

NAME:

CHEMISTRY I CP MID-COURSE BRIEF REVIEW

BLOCK:

Chapter 1: Matter & Change

1) Define the following:

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

2) How would you determine the difference between endothermic and exothermic reactions?

3) What are the four indications of a chemical reaction?

4) Describe the phases of in terms of particle packing, volume, shape, amount of average kinetic energy?

- A. solid
- B. liquid
- C. gas

5) Please separate a mixture of sand, iron, and salt. Classify the material at each step of the separation.

Chapter 2: Measurements & Calculations

6) How many significant figures are in the following:

- A. 506.00 mL
- B. 360.0 mL
- C. 0.02037 mL
- D. 4.0×10^9 mL

7) What are the SI units prefixes and meaning arranged in order from smallest to largest?

8) What is the difference between a chemical property and a physical property? Give an example of each.

9) Can you determine the density of a metal sample using only a balance and a graduated cylinder. The student obtained the data shown:

	Volume (mL)	Mass (g)
Empty Graduated Cylinder	0.0	47.16
Cylinder and Water	50.0	67.16
Cylinder, Water and Metal Cube	102.0	297.50

10) Why is density important to a chemist?

Chapter 3: Atoms

11) A. What is the Law of Conservation of Matter?

A student heated a sample of potassium chlorate in a crucible and collected the data below:

Mass of Crucible	25.525 grams
Mass of Crucible and Sample before the reaction	30.615 grams
Mass of Crucible and Product after the reaction	28.629 grams

B) Did the student prove the Law of Conservation of Matter?

C) What do you think happened in the reaction?

D) should there be a change to the design of the experiment?

12) Which elements on the periodic table can form:

A) an anion that contains 10 electrons, 10 neutrons, and 9 protons?

B) a cation with 10 electrons, 12 neutrons, and 11 protons

13) A) What do elements in the same row have in common?

B) What do elements in the same period have in common?

14) Describe in terms of mass, charge, and location:

A. electron

B. neutron

C. proton

15) What were the contributions of the following Scientists:

A. Bohr

B. Miliken

C. Dalton

C. Rutherford

D. Thompson

Chapter 4: Electron Arrangement

16) What are the electron configurations for the following elements:

A. Lithium

B. Fluorine

C. Neon

E. Copper

17) What do the four quantum numbers describe

- A. Principal Quantum Number (n)
- B. Angular Momentum Quantum Number (l)
- C. Magnetic Quantum Number (m_l)
- D. Spin Quantum Number (m_s)

18) How many electrons are needed to completely fill the following energy levels?

- A. 1
- B. 2
- C. 3
- D. 4

19) Describe how an atom can emit colored light.

20) Which is a greater transition a red color or purple color? Explain.

34) What are the following used for

- A. a beaker
- B. a flask
- C. a graduated cylinder
- E. a thermometer
- F. A digital balance

35. calcium phosphate has the chemical formula $\text{Ca}_3(\text{PO}_4)_2$. According to the formula, what is the **percent metal** in the compound?

36. Aluminum Sulfate has the chemical formula $\text{Al}_2(\text{SO}_4)_3$. What is the **molar mass** of the compound?

37. If **3.50 moles** of calcium hydroxide ($\text{Ca}(\text{OH})_2$) are needed for an experiment, how many **grams** should be massed out?

38) **45.0 grams** of carbon dioxide gas (CO_2) escape from a leaky container How many **moles** of the gas were lost?

39. **2.25×10^{23} atoms** of Magnesium (Mg) are need to react in an experiment, how many **grams** should be massed out

40) If 2.23×10^{24} molecules of oxygen gas were used in an experiment, how many grams were consumed?