

## Chapter 6 Quiz (27 Points)

### True/False Questions (7 Points)

1. **True/False:** One mole of any element contains Avogadro's number of atoms, which is approximately  $6.022 \times 10^{23}$  atoms.  
**Point Value:** 1
2. **True/False:** The mass percent of hydrogen in  $\text{H}_2\text{O}$  is calculated as  $\left( \frac{\text{mass of H}}{\text{mass of H}_2\text{O}} \right) \times 100\%$ .  
**Point Value:** 1
3. **True/False:** To find the number of moles from a given mass of a substance, you divide the mass by the molar mass of the substance.  
**Point Value:** 1
4. **True/False:** Different molecules with the same molar mass are called isotopes.  
**Point Value:** 1
5. **True/False:** The molecular formula and the empirical formula of a compound are always identical.  
**Point Value:** 1
6. **True/False:** To find the formula mass of a compound, you add up the atomic masses of all the atoms in its chemical formula.  
**Point Value:** 1
7. **True/False:** The molar mass of an element is numerically the same as its atomic mass.  
**Point Value:** 1

### Multiple Choice Questions (20 Points)

1. **What is the mass of 2 moles of Na (sodium)?**  
A) 22.99g  
B) 45.98 g  
C) 11.53 g  
D) 92.87 g  
**Point Value:** 2
2. **How many atoms are in 3 moles of He (helium)?**  
A)  $1.204 \times 10^{24}$   
B)  $6.022 \times 10^{23}$   
C)  $1.807 \times 10^{24}$   
D)  $9.033 \times 10^{23}$   
**Point Value:** 2
3. **What is the molar mass of  $\text{C}_6\text{H}_{12}\text{O}_6$ ?**  
A)  $180.16 \frac{\text{g}}{\text{mol}}$   
B)  $342.4 \frac{\text{g}}{\text{mol}}$   
C)  $90.78 \frac{\text{g}}{\text{mol}}$   
D)  $72.09 \frac{\text{g}}{\text{mol}}$   
**Point Value:** 2

4. Which of the following has the highest molar mass?

- A) CO
- B) H<sub>2</sub>O
- C) N<sub>2</sub>
- D) O<sub>2</sub>

Point Value: 2

5. A sample contains 36.0 g of glucose (C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>). How many moles of glucose does the sample contain?

- A) 0.200 moles
- B) 0.360 moles
- C) 2.00 moles
- D) 4.00 moles

Point Value: 2

6. What is the percent by mass of carbon in CO<sub>2</sub>?

- A) 72.71 %
- B) 27.29 %
- C) 44.01 %
- D) 31.74 %

Point Value: 2

7. If a compound is 40 % carbon by mass, how much carbon is there in 100 g of the compound?

- A) 25 g
- B) 40 g
- C) 60 g
- D) 4.0 g

Point Value: 2

8. Which compound has a percent mass of oxygen of approximately 49.9%?

- A) H<sub>2</sub>O
- B) CO<sub>2</sub>
- C) CH<sub>3</sub>OH
- D) C<sub>2</sub>H<sub>6</sub>O

Point Value: 2

9. If a compound has an empirical formula of CH<sub>2</sub>O and a molar mass of approximately 120 g/mol, what is its molecular formula?

- A) C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>
- B) C<sub>3</sub>H<sub>6</sub>O<sub>3</sub>
- C) C<sub>4</sub>H<sub>8</sub>O<sub>4</sub>
- D) C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>

Point Value: 2

10. Which element has the highest percent mass composition in H<sub>2</sub>SO<sub>4</sub>?

- A) Hydrogen
- B) Sulfur
- C) Oxygen
- D) They all have the same percent mass

Point Value: 2