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CAMEROON GENERAL CERTIFICATE OF EDUCATION EXAMINATION
GOVERNMENT BILINGUAL HIGH SCHOOL YAOUNDE

0715 CHEMISTRY 1

2020

ADVANCED LEVEL

Centre No. & Name	
Candidate No.	
Candidate Name	

0715 CHEMISTRY 1: MULTIPLE CHOICE QUESTIONS PAPER

One and a half ($1\frac{1}{2}$) 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 booklet is headed "Advanced Level-0715 Chemistry 1"
4. Insert the information required in the spaces above.
5. Insert the information required in the spaces provided in the answer sheet using HB pencil:
Candidate Name, Exam Session, Center Number, Subject Code, Candidate Number. Take care that you do not erase 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. Non-programmable calculators are allowed
8. Each question has **FOUR** suggested answers **A, B, C** and **D**. Decide on which answer is correct. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square. For example, if **C** is the correct answer, mark **C** as shown below:
[A] [B] [C]
9. Mark only one answer for each question. If you mark more than one answer, you will score zero for that question. If you change your mind about an answer, erase the first mark carefully, and then mark your new answer.
10. Avoid spending much time on any question. If you find a question difficult, move to the next question. You can come back to this question later.
11. Do all rough work in this booklet using, where necessary, the blank spaces in the question booklet.
12. Mobile phones are **NOT** allowed in the examination room.

USEFUL DATA

Relative Atomic Masses
Aluminium (Al) = 27.0
Hydrogen (H) = 1.0
Oxygen (O) = 16.0
Sodium (Na) = 23.0

Nitrogen (N) = 14.0
Phosphorus (P) = 31.0
G.M.V of any gas at r.t.p. = 24000cm^3
1 faraday = 96000 coulombs

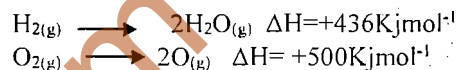
Question 1-21 (twenty one questions)

Directions: Each of the equation or incomplete statements in this section is followed by four suggested answers. Select the best answer in each case

- The mole is
 - The number of carbon atoms in exactly 12g of the carbon-12 isotope.
 - The amount of substances that contains as many elementary particles as there are carbon atoms in the carbon-12 isotope
 - The amounts of substances that contains 6.02×10^{23} particles
 - The amounts of substances that contains 6.02×10^{23} atoms [A][B][C][D]
- The elements in the periodic table are arranged in order of increasing
 - Relative atomic mass
 - Atomic weight
 - Nuclear mass
 - Proton number [A][B][C][D]
- 60g of a metal, M (RAM=60) combines with 24g of oxygen (RAM=16) to form an oxide. The formula of the oxide is [A][B][C][D]
 - MO₂
 - M₂O₃
 - M₂O₂
 - M₃O₂
- An element has atomic number 24. Its electronic configuration is
 - [Ar]3d⁶4s⁰
 - [Ar]3d⁵4s¹
 - [Ar]3d⁴4s²
 - [Ar]3d⁵4s² [A][B][C][D]
- The half-life iodine-131 is 8.07 days. What fraction of a sample of iodine-131 remains after 24.21 days?
 - 1/2
 - 1/4
 - 1/8
 - 1/16 [A][B][C][D]
- The function of the electron gun in a mass spectrometer is
 - Fires fast moving electrons
 - ionizes gaseous atoms producing positive ions
 - accelerates the ionized gaseous atoms
 - vaporizes the elements [A][B][C][D]
- The shape of PCl₅ is
 - Trigonal pyramidal
 - trigonal bipyramidal
 - planar
 - octahedral [A][B][C][D]
- Arrange the following compounds in order of basic strength I) C₆H₅NH₂ II) CH₃CH₂NH₂ III) CH₃CONH₂ IV) (CH₃)₂NH
 - IV<II<I<III
 - III<I<II<IV
 - III<II<IV<I
 - I<II<III<IV [A][B][C][D]
- Consider the reaction

$$\text{H}_2\text{O}_2(\text{aq}) + 2\text{H}^+(\text{aq}) + 2\text{I}^- \longrightarrow \text{I}_2(\text{aq}) + 2\text{H}_2\text{O}(\text{l})$$
 Which suitable apparatus can be used in the laboratory to monitor the rate of this reaction?
 - Thermometer
 - gas syringe
 - barometer
 - colorimeter [A][B][C][D]

- On descending group II from magnesium to Barium there is a steady increase in the solubility in water of
 - Carbonates
 - Sulphates
 - Phosphates
 - hydroxides [A][B][C][D]
- How many isomers can exist for the octahedral complex, [Co(en)₂Cl₂]⁺
 - 3
 - 4
 - 2
 - 6 [A][B][C][D]
- Given the following reaction and their enthalpies at 298K, calculate the bond enthalpy of the O-H bond in water



- +464 KJmol⁻¹
 - +907 KJmol⁻¹
 - 686 KJmol⁻¹
 - +686 KJmol⁻¹ [A][B][C][D]
- The mass spectrometer trace for magnesium shows peaks at mass points 24, 25 and 26 in the ratio 8:1:1 respectively. The relative atomic mass for magnesium is [A][B][C][D]
 - 24.2
 - 24.4
 - 24.3
 - 24
 - 20cm³ of 0.2 M NaOH solution is added to 50cm³ of 0.1M CH₃COOH solution. The pH of the resulting mixture is (K_a=1.8×10⁻⁵ moldm⁻³)
 - 1.23
 - 5.35
 - 4.74
 - 3.29 [A][B][C][D]
 - The active ingredient in house hold bleach solution is: [A][B][C][D]
 - NaCl
 - NaClO
 - NaHCO₃
 - Ca(OH)₂
 - Chromium form the complex [Cr(C₂O₄)₂2Cl₂]³⁻. The oxidation number of chromium in the compound is
 - 2
 - 3
 - 6
 - 4 [A][B][C][D]
 - The reaction

$$\begin{array}{c} \text{O} \\ \parallel \\ \text{CH}_2 - \text{C} - \text{OH} \\ | \\ \text{CH}_2 - \text{CH}_3 \end{array} + \text{HCN} \longrightarrow \begin{array}{c} \text{OH} \\ | \\ \text{CH}_2 - \text{CH} \\ | \\ \text{H}_3\text{C} - \text{CH}_2 \\ | \\ \text{CN} \end{array}$$
 Is an example of? [A][B][C][D]
 - Electrophilic addition
 - Nucleophilic addition
 - free radical addition
 - Nucleophilic substitution
 - Which of the following aqueous solutions has pH value greater than 7? [A][B][C][D]

37) Identify the position and immediate surroundings of hydrogen atoms [A][B][C][D]

Question 38-44

Directions for each of the questions below, one or more of the responses is (are) correct. Decide which of the responses is (are) correct. Then choose

- A) 1,2 and 3 are all correct
- B) 1 and 2 only are correct
- C) 2 and 3 only are correct
- D) 3 only is correct

Direction summarized

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

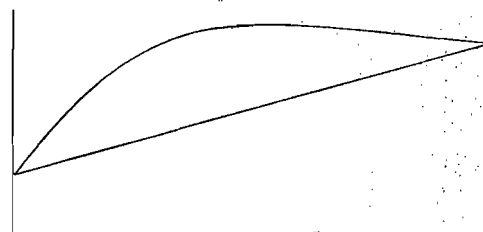
- 38) The standard redox potentials for zinc and copper are -0.76v and +0.34v respectively. Correct statements about the cell $Zn_{(s)}/Zn^{2+}_{(aq)}/Cu^{2+}_{(aq)}/Cu_{(s)}$ include
- 1) Electrons flow from the copper half-cell to the zinc half cell
 - 2) If a slow resistance voltmeter is connected across the cell, the voltage indicated would be less than E^{\ominus} for the cell
 - 3) Addition of water to the copper half-cell decreases cell emf [A][B][C][D]
- 39) Which of the following statements are true about the chemistry of group IV elements of the periodic table
- 1) The elements change from non-metals to metals down the group
 - 2) Stability of the dioxides decreases down the group
 - 3) Tin (II) compound are relatively more stable than Tin(IV) compounds [A][B][C][D]
- 40) Some K_p values at different temperatures for the reaction



Temperature/K	500	700	1100
K_p	160	54	25

Which of the following statements is (are) true

- 1) The reaction is endothermic
 - 2) The yield of HI can be increase by raising the total pressure of the system
 - 3) An increase in temperature shifts the equilibrium position to the left [A][B][C][D]
- 41) Consider the boiling point composition diagram for a mixture of two miscible liquids x and y



100%X 100%Y

Which of the following statements is (are) true

- 1) A mixture of X and Y shows positive deviation from Raoult's law
 - 2) Liquid y is more volatile than liquid x
 - 3) There is a rise in temperature on mixing liquid X and Y [A][B][C][D]
- 42) Which of the following processes are endothermic? [A][B][C][D]
- 1) $O_2(g) \rightarrow 2O(g)$
 - 2) $O^- + e \rightarrow O^{2-}$
 - 3) $O(g) + e \rightarrow O^-(g)$
- 43) Amino acids
- 1) Show amphoteric properties
 - 2) Are solids at room temperature and pressure
 - 3) Exist as dipolar ions [A][B][C][D]

Questions 44-50 (six question)

Direction: 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 the second statement is true or false. Then choose;

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

Summary of direction

	First statement	Second statement	
A	True	true	Second statement is a 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
44)	A mixture of $\text{H}_2\text{CO}_3(\text{aq})$ and $\text{NaHCO}_3(\text{aq})$ constitutes a buffer system	The hydrogencarbonate ion is a strong conjugate base of a weak acid
45)	The experimental and theoretical values of lattice energy for silver chloride are $-916.3 \text{ kJmol}^{-1}$ and $-768.6 \text{ kJmol}^{-1}$ respectively	The silver ion is small and highly polarizing
46)	Benzoic acid is more reactive than benzene towards electrophiles	The carboxyl group on the benzene ring deactivates the ring
47)	Electrons in an atom are arranged in energy levels	Atomic emission spectra consist of discrete lines
48)	All isomers of C_6H_{12} will readily decolorize a solution of bromine in tetrachloromethane	Unsaturated hydrocarbon form addition compounds with bromine
49)	Diazonium compounds react with phenol to form azo dyes	The reaction of a diazonium compound with phenol is called diazotization reaction
50)	The pH at the end point for Ethanoic acid/sodium hydroxide titration is greater than 7	Ethanoic acid is a weak acid compared to mineral acid

- 44) [A][B][C][D]
 45) [A][B][C][D]
 46) [A][B][C][D]
 47) [A][B][C][D]
 48) [A][B][C][D]
 49) [A][B][C][D]
 50) [A][B][C][D]

STOP

GO BACK AND CHECK YOUR WORK