

Roll.No.

22UCHCT5011

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN  
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)

Chromepet, Chennai - 600 044.

B.Sc.Chemistry - END SEMESTER EXAMINATIONS - NOVEMBER 2025

SEMESTER - V

**22UCHCT5011 -Phase Equilibria and Chemical Kinetics**

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

### Section B

Answer any **SIX** questions ( $6 \times 5 = 30$  Marks)

1. Explain Gibb's phase rule and discuss its significance in one-component systems.
2. Illustrate Raoult's law and explain deviations from ideal behaviour.
3. Derive the integrated rate law for a first-order reaction
4. Describe the mechanism of hydrogen-bromine reaction.
5. Explain the role of catalytic promoters and inhibitors in catalysis.
6. Compare homogeneous and heterogeneous catalysis with examples.
7. Explain the factors affecting reaction rates qualitatively.
8. Discuss the Nernst distribution law and its applications.

### Section C

Answer any **THREE** questions ( $3 \times 10 = 30$  Marks)

9. Derive the Clapeyron equation and explain two component system with an example.
10. Discuss the thermodynamic derivation of any one colligative property.
11. Evaluate the differential form of rate expression and reactions involving zero, first, second and third order reactions.
12. Justify the role of bimolecular and unimolecular reactions in Collision theory with example.
13. Discuss the kinetics of enzyme catalysis using the Michaelis-Menten equation.

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