CHEMISTRY

PAPER 1

SENIOR FOUR

NAME:....

 Zn_(s) → Zn²⁺ⁱⁱ_[aq] + 2e The above half cell reaction, A. Represents gain of electrons B. Is a reduction reaction C. Is an oxidation reaction D. Is a redox reaction
Souble decomposition method is

2. Double decomposition method is used for preparing

- A. Ammonium sulphate
- B. Copper (ii) sulphate
- C. Lead (ii) sulphate
- D. Magnesium sulphate

3. Which of these oxides is neutral?

- A. Na₂O
- B. CO₂
- C. CO
- D. NO₂
- 4. Which of these is **not** a use of oxygen gas?
 - A. In respiration
 - B. As fuel
 - C. Preparing water
 - D. In welding

5. Permanent hardness is due to the presence of

- A. SO_4^{2-}
- **B.** HCO_3^-
- C. SO_3^{2-}
- D. HSO_4^-
- 6. Which of the following substances is deliquescent?
 - A. Concentrated sulphuric acid
 - B. Sodium hydroxide pellets
 - C. Hydrated copper(ii) sulphate
 - D. Calcium sulphate









- 7. Which of the following is used to test for water?
 - A. Anhydrous copper(ii) sulphate
 - B. Hydrated copper(ii) sulphate
 - C. Cabalt(ii) oxide
 - D. Sodium chloride
- 8. Which one of the following substances undergoes a chemical change when heated?
 - A. Sulphur
 - B. Iodine
 - C. Argon
 - D. Ice
- 9. Which one of the following metals reacts only when heated in steam?
 - A. Magnesium
 - B. Copper
 - C. Calcium
 - D. Zinc
- 10. One acid formed by sodium is
 - A. Na_2CO_3
 - B. Na₂SO₃
 - C. Na₂SO₄
 - D. NaHSO₄
- 11. Sodium chloride is best prepared by method of
 - A. Precipitation
 - B. Neutralisation
 - C. Crystallisation
 - D. Evaporation

12. Which one of these is not a weak acid?

- A. Methanoic acid
- B. Carbonic acid
- C. Hydrochoric acid
- D. Ethanoic acid
- 13. Bronze is an alloy of
 - A. Copper and tin
 - B. Copper and zinc
 - C. Copper and nickel
 - D. Aluminium and iron
- 14. The basicity of sulphuric acid is
 - A. 4
 - B. 2
 - C. 3



- D. 1
- An element M has atomic number of 8. The electronic configuration of 15. the common ion formed by M is
 - Α. 2:8
 - Β. 2:6
 - C. 2:4
 - D. 2:8:8
- The valency of M in MO₂ is 16.
 - Α. 2
 - Β. 4
 - 3 C.
 - D. 1

An element X is in group (iii). The formula of the sulphate formed by x17. is

- XSO_4 Α.
- Β. $X_3(SO_4)_2$ C. $X_{2}(SO_{4})_{3}$
- $X(SO_4)_3$ D

18. An atom W has atomic number 20. The period to which W belongs is Α. 2

- Β. 8
- C. 4
- D. 1
- An atom $^{39}_{19}Y$ has the following electrons 19.
 - Α. 19
 - Β. 39
 - C. 20
 - D. 58
- 39.5g M combines with 22.5g of water to form a hydrated salt $M.nH_2O$. 20. If the RFM of an hydrous salt is 158. What is the value of n in the formula? (O =
 - 16, H = 1)
 - 5 Α. 10 Β.
 - C. 3
 - D. 2
- How many moles of chloride ions are in 40cm³ of 0.45M calcium 21. chloride (cacl₂), solution?
 - Α. 0.180

- B. 0.200
- C. 0.040
- D. 0.036
- 22. Lead(ii) iodide is precipitated from lead(ii) nitrate solution and potassium iodide solution according to the equation $Pb(NO_3)_{2(aq)} + 2KI_{(aq)}PbI_{2(S)} + 2KNO_{3(aq)}$. (K = 39, I = 127, Pb = 207) The mass of lead(ii) iodide formed when 16.6g of potassium iodide is
 - reacted is A. 46.1g
 - B. 33.3g
 - C. 8.4g
 - D. 23.05g
- 23. A metal oxide contains 78% of a metal x and 22% oxygen. (O = 16, x = 56)

The empirical formula of the oxide.

- A. X₃O
- B. X_2O_3
- C. XO
- D. XO_2

24. Which of these is not a use of carbondioxide gas?

- A. as a fuel
- B. As a refrigerant
- C. As fire extinguisher
- D. In fruit preservation
- 25. A molecular formula shows
 - A. the simplest whole number ratio of the different elements.
 - B. the ratio of atoms of the elements in amolecule
 - C. the number of the different element in 1 mole
 - D. the number of molecules in 1 molecule
- 26. One of the properties of metals is, they are all
 - A. liquids at room temperature
 - B. soft
 - C. good conductors of heat and electricity
 - D. insulators.
- 27. A periodic property
 - A. changes according to periods
- B. repeats itself in the same manner with increase in atomic number
 - C. changes according to ionization energy
 - D. changes with temperature and mass number.











- 28. When 3.2g of an oxide of a metal M was reduced, 2.56g of the element was left. (M = 64, O = 16). The empirical formula of the oxide is A. MO_2
 - A. MO_2 B. M_2O
 - C. M_2O_3
 - C. $M_2 O_3$
 - D. MO

29. Methane burns in oxygen according to the equation $CH_{4(g)} + 2O_{2(g)} \longrightarrow CO_{2(g)} + 2H_2O_{(I)}$

The volume of oxygen required for complete combustion of 20cm³ of methane is

- A. 10cm³
- B. 20cm³
- C. 30cm³
- D. 40cm³
- 30. Methanoic is a weaker acid than nitric acid because it is
 - A. More ionized in solution
 - B. an organic acid
 - C. a mineral acid
 - D. less ionized in solution
- 31. Sodium hydroxide solution was added in drops and then in excess to solution Y. A pale blue precipitate insoluble in excess was produced solution Y therefore contains.
 - A. iron(ii) ions
 - B. iron(iii) ions
 - C. copper(ii) ions
 - D. Calcium ions

32. A solution had a PH = 11. The solution is

- A. an acid
- B. a base
- C. a neutral solution
- D. a strong salt.
- 33. Which one of the following gases diffuses fastest?
 - (C = 12, O = 16, N = 14, H = 1, CI = 35.5)
 - A. CO₂
 - B. NH_3
 - C. HCI
 - D. NO

		٦

	 	 _



- 34. 100cm³ of nitrogen were reacted with 300cm³ of hydrogen at s.t.p. what was the volume of ammonia provided?
 - 100cm³ Α.
 - Β. 200cm³
 - C. 100cm³
 - 400cm³ D.
- Element Y form Y²⁻ ion. The atomic number of Y is 35.
 - 12. Α.
 - 16 Β.
 - C. 2
 - D. 6
- 36. Which of these is not a use of sulphurdioxide gas?
 - in baking Α.
 - as a refrigerant Β.
 - C. as a fumigant
 - in fruit preservation D.
- 37. Which of the following substance is not used to prepare carbon monoxide?
 - carbondioxide Α.
 - Β. methanoic acid
 - Ethanioc acid C.
 - D. Sidium hydrogen carbonate
- 38. Fractional distillation is used to separate substances of different.
 - Α. molar masses
 - Β. melting points only
 - C. molecular sizes
 - D. boiling points
- 39. Which of the following statements is not true about catalysts?
 - They can be both organic and inorganic Α.
- Β. They are substances that increase the yield of chemical reactions.
 - C. Their physical state may be different from those of rea
 - D. They may change the activation energy of a reaction.
- 40. Chemists in laboratories prefer using crystalline solid chemicals than powder forms because.
 - Α. they are cheap and easy to handle
 - Β. they have large surface area
 - C. many of them act as catalyst





D. they can be kept for a longer time

Each of question 41 – 45 consists of an assertion (statement on the left hand side and a reason on the right hand side. Choose answers A, B, C and D as follows.

Assertion	Reasons
A. True	True (reason is correct explanation)
B. True	True (reason is not a correct explanation)
C. True	Incorrect
D. Incorrect	Correct

41. Carbondioxide is collected by downward delivery **because** carbondioxide is an

acidic gas.

42. Potassium metal is stored under oil **because** it reacts very vigorously with water

43. Diamond is a hard substance **because** diamond has many strong covalent bonds

44. Methanoic acid is a weak acid **because** methanoic acid ionizes slightly in water

45. Rain water is permanently hard **because** rain water contains carbondioxide

In each of the questions 46 – 50, one or more of the answers given may be correct. Indicate the correct answer A, B, C or D according to the following.

- A If 1, 2 and 3 only are correct
- B If 1 and 3 only are correct
- C If 2 and 4 only are correct
- D If 4 only is correct
- 46. Which of the following sublime when heated?1. NH₄Cl

- 2. AlCl₃
- 3. FeCl₃
- 4. Zinc

47. Which of the following gases can be collected over water?

- 1. O₂
- 2. NH₃
- 3. H₂
- 4. HCl
- 48. Fur in kettles is due to
 - 1. Ca(HCO₃)₂
 - 2. CaCO₃
 - 3. MgCO₃
 - 4. CaSO₄

49. Which of the following are compounds

- 1. air
- 2. ink
- 3. hydrogen
- 4. water

50. Which of the following are alkenes?

- 1. C₂H₄
- 2. C₄H₈
- 3. C₃H₆
- 4. C₂H₆

