

HOLIDAY PACKAGE FOR SENIOR THREE

NAME OF STUDENT:.....

SCHOOL :.....

SIGNATURE :.....**DATE:**.....

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CHEMISTRY DEPARTMENT

CHEMISTRY REVISION QUESTIONS

- 1 (a) Draw a well labeled diagram for the laboratory preparation of dry hydrogen gas
(2 ½ marks)

- (b) (i) Write an equation for the reaction that takes place (1 ½ marks)

- (ii) Name the catalyst used in preparation of hydrogen in (i) above (1 mark)

2. (a) Define the following terms

- (i) Mass number (1 mark)

- (ii) Atomic number (1 mark)

- (b) An atom of an element is represented by the symbol ${}^{39}_{19}\text{T}$

- (i) State the mass number of T (1 mark)

- (ii) To which group and period does T belong? (1 mark)

- (iii) How many neutrons are present in the atom? (1 mark)

3. The table below shows part of the periodic Table. The letters used are not the symbols of the elements. Use them to answer the questions that follow.

	I	II		III	IV	V	VI	VII	VIII
1									
2								D	
3	A	B			C			E	F

(a) Write the electronic configuration of elements A, B, C, D, E and F (3 marks)

Element	Electronic configuration
A	
B	
C	
D	
E	
F	

(b) State the family to which the following elements belong (2 marks)

A:

B:.....

D:.....

4. Work out the following formulae and underline your final answer (5 marks)

(a) Magnesium sulphate

.....

(b) Aluminium oxide

.....

(c) Copper (II) oxide

.....

.....

.....

(d) Sodium chloride

.....

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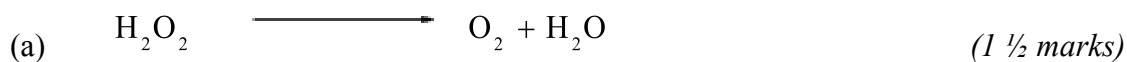
(e) Lead (II) sulphate

.....

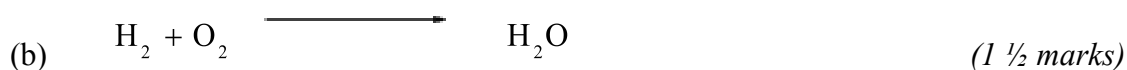
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5. Balance the chemical equations

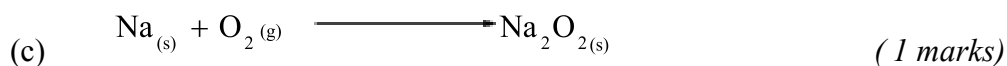


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a) Define matter (01 marks) (1 mark)

.....

.....

b) What is the difference between a physical and a chemical change? (02 marks)

.....

.....

.....

c) State the type of change that occurs when (05 marks)
A bean seed germinates

.....

A paper is burnt

.....

A candle melts

.....

Banana peelings decay

.....

Ammonium chloride sublimates

.....

a) Define the following terms (03 marks)
A mixture

.....

Homogeneous mixture

.....

Miscible liquids

.....

b) Clovis accidentally added water to cooking oil in the laboratory.
Which laboratory apparatus can Clovis use to separate the water from cooking oil
(01marks)

.....

Make a drawing of the apparatus in b(i) above and **label** the liquid junction and the two liquids. (your drawing should be big enough!) (04 marks)

c) State the type of mixture and type of liquids to which the mixture of water and cooking oil above belongs. (04 marks)

Type of mixture

.....

Type of liquids

.....

d) Complete the table below by filling in the blank spaces (06 marks)

	Mixture	Method of separation
i)	Water and ethanol	
ii)	Chlorophyll pigments	
iii)	Solution of table salt	
iv)	Chalk dust and water	
v)	Iodine and sodium chloride	
vi)	Iron fillings and sulphur powder	

a) Define the following terms (03 marks)

Atomic number

.....

.....

Atomic mass

Isotopes

The number of particles (protons, electrons and neutrons) in atoms: Q, T, W, X and Y are shown in the table.

ATOMS	NUMBER OF PARTICLES		
	PROTONS	ELECTRONS	NEUTRONS
Q	1	1	0
T	8	8	8
W	12	12	12
X	15	15	31
Y	1	1	1

b) Write the electronic configuration of (03 marks)

T

W

X

c) State the (04 marks)

Atomic number of Y

Atomic mass of Q

Atoms which are isotopes

Reason

To which **period** of the Periodic Table does element X belongs?.....

Give a reason for your answer :

v) To which group of the periodic Table does element T belong?

Give a reason for your answer.

vi) Draw a well **labeled** structure of an atom of element X.

a) Define the following terms

(03 marks)

An element

.....
.....

A compound

.....
.....

b) Out line four examples of compounds

.....
.....
.....
.....

c) Write the chemical symbols of the following elements

Sodium

Potassium

Beryllium

Silicon

Neon

(a) What is meant by the term rusting.

.....
.....

(b) State

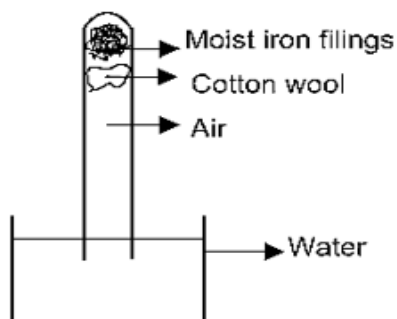
(i) The conditions required for rusting to take place

.....
.....

(ii) Two factors which accelerate the process of rusting

.....
.....
.....

(c) The figure below shows an experiment set up for investigating the percentage of air used in rusting.



At the start of the experiment

At the end of the experiment

In the space provided (to the right of the figure), re-draw the set up to show the observation at the end of the experiment (02 marks)

Give a reason for the observation at the end of the experiment

.....
If the initial volume of air locked in the boiling tube was 10cm^3 and it reduced to 7.9cm^3 at the end of the experiment. Find the
Volume of air that was used up in the process of rusting (01 mark)

.....
The percentage of air that was used in the process of rusting hence identify the gas that was used in the process of rusting. (03 marks)

.....
a) Define the following terms (03 marks)

A mixture

.....
An element

.....
A compound

.....
State how the following mixtures of substances can be separated. (04 marks)

mixture	Method of separation
Sulphur and iron	

Chlorophyll pigments	
Liquid Oxygen and nitrogen	
A mixture of water and sand	

(a) Define an oxide.

.....
 (b) Name 4 types of oxides and give an example in each case (put your answers in the table below)

Type of oxide	Example

(c) Peggy burnt a magnesium ribbon in oxygen. State what she observed.

.....
 (d) Write a well-balanced equation for the reaction that took place between magnesium and oxygen.

.....
 (a) Write the formulae of the following compounds.

Sodium carbonate

.....
 Magnesium hydroxide

.....
 Aluminium oxide

.....
 Calcium sulphate

.....
 Balance the following equations



Convert the following word equations into fully balanced chemical equations

I) Sodium oxide + water $\longrightarrow$ sodium hydroxide

calcium carbonate $\longrightarrow$ calcium oxide + carbon dioxide

Magnesium + carbon dioxide $\longrightarrow$ magnesium oxide + carbon

Copper oxide + zinc $\longrightarrow$ Zinc oxide + copper.

(a) Explain what is meant by the term
Miscible liquids

Immiscible liquids

(b) Give an example of

Miscible liquids

Immiscible liquids

(c) Give one method of separation of
Miscible liquids

Immiscible liquids

(d) Draw a labeled diagram to show the separation of

Miscible liquid

Immiscible liquids

(a) Smoke was put in a glass-cell and viewed under a microscope

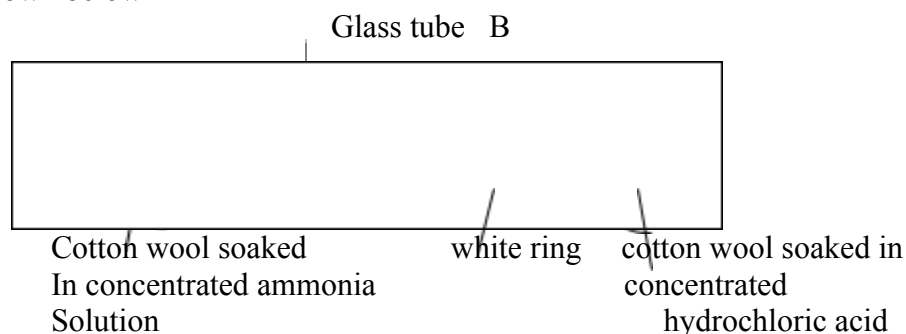
State what was observed

.....

Explain the observation

.....

(b) One piece of cotton wool was soaked in concentrated ammonia and another in concentrated hydrochloric acid. The two pieces of cotton wool were placed in a glass tube as shown below



Give the chemical name of the white ring

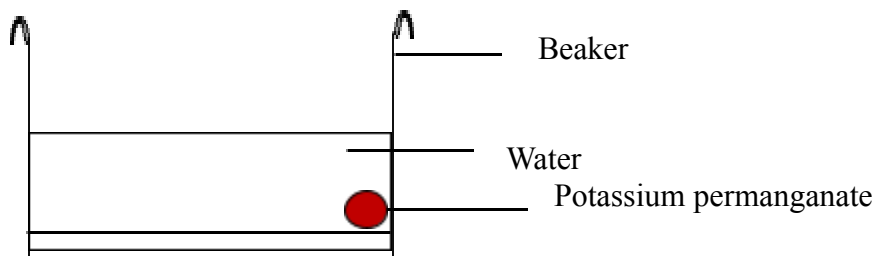
.....

Name the process occurring

Explain why the white ring is formed in position B and not in the middle of the glass tube.

.....

(a) A crystal of potassium permanganate was placed at the corner in a trough of cold water as shown in the figure below and the set up was allowed to stand for about 30 minutes



State what was observed after 30 minutes

Name the process that occurred

(b) The experiment was repeated with hot water

State what was observed

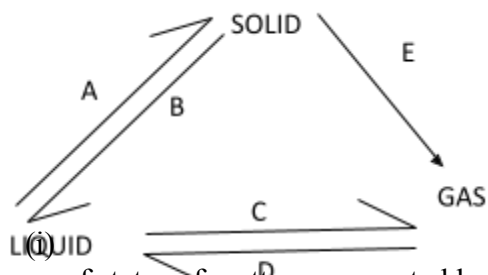
Explain your observation in b(i) above

17) (a) What is matter?

(b) Give the three states of matter

(c) Give three characteristics of any one of the three states of matter given above

(d) The diagram below shows how the states of matter can change under different conditions



Name the change of states of matter represented by

A:

B:

C:

D:

- (ii) Name two substances which can undergo the change of state represented by E

.....
.....
.....
.....

Write a balanced equation for each of the following reactions

When copper is heated in oxygen, copper (II) oxide is formed (1 ½ mks)

.....
.....
.....
.....

When sodium is dropped on water, sodium hydroxide solution is formed and hydrogen is given off (1 ½ mks)

.....
.....
.....
.....

When potassium is heated oxygen, potassium oxide is formed. (1 ½ mks)

.....
.....

.....
.....
Calcium reacts with oxygen to form calcium oxide (1 ½ mks)

.....
.....
Magnesium burns in air to form magnesium oxide (1 ½ mks)

.....
.....
(a) Explain what is meant by the term:
Mass number

(1mk)

.....
Atomic number

(1mk)

.....
(b) An atom of an element is represented by the symbol .

(i) State the mass number of the atom ($\frac{1}{2}$ mk)

.....
.....

(ii) What is the atomic number of the atom? ($\frac{1}{2}$ mk)

.....
.....

How many neutrons are present in the atom? (1 mk)

.....
.....

Write the electronic structure of R ($\frac{1}{2}$ mk)

.....
.....

State whether R is a metal or a non-metal? Give reason (1mk)

.....
.....
.....
.....
.....

Oxygen can be prepared in the laboratory using potassium chlorate and a substance Y.
Name Y (2 $\frac{1}{2}$ mk)

.....
.....

Write equation leading to the formation of oxygen (1 $\frac{1}{2}$ mk)

.....

.....
.....
State the:

Role of Y.....(1mk)

Conditions form the reaction (1mk)

.....
.....
.....
.....
Name one process that increases the amount of oxygen in the atmosphere (1mk)

.....
.....
.....
18) Define the following terms as used in chemistry and state their examples.
Catalyst:

.....
.....
efflorescence:

.....
.....
hygroscopy:

.....
deliquescence:

water of crystallization:

Write down the chemical formulae of the following terms.

Calcium + water — ~~Calcium~~ hydroxide + hydrogen gas

Potassium + water — ~~Potassium~~ hydroxide + hydrogen gas

Magnesium + steam — ~~Magnesium~~ hydrogen + hydrogen gas

Aluminium + Steam — ~~Aluminium~~ Oxide + hydrogen gas

Iron + Steam — ~~Iron~~ III Oxide + hydrogen gas

What is aluminous flame?

b) In the space below, draw a well labeled diagram of aluminous flame?

c) State the main four differences between aluminous and non- luminous flame?

Luminous flame	Non - luminous flame
i)	
ii)	
iii)	

Diagram below shows laboratory preparation of hydrogen gas

label all the parts:

X: _____	P: _____
T: _____	Y: _____
Q: _____	S: _____
Z: _____	W: _____

Name the catalyst used in the hydrogen gas preparation in the laboratory?

State the method for collection of the above gas.

Why is the gas collected by the above method?

Write down the chemical equation for the above reaction.

Give the laboratory test for the above gas?

a) With a specific examples, define chemical change and physical change?

b) State four differences between physical change and chemical change

	Physical change	Chemical change
i)		

ii)

iii)

iv)

a) Define the following terms and state examples where they are used.

Sublimation.....

Chromatography.....

Filtration.....

.....

fractional distillation.....

Evaporation.....

a) What is matter?

.....

b) State three physical properties of solids.

i) _____

ii) _____

iii) _____

c) Mention five uses of carbon dioxide gas

i) _____

ii) _____

iii) _____

Name one process that can be used to separate the following components

a) Water and ethanol

.....

b) Iron and sulphur

.....

c) Pigment of a leaf

.....

d) Copper (II) sulphate and Sand

.....

e) Iodine and potassium chloride

.....

27. a) Describe a well labelled diagram to show preparation of dry hydrogen gas in the laboratory?

.....
.....
.....
.....
.....
.....
.....

b) Write the equation for the reaction?

.....

c) Name the catalyst used in preparation of hydrogen in (a) above?

.....

d) Hydrogen was reacted with copper (ii) oxide.

i) State conditions for the reaction.

.....
.....

ii) State was observed.

.....

iii) Write the equation for the reaction.

.....

e) Describe how you can test for hydrogen in the laboratory?

.....
.....
.....

f) State any two uses hydrogen gas?

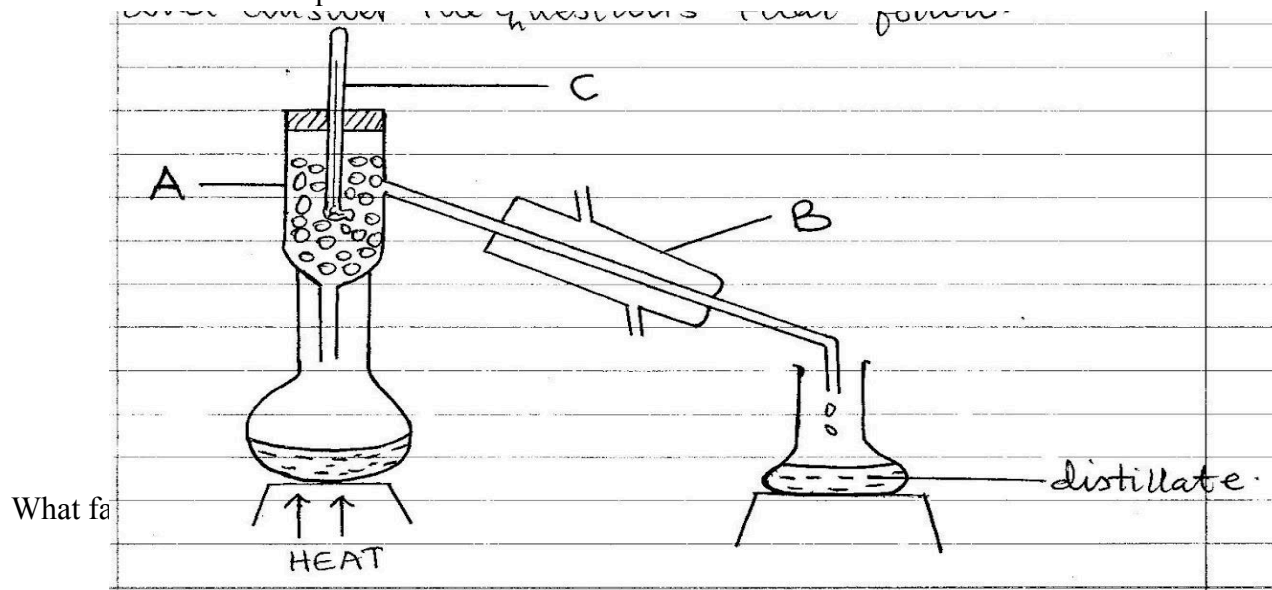
28. a) State is observed when calcium was dissolved in water?

b) Explain how calcium reacts with water?

c) Write the equation for the reaction?

d) Name two metals which do not react with cold water?

Figure 1 below shows an apparatus that can be used to separate a liquid mixture. Study it and answer the questions that follow.



Name the parts labeled by letters;

A.....

B.....

C.....

(3MKS)

In part B of the apparatus, water is allowed to flow.

What is the purpose of this water? (1mk)

Show the direction of water in the figure. (1mk)

Give one example of a mixture that can be separated by the above method. (1mk)

.....
(a) Name one process by which the components of the following mixtures can be separated.

Pigments of a green leaf. (1mk)

.....
Water and ethanol. (1mk)

.....
Iodine and potassium chloride. (1mk)

.....
Copper (II) sulphate and sand. (1mk)

.....
(b) A mixture of iodine crystals and sand was heated strongly until no further change.

(i) State what was observed? (1mk)

.....
.....
(ii) What property of iodine is shown by the reaction above? (1mks)

.....
Name one other mixture that can be separated by the method above. (1mk)

.....
In the space provided below, describe a well labeled diagram showing how a mixture of water and oil can be separated in the laboratory. (6mks)

(a) Define the following terms as they are used in Chemistry.

Atomic number

Atomic mass.

(b) Element X can be represented as X_{12}^{24} .

(i) State the atomic number and atomic masses of the element.

.....

(ii) Draw a simple atomic structure of element X.

Determine the number of neutrons in atom X.

State how you would separate a mixture of Sulphur and iron fillings using a physical method. (01

mark)

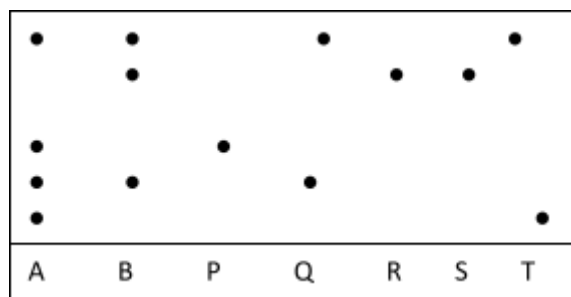
.....

(ii) Explain the principle behind the method you have given in your answer in (i) above.

(01 mark)

.....

(b) The result of a paper chromatography experiment is shown in the diagram below



A and B are different mixtures of some of the pure substances P, Q, R, S and T.

Identify the substances in the,

Mixture A.

(01½marks)

.....

Mixture B.

(02 marks)

.....

Which substances are present in both mixtures?

(01 mark)

Which substances are present in mixture A only?

(0½marks)

The atomic numbers of the elements X, Y and Z are 6, 17 and 19 respectively.

(a) Write the electronic configuration for;

(i) X

(00mark

(ii) Y

(00mar

(iii) Z

(01mark

(b) X and Z can each combine with Y to form compounds. Write the formula of the compound formed when Y combines with;

(i) X;

(01 mark)

(ii) Z

(01 mark)

(a) Hydrogen gas can be prepared by reacting zinc powder with dilute sulphuric acid.

(i) State the condition for the reaction.

(01 mark)

(ii) Write equation of reaction.

(01½marks)

(b) Dry hydrogen gas was passed over heated lead (II) oxide.

(i) State what was observed.

(01 mark)

(ii) Write equation of reaction.

(01½marks)

(c) Give one use of hydrogen gas. (0½mark)

.....
(a) State three ways you can use to show that water is a compound of hydrogen 03 marks)
.....
.....
.....

(b)(i) State one laboratory reagent that can be used to the test for the presence of water (01 mark)
.....
.....

(ii) State what is observed in b (i) above? (01 mark)
.....

(a) State what is observed when the following substances are burnt in oxygen.

Sodium (01 mark)
.....

(ii) Magnesium (01 mark)
.....

(b) Write the equations for the reactions that take place in (a) (i) and (ii) above. (02marks)
.....

Oxygen can be prepared in the laboratory using hydrogen peroxide at room temperature and in presence of catalyst.

i) Name the catalyst used. (1mk)
.....

ii) Write equation for the reaction. (1½ mks)
.....

b) When oxygen is required dry, it is first dried using a drying agent before it is collected.

i) Name the drying agent used. (1mk)
.....

ii) State one factor that is considered when choosing a drying agent for drying a gas.
(1mk)

c) If oxygen is not necessarily required dry, it may be collected over water.
Give one property of oxygen that enables it to be collected over water.
(1mk)

d) Sodium burns in excess oxygen with a bright yellow flame forming a yellow solid.

i) Name the yellow solid. (1mk)

ii) Write equation for the reaction. (1½ mks)

e) Give two uses of oxygen. (2mks)

39. a) Define the following terms;

i) An acid (1mk)

ii) Basicity of an acid (1mk)

b) An acid, H_2X ionizes according to the equation. (1mk)



i) State whether it is a strong acid or a weak acid. (1mk)

ii) Give a reason for your answer in b(i) (1mk)

iii) State the basicity of the acid H_2X . (1mk)

c) The table below shows the pH of various substances.

Substance	pH
Lemon juice	4.0
Tooth paste	9.0
Pure water	7.0
Rain water	6.5

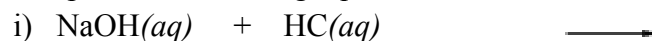
Which of the substances above is/are;

i) Neutral (1mk)

-
- ii) Alkaline (1mk)
-
- iii) Acidic (1mk)
-
- d) Suggest one possible reason why the pH of rain water is slightly be 7 whereas that of pure water is 7. (1mk)
-
-
40. The full symbol of an atom of element M is.
- a) State the number of Protons and neutrons in the nucleus of M.
- i) Protons (1mk)
-
- ii) Neutrons (1mk)
-
- b) Write the electronic configuration of M. (1mk)
-
- c) State the group and period to which M belongs in the Period table.
- i) Group (1mk)
-
- ii) Period (1mk)
-
- d) Element M reacts with chlorine to form a chloride.
- i) Write the formula of the chloride of M. (1mk)
-
- ii) State the type of bond in the chloride of M. (1mk)
-
41. In an experiment, Iron nails were cleaned thoroughly using steel wire. Then they were left in moist air for one week.
- a) State what was observed after 1 week. (1mk)
-
- b) Name the process that occurred leading to the observation made in (a). (1mk)
-
- c) State two factors that favour the process you have named in (b). (2mks)
-
- d) i) Give one disadvantage of the process named in (b) (1mk)
-
- ii) List four ways that can be used to prevent the process named in (b). (4mks)

.....

42. a) Complete the following equations. (2mks)



b) Balance the following equations. (3mks)



43. Oxygen gas can be prepared in the Laboratory by decomposition of hydrogen peroxide using substance X

- Name substance X
- Write an equation for the reaction leading to the formation of oxygen gas in (a) above
- State how the oxygen produced in (a) above can be tested for
- What observation is made in the test stated in (a)(iii) above

b) Potassium chlorate is another reagent used in the preparation of oxygen gas using substance Y

- Identify substance Y
 - State two conditions for the reaction in (b) above
 - Write a chemical equation for the reaction that occurs in (b) above
- c) State any two importance of oxygen gas to our society
- -

44. Define the following

- A catalyst
- Acidic oxide
- A basic oxide

iv) Amphoteric oxide

v) Neutral oxide

b) Write the chemical equations from the word equations below and balance

i) Carbon reacts with oxygen forming carbon dioxide

Unbalanced.....

Equation.....

Balanced.....

Equation.....

ii) Sodium reacts with water forming sodium hydroxide solution

Unbalanced equation.....

Balanced equation.....

c) Complete the following chemical equations by writing their products and balance them

i) $\text{Mg(s)} + \text{Cl}_2 \text{ (g)} \rightarrow \dots$

ii) $\text{Ca(s)} + \text{O}_2 \text{ (g)} \rightarrow \dots$

d) Balance the chemical equations given below

i) $\text{Fe(s)} + \text{O}_2\text{(g)} + \text{XH}_2\text{O} \rightarrow \text{Fe}_2 \text{O}_3 + \text{H}_2\text{O(s)}$

ii) $\text{Al}_2 \text{O}_3\text{(s)} + \text{HCl (aq)} \rightarrow \text{Al Cl}_3 \text{ (aq)} + \text{H}_2\text{O(l)}$

45. a) What is rusting?

b) State two conditions necessary for rusting

c) State two disadvantages of rusting

i)

ii)

iii)

iv)

(a) What do you understand by the following terms as used in Chemistry.

Atomic number.

Atomic mass.

Isotopes .

(b) Element X can be represented as $^{35}_{17}\text{X}$.

(i) Write the electronic configuration of an ion formed by X.

(ii) Determine the number of neutrons in atom X.

(iii) How many electrons does X possess in its shells

(a) Outline any three properties of oxygen gas.

(b) In the space below, draw a setup of an apparatus to show how oxygen gas can be prepared in a laboratory .

Write an equation for the reaction.

(c) What are the uses of oxygen gas in the world of science.

(a) Aluminium has a higher melting point than sodium. Explain.

.....

 (b) Metals are able to conduct electricity because?

.....

(c) Outline four differences between ionic and covalent compounds?

Ionic compound	Covalent compound
.....	
.....	
.....	
.....	

(d) Using diagrammatic drawings show how sodium may bond with chlorine.

49. Define;

(i) Mass number

(ii) Atomic number

(iii) Isotopes:

b) The table below shows some information about atoms A, B, C and D.

Atoms	Protons	Neutrons	Mass number
A	11	12	-
B	-	7	14
C	6	-	12
D	1	0	-

(i) Fill in the missing information in the table above

(ii) Write the formula of the compound formed between;

1) A and D

2) B and D

3) C and D

(iii) Name the type of bonding formed between

1) A and D

2) C and D

50. Part of the Periodic table is shown below;

I II III IV V VI VII VIII

A			E	F			J
	C	D			G	H	
B						I	

- a) Which of the elements
- is a noble gas?
 - is a halogen?
 - is stored under paraffin ?
 - is an alkaline Earth metal?
 - Has a valency of four
- b) List down all the elements in
- Period 2
 - Period 3
 - Period 4.
- c) Write down the formula of the compound formed between;
- B and G
 - C and I
 - D and H
 - E and G

51. a) Define the following terms;
- An acid
 - A salt
- b) State any two types of acids
- -
- c) List down any two types of salts
- -
- d) State five methods of preparing salts in the Laboratory
- -

- 3.
- 4.
- e) What is meant by the term;
 - i) Un saturated solution?
 - ii Saturated solution
 - iii) Solubility?
- f) The table below shows the solubilities of salt A at various temperatures

Tempera ture (°C	0	15	25	35	45	55	65
Solubilit y/100g of water	12.5	15	17.5	22.5	30	42.5	55

- (i) Plot a graph of solubility of salt A against temperature

- (ii) Determine the solubility of salt A at 50°C

- (iii) What mass of salt A would dissolve in 25g of water at 50°C

State one application of solubility in industry

52. Atom x can be represented by X

- a) State the number of
i) protons for atom X

.....

electrons for atom X

.....

neutrons for atom X.

.....

What is mass number for X

.....

.....

- i) Write the formular of chloride of X

.....

State the electronic structure of X

State the group and period to which element X belong in the periodic table.

i) group.....

ii)period.....

53. a) What products are formed when potassium reacts with cold water?

.....

.....

Write the equation for the above reaction

.....

State what is observed when potassium reacts with cold water.

.....

.....

.....
a) Give the chemical name of rust.

.....
State the conditions necessary for rusting to occur.

.....
Give any three differences between rusting and burning.

.....
Give any three methods of preventing rusting.

.....
54. a) i) What is a flame? .

.....
Draw a well labeled diagram of a non-luminous flame.

b) Give any four differences between luminous and non-luminous flames.

55. a) Define the following
i) Atomic number

.....

Mass number

.....

Isotopes

.....

Study the table below for the atoms.

A, B, C, D and E

Atom	Number of protons	Number of neutrons	Mass number
A	6	6	
B	18		40
C		20	39
D	6	8	
E	12		24

Complete the above table.

Which atoms are isotopes? Give a reason for your answer.

.....

Write the electronic structures (electronic configurations) of atoms

B.....

.

E.....

.

Which one of the atoms is of an element in group II of the periodic tab

.....

Which one of the atoms is of an element in period 4 of the periodic table?

.....

56. The atomic number of an element Q is 16.

- a) Write the electronic structure of Q.

.....

- b) Draw a diagram to show the electronic structure of Q.

To which group of the period table does Q belong?

.....

To which period of the periodic tables does Q belong?

.....

What is the valency of Q?

.....

State whether Q is a metal or a non – metal.

.....

57. Part of the periodic table is shown below.

I II							III	IV	V	VI	VII	VIII
								C				E
	B										D	
A												

Which one of the elements in the periodic table is?

a)a halogen

.....

b)an alkali

metal.....

c)stored under oil.....

d)anoble

gas.....

e)an alkaline earth metal.....

d).....

State the method used to separate the following mixtures.

Soil and water

.....
Water and ethanol

.....
Petrol and paraffin

.....
Oil and water

An atom of element A has an electronic configuration of 2:8:3

Identify the group in the periodic table to which element A belongs. (1mar)

.....

State the period to which element A belongs in the periodic table. (1mark)

.....

b) (i) Write the electronic configuration of the ion of element A (1mark)

.....

(ii) Write the formula of the oxide formed by element A (1mark)

.....

What is an atom?

.....

.....

(b) Name two particles that make up an atom with their charges

(i)

.....

(ii)

.....

(a) What is an isotope?

.....

.....

.....

(b) Name two elements that have isotopes.

(i)

(ii)

(a) What is an atomic number?

(b) An atom of element Q has 7 electrons and 8 neutrons.

(a) What is atomic number of element Q?

(b) What is the atomic mass of element Q?

(c) How many protons does element Q have?

What is meant by the following?

Miscible liquids

Immiscible liquids

b) Give one example of;

i) Miscible liquids

ii) Immiscible liquids

c) Give the chemical name of the following compounds.

i) NaOH

ii) CuCO₃

Ca(OH)₂

NaCl

Na₂CO₃

a) Define a mixture.

ii) Give four differences between a mixture and a compound.

b) i) Define a radical.

ii) Write the formula of the following radicals.

Name of radical	Formula
Nitrate	
Sulphate	
Carbonate	
Hydroxide	

Define the following terms;

Basic oxide

.....

Amphoteric oxide

.....

Neutral oxide

.....

Electrochemical series

.....

Acidic oxide

.....

a) Sodium metal was burnt in excess oxygen.

State what was observed.

.....

Write an equation for the reaction.

.....

b) i) The product in a) was dissolved in water. State what was observed.

.....

ii) Write an equation for the reaction in b(ii) above.

.....

The figure below shows part of the periodic table. The letters do not represent the actual symbols of elements.

I	II	III	IV	V	VI	VII	VIII
S				M		P	

		J	W	X			Q	V
T	K						R	

State the;

Most reactive non – metal;

.....
Most reactive metal.

.....
Element that forms colored compounds.

.....
Formula of compound formed between X and K

.....
Alkaline metals

SECTION B

- With examples, give the difference between a normal salt and an acid salt (03 marks)
- Describe how a dry sample of zinc sulphate can prepared in the laboratory, using zinc oxide powder (07 marks)

With the aid of a well labelled diagram, describe how a dry sample of oxygen gas can be prepared in the laboratory .Hint: State the reactants, draw the setup, outline the procedure and write the equation for the reaction that takes place (10 marks)

With the aid of a well labelled diagram, describe how a dry sample of hydrogen gas can be prepared in the laboratory

Hint: State the reactants, draw the setup, outline the procedure and write the equation for the reaction that takes place (10 marks)

- a) What is meant by the term water pollution?
- b) Explain how each of the following cause water pollution.
 - i) Sewage
 - ii) Oil

Fertilisers

- c) Using a well labeled schematic diagram, describe the process by which water is treated.

a) With the aid of a well labeled diagram, describe how a dry sample of oxygen gas can be prepared in the laboratory using hydrogen peroxide and manganese (iv) oxide. (Your description should include equation of the reaction)

b) Describe how oxygen gas can be tested for in the laboratory. (2 mks)

c) Sodium metal was heated and lowered into a jar of oxygen.

i) State what was observed.

ii) Write a chemical equation for the reaction that took place in c(i) above.

State 3 uses of oxygen gas.

a) What is meant by the term Rust?

b) Using well labeled diagrams, describe an experiment that can be carried out to show that rusting requires both oxygen and water/moisture to take place.

c(i) State any two disadvantages of rusting.

State four methods of preventing rusting from taking place.

a) Distinguish atomic number from mass number

Draw a well labeled diagram of an atom showing all the fundamental particles

Two atoms of element O are represented as $^{18}_8\text{O}$ and $^{16}_8\text{O}$.

Write the electronic configuration, group and period of the atoms of element O

State the chemical term used to describe the relationship of the above 2 atom

b) Name any other element that shares a group with element O and give 2 similarities between them.

c) Give any 2 properties of elements that belong to the same group with element O