QP CODE: 22103391

22103391

Reg No : .....

Name : .....

B.Sc DEGREE (CBCS) REGULAR / REAPPEARANCE EXAMINATIONS, NOVEMBER 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

2017 Admission Onwards

5623869E

Time: 3 Hours Max. Marks : 60

Part A

*Answer any **ten** questions.*

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

1. What is meant by excluded volume?
2. State virial equation of state and explain the terms.
3. What is collision diameter?
4. Write down Chapman equation.
5. What is meant by cohesive forces?
6. What is packing fraction?
7. What is the coordination no of cation and anion in Rock salt?
8. What are the consequences of Schottky defect?
9. What is thermography?
10. What is meant by an adsorption isobar?
11. What are associated 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. Give the postulates of kinetic theory of gases.

14. What are the causes for deviation of real gases from ideal behaviour?

15. What are the different types of molecular velocities? Explain.

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

17. What are Weiss indices and Miller indices? Calculate the miller indices for (6a, 3b, 3c) and (a, b, c) crystal planes.

18. Derive Bragg Equation. Explain the terms.

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

20. What are the factors influencing adsorption?

21. Distinguish between lyophilic and lyophobic colloids.

(6×5=30)

Part C

*Answer any **two** questions.*

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

22. Explain critical phenomenon using isotherm of Carbon dioxide. How can liquid carbon dioxide be converted to gas without any discontinuity?

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)