BRITISH COLUMBIA CHEMISTRY 12 (MCH--12) · UNIT D · 25 QUESTIONS

Electrochemistry — Practice Test

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 **Oxidation is the process in which a species**

- A gains electrons
- B gains protons
- C loses electrons
- D loses neutrons

Understand It with Pulse | Flag a mistake

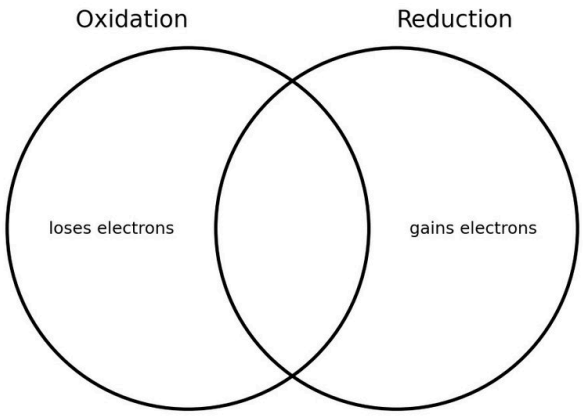
2 **Reduction is the process in which a species**

- A loses electrons
- B gains electrons
- C loses protons
- D gains neutrons

Understand It with Pulse | Flag a mistake

3

The diagram shows two sets: oxidation and reduction. Which statement belongs in the overlap of both sets



Question 3

The diagram shows two sets : oxidation and reduction. Which statement belongs in the overlap of both sets

A) electrons are lost

B) electrons are gained

C) no electrons are transferred

D) they occur together in every redox reaction

A electrons are lost

B electrons are gained

C no electrons are transferred

D they occur together in every redox reaction

Understand It with Pulse

Flag a mistake

4

In the reaction Zn → Zn^{2+} + $2e^-$, zinc is

A oxidized

B reduced

C neither oxidized nor reduced

D a catalyst

Understand It with Pulse

Flag a mistake

5 **In the reaction $Cu^{2+} + 2e^-$ → Cu, copper ions are**



A reduced

B oxidized

C neither oxidized nor reduced

D a catalyst

Understand It with Pulse | Flag a mistake

6 **In a redox reaction, the oxidizing agent is the species that**

- A is oxidized and causes another species to be reduced
- B gains no electrons
- C is reduced and causes another species to be oxidized
- D loses no electrons

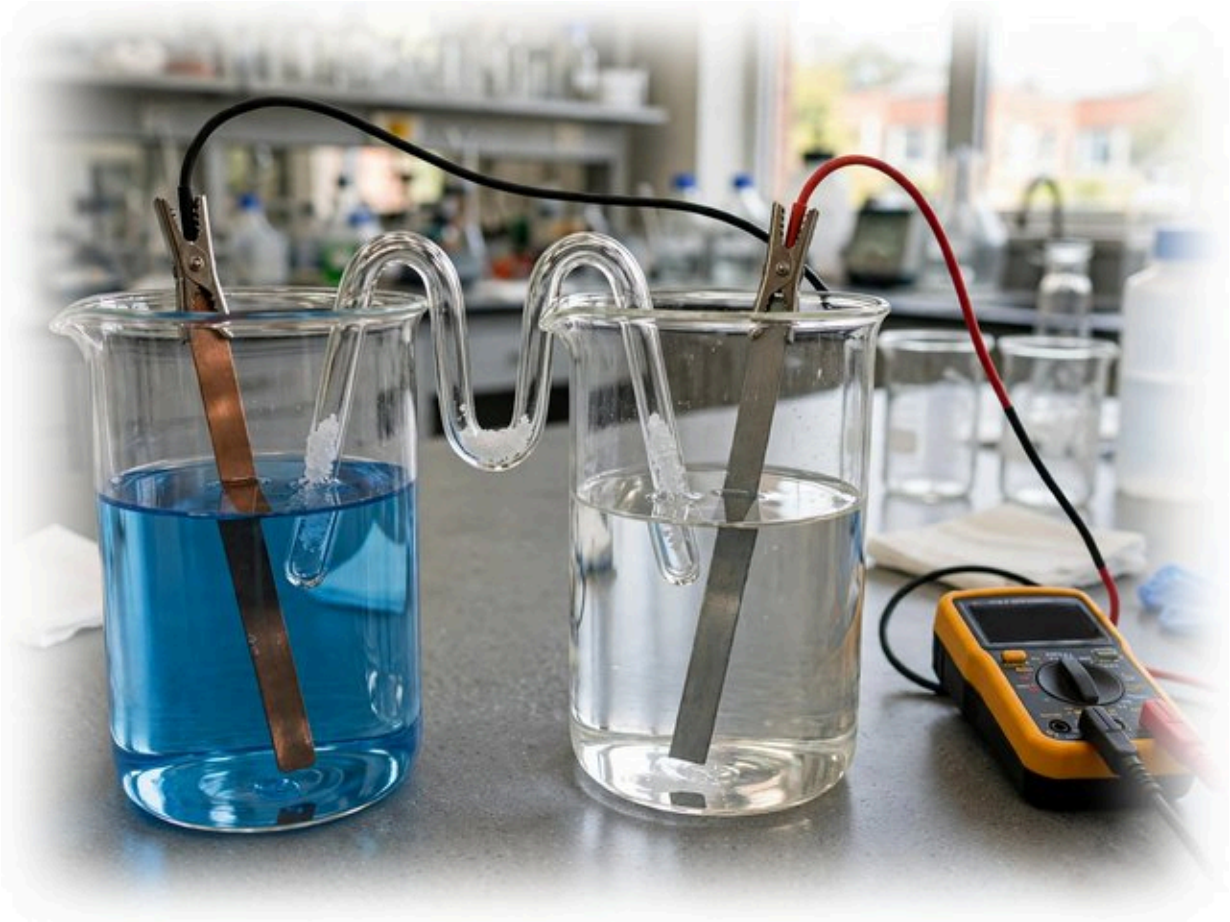
Understand It with Pulse | Flag a mistake

7 **In the reaction $Zn + Cu^{2+} \rightarrow Zn^{2+} + Cu$, the reducing agent is**

- A Cu^{2+}
- B Zn
- C Zn^{2+}
- D Cu

Understand It with Pulse | Flag a mistake

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



A cathode

B salt bridge

C voltmeter

D anode

Understand It with Pulse | Flag a mistake

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

A anode

B cathode

C salt bridge

D wire

Understand It with Pulse | Flag a mistake

10 **In a galvanic cell, electrons flow through the external wire from the**

A cathode to the anode

B salt bridge to the anode

C cathode to the salt bridge

D anode to the cathode

Understand It with Pulse | Flag a mistake

11 **The purpose of a salt bridge in a galvanic cell is to**

A carry electrons between electrodes

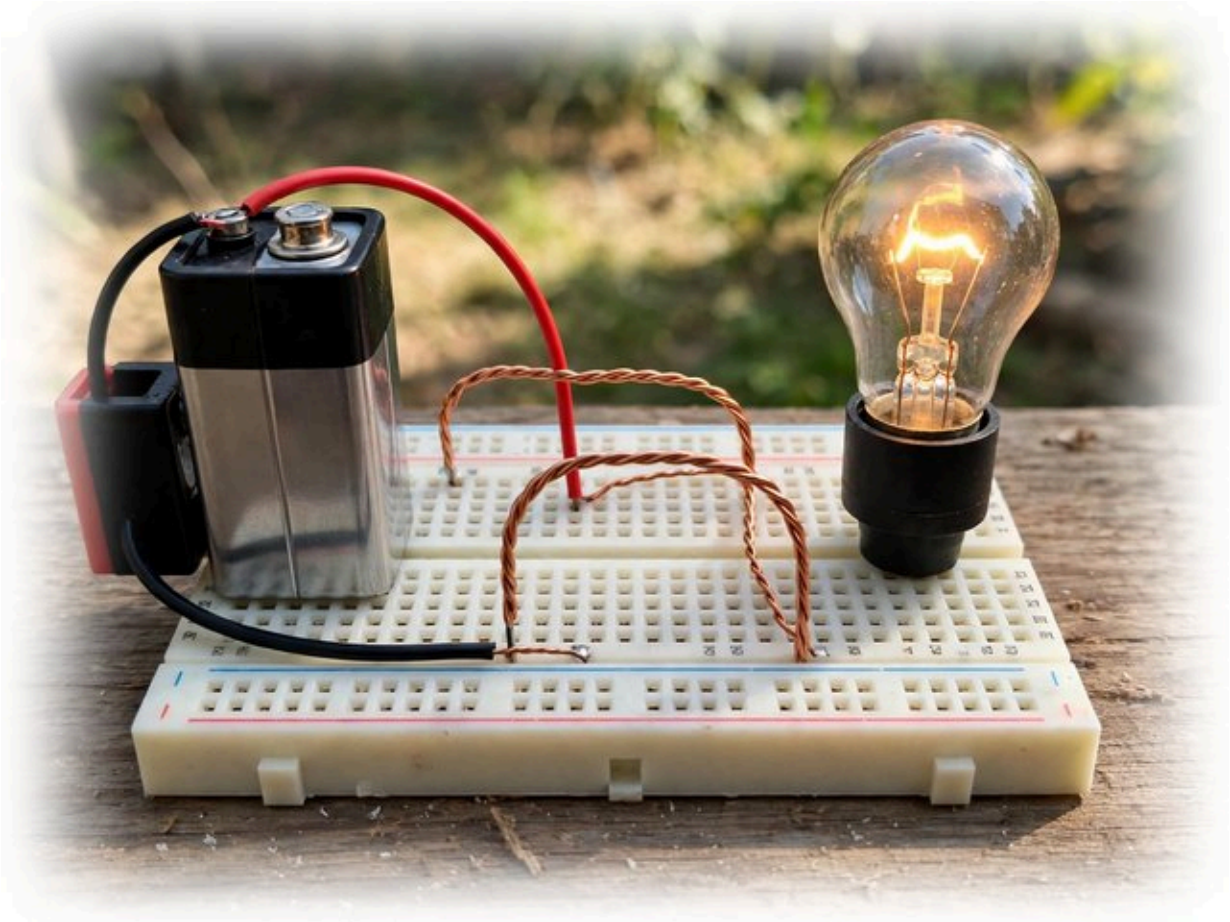
B provide the voltage of the cell

C maintain electrical neutrality in the half-cells

D prevent any ions from moving

Understand It with Pulse | Flag a mistake

12 **A galvanic cell converts**



A chemical energy into electrical energy

B electrical energy into chemical energy

C heat energy into light energy

D mechanical energy into heat

Understand It with Pulse | Flag a mistake

13 **An electrolytic cell converts**

A electrical energy into chemical energy

B chemical energy into electrical energy

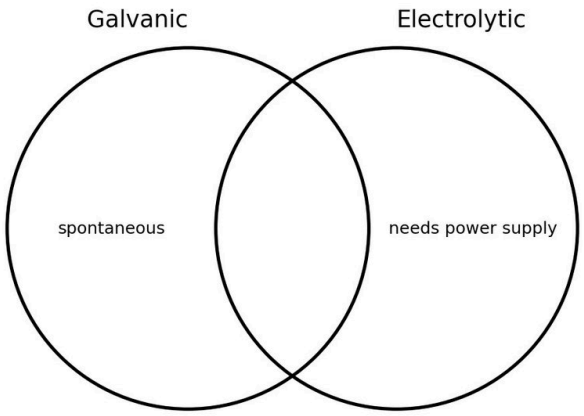
C heat energy into light energy

D mechanical energy into heat

Understand It with Pulse | Flag a mistake

14

The diagram shows two sets: galvanic cells and electrolytic cells. Which feature belongs in the overlap of both sets



Question 14

The diagram shows two sets : galvanic cells and electrolytic cells. Which feature belongs in the overlap of both sets

A) spontaneous reactions only

B) redox reactions with oxidation at the anode

C) an external power supply

D) electrical energy produced

A spontaneous reactions only

B redox reactions with oxidation at the anode

C an external power supply

D electrical energy produced

Understand It with Pulse

Flag a mistake

15 **In an electrolytic cell, oxidation still occurs at the**

A cathode

B salt bridge

C anode

D battery

Understand It with Pulse | Flag a mistake

16 **Standard reduction potentials are measured relative to the**

A standard zinc electrode

B standard copper electrode

C standard silver electrode

D standard hydrogen electrode

Understand It with Pulse | Flag a mistake

17 **A zinc-copper cell has zinc oxidized and copper reduced. The standard cell potential, in volts, is**



A 0.42

B 0.76

C 1.10

D 1.44

Understand It with Pulse | Flag a mistake

18 **Given $E^\circ(Zn^{2+}/Zn) = -0.76$ V and $E^\circ(Cu^{2+}/Cu) = +0.34$ V, the cell potential for $Zn + Cu^{2+} \rightarrow Zn^{2+} + Cu$, in volts, is**

A 1.10

B 0.42

C 0.76

D 1.44

Understand It with Pulse | Flag a mistake

19

Given $E^\circ(Mg^{2+}/Mg) = -2.37$ V and $E^\circ(Ag^{+}/Ag) = +0.80$ V, the cell potential for $Mg + 2Ag^{+} \rightarrow Mg^{2+} + 2Ag$, in volts, is

A 1.57

B 3.17

C 2.37

D 3.97

Understand It with Pulse | Flag a mistake

20 **Given $E°(Fe^{2+}/Fe) = -0.44$ V and $E°(Cu^{2+}/Cu) = +0.34$ V, the cell potential for $Fe + Cu^{2+} \rightarrow Fe^{2+} + Cu$, in volts, is**

- A 0.10
- B 0.34
- C 1.22
- D 0.78

Understand It with Pulse | Flag a mistake

21 **A cell with a positive standard cell potential is**

- A nonspontaneous under standard conditions
- B spontaneous under standard conditions
- C at equilibrium
- D an electrolytic cell

Understand It with Pulse | Flag a mistake

22 **In electroplating a spoon with silver, the spoon is the**



A anode

B salt bridge

C cathode

D power supply

Understand It with Pulse | Flag a mistake

23 **In silver electroplating, silver ions in solution are**

A oxidized to silver metal

B unchanged in the solution

C oxidized to silver oxide

D reduced to silver metal on the object

Understand It with Pulse | Flag a mistake

24 **In the electrolysis of molten NaCl, chlorine gas forms at the**



A anode, by oxidation of chloride ions

B cathode, by reduction of chloride ions

C anode, by reduction of sodium ions

D cathode, by oxidation of sodium ions

Understand It with Pulse | Flag a mistake

25 **In the electrolysis of molten NaCl, sodium metal forms at the**

A cathode, by reduction of sodium ions

B anode, by oxidation of sodium ions

C cathode, by oxidation of sodium ions

D anode, by reduction of chloride ions

Understand It with Pulse | Flag a mistake

ANSWER KEY

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

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