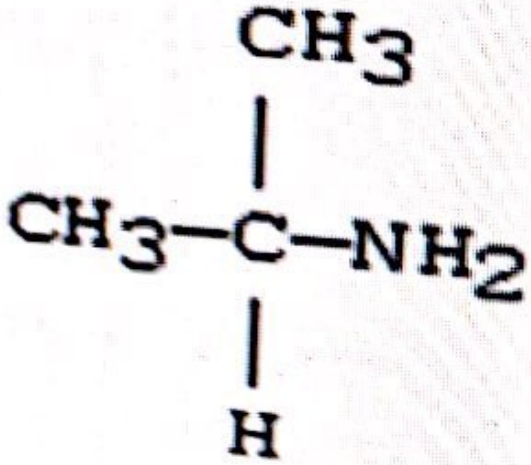
Question No. 14

The compound below is an



- amide
- ester
- amine
- acid

C

Total questions in exam: 40 | Answered: 7

Question No. 15

A⁻ A A⁺

What is the term for the concentration expression that relates the moles of solute dissolved in each liter of solution?

C

- molality (m)
- parts per million (ppm)
- molarity (M)
- mass/mass percent (m/m %)

Question No. 36

Calculate the molar mass of $CaCO_3$.

- 120 g/mol
- 87 g/mol
- 50 g/mol
- 100 g/mol

D

Save & Next

Total questions in exam: **40** | Answered: **31**

Question No. 37

The conjugate acid of HSO_4^- is

- H_2SO_4
- HSO_4^+
- H^+
- SO_4^{2-}

D

Save & Next

Question No. 38

What is the equilibrium constant expression for the following reaction?

$$2\ CH_4(g) + O2(g) \rightleftarrows 2\ CO(g) + 4\ H_2(g)$$

- $Kc = [CO]^2 [H_2]^4 / [CH_4]^2 [O_2]$
- $Kc = [CH_4] [O_2] / [CO] [H_2]$
- $Kc = [CO] [H_2] / [CH_4] [O_2]$
- $Kc = [CH_4]^2 [O_2] / [CO]^2 [H_2]^4$

A

Save & Next

Question No. 39

_____ are the most reactive hydrocarbons.

- Cycloalkanes
- Alkenes
- Alkynes
- Alkanes

Save & Next

Question No. 40

Which of the following solutions is "acidic"?

- $[H_3O^+] = 1.00 \times 10^{-3} M$
- $[H_3O^+] = 1.00 \times 10^{-8} M$
- $[H_3O^+] = 1.00 \times 10^{-7} M$
- $[H_3O^+] = 1.00 \times 10^{-9} M$

A

Save & Next

Question No. 30

The oxidation number of phosphorus in PF_3 is _____.

- +3
- -5
- -3
- +5

A

Save & Next

MKCL OES

Chemistry_FT_Sem1_2019

Total questions in exam: 40 | Answered: 25

Question No. 31

A- A A+

Analysis of an unknown substance showed that it has a high boiling point and is brittle. It is an insulator as a solid but conducts electricity when melted. Which of the following substances would have those characteristics?

- KBr
- HCl
- Al
- CO

A

& Next

Question No. 33

The correct name for the acid HCl is _____ acid

- hydrogen chloride
- hydrogen chlorate
- hydrochloric
- hydrogen chlorite

Save & Next

Question No. 34

Provide the name of the compound below.

- 2-fluoro-2-methylpentane
- 4-fluoro-4-methylbutane
- 2-fluoro pentane
- 4-fluoro pentane

C

Save & Next

Total questions in exam: **40** | Answered: **28**

Question No. 35

A chemical equation is balanced when _____

- the total number of molecules is the same in reactants and products.
- the number of atoms of each element is the same in reactants and products.
- the total number of ions is the same in reactants and products.
- the sum of the coefficients of the reactants is equal to the sum of the coefficients of the products.

B

Save & Next

Total questions in exam: 40 | Answered: 27

Question No. 32

A

Consider the reaction below at equilibrium. What is the effect of reducing volume on the system ?

$$CuS(s) + O_2(g) \rightleftharpoons Cu(s) + SO_2(g)$$

- The equilibrium constant will increase
- The equilibrium constant will decrease
- No effect will be observed
- The reaction will shift to the right in the direction of products.

C

ve & Next

Question No. 23

When the temperature is decreased on the following system at equilibrium:

$$HCl_{(aq)} + Mg_{(s)} \rightleftharpoons MgCl_{2(aq)} + H_{2(g)} + \text{heat}$$

- None of these choices is true
- the reaction shifts left to restore equilibrium
- No change occurs
- the reaction shifts right to restore equilibrium

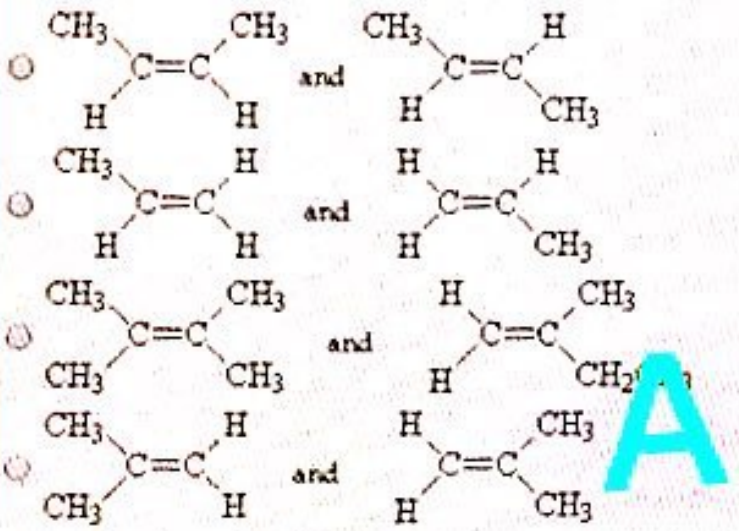
D

Save & Next

Total questions in exam: 40 | Answered: 22

Question No. 25

Which of the following pairs of compounds are cis-trans isomers?



A

Save & Next

Question No. 24

What is the empirical formula of the compound that has a composition by mass of 13.6% C and 86.4% F?

- CF_4
- CF
- C_2F_2
- C_2F_3

A

Save & Next

Question No. 26

How many iron (Fe) atoms are contained in 354 g of iron?

- 2.13×10^{26} Fe atoms
- 3.82×10^{24} Fe atoms
- 2.62×10^{25} Fe atoms
- 4.69×10^{24} Fe atoms

B

Save & Next

Question No. 28

Identify the conjugate acid in the following reversible reaction.

$HF(aq) + HSO_3^-(aq) \leftrightarrow F^-(aq) + H_2SO_3(aq)$

- $H_2SO_3(aq)$
- $HF(aq)$
- $HSO_3^-(aq)$
- $F^-(aq)$

D

Save & Next

Total questions in exam: **40** | Answered: **24**

Question No. 29

If 160.0 g of NaOH are dissolved in enough water to make 2.50 L of solution, what is the molarity of this solution?

- 2.0 M
- 1.5 M
- 1.8 M
- 2.3 M

ve & Next

Total questions in exam: **40** | Answered: **26**

Question No. 27

A⁻ A A⁺

What is the molarity of HCl in the final solution when 100 mL of a 12 M HCl solution is diluted with pure water to a total final volume of 0.12 L?

- 40 M
- 10 M
- 20 M
- 30 M

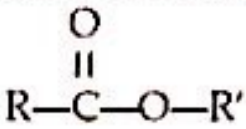
B

Next

Total questions in exam: **40** | Answered **14**

Question No. 15

What is the name of compound has the following general formula?



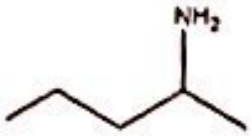
- ketone
- aldehyde
- carboxylic acid
- ester

D

Save & Next

Question No. 16

Identify the functional group:



- ketone
- amide
- amine
- carboxylic acid

C

Save & Next

Total questions in exam: **40** | Answered: **14**

Question No. 17

Organic compounds with the general formula R-O-R (where R is an alkyl group) are called _____.

- aldehydes
- carboxylic acids
- amines
- ethers

D

Save & Next

Total questions in exam: 40 | Answered: 14

Question No. 18

Household sugar, sucrose, has the molecular formula $C_{12}H_{22}O_{11}$. What is the mass percent of carbon in sucrose?

- 62.8 %
- 6.5 %
- 51.4 %
- 42.1 %

Total questions in exam: **40** | Answered: **19**

Question No. 14

Determine the value of K_c for the following reaction if the equilibrium concentrations are as follows: $[HCl]_{eq} = 0.13$ M, $[HI]_{eq} = 5.6 \times 10^{-16}$ M, $[Cl_2]_{eq} = 0.0019$ M.

$$2\,HCl(g) + I_2(s) \rightleftharpoons 2\,HI(g) + Cl_2(g)$$

- 3.5×10^{-32}
- 1.4×10^{-19}
- 2.9×10^{31}
- 1.2×10^{17}

A

Next

Total questions in exam: **40** | Answered: **16**

Question No. 19

Which of the following compounds is a weak acid

- HF
- HNO_3
- HCl
- HBr

A

Save & Next

Question No. 20

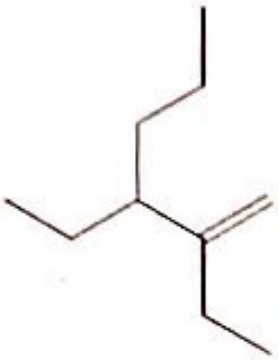
What class of hydrocarbons has the general formula C_nH_{2n}?

- aromatics
- alkanes
- both alkenes and cycloalkanes
- alkynes

Save & Next

Question No. 21

Name the following organic compound:



- 2,3-diethyl-1-hexyne
- 2,3-diethyl-1-hexene
- 4-ethyl-3-methyleneheptane
- 2-ethyl-3-propyl-1-pentene

B

Save & Next

Total questions in exam: 40 | Answered: 16

Question No. 22

Which of the following substances gives a *strong electrolyte*?

- $MgCl_2$
- H_2O
- N_2
- CH_4

A

Save & Next

Question No. 10

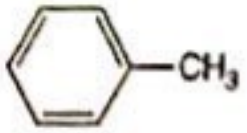
How many liters of a 1.3 M NaOH solution containing 0.4 mole of NaOH?

- 1.21 L
- 1.32 L
- 0.30 L
- 3.25 L

Save & Next

Question No. 11

What is the name of compound shown below?



- aniline
- benzene
- phenol
- toluene

D

Save & Next

Total questions in exam: **40** | Answered: **7**

Question No. 12

A⁻

Which of the following is the electron dot formula (Lewis structure) for an atom of carbon?

(a) C· (b) ·C· (c) ·Ċ· (d) :Ċ:

- (d)
- (a)
- (b)
- (c)

D

Save & Next

Total questions in exam: **40** | Answered: **7**

Question No. 13

If a rain-water sample has a pH = 5.8, this sample is _____

- weakly acidic
- strongly acidic
- weakly basic
- neutral

A

Save & Next

MKCL OES

Chemistry_

Total questions in exam: **40** | Answered: **4**

Question No. 5

Lewis Acid is defined as _____.

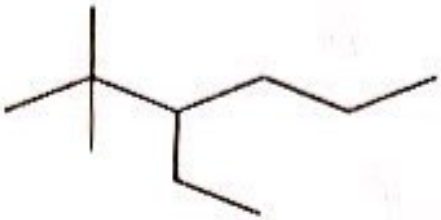
- an electron pair acceptor
- an electron pair donor
- Produces OH^- ions in an aqueous solution
- a proton acceptor

A

Save & Next

Question No. 7

Provide the name of the compound below.



- 4-ethyl-5,5-dimethyl hexane
- 2-methyl-3-ethyl hexane
- 3-ethyl-2,2-dimethyl hexane
- 4-ethyl-2,2-dimethyl hexane

Save & Next

Question No. 6

In the reaction below, what is the theoretical yield in grams for B_2H_6 when 5 moles of BF_3 react with 4 moles of NaH?

$$8BF_3 + 6NaH \rightarrow 6NaBF4 + B_2H_6$$

- 28.5 g
- 9.5 g
- 12.5 g
- 17.3 g

D

Save & Next

Question No. 9

How many grams of CO_2 could be produced when 44 grams of C_3H_7COOH completely react with oxygen gas according to the reaction?

$$C_3H_7COOH + 5O_2 \rightarrow 4CO_2 + 4H_2O$$

- 133 g
- 22 g
- 44 g
- 88 g

D

Save & Next

Total questions in exam: **40** | Answered: **7**

Question No. 8

A⁻

When the substances in the equation below are at equilibrium, at pressure P and temperature T, the equilibrium can be shifted to favor the products by

$$CuO(s) + H_2(g) \rightleftharpoons H_2O(g) + Cu(s) + Heat$$

- adding more CuO
- increasing the pressure
- decreasing the pressure
- decreasing the temperature

D

Save & Next

Total questions in exam: 40 | Answered: 0

Question No. 1

A double covalent bond contains ____ shared electrons.

- four
- one
- two
- three

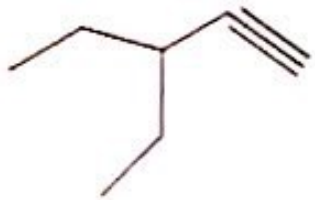
A

Save & Next

Total questions in exam: **40** | Answered: **1**

Question No. 3

Name the following compound:



- 3-ethyl-1-pentyne
- 3-ethyl-2-pentyne
- 3-ethyl-4-pentyne
- 3-ethyl-5-pentyne

A

Save & Next

Question No. 4

What is the oxidation number of sulfur in SO_3^{2-}?

- +6
- -2
- +2
- +4

D

Save & Next

Total questions in exam: 40 | Answered: 1

Question No. 2

The most correct name for the compound N_2O_3 is:

- dinitrogen tetraoxide
- mononitrogen trioxide
- dinitrogen trioxide
- nitrogen oxide

C

Save & Next

Select the element whose Lewis dot symbol is correct.

- •Ra•
- •Fr•
- :Te:
- He•

Question No. 35

Which of the following substances can make an aqueous solution that conducts electricity?

- $C_{12}H_{22}O_{11}$
- CO
- CH_3OCH_3
- MgI_2

The empirical formula of the compound CO is:

- C_3O_6
- C_2O_4
- CO_2
- CO

How many hydrogen atoms are there in "pentane" ?

- 8
- 5
- 10
- 12

Which of the following is NOT a conjugate acid/base pair?

- HNO_3 / NO_3^-
- HCl / Cl^-
- HBr / Br^-
- H_2SO_3 / SO_3^{2-}

What is the equilibrium constant expression for the following reaction?

$$CaCO_3(s) \rightleftharpoons CaO(s) + CO_2(g)$$

- $K_c = [CaO][CO_2]$
- $K_c = [CaO][CO_2] / [CaCO_3]$
- $K_c = 1 / [CO_2]$
- $K_c = [CO_2]$

D

According to Bronsted-Lowry definition, which acid is incorrectly matched with its conjugate base? (Acid / conjugate Base)

- H_2F^+ / HF
- HCl / Cl^-
- HCO_3^- / CO_3^{2-}
- H_3O^+ / OH^-

The most correct name for the compound SCl_2 is:

- sulfur chloride
- monosulfur dichloride
- monosulfur trichloride
- sulfur dichloride

The compound NH_3 can be described as _____.

- Bronsted-Lowry acid
- Arrhenius acid
- Lewis acid
- Lewis base

Which of the following is true before a reaction reaches chemical equilibrium?

- The rates of the forward and reverse reactions are decreasing.
- The rates of the forward and reverse reactions are increasing.
- The rate of the forward reaction is decreasing, and the rate of the reverse reaction is increasing.
- The rate of the forward reaction is increasing, and the rate of the reverse reaction is decreasing.

What is the IUPAC name for CH_3-CH=CH-CH_2-CH_2-CH_3?

- 1-hexene
- hexene
- 2-hexene
- 3-hexene

Consider the following reaction at equilibrium. What effect will decreasing the temperature have on the system?

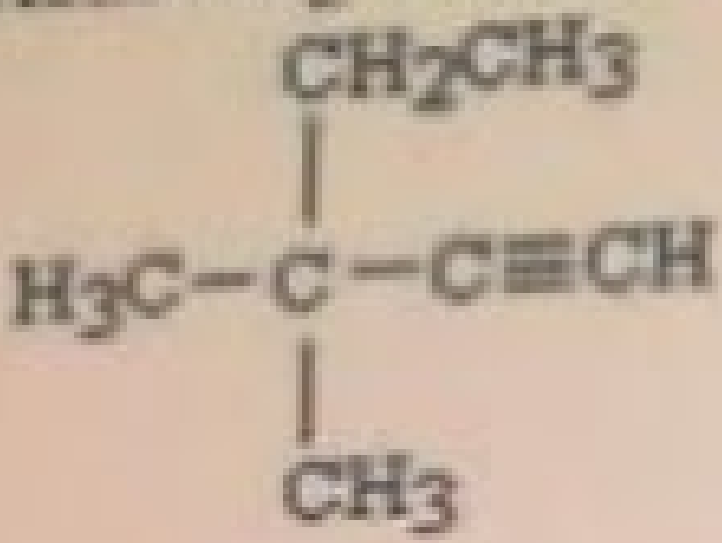
$$CO_2(g) + 2\,H_2O(l) + \text{heat} \rightleftharpoons CH_4(g) + 2\,O_2(g)$$

- The reaction will shift to the left in the direction of reactants.
- More CH_4 will be formed.
- The equilibrium constant will increase.
- The reaction will shift to the right in the direction of products.

Calculate the molar mass of potassium chloride, KCl.

- 54.5 g/mol
- 74.6 g/mol
- 6.74 g/mol
- 67.4 g/mol

Name the following compound



- 3,3-dimethyl-1-pentyne
- 1-butylethyne
- 3-ethyl-3-methyl-1-butyne
- 2-ethyl-2-methyl-3-butyne

In the reaction below, what is the theoretical yield in moles for $LiOH$ when 6 grams of Li_2O react with 7 grams of H_2O?

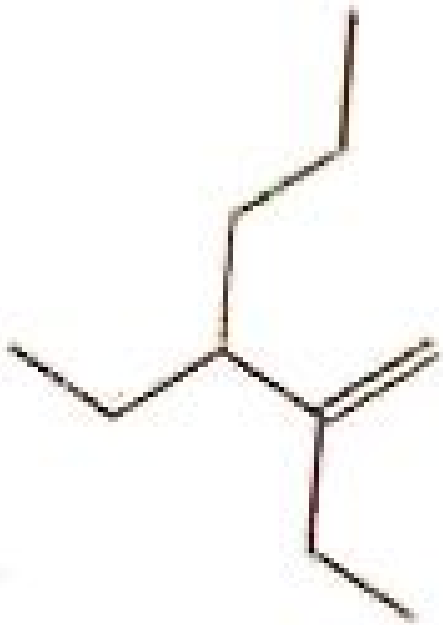
$$Li_2O + H_2O \rightarrow 2LiOH$$

- 0.6 mol
- 0.4 mol
- 0.8 mol
- 1.0 mol

Calculate the oxidation number of sulfur in sodium metabisulfite, $Na_2S_2O_5$.

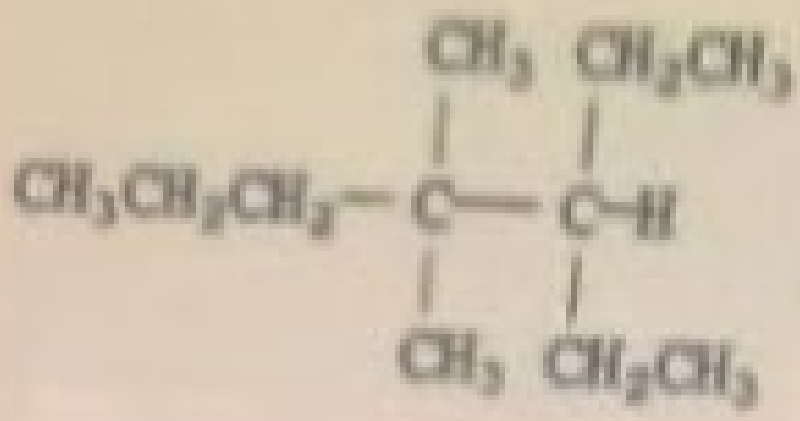
- +2
- −2
- +4
- +6

Name the following organic compound:



- 4-ethyl-3-methyleneheptane
- 2,3-diethyl-1-hexene
- 2-ethyl-3-propyl-1-pentene
- 2,3-diethyl-1-hexyne

Provide the name of the compound below:



- 3-ethyl-4,4-dimethylpentane
- 1,1-diethyl-2,2-dimethylpentane
- 5-ethyl-4-methylheptane
- 3-ethyl-4,4-dimethylheptane

How many moles of CO_2 could be produced when 168 grams of C_6H_{12} completely react with oxygen gas according to the reaction?

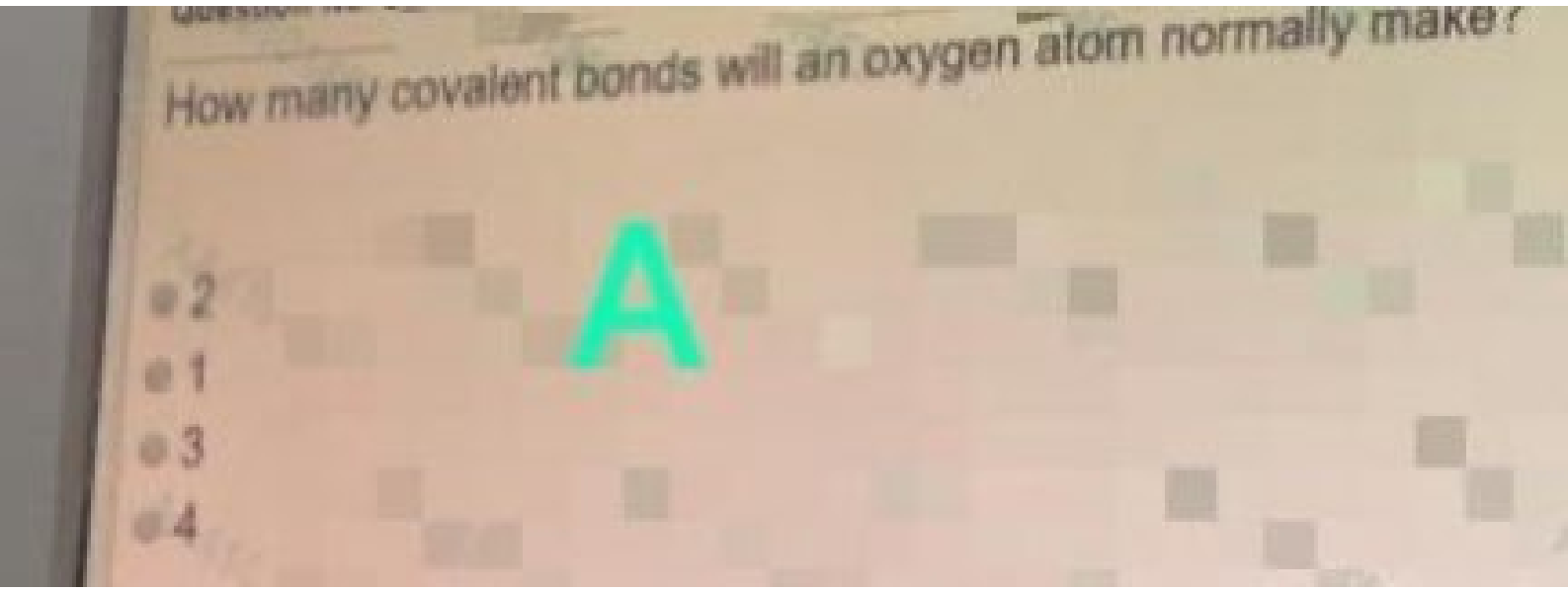
$$C_6H_{12} + 9O_2 \rightarrow 6CO_2 + 6H_2O$$

- 6 mol
- 4 mol
- 10 mol
- 12 mol

The name of the chemical compound $CuSO_4$ is:

- copper(II) sulfate
- copper(III) sulfate
- copper(I) sulfate
- copper sulfate

A



What is the family of this organic compound?

- ketone
- aldehyde
- carboxylic acid
- ester

Which one of the following is oxidized in the following equation?

$$2Al(s) + 3H_2SO_4(aq) \rightarrow Al_2(SO_4)_3(aq) + 3H_2(g)$$

- $H_2SO_4(aq)$
- $H_2(g)$
- $Al_2(SO_4)_3(aq)$
- $Al(s)$

What is the name of the following alkyl group: CH_3-CH_2-CH_2-?

- isopropyl
- ethyl
- methyl
- propyl

Which of the following is true if the hydronium ion concentration "decreases" in an aqueous solution?

- pH decreases
- K_w decreases
- K_w increases
- pH increases

D

Organic compounds that contain a "benzene ring" are called _____ compounds.

- cycloalkane
- carboxylic
- aromatic
- saturated

If 7.0 moles of KI are dissolved in enough water to make 2.0 L of solution, the molarity of this solution equals _____.

- 2.5 M
- 0.4 M
- 3.5 M
- 1.75 M

Provide the name of the compound below.

- methylcyclopentane
- methylcyclohexane
- ethylcyclopentane
- methylcyclopropane

In the following reaction, which substance is acting as a Brønsted-Lowry acid?

$$H_2O + H_2SO_4 \rightarrow H_3O^+ + HSO_4^-$$

- H_2SO_4
- H_2O
- H_3O^+
- HSO_4^-

Identify the type of this organic compound:

- aldehyde
- alcohol
- carboxylic acid
- ketone

What mass (g) of NaBr is contained in 0.25 L of a sodium bromide solution that has a molarity of 1.20 M?

- 4.93 g
- 2.32 g
- 30.9 g
- 37.3 g

If a rain-water sample has a pH = 5.8, this sample is _

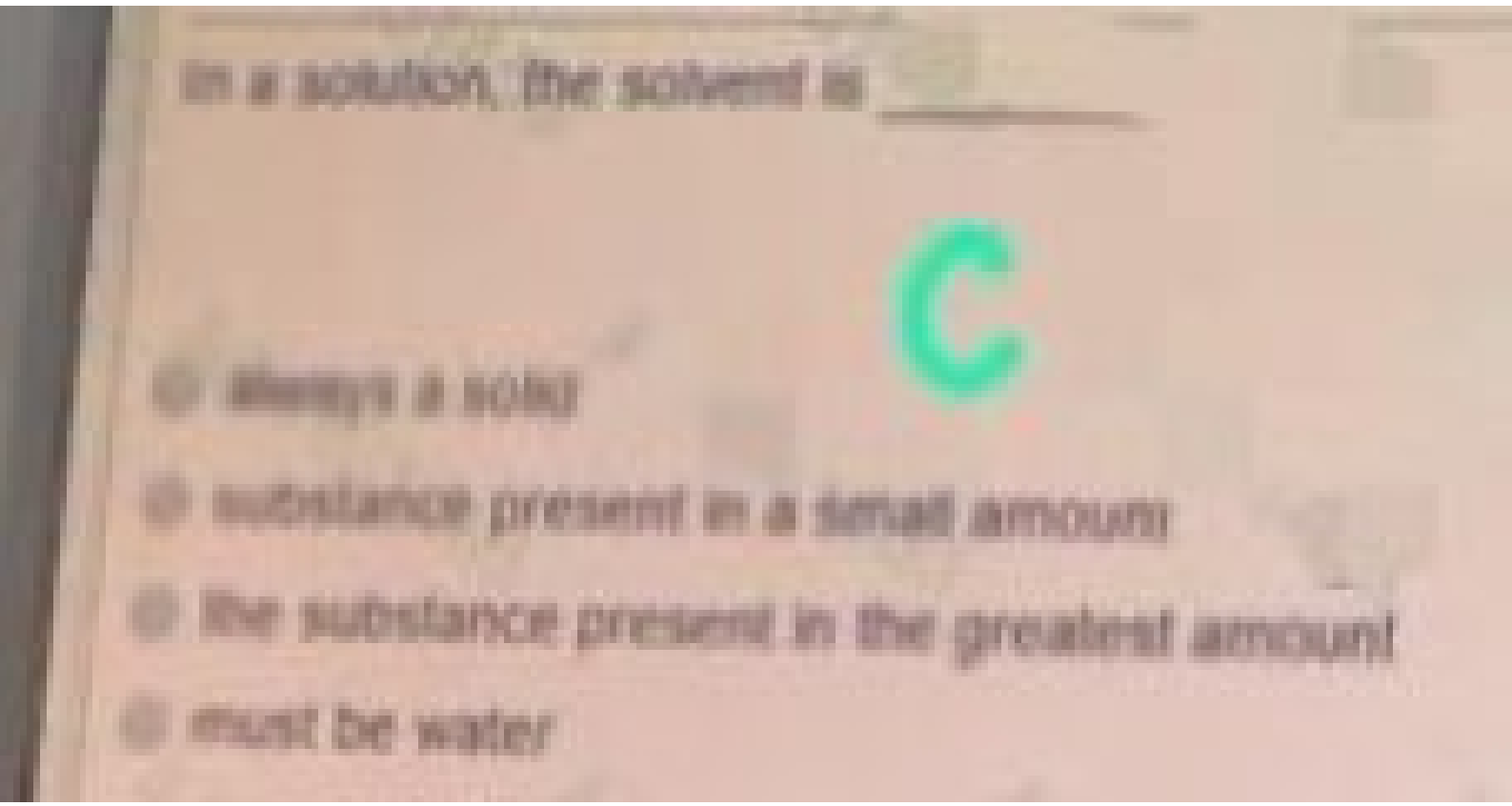
- weakly basic
- strongly acidic
- neutral
- weakly acidic

Based on Lewis structures, the number of lone pairs of electrons in the water molecule is _____.

- 4
- 8
- 3
- 2

How many phosphorus (P) atoms are contained in 158 kg of phosphorus?

- 2.95×10^{27} phosphorus atoms
- 3.07×10^{27} phosphorus atoms
- 3.25×10^{28} phosphorus atoms
- 1.18×10^{24} phosphorus atoms



Consider the reaction: $2\,SO_2(g) + O_2(g) \leftrightarrow 2\,SO_3(g)$

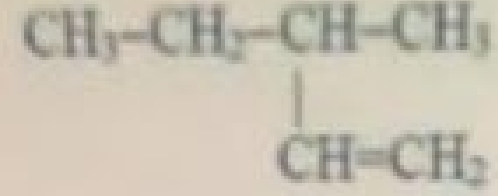
If, at equilibrium at a certain temperature, $[SO_2] = 1.50\ M$, $[O_2] = 0.120\ M$, and $[SO_3] = 1.25\ M$, what is the value of the equilibrium constant K_{eq}?

- 5.79
- 0.14
- 6.94
- 8.68

For the reaction C_2H_2 (g)+ H_2O (g) ⇌ CH_3CHO (g) (exothermic). Which conditions will increase the amount of produced CH_3CHO?

- higher temperature & lower pressure
- higher temperature & higher pressure
- lower temperature & higher pressure
- low temperature & lower pressure

Which of these is the systematic name for the compound represented below?



- 3-methylpentene
- 2-ethylbutane
- 3-methyl-1-pentene
- 3-methyl-1-hexene

What is the coefficient of oxygen gas after balancing the following equation?

$$\_H_2O_2(l) \xrightarrow{\Delta} \_H_2O(l) + \_O_2(g)$$

- 2
- 1
- 3
- 4

Question No. 17

A⁻ A

What is the molarity of a solution if 618 g of NaBr dissolved to make 1.5 L of that solution?

- 6.0 M
- 8.0 M
- 4.0 M
- 2.0 M

In the following equation identify the Brønsted-Lowry acid:

$$NH_3 + HCN \rightarrow NH_4^+ + CN^-$$

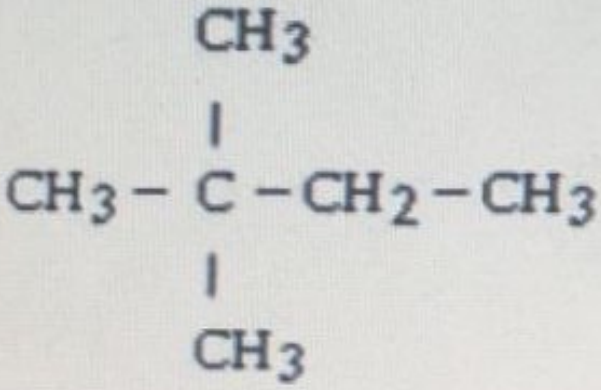
- NH_4^+
- HCN
- CN^-
- NH_3

Question No. 21

The correct name for the acid HCl is _____ acid

- hydrogen chlorite
- hydrogen chloride
- hydrochloric
- hydrogen chlorate

What is the IUPAC name for the following?



- 2,2-dimethylbutane
- 2-dimethylbutane
- 3,3-dimethylbutane
- dimethylbutane

Question No. 23

A⁻ A

What is the coefficient of oxygen gas after balancing the following equation?

$$\_\_AgClO_3(s) \xrightarrow{\Delta} \_\_AgCl(s) + \_\_O_2(g)$$

- 3
- 4
- 2
- 1

Question No. 24

What is the IUPAC name for CH_3-CH_2-CH=CH_2?

- 2-butene
- 3-butene
- 1-butene
- butene

Save & Next

Question No. 25

The molecular formula for "hexene" is _____.

- C_3H_8
- C_6H_{12}
- C_7H_{16}
- C_6H_{14}

Save & Next

Question No. 26

A⁻ A

What is the equilibrium constant expression for the following reaction?

$$2\ CH_4(g) + O2(g) \rightleftarrows 2\ CO(g) + 4\ H_2(g)$$

- $Kc = [CH_4]^2\,[O_2] / [CO]^2\,[H_2]^4$
- $K_C = [CO]^2\,[H_2]^4 / [CH_4]^2\,[O_2]$
- $K_C = [CO]\,[H_2] / [CH_4]\,[O_2]$
- $K_C = [CH_4]\,[O_2] / [CO]\,[H_2]$

Question No. 27

A⁻ A

Which of the following pairs of systematic names and common names is correctly matching?

- aniline = aminobenzene
- acetylene = ethene
- phenol = methylbenzene
- toluene = hydroxybenzene

Question No. 28

Oxidation is the _____ and reduction is the _____.

- loss of electrons, gain of electrons
- gain of electrons, loss of electrons
- loss of oxygen, gain of electrons
- gain of oxygen, loss of electrons

How many moles of cesium (Cs) are contained in 595 kg of cesium?

- 7.91×10^4 moles Cs
- 1.26×10^3 moles Cs
- 2.23×10^2 moles Cs
- 4.48×10^3 moles Cs

Question No. 30

A⁻ A

Identify the conjugate acid in the following reversible reaction.

$HF(aq) + HSO_3^-(aq) \leftrightarrow F^-(aq) + H_2SO_3(aq)$

- $F^-(aq)$
- $H_2SO_3(aq)$
- $HSO_3^-(aq)$
- $HF(aq)$

Question No. 31

Calculate the molar mass of $Fe_3(PO_4)_2$.

- 357.5 g/mol
- 525.1 g/mol
- 262.5 g/mol
- 237.6 g/mol

Save & Next

Question No. 31

Calculate the molar mass of $Fe_3(PO_4)_2$.

- 357.5 g/mol
- 525.1 g/mol
- 262.5 g/mol
- 237.6 g/mol

Save & Next

Question No. 32

Predict which of the following has a polar covalent bond.

- HCl
- LiCl
- KCl
- NaCl

Save & Next

Question No. 33

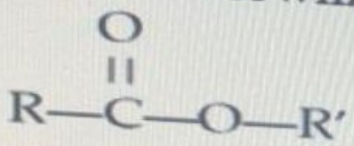
Which of these species will act as a Lewis acid?

- H_2O
- BF_3
- F^-
- NH_3

Save & Next

Question No. 34

What is the name of compound has the following general formula?



- ester
- ketone
- carboxylic acid
- aldehyde

Save & Next

Question No. 35

The most correct name for the compound N_2O_3 is:

- nitrogen oxide
- dinitrogen tetraoxide
- dinitrogen trioxide
- mononitrogen trioxide

Save & Next

Question No. 36

What is the oxidation number of carbon in Na_2CO_3 ?

- +2
- +4
- +1
- 0

Save & Next

Question No. 37

A⁻ A A⁺

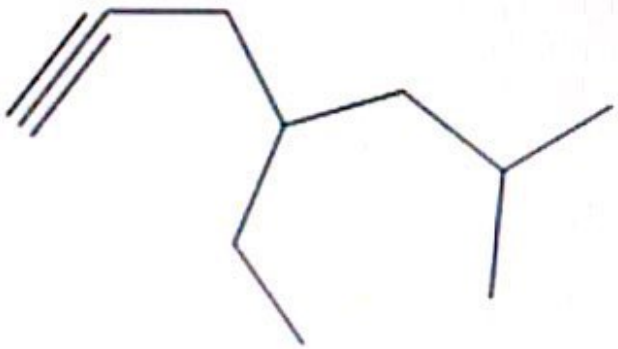
Refer to the equilibrium shown below. Which of the following will shift the reaction to the right?

$$CH_4\,(g) + 2O_2\,(g) \rightleftharpoons CO_2\,(g) + 2H_2O\,(g)$$

- increasing the pressure
- adding O_2 and removing CO_2
- removing carbon dioxide as soon as it is formed
- adding excess oxygen

Question No. 38

Name the following compound:



- 2-ethyl-2-methyl-6-heptyne
- 2-methyl-4-ethyl-1-heptyne
- 4-ethyl-6-methyl-1-heptyne
- 4-ethyl-2-methyl-6-heptyne

Save & Next

Question No. 39

A⁻ A A

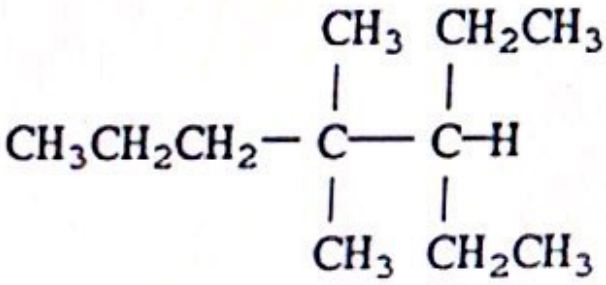
In the reaction below, what is the theoretical yield in moles for NO when 3 moles of NH_3 react with 3 moles of O_2?

$$4\ NH_3 + 5\ O_2 \rightarrow 4\ NO + 6\ H_2O$$

- 2.8 mol
- 3.0 mol
- 2.6 mol
- 2.4 mol

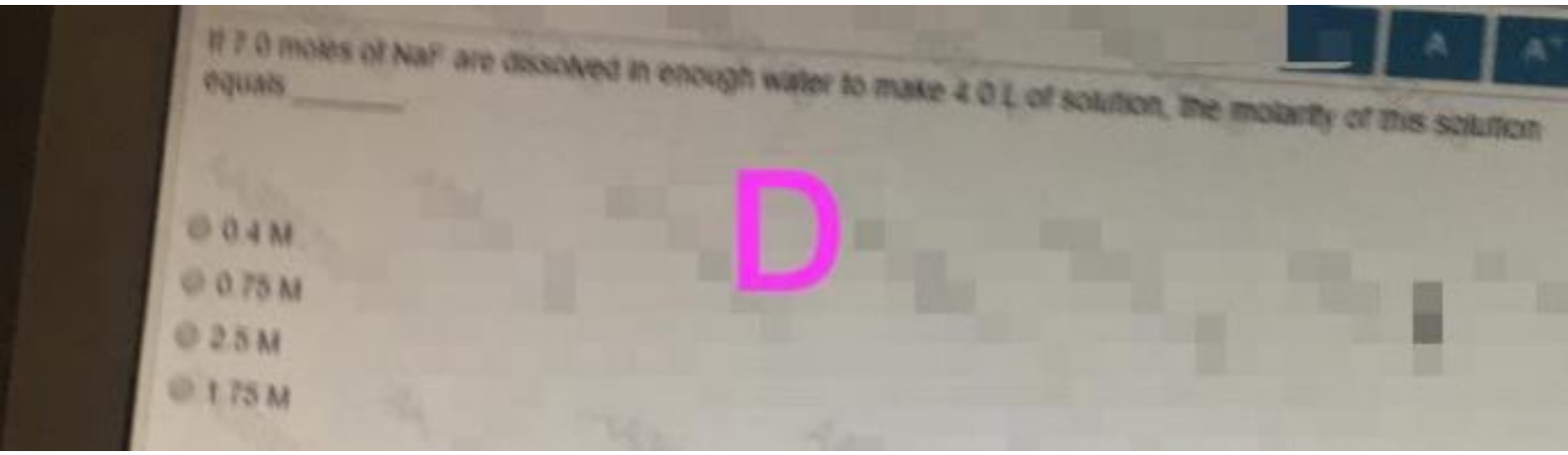
Question No. 40

Provide the name of the compound below.



- 5-ethyl-4-methylheptane
- 3-ethyl-4,4-dimethylheptane
- 3-ethyl-4,4-dimethylpentane
- 1,1-diethyl-2,2-dimethylpentane

Save & Next



An ionic compound _____

D

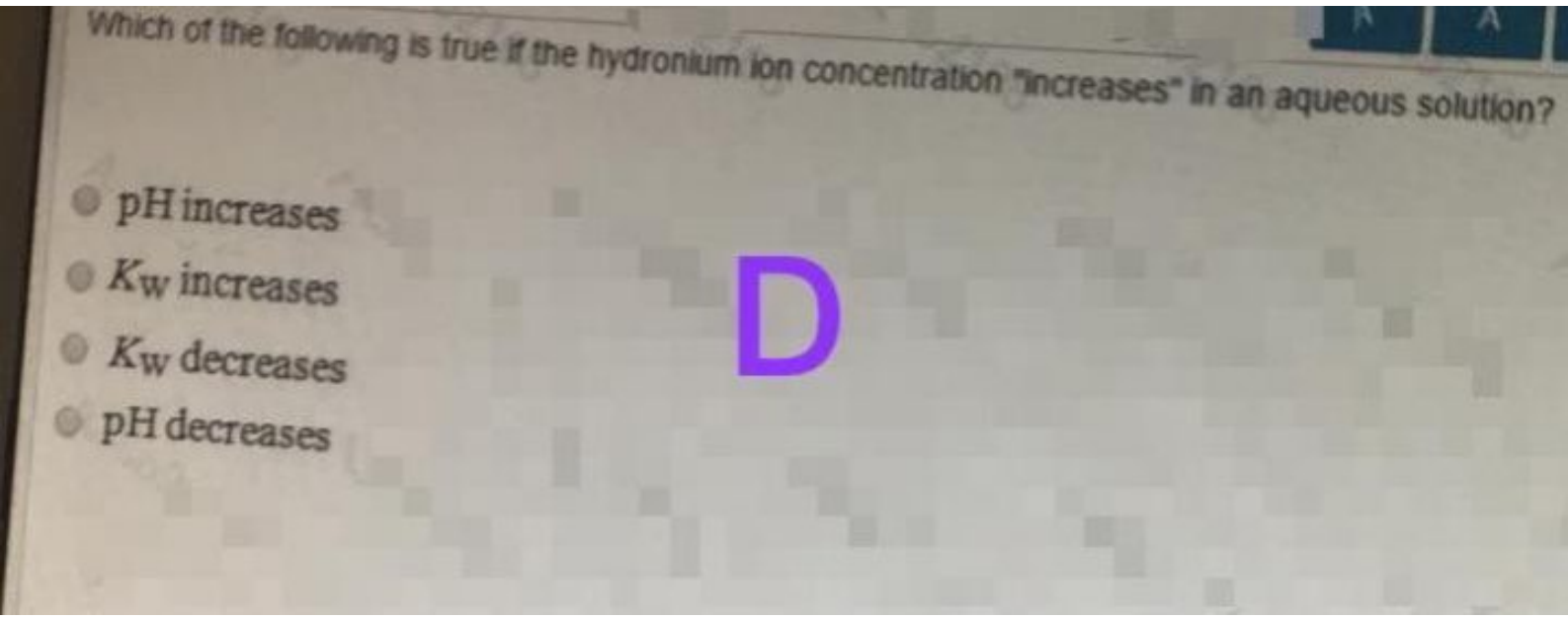
- has a net positive charge.
- contains only cations.
- has a net negative charge.
- has a net charge of zero.

Identify the conjugate base of HPO_4^{2-} in the reaction

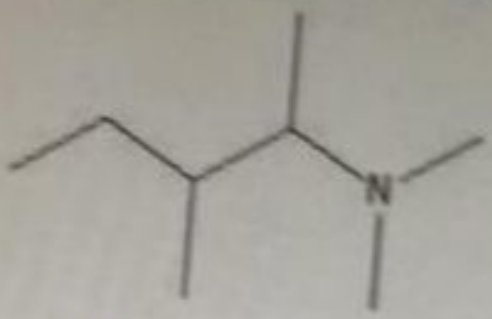
$$HCO_3^- + HPO_4^{2-} \leftrightarrow H_2CO_3 + PO_4^{3-}$$

- H_2O
- H_2CO_3
- HCO_3^-
- PO_4^{3-}

D



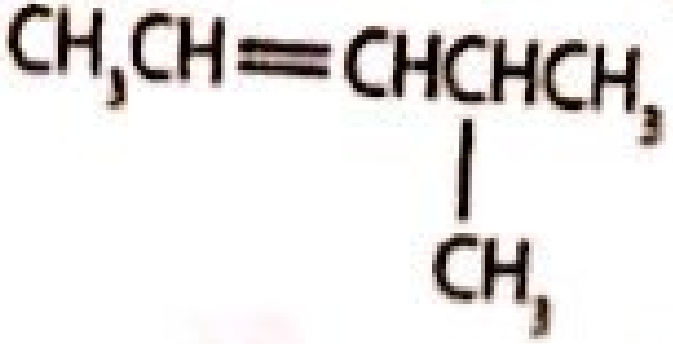
Which family does the following organic compound belong to?



A

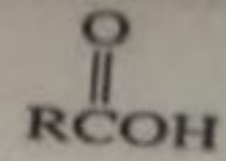
- amine
- aldehyde
- carboxylic acid
- ether

Name the following compound.



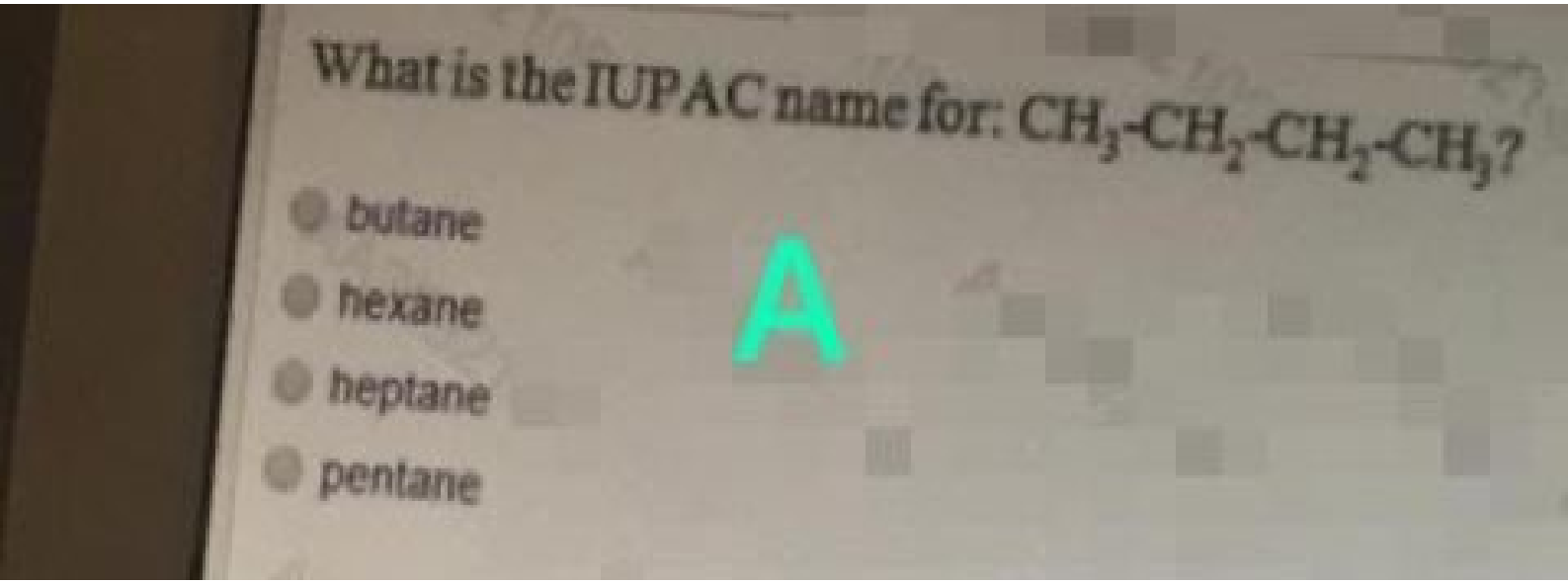
- 2-methyl-4-pentane
- 4-methyl-2-pentene
- 1,1-dimethyl-3-butene
- 2-methylpentane

What is the name of compound has the following general formula?

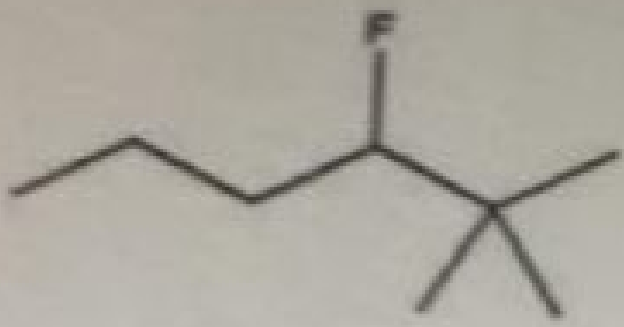


C

- aldehyde
- ester
- carboxylic acid
- phenol



Provide the name of the compound below.



B

- 4-fluro-5,5 dimethylhexane
- 3-fluoro-2,2-dimethylhexane
- 3-fluoro-2-isopropylhexane
- 3-fluoro-2,2-diethylhexane

How many molecules of CO_2 could be produced when 2 moles of C_2H_6O completely react with oxygen gas according to the reaction?

$$C_2H_6O + 3\ O_2 \rightarrow 2\ CO_2 + 3\ H_2O$$

- 12.04×10^{23} molecules.
- 2 molecules.
- 24.08×10^{23} molecules.
- 4 molecules.

C

When the reverse reaction is favored, _____

D

- The rate of the reverse reaction is less than the forward reaction.
- The equilibrium constant is much greater than one; that is, $K_{eq} >> 1$
- The rate of the forward reaction is higher than the reverse reaction.
- The equilibrium constant is much less than one; that is, $K_{eq} << 1$

What is the molarity of $FeCl_3$ in a solution prepared by dissolving 10.0 g of $FeCl_3$ in enough water to make 275 mL of solution?

- 0.224 M
- 4.46 M
- 2.24×10^{-4} M
- 4.46×10^{3} M

A

In the following reaction, which substance is acting as a Brønsted-Lowry base?

$$H_2O + NH_3 \rightarrow OH^- + NH_4^+$$

- H_2O
- OH^-
- NH_4^+
- NH_3

D

Using Lewis dot structure, find the number of lone pairs of electrons on the "P" atom in PF_3.

- 0 pairs
- 2 pairs
- 1 pair
- 3 pairs

What is the oxidation number of nitrogen in NO_3^{-1}?

- 0
- -3
- -5
- +5

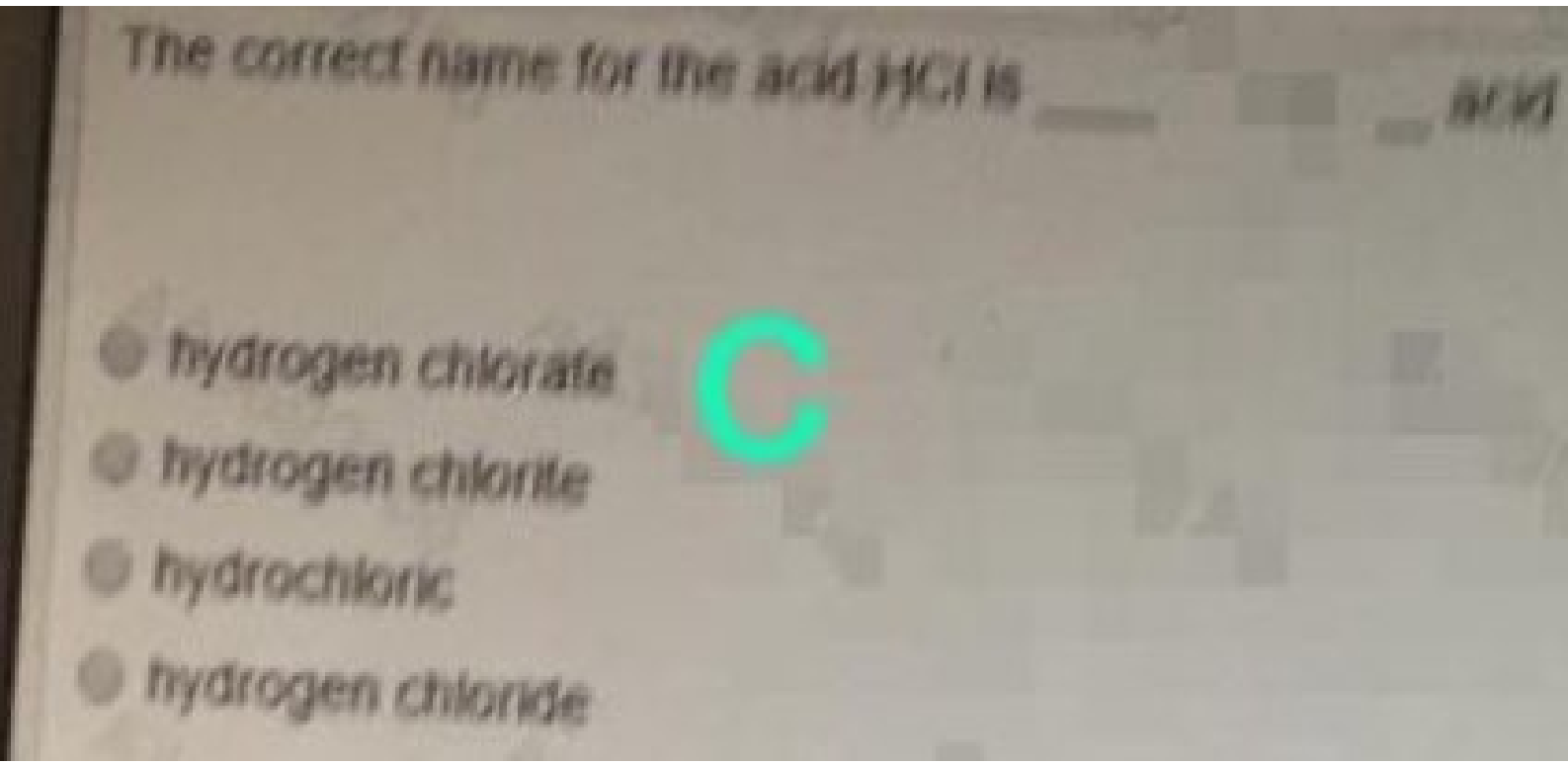
D

Express the equilibrium constant for the following reaction.

$$C(s) + CO_2(g) \rightleftharpoons 2CO(g)$$

- $K_c = \frac{[CO]^2}{[CO_2]}$
- $K_c = \frac{[CO]}{[CO_2]}$
- $K_c = \frac{[2CO]^2}{[CO_2]}$
- $K_c = \frac{[CO]^2}{[C][CO_2]}$

A



When magnesium burns in air, it produces MgO

$$2Mg\,(s) + O_2\,(g) \rightarrow 2MgO\,(s)$$

When 2.00 g of magnesium burns, the theoretical yield of magnesium oxide is _____ g

- 2.00 g
- 0.082 g
- 3.32 g
- 1.66 g

What is the correct equilibrium constant expression for the following reaction?

$$2\ Cu(s) + O_2(g) \rightarrow 2\ CuO(s)$$

A

- $K_{eq} = [CuO]^2 / [Cu]^2[O_2]$
- $K_{eq} = [O_2]$
- $K_{eq} = [CuO]^2 / [O_2]$
- $K_{eq} = 1 / [O_2]$

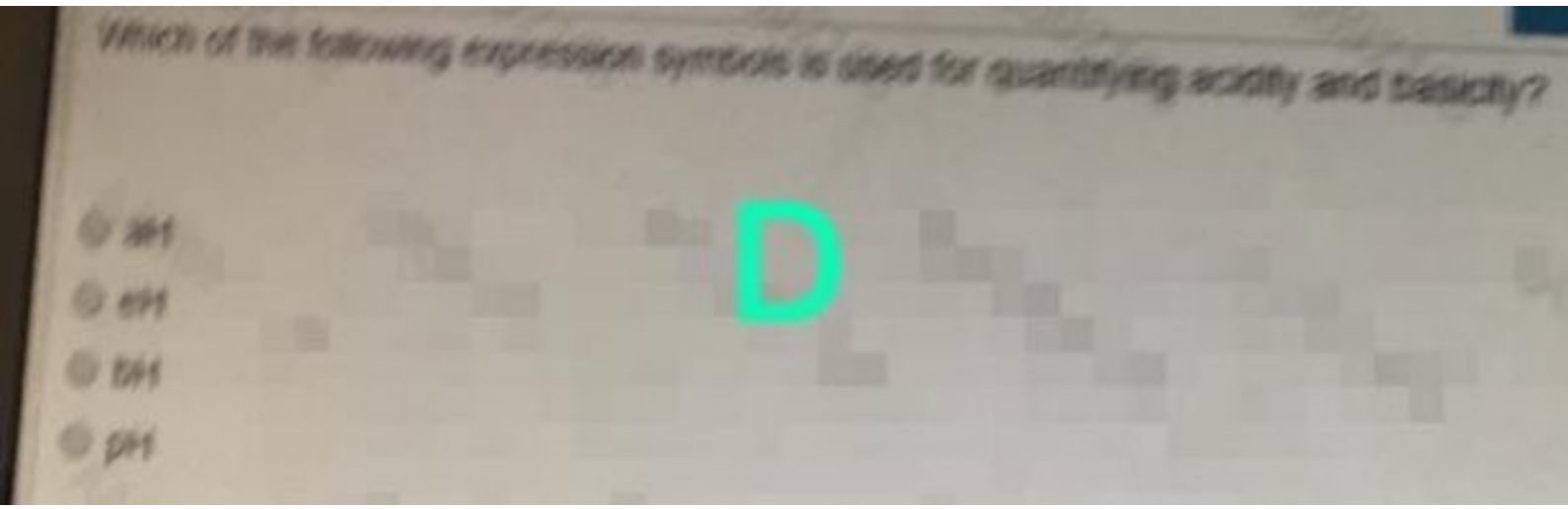
The molar mass of water equals _____

- 18 g/mol
- 36 g/mol
- 27 g/mol
- 54 g/mol

The molecular formula for "cyclopropane" is _____.

- C_3H_8
- C_3H_6
- C_7H_{16}
- C_7H_{12}

B



Calculate the molar mass of $Fe_3(PO_4)_2$.

- 237.6 g/mol
- 367.6 g/mol
- 262.5 g/mol
- 526.1 g/mol

What is the molecular formula of a compound that has a molar mass of 70 g/mol and its empirical formula is CH_2?

- C_2H_{10}
- $C_{20}H_{40}$
- $C_{15}H_{30}$
- C_5H_{10}

D

The coefficients (a,b,c) needed to balance the equation below are:

$$a\,Al + b\,O_2 \rightarrow c\,Al_2O_3$$

- (4,3,2)
- (4,2,2)
- (4,2,3)
- (3,2,4)

A

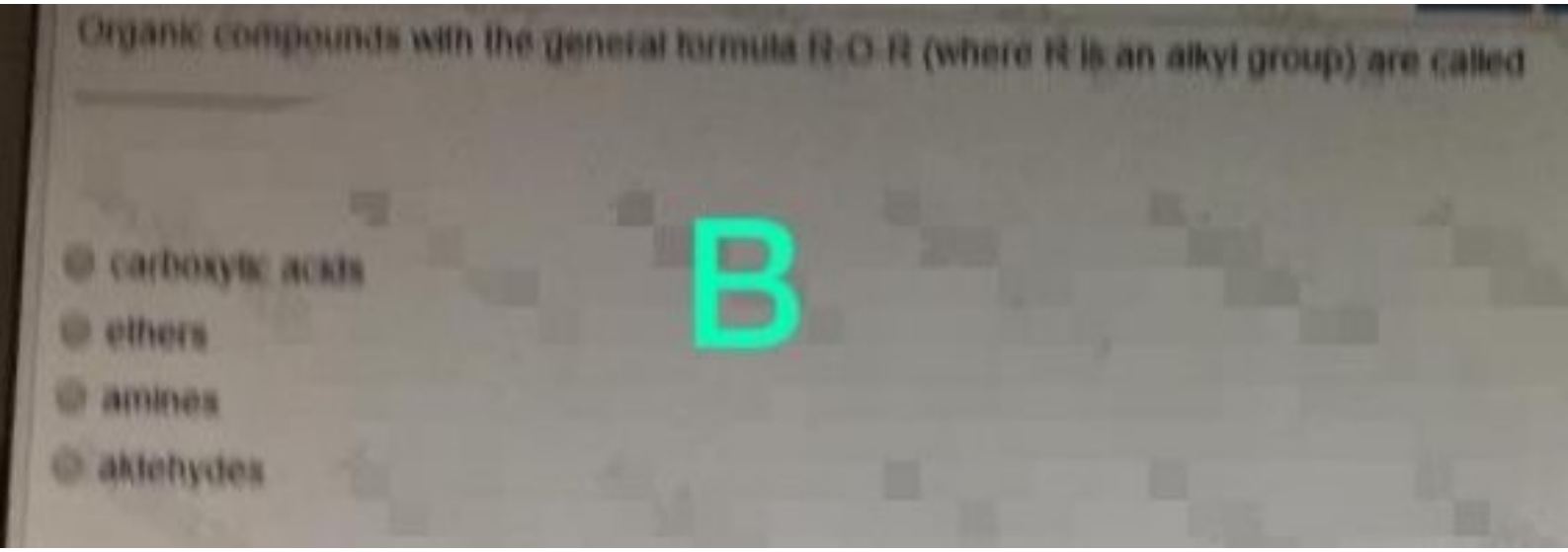
Which of the following substances can make an aqueous solution that conducts electricity?

- CO
- CH_3OCH_3
- $C_{12}H_{22}O_{11}$
- MgI_2

D

The gaining of one or more electrons is known as

- electrochemistry
- redox
- oxidation
- reduction

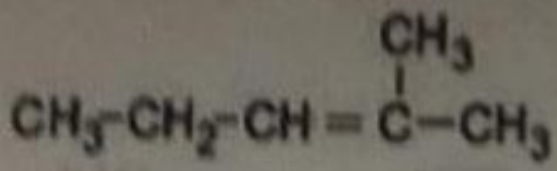


If 2 moles of an element are weighing 54 g, this element is most likely _

- Aluminum with a molar mass of 27.0
- Manganese with a molar mass of 55.0
- Phosphorous with a molar mass of 31.0
- Silver with a molar mass of 108.0

A

What is the IUPAC name for the following compound?



B

- 3-methyl-4-pentene
- 2-methyl-2-pentene
- 4-methyl-3-pentene
- 2-methyl-3-pentene

The most correct name for the compound NI_3 is:

- mononitrogen triodide
- nitrogen iodide
- triodo nitrogen
- nitrogen triodide

D

A chemical reaction produces 7.25 moles of barium sulfate, $BaSO_4$. What mass (in grams) of barium sulfate is produced?

- 185 g
- 31.1 g
- 233 g
- 1.69×10^{3} g

D

What is the final molarity of HNO_3 solution, if 95 mL of 2M HNO_3 was diluted to a final volume of 0.3 L?

D

- 0.42 M
- 0.53 M
- 0.43 M
- 0.63 M

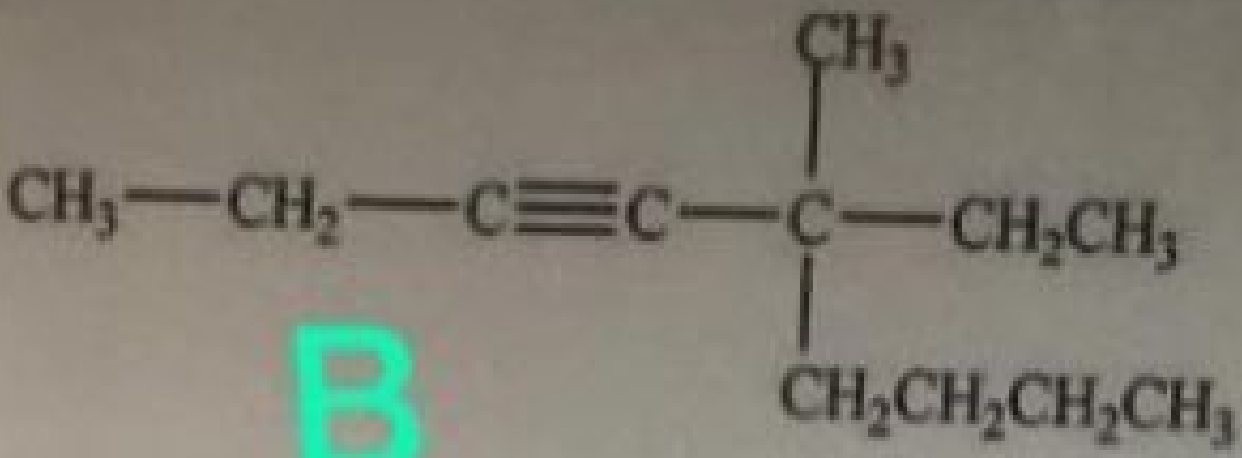
Consider the following reaction at equilibrium. What is the effect of increasing the pressure on the system?

$$2\,H_2S(g) + 3\,O_2(g) \rightleftharpoons 2\,H_2O(g) + 2\,SO_2(g)$$

- The reaction will shift to the right in the direction of products.
- The reaction will shift to the left in the direction of reactants.
- No effect will be observed.
- The equilibrium constant will decrease.

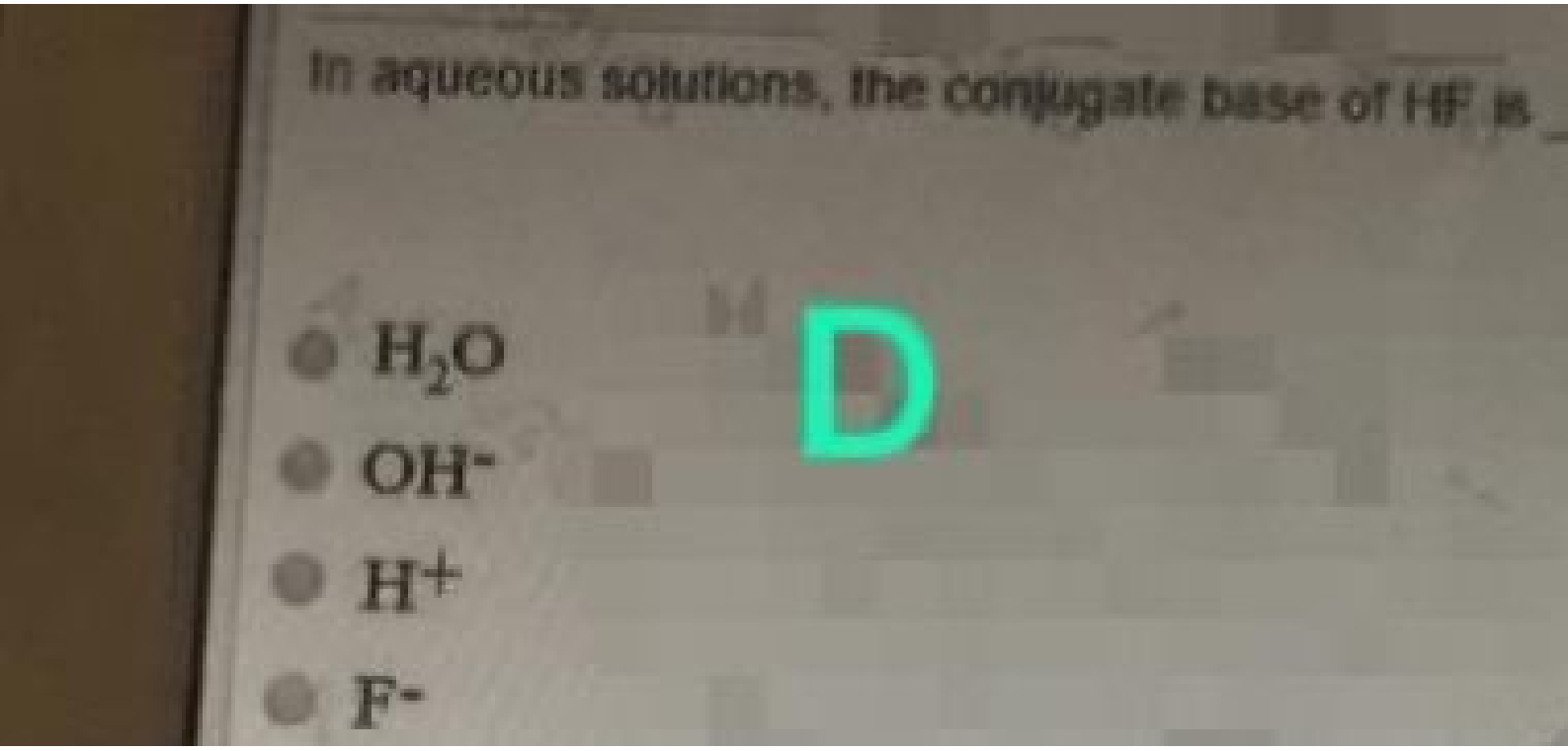
A

What is the name of the compound below?



B

- 5-butyl-5-methyl-3-heptyne
- 5-ethyl-5-methyl-3-nonyne
- 3-ethyl-3-methyl-3-nonyne
- 2,4-dimethyl-1-hexyne



Provide the name of the compound below:

B

- isopropylcyclopropane
- ethylcyclopropane
- methylcyclopropane
- 2-cyclopropylethane

The following reaction is *exothermic*. Which of the following will drive the reaction to the right (towards products)?

$$CH_4\,(g) + 2\,O_2\,(g) \rightleftarrows CO_2\,(g) + 2\,H_2O\,(g) + \text{heat}$$

- An increase of H_2O
- A decrease of CO_2
- The removal of CH_4
- An increase in temperature

B

Which of the following pairs is NOT a conjugate acid-base pair according to the concept of Bronsted-Lowry?

- H_3PO_4 and $H_2PO_4^-$
- HPO_4^{2-} and PO_4^{3-}
- H_3PO_4 and HPO_4^{2-}
- $H_2PO_4^-$ and HPO_4^{2-}

The compound NH_3 can be described as _____.

- Arrhenius acid
- Lewis acid
- Bronsted-Lowry acid
- Lewis base

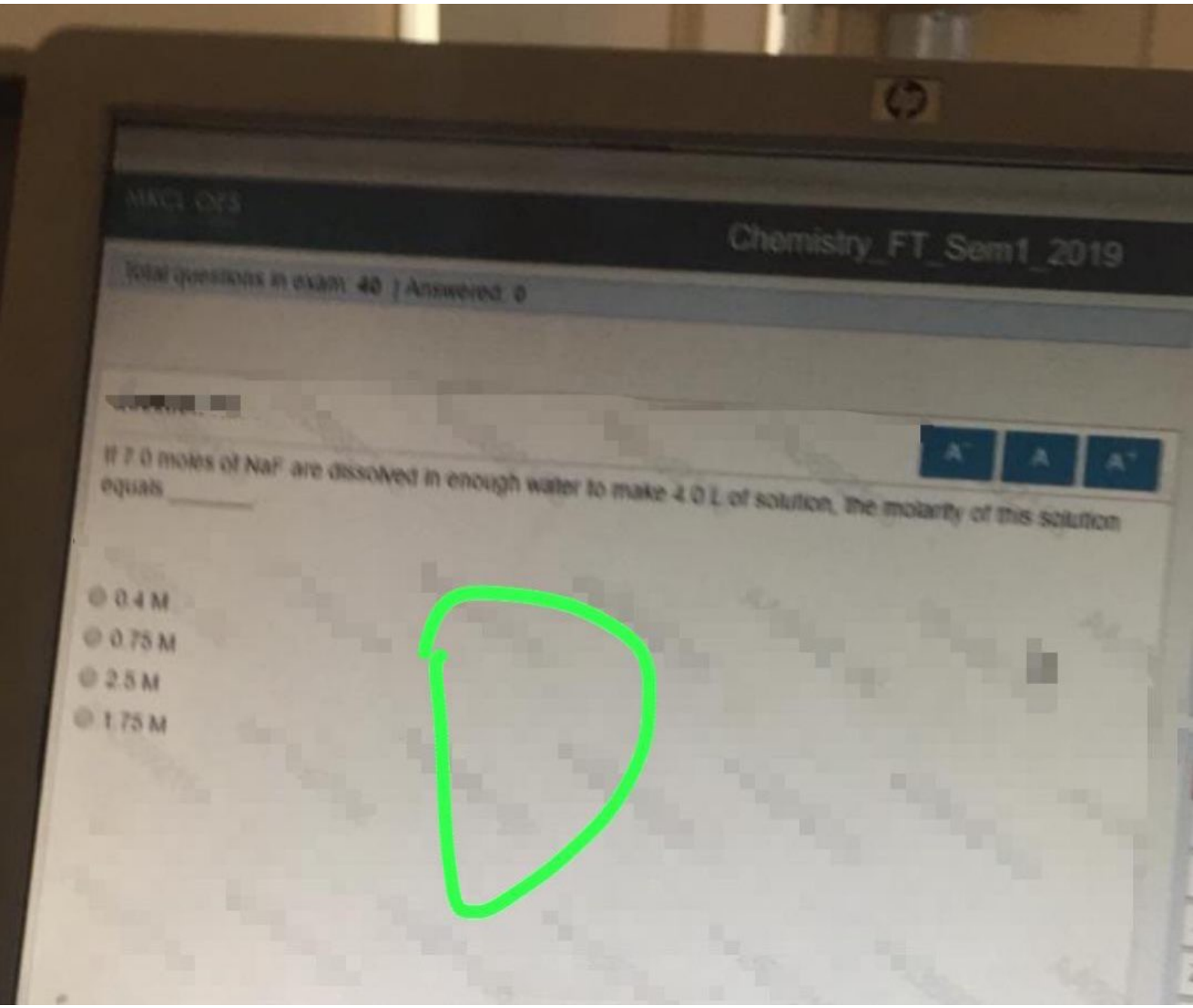
D

Question No. 3

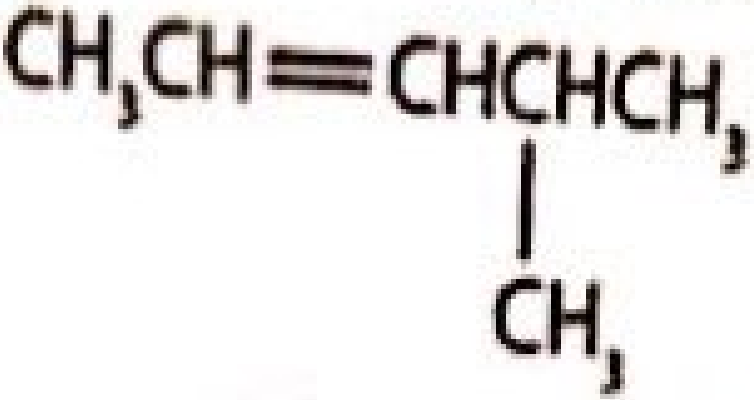
An ionic compound _____

- has a net positive charge.
- contains only cations.
- has a net negative charge.
- has a net charge of zero.

D



Name the following compound.



- 2-methyl-4-pentane
- 4-methyl-2-pentene
- 1,1-dimethyl-3-butene
- 2-methylpentane

B

Total questions in exam: 40 | Answered: 2

Consider the following reaction at equilibrium. What is the effect of increasing the pressure on the system?

$$2\,H_2S(g) + 3\,O_2(g) \rightleftharpoons 2\,H_2O(g) + 2\,SO_2(g)$$

- The reaction will shift to the right in the direction of products.
- The reaction will shift to the left in the direction of reactants.
- No effect will be observed.
- The equilibrium constant will decrease.

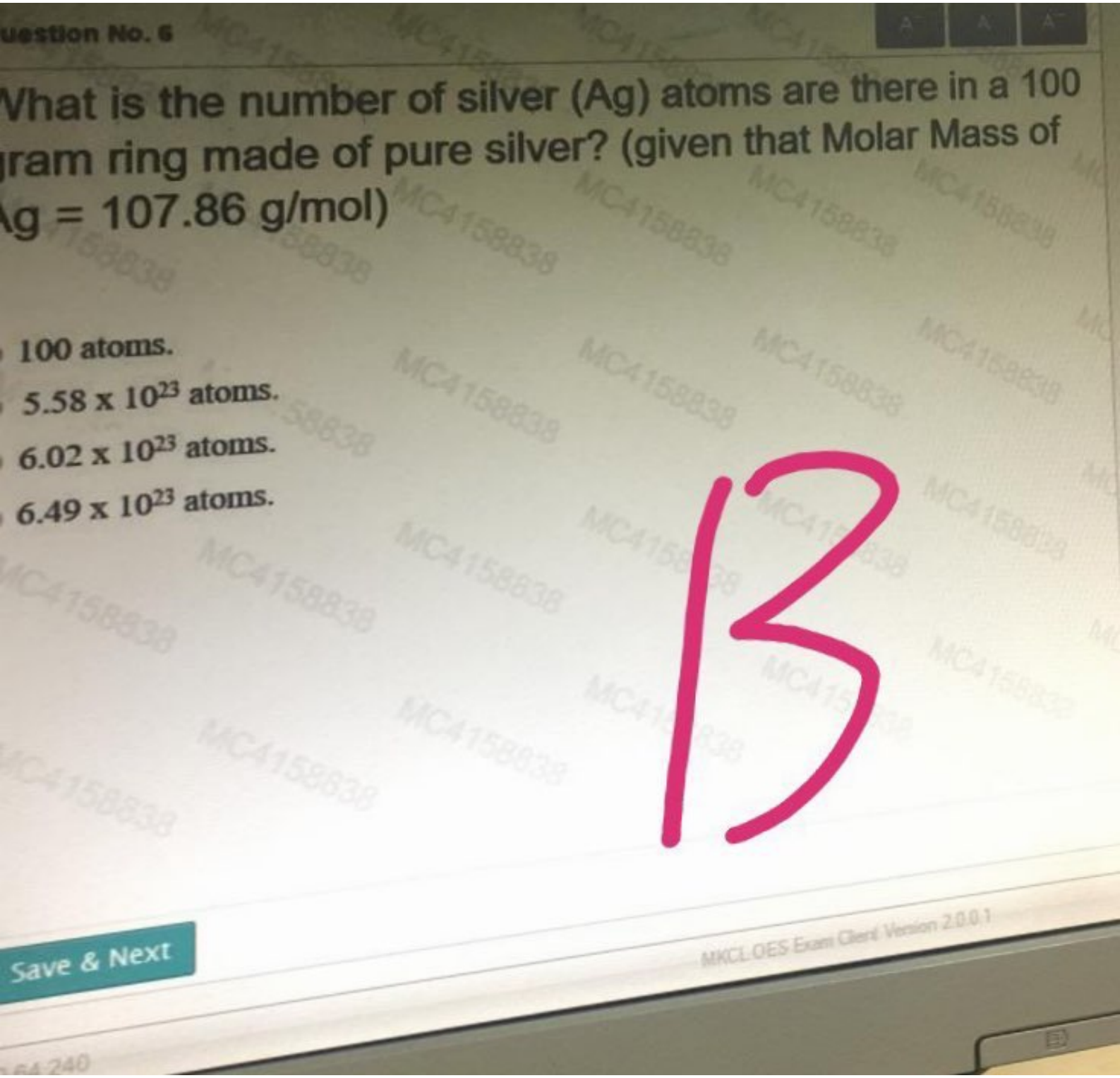
A

Ques[redacted]

A chemical reaction produces 7.25 moles of barium sulfate, $BaSO_4$. What mass (in grams) of barium sulfate is produced?

- 185 g
- 31.1 g
- 233 g
- 1.69×10^3 g

D



Question No. 3

What is the molecular formula of a compound that has a molar mass of 168 g/mol and its empirical formula is CH_2?

- C_4H_8
- C_5H_{10}
- $C_{12}H_{24}$
- C_6H_{16}

ve & Next

240

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Question No. 5

The most correct name for the compound SBr_6 is:

- sulfur bromide
- monosulfur hexabromide
- sulfur hexabromide
- monosulfur heptabromide

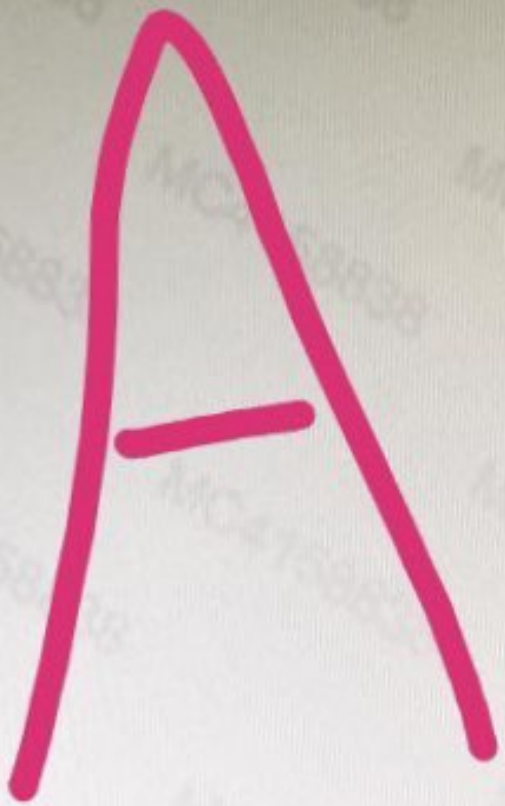
Save & Next

Question No. 1

Express the equilibrium constant for the following reaction.

$$H_2(g) + Br_2(g) \rightleftharpoons 2\,HBr(g)$$

- $K = \dfrac{[HBr]^2}{[H_2][Br_2]}$
- $K = \dfrac{[HBr]}{[H_2]^{1/2}[Br_2]^{1/2}}$
- $K = \dfrac{[H_2][Br_2]}{[HBr]^2}$
- $K = \dfrac{[H_2]^2[Br_2]^2}{[HBr]^4}$



Save & Next

Question No. 2

_____ are the most reactive hydrocarbons.

- Cycloalkanes
- Alkenes
- Alkynes
- Alkanes

Save & Next

Question No. 5

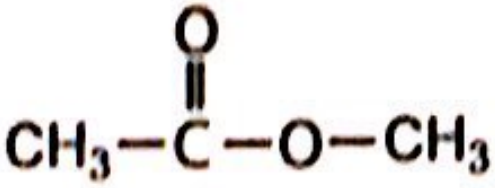
The most correct name for the compound SBr_6 is:

- sulfur bromide
- monosulfur hexabromide
- sulfur hexabromide
- monosulfur heptabromide

Save & Next

Question No. 4

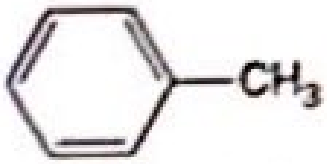
What is the family of this organic compound?



- ester
- aldehyde
- ketone
- carboxylic acid

Save & Next

What is the name of compound shown below?



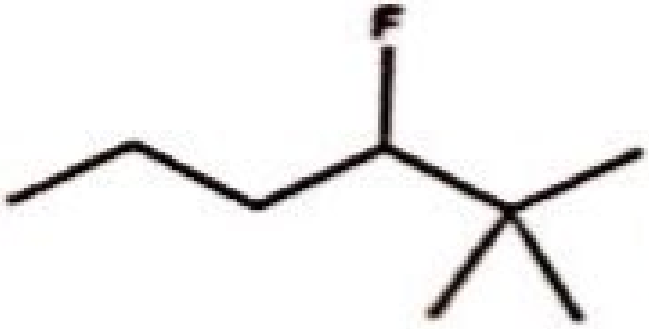
- benzene
- phenol
- aniline
- toluene

Save

What is the IUPAC name for: CH_3-CH_2-CH_2-CH_3?

- butane
- hexane
- heptane
- pentane

Provide the name of the compound below.



- 4-fluro-5,5 dimethylhexane
- 3-fluoro-2,2-dimethylhexane
- 3-fluoro-2-isopropylhexane
- 3-fluoro-2,2-diethylhexane

How many molecules of CO_2 could be produced when 2 moles of C_2H_6O completely react with oxygen gas according to the reaction?

$$C_2H_6O + 3\ O_2 \rightarrow 2\ CO_2 + 3\ H_2O$$

- 12.04×10^{23} molecules
- 2 molecules.
- 24.08×10^{23} molecules.
- 4 molecules.

Que

When the reverse reaction is favored,

- The rate of the reverse reaction is less than the forward reaction.
- The equilibrium constant is much greater than one; that is, $K_{eq} >> 1$
- The rate of the forward reaction is higher than the reverse reaction.
- The equilibrium constant is much less than one; that is, $K_{eq} << 1$

In the following reaction, which substance is acting as a Brønsted-Lowry base?

$$H_2O + NH_3 \rightarrow OH^- + NH_4^+$$

- H_2O
- OH^-
- NH_4^+
- NH_3

Total questions in exam: 40 | Answered: 2

Q1...

Using Lewis dot structure, find the number of lone pairs of electrons on the "P" atom in PF_3.

- 0 pairs
- 2 pairs
- 1 pair
- 3 pairs

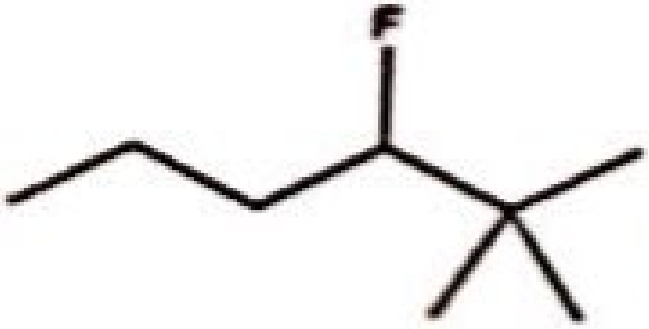
Que

Express the equilibrium constant for the following reaction.

$$C(s) + CO_2(g) \rightleftharpoons 2CO(g)$$

- $K_c = \dfrac{[CO]^2}{[CO_2]}$
- $K_c = \dfrac{[CO]}{[CO_2]}$
- $K_c = \dfrac{[2CO]^2}{[CO_2]}$
- $K_c = \dfrac{[CO]^2}{[C][CO_2]}$

Provide the name of the compound below.



- 4-fluro-5,5 dimethylhexane
- 3-fluoro-2,2-dimethylhexane
- 3-fluoro-2-isopropylhexane
- 3-fluoro-2,2-diethylhexane

Qur

What is the oxidation number of nitrogen in NO_3^{-1}?

- 0
- -3
- -5
- +5

Question No. 5

Provide the name of the compound below.

3,3-dimethyl-1-pentene

3,3-dimethyl-1-pentyne

,3-dimethyl-1-pentane

3-dimethyl-4-pentene

Next

Question No. 31

What is the oxidation number of metallic sodium in the elemental state?

- +2
- +1
- 0
- +3

Save & Next

Total questions in exam: 40 | Answered: 2

Identify the conjugate base of HPO_4^{2-} in the reaction

$$HCO_3^- + HPO_4^{2-} \leftrightarrow H_2CO_3 + PO_4^{3-}$$

- H_2O
- H_2CO_3
- HCO_3^-
- PO_4^{3-}

Qu

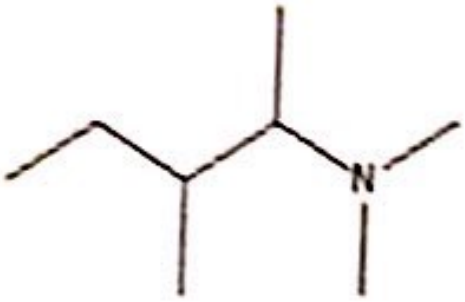
A⁻ A

Which of the following is true if the hydronium ion concentration "increases" in an aqueous solution?

- pH increases
- K_w increases
- K_w decreases
- pH decreases

A

Which family does the following organic compound belong to?



- amine
- aldehyde
- carboxylic acid
- ether

Save & Next

Q [redacted]

Which of the following substances can make an aqueous solution that conducts electricity?

- CO
- CH_3OCH_3
- $C_{12}H_{22}O_{11}$
- MgI_2

The coefficients (a,b,c) needed to balance the equation below are:

$$a\,Al + b\,O_2 \rightarrow c\,Al_2O_3$$

- (4,3,2)
- (4,2,2)
- (4,2,3)
- (3,2,4)

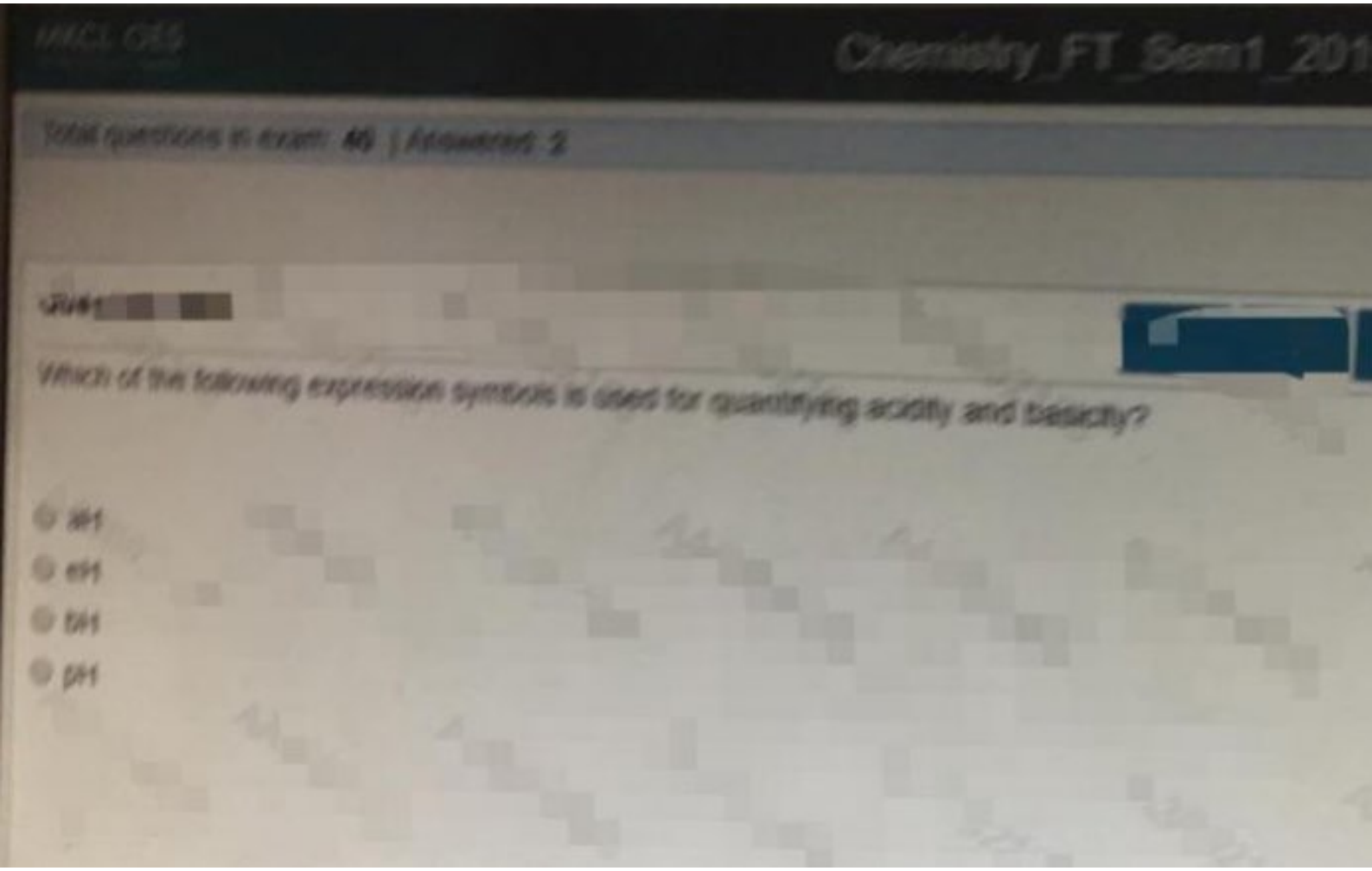
MRCL OES

Chemistry_FT_Sem1_2019

Total questions in exam: 40 | Answered: 2

What is the molecular formula of a compound that has a molar mass of 70 g/mol and its empirical formula is CH_2?

- C_2H_{10}
- $C_{20}H_{40}$
- $C_{15}H_{30}$
- C_5H_{10}



The molecular formula for "cyclopropane" is _____

- C_3H_8
- C_3H_6
- C_7H_{16}
- C_7H_{12}

Total questions in exam: 40 | Answered: 2

The molar mass of water equals _____

- 18 g/mol
- 36 g/mol
- 27 g/mol
- 54 g/mol

AIKCL OES

Chemistr

Total questions in exam: 40 | Answered: 2

Calculate the molar mass of $Fe_3(PO_4)_2$.

- 237.6 g/mol
- 357.5 g/mol
- 262.5 g/mol
- 525.1 g/mol

What is the correct equilibrium constant expression for the following reaction?

$$2\,Cu(s) + O_2(g) \rightarrow 2\,CuO(s)$$

- $K_{eq} = [CuO]^2 / [Cu]^2[O_2]$
- $K_{eq} = [O_2]$
- $K_{eq} = [CuO]^2 / [O_2]$
- $K_{eq} = 1 / [O_2]$

Save & Next

When magnesium burns in air, it produces MgO

$$2Mg\ (s) + O_2\ (g) \rightarrow 2MgO\ (s)$$

When 2.00 g of magnesium burns, the theoretical yield of magnesium oxide is _____ g.

- 2 00 g
- 0 082 g
- 3 32 g
- 1 66 g

What is the name of compound has the following general formula?

- aldehyde
- ester
- carboxylic acid
- phenol

Save & Next

What is the theoretical yield of MgO moles are produced by the reaction of 3.82 g of magnesium nitride with 7.73 g of water?

$$Mg_3N_2 + 3\,H_2O \rightarrow 2NH_3 + 3MgO$$

- 0.114
- 0.0378
- 0.0756
- 0.429

A

How many liters of a 1.3 M NaOH solution containing 0.4 mole of NaOH?

- 1.32 L
- 0.30 L
- 1.21 L
- 3.25 L

B

How many moles of $(NH_4)_2S$ are there in 150 g of $(NH_4)_2S$?

- 1.04
- 2.21
- 1.56
- 1.5

B

The coefficients (a,b,c) needed to balance the equation below are:

$$a\,Al + b\,O_2 \rightarrow c\,Al_2O_3$$

- (4,3,2)
- (4,2,3)
- (3,2,4)
- (4,2,2)

A

How many grams of nitrogen are needed to produce 325 grams of ammonia?

$$N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$$

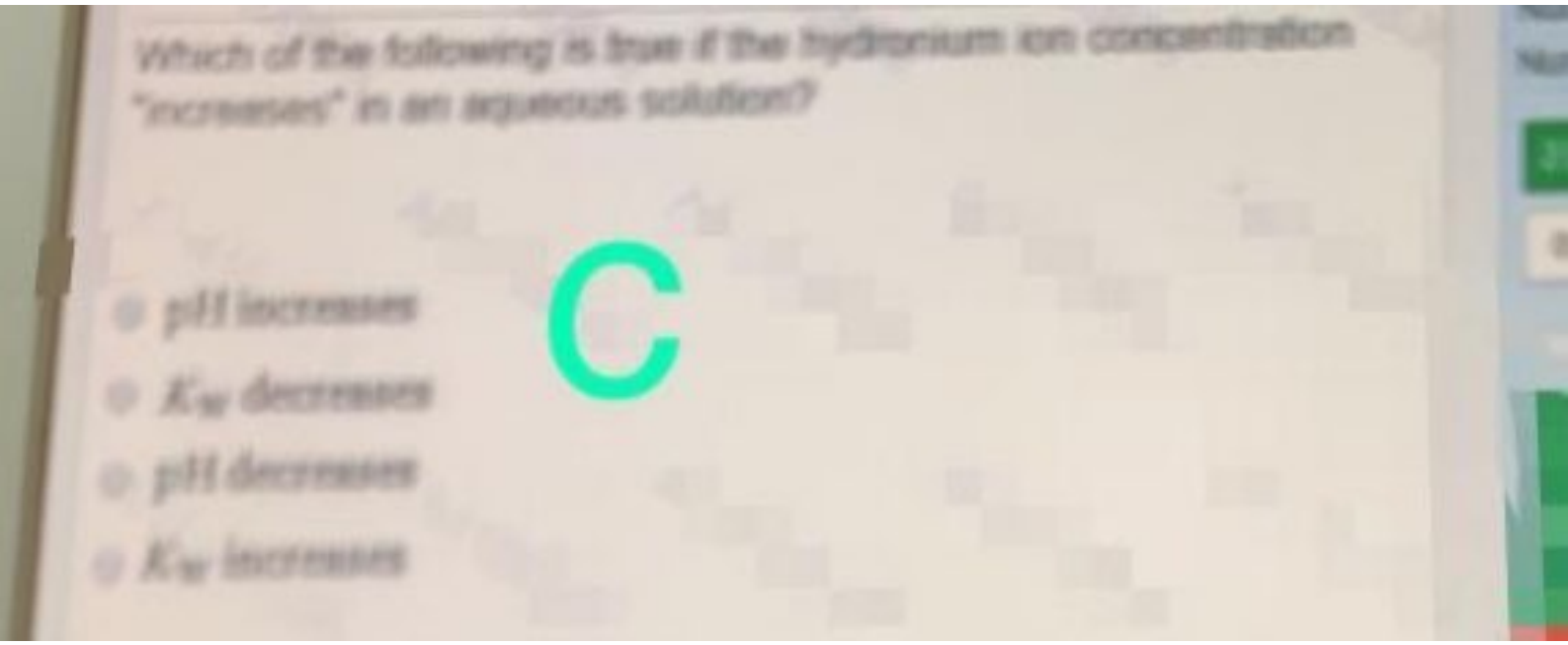
A

- 267 g
- 651 g
- 178 g
- 163 g

Which of the following formulas represents an unsaturated organic compound?

- $CH_3\text{-}CH_2\text{-}CH_3$
- $CH_3\text{-}O\text{-}CH_2\text{-}CH_3$
- $CH_3\text{-}CH{=}CH_2$
- $CH_3\text{-}CH_2\text{-}OH$

C

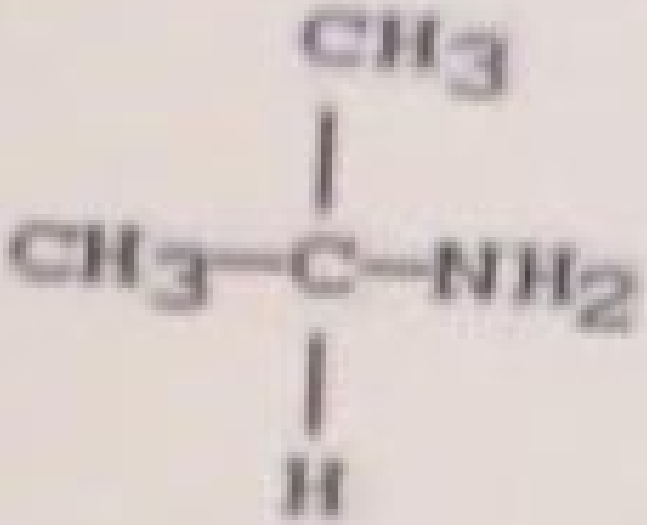


The name of the chemical compound Cu_2CO_3 is:

- copper(III) carbonate
- copper(II) carbonate
- copper(I) carbonate
- copper carbonate

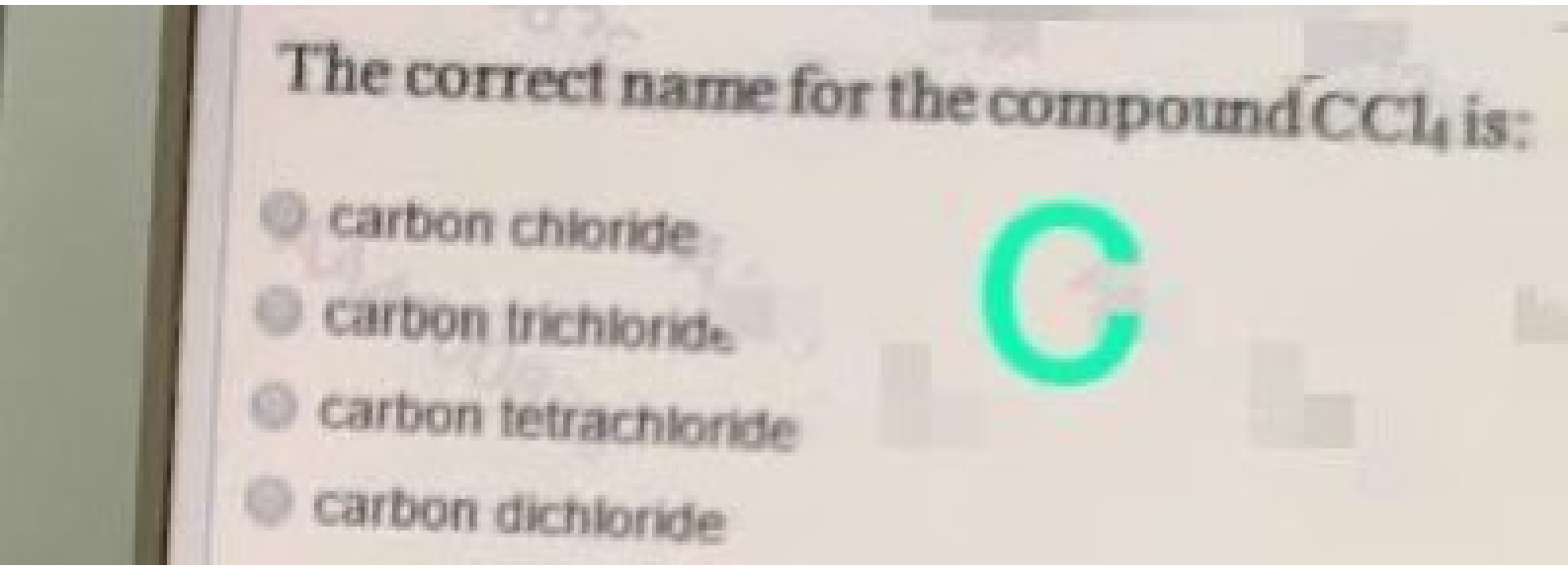
C

The compound below is an



- acid
- amine
- ester
- amide

B



The molecular formula for the hydrocarbon "butane" is

- C_6H_{14}
- C_5H_{12}
- C_4H_8
- C_4H_{10}

D

Consider the following reaction at equilibrium. What is the effect of increasing volume on the system?

$$2\,H_2S(g) + 3\,O_2(g) \rightleftharpoons 2\,H_2O(g) + 2\,SO_2(g)$$

- The reaction will shift to the right in the direction of products.
- No effect will be observed.
- The equilibrium constant will increase.
- The reaction will shift to the left in the direction of reactants.

D

What is the molarity of a solution made by dissolving 25.00 g of NaCl in enough water to make 625 mL of solution?

C

- 0.308 M
- 0.526 M
- 0.684 M
- 0.479 M

Calculate the mass percent composition of potassium in K_3PO_4.

- 26.8%
- 18.0 %
- 55.3 %
- 30.7 %

C

CO_2 acts as a Lewis acid in the reaction $CaO(s) + CO_2 \rightarrow CaCO_3(s)$ because it _____.

- turns blue litmus to red
- reacts with a metal
- is an electron-pair acceptor
- is a proton donor

C

Identify the conjugate base of CH_3COOH in the reaction

$$CH_3COOH + HSO_4^- \leftrightarrow H_2SO_4 + CH_3COO^-$$

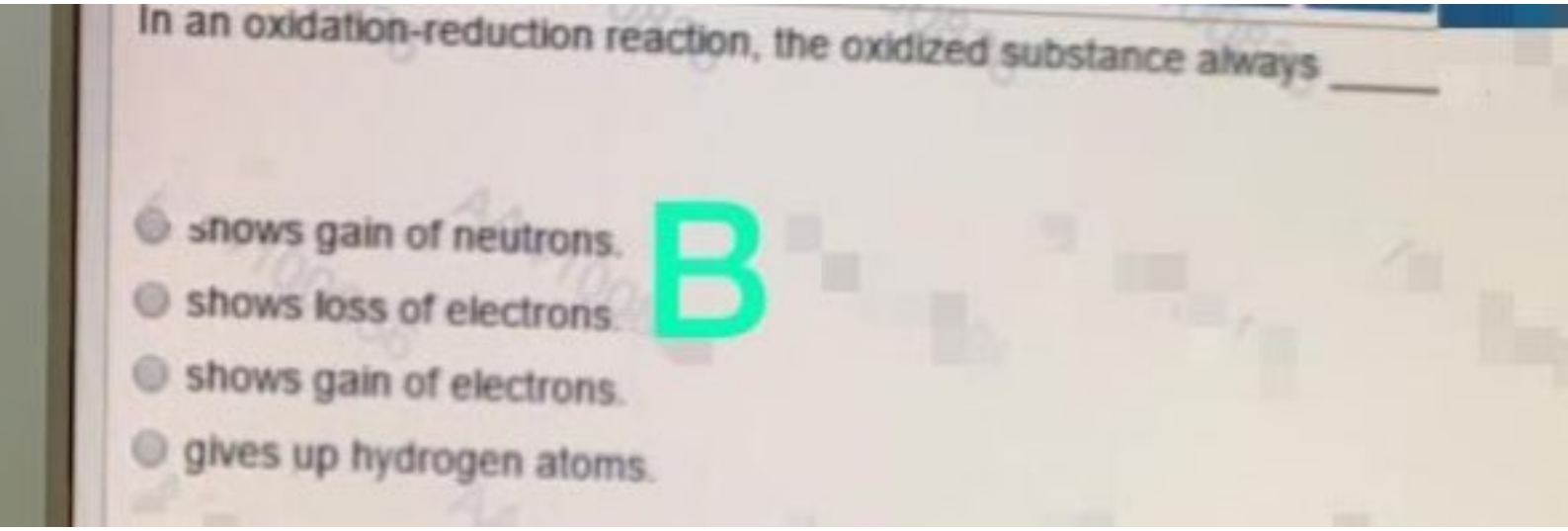
- HSO_4^-
- SO_4^{2-}
- CH_3COO^-
- H_2SO_4

C

According to Bronsted-Lowry definition, which acid is incorrectly matched with its conjugate base? (Acid / conjugate Base)

C

- HCl / Cl^-
- H_2F^+ / HF
- H_3O^+ / OH^-
- HCO_3^- / CO_3^{2-}



How many moles of CO_2 could be produced when 168 grams of C_6H_{12} completely react with oxygen gas according to the reaction?

$$C_6H_{12} + 9O_2 \rightarrow 6CO_2 + 6H_2O$$

- 4 mol
- 6 mol
- 12 mol
- 10 mol

C

What is the oxidation number of carbon in Na_2CO_3 ?

- 0
- +1
- +4
- +2

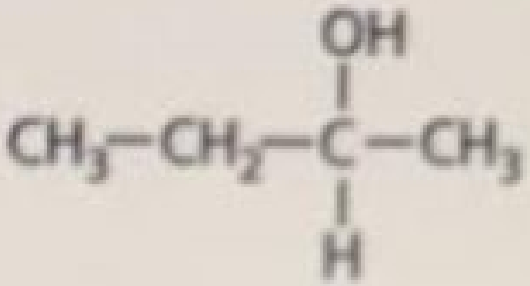
C

What is the final molarity of H_2SO_4 solution, if 240mL of 4M H_2SO_4 was diluted to a final volume of 0.5 L?

- 1.92 M
- 1.60 M
- 0.96 M
- 1.34 M

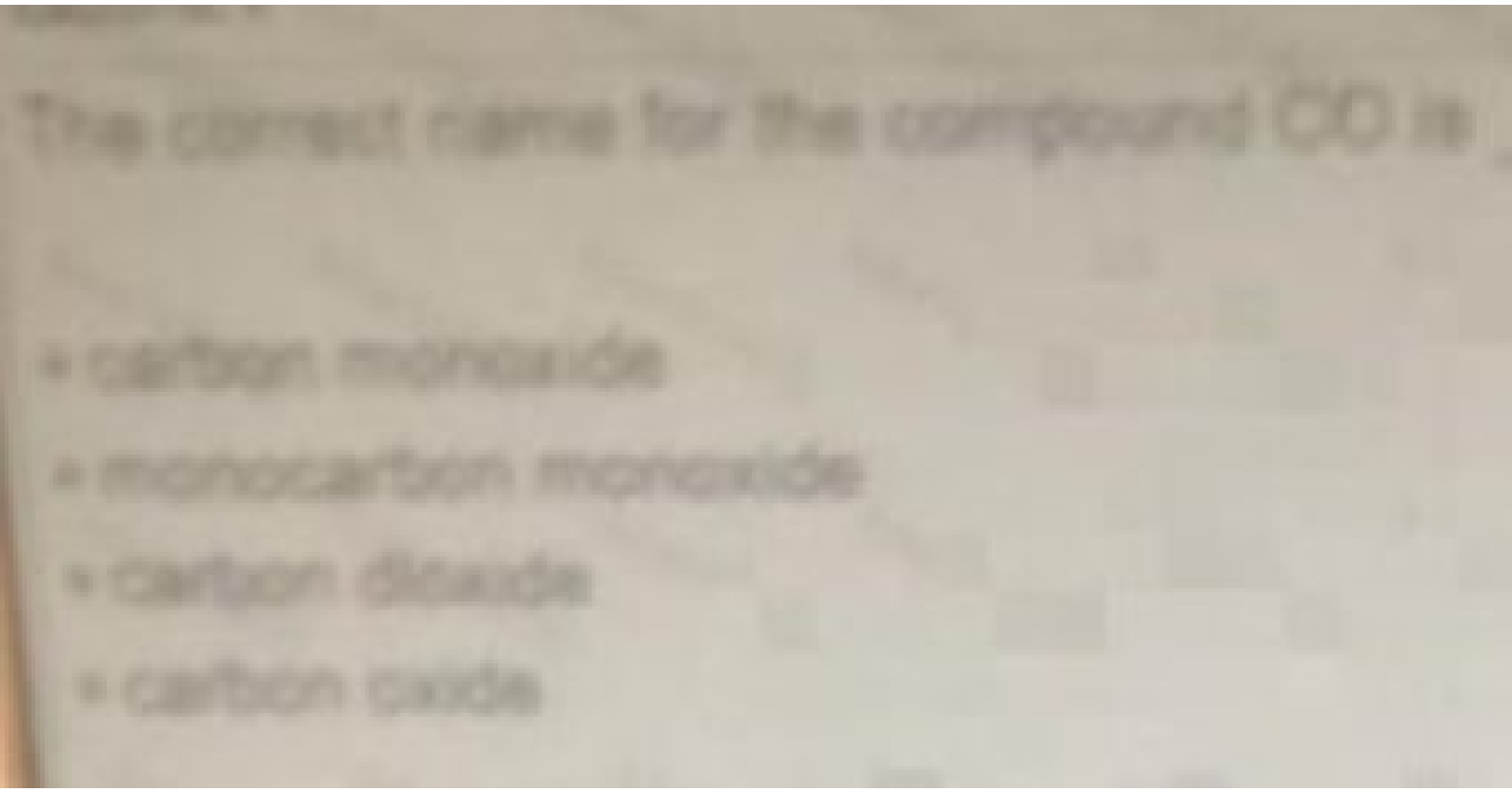
A

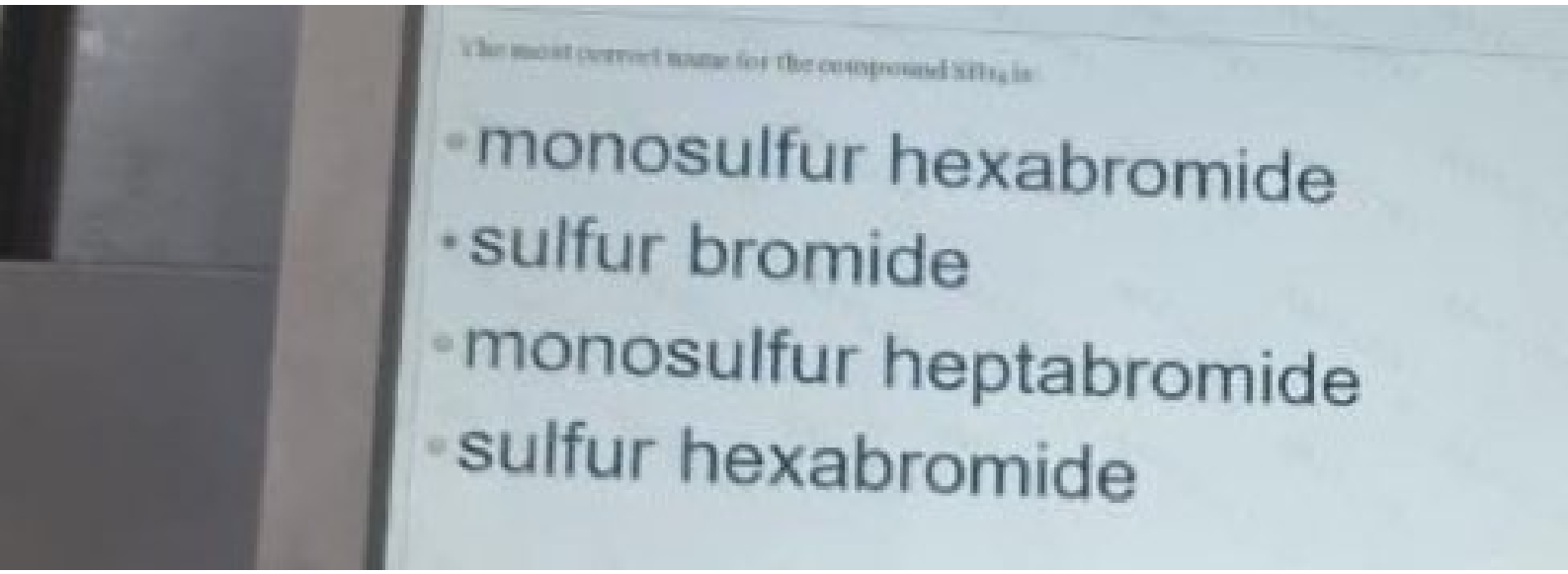
What is the type of the following alcohol?

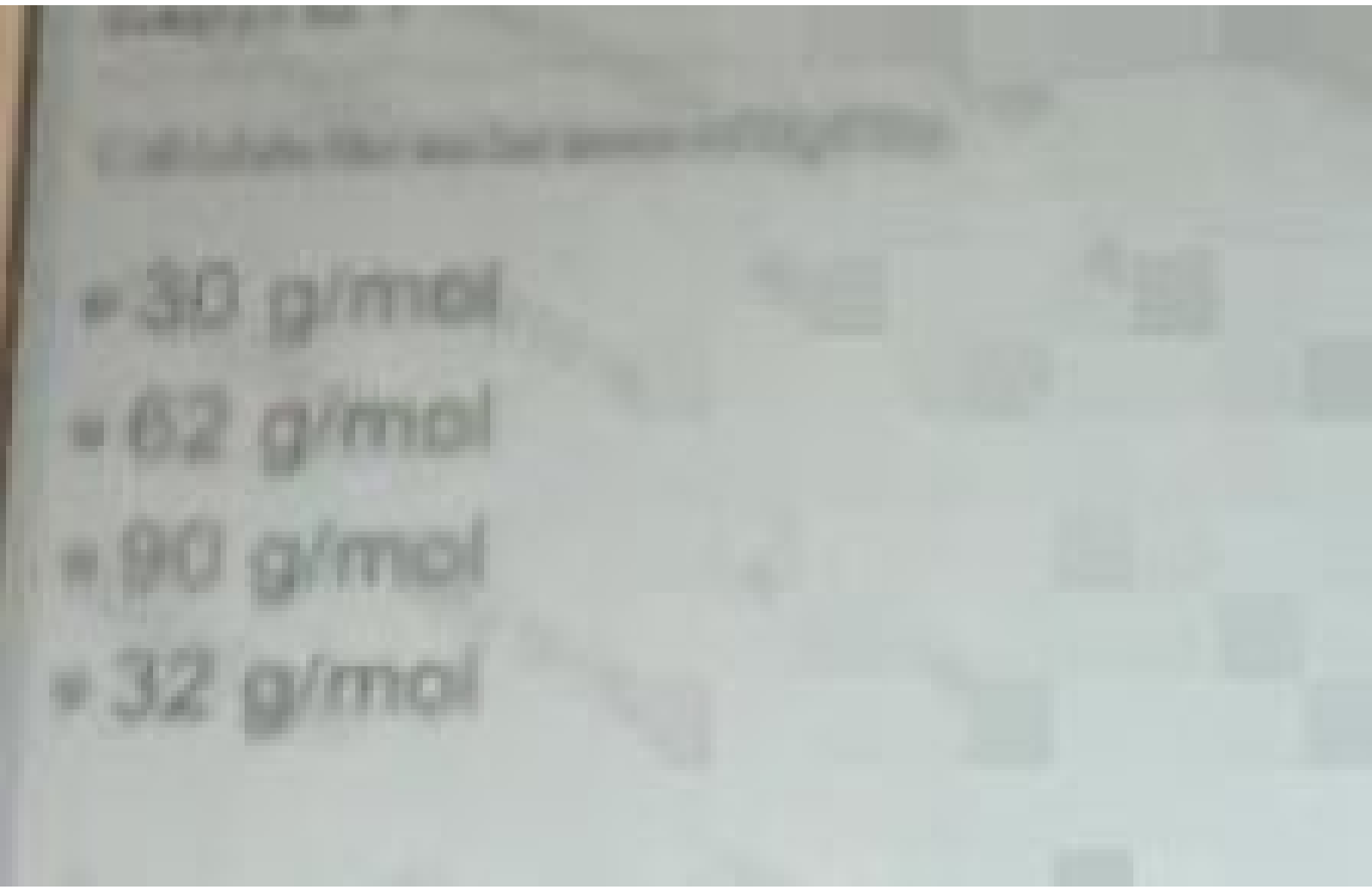


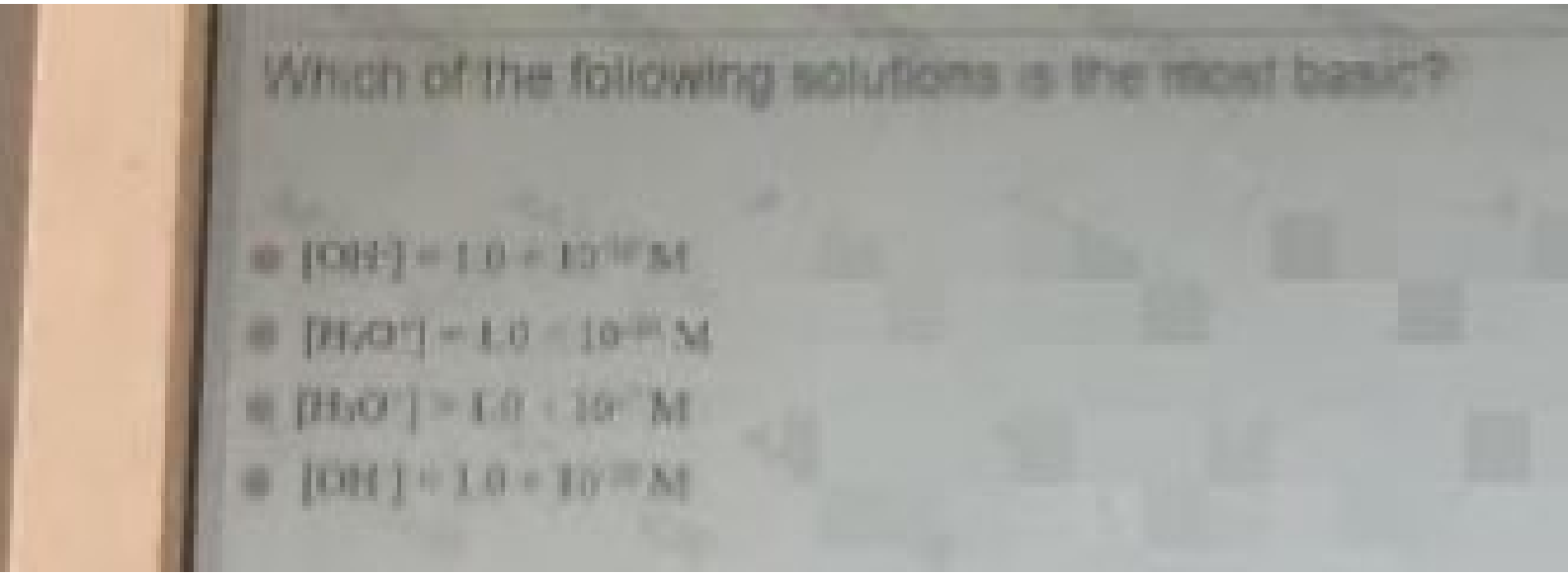
- Primary
- Secondary
- Quaternary
- Tertiary

B









Nitrogen dioxide is produced from the reaction of nitric oxide and oxygen gases.
Calculate the equilibrium constant for the reaction given the equilibrium concentrations at 25 °C:
$[NO] = 1.08 \times 10^{-7}$, $[O_2] = 0.50$, and $[NO_2] = 0.10$.

$$2\,NO(g) + O_2(g) \rightleftharpoons 2\,NO_2(g)$$

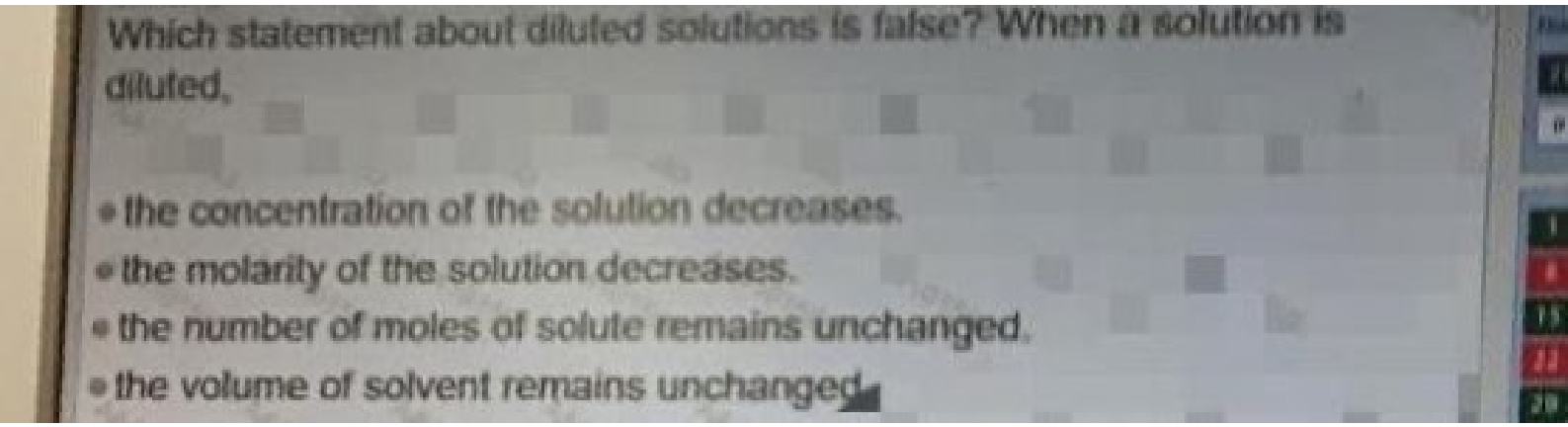
- $K_c = 0.1 \times 10^{6}$
- $K_c = 5.83 \times 10^{-13}$
- $K_c = 1.71 \times 10^{12}$
- $K_c = 1.08 \times 10^{7}$

The number of grams of NaCl (molar mass = 58.5 g/mol) that are required to make 250 mL of a 2 M solution is:

- 29.2 g
- 58.5 g
- 14.6 g
- 20.5 g

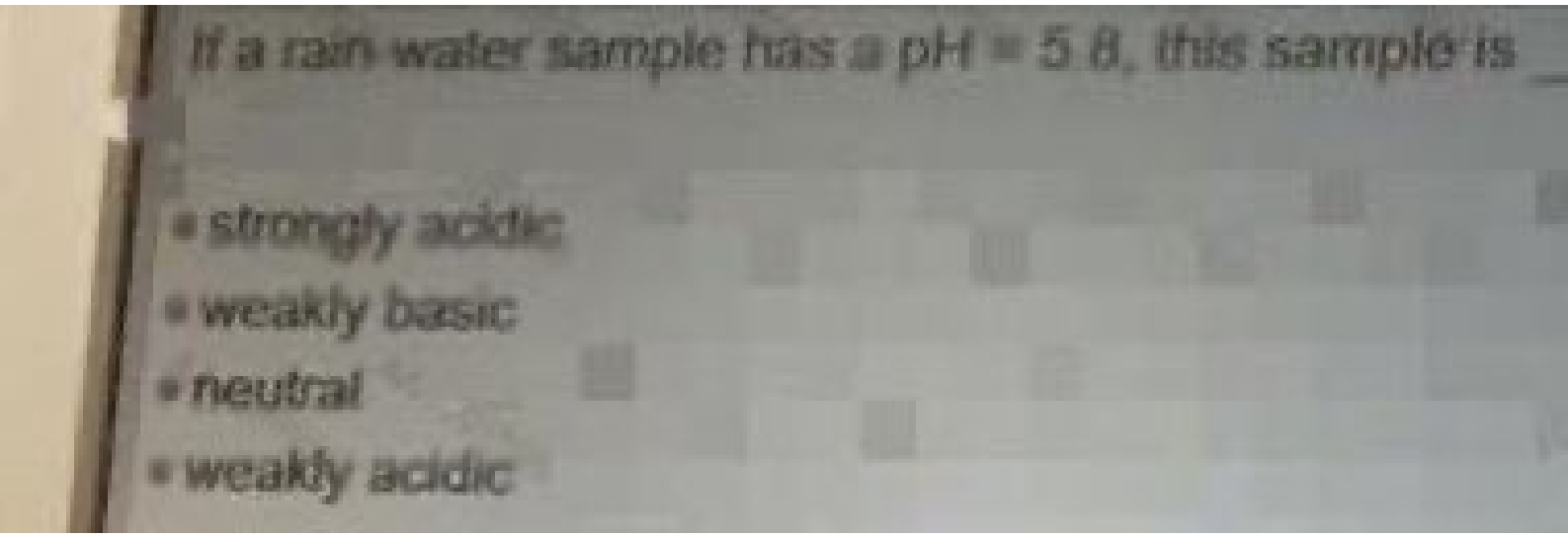
Which of the following pairs of systematic names and common names is correctly matching?

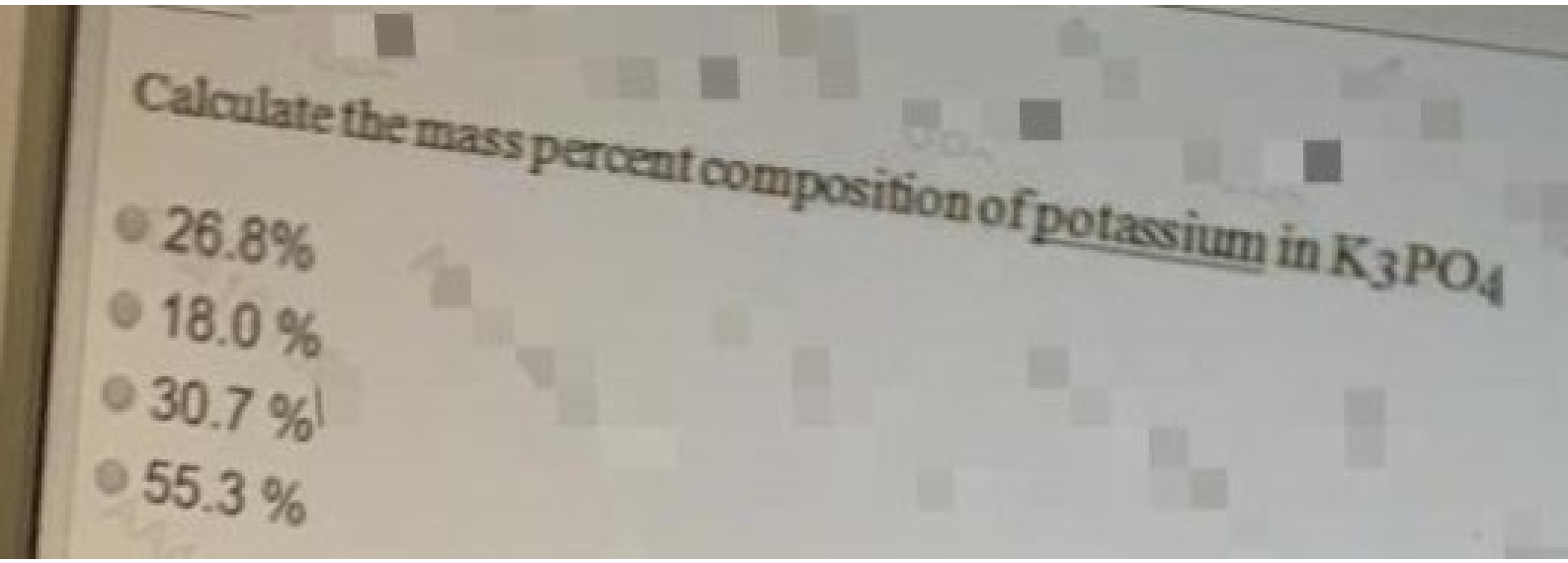
- toluene = hydroxybenzene
- phenol = methylbenzene
- aniline = aminobenzene
- acetylene = ethene



The main characteristic of all non-electrolyte solutions is that they _

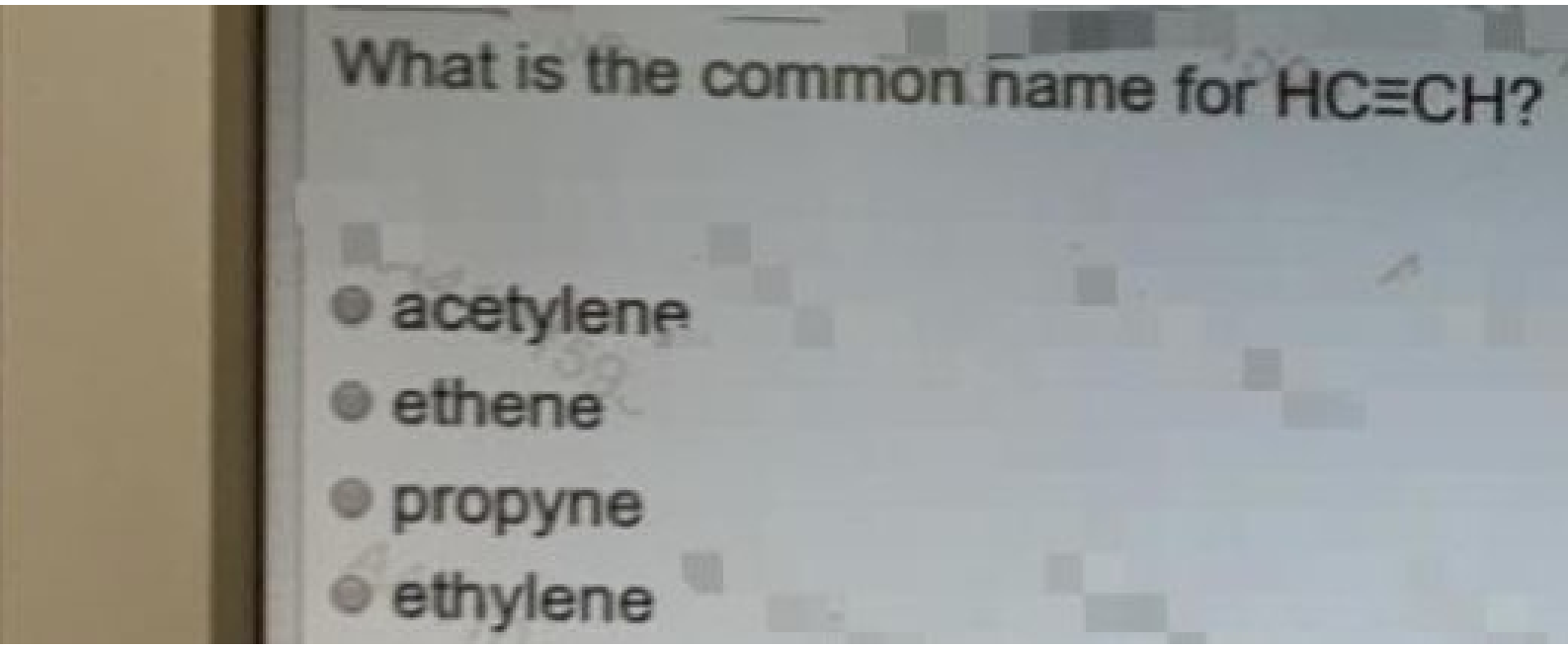
- completely ionize in aqueous solutions
- do not conduct electricit
- do not conduct heat
- partially ionize in aqueous solutions



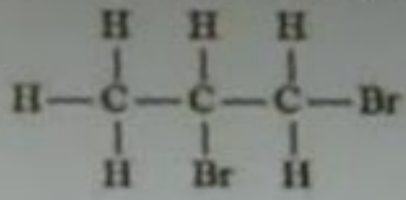


For the reaction $N_2(g) + 2H_2(g) \rightleftharpoons N_2H_4(g)$ (endothermic), Which conditions will increase the amount of produced N_2H_4 ?

- higher temperature & higher pressure
- higher temperature & lower pressure
- lower temperature & higher pressure
- lower temperature & lower pressure



Which of these is the systematic name for the compound represented below?



- 2,3-dibromopentane
- 1,2-dibromopropane
- 2,3-dibromopropane
- 1,2-propane dibromide

Which of the following organic molecules can undergo an "addition reaction" with bromine?

- $CH_3CH_2CH_2CH_3$
- $CH_3\text{-}O\text{-}CH_2\text{-}CH_3$
- $CH_3CH_2CH{=}CH_2$
- CH_3CH_2OH

In the reaction below, what is the theoretical yield in moles for NO when 3 moles of NH_3 react with 3 moles of O_2?

$$4\ NH_3 + 5\ O_2 \rightarrow 4\ NO + 6\ H_2O$$

- 2.4 mol
- 2.6 mol
- 2.8 mol
- 3.0 mol

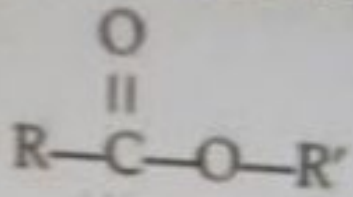
Household sugar, sucrose, has the molecular formula $C_{12}H_{22}O_{11}$. What is the mass percent of carbon in sucrose?

- 6.5 %
- 51.4 %
- 42.1 %
- 62.8 %

CO_2 acts as a Lewis acid in the reaction $CaO(s) + CO_2 \rightarrow CaCO_3(s)$ because it

- turns blue litmus to red
- reacts with a metal
- is a proton donor
- is an electron-pair acceptor

What is the name of compound has the following general formula?



- aldehyde
- carboxylic acid
- ester
- ketone

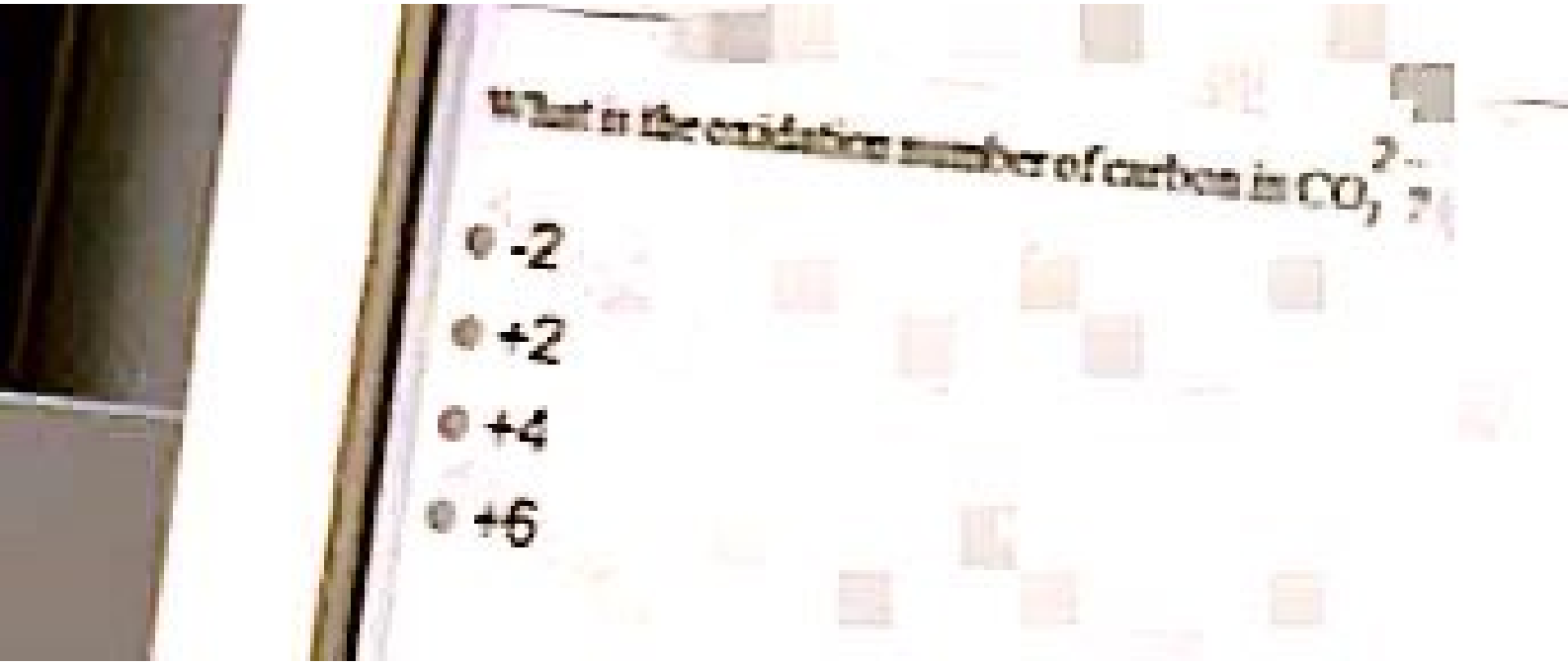
A chemical reaction produces 7.25 moles of barium sulfate, $BaSO_4$. What mass (in grams) of barium sulfate is produced?

- 185 g
- 233 g
- 31.1 g
- 1.69×10^3 g

Consider the reaction: $2\,SO_2(g) + O_2(g) \leftrightarrow 2\,SO_3(g)$

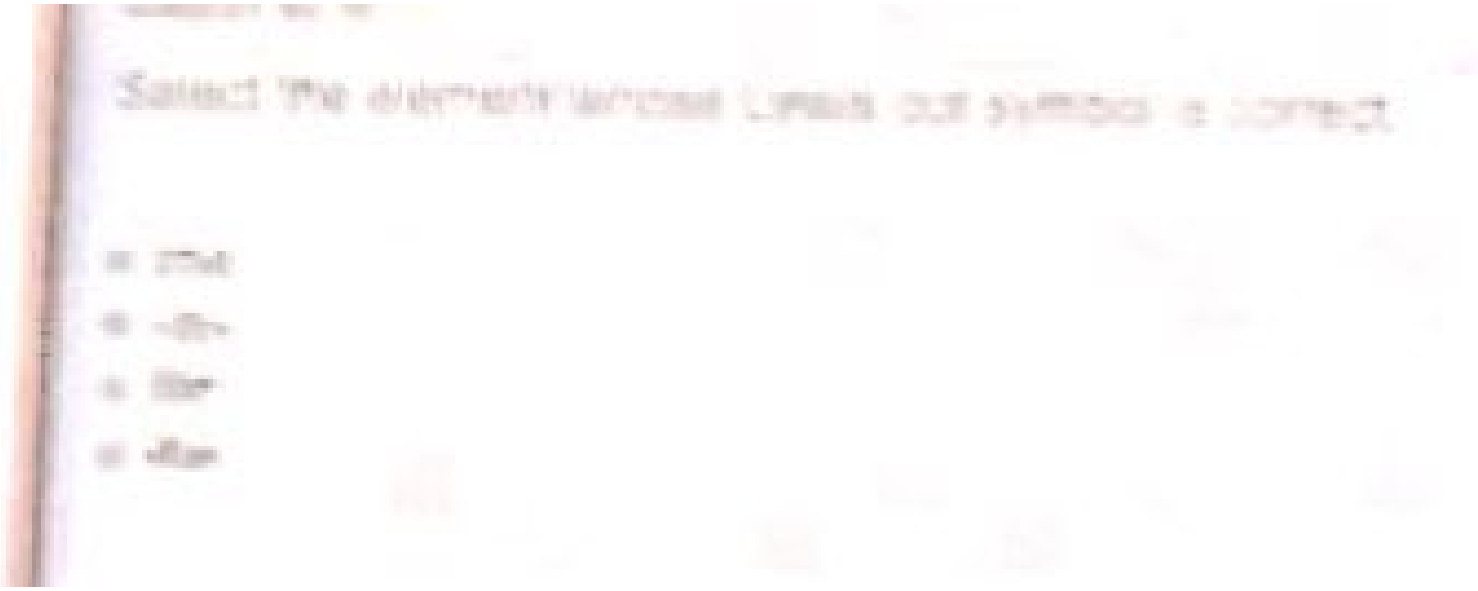
If, at equilibrium at a certain temperature, $[SO_2] = 1.50\ M$, $[O_2] = 0.120\ M$, and $[SO_3] = 1.25\ M$, what is the value of the equilibrium constant K_{eq}?

- 0.14
- 5.79
- 6.94
- 8.68



Which of the following bonds do you expect to be pure covalent?

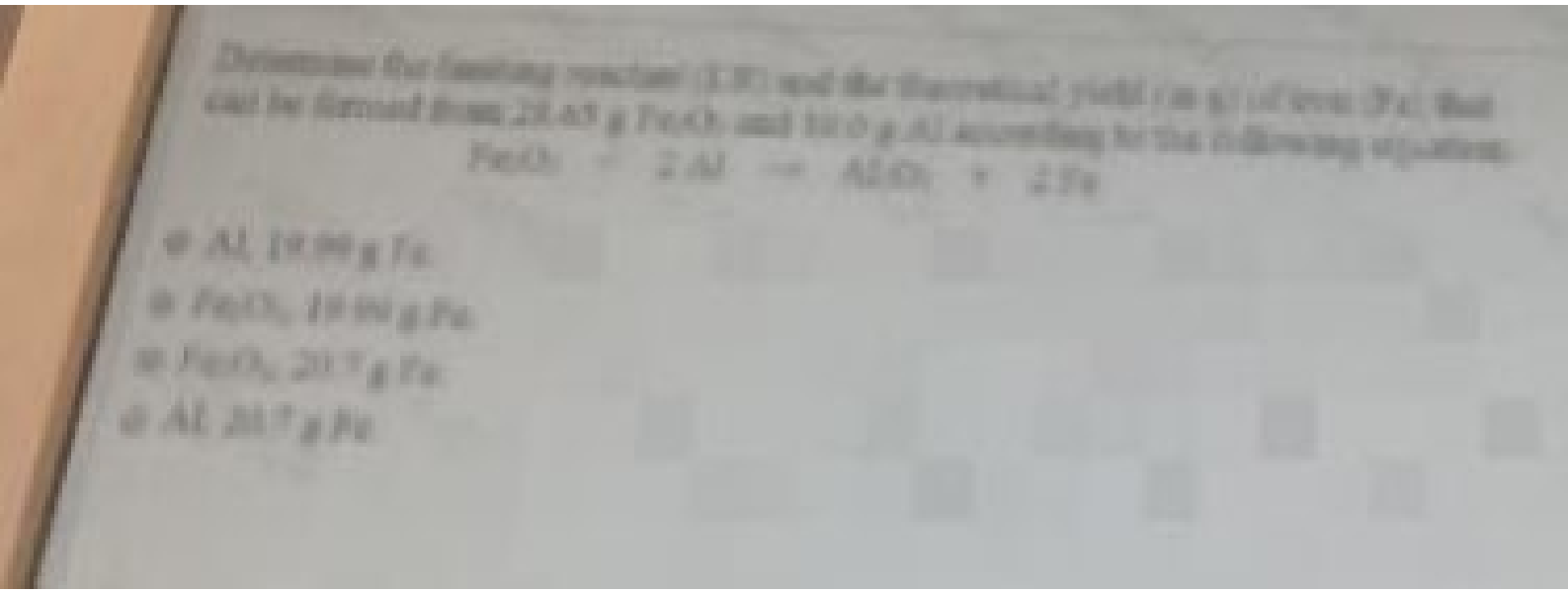
- Cs-F
- H-N
- H-O
- H-H

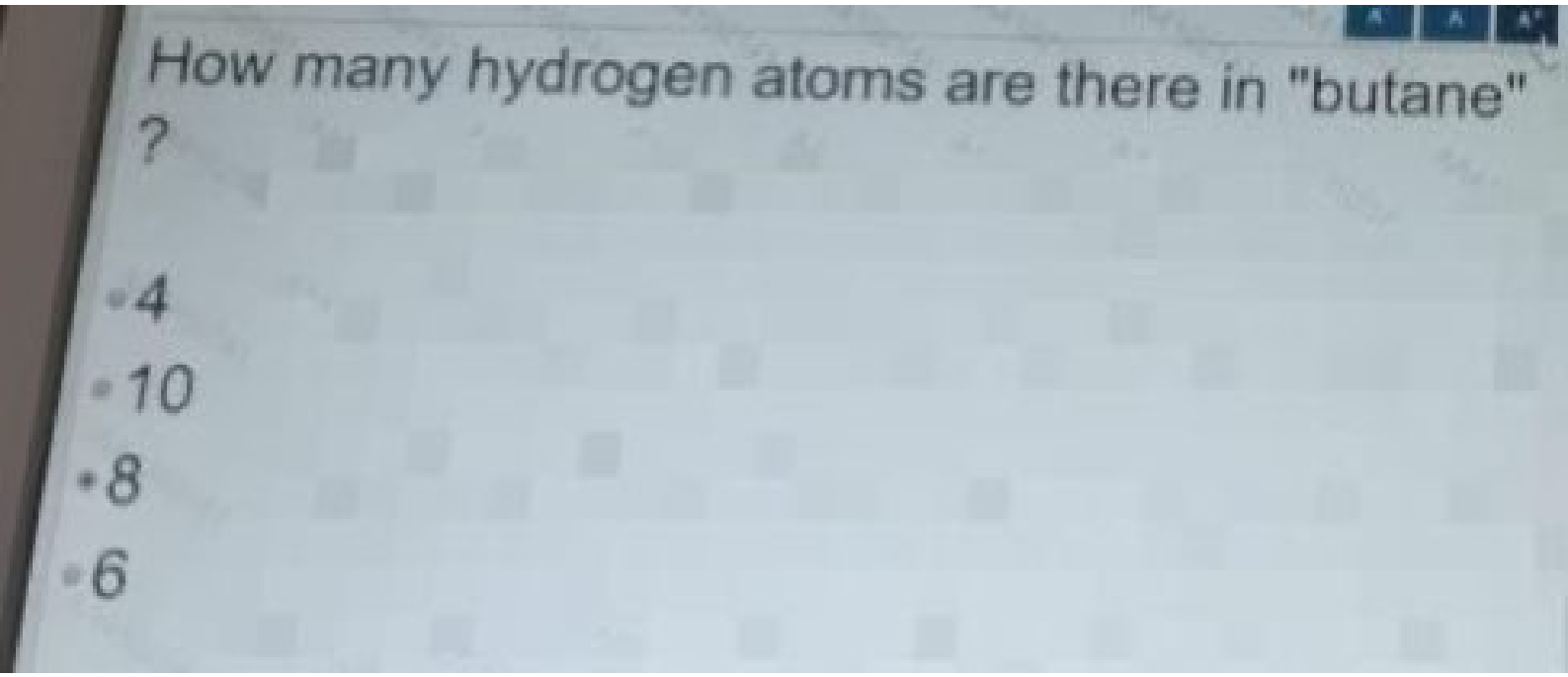


The correct name for the compound CO is

- carbon monoxide
- monocarbon monoxide
- carbon dioxide
- carbon oxide

- the substance present in the greatest amount
- the substance present in the smallest amount
- always water
- always a solid





Which of the following substances can make an aqueous solution that conducts electricity?

- CH_3CH_2OH
- CO
- MgI_2
- $C_6H_{12}O_6$

The IUPAC name for "ethylene" is

- ethane.
- ethene.
- ethanene.
- cycloethane.

Refer to the equilibrium shown below. Adding excess oxygen will _____.

$$CH_4(g) + 2O_2(g) \rightleftharpoons CO_2(g) + 2H_2O(g)$$

- have no effect
- shift the reaction to the right
- cannot be determined, since the temperature is not known
- shift the reaction to the left