PRESIDENT'S OFFICE

REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

SONGEA DISTRICT COUNCIL

FORM TWO MOCK ASSESSMENT

032 **CHEMISTRY**

Time: 2.30 Hours **March, 2025**

Instructions

1. This paper consists of sections A, B and C with a total of **ten (10)** questions.
2. Answer all the questions.
3. Section A and C carry **fifteen (15)** marks each and section B carries **seventy (70)** marks.
4. All writing must be in black or blue ink **except** diagrams which must be in pencil.
5. Cellular phones and any unauthorized materials are **not** allowed in the Assessment room.
6. Write your Assessment Number at the top right corner of every page.

SECTION A (15 Marks)

Answer **all** questions in this section.

1. For each of the items (i) – (x), choose the correct answer from the given alternatives and write its letter in the box provided.

(i) Identify the set of chemistry products which are used for domestic cleanliness.

A Tooth paste, oils, detergents and deodorants.
B Soap, deodorants, tooth paste and fuel.
C Detergents, soap, tooth paste and deodorants.
D Drugs, tooth paste, soap and oils.

(ii) Your friends were arguing about the scientific procedure that follows after experimentation.

Which stage will you suggest your friends?

A Hypothesis B Data interpretation
C Data collection D Experimentation

(iii) During practical work a measuring cylinder was used to prepare oxygen by decomposing hydrogen peroxide. What is the function of the cylinder in this experiment?

A To measure volume B To measure weight C To measure width
D To measure volume length

(iv) How is the amount of air entering in the Bunsen burner controlled?

A By adjusting the opening of the barrel.
B By adjusting the opening of the collar.
C By adjusting the opening of the jet.
D By adjusting the opening of the base.

(v) Which of the following indicates a pair of isotopes?

A $^{40}_{20}\mathrm{M}$ and $^{40}_{20}\mathrm{M}$. B $^{39}_{19}\mathrm{M}$ and $^{40}_{20}\mathrm{M}$. C $^{12}_{6}\mathrm{M}$ and $^{12}_{6}\mathrm{M}$.
D $^{35}_{17}\mathrm{M}$ and $^{40}_{17}\mathrm{M}$.

(vi) Where is hydrogen likely to be found in its free state?

A In the upper atmosphere B Near the Earth's surface
C In the lower atmosphere D In the sun and the stars

(vii) The oxidation state of metallic element is always

A Negative B Neutral
C Positive D zero

(viii) The teacher was demonstrating an experiment by dissolving sodium chloride in water until the solute was not dissolving any more. What type of solution was formed at the end of the experiment?

A Saturated B Unsaturated
C Super saturated D Suspension

(ix) Atomic structures of all elements consists of electrons, protons and neutrons **except** that of:

A Hydrogen B Carbon
C Oxygen D Nitrogen

(x) Given that, the amount of heat gained by water after a complete combustion of 46 g of ethanol (C_2H_5OH) is 8.4 kJ, what is the energy value of ethanol in J/g?

A 182.0 B 182.7

C 182.6 D 182.8

i	ii	iii	iv	v	vi	vii	viii	ix	x

2. Match the items in **List A** with a correct response in **List B** by writing the letter of the correct response below the corresponding item number in the table provided.

List A		List B
i.	The blockage of the upper part of the airways by food or drink.	A Suffocatio
ii.	A skin injury that causes a change in colour of the skin.	B n
iii.	A sudden loss of consciousness caused by lack of sufficient blood and oxygen to the brain.	C Shock D Bruises
iv.	A condition in which the body system is unable to take enough blood to the vital organs.	E Choking F Fainting
v.	A condition in which the lungs are not getting enough oxygen	G Burns Bleeding

Answers

List A	(i)	(ii)	(iii)	(iv)	(v)
List B					

SECTION B (70 Marks)

Answer **all** questions in this section.

3. (a) Explain the following phenomena based on the idea of particles:

(i) It is easy to pour a liquid

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(ii) A gas will completely fill any container

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(iii) A solid expands when heated

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(b) A solution is a homogenous mixture of two or more substances which are solvent and

solute, give one example of each of the following types of solution.

(i) Liquid – liquid solution……..

(ii) Gas – gas solution…….....

(iii) Solid – solid solution…….....

(c) Differentiate mixture from compound by giving four points

S/N	Mixture	Compound
(i)		
(ii)		
(iii)		
(iv)		

4. Answer the following questions with reference to the first 20 elements of the Periodic Table.

(a) Give the chemical symbol of the element having:

(i) The smallest atomic size

……
……

(ii) The largest atomic size

……#
……

(b) Identify the elements which are:

(i) Metals having 4 shells of electrons

……
……

(ii) Metals having two electrons in the valence shell.

……
……

(iii) Noble gases

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……

5. (a) Why is petrol not recommended to be used as fuel in school laboratories? Briefly explain.

……....
……
……
……

(b) Which three heat sources can be used to boil some water in the laboratory instead of the Bunsen burner.

(i) ……..

(ii) ……..

(iii) ……..

(c) Arrange the following steps for lighting the Bunsen burner in a correct sequence using letter A to F.

A Turn the collar to close the air hole completely.

B Turn on the gas fully to ensure that plenty of gas is entering the burner.

C Connect the Bunsen burner to the gas mains.

D Adjust the gas tap until the supply of gas is enough for a time

E Light the gas at the top of the barrel with a lighted matchstick.

F Close the air hole.

Answer

Step	1	2	3	4	5	6
Letter						

6. (a) Explain why petroleum and coal are non – renewable sources of energy.

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……

(b) Give four alternatives of renewable energy

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……

(c) Kerosene has a heat value of 43400 kJ kg $^{-1}$. Calculate the volume of kerosene required to raise the temperature of 20 litres of water from 24^{o}C to 100^{o}C. (Specific heat capacity of water = 4.18kJ kg^{-1}k^{-1}, density of water = 1000Kg/m^{3}, density of kerosene 810 kgm^{-3}).

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7. (a) Give a reason, state whether rust will form or not in each of the situation (i) – (v).

(i) Iron bar is dipped into boiling water.

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……

(ii) Painted iron is dipped into un – boiled water

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……

(iii) Iron bar is dipped in un – boiled water.

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……

(iv) A dry iron bar is wrapped with cotton wool.

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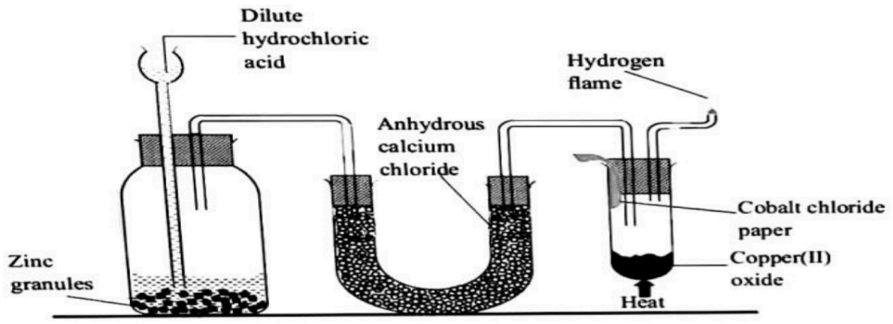
……

(b) Complete filling the table below by writing the chemical composition or type of fire extinguisher or the suitability of each type of fire extinguisher in the gaps given below.

Type of fire extinguisher	**Chemical composition of agent**	**Suitable for**
Dry chemical	(i)	Classes A, B and C
(ii)	Bromochloro – difluoro – methane	Class A fire
ABC	(iii)	Classes A, B and C
Wet chemical	(iv)	(v)
Dry chemical	(vi)	Classes A, B and C

8. Study the diagram below and answer the questions that follow.



(a) (i) What is the colour of the solid product?.....

(ii) Name the products formed……...

(b) What is the role of the following chemicals?

(i) Hydrochloric acid and zinc granules

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……
……

(ii) Anhydrous calcium chloride

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……

(iii) Cobalt chloride paper

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……

(c) Write down five chemical properties of the gas produced in this experiment.

(i) ……

……

(ii) ……

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(iii) ……

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(iv) ……

……

(v) ……

……

9. (a) State four main ideas of Dalton atomic theory of matter

(i) ……

……

(ii) ……

……

(iii) ……

……

(iv) ……

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(b) An isotope of phosphorus has a mass number of 31 and atomic number of 15.

(i) Write its nuclide notation

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……
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……

(ii) How many neutrons does it have?

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……
…….

(iii) How many electrons does it have?

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……

(iv) How many protons does it have?

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……....

(c) Why isotopes of the same element have similar chemical properties

……
……..

SECTION C (15 Marks)

Answer question number ten (10)

10. (a) Construct a diagram to show the arrangement of the outer electrons in each of the following molecules:

(i) Oxygen

(ii) Ammonia

(iii) Carbon dioxide

(b) What type of bond exists in the molecules in part (a)?

……..

……..

(c) Identify five properties of the molecules in part (a)

(i) ……
……
…
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(ii) ……
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(iii) ……

(iv) …………………………………………………………………………………

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(v) …………………………………………………………………………………
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