

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD
General Certificate of Education Examination

0515 CHEMISTRY 1

JUNE 2017

ORDINARY LEVEL

Centre Number	
Centre Name	
Candidate Identification No.	
Candidate Name	

Mobile phones are NOT allowed in the examination room.
MULTIPLE CHOICE QUESTION PAPER

One and a half (1) 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 "0515 Chemistry 1 - Ordinary Level"
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 and Candidate Identification 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. Each question has FOUR suggested answers: **A, B, C** and **D**. Decide on 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]
8. 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.
9. 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.
10. Do all rough work in this booklet using the blank spaces in the question booklet.
11. **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 ANY.**

USEFUL DATA

Relative Atomic Masses	
Hydrogen (H)	=1.0
Carbon (C)	= 12.0
Oxygen (O)	= 16.0
Sodium (Na)	= 23.0
Chlorine (Cl)	=35.5
Sulphur (s)	=32.0

Farady = 96000 coulombs.
Molar Volume of any gas at r.t.p = 24000cm ³ ,
Specific heat capacity of water = 4.2J/g°C
Avogadro Number = 6.02 x 10 ²³
0°C =273 K

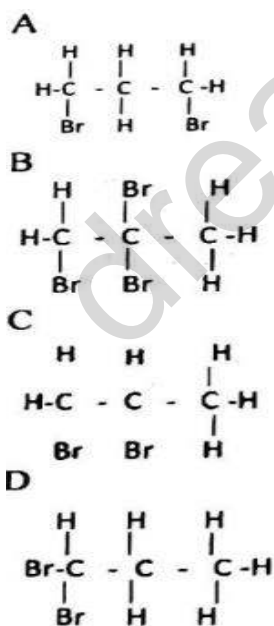
Turn Over

2/0515/1/B/MCQ

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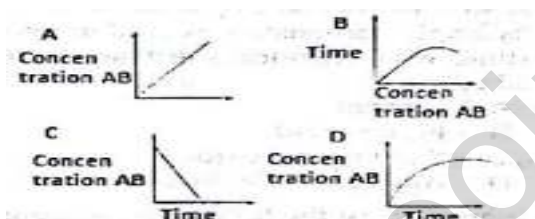
State the property which is used to classify elements into groups of the Periodic Table

1. Number of electronic shells
 B Valency of the element
 C Number of valence shell electrons
 D Number of protons
2. A substance whose aqueous or molten form conducts electricity is called:
 A Non-conductor
 B Conductor
 C Insulator
 D Electrolyte
3. Fractional distillation of liquid air is used to obtain:
 A Carbon dioxide
 B Water vapour
 C Hydrogen
 D Nitrogen
4. An element X has atomic symbol ${}_{11}^{23}\text{X}$. How many neutrons are found in the nucleus of X?
 A 23
 B 11
 C 12
 D 34
5. Which of the following metals is extracted by electrolysis?
 A Iron
 B Aluminum
 C Copper
 D Zinc
6. Which of the following structures represents 1,2-dibromopropane?



7. A halogen that is used in making toothpaste is
 A Chloride
 B Iodine
 C Fluorine
 D Bromine
- Questions 8-10 concern the following experiment. 20cm³ of 2M NaOH is quickly mixed with 20cm³ of 2M H₂SO₄ in a plastic cup. The temperature changes from 25.2°C to 38°C
8. Which one of the following describes the above reaction?
 A Neutralization reaction
 B Exothermic reaction
 C Precipitation reaction
 D Acid-base reaction
9. Select the apparatus that is used to measure EXACTLY 20cm³ of NaOH solution.
 A Measuring cylinder
 B Pipette
 C Volumetric flask
 D Graduated beaker
10. Assuming that 1 cm³ of the mixture weighs 1.0g. Determine the heat change for 40cm³ of the reaction mixture
 A 53.8 KJ
 B 215.04 J
 C 53720 KJ
 D 2150.4J
11. Select a substance whose bonding involves the formation of ions.
 A Ammonia
 B Hydrogen
 C Nitrogen gas
 D Sodium chloride
12. Why do farmers apply fertilizers to their farms?
 A To make the soil neutral
 B To make the soil acidic
 C To increase plant nutrients
 D To replace used sulphates in the soil
13. Determine the empirical formula of the compound when 0.6g of carbon combines with 1.6g of sulphur?
 A CS₂
 B CS
 C C₂S
 D C₂S₄
14. Which of the following statements best describes a mixture?
 A It has a fixed composition
 B It can be separated by chemical means
 C It melts at a fixed temperature
 D It can be separated by physical means

5. Identify the products formed when solid magnesium nitrate is strongly heated
 A Mg, NO₂O₂
 B MgO, O₂, NO₂
 C MgNO₂, O₂, NO₂
 D MgO, O₂, N₂
16. Caesium (Cs) and sodium (Na) are found in the Group 1 of the Periodic Table. Write the formula of the oxide of caesium
 A Cs₂O
 B CsO
 C CsO₂
 D Cs₂O₃
17. An organic liquid, W, has no effect on litmus. On addition of a few crystals of phosphorus pentachloride to the liquid, white fumes are evolved. W could be:
 A CH₂CH₂
 B CH₃OCH₃
 C CH₃CH₂OH
 D CH₃CH₂Cl
18. Which of the following graphs best represents the change in concentration of AB with time for the reaction A+B → AB



19. Which of the following processes DOES NOT involve the large scale use of limestone?
 A Making of quick lime
 B Iron extraction
 C Cement manufacture
 D Soap making
20. Which of the following natural processes is catalyzed by light?
 A Transpiration
 B Fermentation
 C Photosynthesis
 D Decay
21. When 2.0g each of powdered diamond and graphite are burnt in excess air:
 A Diamond produces more carbon dioxide than graphite
 B Graphite produces more carbon dioxide than diamond
 C Both will produce an equal volume of carbon dioxide
 D Graphite and diamond burn at the same

22. A gas occupies a volume of 211cm³ at 18°C. What volume will it occupy at 28°C?
 A 218.3cm³
 B 204cm³
 C 328.2 cm³
 D 21.83cm³

Questions 23 and 24 concern the following equal ion :CH₃CH₂COOH (aq) + CH₃CH₂



23. What name is usually given to this reaction?
 A Acid hydrolysis
 B Ester hydrolysis
 C Dehydration
 D Esterification
24. What is the role of H⁺ in the reaction?
 A To neutralize the base
 B To catalyse the reaction
 C To increase the rate of hydrolysis
 D To provide electrons
25. Catalytic oxidation or reduction is used in the manufacture of the following heavy chemicals EXCEPT:
 A NH₃
 B NaOH
 C HNO₃
 D H₂SO₃
26. A solution of a substance gives a blue gelatinous precipitate with sodium hydroxide solution. The substance could be:
 A Copper (II) sulphate
 B Copper (I) chloride
 C Iron (II) chloride
 D Iron(III) chloride
- Questions 27-28 concern the following equation:

$$2\text{HCl}(\text{aq}) + \text{Na}_2\text{S}_2\text{O}_3(\text{aq}) \rightleftharpoons 2\text{NaCl}(\text{aq}) + \text{S}(\text{s}) + \text{SO}_2(\text{g}) + \text{H}_2\text{O}(\text{l})$$
27. What will you observe when dilute hydrochloric acid is added to a solution of sodium thiosulphate, Na₂S₂O₃ ?
 A A clear solution is formed
 B A yellowish gas is evolved
 C A yellow precipitate is formed
 D A salt is formed

Turn Over

28. What will happen when the concentration of hydrochloric acid is increased?
- The equilibrium position moves to the right
 - The equilibrium position does not change
 - The equilibrium position moves to the left
 - Less SO_2 will be produced

Questions 29-31

Instructions:

For each of the questions below one or more of the response(s) numbered 1-4 are(is) correct. Decide which of the response(s) is (are) correct then choose:

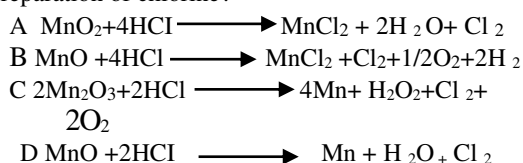
- If 1,2 and 3 are correct
- If 1 and 3 are correct
- If 2 and 4 are correct
- If 4 only is correct

Instructions summarized:

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

29. Which of the following is a characteristic property of transition elements?
- Good conductor of heat and electricity
 - They form compounds with variable valencies
 - They react with dilute acids evolving hydrogen
 - Solutions of their compounds are coloured
30. Select reaction(s) which is (are) common to alcohols
- They evolve white fumes with PCl_5
 - They react with organic acids to produce esters
 - They react with sodium evolving hydrogen
 - They liberate carbon dioxide from carbonates
31. When carbon burns in excess air;
- An acidic oxide is formed
 - A neutral oxide is formed
 - A gas is produced which turns lime water milky
 - A basic oxide is formed
32. When ethane is mixed with bromine water;
- It slowly decolourises it
 - A substitution reaction occurs
 - Bromoethane is produced
 - No reaction occurs
33. The reagent used to test for the presence of the sulphate ion in the laboratory is acidified;
- Barium sulphate
 - Silver chloride
 - Barium chloride
 - Sodium nitrate
34. Proteins are prepared from
- Carbohydrates
 - Glucose
 - Amino acids
 - Fats
35. Why is it preferable to use copper than iron in making electric cables?
- Copper has a high melting point
 - Copper is heavier than iron
 - Iron rusts easily when exposed to air
 - Copper is a conductor of electricity
36. A student got stung by bees on campus, sodium hydrogen carbonate was used in treating this bee sting. What chemical substance is found in bee sting?
- Ethanol
 - Formic acid
 - Sodium hydroxide
 - Ammonium hydroxide
37. Which one of the following procedures is MOST convenient and safe for the titration of sulphuric acid with sodium hydroxide?
- Run the acid from the burette into a conical flask containing the base and phenolphthalein
 - Run the base from a burette into a conical flask containing the acid and phenolphthalein
 - Pipette the base into a conical flask containing the acid and phenolphthalein
 - Run the base and the acid from a burette into a conical flask containing phenolphthalein
38. Consider the reaction;
- $$\text{Ba}(\text{OH})_2(\text{aq}) + 2\text{HCl}(\text{aq}) = \text{BaCl}_2(\text{aq}) + 2\text{H}_2\text{O}$$
- Calculate the concentration of Barium hydroxide if 20cm^3 Barium hydroxide solution is neutralized by 30cm^3 of 0.1M hydrochloric acid
- 0.300M
 - 0.075M
 - 0.150M
 - 0.50M

39. Which of the following equations best describes the preparation of chlorine?



Questions 40-43

Instructions:

Each of the following questions consists of a statement in the left hand column followed by a second statement in the right hand column. Decide whether each of the statements is true or false. Then on your answer sheet mark:

- A If both statements are true and the second statement is a correct explanation of the first statement
 B If both statements are true but the second statement is NOT a correct explanation of the first statement
 C If first statement is true but second statement is false
 D If first statement is false but second

	First statement	Second statement
A	True	True and the second statement is a correct explanation of the first
B	True	True and the second statement is NOT a correct explanation of the first
C	True	False
D	False	True

- 40.

First statement	Second statement
Reactive metals liberate hydrogen gas from dilute acids	Sodium reacts violently with water

- 41.

First statement	Second Statement
Propene decolorizes bromine water	Propene contains carbon to carbon double bond

- 42.

First Statement	Second Statement
Heated CuO is reduced when a stream of hydrogen is passed over it	Hydrogen is a gas at room temperature

- 43.

First Statement	Second Statement
Anhydrous copper (II) sulphate is used to test for water	When water is added to anhydrous copper (II) sulphate it dissolves.

- 44.

What is the major effect of sulphur dioxide emission into the atmosphere?

- A Depletion of the ozone layer
 B Acid rain
 C More rainfall
 D Dark clouds

- 45.

Which of the following pairs of substances is NOT suitable for the laboratory preparation of hydrogen?

- A Zinc and dilute hydrochloric acid
 B Magnesium ribbon and dilute hydrochloric acid
 C Calcium and water
 D Sulphuric acid and copper metal

- 46.

Which of these contains the same number of particles?

- A 12g of C and 10g of Na
 B 20cm³ of 0.1 M NaOH and 40cm³ of 0.05M HCl
 C 1 mole of C₂H₅ OH and 1g of NaOH
 D 25 cm³ of CO₂ and 32g of O₂

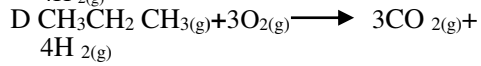
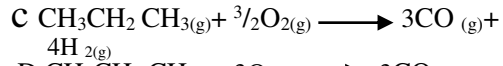
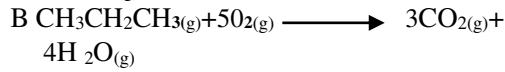
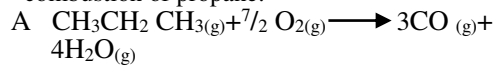
- 47.

Two elements, X and Y have electronic configurations, 2, 4 and 2, 8, 7 respectively. Identify the bond type in a compound formed between X and Y.

- A Metallic
 B Electrovalent
 C Simple covalent
 D Dative Covalent

Turn Over

48. Select a balanced equation to show the complete combustion of propane:



49. How many Faradays of electricity will be needed to pass through a solution in which 5.5A of electricity are allowed to run through for 1 hour?

A 0.5F

B 0.2F

C 2F

D 1F

50. Dry ice, (Cardice) is a refrigerant that sublimates. The particles that make up dry ice are:

A Carbon dioxide molecules

B Water molecules

C Hydrogen and oxygen molecules

D Carbon and oxygen atoms

STOP

GO BACK AND CHECK YOUR WORK