Question #: 1

Molecules can be described as

A. mixtures of two or more pure substances.
B. mixtures of two or more elements with a specific ratio between components.
C. two or more atoms chemically joined together.
D. heterogeneous mixtures.
E. homogeneous mixtures.

Question #: 2

The statement, "In a chemical reaction, matter is neither created nor destroyed" is

B. Dalton's Atomic Theory.
C. the Scientific Method.
D. the Law of Multiple Proportions.
E. the Law of Definite Proportions.

Question #: 3

Which one gives properties of a liquid?

A. definite volume and definite shape
B. definite volume and no definite shape
C. definite shape and no definite volume
D. no definite shape and no definite volume
Question #: 4

Which one is a physical change?

A. iron rusting
B. sugar heated to make caramel
C. glucose being converted into energy within your cells
D. water evaporating

Question #: 5

What is the volume of an object with a mass of 455.6 g and density of 19.3 g/cm³? Report your answer with three significant figures. Do NOT include units in your answer.

1 mL

Question #: 6

Which answer should be reported, with the correct number of significant figures, for the following calculation?

\[
\frac{249.362 + 41}{63.498} = 4.6
\]

A. 4.6
B. 4.57
C. 4.573
D. 4.5728
Question #: 7
Which length is the **shortest**?

A. 3.00 ft  
B. 57.0 in  
C. 1.50 yd  
D. 1.50 m

Question #: 8
Which one is a chemical change?

A. dry ice sublimes  
B. charcoal burns  
C. ethanol evaporates  
D. ice melts  
E. All of the above are examples of chemical change.

Question #: 9
Which one is an intensive property?

A. boiling point  
B. height  
C. volume  
D. All of the above are examples of intensive properties.  
E. None of the above is an example of intensive properties.
**Question #:** 10

The melting point of molybdenum is 2623°C. What is the melting point of molybdenum, in Kelvin?

Report your answer with **four** significant figures. Do **NOT** include units in your answer.

1. ________ K

**Question #:** 11

How many significant figures are in the measurement, 0.003800 g?

A. 7  
B. 2  
C. 4  
D. 6

**Question #:** 12

Differentiate between exact numbers and measurements by selecting the answer that has **two significant figures** in the underlined value.

A. There are **12** eggs in one dozen.  
B. A day is marked by **24** hours.  
C. The mass of your friend is **65** kg.  
D. All the above have two significant figures.
**Question #: 13**

A student determines the density of a sugar solution with the following results: 1.70 g/mL, 1.73 g/mL, 1.66 g/mL, and 1.68 g/mL. If the true value for the density of the sugar solution is 1.40 g/mL, which statement **best** describes her results?

A. Her results are precise, but not accurate.
B. Her results are accurate, but not precise.
C. Her results are both precise and accurate.
D. Her results are neither precise nor accurate.

**Question #: 14**

In Death Valley, California, high heat and low humidity in the summer requires visitors to consume about one liter of water for every two miles traveled on foot. How many liters of water are required for a person to walk 15 kilometers in Death Valley?

A. 4.7 L
B. 6.5 L
C. 2.5 L
D. 3.7 L

**Question #: 15**

If the walls of a room are 955 ft² in area, and a gallon of paint covers 15 yd², how many gallons of paint are needed for the room? (3 ft = 1 yd)

A. 47 gallons
B. 21 gallons
C. 7.1 gallons
D. 2.3 gallons
Question #: 16

The recommended adult dose of Elixophyllin, a drug used to treat asthma, is 6.00 mg/kg of body mass. Calculate the dose in milligrams for a 115-lb person. 1 lb = 453.59 g.

A. 24.0 mg  
B. 1520 mg  
C. 1.50 mg  
D. 313 mg

Question #: 17

An office heater emits 2050 Btu of energy per hour. If the heater operates continuously, how many MJ of energy will it release in a year? (1 Btu = 1.055 kJ).

Report your answer with three significant figures. Do NOT include units in your answer.

1. __________

Question #: 18

A hybrid car has a rating of 45 miles per gallon. If the car makes a trip of 277 mi, how many gallons of gasoline will be used?

Report your answer with two significant figures. Do NOT include units in your answer.

1. __________

Question #: 19

The unit cm$^3$ is a unit for __1__ [length, mass, volume, time].

1 cm$^3$ = __2__ mL  Place a number in this blank to make these quantities equal.

Do NOT include units in your answer.

1. __________
2. __________
Provide the name and symbol for each metric prefix

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<th>Multiplier</th>
<th>name</th>
<th>symbol</th>
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<td>2</td>
</tr>
<tr>
<td>$10^{-9}$</td>
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<td>4</td>
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</table>

1. _________
2. _________
3. _________
4. _________
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1 K

1.2896

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Report your answer with **three** significant figures. Do **NOT** include units in your answer.

1  **MJ**

1. 2.16

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A hybrid car has a rating of 45 miles per gallon. If the car makes a trip of 277 mi, how many gallons of gasoline will be used?

Report your answer with **two** significant figures. Do **NOT** include units in your answer.

1  **gallons**

1. 6.2

**Question #: 19**

The unit cm\(^3\) is a unit for  **1** [length, mass, volume, time].

1 cm\(^3\) = **2** mL  **Place a number in this blank to make these quantities equal. Do **NOT** include units in your answer.**

1. volume

2. 1

**Question #: 20**

Provide the name and symbol for each metric prefix

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<tr>
<th>Multiplier</th>
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<th>symbol</th>
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1. centi
2. c
3. nano
4. n