



CHRIST HIGH SCHOOL PLOT 5, CHS  
STREET, KM 32, ABUJA-KEFFI ROAD  
UKE, NASARAWA STATE

**SECOND TERM  
EXAMINATION 2024/2025  
ACADEMIC SESSION**

**SUBJECT: Chemistry**  
**SECTION: Paper I & II**  
**CLASS: SS1**  
**TIME: 2hours 30minutes**

NAME.....

CANDIDATE'S ADMISSION NO.

**INSTRUCTION**

Write your name and number in the space provided on your answer booklet. Write your name on any extra sheet used.

Answer all questions in Part A and four in Part B.

At the end of the examination, staple all your work securely together.

**FOR EXAMINER'S USE**

Total Score:

+

1. 2,8,7 is the electronic configuration of
  - A. F
  - B. I
  - C. Br
  - D. Cl
  - E. At
2. The oxidation number of carbon in  $\text{CaCO}_3$  is
  - A. 0
  - B. +2
  - C. +3
  - D. +4
  - E. +6
3. The gas law which describe the relationship between volume and temperature is
  - A. Graham's law
  - B. Avogadro's law
  - C. Charles' law
  - D. Dalton's law
  - E. Boyle's law
4. Change of state is brought about by
  - A. Total volume of the gas
  - B. Melting and boiling
  - C. Speed of the gaseous molecules
  - D. Heat
  - E. Total mass of the gas
5. The reaction between an acid and a base is called
  - A. Combustion reaction
  - B. Substitution reaction
  - C. Neutralization reaction
  - D. Combination reaction
  - E. Chemical reaction
6. An element whose atomic number is 18 has the electronic configuration
  - A. 2,8,8 4
  - B. 2, 8,8,
  - C. 2,2,8,6
  - D. 2,8,10

- E. 2,8,7,2
7. The general gas equation was derived from
- A. Boyle's law and Gay Lussac's law
  - B. Boyle's law and Graham's law
  - C. Boyle's law and Charle's law
  - D. Dalton's atomic theory
  - E. The ideal gas equation
8. If the valency of hydrogen is one and that of oxygen is two, the formula is
- 
- A.  $\text{HO}_2$
  - B.  $\text{H}_2\text{O}$
  - C.  $2\text{OH}$
  - D.  $\text{H}_2\text{O}_3$
  - E.  $\text{O}_2\text{H}$
9. The type of bond between two atoms of an element with atomic number 8 is?
- A. ionic
  - B. covalent
  - C. hydrogen bond
  - D. metallic bond
  - E. coordinate covalent bond.
10. The oxidation number of phosphorus, P in  $\text{PH}_3$  is?
- A. -4
  - B. +2
  - C. -3
  - D. -1
  - E. +3
11. Give the IUPAC name of the compound  $\text{NO}_2$ .
- A. nitrogen trioxide
  - B. nitrogen monoxide
  - C. nitrogen (II) oxide
  - D. nitrogen (iv) oxide
  - E. nitrogen oxide
12. which of the following is not a halogen?
- A. silicon
  - B. fluorine
  - C. astatine

- D. bromine
  - E. iodine
13. The combining power of an element is called
- A. valency
  - B. atomicity
  - C. molecule
  - D. radical
  - E. hydrogen bond
14. According to the kinetic theory, an increase in temperature causes the kinetic energy of particles to
- A. decrease
  - B. increase
  - C. remain constant
  - D. be zero
  - E. drop
15. The noble gases owe their inactivity to
- A. octet configuration
  - B. cyclic shape
  - C. hexagonal shape
  - D. obtuse configuration
  - E. partial configuration
16. Which of these three states of matter has a definite shape and a fixed volume?
- A. Gas
  - B. Liquid
  - C. Solid
  - D. solid and liquid
  - E. solid and gas
17. The salt formed when there is an insufficient supply of acid for the complete neutralization of the base is
- A. basic salt
  - B. acid salt
  - C. normal salt
  - D. double salt
  - E. complex salt
18. What is the oxidation number of nitrogen in  $\text{Al}(\text{NO}_3)_3$ ?
- A. +1
  - B. +3
  - C. +5
  - D. +6

E. +4

19. What is the value of  $40^{\circ}\text{C}$  on the Kelvin scale?

A. 40K

B. 233K

C. 0K

D. 273K

E. 313k

20. An element whose atomic number is 19 is

A. noble gas

B. an alkali earth metal

C. an alkali metal

D. a transition metal

E. a metalloid

21. An element X has electron configuration  $1\text{S}^22\text{S}^22\text{P}^63\text{S}^23\text{P}^5$ . Which of the following statement is correct about the element?

A. It has a completely filled p-orbital

B. It has 5 electrons in the outermost shell

C. It belongs to group II on the periodic table

D. It is a halogen

E. It is a metal

22. The property of an acid in solution is due to the presence of..... ions

A. Chlorine

B. Hydrogen

C. Oxygen

D. Sodium

E. Sulfur

23. The oxidation number of oxygen is

A. +2

B. 2-

C. +1

D. -1

E. 3

24. Which of the following is an electrovalent compound?

A. Formation of  $\text{Cl}_2$  molecule

B. Formation of  $\text{HCl}$

C.  $\text{CaO}$

D.  $\text{H}_2\text{O}$

E. Formation of  $\text{H}_2$

25. The type of bond formed when electrons are donated and shared equally by two atoms is called

A. Electrovalent bond

B. Ionic bond

C. Dative bond

D. Covalent bond

E. Van der waal forces

26. The maximum number of electrons in d orbital is

A. 6

B. 2

C. 3

D. 4

E. 10

27. Which of the following is a weak intermolecular force of attraction?

A. Van der waal force

B. Hydrogen bond

C. Metallic bond

D. Ionic bond

E. Co-ordinate covalent

28. Hydrated copper (ii) ion is an example of

A. Metallic bond

B. Hydrogen bond

C. Van der waal forces

D. Co-ordinate covalent

E. Electrovalent bond

29. The chemical formula of calcium chloride is given as

A.  $\text{CaCl}_2$

B.  $\text{CCl}_2$

C.  $\text{CaCl}$

D.  $\text{CCl}$

E.  $\text{NaCl}$

30. Au is the chemical symbol for

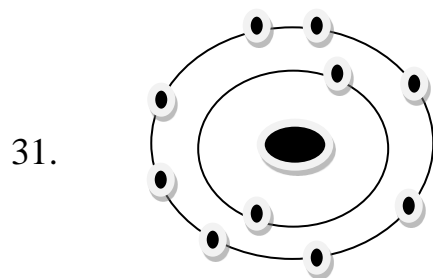
A. Lead

B. Silver

C. Copper

D. Mercury

E. Gold



The structure above represent

- A. Sodium
  - B. Neon
  - C. Magnesium
  - D. Chlorine
  - E. Argon
32. Which of the following is not a state of matter?
- A. Solid
  - B. Liquid
  - C. Gas
  - D. Plasma
  - E. Gel
33. Which of the following state of matter occupies the volume of its container?
- A. Solid
  - B. Liquid
  - C. Gas
  - D. Plasma
  - E. Gel
34. Van der waal forces exist in
- A. Iodine crystals
  - B. Water molecule
  - C. Chlorine molecule
  - D. Sodium chloride
  - E. Calcium oxide
35. Which of the following compound has hydrogen bond?
- A. HCl

- B. HF
- C. CaO
- D. NaCl
- E. O<sub>2</sub>

36. Water molecules are held together by

- A. Van der waal forces
- B. Ionic bond
- C. Covalent bond
- D. Hydrogen bond
- E. Metallic

37. The acid present in protein is

- A. Lactic acid
- B. Citric acid
- C. Propanoic acid
- D. Palmitic acid
- E. Stearic acid

38. Hydrogen and chlorine are held together in a molecule of hydrogen chloride gas by

- A. Electrovalent bond
- B. Hydrogen bond
- C. Covalent bond
- D. Metallic bond
- E. Dative bond

39. What is the maximum number of electrons in the p sub- shell?

- A. 2
- B. 4
- C. 6
- D. 12
- E. 8

40. Pipe borne water is usually chlorinated in order to

- A. Improve the taste of the water
- B. Remove the hardness in the water
- C. Coagulate sediments in the water
- D. Kill harmful bacteria in the water
- E. Make the water clear and colourless



41. Citric acid is gotten from
- A. Vinegar
  - B. Lime
  - C. Protein
  - D. Milk
  - E. Apple
42. A solution of PH 7 is
- A. Acidic
  - B. Concentrated
  - C. Dilute
  - D. Neutral
  - E. Saturated
43. The property of an acid in solution is due to the presence of..... ions
- A. Chlorine
  - B. Sulphure
  - C. Oxygen
  - D. Sodium
  - E. Hydrogen
44. Which law is obeyed when 1 volume of hydrogen reacts with 1 volume of chlorine to form 2 volumes of hydrogen chloride?
- A. Law of constant composition
  - B. Boyle's law
  - C. Charle's law
  - D. Gay-Lussac's law
  - E. Law of conservation of mass
45.  $P_{\text{total}} = P_1 + P_2 + P_3 + \dots + P_n$
- Where  $P_{\text{total}}$  is the pressure of a mixture of gases. Which of the gas laws does the equation above illustrate?
- A. Avogadro's
  - B. Boyle's
  - C. Dalton's
  - D. Gay-Lussac's
  - E. Graham
46. Acid react with a base to form .....
- A. Salt and water

- B. Salt and base
  - C. Salt and acid
  - D. Water and base
  - E. Water and acid
47. Which of the following is not a physical property of a bases?
- A. Bases turn red litmus paper to blue
  - B. Bases turn blue litmus paper red
  - C. They have a bitter taste
  - D. They have soapy feel
  - E. Concentrated alkalis are corrosive
48. The following are types of salt except
- A. Normal salt
  - B. Acidic salt
  - C. Basic salt
  - D. Complex salt
  - E. Dangote salt
49. Which law is obeyed when volume is doubled and pressure is halved?
- A. Charle's law
  - B. Dalton's law
  - C. Avogadro's law
  - D. Boyle's law
  - E. Graham's law
50. Which of the following is the chemical formula of potassium tetraoxomanganate (vii)?
- A.  $\text{KMnO}_4$
  - B.  $\text{K}_2\text{MgO}_4$
  - C.  $\text{H}_2\text{SO}_4$
  - D.  $\text{K}_2\text{O}$
  - E.  $\text{K}_2\text{MnO}_7$

**SECTION B: THEORY (Answer any four questions)**

1ai).100cm<sup>3</sup> of a gas has pressure of 1 atmosphere. Determine the volume of the gas at 5 atmospheres keeping the temperature constant. **(6marks)**

ii. Convert the following Celsius temperature to Kelvin temperature.

(a) 100<sup>0</sup>C (b) 0<sup>0</sup>C (c) -570C **(9marks)**

b) State Boyle's law **(5marks)**

c. Draw the graphical representation of Charles' law. **(5marks)**

**TOTAL MARKS= (25 MARKS)**

2ai. When some solids are heated, they change directly into the gaseous state. what is the name of this phenomenon? **(4marks)**

(ii) list two (2) substances which exhibit the phenomenon mentioned above **(6marks)**

(ii) define the following terms

(a)boiling **(5marks)**

(b)saturated vapour pressure **(5marks)**

(c)melting point **(5marks)**

**TOTAL MARKS= (25 MARKS)**

3a. write the IUPAC name of each of the following compounds

i. NaClO<sub>3</sub> **(4marks)**

ii. CuSO<sub>4</sub>.5H<sub>2</sub>O **(4marks)**

iii. CaCO<sub>3</sub> **(4marks)**

3b. Give three postulates of the kinetic theory of matter. **(6marks)**

3c. write the general gas equation **(3marks)**

(ii) state dalton's law of partial pressure. (4marks)

**TOTAL MARKS= (25**

**MARKS)**

4.

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

(a) Which of the element represented **A-E** in the table above is

- i. a transition metal.
- ii. an alkaline earth metal.
- iii. the least reactive.

bi What type of bond would exist in a compound formed when element **D** reacts with oxygen.

ii Write the formula in bi above. (10 marks)

c. Define efflorescence (6marks)

(ii) determine the oxidation number of the following

(a) X in  $\text{XO}_4^{3-}$ -----  
-----

(b) Nitrogen in  $\text{pb}(\text{NO}_3)_2$ -----  
-----

(c) Sulphur in  $\text{H}_2\text{SO}_4$ -----  
----- (9marks)

5ai.with the aid of an equation, explain three chemical properties of acid (9marks)

ii. Mention four types of strong chemical bond and explain one with example (8marks)

bi. show diagrammatically, how the bond explained in (2b) are formed) (5Marks)

bii. Give three examples of a covalent compound (3marks)

6.ai State Graham's law of diffusion (6marks)

ii. At S. T. P a certain mass of gas occupies a volume of  $790\text{cm}^3$ , find the temperature at which the gas occupies  $1000\text{cm}^3$  and has a pressure of  $720\text{mmHg}$  **(7marks)**

6bi. List two (2) differences between solid and liquid

<b>solid</b>	<b>liquid</b>

**(6marks)**

Consider the element  $_{12}\text{Mg}$  and  $_{13}\text{Al}$

Write the electronic configuration of each element **(6marks)**