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S-2603

M. Sc. (Sem. I) (Regular & Evening) Examination

March / April – 2011

Chemistry : Paper - III

(Physical Chemistry)

Time : **3** Hours] [Total Marks : **70**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **M. Sc. (Sem. 1) (Regular & Evening)**

Name of the Subject :

☛ **Chemistry : Paper - 3**

☛ Subject Code No. : **2 6 0 3** ☛ Section No. (1, 2,.....) : **Nil**

Seat No. :

Student's Signature

(2) Attempt all **four** questions.

(3) Figures to the **right** indicate full marks.

1 Answer any **three** of the following : **18**

(a) Describe mechanism of anionic chain polymerization.

(b) Define and explain briefly any three :

(i) Intrinsic viscosity

(ii) Solution polymerization

(iii) Glass transition temperature

(iv) Isotactic, syndiotactic and atactic polymers.

(c) Describe kinetics of free radical polymerization.

(d) Briefly viscosity method for the determination of molecular weight of polymers.

2 Answer any **three** of the following : **18**

(a) Explain collision theory of reaction rates.

(b) Describe kinetics of enzyme catalyzed reaction.

(c) Discuss kinetics of reaction between H_2 and Cl_2.

(d) Explain the mechanism of consecutive reaction in case of HI and H_2O_2.

3 Answer any **three** of the following : **18**

(a) Explain various partial molar properties.

(b) Discuss any two methods for the determination of the partial molar property.

(c) Write note on Boltzmann Distribution Law.

(d) Derive equation for the translational partition function for diatomic molecules.

4 Answer any **three** of the following : **16**

(a) Describe chain reactions and their mechanism giving illustration.

(b) Clearly distinguish suspension and emulsion polymerization.

(c) Write a note on thermal transitions in polymers.

(d) Discuss excess property. Describe excess volume, excess enthalpy and excess free energy for any binary liquid mixtures.
