

Posting ID: 419903
Course: CHE 105 2015 SU
Instructor: Sarah Edwards

Question #: 1

Iron is _____.

- A. a compound
- B. a heterogenous mixture
- C. a homogenous mixture
- D. an element

Question #: 2

Temperature is a(n) _____ property of a substance. Select two that apply.

- A. physical
- B. chemical
- C. intensive
- D. extensive

Question #: 3

Which of the following is a **chemical** change?

- A. boiling water
- B. sugar dissolving in tea
- C. combustion of propane
- D. melting silver

Question #: 4

Chemical energy is a type of _____ energy.

- A. potential
- B. thermal

- C. kinetic
 - D. linear
-

Question #: 5

To convert from moles to atoms,

- A. divide by molar mass.
 - B. multiply by molar mass.
 - C. divide by Avogadro's number.
 - D. multiply by Avogadro's number.
-

Question #: 6

How many μL are contained in 15 cm^3 ?

- A. 15
 - B. 1.5×10^4
 - C. 1.5
 - D. 1.5×10^{-3}
-

Question #: 7

When heated to 1234 K, a 25.0 g sample of silver melts to a liquid with a volume of 2.67 mL. Density of the molten silver = 1 g/cm^3 .

1. _____

Question #: 8

Which pair matches a quantity with its SI base unit?

- A. length, inch
- B. time, hour
- C. temperature, Kelvin

D. mass, mole

Question #: 9

What is the result of this calculation to the correct number of significant figures?

$$(6.88 - 3.009) \div 2.40 + 0.099 = \underline{\quad 1 \quad}$$

1. _____

Question #: 10

Which of the following is consistent with Dalton's atomic theory?

- A. Certain nitrogen atoms spontaneously decay to oxygen atoms.
 - B. All carbon dioxide, regardless of source, contains a ratio of one carbon atom to two oxygen atoms.
 - C. The mass of an atom changes during a chemical reaction.
 - D. Chemical bonds are unbreakable.
-

Question #: 11

An 5.00-gram iron nail is completely converted to 7.15 g of rust. Which statement is true?

- A. The rusting of iron violates the law of conservation of matter.
 - B. The rusting of iron violates the law of conservation of energy.
 - C. The amount of iron present has increased by 2.15 g.
 - D. The sample has taken 2.15 g of oxygen from the air.
-

Question #: 12

Thomson's cathode ray tube experiment established

- A. the mass of the electron.
- B. the charge-to-mass ratio of the electron.

- C. the density of the nucleus.
- D. the volume of the helium atom.

Question #: 13

Protons and neutrons have nearly the same 1 but different 2 .

Enter either "mass" or "charge" for each response.

- 1. _____
- 2. _____

Question #: 14

A neutral ^{75}As atom has 1 protons, 2 electrons, and 3 neutrons.

- 1. _____
- 2. _____
- 3. _____

Question #: 15

How many electrons are in a Na^+ ion?

 1

- 1. _____

Question #: 16

Lithium has two naturally occurring isotopes: ^6Li (mass = 6.015 amu) and ^7Li (mass = 7.016 amu). What is the natural abundance of ^6Li ?

- A. 7.6%
- B. 92%
- C. 50%

D. 3.0%

Question #: 17

How many atoms are in a 6.78 g sample of H₂O?

- A. 1.13
 - B. 6.80×10^{23}
 - C. 2.27×10^{23}
 - D. 0.376
-

Question #: 18

Which of the following is an ionic compound?

- A. H₂O
 - B. C₆H₁₂O₆
 - C. SF₆
 - D. NaF
-

Question #: 19

Fenestrane has an empirical formula C₃H₄ and a molar mass of 120.2 g/mol. The molecular formula of fenestrane is C 1 H 2 .

- 1. _____
 - 2. _____
-

Question #: 20

What is the formula for sodium phosphate?

- A. Na₃P
- B. SPO₄
- C. Na₃PO₄
- D. NaPO₄

Question #: 21

What is the name of PCl_3 ?

- A. phosphorus chlorine
- B. phosphorous chloride
- C. phosphorus trichloride
- D. triphosphorus chloride

Question #: 22

Analysis of a compound shows that it contains (by mass) 38.4% carbon, 4.84% hydrogen, and 56.7% chlorine. What is the **empirical formula** of the compound?

- A. $\text{C}_2\text{H}_3\text{Cl}$
- B. $\text{C}_3\text{H}_5\text{Cl}_2$
- C. $\text{C}_8\text{HCl}_{12}$
- D. CHCl

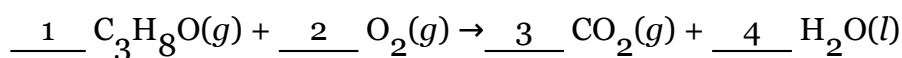
Question #: 23

What is the percent by mass of nitrogen in histidine, $\text{C}_6\text{H}_9\text{N}_3\text{O}_2$?

- A. 27.1%
- B. 5.85%
- C. 46.4%
- D. 20.6%

Question #: 24

Balance this chemical equation with the smallest possible whole numbers. Fill in the blanks with the proper coefficients. If the coefficient is 1, fill in 1.



1. _____
2. _____
3. _____
4. _____

Question #: 25

Vanadium forms several different oxide compounds. What is the charge on vanadium in the binary oxide that is 56% vanadium by mass?

- A. +5
- B. +4
- C. +3
- D. +2

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- 1. 33
 - 2. 33
 - 3. 42
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- 1. 10
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- 1. 9
 - 2. 12
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- B. SPO₄
- ✓C. Na₃PO₄
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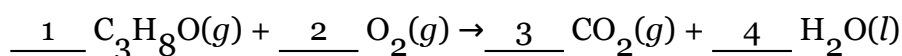
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- 1. 2
- 2. 9
- 3. 6
- 4. 8

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- A. +5
- B. +4
- C. +3
- D. +2