Name: …….. School: ……

Chemistry
S.2
2019
$1^1/_2$ hours

WAKISO- KALANGALA SESEMAT REGION ASSESSMENT

SENIOR 2 CHEMISTRY 2019

Time: 1hour 30minutes

INSTRUCTIONS:

- Answer **all** questions in section A and B.
- **Section A:** Write the letter corresponding to the right answer in the box on the right hand side of each question.
- **Section B:** Write your answers for this section in the spaces provided.
- **Section C:** Choose one question and answer it on a separate paper.

FOR EXAMINERS' USE ONLY

SECTION	MARKS
A	
B	
C	
TOTAL	**/70**

SECTION A (30 Marks)

1. The following are the reasons why we study chemistry <u>except</u>
   A. To acquire knowledge to solve problems in our community.
   B. To take career in the field of chemistry.
   C. To enable us drink alcohol properly and carefully.
   D. To acquire knowledge to make drugs.

2. The formula of sulphate of element X is X_2SO_4.
   Which one of the following is the formula of chloride of X.
   A. X_2Cl
   B. XCl_2
   C. XCl_3
   D. XCl

3. Fractional Crystallisation is used to separate the mixture of potassium chloride and potassium nitrate because of the different
   A. Rates of movements.
   B. Solubilities.
   C. Boiling points.
   D. Densities.

4. Which one of the following may be used to increase the rate of production of hydrogen during its preparation in the laboratory.
   A. Manganese (IV) oxide
   B. Hydrogen peroxide
   C. Calcium oxide
   D. Copper (II) sulphate.

5. Metal X cannot displace oxide of metal Y but it can displace oxide of metal Z. Which one of the following is correct arrangement of metals X,Y and Z in order of their increasing reactivity?
   A. X < Y < Z
   B. X > Y > Z
   C. Z < X < Y
   D. Y < Z < X

6. The formula of chloride of M is MCl_2 and the formula of ion of M is M^{n+}. Which one of the following is the value of n?
   A. 1
   B 2
   C. 3
   D. 4

7. Which one of the following is an example of normal salt?
   A. Na_2CO_3.
   B. $NaHCO_3$
   C. $NaHSO_4$
   D. $KHCO_3$

8. Which one of the following pairs of substances can both undergo sublimation?
   A. Iodine and potassium chloride.
   B. Potassium Chloride and Sodium Chloride.
   C. Ammonium Chloride and Iron (III) Chloride.
   D. Ammonium Chloride and Iron (II) Chloride

9. The atomic structures of elements R, S, T and U are 2:8:2, 2:8:3, 2:8:8 and 2:8:6 R, S, T and U are not the usual symbols. Which ones of the elements can combine to form an ionic compounds;
   A. R and S
   B. T and U
   C. R and U
   D. S and T

10. The following metals can displace hydrogen from sulphuric acid (H_2SO_4) **except**
   A. Zinc
   B. copper
   C. Iron
   D. Magnesium

11. The chemical symbols of element Z is represented $^{30}_{14}z$. The number of protons of element Z is
   A. 30
   B. 16
   C. 14
   D. 44

12. An acid H_nX is tribasic acid. The value of n in acid H_nX is
   A. 1
   B. 2
   C. 3
   D. 4

13. The following is /are observed when a piece of burning magnesium ribbon is lowered into a gas jar containing Oxygen **except**
   A. Bright light
   B. Black solid
   C. Heat
   D. White solid

14. The number of protons of element Y is 8. Which one of the following is not a property of element Y.
   A. It is in a period 3 of periodic table.
   B. it forms a covalent compound with non-metals.
   C. It has six electrons on its outer most energy level.
   D. It gains electrons to form ions.

15. Which one of the following is used to regulate the amount of air entering in the bunsen burner?
   A. Collar
   B. Air hole
   C. Jet
   D. Chimney

16. Rusting can be prevented by the following methods **except**
    A. Greasing.
    B. Galvanising.
    C. Enameling.
    D. Placing iron metal in a dry place.

17. Hydrogen gas can diffuse faster than ammonia gas because
    A. Ammonia gas smells badly.
    B. Hydrogen gas is colourless.
    C. Hydrogen gas can burn with a pop sound.
    D. Hydrogen gas is lighter than ammonia gas.

18. The name of the compound formed when sodium metal is burnt in excess air is
    A. Sodium oxide.
    B. Sodium hydroxide.
    C. Sodium peroxide.
    D. Sodium dioxide.

19. Hydrogen can be prepared by reacting dilute acid with metal above hydrogen in the reactivity series because
    A. metals can displace hydrogen from dilute acids.
    B. acids are very reactive.
    C. hydrogen can displace metals from their compounds.
    D. metals are catalyst .

20. Which one of the following substances has a giant atomic structure?
    A. Sodium Chloride.
    B. Diamond.
    C. Sulphur.
    D. Phosphorus.

21. Which of the following mixtures can be separated using difference in the rates of movement of components over a stationary phase
    A. alcohol and water
    B. water and paraffin
    C. ink
    D. crude oil

22. Which of the following shows electronic structure of an element that forms a diatomic molecule?
    A. 2:8:1
    B. 2:8:4
    C. 2:8:7
    D. 2:8:8

23. Element X belongs to group II and period 4 of the periodic table. The electronic structure of the ion of element X is;
    A. 2:8:2
    B. 2:8:8:2
    C. 2:8
    D. 2:8:8

24. The products formed when a metal carbonate reacts with a dilute acid are;
    A. Salt + Water + Carbon dioxide.
    B. Base + Water + Carbon dioxide.
    C. Salt + Water + Carbon monoxide.
    D. Base + Water + Carbon monoxide.

25. Potassium shows the following observations when added to water except
    A. floats on the water surface.
    B. turns into a silvery ball and dart on the water surface.
    C. catches fire and burns with a yellow flame.
    D. catches fire and burns with a lilac flame.

26. Which one of the following methods is used to collect dry hydrogen gas in the laboratory?
    A. Down ward delivery.
    B. Downward displacement of air.
    C. Upward displacement of air.
    D. Collection over water.

27. Ionic compounds have high melting points because;
    A. Ions strongly attract each other.
    B. Ions strongly repel each other.
    C. They combine by transfer of electrons.
    D. Ions are arranged in crystal lattice.

28. Which one of the following oxides shows both acidic and basic properties?
    A. MgO
    B. ZnO
    C. CO
    D. SO_2

29. The formula of the phosphate of metal M is $M_3(PO_4)_2$ which of the following is the formula of the ion formed by M?
    A. M^{2+}
    B. M^{2-}
    C. M^{3+}
    D. M^{3-}

30. Which of the following is true about group VII element?
    A. They form ions of formula X^+
    B. They all exist as colourless substances
    C. They exist as monoatomic molecules
    D. They form ionic compounds.

SECTION B (25 Marks)

Write answers in the spaces provided.

31. Liquid P was added into a reaction flask containing maganese (IV) oxide, bubbles of gas R were rapidly evolved.
    (a) Identify:
        (i) Liquid P …… (0½ marks)
        (ii) gas R …… (0½marks)

(b) What is the role of Manganese (IV) oxide in this experiment. (01 mark)

……..

……..

(c) Write an equation for the reaction leading to the formation of gas R. (01½ marks)

……..

……..

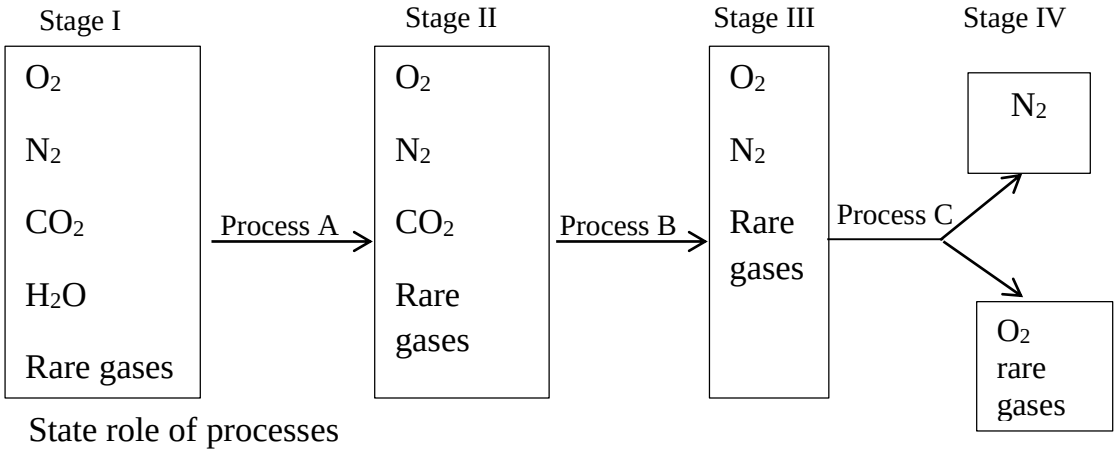
(d) How can gas R be identified in the laboratory? (1½ mark)

……..……

……..……

……..……

32. The flow chart below shows the stages in the process of separation of components of air. Study it and use it to answer the questions that follow:



a) State role of processes

(i) A …… (0 ½ mark)

(ii) B ……..…… (0 ½ mark)

(iii) C……..……. (½ mark)

b) Name the substances that are normally used during;

(i) Process A …… (½ mark)

(ii) Process B …… (½ mark)

c) Why is rare gases still present in the final stage (0½ mark)

……...……...

d) Write the equation which take place during process B (1½ mark)

……..……

……..……

e) State the common method used in process C (½ mark)

……..……...

33. The number of protons neutrons and electrons in atoms W, X, Y and Z are shown in the table below.

Atoms	Number of protons	Number of neutrons	Number of electrons
W	6	6	6
X	9	10	10
Y	12	12	10
Z	19	20	M
P	8	9	8

(a) State;

(i) The value of M (½ mark)

……..…….

(ii) The atomic mass of Y (½ mark)

……

(b) Which one of the atoms is;

i) A cation (01 mark)

……..…….

ii) An Anion (01 mark)

……

(c) Write the electronic configuration of ion of Z (½ mark)

……

……

(d) i) State the type of bond formed between atoms Z and P (½ mark)

ii) Show how the type of bond stated above can be formed (1 mark)

……

……

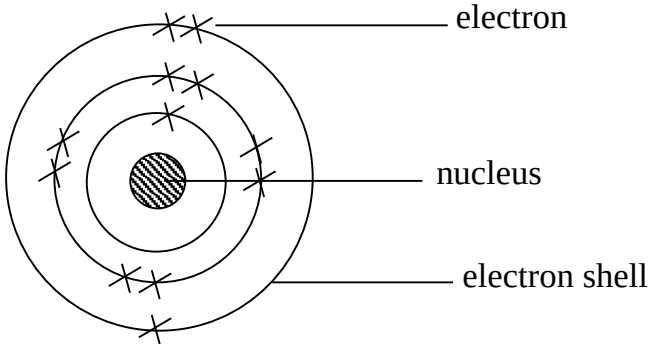
……

……

……

……

34. The structure of the atom of an element T is represented below.



(a) State the atomic number of T (01 mark)

……..

(b) Write the formula of the Oxide formed by T (01 mark)

……..

(c) The Oxide of T was made to combine with atom Q with full symbol $^{39}_{19}Q$

i) State any conditions for the reaction (0½ mark)

……..……

ii) Write an equation for reaction between atoms of T and Q (1½ marks)

……

……

d) Another atom has full symbol $^{40}_{19}z$. State a term used to describe the relationship between $^{39}_{19}Q$ and $^{40}_{19}z$ (01 mark)

…….....……

35. Complete the table below by stating the method of separation of the given mixtures and the principle behind the method chosen. (5 marks)

	Mixture	Method of separation	Principle applied
(a)	Iodine and sodium Chloride		
(b)	Kerosene and petrol		
(c)	Chlorophyll pigments		
(d)	Sodium carbonate and sodium sulphate		
(e)	Water and cooking oil		

SECTION C (15 Marks)

Answer <u>one</u> question only

36. Tom a senior 2 student was told to get 4 iron nails and put 2 into containers A and B. In container A, he was told to add rain water, while in B, he was told to add boiled water and oil. The containers were left to stand outside for 2 days.

(a) State what was observed in

i) Container A (01 mark)

ii) Container B (01 mark)

(b) Explain the observation in;

i) (a) (i) above (01 mark)

ii) (a) (ii) above (01 mark)

(c) i) Why was the water in container B boiled ? (½ mark)

ii) What was the aim of the experiment that Tom carried out? (01 mark)

(d) i) Give the chemical formula of the substance formed in container A (01 mark)

ii) State the conditions necessary for the formation of the substance in container A (01 mark)

(e) i) Give two disadvantages of the reaction that occurred in container A. (02 marks)

ii) How can you prevent the reaction in container A from occurring? (03marks)

(f) i) What is meant by the term galvanization? (01 mark)

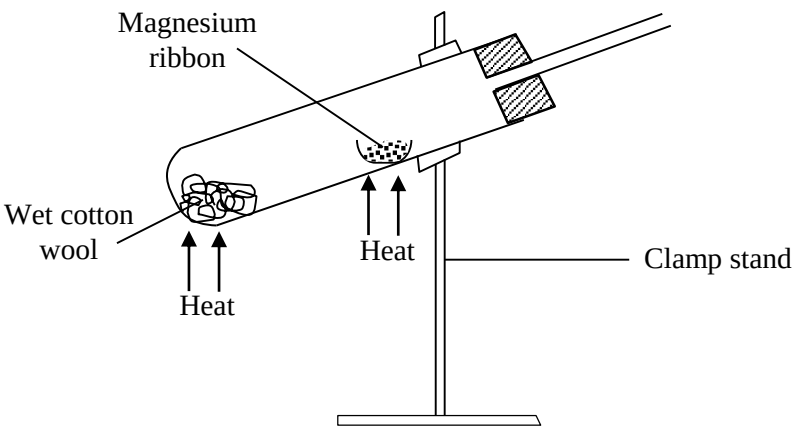
ii) How does galvanization prevent rusting. (1½ marks)

37. (a) i) Name the elements which make up water. (01 mark)

ii) Briefly describe how water can be tested in the laboratory. (02 marks)

iii) Write an equation for the reaction between hydrogen and oxygen leading to the formation of waters. (1½ marks)

(b) The diagram below shows how magnesium reacts with water.



i) Why was the wet cotton wool heated? (01 mark)

ii) State what was observed in the boiling tube. (01 mark)

iii) Write the equation for the reaction that took place. (1½ mark)

(c) i) State what is observed when a piece of sodium is dropped into water. (3 marks)

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

(d) i) Describe a test for hydrogen gas in the laboratory. (1½ marks)

ii) State **one** use of hydrogen. (1 mark)

END