

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

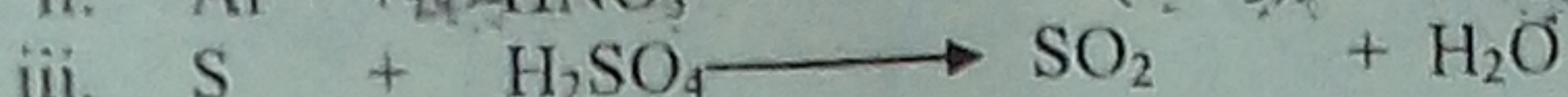
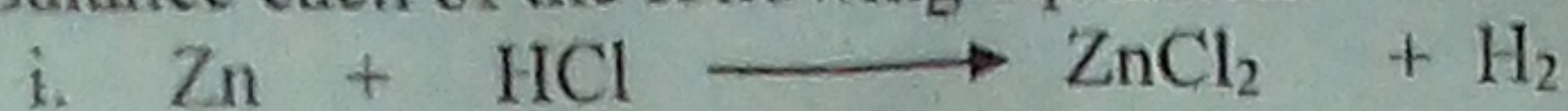
Handwritten calculations:
 $2(+1) + C + 3(-2) = 0$
 $2 + C - 6 = 0$
 $C = 4$
 $3(+1) + P + 4(-2) = 0$
 $3 - 8 + P = 0$
 $P = 5$
 $2(+1) + Fe + 4(-2) = 0$
 $2 + Fe - 8 = 0$
 $Fe = 6$

✓ 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

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b. Balance each of the following equations:



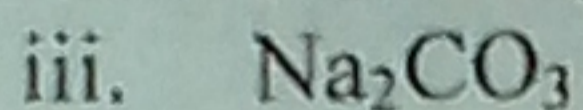
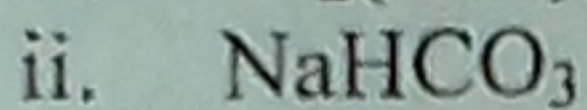
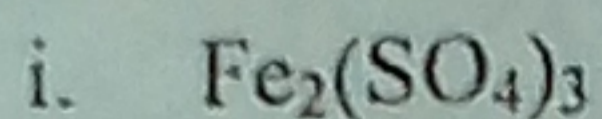
Al = 1
H = 1 x 4
Cl = 1 x 2
Zn = 1 x 1
N = 1 x 3
O = 1 x 12

Al = 1
H = 1 x 4
N = 1 x 3
O = 1 x 12
S = 1 x 1
H = 1 x 2
O = 1 x 4

- c.
i. What is a mixture?
ii. Mention any two types of mixtures.

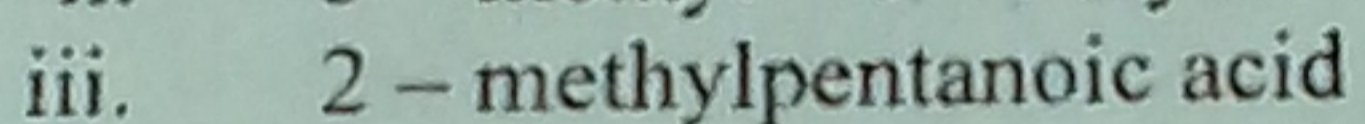
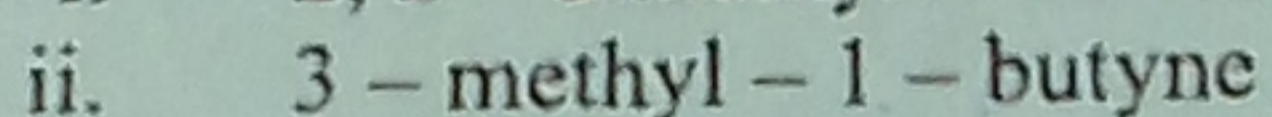
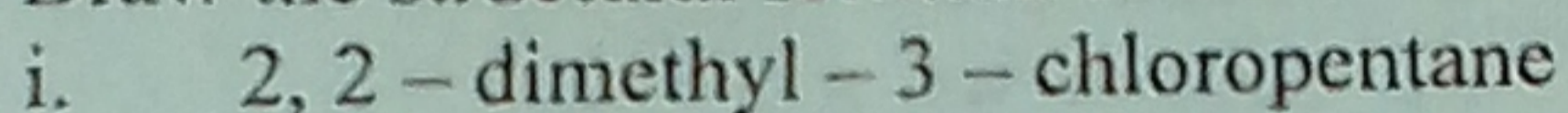
3.

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



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

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

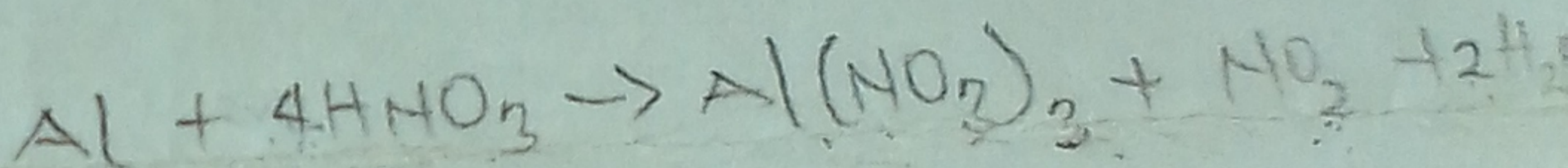


c. Give two examples each of:

i. weak acid

ii. insoluble base

iii. alkali



Al = 1

H = 1 x 4

N = 1 x 3

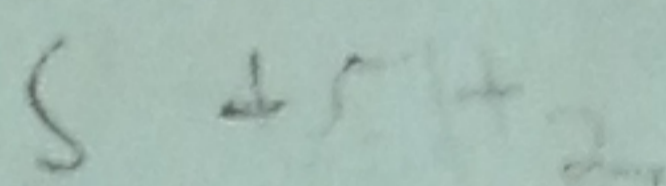
O = 3 x 12

Al = 1

H = 1 x 4

N = 1 x 3

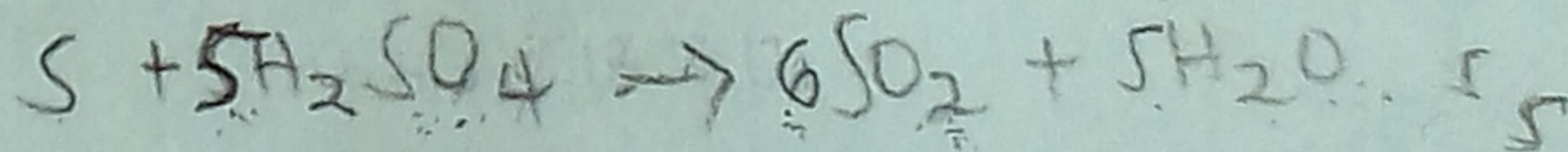
O = 1 x 12



S = 1 x 32

H = 1 x 10

O = 1 x 20



S = 1 x 32

H = 1 x 10

O = 1 x 20

S = 1 x 32

H = 1 x 10

O = 3 x 12 + 5 x 16