / mol
4. ⊙ 128 g / mol
5. ⊙ 190 g/mol

00 : 23 : 0

Order the intermolecular forces (dipole-dipole, London Dispersion, ionic, and hydrogen-bonding) from weakest to strongest . Choose

1. London Dispersion, dipole-dipole, hydrogen-bonding, ionic
2. dipole-dipole, London Dispersion, ionic, and hydrogen-bonding
3. hydrogen-bonding, dipole-dipole, London Dispersion, and ionic
4. dipole-dipole, ionic, London Dispersion, and hydrogen-bonding
5. London Dispersion, ionic, dipole-dipole, and hydrogen-bonding

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Finsh

00 : 22 : 36

For the galvanic cell reaction, expressed below using shorthand notation, what half reaction occurs at the cathode? $Zn(s) | Zn^{2+}(aq) \| Fe^{2+}(aq) | Fe(s)$

1. $Zn(s) \rightarrow Zn^{2+}(aq) + 2e^-$
2. $Zn^{2+}(aq) + 2e^- \rightarrow Zn(s)$
3. $Fe^{2+}(aq) + 2e^- \rightarrow Fe(s)$
4. $Fe(s) \rightarrow Fe^{2+}(aq) + 2e^-$

Previous

Question 9 / 12

Kc for the equilibrium below is 7.52×10^{-2} at 480.0 ?C. $2Cl_2$ (g) + $2H_2O$ (g) <> $4HCl$ (g) +
O_2 (g) What is the value of equilibrium constant for the following reaction at the same
temperature? $8HCl$ (g) + $2O_2$ (g) <> $4Cl_2$ (g) + $4H_2O$ (g)

1. ○ 1.50×10^{-1}
2. ○ 5.66×10^{-3}
3. ○ 7.52×10^{-2}
4. ○ 1.77×10^{2}
5. ○ -7.52×10^{-2}

[Previous]   [Next]

Question 9 / 12

Kc for the equilibrium below is 7.52×10^{-2} at 480.0 ?C. $2Cl_2$ (g) + $2H_2O$ (g) <> $4HCl$ (g) + O_2 (g) What is the value of equilibrium constant for the following reaction at the same temperature? $8HCl$ (g) + $2O_2$ (g) <> $4Cl_2$ (g) + $4H_2O$ (g)

1. O 1.50×10^{-1}
2. O 5.66×10^{-3}
3. O 7.52×10^{-2}
4. O 1.77×10^{2}
5. O -7.52×10^{-2}

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00 : 58 : 30

Question 2 / 12

In deciding which of two acids is the stronger, one must know:

1. ○ the equilibrium constant of each acid
2. ○ the concentration of each acid solution
3. ○ the pH of each acid solution
4. ○ all of the above

| Previous | Next |

01 : 11 : 22

Calculate the work for the expansion of CO_2 from 1.0 to 2.9 liters against a pressure of 1.0 atm at constant temperature.

1. ○ -1.9 liter atm
2. ○ 1.9 liter atm
3. ○ 2.9 liter atm
4. ○ 0
5. ○ -2.9 liter atm

[Previous] [Next]

01 : 11 : 50

Using the information below, calculate $\Delta H°$ for PbO(s) PbO(s) + CO(g) →Pb(s) + CO$_2$ (g) $\Delta H°$ − 131.4 kJ $\Delta H°$ for CO$_2$ (g) − 393.5 kJ/mol $\Delta H°$ for CO(g) − 116.4 kJ/mol

1. ◦ −283.0 kJ/mol
2. ◦ +252.1 kJ/mol
3. ◦ +283.0 kJ/mol
4. ◦ −372.6 kJ/mol
5. ◦ −151.6 kJ/mol

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00 : 26 : 58

Question 10 / 11

Consider a solution made from a nonvolatile solute and a volatile solvent. Which statement is true?

1. ○ The vapor pressure of the solution is always greater than the vapor pressure of the pure solvent.

2. ○ The boiling point of the solution is always greater than the boiling point of the pure solvent.

3. ○ The freezing point of the solution is always greater than the freezing point of the pure solvent.

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For nitrous acid, HNO_2, $K_a = 4.0 \times 10^{-4}$. Calculate the pH of 0.68 M HNO_2.

1. 1.78
2. 0.17
3. 3.57
4. 12.22
5. none of these

Previous   Next