Chemical Systems, Equilibrium, and Electrochemistry — Practice Test

Ontario Chemistry, Grade 12, University Preparation (SCH4U) • 25 questions

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **At equilibrium, the rates of forward and reverse reactions are**

- **A** Decreasing
- **B** Equal
- **C** Increasing
- **D** Zero

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2 **At equilibrium, the concentrations of reactants and products are**

- A Always increasing
- B Constant but not necessarily equal
- C Zero
- D Equal

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3 **For the reaction A plus B forming C, with equilibrium concentrations A 0.5, B 0.5, and C 1.0 molar, the equilibrium constant is**

- A 0.25
- B 4.0
- C 2.0
- D 1.0

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4 **For the reaction with equilibrium constant 4.0 and concentrations A 0.5 and B 0.5 molar, the equilibrium concentration of C in molar is**

- A 4.0
- B 2.0
- C 0.5
- D 1.0

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5 **A large equilibrium constant indicates the equilibrium lies toward the**

- A Reactants
- B Catalyst
- C Left only
- D Products

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6 **Le Chatelier principle predicts a system at equilibrium shifts to**

- A Increase temperature always
- B Counteract the disturbance
- C Increase the disturbance
- D Stop reacting

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7 **Increasing pressure on a gaseous equilibrium shifts it toward the side with**

- A More volume
- B No change
- C More moles of gas
- D Fewer moles of gas

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8 **Adding more reactant to an equilibrium system shifts the equilibrium toward the**

- A Catalyst
- B Left always
- C Reactants
- D Products

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9 **For an exothermic reaction, increasing temperature shifts equilibrium toward the**

- A Reactants
- B Products
- C Right always
- D Catalyst

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10 **A catalyst affects an equilibrium by**

- A Changing the equilibrium constant
- B Shifting it to reactants
- C Speeding both directions equally with no shift
- D Shifting it to products

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11 **The solubility product Ksp is the equilibrium constant for a solid dissolving into its**

- A Ions
- B Atoms only
- C Molecules
- D Gases

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12 **For silver chloride with Ksp 1.8 times 10^{-10}, the molar solubility is about**

- **A** 1.3 times 10^{-5}
- **B** 1.0 times 10^{-5}
- **C** 3.6 times 10^{-10}
- **D** 1.8 times 10^{-10}

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13 **A common ion added to a saturated solution generally**

- **A** Increases solubility
- **B** Decreases solubility
- **C** Has no effect
- **D** Dissolves the solid fully

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14 **In a galvanic cell, oxidation occurs at the**

A Anode

B Salt bridge only

C Voltmeter

D Cathode

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15 **In a galvanic cell, reduction occurs at the**

A Salt bridge

B Anode

C Cathode

D Wire

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16 **Electrons in a galvanic cell flow through the external wire from the**

A Cathode to salt bridge

B Anode to cathode

C Salt bridge to anode

D Cathode to anode

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17 **A zinc copper cell has zinc potential -0.76 volts and copper potential +0.34 volts. The standard cell potential is**

A -1.10 volts

B -0.42 volts

C +1.10 volts

D +0.42 volts

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18 **A standard hydrogen electrode is assigned a potential of**

A 1.00 volts

B -1.00 volts

C 0.00 volts

D 0.76 volts

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19 **In electrolysis, electrical energy is used to drive a**

A Non spontaneous reaction

B Spontaneous reaction

C Neutralization

D Equilibrium shift only

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20 **During electrolysis of molten sodium chloride, sodium metal forms at the**

- A Battery
- B Cathode
- C Salt bridge
- D Anode

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21 **During electrolysis of water, oxygen gas forms at the**

- A Salt bridge
- B Anode
- C Wire
- D Cathode

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22 **The standard cell potential is positive for a cell that is**

A Spontaneous

B Impossible

C At equilibrium

D Non spontaneous

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23 **A cell with cathode potential 0.80 volts and anode potential -0.25 volts has a standard potential of**

A -1.05 volts

B 0.55 volts

C 1.05 volts

D -0.55 volts

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24 **Corrosion of iron is prevented by galvanizing, which coats iron with**

A Lead

B Copper

C Zinc

D Nickel

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25 **A buffer solution resists changes in pH when small amounts of acid or base are**

A Added

B Frozen

C Removed

D Heated

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ANSWER KEY

1.	B	**10.**	C	**19.**	A
2.	B	**11.**	A	**20.**	B
3.	B	**12.**	A	**21.**	B
4.	D	**13.**	B	**22.**	A
5.	D	**14.**	A	**23.**	C
6.	B	**15.**	C	**24.**	C
7.	D	**16.**	B	**25.**	A
8.	D	**17.**	C		
9.	A	**18.**	C		

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