Henrico County Public Schools

Unit 2 Test Review - Matter and Energy

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ID: **3466**

Name: _____ Score: / 100

Question 1 /1

A sample of aluminum metal has a density of 2.70 g/ml. Is density a physical property or a chemical property of the metal?

- [ ] chemical property
- [ ] physical property

Question 2 /1

What is the difference between an element and a compound?

- [ ] An element contains one type of atom while a compound contains two or more types of atoms
- [ ] An element is has a high melting point while a compound has a low melting point
- [ ] An element is stable while a compound is radioactive
- [ ] An element is a pure substane while a compound is a mixture

Name: _____

Question 3 /1

Balancing a chemical equation so that the same number of atoms of each element is found in both the reactants and products is an illustration of

- [ ] The Law of Mass Conservation
- [ ] The Law of Multiple Proportions
- [ ] The Law of Energy Conservation
- [ ] The First Atomic Theory

Question 4 /1

Which of the following types of matter would be classified as a **compound**?

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

Name: _____

Question 5 /1

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

- [ ] oxidation
- [ ] ductility
- [ ] electrolysis
- [ ] fermentation

Question 6 /1

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

- [ ] air
- [ ] ice tea
- [ ] aluminum
- [ ] bronze

Name: _____

Question 7 /1

Temperature is a measure of the _____ kinetic energy of the particles in a substance.

- ☐ minimum
- ☐ potential
- ☐ average
- ☐ maximum

Question 8 /1

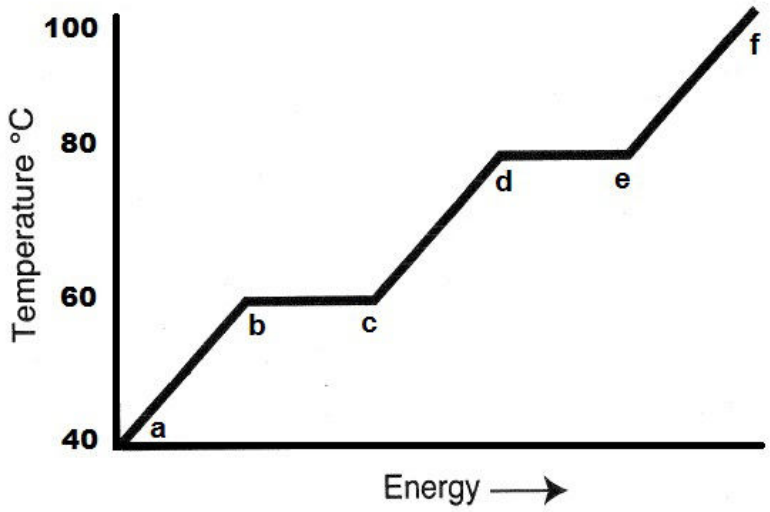
A student places an object on the balance and records the mass as 9.30 grams. Then the student adds exactly 25.0 ml of water to a graduated flask and drops in the object. The final volume of the flask is 28.4 ml. What is the density of the object?

- ☐ 2.73 g/ml
- ☐ 3.72 g/ml
- ☐ 0.327 g/ml
- ☐ 0.372 g/ml

Name: _____

Question 9 /1

Which letters represent **condensation**?



- [ ] c ← d
- [ ] e ← f
- [ ] d ← e
- [ ] b ← c

Name: _____

Question 10 /1

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

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

Question 11 /1

Match each lab technique with the process of separating a mixture.

☐ 1. Separatory Funnel	A. different particle size
☐ 2. Distillation	B. different densities
☐ 3. Chromatography	C. different boiling points
☐ 4. Filtration	D. different pigments or dyes

Name: _____

Question 12 /1

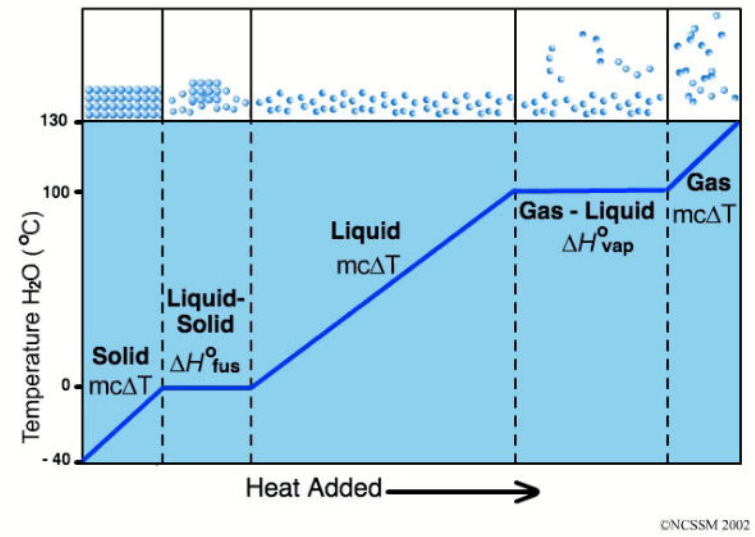
Dry ice is composed of carbon dioxide and sublimes at room temperature. Which state of matter does it skip?

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

Name: _____

Question 13 /1

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



- [ ] liquid
- [ ] plasma
- [ ] gas
- [ ] solid

Name: _____

Question 14 /1

Chocolate milk can be classified as a

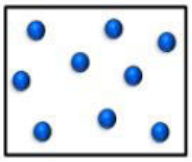
- ☐ heterogeneous mixture.
- ☐ chemical compound.
- ☐ pure solution.
- ☐ homogeneous mixture.

Name: _____

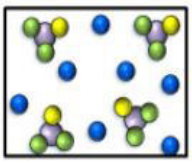
Question 15 /1

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

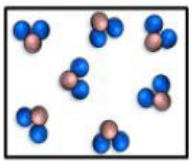
I



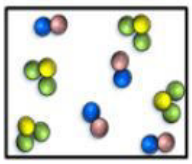
II



III



IV

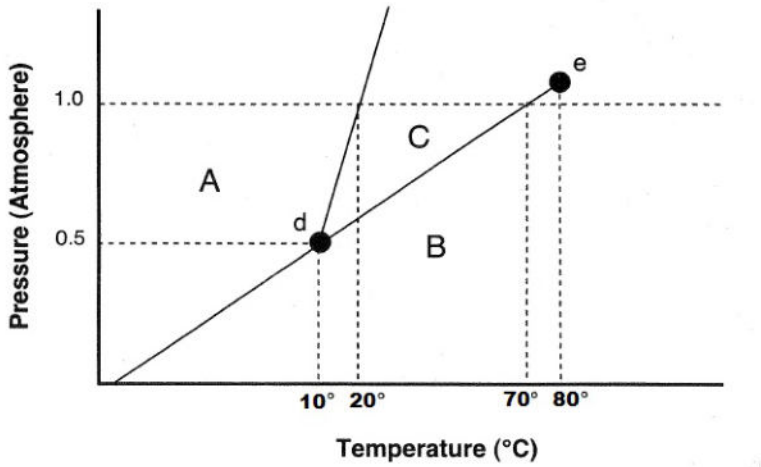


- ☐ I and III
- ☐ III and IV
- ☐ II and IV
- ☐ I and II

Name: _____

Question 16 /1

What is the normal boiling point for this substance?



- [ ] 20°C
- [ ] 70°C
- [ ] 80°C
- [ ] 10°C

Name: _____

Question 17 /1

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

- [ ] table salt
- [ ] chocolate milk
- [ ] air
- [ ] salad dressing

Name: _____

Question 18 /1

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


solid


liquid


gas

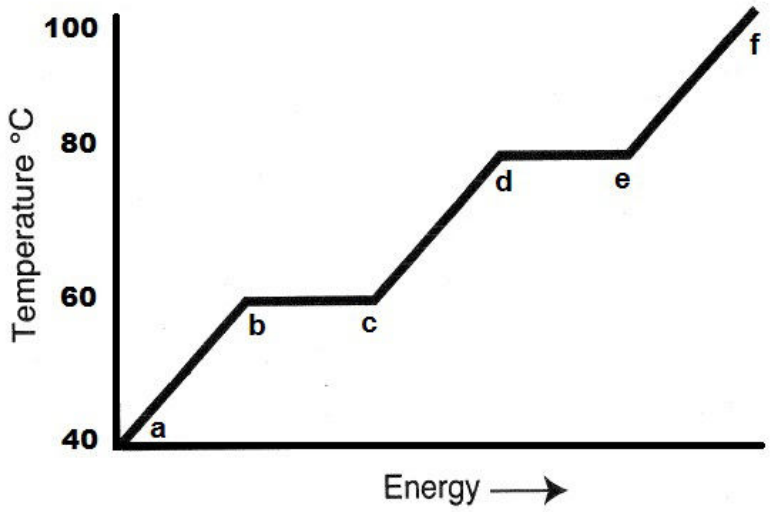

plasma

- [ ] gas
- [ ] plasma
- [ ] solid
- [ ] liquid

Name: _____

Question 19 /1

Which letters represent **freezing**?



- [ ] c ← d
- [ ] e ← f
- [ ] d ← e
- [ ] b ← c

Name: _____

Question 20 /1

What is the heat capacity of a 250 gram object that absorbes 3.575 kilojoules, when the temperature is increased by 15 degrees?

- ☐ 950 J/ g °C
- ☐ 9500 J/ g °C
- ☐ 0.95 J/ g °C
- ☐ 9.5 J/ g °C

Question 21 /1

The transfer of **energy** between objects of different temperature is called −

- ☐ energy
- ☐ thermodynamics
- ☐ temperature
- ☐ heat

Name: _____

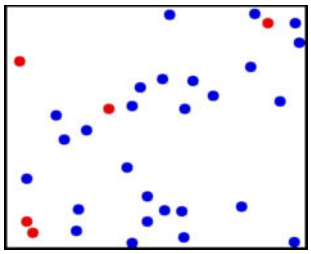
Question 22 /1

A 50.0 gram sample of water is heated from 22.3 °C to 100.0 °C. The specific heat of water is 4.184 J/g °C. Calculate the energy absorbed *in calories.*

- [ ] 16254.84 calories
- [ ] 3855 calories
- [ ] 3885 joules
- [ ] 287 Joules

Question 23 /1

Which **state of matter** contains molecules that move freely in straight line paths?

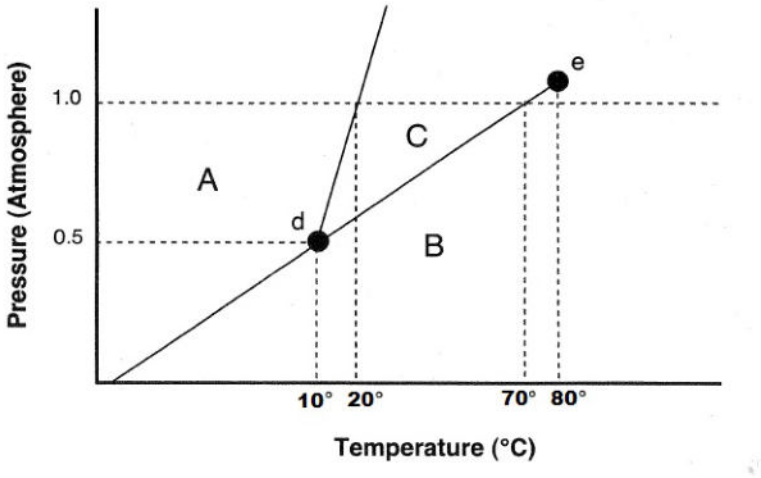


- [ ] liquid
- [ ] plasma
- [ ] gas
- [ ] solid

Name: _____

Question 24 /1

Which state of matter exists when the pressure is **0.75 atm** and the temperature is **−30°C**?



- [ ] Liquid
- [ ] Triple Point
- [ ] Gas
- [ ] Solid

Name: _____

Question 25 /1

When sugar is dissolved in water, it represents _____.

- ☐ a chemical property.
- ☐ a chemical change.
- ☐ a physical change.
- ☐ a physical property.