QP CODE: 24028953

24028953

Reg No : .....

Name : .....

# B.Sc DEGREE (CBCS) REGULAR / REAPPEARANCE EXAMINATIONS, OCTOBER 2024

## 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

2017 Admission Onwards

0C072A46

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. Calculate the value of "a" of van der Waal's gas for which Pc is 100 atm and b is 50 cm3mol-1.
3. What is average velocity?
4. Write down Chapman equation.
5. What is meant by polarizability?
6. Write the Bravais lattices present in an orthorhombic space lattice.
7. What are Miller indices?
8. What is the main application of impurity defect?
9. What does LCD stand for?
10. Distinguish between adsorbent and adsorbate.
11. What is the importance of BET equation?
12. What is meant by critical micelle concentration?

(10×1=10)

### Part B

*Answer any **six** questions.*

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

13. Give the postulates of kinetic theory of gases.

14. Discuss Andrew's isotherm of carbon dioxide.

15. Discuss the virial equation of state.

16. Discuss the experimental method for the determination of viscosity of a liquid.

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

18. Briefly explain the structure of Zinc Blende.

19. Account for the yellow colour of NaCl when heated in sodium vapour.

20. What are sols and emulsions? Give an example for each.

21. Explain electrophoresis and electroosmosis.

(6×5=30)

**Part C**

*Answer any **two** questions.*

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

22. Explain the terms collison diameter, collison cross section, collision number, collison frequency and mean free path.

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. Derive the Bragg equation. How will you apply Bragg equation for the analysis of NaCl crystal?

25. Discuss Langmuir adsorption isotherm of a gas. How are the constants in the isotherm determined?

(2×10=20)