CHEMISTRY · ALASKA

Chemistry
Practice Test

Unit 2: Bonding and Chemical Reactions

25 Questions

Original practice test based on the Alaska curriculum. Work through each question, then check your answers at the end.

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.

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Question 1

An ionic bond forms when electrons are

A) shared equally between two nonmetals

B) transferred from a metal to a nonmetal

C) shared unequally between two metals

D) lost to the surroundings

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Question 2

A covalent bond forms when atoms

A) share pairs of electrons

B) transfer protons

C) lose neutrons

D) gain whole shells

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Question 3

The oxidation number of oxygen in water, H_2O, is ____

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Question 4

Which formula is that of an ionic compound

A) CH_4

B) CO_2

C) NaCl

D) H_2O

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Question 5

Water is a polar molecule because its electrons are

A) shared equally by all atoms

B) transferred to hydrogen

C) lost by oxygen

D) shared unequally between oxygen and hydrogen

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Question 6

In the balanced equation ____ Al + ____ $O_2 \rightarrow 2\ Al_2O_3$,

the coefficient of aluminum is ____

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Question 7

In the reaction $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$,

the reaction type is

A) single displacement

B) synthesis

C) decomposition

D) combustion

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Question 8

The shape of a water molecule is

A) linear

B) bent

C) trigonal planar

D) tetrahedral

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Question 9

The number of valence electrons shown in a Lewis diagram for carbon is ____

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Question 10

The strongest intermolecular force acting between water molecules is

A) London dispersion forces

B) dipole – dipole forces

C) hydrogen bonding

D) metallic bonding

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Question 11

The name of the compound CO_2 is

A) carbon dioxide

B) carbon monoxide

C) carbon oxide

D) dicarbon dioxide

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Question 12

The oxidation number of sulfur in sulfur dioxide, SO_2, is ____

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Question 13

Which molecule contains a double bond

A) H_2

B) N_2

C) CH_4

D) O_2

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Question 14

In the reaction $2\,H_2 + O_2 \rightarrow 2\,H_2O$,

the reaction type is

A) decomposition

B) synthesis

C) single displacement

D) double displacement

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Question 15

In the balanced equation $CH_4 + ____\,O_2 \rightarrow CO_2 + 2\,H_2O$,

the coefficient of oxygen is ____

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Question 16

Which property is typical of an ionic compound

A) low melting point

B) soft and waxy

C) high melting point

D) poor solubility in water in every case

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Question 17

The pair of elements with the largest difference in electronegativity is

A) sodium and fluorine

B) hydrogen and hydrogen

C) carbon and hydrogen

D) nitrogen and nitrogen

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Question 18

The number of shared electron pairs in a nitrogen molecule, N_2, is ____

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Question 19

In the reaction $CaCO_3 \rightarrow CaO + CO_2$,

the reaction type is

A) synthesis

B) single displacement

C) combustion

D) decomposition

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Question 20

Metallic bonding is best described as

A) sharing pairs between two atoms

B) a sea of delocalized electrons around positive ions

C) transfer of protons between metals

D) weak forces between molecules

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Question 21

The oxidation number of sodium in sodium chloride, $NaCl$, is ____

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Question 22

Which of these is a diatomic molecule

A) H_2O

B) CO_2

C) Cl_2

D) NH_3

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Question 23

The products of complete combustion of a hydrocarbon are

A) carbon dioxide and water

B) carbon monoxide and hydrogen

C) carbon and water

D) carbon dioxide and hydrogen

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Question 24

In the balanced equation $H_2 + Cl_2 \rightarrow$ ____ HCl ,

the coefficient of hydrogen chloride is ____

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Question 25

Which substance conducts electricity when molten

A) sugar

B) sodium chloride

C) carbon dioxide

D) methane

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ANSWER KEY

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

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