

MARKING GUIDE

KISINGA VOCATION SECONDARY SCHOOL
E.O.T TERM II EXAMINATIONS 2019
S.3 CHEMISTRY PAPER 1
DURATION: 2 HOURS

INSTRUCTIONS:

*This paper consists of 50 objective-type questions.
Answer all questions.*

You are required to write the correct answers A, B, C and D in the table below.

- Which one of the following gases will not reduce Copper(II) oxide?
A. Hydrogen **B. Ammonia** C. Chlorine D. Carbon monoxide
- The percentage of water of crystallization in iron(II) sulphate, $\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ is
($\text{FeSO}_4 = 152$, $\text{O} = 16$, $\text{H} = 1$)
A. $\frac{126 \times 100}{278} \%$ C. $\frac{126 \times 100}{152} \%$
B. $\frac{278 \times 100}{126} \%$ D. $\frac{152 \times 100}{126} \%$
- The gas that changes the colour of acidified potassium dichromate solution from orange to green is
A. Ammonia B. Chlorine C. Carbon dioxide **D. Sulphur dioxide**
- The atomic numbers of elements X and Y are 9 and 11 respectively. Which one of the following properties is shown by the compound formed when X combines with Y?
A. It is a non-conductor of electricity. **B. It has a high melting point.**
C. It is insoluble in water. D. It is a gas at room temperature.
- The process of making steel from Iron is called
A. galvanization B. metal plating C. glazing **D. alloying**
- A white solid, X, was kept in an open container, after some days, the solid became a liquid. X is
A. Calcium oxide B. Magnesium hydroxide
C. Fused calcium chloride. D. Sodium carbonate crystals.
- Which one of the following processes increases the concentration of oxygen in the atmosphere?

- A. **Photosynthesis** B. Fermentation C. Combustion
D. Decaying of organic matter.
8. Which one of the following acids when treated with zinc will not produce hydrogen gas?
A. **Dilute nitric acid** B. Dilute hydrochloric acid
C. Dilute sulphuric acid D. Dilute carbonic acid
9. The compound which does not form an electrolyte when dissolved in water is
A. potassium chloride B. hydrogen chloride
C. **Ethanol** D. Ethanoic acid
10. An oxide of metal M, contains 86.6% M. The empirical formula of the oxide is (O = 16, M = 207)
A. MO B. M₂O C. **MO₂** D. M₂O₃
11. The number of protons, neutrons and electrons in some particles are shown in the table below:
- | Particles | Protons | Neutrons | Electrons |
|-----------|---------|----------|-----------|
| P | 1 | 1 | 2 |
| Q | 2 | 2 | 2 |
| R | 3 | 4 | 2 |
| T | 4 | 5 | 4 |
- Which one of the following particles represents a cation?
A. T B. **R** C. Q D. P
12. Metal P displaces hydrogen from a dilute acid but metal Q does not. Metal R ; displaces P from its chloride. The order of reactivity of the metals beginning with the most reactive is
A. P, Q, R B. Q, P, R C. R, Q, P D. **R, P, Q**
13. Which one of the following factors does not affect the selection of an ion that is discharged at the electrodes during electrolysis?
A. Reactivity of the metal B. Nature of electrode
C. **Surface area of electrode** D. Concentration of electrolyse.
14. Element X belongs to group II in the Periodic Table. The formula of the oxide of X is
A. **XO** B. X₂O C. X₂O₃ D. XO₂
15. The break down of starch into glucose when heated with dilute hydrochloric acid is known as
A. dehydration B. fermentation C. **hydrolysis** D. hydrogenation
16. A salt P reacted with concentrated sulphuric acid to give a colourless gas which

fumes in moist air. The anion in P is likely to be a

- A. nitrate B. chloride C. sulphite D. carbonate

17. Which of the following salts is normally prepared by precipitations?

- A. Calcium carbonate B. Sodium sulphate
C. Zinc chloride D. Ammonium chloride

18. 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 a crystal lattice

19. A compound contains 92.3% carbon and 7.7% hydrogen by mass. What is the empirical formula of the compound? (C = 12, H = 1)

- A. C₂H B. CH₂ C. C₂H₂ D. CH

20. What is the percentage of nitrogen in calcium nitrate, (Ca(NO₃)₂)?

- (Ca = 40, N = 14, O = 16)
A. $\frac{14 \times 100}{164}$ B. $\frac{62 \times 100}{164}$ C. $\frac{28 \times 100}{164}$ D. $\frac{124 \times 100}{164}$

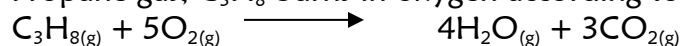
21. A solution of Y contained a white precipitate when dilute nitric acid was added followed by silver nitrate solution. Y contained

- A. CO₃²⁻ B. SO₄²⁻ C. Cl⁻ D. NO₃⁻

22. The atomic number of element Y is 19. The formula of its chloride is

- A. YCl₂ B. Y₂Cl C. YCl D. Y₂Cl₂

23. Propane gas, C₃H₈ burns in oxygen according to the following equation.



The volume of oxygen required for complete combustion of 10 dm³ of propane is

- A. 75 dm³ B. 50 dm³ C. 25 dm³ D. 15 dm³

24. Which one of the following is an amphoteric oxide?

- A. SO₂ B. ZnO C. P₂O₅ D. CaO

25. The number of moles of nitrogen molecules in 42 g of nitrogen is (N = 14)

- A. 0.33 B. 0.67 C. 1.50 D. 3.00

26. The atomic number of an element is

- A. the number of electrons and protons B. the number of protons and neutrons
C. the number of neutrons D. the number of protons

27. Which one of the following substances does not conduct electricity?

- A. Graphite B. Diamond C. Lead D. Zinc

28. Compound R contains 15.8% of X and 84.2% of Y. The empirical formula of R is?
(X = 12, Y = 32)
A. XY_3 B. X_2Y C. XY_2 D. X_3Y
29. The number of moles of sodium hydroxide in 100 cm³ of a 2 M solution of sodium hydroxide is
A. 0.2 B. 0.4 C. 2.0 D. 4.0
30. Which one of the following is not a large scale use of chlorine?
A. Manufacture of bleaching powder B. Purification of drinking water
C. Electrolysis of sodium chloride D. Manufacture of plastics.
31. Element X reacts with chlorine to form a compound of formula XCl_4 . The formula of the oxide of X is;
A. X_2O B. X_2O_4 C. XO_4 D. XO_2
32. The equation that represents an oxidation-reduction reaction is;
A. $NH_4Cl_{(s)} \xrightarrow{\text{heat}} NH_{3(g)} + HCl_{(g)}$
B. $2KClO_{3(s)} \xrightarrow{\text{heat}} 2KCl_{(s)} + 3O_{2(g)}$
C. $NaOH_{(aq)} + HCl_{(g)} \longrightarrow NaCl_{(aq)} + H_2O_{(l)}$
D. $2FeCl_2(aq) + Cl_{2(g)} \longrightarrow 2FeCl_3(aq)$
33. Which of the following substances increases in mass when heated?
A. Iodine B. Calcium C. Zinc Nitrate D. Potassium Carbonate
34. A dilute solution of sodium chloride was electrolyzed using carbon electrodes. Which of the following substances was formed at the anode?
A. Chlorine B. Oxygen C. Carbon dioxide D. Hydrogen
35. Which of the following is not true about an element of electronic arrangement 2:8:3?
A. It conducts heat and electricity B. It is a metal
C. It dissolves in dilute acids giving hydrogen gas
D. It has valencies 1, 2 and 3
36. The components of liquid air can be separated by
A. fractional distillation B. simple distillation

- | | | |
|--|---------|---|
| 43. Alkali metals are highly electro positive | because | They have one electron in their outer most shell. |
| | | A |
| 44. Chlorine bleaches moist litmuns paper | because | Chlorine is a reducing agent. |
| | | C |
| 45. Sodium and potassium belong to group I in the periodic table | because | Sodium and potassium are both reactive metals. |

A

In each of the questions 46 to 50, one or more of the answers given may be correct. Read each question carefully and then indicate the correct answer 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. Carbon is similar to sulphur in that both
- | | |
|----------------------------|------------------------------|
| 1. are non-metallic solids | 2. exist in allotropic forms |
| 3. form covalent compound | 4. form neutral oxides. |
- A**
47. Which of the following gas is/are used as coolant(s) in refrigerators?
- | | | | |
|-------------|-------------------|--------------------|------------|
| 1. Chlorine | 2. carbon dioxide | 3. sulphur dioxide | 4. Ammonia |
|-------------|-------------------|--------------------|------------|
- D**
48. Which of the following properties of metals is/are a result of its/their having free delocalised electrons?
- | | | | |
|--------------------------|--------------|--------------------|-----------------|
| 1. Electrical conduction | 2. Ductility | 3. Heat conduction | 4. Malleability |
|--------------------------|--------------|--------------------|-----------------|
- B**
49. The electronic configurations of elements B, D, E and F are 2, 4, 2, 6 2:8:3 and 2, 8, 7 respectively. Which elements when reacted together will form covalent compounds?
- | | | | |
|------------|------------|------------|------------|
| 1. B and D | 2. D and E | 3. B and F | 4. E and F |
|------------|------------|------------|------------|
- B**
50. Which of the following are mixtures?
- | | | | |
|------------|----------|--------------|----------|
| 1. Diamond | 2. Brass | 3. Aluminium | 4. Steel |
|------------|----------|--------------|----------|
- C**

BY NATUGONZA WISELY KYABOONA
Email; natugonzawisely@gmail.com