KITH & KIN INTERNATIONAL COLLEGE

7/11 Kadi Olusanya Street, Owode Ibeshe, Ikorodu, Lagos State.

FIRST TERM EXAMINATION 2025/2026 ACADEMIC SESSION

NAME					
SUBJECT	CHEMISTRY	CLASS	SS 3	DURATION	2HOURS

SECTION A: OBJECTIVE [50 MARKS]

INSTRUCTION: *Each question is followed by four options lettered A to D. Find the correct option for each question and shade in pencil on your answer sheet, the answer space which bears the same letter as the option you have chosen.*

1. Which of the following functional groups is present in alkanoic acids?
A. –OH
B. –CHO
C. –COOH
D. –COOR

2. Which metal is commonly used for galvanizing iron to prevent rusting?
A. Zinc
B. Copper
C. Sodium
D. Tin

3. The reaction between an alkanoic acid and an alcohol in the presence of concentrated H_2SO_4 produces _____.
A. aldehyde
B. ester
C. ether
D. alkane

4. Which of the following is NOT a polysaccharide?
A. Starch
B. Cellulose
C. Glycogen
D. Glucose

5. The major component of fats and oils is _____.
A. glycerol and fatty acids
B. amino acids
C. glucose and fructose
D. propane and ethane

6. Which metal is extracted from bauxite ore?
A. Zinc
B. Tin
C. Aluminium
D. Iron

7. The polymerization of ethene produces _____.
A. polyethene
B. polystyrene
C. polyvinyl chloride
D. nylon

8. Which of the following is an essential amino acid?
A. Glycine
B. Lysine

C. Alanine
D. Aspartic acid

9. Which of the following metals does not readily corrode in moist air?
A. Iron
B. Sodium
C. Copper
D. Zinc

10. Which of the following compounds is a reducing sugar?
A. Maltose
B. Cellulose
C. Starch
D. Sucrose

11. When sodium reacts with water, the gas evolved is _____.
A. oxygen
B. hydrogen
C. nitrogen
D. carbon dioxide

12. Which of the following is a use of calcium oxide?
A. Manufacture of soap
B. Bleaching agent
C. Drying agent
D. Electroplating

13. Which of the following is an example of a condensation polymer?
A. Polyethene
B. Polystyrene
C. Nylon
D. Polyvinyl chloride

14. Which of the following metals is used in making aircraft bodies due to its lightness?
A. Zinc
B. Aluminium
C. Tin
D. Copper

15. Alkanoates are generally known as _____.
A. acids
B. esters
C. alcohols
D. aldehydes

16. Which of the following is an amphoteric metal oxide?
A. CaO
B. ZnO
C. Na_2O
D. Fe_2O_3

17. The sweet smell of ripe fruits is due to the presence of _____.
A. alcohols
B. esters
C. acids
D. ketones

18. Which of the following is a transition metal?
A. Sodium
B. Calcium
C. Copper
D. Aluminium

19. Which of the following is NOT a property of fats and oils?
A. Insoluble in water
B. Soluble in organic solvents
C. Hydrolyzed by alkalis
D. Soluble in water

20. The test for proteins using Biuret solution gives which colour?
A. Red
B. Blue
C. Purple

D. Green

21. Which of the following carbohydrates is a monosaccharide?
A. Sucrose
B. Maltose
C. Fructose
D. Cellulose

22. Which of the following is a property of transition metals?
A. High melting point
B. Low density
C. Easily oxidized
D. Do not form coloured compounds

23. Which of the following processes is used in the extraction of iron from haematite?
A. Electrolysis
B. Blast furnace reduction
C. Fractional distillation
D. Thermal decomposition

24. What is the IUPAC name of CH_3COOH?
A. Propanoic acid
B. Ethanoic acid
C. Methanoic acid
D. Butanoic acid

25. The hydrolysis of fats and oils produces _____.
A. fatty acids and glycerol
B. amino acids
C. glucose
D. alcohol

26. Which of the following reactions illustrates esterification?
A. $CH_3COOH + CH_3OH \rightarrow CH_3COOCH_3 + H_2O$
B. $CH_3OH + H_2 \rightarrow CH_4 + H_2O$
C. $CH_4 + Cl_2 \rightarrow CH_3Cl + HCl$
D. $C_2H_6 + O_2 \rightarrow CO_2 + H_2O$

27. Which of these metals is used in making solder alloy?
A. Sodium
B. Aluminium
C. Tin
D. Zinc

28. Which of the following amino acids is the simplest?
A. Glycine
B. Alanine
C. Valine
D. Proline

29. Which of the following is NOT a property of transition elements?
A. Form coloured compounds
B. Have variable oxidation states
C. Form complex ions
D. Have low melting points

30. Which of the following compounds can decolourize bromine water?
A. Ethanoic acid
B. Ethanol
C. Ethene
D. Ethane

31. The ore of zinc is _____.
A. bauxite
B. cassiterite
C. zinc blende
D. haematite

32. Which of the following carbohydrates is a storage form of energy in animals?
A. Starch
B. Glycogen
C. Cellulose
D. Fructose

33. Aluminium is protected from corrosion by _____.
A. a thin layer of oil
B. a layer of zinc
C. A thin oxide layer
D. Galvanization

34. Which of the following metals is mainly used for making electrical wires?
A. Copper
B. Zinc
C. Iron
D. Aluminium

35. The general formula of alkanoic acids is _____.
A. CnH_2n_{+2}
B. CnH_2nO_2
C. $CnH_2n_{+1}OH$
D. $CnH_2n_{+1}COOH$

36. Nylon is obtained by the reaction between _____.
A. dicarboxylic acids and diamines
B. alkenes
C. alcohols and acids
D. fatty acids and glycerol

37. Which of the following is obtained from the destructive distillation of wood?
A. Cellulose
B. Methanol
C. Nylon
D. Rubber

38. The brown coating that forms on copper in moist air is called _____.
A. rust
B. tarnish
C. patina
D. scale

39. Which of the following elements is NOT a transition metal?
A. Iron
B. Copper
C. Aluminium
D. Zinc

40. Calcium carbonate reacts with dilute HCl to produce _____.
A. $CaCl_2 + H_2$
B. $CaCl_2 + CO_2 + H_2O$
C. $CaO + CO_2$
D. $Ca(OH)_2 + H_2$

41. Which of the following sugars is non-reducing?
A. Glucose
B. Fructose
C. Maltose
D. Sucrose

42. What is the functional group in amino acids?
A. –OH and –CHO
B. –COOH and $–NH_2$
C. $–NH_2$ and –OH
D. –COOH and –COOR

43. The main use of sodium vapour lamps is in _____.
A. street lighting
B. car batteries
C. cooking
D. electroplating

44. Which of the following is used in the vulcanization of rubber?
A. Aluminium
B. Sodium
C. Sulphur
D. Calcium

45. The enzyme that converts starch to maltose is _____.

A. zymase
B. maltase
C. amylase
D. sucrase

46. Brass is an alloy of _____.
A. copper and tin
B. copper and zinc
C. zinc and tin
D. copper and aluminium

47. Which of the following is a property of esters?
A. Sour taste
B. Pleasant fruity smell
C. Corrosive nature
D. Basic character

48. Which of the following transition metals is used as a catalyst in the Haber process?
A. Iron
B. Copper
C. Zinc
D. Aluminium

49. Which of the following is NOT a property of polymers?
A. High molecular mass
B. Non-volatile
C. Usually crystalline
D. Can be synthetic or natural

50. Which of the following is the ore of tin?
A. Bauxite
B. Cassiterite
C. Zinc blende
D. Haematite

SECTION B: THEORY

INSTRUCTION: Answer question number **one (1)** and any other **three (3)** questions in this section. All questions carry equal marks.

1. (a) State two chemical properties of alkanoic acids. (2 marks)
   (b) Write a balanced chemical equation for the neutralization of ethanoic acid with sodium hydroxide. (2 marks)
   (c) Explain briefly why ethanoic acid is soluble in water. (2 marks)
   (d) Write the structural formula of the ester formed between ethanoic acid and ethanol. (4 marks)

2. (a) Define saponification and state one industrial use of the process. (3 marks)
   (b) Differentiate between fats and oils based on their chemical composition. (2 marks)
   (c) Name the products obtained when a fat is hydrolyzed with sodium hydroxide. (2 marks)
   (d) Write a balanced equation to represent the saponification of a triglyceride. (3 marks)

3. (a) State two physical properties of transition metals that distinguish them from s-block metals. (2 marks)
   (b) Mention two industrial uses of copper. (2 marks)
   (c) Write a balanced equation for the reaction between zinc metal and dilute hydrochloric acid. (2 marks)
   (d) Explain why aluminium resists corrosion even though it is a very reactive metal. (4 marks)

4. (a) Give the structural difference between a monosaccharide and a disaccharide. (2 marks)
   (b) State two functions of carbohydrates in living organisms. (2 marks)
   (c) Name one test for reducing sugars and state the expected observation. (3 marks)
   (d) Write the hydrolysis reaction equation of sucrose to give its component monosaccharides. (3 marks)

5. (a) State two properties of amino acids. (2 marks)
   (b) Explain what is meant by a zwitterion in amino acids. (3 marks)
   (c) Name the type of bond formed when two amino acids join together. (2 marks)
   (d) Write a chemical equation showing the formation of a dipeptide from two glycine molecules. (3 marks)

6. (a) Define polymerization and state one example of a natural polymer. (2 marks)
   (b) Differentiate between addition polymerization and condensation polymerization. (3 marks)
   (c) Give one example each of (i) a thermoplastic polymer, (ii) a thermosetting polymer. (2 marks)
   (d) Write the polymerization equation for the conversion of ethene to polyethene. (3 marks)