

Step Academy official

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STUDENT NAME	
PAPER CODE	59089
TIME ALLOWED	40
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CLASS	New 1st Year (FSC/ICS)
SUBJECT	Chemistry
TOTAL MARKS	25
Paper Type	

Q1. Choose the correct answer.

5X1=5

1. The activity series of metals arranges metals in order of their:

- (A) Atomic mass (B) Density (C) Ease of oxidation (D) Ease of reduction

2. Which of the following half-reactions represents the oxidation process occurring in the disproportionation of Cu^+ ?

- (A) $\text{Cu}^{2+}_{(\text{aq})} + 2\text{e}^- (\text{eq}) \text{Cu}_{(\text{s})}$ (B) $\text{Cu}^{+}_{(\text{aq})} + \text{e}^- (\text{eq}) \text{Cu}_{(\text{s})}$ (C) $\text{Cu}^{+}_{(\text{aq})} (\text{eq}) \text{Cu}^{2+}_{(\text{aq})} + \text{e}^-$ (D) $2\text{Cu}^{+}_{(\text{aq})} (\text{eq}) \text{Cu}^{2+}_{(\text{aq})} + \text{Cu}_{(\text{s})}$

3. If salt bridge is not used between two half cells in a Galvanic cell, then the voltage

- (A) Decrease slowly (B) Decrease rapidly (C) Does not change (D) Drop to zero

4. The salt bridge allows transfer ofin Zn-Cu voltaic cell.

- (A) Zn^{2+} ions (B) SO_4^{2-} ions (C) Both (D) None of these

5. The principle of measuring DO by Winkler's Method is based on

- (A) Iodimetry (B) Iodometry (C) Acid-Base titration (D) Complexometry

Q2. Write short answers of the following questions.

5X2=10

1 . Calculate oxidation number of chromium in (i) K_2CrO_4 (ii) $\text{Cr}_2\text{O}_7^{2-}$

2 . What roles do the anode and cathode play in an electrolytic cell?

3 . What does a positive value of E°_{cell} indicate?

4 . Differentiate between electrolytic cell and voltaic cell.

5 . Why electrode potential of Cu is called reduction potential?

Q3. Write detailed answers of the following questions.

2X5=10

1 . How electrode potential varies with concentration of an aqueous solution? Use the NERST equation to explain this variation.

2 .

Calculate the electrode potential for a zinc electrode immersed in a $0.010 \text{ mol dm}^{-3}$ solution of zinc sulfate (ZnSO_4) at 298 K. The standard electrode potential (E°) for $\text{Zn}^{2+}_{(\text{aq})} + 2\text{e}^- (\text{eq}) \text{Zn}_{(\text{s})}$ is -0.76 V . (Gas constant, $R = 8.31 \text{ JK}^{-1} \text{ mol}^{-1}$, Faraday constant, $F = 96500 \text{ C mol}^{-1}$)