

CBSE EXAMINATION PAPER-2022

CHEMISTRY

(Solved)

Time allowed : 3 hours

Maximum Marks : 12

General Instructions :

Read the following instructions carefully and follow them :

- i. This question paper contains **5 questions**. All questions are **compulsory**.
- ii. This question paper is divided into **2 sections**.
- iii. **Section A** – questions number **1 to 4** are short answer Each question carries **3 marks**.
- iv. **Section B** – questions number **5 to 5** are case based questions
- v. There is no overall choice given in the question paper. However, an internal choice has been provided in few questions.
- vi. Use of calculator is NOT allowed.

Section A

Question 1.

Calculate $\Delta_r G^\circ$ and $\log K_e$ for the following cell:

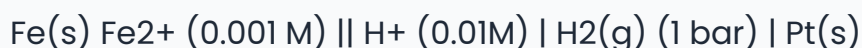


Given that $E^\circ_{\text{cell}} = 1.05\text{V}$, $F = 96,500 \text{ Cmol}^{-1}$

[3 Marks]

Question 2.

Calculate the e.m.f. of the following cell at 298K:



Given that $E^{\circ}_{\text{cell}} = +0.44 \text{ V}$

$[\log 2=0.3010 \log 3 =0.4771 \log 10=1]$

[3 Marks]

Question 3.

Define transition metals. Why Zn, Cd and Hg are not called transition metals? How is the variability in oxidation states of transition metals different from that of p-block elements?

[3 Marks]

Question 4.

Write the main product in the following reactions :

[3 Marks]

Section B

Question 5. Read the following passage and answer the questions that follow. The rate of reaction is concerned with the decrease in concentration of reactants or increase in the concentration of products per unit time. It can be expressed as instantaneous rate at a particular instant of time and average rate over a large interval of time. A number of factors such as temperature, concentration of reactants, catalyst affect the rate of reaction. Mathematical representation of rate of a reaction is given by rate law: $\text{Rate} = k[A]^m[B]^n$, where m and n indicate how sensitive the rate is to the change in concentration of A and B. Sum of $m + n$ gives the overall order of the reaction. When a sequence of elementary reactions gives us the products, the reactions are called complex reactions. Molecularity and order of an elementary reaction are the same. Zero order reactions are relatively uncommon but they occur under special conditions. All natural and artificial radioactive decay of unstable nuclei take place by first order kinetics.
