21101581

QP CODE: 21101581

Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) SPECIAL SUPPLEMENTARY EXAMINATION, JULY 2021

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

2018 Admission Only

BBF38D1D

Time: 3 Hours Max. Marks : 60

Part A

*Answer any **ten** questions.*

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

1. What is the significance of compressibility factor?
2. What is critical volume of a gas?
3. What is collision freequency?
4. Write down Chapman equation.
5. Why do liqid drops assume spherical shape?
6. What is the interplanar spacing in a tetragonal system?
7. Gold metal is having a ccp symmetry. How will you explain this?
8. Explain non stoichiometric point defects.
9. What are nematic liquid crystals?
10. Distinguish between adsorbent and adsorbate.
11. What is meant by a suspension?
12. What is meant by a lyophilic sol? Give an example.

(10×1=10)

Part B

*Answer any **six** questions.*

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

13. Give the postulates of kinetic theory of gases.
14. What is Boyle's temperature? How is it related to van der Waal's constants?
15. Obtain the virial form of van der Waal's equation.
16. Discuss the different types of hydrogen bonding. What are its importance.
17. Write a short note on Bravais Lattices.
18. How will you analyze the structure of NaCl by Powder Diffraction method?
19. Give the structure of spharelite.
20. Derive Freudlich adsorption isotherm.
21. Explain the terms sedimentation potential and streaming potential.

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. a) Discuss Maxwell Boltzmann distribution of molecular velocities.b) What is RMS velocity, average velocity and most probable velocity?
23. What is meant by coefficient of viscosity? How is viscosity determined using Ostwald viscometer?
24. What are impurity defects? Explain in detail about the p type and n-type semi conduction.
25. Discuss BET theory of adsorption. How is it used to determine the surface area of adsorbent?

(2×10=20)