

UNIT TEST

STD: 12
SUBJECT: CHEMISTRY
CODE : 052

Total Marks: 25
Time: 1 Hr
Medium : English

[PART-A]

● Following Question No. 1 to 9 are multiple choice type questions. Choose the proper choice and answer. (Each question is of 1 mark) [09]

1. $\Delta_m^0(\text{NH}_4\text{OH}) =$

- (A) $\Delta_m^0(\text{NaOH}) + \Delta_m^0(\text{NH}_4\text{Cl}) - \Delta_m^0(\text{NaCl})$ (B) $\Delta_m^0(\text{HCl}) + \Delta_m^0(\text{NH}_4\text{OH}) - \Delta_m^0(\text{NaOH})$
(C) $\Delta_m^0(\text{NaCl}) + \Delta_m^0(\text{NH}_4\text{Cl}) - \Delta_m^0(\text{NaOH})$ (D) $\Delta_m^0(\text{HCl}) + \Delta_m^0(\text{NaOH}) - \Delta_m^0(\text{NH}_4\text{Cl})$

2. Which substance is reduced at cathode when dry cell is working?

- (A) ZnCl_2 (B) Zn
(C) MnO_2 (D) NH_4Cl

3. At 25 °C temperature, for the reaction, $\text{Sn} + \text{Cu}^{2+} \rightleftharpoons \text{Sn}^{2+} + \text{Cu}$ the value of E^0_{cell} is 0.48 V then what will be the equilibrium constant of the reaction?

- (A) 1.3×10^8 (B) 6.8×10^4
(C) 4.9×10^{20} (D) 1.8×10^{16}

4. What is the order of reaction of inversion of sucrose?

- (A) zero (B) third
(C) pseudo first order (D) fourth

5. For a reaction $\text{A} + \text{B} \rightarrow \text{products}$, rate = $k[\text{A}][\text{B}]^2$ then what will be the unit of k?

- (A) $\text{mol}^3 \text{L}^{-3} \text{min}^{-2}$ (B) $\text{mol} \text{L}^{-1} \text{min}^{-1}$
(C) $\text{mol}^{-2} \text{L}^2 \text{min}^{-1}$ (D) $\text{mol}^{-3} \text{L}^3 \text{min}^{-1}$

6. The role of a catalyst is to change ____ .

- (A) Gibbs energy of reaction (B) Reaction enthalpy
(C) Activation energy of reaction (D) Equilibrium constant of reaction

7. What will be the half reaction time of a reaction if the value of rate constant is 0.002 s^{-1} ?

- (A) 142.8 s (B) 432.4 s
(C) 288.6 s (D) 346.5 s

8. Which substance is added as a depressant in froth floatation method to separate only PbS from the ore containing PbS and ZnS?

- (A) ZnSO_4 (B) NaOH
(C) NaCN (D) NH_4Cl

9. Which substance is obtained as a slag during extraction of copper?

(A) FeSiO_3

(B) CaSiO_3

(C) Na_3PO_4

(D) CaCO_3

[PART-B]

(SECTION-A)

● Answer the following Question No. 1 to 3 in short. Each question is of 2 mark. [06]

1. Can copper sulphate solution be stored in a zinc container? Give suitable reason for your answer.

$$E^0_{\text{Zn}^{2+}/\text{Zn}} = -0.76 \text{ V}, E^0_{\text{Cu}^{2+}/\text{Cu}} = 0.34 \text{ V}$$

2. Give difference between order of reaction and molecularity.

3. Explain extraction of gold by chemical reactions.

OR

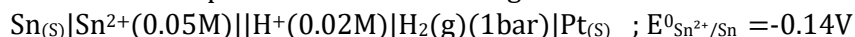
3. Explain calcination method with chemical equations.

(SECTION-B)

● Answer the following Question No. 4 and 5 as asked. Each question is of 3 mark. [06]

4. Prove that, "The time required for 99% completion of a first order reaction is double than the time required for 90% completion."

5. Calculate the potential of the following cell at 298 K.



OR

5. Explain by calculation that what masses of the products will be liberated at electrodes when nickel nitrate solution is electrolysed using 5 ampere current for 3 hours.

(Atomic mass: Ni-58 g mol⁻¹, O-16 g mol⁻¹)

(SECTION-C)

● Answer the following Question No. 6 as asked. This question is of 4 mark. [04]

6. The resistance of a column having diameter 1.0 cm and the length 50 cm containing solution of 0.05 mol L⁻¹ NaOH is 5.55×10^3 ohm, then calculate its resistivity, conductivity and molar conductivity.