**EMERALD ROYAL INTERNATIONAL SCHOOL, MPAPE ABUJA**

**LESSON PLAN AND NOTE FOR WEEK 6 ENDING 9TH JUNE, 2023**

**TERM: THIRD**

**WEEK : 6**

**DATE: 5TH - 9TH JUNE, 2023**

**SUBJECT : CHEMISTRY**

**TOPIC : ELECTROLYSIS**

**SUB- TOPIC : Factors affecting the preferential discharge of ions during electrolysis.**

**PERIOD: 1ST**

**TIME : 8: 10 - 8 :50**

**DURATION:**  **40 minutes**

**CLASS: SS2**

**NUMBER IN CLASS:**  **3**

**AVERAGE AGE: 14 years**

**SEX: mixed**

**LEARNING OBJECTIVES: By the end of the lesson, the students should be able to;**

1.state the factors that affect the preferential discharge ion during electrolysis.

2.explain the effect of position of ion in the electro chemical series.

3.explain the effect of concentration and nature of electrode.

**RATIONALE:** The students should understand the factors that affect the discharge of ion during electrolysis.

**PREVIOUS KNOWLEGDE:** terms used in electrolysis.

**INSTRUCTIONAL MATERIALS:** A chart showing factors that affect the discharge of ion during electrolysis.

**REFERENCE MATERIALS:** New school Chemistry for Senior Secondary Schools by Osei Yaw Ababio .

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| **STEPS** | **TEACHER’S ACTIVITIES** | **STUDENTS’ ACTIVITIES** | **LEARNING POINTS** |
| **INTRODUCTION** | The teacher introduces the lesson by reviewing the previous lesson. | The students were active. | To arouse the students interest. |
| **PRESENTATION**  **STEP 1** | The teacher states the factors that affect the discharge of ion during electrolysis. | The students pay attention. | To keep them focus for better understanding. |
| **STEP 2** | The teacher asks the students to explain how position of electron in the electro chemical series affect the discharge of ion during electrolysis.. | The students explain how position in the electro chemical series affect the discharge of ion in electrolysis. | To encourage critical thinking. |
| **STEP 3** | The teacher explains how concentration and nature of electrode affect the discharge of ion during electrolysis. | The students pay attention. | To keep them focus for better understanding. |
| **BOARD SUMMARY** | **Factors Affecting the Preferential Discharge of Ions During Electrolysis**  The factors that affect the discharge of ions are:  i) Relative positions of ions in the electrochemical Series  Cations Anion  K+ F  Na+ SO42-  Ca2+ NO3-  Mg2+ Cl  Al3+ Br  Zn2+ I  Fe2+ OH  Sn2+  Pb2+  H+  Cu2+  Hg2+  Ag+  Au+  ***Relative Positions of ions in the Electrochemical Series****:* if all other factors are constant, a cation which is lower  in the series (less electropositive) will show greater tendency to be discharged than the other one which is higher  (more electropositive) in the series. This is because the former gains electrons more readily from the cathode and so  becomes discharged as a neutral atom while the latter tends to persist in solution as a positive ion.  An anion higher in the series (less electronegative) is discharged in preference to another which is lower down the  series (more electronegative). For example, SO42- , and NO3- are never discharged for aqueous solution due to the  preferential discharge of OH  ***Concentration of ions:*** if other conditions are equal, increasing the concentration of a given ion tends to promote its  discharge from solution. The influence of concentration is effective only when the competing ions are closely  positioned in the electrochemical series.  ***Nature of the Electrode****:* some electrodes affect the ions to be discharged, while others do not. Electrodes that do  not influence the ions to be discharged are termed INERT ELECTRODE. Platinum and graphite (carbon) usually  behave as inert electrodes, although platinum is usually attacked by chlorine while graphite is attacked by oxygen.  Some electrodes which have strong affinity for certain ions may influence ionic discharge. For example, in the  electrolysis of aqueous sodium chloride using platinum electrode, H+ are preferentially discharged. If a mercury  cathode is used, the mercury will tend to associate with the Na+ to form sodium amalgam. Na/Hg, so that the discharge of Na+ requires less energy than that of H+ , and so occurs in preference.  Na+ (aq) + Hg (l) + e → Na/Hg (l)  2H+ (aq) + e- → H2  Other electrodes may also influence the ionic discharge because they possess characteristics similar to those of the  ion in the electrolyte. For example, if a copper anode is used in the electrolysis of a solution of copper (II)  tetraoxosulphate (VI), neither the SO4-2 nor the OH- will be discharged. Instead, the copper atoms from the anode  will go into solution as Cu2+ because these atoms will give up their electrons more readily than SO42- or OH | The students ask question for clarification. | To create room for slow learners. |
| **EVALUATION** | The teacher evaluates the students with the following questions;   1. State the factors that affect the preferential discharge of ion during electrolysis. 2. Explain any 2 mention above. | The students attempt the questions. | To ascertain their level of understanding. |
| **CONCLUSION** | The teacher concludes by copying note on the board. She checks and marks the note. | The students copy the note into their note books. | For future use. |
| **HOME WORK** | Draw the electrochemical series. | The students did their assignment and submit for marking and correction. | To encourage the students to study at home. |



10/5/2023

Principal Head Instuctor