25003381

QP CODE: 25003381

Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) SPECIAL REAPPEARANCE EXAMINATIONS,FEBRUARY 2025

Fifth Semester

CORE COURSE - CH5CRT07 - PHYSICAL CHEMISTRY - I

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

2022 Admission Only

3BFD7FCD

Time: 3 Hours Max. Marks : 60

Part A

*Answer any **ten** questions.*

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

1. What is meant by Boyle's temperature?
2. State virial equation of state and explain the terms.
3. What is average velocity?
4. Define mean free path.
5. What is meant by polarizability?
6. What is the interplanar spacing in a tetragonal system?
7. Gold metal is having a ccp symmetry. How will you explain this?
8. What is called Antifluorite structure?
9. Write two examples of crystals forming colour centres.
10. What is Freundlich adsorption isotherm?
11. What are colloidal solutions? Give an example.
12. What is meant by critical micelle concentration?

(10×1=10)

Part B

*Answer any **six** questions.*

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

13. How is kinetic theory modified to explain the deviations of real gases from ideal behaviour?

14. Explain the term continuity of state.

15. Derive the relation between mean free path and coefficient of viscosity.

16. What is surface tension? How is it determined?

17. Explain the different properties of a face centred cubic cell.

18. Compare the structure of NaCl and KCl by using Powder method.

19. Explain the band theory for semiconductors.

20. Distinguish between physisorption and chemisorption.

21. Discuss the origin of charge on colloids? What is meant by electrical double layer?

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. What are the postulates of kinetic theory of gases? Derive the kinetic gas equation.

23. What is meant by coefficient of viscosity? How is viscosity determined using Ostwald viscometer?

24. What are liquid crystals? Write a short note on Smectic, Nematic and Cholesteric liquid crystals.

25. Discuss BET theory of adsorption. How is it used to determine the surface area of adsorbent?

(2×10=20)