



22101781

QP CODE: 22101781

Reg No :

Name :

**B.Sc DEGREE (CBCS) SPECIAL SUPPLEMENTARY EXAMINATIONS,
MAY 2022**

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

2019 Admission Only

55E71446

Time: 3 Hours

Max. Marks : 60

Part A

*Answer any **ten** questions.*

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

1. What is meant by compressibility factor?
2. Define critical temperature of a gas.
3. What is meant by collision number?
4. Define coefficient of viscosity.
5. What is the effect of temperature on surface tension?
6. Gold metal is having a ccp symmetry. How will you explain this.
7. Write two examples of crystals showing Schottky defect.
8. The defects in crystals caused by the presence of foreign substance are called.
9. Why a liquid crystal be called so?
10. Distinguish between adsorbent and adsorbate.
11. What are true solutions?
12. State Hardy-Schulz rule.

(10×1=10)





Part B

Answer any **six** questions.

Each question carries **5** marks.

13. Derive van der Waals equation for real gases.
14. Discuss the virial equation of state.
15. At what temperature is the mean square velocity of carbon dioxide same as that of chlorine at 293 K?
16. Discuss the different types of hydrogen bonding. What are its importance.
17. Explain the terms space lattice and unit cell. Show that in a unit cell of NaCl crystal contains 4 Na⁺ ions and 4 Cl⁻ ions.
18. Miller indices is more convenient than Weiss indices for indexing the lattice planes. Explain.
19. Explain with example the Fluorite structure.
20. Discuss BET adsorption isotherm.
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. How will you determine the structure of NaCl by powder method? Compare the NaCl structure with KCl structure.
25. Discuss BET theory of adsorption. How is it used to determine the surface area of adsorbent?
(2×10=20)

