****Philadelphia University

Faculty: Science

Department: Basic sciences

Exam time 75 min.

Date: 14/ 12/ 2021 General Chemistry for Health Science 0212109

 Midterm exam A

Name: …………………………… Student No. : …………..………………

Section: ……………… Instructor Name : …………..………….

Q**1)** (**1** points each)

**Direction**: *Each of the question bellow is followed by four suggested answers. Select the one that is best in each case and type it in the above table.*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1.** | a. | b. | c. | d. | **8.** | a. | b. | c. | d. |
| **2.** | a. | b. | c. | d. | **9.** | a. | b. | c. | d. |
| **3.** | a. | b. | c. | d. | **10.** | a. | b. | c. | d. |
| **4.** | a. | b. | c. | d. | **11.** | a. | b. | c. | d. |
| **5.** | a. | b. | c. | d. | **12.** | b. | c. | d. | a. |
| **6.** | a. | b. | c. | d. | **13.** | b. | c. | d. | a. |
| **7.** | a. | b. | c. | d. | **14.** | b. | c. | d. | a. |

*Useful data*: Avogadro’s No = 6.022 × 1023



1. Carry out the following answer with the correct number of significant figures?

(1.2 + 21.28 ) / 5.10 =

1. 4.4 B) 4.41 C) 4.408 D) 4.4078
2. All of the following are Diatomic molecules except :
3. O2  B) HCl C) H2O D) F2
4. The coefficient in front of O2 in the reaction 2C2H6 + …O2 → 6H2O + 4CO2 is :
5. 2 B) 3 C) 5 D) 7
6. Which of the following formulas could be considered as empirical formula?
7. N2H2 B) C6H6  C) H2O D) C6H12O6
8. The Fahrenheit temperature which is equal to 317.5 K is :
9. 45.4 B) 80.1 C) 112.1 D) 144.4
10. A metal cube has a volume of 7.43 cm3 and a mass of 77.0 g. What is the density of the metal in **g/m3**?
11. 5.65×108 B) 1.05×107  C) 5.65×106 D) 1.05×105
12. The prefix which related to the value of 10-9 is :
13. milli B) micro C) nano D) centi
14. The oxidation number of Cl in the chlorate ion is :
15. +3 B) +4 C) +5 D) 1
16. The molarity of solution prepared by dissolving 2.8 g of KOH in 50. mL
17. 2.0 mol/L B) 1.0 mol/L C) 0.50 mol/L D) 4.0 mol/L

1. In the following reaction Ca + HCl CaCl2 + H2

Which statement is FALSE ?

1. Calcium is oxidized C) Hydrogen is reduced
2. Hydrogen is oxidized D) Cl ion neither reduced nor oxidized

1. The name of compound N2O4 is
2. Nitrogen oxide B) Dinitrogen oxide C) Dinitrogen tetraoxide D) Trinitrogen tetraoxide
3. The number of electrons in S2- ion is
4. 20 B) 18 C) 16 D) 10
5. The volume of a 0.20 M HCl solution is needed to neutralize 10.0 mL of a 0.300 M NaOH solution is:
6. 20.0 mL B) 15.0 mL C) 25.0 mL D) 30.0 mL
7. The volume needed from 5.00 M KMnO4 solution to prepare a solution of 35.0 mL, 1.66 M KMnO4 solution is:
8. 58.1 mL B) 29.1 mL C) 11.6 mL D) 8.30 mL

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Q2) Answer the following questions about compound P4O10? ( 3 Points )

1. The type of compound is (Ionic or Molecular or Metallic) :
2. Calculate the mass percent of phosphorus (P) ?
3. How many phosphorus (P) atoms in 100 g of compound

Q3 **)** Fill the blanks in the following table (2 Points)

|  |  |  |  |
| --- | --- | --- | --- |
| **Cation** | **Anion** | **Formula** | **Name** |
|  |  |  | Lithium nitride |
|  |  | Cu2CO3 |  |

Q4) What is the empirical formula of a compound contains 54.54 % C, 9.09 % H, and 36.36 % O ? (3 Points)

Q5) When 30.0 mL of 0.150 M Pb(NO3)2 is added to excess amount of CaCl2, a precipitate is formed, answer the following question: (5 Points)

1. Write net ionic equation ?
2. Calculate the percent yield for the precipitate, if the actual yield is 1.15 g ?

Q6) In the following reaction, 2.14 g of Cl2 reacts with 4.29 g of NaI. Answer the following questions:

Cl2 + 2NaI  2NaCl + I2  (4 Points)

1. What is the type of this reaction ?
2. Calculate the number of moles of the excess reagent left ?