Deep Run High School

CHEMISTRY I: 3(A), 5(A), 7(A)

Unit 2 Test

Due Date: **October 9, 2019**

Instructors: **Jennifer Krug, Mr. Wilson**

ID: **2372**

Name: _____ Score: / 100

Instructions:

This test contains 45 random questions from Schoology's Question Banks. You will have until the end of class to finish the test.

DO NOT use a cell phone, smart watch, or any other technology until your teacher gives you permission to do so. Use of these devices without permission will result in a zero on this test.

Question 1

Which of the following types of matter is considered a **pure substance**?

- ☐ aluminum
- ☐ air
- ☐ salt water
- ☐ brass

Name: _____

Question 2

Which of the following types of matter would be classified as an **element**?

- [ ] salt water
- [ ] sodium chloride
- [ ] water
- [ ] sodium

Question 3

When heat is transferred by **direct contact**, it is called _____.

- [ ] Conduction
- [ ] Convection
- [ ] Friction
- [ ] Radiation

Name: _____

Question 4

When heat is transferred by **electromagnetic waves**, it is called _____.

- ☐ Conduction
- ☐ Convection
- ☐ Friction
- ☐ Radiation

Question 5

Which of the following variables determines the direction of heat flow?

- ☐ temperature
- ☐ density
- ☐ pressure
- ☐ mass

Name: _____

Question 6

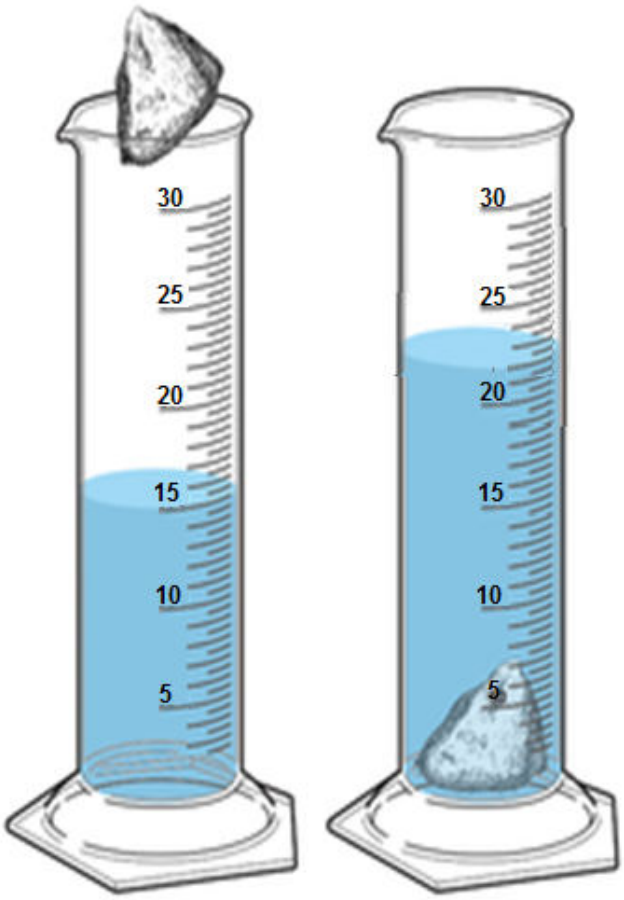
What theory states that atoms and molecules possess energy of motion that we perceive as temperature?

- [ ] Kinetic Molecular Theory
- [ ] Conservation of Mass
- [ ] Law of Thermodynamics
- [ ] Conservation of Energy

Name: _____

Question 7

The density of a piece of metal is determined by the water displacement method. The metal had a mass of 13.21 g. Use the image below to determine the density of the metal. Show your answer using significant figures and proper units. _____



Name: _____

Question 8

What is the density of a 3.25 gram wooden block that has a volume of 190 cubic centimeters? _____ g/cm^3

(Enter the number answer to the proper amount of sig figs. DO NOT add units.)

the

Question 9

Deposition occurs when

- ☐ a solid gains heat energy and becomes a liquid.
- ☐ a gas loses heat energy and becomes a solid.
- ☐ a liquid loses heat energy and becomes a solid.
- ☐ a solid gains heat energy and becomes a gas.

Name: _____

Question 10

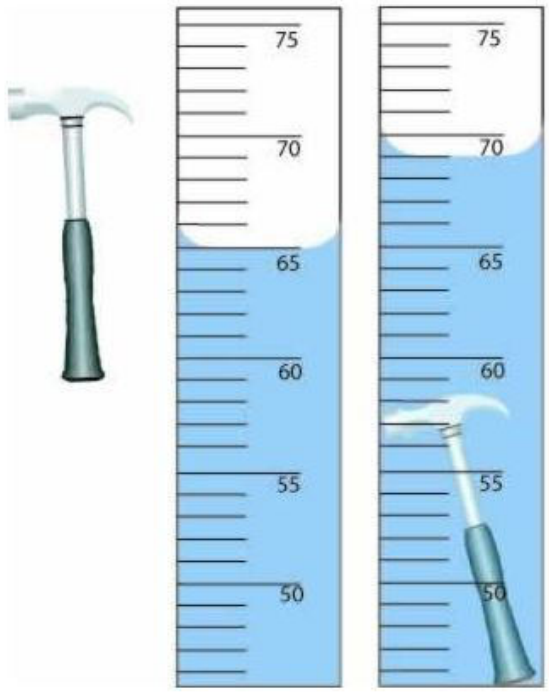
Dry ice is composed of carbon dioxide and sublimes at room temperature. Which state of matter does it skip?

- ☐ gas
- ☐ liquid
- ☐ plasma
- ☐ solid

Name: _____

Question 11

What is the volume of the hammer according to the diagram below? _____

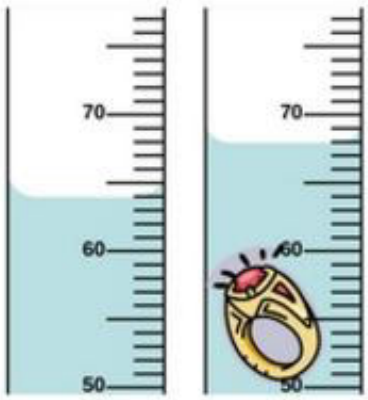


Name: _____

Question 12

Record the volume of the ring to the correct number of significant figures.

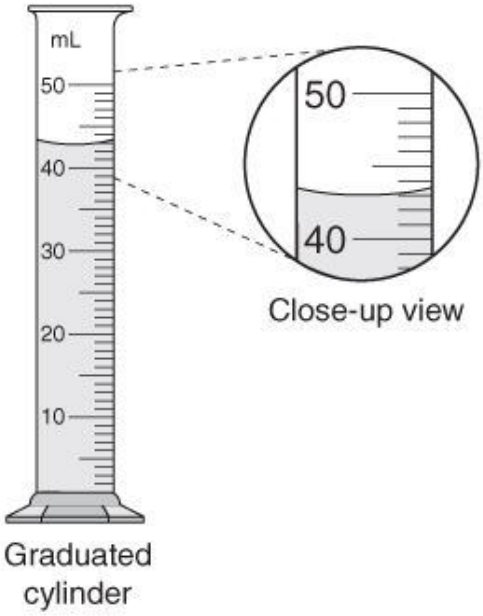
_____



Name: _____

Question 13

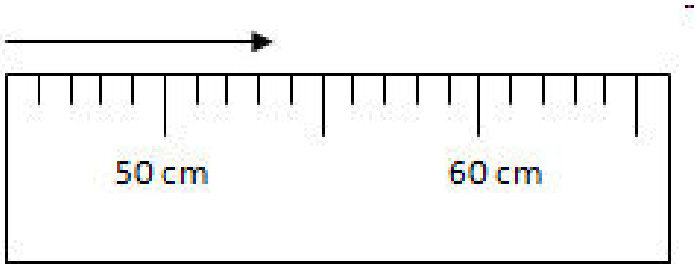
How should the volume of water in the graduated cylinder be recorded? _____



Name: _____

Question 14

Use the diagram below to answer this question:



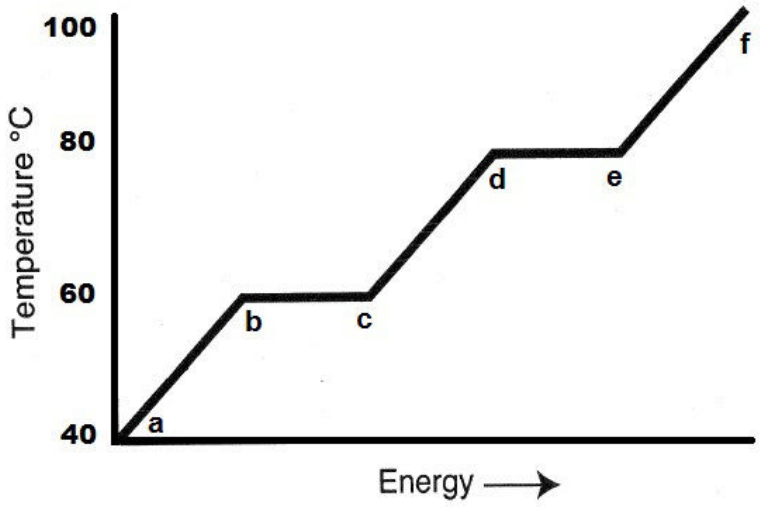
Record the length of the arrow to the correct number of significant digits:

- ☐ 50.3 cm
- ☐ 53.50 cm
- ☐ 50.30 cm
- ☐ 53.5 cm

Name: _____

Question 15

At what temperature does **vaporization** occur?

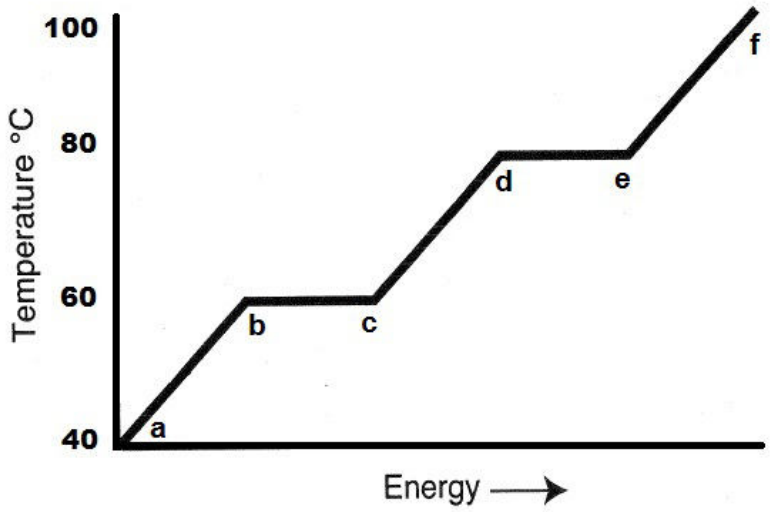


- ☐ 80 °C
- ☐ 60 °C
- ☐ 100 °C
- ☐ 40 °C

Name: _____

Question 16

Which letters represent **condensation**?



- ☐ d ← e
- ☐ c ← d
- ☐ e ← f
- ☐ b ← c

Name: _____

Question 17

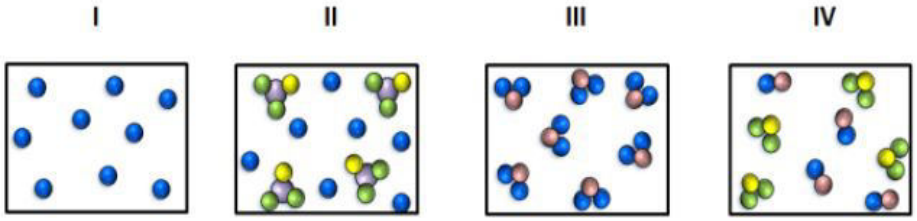
All of the following can be classified as matter ***EXCEPT***

- ☐ light
- ☐ water
- ☐ carbon dioxide
- ☐ magnesium chloride

Name: _____

Question 18

Which of the following depicts a sample of a **pure substance**?



- ☐ II and IV
- ☐ I and III
- ☐ III and IV
- ☐ I and II

Name: _____

Question 19

The number 0.03746 rounded to three significant digits is

- ☐ **0.0375**
- ☐ **0.0374**
- ☐ **0.037**
- ☐ **0.0380**

Question 20

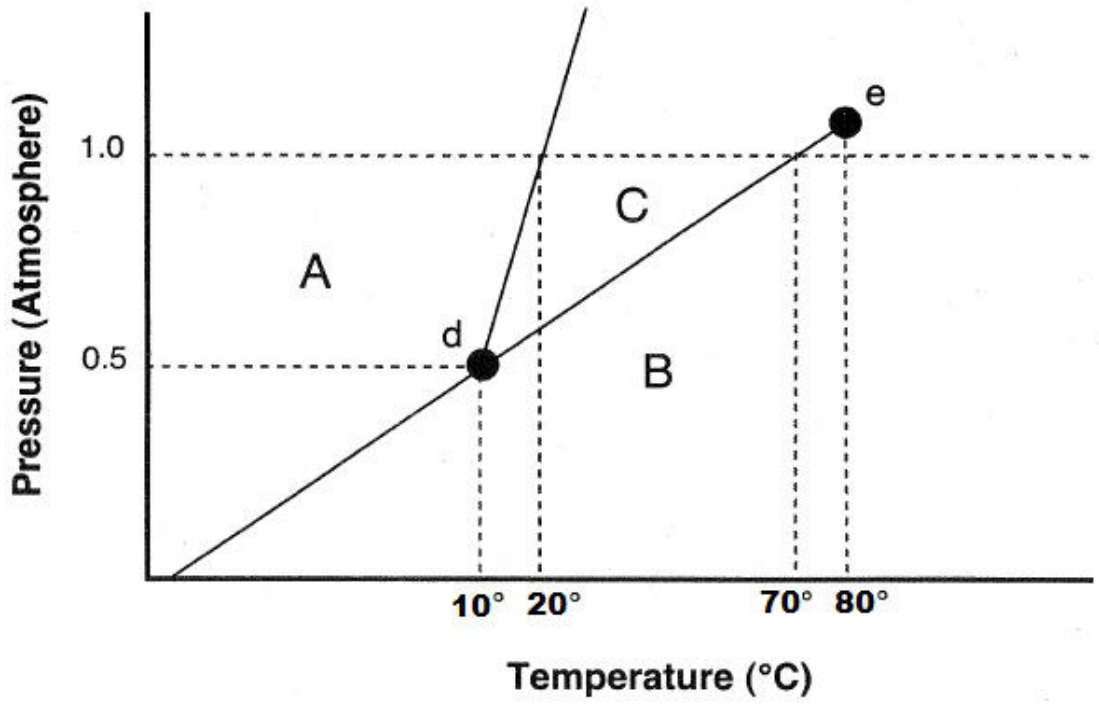
The number 5489.352 rounded to three significant digits is

- ☐ **5480**
- ☐ **548**
- ☐ **549**
- ☐ **5490**

Name: _____

Question 21

Which state of matter exists when the pressure is **0.5 atm** and the temperature is **100°C**?

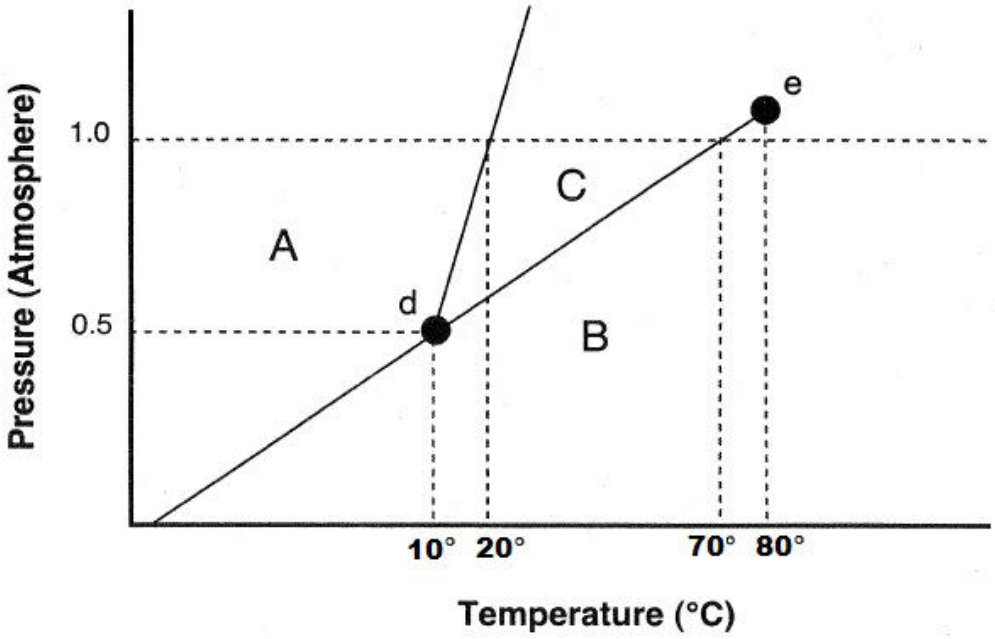


- ☐ gas
- ☐ liquid
- ☐ plasma
- ☐ solid

Name: _____

Question 22

At what temperature does the **triple point** exist?



- ☐ 70 ˚C
- ☐ 20 ˚C
- ☐ 80 ˚C
- ☐ 10 ˚C

Name: _____

Question 23

The weatherman announced a frost warning for tomorrow morning. Is frost a physical change or a chemical change?

- ☐ chemical change
- ☐ physical change

Question 24

Bromothymol blue, a pH indicator, changes color when dry ice is added to water, indicating the solution has become acidic. Is this a physical change or a chemical change?

- ☐ chemical change
- ☐ physical change

Name: _____

Question 25

All of the following are examples of a chemical change *EXCEPT* -

- ☐ electrolysis
- ☐ oxidation
- ☐ ductility
- ☐ fermentation

Question 26

A _____ change occurs when heat is gained or lost causing a change in the state of matter.

- ☐ mechanical
- ☐ chemical
- ☐ electrical
- ☐ physical

Name: _____

Question 27

A characteristic of a pure substance that can be observed without changing it into another substance is −

- ☐ a chemical reaction.
- ☐ a chemical property.
- ☐ exothermic reaction.
- ☐ a physical property.

Question 28

The specific heat capacity of iron is 0.45 J/ g˚C. If 235 Joules of energy is required to raise the temperature of a sample of iron from 25˚C to 90˚C, what is the mass of the sample? _____

Question 29

A student heats a 25.00 gram sample of gold from 97.5°C to 25.3°C. How many joules of heat are ***released***, considering the specific heat of gold is 0.129 J/g°C?

_____

Name: _____

Question 30

Which **state of matter** is the end result when a substance condenses?

- ☐ gas
- ☐ liquid
- ☐ plasma
- ☐ solid

Question 31

Which **state of matter** has strong intermolecular forces and low kinetic energy?

- ☐ gas
- ☐ liquid
- ☐ plasma
- ☐ solid

Name: _____

Question 32

How many signifcant figures are in the number 6.02×10^{23}?

- ☐ 5
- ☐ 2
- ☐ infinite
- ☐ 3

Question 33

How many significant digits are in the number 1.300×10^{-12}?

- ☐ 4
- ☐ 5
- ☐ 2
- ☐ infinite

Name: _____

Question 34

Which of the following density measurements contains only 2 significant figures?

- ☐ 2.500 g/ml
- ☐ 25.00 g/ml
- ☐ 2.50×10^{-2} g/ml
- ☐ 0.025 g/ml

Question 35

How many significant digits are in the measurement 0.0050300 g?

- ☐ 5
- ☐ 3
- ☐ 8
- ☐ 7

Name: _____

Question 36

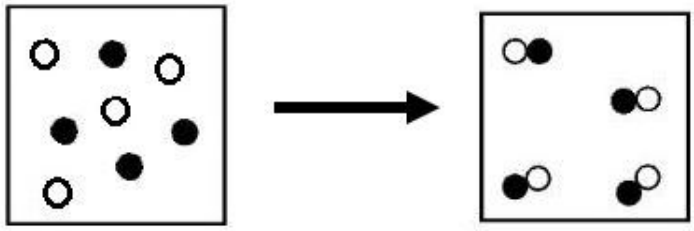
A plant uses sunlight to produce glucose through the photosynthesis process. This is an example of

- ☐ heat conservation.
- ☐ energy conservation.
- ☐ physical conservation.
- ☐ mass conservation.

Name: _____

Question 37

What theory is demonstrated by the following chemical change?



- ☐ Kinetic Molecular Theory
- ☐ Law of Mass Conservation
- ☐ Law of Thermodynamics
- ☐ Law of Energy Conservation

Name: _____

Question 38

The density of ice is 0.92 g/ml. If a student drops a 5.00 gram ice cube and a 10.00 gram ice cube into a glass of water, how will the ice cubes behave.

- ☐ Both ice cubes will float.
- ☐ The 5.00 gram ice cube will sink and the 10.00 gram ice cube will float.
- ☐ Both ice cubes will sink.
- ☐ The 10.00 gram ice cube will sink and the 5.00 gram ice cube will float.

Question 39

Record the difference in volume to the proper number of significant figures.

53.25 ml - 13.75 ml = _____

- ☐ **39.50 ml**
- ☐ **39.5 ml**
- ☐ **40.00 ml**
- ☐ **40.0 ml**

Name: _____

Question 40

Which calculation below would have an answer of 445g when expressed to the correct # of significant figures?

- ☐ 210.1 g + 235.1 g
- ☐ 210.0 g + 235.10 g
- ☐ 210.10 g + 235.10 g
- ☐ 210. g + 235.100 g

Question 41

Calculate the following:

14.30 m + 2.2 m + 9.755 m

- ☐ **26.3 m**
- ☐ **26.3 m^3**
- ☐ **26.255 m**
- ☐ **26.255 m^3**

Name: _____

Question 42

The strength of the intermolecular forces determines the state of matter. What type of energy is necessary for matter to overcome the intermolecular forces holding particles together?

- ☐ chemical energy
- ☐ potential energy
- ☐ electrical energy
- ☐ kinetic energy

Question 43

Which of the following is an example of **thermal energy**?

- ☐ a stomach digesting food
- ☐ a bolt of lightning in a storm
- ☐ a pan heating on a stove
- ☐ a battery charging a laptop

Name: _____

Question 44

Chocolate milk can be classified as a

- ☐ physical solution.
- ☐ heterogeneous mixture.
- ☐ chemical compound.
- ☐ homogeneous mixture.

Question 45

Which of the following contains a **homogeneous mixture**?

- ☐ A balloon full of air
- ☐ A bowl of sugar
- ☐ A glass of Dr. Pepper with ice
- ☐ A lava lamp

Answer Key

Possible Points: 45 Factor: x2.22 Test Value: 100

Instructions for grading: Grade each question and tally the score to obtain the total test points. If the factor does not equal 1, multiply the total points by the factor to obtain the student's final score.

Question 1

Which of the following types of matter is considered a **pure substance**?

☐ aluminum

1 possible pts.

Question 2

Which of the following types of matter would be classified as an **element**?

☐ sodium

1 possible pts.

Question 3

When heat is transferred by **direct contact**, it is called _____.

☐ Conduction

1 possible pts.

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Question 4

When heat is transferred by **electromagnetic waves**, it is called _____.

☐ Radiation

1 possible pts.

Question 5

Which of the following variables determines the direction of heat flow?

☐ temperature

1 possible pts.

Answer Key

Possible Points: 45 Factor: x2.22 Test Value: 100

Question 6

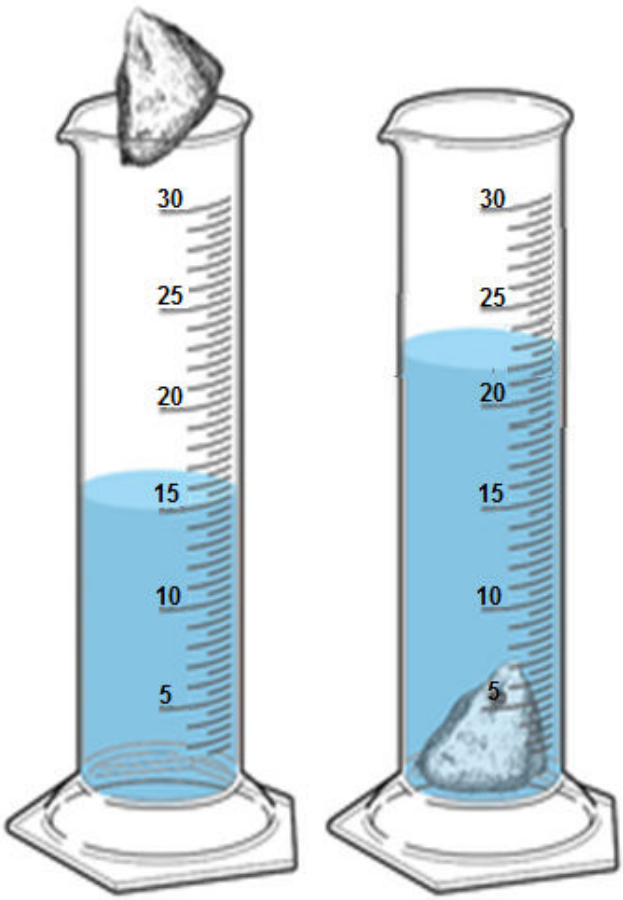
What theory states that atoms and molecules possess energy of motion that we perceive as temperature?

☐ Kinetic Molecular Theory

1 possible pts.

Question 7

The density of a piece of metal is determined by the water displacement method. The metal had a mass of 13.21 g. Use the image below to determine the density of the metal. Show your answer using significant figures and proper units. 1.9 g/ml, 1.9g/ml



1 possible pts.

Question 8

What is the density of a 3.25 gram wooden block that has a volume of 190 cubic centimeters? 0.017, .017, 1.7x10^-2, 1.7 x 10^-2 **g/cm^3**

(Enter the number answer to the proper amount of sig figs. DO NOT add units.)

the

1 possible pts.

Question 9

Deposition occurs when

☐ a gas loses heat energy and becomes a solid.

1 possible pts.

Question 10

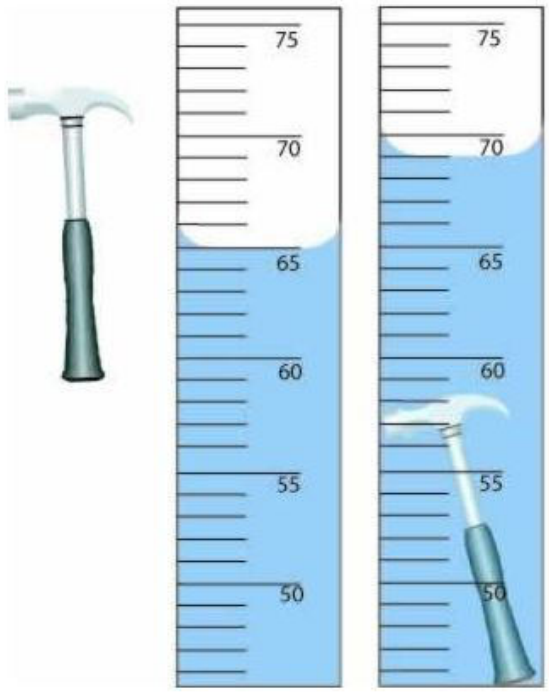
Dry ice is composed of carbon dioxide and sublimes at room temperature. Which state of matter does it skip?

☐ liquid

1 possible pts.

Question 11

What is the volume of the hammer according to the diagram below? 4.0 ml, 4.0ml

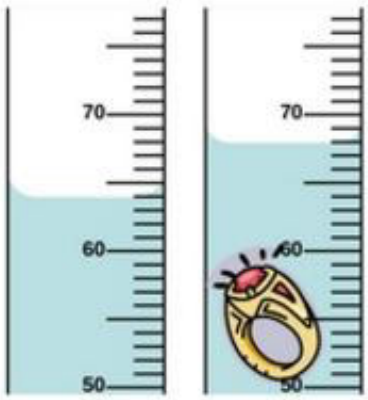


1 possible pts.

Question 12

Record the volume of the ring to the correct number of significant figures.

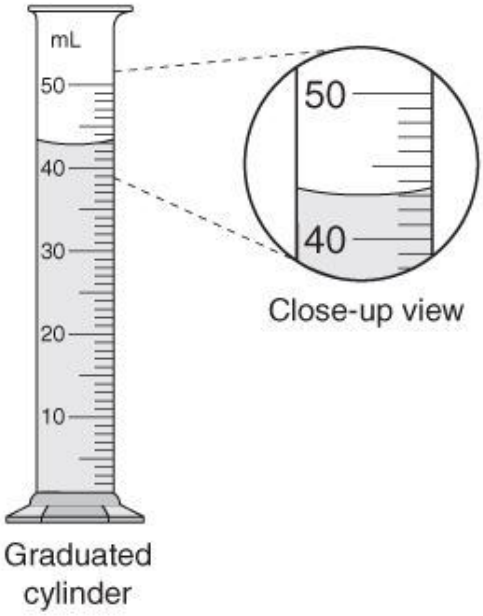
4.0ml, 4.0 ml



1 possible pts.

Question 13

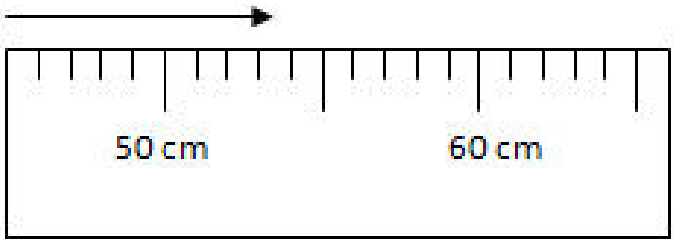
How should the volume of water in the graduated cylinder be recorded? 43.0 ml, 43.0ml



1 possible pts.

Question 14

Use the diagram below to answer this question:



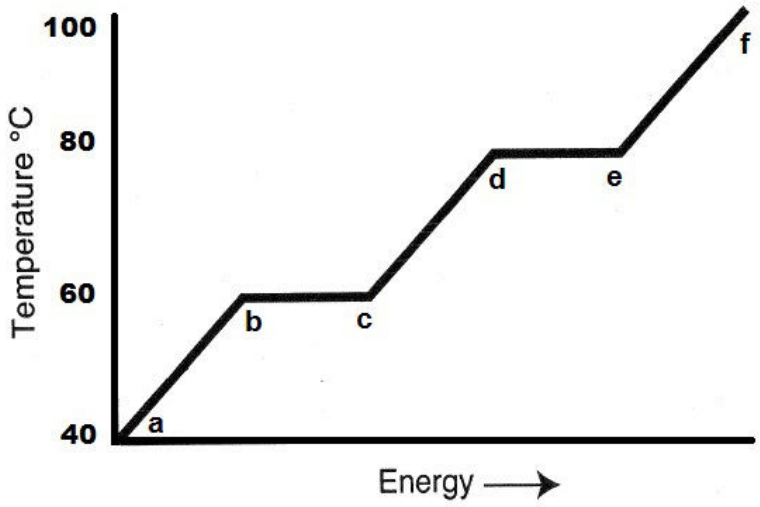
Record the length of the arrow to the correct number of significant digits:

☐ 53.5 cm

1 possible pts.

Question 15

At what temperature does **vaporization** occur?

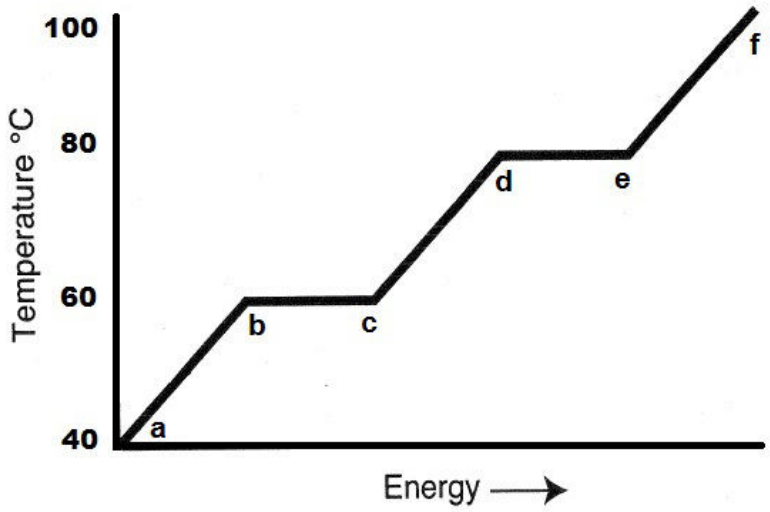


☐ 80 °C

1 possible pts.

Question 16

Which letters represent **condensation**?



☐ d ← e

1 possible pts.

Question 17

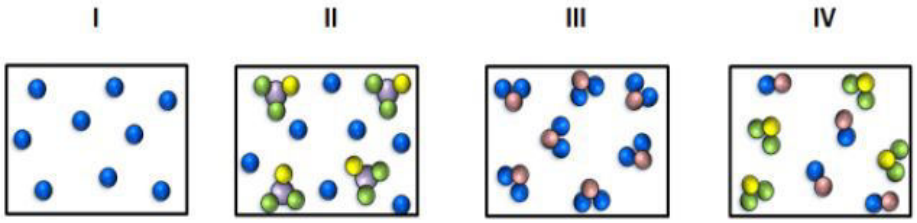
All of the following can be classified as matter ***EXCEPT***

☐ light

1 possible pts.

Question 18

Which of the following depicts a sample of a **pure substance**?



☐ I and III

1 possible pts.

Question 19

The number 0.03746 rounded to three significant digits is

☐ **0.0375**

1 possible pts.

Question 20

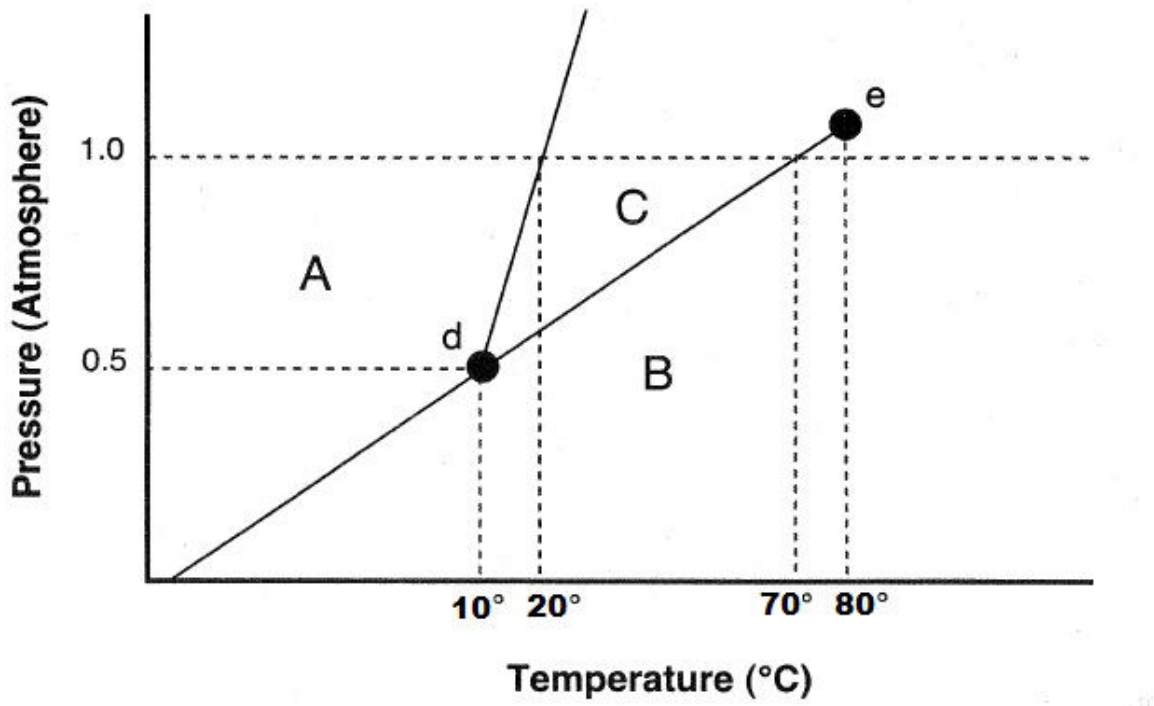
The number 5489.352 rounded to three significant digits is

☐ **5490**

1 possible pts.

Question 21

Which state of matter exists when the pressure is **0.5 atm** and the temperature is **100°C**?

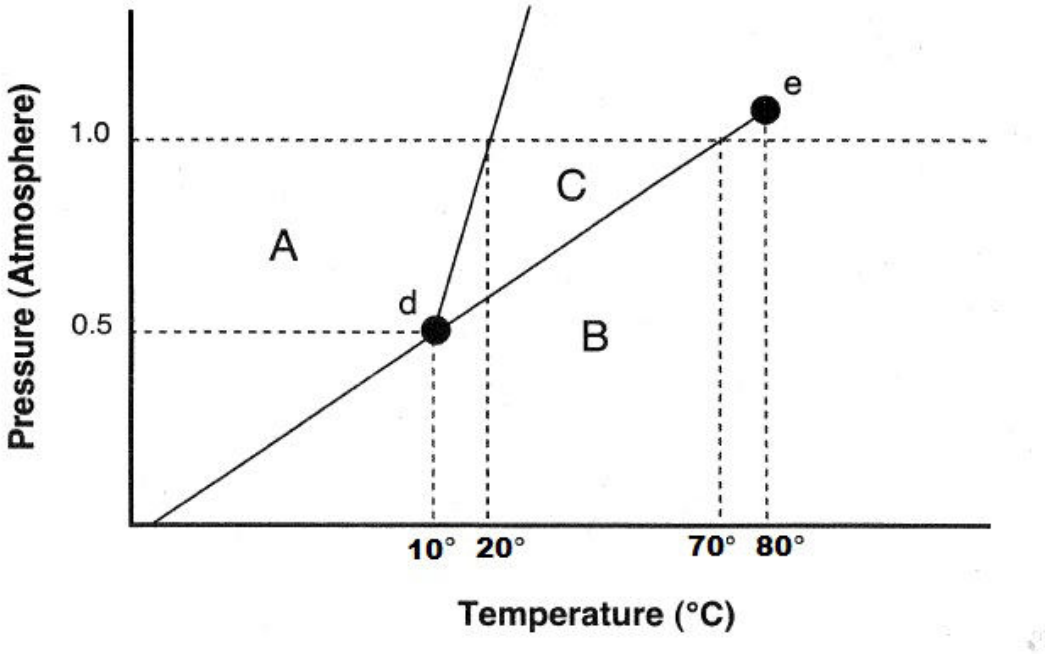


☐ gas

1 possible pts.

Question 22

At what temperature does the **triple point** exist?



☐ 10 °C

1 possible pts.

Question 23

The weatherman announced a frost warning for tomorrow morning. Is frost a physical change or a chemical change?

☐ physical change

1 possible pts.

Question 24

Bromothymol blue, a pH indicator, changes color when dry ice is added to water, indicating the solution has become acidic. Is this a physical change or a chemical change?

☐ chemical change

1 possible pts.

Question 25

All of the following are examples of a chemical change *EXCEPT* -

☐ ductility

1 possible pts.

Question 26

A _____ change occurs when heat is gained or lost causing a change in the state of matter.

☐ physical

1 possible pts.

Question 27

A characteristic of a pure substance that can be observed without changing it into another substance is –

☐ a physical property.

1 possible pts.

Question 28

The specific heat capacity of iron is 0.45 J/ g˚C. If 235 Joules of energy is required to raise the temperature of a sample of iron from 25˚C to 90˚C, what is the mass of the sample? 8 g, 8g, 8 grams, 8 gram

1 possible pts.

Question 29

A student heats a 25.00 gram sample of gold from 97.5°C to 25.3°C. How many joules of heat are ***released***, considering the specific heat of gold is 0.129 J/g°C?

-233J, -233 J, -233Joules, -233 Joules

1 possible pts.

Question 30

Which **state of matter** is the end result when a substance condenses?

☐ liquid

1 possible pts.

Question 31

Which **state of matter** has strong intermolecular forces and low kinetic energy?

☐ solid

1 possible pts.

Question 32

How many signifcant figures are in the number 6.02×10^{23}?

- [ ] 3

1 possible pts.

Question 33

How many significant digits are in the number 1.300×10^{-12}?

- [ ] 4

1 possible pts.

Question 34

Which of the following density measurements contains only 2 significant figures?

- [ ] 0.025 g/ml

1 possible pts.

Question 35

How many significant digits are in the measurement 0.0050300 g?

☐ **5**

1 possible pts.

Question 36

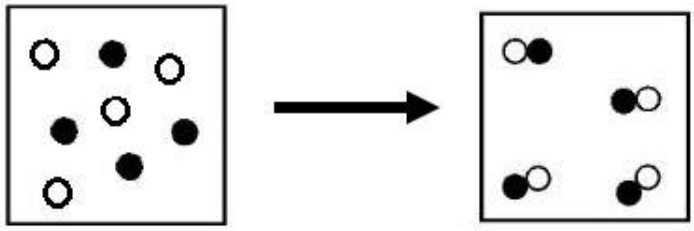
A plant uses sunlight to produce glucose through the photosynthesis process. This is an example of

☐ energy conservation.

1 possible pts.

Question 37

What theory is demonstrated by the following chemical change?



☐ Law of Mass Conservation

1 possible pts.

Question 38

The density of ice is 0.92 g/ml. If a student drops a 5.00 gram ice cube and a 10.00 gram ice cube into a glass of water, how will the ice cubes behave.

☐ Both ice cubes will float.

1 possible pts.

Question 39

Record the difference in volume to the proper number of significant figures.

53.25 ml - 13.75 ml = _____

☐ **39.50 ml**

1 possible pts.

Question 40

Which calculation below would have an answer of 445g when expressed to the correct # of significant figures?

☐ 210. g + 235.100 g

1 possible pts.

Question 41

Calculate the following:

14.30 m + 2.2 m + 9.755 m

☐ **26.3 m**

1 possible pts.

Question 42

The strength of the intermolecular forces determines the state of matter. What type of energy is necessary for matter to overcome the intermolecular forces holding particles together?

☐ kinetic energy

1 possible pts.

Question 43

Which of the following is an example of **thermal energy**?

☐ a pan heating on a stove

1 possible pts.

Question 44

Chocolate milk can be classified as a

☐ heterogeneous mixture.

1 possible pts.

Question 45

Which of the following contains a **homogeneous mixture**?

☐ A balloon full of air

1 possible pts.