



Chemistry 101

First Exam 020

Done by:

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1. Which of the following is the greatest mass?

- a. 2.5×10^{-2} mg
- b. 2.5×10^{10} ng
- c. 2.5×10^{-3} cg
- d. 25 kg
- e. 2.5×10^{15} pg

2. When the following equation is balanced and written with the smallest whole number coefficients, what is the coefficient of O_2 ?



- a. 3
- b. 13
- c. 15
- d. 1
- e. 5

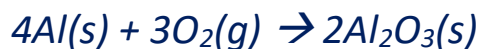
3. Which of the following statements is correct regarding some selected SI-prefixes?

- a. A milli is 100-fold less than a deci
- b. A deci is 100-fold greater than a centi
- c. A nano is a 1000-fold less than a pico
- e. A centi is 1000-fold greater than a deci

4. How many sodium ions are contained in 99.6 mg of Na₂SO₃? The molar mass of Na₂SO₃ is 126.05 g/mol.

- a. 2.10×10^{21} sodium ions
- b. 1.05×10^{21} sodium ions
- c. 1.52×10^{27} sodium ions
- d. 9.52×10^{20} sodium ions
- e. 4.76×10^{20} sodium ions

5. A 2.5 g of aluminium reacts with 2.5 g of oxygen to form only aluminium oxide (Al₂O₃), what mass of Al₂O₃ is formed?



- a. 5.3 g
- b. 7.4 g
- c. 5.0 g
- d. 9.4 g
- e. 4.7 g

6. What answer should be reported, with the correct number of significant figures, for the following calculation?

$$(249.362 + 41) / 63.498$$

- a. 4.6
- b. 4.5728

c. 4.57277

e. 4.57

7. How many protons, neutrons, and electrons, respectively, are in the following ion? $^{59}\text{Ni}^{2+}$

a. 28, 31, and 26

b. 28, 31, and 30

c. 31, 28, and 28

d. 28, 87, and 28

e. 28, 31, and 28

8. Combustion analysis of 1.200 g of an unknown compound containing carbon, hydrogen, and oxygen produced 2.086 g of CO_2 and 1.134 g of H_2O . What is the empirical formula of the compound?

a. $\text{C}_3\text{H}_8\text{O}_2$

b. $\text{C}_2\text{H}_{10}\text{O}_3$

c. $\text{C}_2\text{H}_5\text{O}$

d. $\text{C}_2\text{H}_5\text{O}_2$

e. $\text{C}_3\text{H}_8\text{O}$

9. Which of the following is considered as a physical change?

a. Oxidation of metals under air

b. Burning of sulfur to produce sulfur dioxide

- c. combustion of gasoline
- d. Breaking of methane to form carbon and hydrogen
- e. Ethanol evaporates

10. A 0.25 mol KO₂ is reacted with 0.15 mol H₂O according to the chemical equation given, which one of the following statements is false?



- a. H₂O is the excess reactant
- b. The theoretical yield of oxygen is 10.1 g
- c. 0.45 g of H₂O are left over
- d. KO₂ is the limiting reactant
- e. Mass is conserved in this reaction

*11. How many moles of P₂O₅ contain 3.68*10²⁵ phosphorus atom? The molar mass of P₂O₅ is 283.89 g/mol.*

- a. 54.5 moles P₂O₅
- b. 16.4 moles P₂O₅
- c. 49.1 moles P₂O₅
- d. 61.1 moles P₂O₅
- e. 30.6 moles P₂O₅

12. Which of the following is the shortest length?

- a. 580 mm
- b. 3000 micrometer
- c. 0.450 dm
- d. 0.58 m
- e. 450 cm

13. A 5.00 g of silver nitrate (AgNO_3) reacts with 27.73 g of aluminium chloride (AlCl_3), what mass of AgCl is formed?



- a. 24.9 g
- b. 2.56 g
- c. 4.22 g
- d. 17.6 g
- e. 11.9 g

14. The correct name of $\text{Fe}(\text{NO}_2)_3 \cdot 10(\text{H}_2\text{O})$ is:

- a. Iron(III) nitrate hydrate
- b. Iron(III) nitrite decahydrate
- c. Iron(III) nitrate decahydrate
- d. Iron(III) nitride decahydride
- e. Iron(II) nitrite decahydrate

15. Which of the following of the is considered as a chemical change?

- a. Salt dissolving in water
- b. Freezing of water
- c. Oxidation of metal under air
- d. Melting of ice
- e. Sublimation of iodine

ANSWERS

1	D
2	A
3	A
4	D
5	E
6	E
7	A
8	A
9	E
10	B
11	E
12	B
13	C
14	B
15	C

GOOD LUCK 