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Name: .....Index No:.....

School:.....Centre No:.....

Subject: **Chemistry Paper 1**

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**SOUTH SUDAN CERTIFICATE OF SECONDARY EDUCATION EXAMINATIONS**

**JANUARY 2015**

**042/1**

**CHEMISTRY  
PAPER ONE**

**TIME: 1 HOUR 30 MINUTES**

**INSTRUCTIONS**

**Read the instructions carefully before answering any question.**

1. This paper consists of 50 multiple choice questions.
2. Answer all questions.
3. All answers must be written in the boxes provided on the right hand side of each question.
4. Answers to all questions must be written in ink (Blue or Black colour).
5. Unnecessary crossing of answers may lead to loss of marks.

**Do not write in this Table**

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M/C Marks	

Do not write in this Rectangle

1. Which one of the following is a good conductor of electricity?

- A. Diamond
- B. Graphite
- C. Phosphorus
- D. Sulphur

2. Which one of the following is the chemical symbol of mercury?

- A. Me
- B. Ag
- C. Hg
- D. Mn

3. Sodium carbonate decahydrate crystal is an efflorescent substance because it

- A. absorbs water from the atmosphere and dissolves in it.
- B. absorbs water from the atmosphere but does not dissolve in it
- C. losses water of crystallization to the environment.
- D. contains fixed amount of water of crystallization

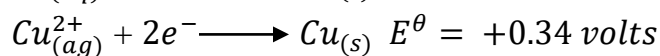
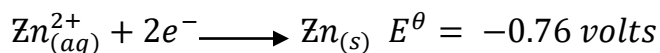
4. An unidentified gas diffuses at a rate of  $164\text{cm}^3$  per second. Another gas whose molar mass is 44 diffuses at a rate of  $102\text{cm}^3$  per second under the same conditions. The molar mass of the unidentified gas is

- A. 17
- B. 27
- C. 60
- D. 70

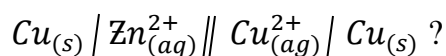
5. A freshly prepared acidified iron (ii) sulphate solution was added to a test tube containing solution of unknown anion. When concentrated sulphuric acid was carefully added down the side of the tube into the mixture a brown ring was formed. The unknown anion is most likely to be

- A.  $Cl_{(aq)}^-$ .  
B.  $CO_{3(aq)}^{2-}$ .  
C.  $SO_{4(aq)}^{2-}$ .  
D.  $NO_{3(aq)}^-$ .

6. Given the half reactions below



What is the e.m.f of an electrochemical cell?



- A. -0.42V  
B. - 1.10V  
C. +0.42V  
D. +1.10V

7. Beta particles are negatively charged because they

- A. are attracted by positively charged plates.  
B. are attracted by negatively charged plates.  
C. are unaffected by electric charges.  
D. have no mass.

8. The method of converting large hydrocarbon Molecules to small ones is called

- A. halogenations.  
B. hydrogenation.  
C. cracking.  
D. fractional distillation.

9. Which one of the following is the reason for adding Calcium Chloride into the Down's cell during extraction of Sodium?

- A. To quickly make Sodium Chloride become aqueous.
- B. To lower the melting point of Sodium Chloride.
- C. To elevate the melting point of Sodium Chloride
- D. To separate Sodium ions from Chloride ions.

10. Which one of the following is **not** required while making fire?

- A. Heat
- B. Carbon (iv) Oxide
- C. Fuel
- D. Oxygen

11. Which one of the following statements accounts for the inertness of nitrogen gas?

The nitrogen atoms form

- A. weak electrovalent bonds between them.
- B. weak covalent bonds between them.
- C. strong electrovalent bonds between them.
- D. strong covalent bonds between them.

12. The following are methods of preparing carbon (II) oxide in the laboratory except

- A. dehydration of Methanoic acid.
- B. dehydration of ethanol.
- C. incomplete combustion of Carbon.
- D. dehydration of oxalic acid.

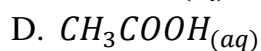
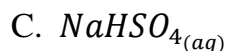
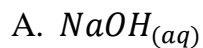
13. At higher temperatures, Sulphur (vi) Oxide decomposes into

- A. Sulphur and Oxygen.
- B. Sulphuric (vi) acid and Oxygen.
- C. Sulphur (iv) Oxide and Oxygen.
- D. Sulphur, Oxygen and Sulphur (iv) Oxide.

14. Oxidation means

- A. addition of hydrogen to a substance.
- B. addition of oxygen to a substance.
- C. addition of electrons to a substance.
- D. removal of oxygen from a substance.

15. A few drops of phenolphthalein indicator were added into a colourless solution in a test tube. The colourless solution turned to pink. Which one of these may be present in the solution?



16. Which one of the following is a heterogeneous mixture?

A. Mixture of ethanol and water

B. Orange juice

C. Sugar Solution

D. Milk

17. Which of the following gases causes green house effect?

A. Sulphuric (iv) Oxide

B. Carbon (iv) Oxide

C. Oxygen

D. Nitrogen

18. In which one of the following processes is Sulphur not used?

A. Manufacture of matches and gun power

B. Vulcanization of rubber

C. Manufacture of Polyethene

D. Manufacture of fungicide.

19. Which of the following substances is most suitable for drying ammonia gas during its laboratory preparation?

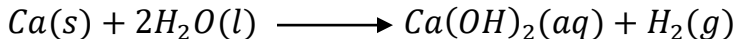
A. Concentrated Sulphuric acid

B. Calcium Oxide

C. Anhydrous Calcium Chloride

D. Copper(II)Oxide

20. Calcium reacts with water according to the following equation



The volume of hydrogen gas formed when 0.25 Moles of Calcium reacts with water at room temperature is (1 mole of a gas occupies 24dm<sup>3</sup> at room temperature)

- A. 0.6dm<sup>3</sup>
- B. 6.0 dm<sup>3</sup>
- C. 9.6 dm<sup>3</sup>
- D. 96.0 dm<sup>3</sup>

21. Which one of the following carbonates does not decompose on strong heating?

- A. K<sub>2</sub>CO<sub>3</sub>
- B. NaHCO<sub>3</sub>
- C. CuCO<sub>3</sub>
- D. ZnCO<sub>3</sub>

22. The formula of the Sulphate of Y is YSO<sub>4</sub>. The valency of Y is

- A. 1.
- B. 2.
- C. 3.
- D. 4.

23. An atom of an element X is represented by <sup>13</sup><sub>6</sub>X. In which group of the periodic Table is X found?

- A. III
- B. IV
- C. V
- D. VI

24. Which one of the following substances does not react with dilute Sulphuric acid?

- A. Magnesium
- B. Copper (II) Oxide
- C. Sodium Carbonate
- D. Copper

25. During electrolysis of Sodium hydroxide solution using platinum electrodes, the product formed at the cathode is

- A. Oxygen.
- B. Sodium.
- C. Hydrogen.
- D. Water.

26. Which one of the following methods is applied to remove permanent hardness of water?

- A. Distillation
- B. Boiling
- C. Addition of lime water
- D. Addition of ammonia solution

27. Figure 1 below shows the effect of Sunlight on chlorine water

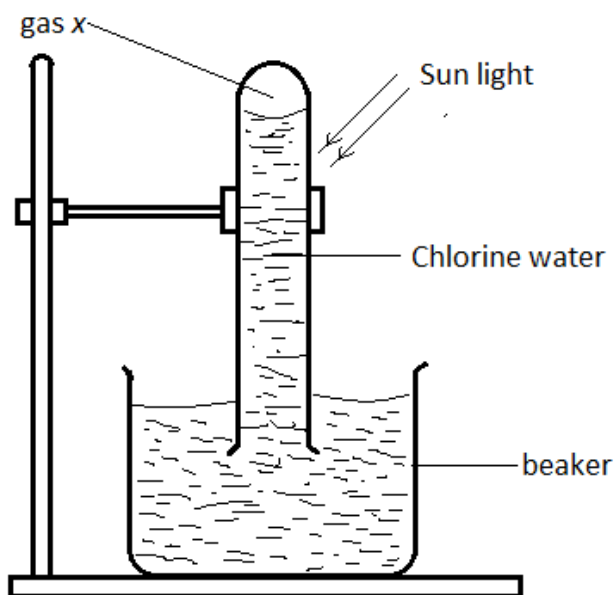


Figure 1

Which one of the following statements is true about gas *x*?

- A. It is a greenish-yellow gas.
- B. It rekindles a glowing splint.
- C. It turns lime water milky.
- D. It forms dense white fumes with ammonia.

28. Covalent bond is formed by

- A. transfer of electrons from one atom to another.
- B. moving electrons within the crystal lattice.
- C. sharing of a pair of valence electrons between atoms.
- D. reaction between metals and non-metals.

29. Which one of the following is a use of amorphous carbon?

- A. Making grinding, cutting and drilling tools
- B. Making pencil
- C. In extraction of metals
- D. Making electrolytic cell

30.  $25\text{cm}^3$  of 0.1 Sodium Carbonate requires  $24\text{cm}^3$  of hydrochloric acid to be completely neutralized. The molarity of the hydrochloric acid in  $\text{mol dm}^{-3}$  is

A.  $\frac{24 \times 0.1 \times 2}{24}$ .

B.  $\frac{24 \times 0.1}{25 \times 2}$ .

C.  $\frac{2 \times 24 \times 0.1}{25}$ .

D.  $\frac{2 \times 25}{24 \times 0.1}$ .

31. At  $100^\circ\text{C}$ , the solubility of a salt Z is 7g/100g of water. At  $25^\circ\text{C}$  its solubility is 22g/100g of water. The mass of salt Z deposited if initially it was saturated and the solution filtered at  $100^\circ\text{C}$  in 100g water then cooled to  $25^\circ\text{C}$  is

- A. 15.4g.
- B. 31.4g.
- C. 48.0g.
- D. 318.2g.



32. Which of the following statements is false about collision theory?
- A. Reactions take place due to collisions of reacting particles.
  - B. Reactions take place faster between solid particles.
  - C. Not all collisions between particles may be effective.
  - D. Colliding particles need minimum amount of energy in order to bring about chemical reactions.
33. Which one of the following is the most effective protection against radiations?
- A. Handle radioactive material with clean hands.
  - B. Work with radioactive substances during broad daylight.
  - C. Use shields that are made of special glass or lead block.
  - D. Wrap yourself with a sheet of paper while working with radioactive materials.
34. The amount of heat energy required to change solid into liquid at the same temperature is called
- A. Heat of condensation.
  - B. Latent heat of vaporization.
  - C. Latent heat of sublimation.
  - D. Latent heat of fusion.
35. Which one of the following experiments may not produce Oxygen gas in the laboratory?
- A. Heating potassium permanganate crystals.
  - B. Action of water on solid sodium peroxide.
  - C. Action of water on Sodium hydroxide.
  - D. Heating Potassium Chlorate in the presence of Manganese (IV) Oxide.
36. Which one of the following bases is insoluble in water?
- A. ZnO
  - B. NaOH
  - C. NH<sub>4</sub>OH
  - D. Na<sub>2</sub>O

37. Which one of the following rules is recommendable for students to follow in a Chemistry laboratory?

- A. Always work alone in the laboratory.
- B. Taste or smell chemicals or fumes for easy identification of chemicals.
- C. Eat and drink in the laboratory only during practical hours.
- D. Use clean apparatus for your experiments.

38. The nucleus of an atom composes of

- A. protons and electrons.
- B. protons and neutrons.
- C. electrons and neutrons.
- D. protons, neutrons and electrons.

39. Aluminum Oxide and lead (II) Oxide are called amphoteric oxides because they react with

- A. acids to form salt and water.
- B. other bases to form acid salts.
- C. acids to form basic salts .
- D. both acids and bases to form complex salts.

40. The number of moles in 10g of Sodium hydroxide is (Na = 23, O = 16, H = 1)

- A. 0.025.
- B. 0.25.
- C. 1.00.
- D. 4.00.

41. According to Le Chatelier's principle, decrease in the number of moles of the reactants affects the products by

- A. shifting the equilibrium from right to left.
- B. yielding more reactants in the reverse reaction.
- C. favouring forward reaction.
- D. favouring backward reaction.

42. Which of the following conditions are required for the laboratory preparation of hydrogen chloride gas from Sulphuric acid and Sodium Chloride?

- (i) The acid must be concentrated
- (ii) The acid must be dilute
- (iii) The reaction must occur in the cold
- (iv) Heat must be supplied

A. (i) and (iii) only

B. (ii) and (iii) only

C. (i) and (iv) only

D. (ii) and (iv) only

43. Which one of the following is a characteristic of non-permanent change?

- A. The mass of the substance does not alter.
- B. The change is irreversible.
- C. A new substance is formed.
- D. Usually no energy is given out or absorbed.

44. The reaction of ethanoic acid with ethanol is known as

- A. Neutralization.
- B. Polymerization.
- C. Esterification.
- D. Fermentation .

45. Which one of the following is an ore of Copper?

- A. Calamine
- B. Bauxite
- C. Magnetite
- D. Malachite

46. Which one of the following acids is manufactured by direct reaction of elements and dissolving the product in water?

- A. Nitric Acid
- B. Sulphuric acid
- C. Hydrochloric acid
- D. Lactic acid

47. A senior one student set up an experiment as shown in figure 2 below and the set-up was left for one hour.

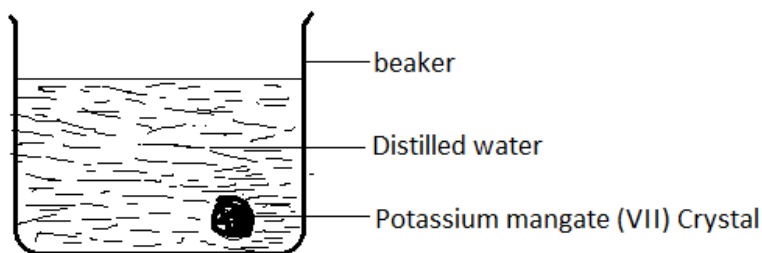


Fig 2

Which one of the following observations is correctly made?

- A. The size of the crystal reduces and the volume of water in the beaker increases.
- B. No observable change as the crystal is insoluble.
- C. The crystal swells up as it absorbs water and the volume of water drops.
- D. The water slowly turns purple due to crystal particles spreading throughout the liquid.

48. Which one of the following methods can be used to separate the components of air?

- A. Filtration
- B. Sublimation
- C. Fractional distillation
- D. Centrifuging

49. Which one of the following is a soapy detergent?

- A. Omo
- B. Toss
- C. Sodium alkanoate
- D. Sodium alkylsulphate

50. Which one of the following laboratory apparatus is **not** used for measuring volume of liquids?

- A. Burette
- B. Crucible
- C. Measuring cylinder
- D. Pipette

**THE END**