

M.Sc., DEGREE EXAMINATIONS – MARCH/APRIL 2016

II SEMESTER

Chemistry

PAPER III – Physical Chemistry

25033

Time: 3 Hours

Max.Marks:75

(No additional sheet will be supplied)
(2013-15, 2014-16 Batches)

PART – A (5 x 3 = 15 marks)

Answer any FIVE Questions.

Each question carries 3 marks

Each answer should not exceed 1 page.

1. Write a note on Slater determinant.
2. Explain molecular orbital theory of Methane.
3. Write note on protolytic and prototropic mechanism.
4. Give the importance of heterogeneous catalysis.
5. Explain Stocks and Roozeboom plots.
6. Write integrated form of clapeyron equation.
7. Write and explain difference between over voltage and diffusion over voltage.
8. Explain the process of electrochemical passivity.

PART – B (4 X15= 60 marks)

Answer all Questions.

Each question carries 15 marks

Each answer should not exceed 6 pages

9. a) Explain Huckel theory of conjugated system.
b) Write importance of Pauli's exclusion principle.
(OR)
10. a) Give a note on spin angular momenta.
b) Write differences between Atomic orbitals Hybrid atomic orbitals.
11. a) Write a note on effect of P^H on the rates of enzyme reactions.
b) Explain electronic theories of Chemisorption.
(OR)
12. a) Based on general base catalysis explain hydrolysis of Acetic anhydride.
b) Write equation for Michales-Menton kinetics.
13. a) Give a note on applications of Clausius clapeyron equation. b) Explain phase rule.
(OR)
14. a) In partially miscible liquids explain the formation one pair and two pair liquid systems.
b) Write a note on solid-liquid equilibria.
15. a) Write a note on Hydrogen and Oxygen over voltages.
b) Explain exchange current density and transfer co-efficient.
(OR)
16. a) Give a note on corrosion of metals.
b) Explain physical nature of concentration of electrolyte.