



SB-3428

M. Sc. (Part - I) Examination

March / April - 2011

Physical Chemistry : Paper - III

(Industrial/Pharmaceutical/Environmental Chemistry)

(Self Finance)

Time : 3 Hours]

[Total Marks :52

Instructions :

(1)

नीचे दृष्टावेक निशानीवाणी विगतो उत्तरवही पर अवश्य कभवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="M. SC. (PART - I)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="PHYSICAL CHEMISTRY : PAPER - III"/>	<input type="text"/>
Subject Code No. : <input type="text" value="3"/> <input type="text" value="4"/> <input type="text" value="2"/> <input type="text" value="8"/>	<input type="text"/>
Section No. (1, 2,...): <input type="text" value="1&2"/>	<input type="text"/>
	Student's Signature

(2) Attempt two sections in separate answer books.

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

SECTION - I

- 1 (a) Define partial molar properties. Name various methods to determine partial molar properties. Explain one method in detail. 5
- (b) Explain ideal and non-ideal solutions with illustration. 4

OR

- 1 (a) Explain Einstein and Fermi-Dirac statistics. 5
- (b) Give an account of rotational partition function. 4
- 2 (a) Write a short note on Relaxation method. 4
- (b) Compare continuous and stopped flow technique. 4

OR

- 2 (a) What are enzymes ? Explain kinetics in enzyme catalysis. 4
- (b) Explain magnetic resonance method. 4
- 3 (a) Describe dilute solution viscosity method for molecular weight determination. 5
- (b) Explain glass transition temperature in polymers. 4

OR

- 3 (a) Discuss different types of polymers. Distinguish addition and step polymerization. 5
- (b) Explain the mechanism of anionic polymerization giving example. 4

SECTION - II

- 4 (a) Describe the various types of nuclear reactions. Write a note on nuclear fusion reaction. 5
- (b) What are radio isotopes and give their applications. 4

OR

- 4 (a) Write a note on tracer techniques and their applications. 4
- (b) Explain principle and working of Scintillation Counter. 5
- 5 (a) Define the terms : Micelle, Reverse Micelle, CMC and Solubilization. 4
- (b) Explain the terms : Krafft point, Cloud point, HLB. 4

OR

- 5 (a) Describe nanotechnology and its applications. 4
- (b) What are surfactants and how are they classified ? 4

6 (a) Discuss relaxation effect in a strong electrolyte solution. 4

(b) Write notes on : Fuel cells and Corrosion. 5

OR

6 (a) Describe solubility method for the determination of activity coefficient of an electrolyte. 4

(b) Determine dissociation constant of weak monobasic acid by conductance method. 5
