



QP CODE: 25047543



25047543

Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, NOVEMBER 2025

Third Semester

M Sc POLYMER CHEMISTRY

Core Course - CH050301 - CHEMICAL KINETICS AND SURFACE CHEMISTRY

2019 ADMISSION ONWARDS

A79F0C1C

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Write Bronsted -Bjerrum equation and explain the terms.
2. Explain flash photolysis.
3. Differentiate between general and specific acid -base catalysis.
4. What are oscillating chemical reactions? Explain with examples.
5. Write a note on ESCA.
6. Write a note on chemical enhancement mechanism of SERS.
7. Explain the thermodynamic aspects of glycolysis.
8. Explain quantum yield of a photochemical reaction.
9. Write a note on derivative differential thermal analysis (DDTA).
10. Write any four applications of carbon nanotubes.

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Write the thermodynamic formulation of rate constant from collision theory.
12. Discuss the mechanism and kinetics of enzyme catalyzed reactions.
13. Briefly explain the different electro-kinetic phenomena associated with colloidal solutions.
14. Explain the following: a) Thermo osmosis b) the phenomenological relations.
15. Explain the working of solar cell.





16. Discuss the titration procedures of amperometric titrations.
17. Explain the characterization of nanomaterials by SEM and TEM.
18. Discuss how nanotechnology plays an important role in drug delivery.

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. Discuss the kinetics of $\text{H}_2\text{-Br}_2$ chainreaction and arrive the rate law.
20. Explain the different mechanisms of surface catalysed reactions.
21. Derive Stern-Volmer equation. Represent it graphically.
22. Explain the principle, types, applications and advantages of coulometry.

(2×5=10 weightage)

