THE PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

DODOMA REGION

FORM FOUR   PRE -NECTA EXAMINATION

032   CHEMISTRY

MARKING GUIDE   2025

SECTION A(16 Marks)

1.

I	ii	iii	iv	v	vi	vii	viii	lx	x
B	A	B	C	D	A	D	B	A	C

@1mark=10

2

LIST A	i	ii	iii	iv	v	Vi
LIST B	I	G	D	F	C	A

@1mark=06marks

SECTION B (54 MARKS)

3 (a)(i) Because non luminous flame produces a hot flame and does not form soot. **01MARK**

 (ii) Bunsen burner produces a non-luminous flame through opening the air holes of Bunsen burner to allow enough oxygen to enter the burner. **02MARKS**

(iii) Air holes allow air/oxygen to enter the burner and Barrel is the place where gas and air burns to produce a flame. **03 MARKS**

(b) Because decomposition of hydrogen peroxide produces enough oxygen without the use of heat. **02 MARKS**

(c)Because iron rust easily when react with water and oxygen**. 01Mark**

4(a)(i) it should have high energy value so as to produce high heat content from small amount of   fuel.

(ii) it should be affordable so as many people are able to afford it.

(iv) should have low content of combustible materials to reduce environmental effects. **@2Marks=06**

 (b)(i) Identification of the problem

   (ii)Formulation of hypothesis.

    (iii)Experimentation and observation.

    (iv)Data collection.   **@1/2= 03marks**

   (v)Data analysis and interpretation.

   (vi)conclusion

5(a) The gas is collected through upward delivery / downward displacement of water because its less dense than air and slightly soluble in water. **01 mark**

(b)   (i)The electrolyte should contain the meatal to be electroplated. Example silver nitrate

    (ii) Anode electrode with pure metal to electroplate another metal

     (iii)Cathode electrode should contain electroplated metal. **@ 01mark =03marks**

(c)At anode $2Cl(aq) \longrightarrow Cl2(aq) + 2e-$

At cathode $Na^+ + e- \longrightarrow Na(s)$ **@1/2Mark=01mark**

1mol of elecrons=1 Faraday

If IF=23g/mol of Na   **01mark**

    =2.0g

Then, number of Faraday= 0.087F   01 mark

But IF=22.4dm3/mol at S.T.P

So if   1F =22.4dm3/mol   01 mark

     0.087F= X

The volume of gas produced=0.974dm3   01mark

6(a) if the system at equilibrium is subjected to a change the process occurs to counteract the change.

(b) Is the reaction in which the rate of forward reaction is equal to the rate of forward reaction.

(c)(i) By lowering temperature and increasing pressure because the reaction is exothermic hence lowering temperature favors forward reaction. High pressure favors the side with fewer number of moles.

(ii)Because it is expensive and difficult to maintain high pressure in contact process. The low temperature will make rate of reaction very low hence difficult to attain equilibrium.

<p style="text-align:center;color:red;">@02marks=08</p>

(iii) Vanadium pentaoxide (V_2O_5)   **01 mark**
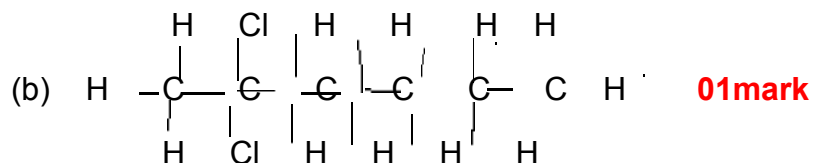
7(a) (i) They have the same molecular formular.

    (ii) They have similar chemical properties.

    (iii) They can be presented by general structural formula.

    (iv) exhibits change in physical properties as molecule size increases

<p style="text-align:center;color:red;">Any 4@2=8marks</p>

(b)   H

01mark

8(a)(i) Empirical formula is the formula that represent the simplest ratio of the atoms in a compound.   **01 mark**

(ii) Molecular formula is the one that shows the actual number of each atom present in a molecule. 01 mark

(b) Mass of magnesium = (27.6-25.2)g =2.4g **01 mark**

   Mass of oxygen = (29.2-27.6)g= 1.6g **01 mark**

Symbol	Mg	0
Mass	2.4	1.6
Divide by atomic number	2.4/24=0.1	1.6/16=0.1
Divide by smallest number	0.1/0.1= 1	0.1/0.1=1
	Mg	O

<p style="text-align:center;">In each stage 1/2mark= 0 2.5 marks</p>

The empirical formula is MgO   **02 .5 marks**

SECTION C

9   Introduction 1 mark

Main body

- Proper waste disposal.
- Sustainable agricultural practices.
- Reduce deforestation.
- Industrials wastes should be treated before released to environment.
- Public awareness and government policy.
- Sustainable land use planning.   Any 6points@2=12

Any relevant conclusion **02marks.**

10(a)

i.	Primary standard reagents	i.	Secondary standard reagents
ii.	Their stable	ii.	Their unstable
iii.	Have high molecular mass	iii.	Have low molecular mass
iv.	High purity	iv.	Low purity
v.	Not hygroscopic or efflorescent	v.	May be hygroscopic or efflorescent
vi.	Less volatile	vi.	More volatile
vii.	Highly soluble	vii.	Normally soluble

Any 3pts@01=03

(b)from the equation the mole ratio of M(OH)2 to HCl is 1:2   **01 mark**

Given molarity of HCl, the number of moles reacted is 0.2moles hence the number of moles af M(OH)2 that reacted is 0.2÷2=0.1moles   **02marks**

(i)The molar mass of M(OH)2 is

From n=m/Mr

Then Mr=m/n

Mr =5.8g/0.1mol   **01mark**

Molar mass of M(0H)2 is 58g/mol   **02marks**

(ii) Atomic mass of M is

 M(OH)2=58

M+2(16+1) =58

M+34=58   **02marks**

M=58-34

M=24

Atomic mass of M=24   **02marks**

(iii) The name of M is magnesium.   **02marks**

11(a)soil productivity is affected by other factors than soil fertility, such factors are

    (i)presence of weeds

    (ii)Farming method.

    (iii)Pests and diseases.   **3points@01=03marks**

(b) (i)Broadcasting method

    (ii)Placement method.

    (iii)Side dressing application.

     (iv)Folia spraying   **any 6points@2=12**

    (v)Drip application

     (vi) Binding