

UNIVERSITY OF BAHRAIN
DEPARTMENT OF CHEMISTRY

FIRST HOUR EXAM

CHEMY 101

TIME: 11:00 a.m – 12:30 p.m

DATE: 4TH November, 2009

Examiners: Drs. Prof. Mohammed Al-Arab, Prof. Salim Akhter, Sadeq Al-Alawi, Ahmed Saad, Ameera Al-Haddad, Layla Saleem, Jameela Almutawah, Suad Rashdan & Mrs. Rema

Name: -----I.D.# -----Sec.: -----

Circle the letter of the one correct answer. A double page of foolscap paper is provided for calculations, **but only the circled answers on this exam copy will be graded.** Each question is worth one (1) point. Check that your paper has (15) questions.

$$N_A = 6.022 \times 10^{23}$$

Q.1. The no. of protons, electrons and neutrons present in $^{65}\text{Zn}^{2+}$ is

- a) 30,30,35 b) 32,30,35 c) 30,28,35
d) 28,30,35 e) 35,28,30

Q.2. What is the name of $\text{Fe}(\text{ClO}_2)_4$?

- a) Iron Chloride b) Iron (IV) Chlorate
c) Iron (IV) Chlorite d) Iron (IV) Perchlorate
e) Iron Chlorite

Q.3. What is the formula of chloric acid?

- a) HClO_4 b) HClO_2 c) HCl
d) HClO_3 e) HClO

Q.4. The element Londanium (Lo) has three isotopes and an average atomic mass of 47.88 amu.

	Atomic mass	Percentage
Lo(a)	48.65 amu	60%
Lo(b)	46.12 amu	18%
Lo(c)	-	-

What is the atomic mass of Lo(c)?

- a) 47.95 amu b) 46.12 amu c) 47.22 amu
d) 47.45 amu e) 48.65 amu

Q.5. Percentage by mass of oxygen in a compound is 20%. Identify the compound

- a) H_2SO_4 b) $\text{C}_6\text{H}_{12}\text{O}_6$ c) $\text{C}_{12}\text{H}_{22}\text{O}_{11}$
d) NaOH e) H_2O

Q.6. What is the number of moles of Fe_3O_4 that contains 4.53g of O.?

- a) 0.07 mole b) 0.08 mole c) 0.09 mole
d) 0.14 mole e) 0.21 mole

Q.7. What is the number of atoms of Oxygen (O) in 1.64 mole of $\text{K}_2\text{Cr}_2\text{O}_7$?

- a) 3.64×10^{22} atoms b) 6.91×10^{24} atoms
c) 1.97×10^{24} atoms d) 8.61×10^{21} atoms
e) 2.84×10^{23} atoms

Q.8. What is the mass of PCl_5 that contains 4.88×10^{22} molecules of PCl_5 ?

- a) 25.44 g b) 33.74 g c) 16.81 g
d) 8.43 g e) 38.65 g

Q.9. Mass of a molecule of a compound is 5.68×10^{-22} g. Find its molar mass

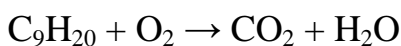
- a) 342 g/mol b) 40 g/mol c) 98 g/mol
d) 180 g/mol e) 20 g/mol

Q.10. Analysis of a compound containing 22.4 g of Fe; 14 g of N and 6.4 g of S.

What is its empirical formula?

- a) $\text{Fe}_4\text{N}_6\text{S}_3$ b) $\text{Fe}_3\text{N}_4\text{S}_2$ c) $\text{Fe}_2\text{N}_5\text{S}$
d) Fe_7NS_3 e) FeN_3S_7

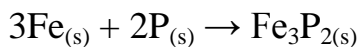
Q.11. After balancing the following equation



The sum of all coefficient are

- a) 19 b) 32 c) 15
d) 34 e) 35

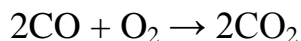
Q.12. Given the following reaction



5.4 g of Fe was allowed to react with 0.09 mole of P. Suppose that 4.25 g of Fe_3P_2 was obtained. What is the percentage yield of the reaction?

- a) 80.90% b) 57.51% c) 20.64%
d) 71.04% e) 84.58%

Q.13. 42 grams of CO is treated with 16 g of Oxygen gas to form CO_2 . Which is the excess reagent? How many grams of excess reagent is left unreacted?



- a) CO, 14g b) CO, 28g c) CO, 42 g d) O_2 , 10g e) O_2 , 5g

Q.14. Based on the solubility rules, which one of these compounds should be *soluble* in water?

- a) Hg_2Cl_2 b) Na_2S c) Ag_2CO_3
d) Ag_2S e) BaSO_4

Q.15. Which of these choices is the correct *net ionic equation* for the reaction that occurs when solutions of $\text{Ag}(\text{NO}_3)_2$ and NH_4Cl are mixed?

- a) $\text{AgNO}_{3(aq)} + \text{NH}_4\text{Cl}_{(aq)} \rightarrow \text{AgCl}_{(s)} + \text{NH}_4\text{NO}_{3(aq)}$
b) $\text{Ag}^+_{(aq)} + \text{Cl}^-_{(aq)} \rightarrow \text{AgCl}_{(s)}$
c) $\text{Ag}^+_{(aq)} + \text{NO}_3^-_{(aq)} \rightarrow \text{AgNO}_{3(s)}$
d) $\text{NH}_4^+_{(aq)} + \text{NO}_3^-_{(aq)} \rightarrow \text{NH}_4\text{NO}_{3(s)}$
e) No reaction occurs when the solutions are mixed.