QP CODE: 25020362

25020362

Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) REGULAR / REAPPEARANCE / MERCY CHANCE EXAMINATIONS, FEBRUARY 2025

Sixth Semester

CORE COURSE - CH6CRT12 - PHYSICAL CHEMISTRY - IV

Common for B.Sc Chemistry Model I, B.Sc Chemistry Model II Industrial Chemistry & B.Sc Chemistry Model III Petrochemicals

2017 Admission Onwards

112C2D2A

Time: 3 Hours Max. Marks : 60

Part A

*Answer any **ten** questions.*

*Each question carries **1** mark.*

1. State Raoult's law.
2. Define upper critical solution temperature and lower critical solution temperature.
3. How is ionic mobility related to ionic conductance?
4. Define the term solubility product.
5. Represent Daniel cell.
6. What is meant by redox electrodes?
7. Define electrochemical series.
8. Represent the relationship between E_{cell} and equilibrium constant.
9. What is meant by corrosion?
10. What is meant by chain reaction in photochemistry?
11. List out the symmetry elements present in D_{3h} point group.
12. Identify the point group to which H_2O belongs and list out the symmetry elements present in it.

(10×1=10)

Part B

*Answer any **six** questions.*

*Each question carries **5** marks.*

13. State Henry's law and mention some important applications.

14. How are the osmotic pressure measurements used for determining molar mass of a non-volatile solute?

15. Explain Hittorf method with attackable electrodes used for the determination of transference number.

16. Calculate the ionic strength of a solution containing 0.1 molal KCl and 0.2 molal K_2SO_4.

17. Explain any one application of emf measurements.

18. Write a note on redox indicators.

19. State and explain various laws of photochemistry.

20. Draw Jablonsky diagram and explain the various processes.

21. Identify the types of axes and planes present in benzene molecule and planar XeF_4.

(6×5=30)

Part C

*Answer any **two** questions.*

*Each question carries **10** marks.*

22. What are colligative properties? Explain the various colligative properties.

23. State Kohlrausch's law of independent migration of ions and explain its applications.

24. What are concentrations cells? Derive the expression for E_{cell} of electrolyte concentration cells with and without transference.

25. Define the terms symmetry, symmetry operations and symmetry elements. Explain five symmetry elements with examples.

(2×10=20)