Enroll No. _____

Shree Manibhai Virani and Smt. Navalben Virani Science College (Autonomous)
Affiliated to Saurashtra University, Rajkot

SEMESTER END EXAMINATION NOVEMBER – 2016

M.Sc. Chemistry / M.Sc. Pharmaceutical Organic Chemistry

16PCECC03/16PCHCC03 - PHYSICAL CHEMISTRY

Duration of Exam – 3 hrs ***Semester – I*** ***Max. Marks – 70***

Part A (5x2= 10 marks)

Answer **ALL** questions

1. Define:
   (i) True solution (ii) Colloidal solution
2. Discuss Henry's Law.
3. List the properties of ideal solution.
4. Explain chemical equilibrium.
5. What is catalytic poison ?

Part B (5X5 = 25 marks)

Answer **ALL** questions

6a. Explain boiling point elevation in dilute solution.

OR

6b. Discuss Roult's law in detail.

7a. Discuss law of mass action and derive equilibrium constant for reversible reaction.

OR

7b. Discuss vapour pressure curve with diagram.

8a. Derive the equation of equilibrium constants K.

OR

8b. Illustrate the theories of the heterogeneous catalysis with examples.

9a Explain the following:
(i) Catalyst promoter (ii) Catalyst inhibitor.

OR

9b Why chemical analysis of polymer is difficult? Enlist various techniques of polymer testing.

10a Discuss intermediate compound formation theory of catalysis.

OR

10b Give the classification of polymers.

***Part C** (5X7 = 35 marks)*

Answer **ALL** questions

11a. Explain homogeneous reaction in dilute liquid solution.

OR

11b. Explain the mechanism of heterogeneous catalysis by taking a suitable example.

12a. Discuss influence of temperature on solubility.

OR

12b. Derive Duham-Marguele's equation.

13a. Derive equation to determine molecular weight from freezing point depression.

OR

13b. What are characteristic of catalytic reactions?

14a Explain with examples autocatalysis.

OR

14b Discuss physical properties of polymers.

15a Derive equilibrium constant for metathetic reactions.

OR

15b Write short note on ideal solution.