AUGUST 2022
EBS 132
GENERAL CHEMISTRY
1 HOUR 30 MINUTES

Candidate's Index Number
TSCE/PR/21/0065
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, END-OF-SECOND SEMESTER EXAMINATION, AUG/SEPT 2022

AUGUST 26, 2022 **GENERAL CHEMISTRY** **2:30 PM – 4:00 PM**

Section B
(40 marks)

Answer any TWO questions in this Section.

1. An atom has an atomic number of 4 and mass number of 9.
   a. State the number of:
      i. Protons
      ii. Electron
      iii. Neutrons in the atom

   b. Draw the structure for the atom concern.

   c. Write the chemical formula for each of the following compound:
      i. Magnesium oxide MgO
      ii. Sodium trioxocarbonate (IV) Na_2CO_3
      iii. Tetraoxophosphate (V) acid H_3PO_4
      iv. Iron (II) oxide FeO

2. a. Copy and complete the table below:

Particles	Mass Number	Proton Number	Neutron number	Electron number
Be	9	4	5	4
Be^{2+} ions	9	4	5	2
^{16}O isotope	16	8	8	8
^{17}O isotope	17	8	9	8
N^{3-}	14	7	7	10
Ar atom			22	18

b. Balance each of the following equations:

i. $Zn + HCl \longrightarrow ZnCl_2 + H_2$

ii. $Al + HNO_3 \longrightarrow Al(NO_3)_3 + NO_2 + H_2O$

iii. $S + H_2SO_4 \longrightarrow SO_2 + H_2O$

c.

i. What is a mixture?

ii. Mention any **two** types of mixtures.

3.

a. Calculate the relative formula mass of the compound with the formula:

i. $Fe_2(SO_4)_3$

ii. $NaHCO_3$

iii. Na_2CO_3

given that (H = 1, C = 12, O = 16, S = 32, Na = 23, Fe = 56)

b. Draw the structural formula of the following organic compounds:

i. 2, 2 – dimethyl – 3 – chloropentane

ii. 3 – methyl – 1 – butyne

iii. 2 – methylpentanoic acid

c. Give **two** examples each of:

i. weak acid

ii. insoluble base

iii. alkali