



K25U 2320

Reg. No. :

Name :

V Semester B.Sc. Degree (C.B.C.S.S. – O.B.E.-Regular/Supplementary/
Improvement) Examination, November 2025
(2019 to 2023 Admissions)

CORE COURSE IN CHEMISTRY/POLYMER CHEMISTRY
5B10CHE/PCH : Physical Chemistry – II

Time : 3 Hours

Max. Marks : 40

SECTION – A

Answer **all** questions. **Each** question carries **1** mark.

1. Define enthalpy.
2. What is Path function ?
3. Derive the expression for equilibrium constant for the reaction.
 $aA + bB \rightleftharpoons cC + dD$.

4. What is a eutectic mixture ?

(4×1=4)

SECTION – B

Answer **any 7** questions. **Each** carries **2** marks.

5. Compare isothermal and adiabatic expansion.
6. Define enthalpy and write its mathematical expression.
7. For a reversible process, 500 J of heat is absorbed at 400 K. Find entropy change.
8. Write a note on fugacity.
9. Distinguish between homogeneous and heterogeneous equilibrium.
10. Explain degree of freedom with example.

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11. What is Zeta potential ? Explain.
12. State Hardy-Schulze rule. Explain.
13. What are protective colloids ? Give an example.
14. What is metastable equilibrium ? Give an example.

(7×2=14)

SECTION – C

Answer **any 4** questions. **Each** question carries **3** marks.

15. The enthalpy of a reaction at 298 K is –150 kJ. If the difference in heat capacities between products and reactants (ΔC_p) is +50J/mol·K, calculate ΔH at 350 K.
16. Derive the relation between C_p and C_v .
17. Explain Van't Hoff reaction isotherm and its significance.
18. Differentiate between deliquescence and efflorescence.
19. What is Hess's Law ? Illustrate its applications.
20. Write a note on desilverisation of lead.

(4×3=12)

SECTION – D

Answer **any 2** questions. **Each** question carries **5** marks.

21. Explain Gibbs-Duhem equation.
22. Explain Gibbs-Helmholtz equation and its significance.
23. Explain the phase diagram of sulphur system.
24. Derive Langmuir adsorption isotherm.

(2×5=10)