

Check your answers!

Name: MS. WOOD

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CHAPTER
5

Chapter 5 Quiz

Part A: Matching

1. Match the term with the appropriate definition.

- | | |
|-----------------------------------|---|
| <u>G</u> A. evaporation | (a) macroscopic changes only, particles stay the same |
| <u>D</u> B. ductile | (b) makes frost |
| <u>F</u> C. mass | (c) can be separated using physical properties |
| <u>J</u> D. solid | (d) non-metals do not have this property |
| <u>E</u> E. chemical change | (e) new substances are produced |
| <u>B</u> F. deposition | (f) density multiplied by volume |
| <u>H</u> G. boiling point | (g) creates water vapour from liquid |
| <u>I</u> H. volume | (h) same temperature as condensation point |
| <u>A</u> I. physical change | (i) space something occupies |
| <u>C</u> J. heterogeneous mixture | (j) state with least particle movement |

Part B: Completion

Complete each sentence.

- The difference between a "cool" solid and a "hot" solid is that the particles vibrate slower in the cool solid.
- The difference between a solid and a liquid at the same temperature is that the particles of the liquid can move past each other.
- One difference between a hot liquid and a gas is that the particles of the gas do not attract each other.
- When the water vapour in clouds is cooled rapidly, it experiences deposition and forms snow.
- A substance dissolving is considered a physical property, while a substance's reaction with acid is considered a chemical property.
- Car bodies can have interesting shapes because metals are malleable, a physical property.
- Car bodies can also rust, which is called corrosion, a chemical property.

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Chapter 5 Quiz (continued)

Part C: Multiple Choice

Circle the letter beside the answer that best completes the statement or answers the question.

- Which of the following is not a physical property?
D (a) state (b) density (c) ductility (d) flammability
- Which of the following geological processes are chemically created?
D (a) erosion of a riverbank (c) heaving of rock by ice formation
(b) flow of molten lava (d) formation of limestone cave
- The 787 is a new airliner. Much of it is made of carbon fibre panels. What do you think is the primary combination of properties that make this a good choice?
C (a) flammable and low density (c) low density and high strength
(b) high density and malleable (d) high density and flexibility
- Which property of plastic makes it useful as a handle for pots and pans?
B (a) is brittle (c) does not conduct electricity well
(b) conducts heat poorly (d) has high density

- Giselle buys a ring and wants to find what type of gold alloy it is. She measures its volume using a graduated cylinder and finds it is 1.9 cm³. Then she measures its mass and discovers it to be 29.5 g. Which alloy is it likely to be? Use the table to answer the question.

Gold (k)	Density (g/cm ³)
10	11.4
14	13.1
18	15.5
24	19.3

- (a) 10k (b) 14k (c) 18k (d) 24k
- A particle is vibrating, it is able to slip by other particles, and it moves downward. The particle must be a part of a
B (a) solid (b) liquid (c) plasma (d) gas
- Snow and hail are formed by which two different processes?
A (a) deposition and solidification (c) condensation and evaporation
(b) deposition and evaporation (d) melting and solidification
- Davy Lamps were used by coalminers of the 19th century. They were called safety lamps because their flame was surrounded by a copper metal screen to prevent the flame from igniting any explosive coal gas. How did the lamp work?
B (a) The screen prevented any gas from getting to the flame.
(b) The screen cooled the heat of the flame to a temperature that would not ignite the gas.
(c) The gas could not ignite inside the lamp.
(d) The gas was not flammable.

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Chapter 5 Quiz (continued)

Part D: Short Answer

Use complete sentences or diagrams to answer each question.

17. James accidentally spills two containers, mixing their contents. He checks and finds that one contained salt crystals, while the other contained powdered sand. Describe a method that he might use to separate the two mixtures without losing any of either mixture.

-dissolve salt in water, strain sand
out, reserve the liquid then
evaporate the water away.

18. Explain how pouring water on a fire puts out the fire in more than one way.

-water cools fire initially as it
turns into steam.
-cools chemicals below ignition temperature.

- ~~19.~~ Using diagrams, describe what happens to a gas as it is rapidly cooled to directly form a crystalline solid such as frost.

20. Describe the properties of diamonds that make them so valuable as

(a) gemstones

hardness, ↑ internal reflection

(b) industrial cutting stones

hardness.

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CHAPTER

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Chapter 6 Quiz

Part A: Matching

1. Match the word or symbol with the appropriate definition.

- M A. Hg (a) developed symbols for the elements
P B. metalloid (b) the majority of known elements
H C. W (c) first noble gas discovered
e D. element (d) elements combined in a specific ratio
C E. Ar (e) tungsten
K F. Mendeleev (f) semiconductor
B G. metals (g) repeating
d H. compound (h) symbol based on its German name
gA I. periodic (i) group of elements with the most gases
A J. Berzelius (j) was thought to be an element but is a mixture
J K. air (k) believed in a deeper structure of matter
I L. non-metals (l) the goal of the alchemists
L M. Au (m) the only liquid metal

Part B: Multiple Choice

Circle the letter beside the answer that best completes the statement or answers the question.

2. If you were to ask one of the ancient Greeks, what would they say the substances in the world were?

- D (a) mixtures and compounds (c) mixtures only
(b) elements and compounds (d) mixtures and elements

3. Which are the four Greek elements?

- C (a) air, water, wood, and silver (c) earth, air, fire, and water
(b) earth, water, fire, and sulfur (d) wood, fire, air, and water

4. Which element is represented by the symbol Po?

- A (a) polonium (c) phosphorus
(b) plutonium (d) potassium

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Chapter 6 Quiz (continued)

5. Which element is represented by the symbol 'Tc'?

- C (a) technetium (c) tellurium
(b) terbium (d) tungsten

6. Which symbol represents the element copper?

- B (a) Co (b) Cu (c) Cr (d) C

7. Which symbol represents the element boron?

- A (a) B (b) Bo (c) Br (d) Bn

8. Which of the following is not a property of metals?

- D (a) shiny lustre (c) very dense
(b) good heat conductivity (d) prevents electrical flow

9. Which of the groups of elements is most important in the manufacture of computers and microprocessors?

- B (a) metals (b) metalloids (c) non-metals (d) all are used

10. The element whose name means "light bearing" in Latin is

- D (a) Hg (b) Pb (c) Na (d) P

11. What are the elements and their proportions contained in acetaminophen, if its formula is $C_8H_9NO_2$

- D (a) 9 parts carbon, 8 parts hydrogen, 1 part nitrogen, 2 parts oxygen
(b) 8 parts carbon, 9 parts hydrogen, 2 parts nitrogen, 1 part oxygen
(c) 8 parts carbon, 9 parts hydrogen, 12 parts nickel, 2 parts oxygen
(d) 8 parts carbon, 9 parts hydrogen, 1 part nitrogen, 2 parts oxygen

12. Which of the following is a noble gas?

- A (a) xenon (b) carbon dioxide (c) hydrogen (d) oxygen

13. A pure substance that cannot be split up by chemical reaction is called

- B (a) a mixture (b) an element (c) a compound (d) a solution

14. Why were the noble gases the last elements to be found?

- B (a) They were created by humans.
(b) They do not react naturally with any other elements.
(c) They do not occur naturally.
(d) They were trapped in other substances.

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Chapter 6 Quiz (continued)

Part C: Completion

Complete each sentence.

15. A non-metal that is liquid at room temperature is Mercury.
16. Mendeleev arranged his elements first in order of increasing atomic weight.
17. The symbol Pb is for the element Lead, based on its Latin name, plumbum.

Part D: Short Answer

Use complete sentences to answer each question.

18. Which of the properties of metals make them a suitable material to be used to transmit electricity?

ductile, and conduct electricity

19. Ralph Cramden discovers a new element and is given the opportunity to name the new metal. He decides to call it cramdenite.

(a) What are all the possible symbols he could choose using Berzelius's system?

C, Cr, Ca, Cm, Cd, Ce, Cn

(b) Choose one of these symbols that would be acceptable to the chemistry community.

Cn Cm or Cn (all others are taken)

20. Mendeleev left several gaps in his Periodic Table.

(a) Name an element that now fills one of those gaps.

(b) Suggest why Mendeleev left these gaps.

Scandium, germanium, gallium
he was confident that the family properties were indicative of proper placement of the elements

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Chapter 7 Quiz

Part A: Modified True/False

Indicate whether each statement is true or false. If false, change the underlined word or phrase to make the statement true.

- F 1. The atomic theory of Niels Bohr states that the atom is like a raisin bun, with small negative particles randomly distributed throughout a positive mass. Thomson
- F 2. J.J. Thompson's major contribution to the atomic theory is the discovery of the nucleus. electron
- F 3. For an element in the second row of the Periodic Table, a maximum of 10 electrons can occupy the second shell. 8 electrons
- T 4. Positive ions are atoms that have lost electrons to empty their outer electron shell.

Part B: Completion

Complete the sentence.

5. The charge of an ion is determined by comparing the number of electrons in the ion to # of protons
6. Starting from carbon, as you move to the right across the Periodic Table, the ion charge of the elements decreases (gets less negative)
- X According to the Bohr theory, metals and non-metals form ionic bonds by the process of electron transfer.
8. The elements in the 18th column of the Periodic Table do not generally form ions.

Part C: Multiple Choice

Circle the letter beside the answer that best completes the statement or answers the question.

9. In terms of the structure of the atom, the number of neutrons
- B (a) determines the ion charge (c) determines the atomic number
(b) contributes to the mass (d) contributes to the proton number
10. According to the Bohr theory, the size of the atom is determined by
- B (a) the number of protons, neutrons, and electrons in the nucleus
(b) the size of the outer electron shell
(c) the size of the nucleus
(d) the number of protons compared to the number of electrons

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Chapter 7 Quiz (continued)

11. An ion of a certain element has 12 protons, 15 neutrons, and 10 electrons. The ion charge of the element is therefore
- A (a) 2+ (b) 3+ (c) 2- (d) 3-
12. Elements in the last column of the Periodic Table do not readily react because
- D (a) They do not have enough electrons to react.
(b) Only elements with a negative ion charge are beside them.
(c) They have a full outer electron shell as ions.
(d) They have a full outer electron shell as atoms.
13. Which of the following rows represents a correct number of protons, electrons, and neutrons for an ion?

	Number of protons	Number of neutrons	Number of electrons
<u>C</u> (a)	14	28	18
(b)	28	14	32
(c)	14	14	18
(d)	14	14	14

14. The theory that the atom has a nucleus containing most of the mass and all of the positive charge was first proposed by
- A (a) Rutherford (b) Bohr (c) Thomson (d) Dalton
15. It is correct to say that ionic compounds do not have molecules because
- B (a) There are no bonds formed between the atoms of an ionic compound.
(b) When liquid, gaseous, or in solution, the positive and negative ions can move independently of one another.
(c) Ionic compounds are elements. Elements are found as atoms, not molecules.
(d) Molecules are only formed from the combination of metals and non-metals.

Part D: Short Answer

Use complete sentences or diagrams to answer each question.

16. Describe what happens to the electrons when a non-metal forms an ion.

non-metals must gain electrons in order to obtain a full valence shell. When they are ions, they are negative ions.

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Chapter 7 Quiz (continued).

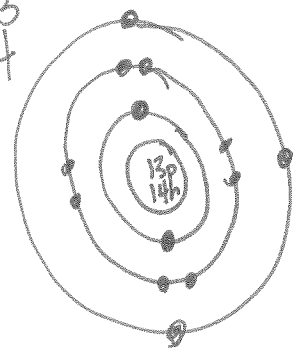
18. In terms of the Bohr atomic theory, explain why sodium is more reactive than magnesium.

Sodium has 1e⁻ in its valence shell and will react violently in order to lose this e⁻ and have a full valence shell.
Mg has 2e⁻ in its valence shell, which are harder to remove.

19. Draw the Bohr diagram for

(a) aluminum

p⁺ = 13
e⁻ = 13
n^o = 14



(b) an oxygen ion.

O²⁻

p⁺ = 8
n^o = 8
e⁻ = 8 + 2 = 10

