

AUGUST 2022
EBS 132
GENERAL CHEMISTRY I
30 MINUTES

Candidate's Index Number
Signature:

UNIVERSITY OF CAPE COAST
COLLEGE OF EDUCATION STUDIES
SCHOOL OF EDUCATIONAL DEVELOPMENT AND OUTREACH
INSTITUTE OF EDUCATION

COLLEGES OF EDUCATION
FOUR-YEAR BACHELOR OF EDUCATION (B.ED)
FIRST YEAR, SECOND SEMESTER MID SEMESTER QUIZ, AUGUST 2022

AUGUST 5, 2022

GENERAL CHEMISTRY I

12:00 PM – 12:30 PM

Answer ALL the questions.

For items 1 to 15, each item is followed by four options lettered A to D. Read each item carefully and circle the letter of the correct or best option.

1. What type of bond is between the atoms in a magnesium foil? bond.
A. Covalent
B. Intermolecular
C. Ionic
D. Metallic
2. Magnesium metal reacts with aqueous hydrochloric acid solution to produce aqueous magnesium chloride and hydrogen gas. Write a balanced equation for the reaction
A. $\text{Mg}_{(s)} + 2\text{HCl}_{(aq)} \rightarrow \text{MgCl}_{2(aq)} + \text{H}_{2(g)}$
B. $\text{Mg}_{(s)} + \text{H}_2\text{Cl}_{(aq)} \rightarrow \text{MgCl}_{2(aq)} + \text{H}_{2(g)}$
C. $\text{Mg}_{(s)} + \text{HCl}_{(aq)} \rightarrow \text{MgCl}_{2(aq)} + \text{H}_{(g)}$
D. $\text{Mg}_{(s)} + \text{HCl}_{(aq)} \rightarrow \text{MgCl}_{2(aq)} + \text{H}_{2(g)}$
3. Which of the following represents the chemical formula of Sodium Peroxide?
A. Na_2OH .
B. NaO .
C. NaO_2 .
D. NaOH .
4. What is the arrangement of electrons in the shells of an Aluminium ion ${}_{13}^{27}\text{Al}^{3+}$?
A. 2, 8, 3
B. 2, 4, 6
C. 2, 1
D. 2, 3

5. Which of the following types of bonds is/are exhibited by the compound NH_4Cl ?
- Covalent bond
 - Coordinate covalent bond
 - Metallic bond
 - Electrovalent bond
- I, II and III
 - II, III and IV
 - I, III and IV
 - I, II and IV
6. How many chlorine atoms are present in 0.4 mol of CaCl_2 ? ($L = 6.02 \times 10^{23}$)
- 2.0×10^{23} atoms.
 - 2.40×10^{23} atoms.
 - 2.83×10^{24} atoms.
 - 4.82×10^{24} atoms.
7. Which of the following equations is balanced?
- $\text{Mg}_{(s)} + \text{O}_{2(g)} \longrightarrow 2 \text{MgO}_{(s)}$
 - $\text{H}_2\text{SO}_4 + 2\text{NaOH} \longrightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O}$
 - $3\text{KClO}_3 \longrightarrow 3\text{KCl} + 3\text{O}_2$
 - $\text{H}_2 + \text{O}_2 \longrightarrow \text{H}_2\text{O}$
8. Which of the following represents the three subatomic particles of an atom?
- Neutrino, proton and electron.
 - Positron, neutron and electron.
 - Proton, neutron and electron.
 - Proton, positron and electron.
9. What is the systematic name of Fe_2O_3 ?
- Iron (I) oxide.
 - Iron (II) oxide.
 - Iron (III) oxide.
 - Iron (IV) oxide.
10. Which of the following statements explains the duplet of electrons? The maximum number of electrons required to fill
- any shell must be 8.
 - subsequent shells must be 8.
 - the first shell must be 2.
 - the outermost shell must be 8.
11. How many moles of ammonia molecule are contained in 34g sample of the gas?
[H = 1, N = 14]
- 0.5 mol
 - 17 mol
 - 2.0 mol
 - 3.0 mol

12. According to Bohr's model of the atom, the electron groups that occur in an atom are known as electrons
- shell.
 - cell.
 - orbital.
 - level.
13. Lithium metal reacts with water to produce Lithium hydroxide and hydrogen gas. Which of the following represents a balanced equation for the reaction?
- $2\text{Li}_{(s)} + 2\text{H}_2\text{O}_{(l)} \rightarrow 2\text{LiOH}_{(aq)} + \text{H}_{2(g)}$
 - $\text{Li}_{(s)} + \text{H}_2\text{O}_{(l)} \rightarrow \text{Li}(\text{OH})_{2(aq)} + \text{H}_{2(g)}$
 - $\text{Li}_{(s)} + \text{H}_2\text{O}_{(l)} \rightarrow \text{LiOH}_{(aq)} + \text{H}_{2(g)}$
 - $\text{Li}_{2(s)} + \text{H}_2\text{O}_{(l)} \rightarrow \text{LiOH}_{(aq)} + \text{H}_{(g)}$
14. What is the total number of oxygen atoms contained in two formula units of Iron (III) oxide?
- 2
 - 3
 - 4
 - 6
15. What is the collective name for protons and neutrons in the nucleus of an atom?
- Mass number.
 - Molecules.
 - Moles.
 - Nucleons.

For items 16 to 18, write the appropriate responses in the spaces provided.

16. An atom has six protons and seven neutrons in its nucleus. Find the following for the atom.
- Mass number **1 mark**
.....
.....
 - Number of electrons **1 mark**
.....
.....
17. Write down the electron configuration of the following elements using the Bohr's model.
- Neon **1 mark**
.....
.....
 - Chlorine **1 mark**
.....
.....
18. How will you represent an element X with atomic number of 11 and mass number of 23? **1 mark**
.....
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