



20100032

QP CODE: 20100032

Reg No :

Name :

BSc DEGREE (CBCS) EXAMINATION, FEBRUARY 2020**Fifth Semester****Core Course - CH5CRT07 - PHYSICAL CHEMISTRY - I**

B.Sc Chemistry Model I ,B.Sc Chemistry Model II Industrial Chemistry ,B.Sc Chemistry Model III
Petrochemicals

2017 Admission Onwards

F1ED55F8

Time: 3 Hours

Maximum Marks :60

Part A*Answer any **ten** questions.**Each question carries **1** mark.*

1. What is meant by compressibility factor?
2. What is the significance of van der Waal's constant 'a'?
3. State virial equation of state and explain the terms.
4. What is collision cross section?
5. Write down Poiseuille's equation and explain the terms.
6. What is packing fraction?
7. What are the crystal lattices of (a) NaCl and (b) KCl?
8. Write two examples of crystals showing Frenkel defect.
9. Write two examples for smectic liquid crystals.
10. Give an example for physisorption.
11. What are macromolecular colloids?
12. What is meant by isoelectric point of a sol?

(10×1=10)



Part B

Answer any **six** questions.

Each question carries **5** marks.

13. Explain the term continuity of state.
14. Calculate the RMS velocity and average velocity of SO₂ at 0⁰C.
15. Derive the relation between mean free path and coefficient of viscosity.
16. Write note on intermolecular forces in liquids.
17. Explain the Laws of Crystallography.
18. Briefly explain the structure of Zinc Blende.
19. What are p-type and n-type semiconductors.
20. Discuss BET adsorption isotherm.
21. Discuss the cleaning action of soaps and detergents.

(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. A) What is meant by surface tension? What are the factors affecting surface tension? B) How is surface tension determined using stalagmometer method?
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)

