CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

General Certificate of Education Examination

0515 CHEMISTRY 1

ORDINARY LEVEL

JUNE 2019

Centre Number	
Centre Name	
Candidate Identification Number	
Candidate Name	

Mobile phones are NOT allowed in the examination room.

MULTIPLE CHOICE QUESTION PAPER

One and a half hours

INSTRUCTIONS TO CANDIDATES

Read the following instructions carefully before you start answering the questions in this paper. Make sure you have a soft HB pencil and an eraser for this examination.

1. USE A SOFT HB PENCIL THROUGHOUT THE EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the examination begins:

3. Check that this question booklet is headed "**Ordinary Level –0515 Chemistry 1**"
4. Fill in the information required in the spaces above.
5. Fill in the information required in the spaces provided on the answer sheet using your HB pencil:
   Candidate Name, Exam Session, Subject Code, Centre Number and Candidate Number.
   Take care that you do not crease or fold the answer sheet or make any marks on it other than those asked for in these instructions.

How to answer the questions in this examination

6. Answer **ALL** the **50** questions in this Examination.
7. Calculators are allowed.
8. Each question has FOUR suggested answers: **A, B, C** and **D**. Decide which answer is appropriate. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen.
   For example, if **C** is your correct answer, mark **C** as shown below:
   [A] [B] [~~C~~] [D]
9. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase the first mark carefully, then mark your new answer.
10. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.
11. Do all rough work in this booklet using the blank spaces in the question booklet.
12. **At the end of the examination, the invigilator shall collect the answer sheet first and then the question booklet. DO NOT ATTEMPT TO LEAVE THE EXAMINATION HALL WITH IT.**

USEFUL DATA

I Faraday = 96000 coulombs.
Molar volume of any gas at r.t.p = 24000cm^3,
Avogadro number = 6.02x10 ^{23}
Specific heat capacity of water= 4.2 J g $^{-1}$C^{-1}

Relative Atomic Masses
Hydrogen (H) = 1.0
Carbon (C) = 12.0Copper (Cu) = 64.0
Oxygen (O) = 16.0 zinc (Zn) = 65.0
Chlorine (Cl) = 35.5
Nitrogen (N) = 14.0
Sodium (Na) = 23.0

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1. Choose a metal commonly used as overhead electric cables.
   A Zinc
   B Aluminium
   C Iron
   D Copper

2. Select a method that can be used to separate a mixture of water and petrol.
   A Evaporation to dryness
   B Separating funnel
   C Sublimation
   D Simple distillation

3. Determine the atomic number of an atom with electronic configuration 2,8,8,2.
   A 10
   B 4
   C 2
   D 20

4. The thermal decomposition of calcium nitrate will produce;
   A $Ca(NO_2)_2$ and O_2
   B NO_2 and O_2
   C N_2 and O_2
   D N_2O and O_2

5. The transition metal used as a catalyst in the manufacture of ammonia is
   A Vanadium
   B Copper
   C Iron
   D Platinum

6. The element X exists naturally as two isotopes, ^{80}X and ^{82}X in the ratio 1:1. The relative atomic mass of X will be
   A 81
   B 80.5
   C 82
   D 80

Questions 7 – 9 concern the following table

Element	M	N	O	P	Q
Proton	12	16	17	18	20
Electron	12	17	17	18	20

M, N, O, P and Q are not the usual symbols of the elements. Each element can be selected once, more than once or Not at all.
Select from the table:

7. An element that will not react easily with other elements.
   A M
   B N
   C O
   D P

8. Elements that belong to the same group of the Period Table
   A M and N
   B M and Q
   C O and Q
   D N and O

9. Determine the formula of the compound formed between M and N
   A M_2N_2
   B MN
   C MN_2
   D M_2N

10. Give the formula of the fifth member of the homologous series with general formula C_nH_{2n+2}
    A C_5H_{12}
    B C_5H_{10}
    C C_5H_{11}
    D C_5H_8

11. Name two air pollutants which are responsible for acid rain.
    A N_2 and SO_2
    B NO_2 and CO_2
    C CO_2 and SO_2
    D SO_2 and NO_2

12. Which of the following substances will burn with a smoky and luminous flame?
    A Propane
    B Ethene
    C Hydrogen
    D Butane

13. Calculate the amount of substance in moles in $250cm^3$ of 0.1M HCl(aq).
    A 0.05
    B 0.25
    C 0.025
    D 0.5

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14. When excess carbon dioxide is passed through lime water, the milky colour disappears due to the formation of
    A $Ca(HCO_3)_2$
    B $CaCO_3$
    C CaO
    D $Ca(OH)_2$

15. What is the colour imparted to a Bunsen flame by a copper (II) salt?
    A Bluish green
    B Apple green
    C Golden yellow
    D Brick red

16. The apparatus used in preparing a standard solution is a
    A Burette
    B Measuring cylinder
    C Pipette
    D Volumetric flask

17. During an oxidation reaction, an oxidizing agent
    A Gains oxygen
    B Loses oxygen
    C Loses hydrogen
    D Loses electrons

18. Calculate the quantity of electricity in coulombs if a current of 0.5A is passed through an electrolyte for 15 minutes.
    A 450
    B 45
    C 7.5
    D 27000

19. The number of replaceable hydrogen atoms in a molecule of an acid is called its
    A Acidity
    B Alkalinity
    C Basicity
    D pH value

20. The substance left in the glass tube when excess dry hydrogen is passed over heated copper (II) oxide is:
    A Copper(I)oxide
    B Water
    C 0xygen
    D Metallic copper

21. The function of limestone in the extraction iron is to remove
    A Excess air
    B Earthy impurities
    C Unburnt coke
    D Molten iron

Questions 22 and 23

Instructions: Each question is followed by four responses numbered 1-4. One or more of these responses is (are) correct. Decide which response(s) (are) correct then choose
A If only 1, 2 and 3 are correct
B If only 1 and 3 are correct
C If only 2 and 4 are correct
D If only 4 is correct

Instructions summarized			
A	B	C	D
1,2,3 only	1,3 only	2,4 only	4 only

22. The factors that influence the preferential discharge of ions during electrolysis are
    1 Position of ion on the electrochemical series.
    2 Nature of the electrode.
    3 Concentration of the ion.
    4 the charge on the ion.

23. A catalyst is a substance which
    1. Increases the temperature of a reaction
    2. Increases the rate of a chemical reaction
    3. Increases the yield of a chemical reaction
    4. Remains chemically unchanged at the end of a reaction

24. The components of crude oil can be separated by
    A Reforming
    B Cracking
    C Simple distillation
    D Fractional distillation

25. The empirical formula of an organic compound is CH. If the relative molecular mass of the compound is 78, then the molecular formula is:
    A C_2H_2
    B C_6H_6
    C C_4H_4
    D C_6H_{12}

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26. Carbon dioxide is prepared in the laboratory by the action of dilute hydrochloric acid on marble chips. Dilute sulphuric acid is not suitable for this process because;
   A An insoluble coat of calcium sulphate will be formed causing the reaction to stop.
   B The reaction will be too fast.
   C The reaction will be too slow.
   D Marble chips do not react with dilute sulphuric acid.

27. Select a carbonate that will **NOT** decompose when strongly heated in an open crucible.
   A $CaCO_3$
   B $CuCO_3$
   C Na_2CO_3
   D $MgCO_3$

Questions 28 – 30 concern the following substances
   A Ammonia gas
   B Lemon juice
   C Water
   D Ethanol

Each letter can be used once, more than once or not at all. Select from A to D a substance

28. Which produces steamy fumes with PCl_5.

29. That will turn moist red litmus paper blue.

30. That will turn blue litmus paper red.

31. Determine the percentage by mass of nitrogen in NH_4NO_3.(RMM of NH_4NO_3 = 80)
   A 17.5
   B 70
   C 35
   D 22.5

32. Which of these halogens is the most reactive?
   A Chlorine
   B Bromine
   C Iodine
   D Fluorine

33. Which of the following occurs during the electrolysis of aqueous copper (II) sulphate using copper electrodes?
   A The cathode increases in size
   B The anode increase in size
   C The colour of the solution fades
   D Oxygen is discharged at the anode

34. The compound most likely to be present in a bag of fertilizer is:
   A $Ca(NO_3)_2$
   B $(NH_4)_3PO_4$
   C NH_4Cl
   D NaCl

Questions 35 – 37

Instructions: Each question consists of a statement in the left-hand column followed by another in the right-hand column. Decide whether each of the statements is true or false. Then on your answer sheet, choose
   A If both statements are **TRUE** and the second statement is the **CORRECT EXPLANATION** of the first
   B If both statements are **TRUE** but the second statement is **NOT** the correct explanation of the first,
   C If the first statement is true but the second statement is **FALSE**
   D If the first statement is **FALSE** but the second statement is **TRUE**.

	Instructions Summarized	
	First statement	Second statement
A	True	True, second statement is the correct explanation of the first
B	True	True, second statement is NOT correct explanation of the first
C	True	False
D	False	True

	FIRST STATEMENT	SECOND STATEMENT
35	Elements of Group VII show similar chemical properties	Group VII elements have same number of shells
36	The presence of Cl^-, Br^- and I^- ions in solution can be tested using $AgNO_3$ solution	All three ions form coloured precipitates with $AgNO_3$ solution
37	Copper will displace magnesium from a solution of a magnesium salt	Copper is below magnesium in the electrochemical series

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38. Palm wine goes sour when exposed to air for some days because;
A Glucose is converted to gluconic acid
B Ethanol is converted to Ethanoic acid
C Glucose is converted to ethanol
D Palm wine is converted to palmitic acid

39. Calculate the mass of zinc that will produce 16g of copper according to the equation:
$Zn_{(s)} + CuSO_{4(aq)} \longrightarrow ZnSO_{4(aq)} + Cu_{(s)}$
A 1.625
B 15.75
C 16.25
D 1.58

40. Which of the following is a basic oxide?
A Al_2O_3
B SO_2
C Na_2O
D CO

41. What is the mass of 0.1 mole of Na_2CO_3? (Rmm of Na_2CO_3= 106)
A 106g
B 10.0g
C 1.06g
D 10.6g

42. Plastics pollute the environment because they are;
A Insoluble in water
B Non-biodegradable
C Biodegradable
D Inflammable

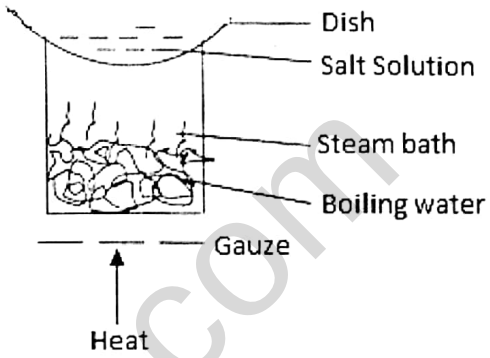
43. The different components of universal indicator solution can best be separated by
A Fractional distillation
B Filtration
C Chromatography
D Simple distillation

44. Consider the equation
$NaOH_{(aq)} + HCl_{(aq)} \longrightarrow NaCl_{(aq)} + H_2O_{(l)}$ $\Delta H = X$ KJ
What does X represent?
A Heat of neutralization
B Activation energy
C Heat of formation
D Heat of solution

45. 0.1MHCl reacts with powdered Na_2CO_3 according to the equation
$2HCl_{(aq)} + Na_2CO_{3(s)} \longrightarrow 2NaCl_{(aq)} + H_2O_{(l)} + CO_{2(g)}$. How can the reaction be made to go faster?
A Using 0.5MHCl
B Using lumps of Na_2CO_3
C Adding water to the reaction mixture
D Using 0.01MHCl

46. How many particles of NaOH are contained in 0.1 mole of NaOH?
A 6.02×10^{23}
B 6.02×10^{24}
C 6.02×10^{25}
D 6.02×10^{22}

Questions 47 and 48 are based on the diagram below.



47. What method of separation is illustrated in the diagram?
A Crystallization
B Sublimation
C Evaporation to dryness
D Filtration

48. An example of a mixture that can be separated by this method is
A Kerosene and water
B Ethanol and water
C NH_4Cl and NaCl
D NaCl and H_2O

49. Select the process that involves a physical change.
A Heating candle wax
B Electrolyzing dil. NaCl
C Burning a piece of Na
D Corrosion

50. Isotopes of a given element have the same
A Mass number
B Number of neutrons
C Physical properties
D Atomic number

STOP
GO BACK AND CHECK YOUR WORK

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