

:: PUBLISHER ::

Nirav P. Shah



NIRAV PRAKASHAN

(EDUCATIONAL PUBLISHER)

29, Kalyan Bhavan, Nr. Havmor Restaurant, Relief Road, Ahmedabad-1.

Phone No. : (079) 25352172, 25323659, 25353320.

E-mail : Info@niravprakashan.com

₹ 80/-

ISBN : 978-93-82559-78-8

:: ALL RIGHTS RESERVED ::

No Part of this book may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior written permission of the Authors.

:: DISCLAIMER ::

Every care has been taken by the compilers and publishers to give correct, complete and updated information. In case there is any omission, printing mistake or any other error which might have crept in inadvertently, neither the compiler/Publisher nor any of the distributors take any legal responsibility. In case of any dispute, all matters are subjected to the exclusive jurisdiction of the courts in Ahmedabad Only.

:: GRAPHICS ::

Navrang Graphics

Siti Mill Ni Chali, Opp. Diwan Ballubhai School Kankariya Road, Ahmedabad.

Nirav[®]

According to the latest Syllabus (CBCS) Inforce from
June-2013 of Gujarat University

SEMESTER-VI

NIRAV COLLEGE

Chemistry Paper-309

(Physical Chemistry)

Reprint Edition
2019

Authors

Dr. Deepa R. Gor
Dr. Hemant Prajapati
Prof. S. P. Parekh
Prof. Vivek Dave



[®]

NIRAV[®] PRAKASHAN

Dr. Hemant R Prajapati

*According to the latest Syllabus (CBCS) Inforce from
June - 2013 of Gujarat University*

Semester – VI

Nirav College

Chemistry Paper – 309

(Physical Chemistry)

Reprint Edition : 2019

₹ 80/-

Authors

Dr. Deepa R. Gor

(Chemistry Department)

K. K. Shah Jarodwala Maninagar
Science College, Ahmedabad.

Dr. Hemant Prajapati

(Chemistry Department)

Gujarat University
Ahmedabad.

Prof. S. P. Parekh

(Head, Chemistry Department)

C. U. Shah Science College,
Ahmedabad.

Prof. Vivek Dave

(Chemistry Department)

Government Science College,
Gandhinagar



NIRAV PRAKASHAN

D.N. Hemani & N. N. Nayak

INDEX

Unit - 1

Thermodynamics

1-18

Unit - 2

Electro chemistry

19-39

Unit - 3A

Phase Rule

40-59

Unit - 3B

Osmosis

60-66

Unit - 4A

Photochemistry

67-79

Unit - 4B

Metallic Corrosion

80-100

Dr. Hemant R. Prajapati

Syllabus for B. Sc. Semester – VI
CHE - 309 (Physical Chemistry)

UNIT – I Thermodynamics [14 Marks]

Colligative properties: Boiling point elevation and freezing point depression. Molal elevation constant (K_b) and Molal depression constant (K_f), Calculation of absolute value of entropy using third law of thermodynamics, Law of mass action using chemical potential, Partial molar quantity.

UNIT II Electrochemistry [14 Marks]

Concentration cell: Cell with and without transference, Electrode concentration cell, Gas electrode concentration cell, Activity and activity coefficient determination, Define liquid junction potential and how it can be avoided, Equation for liquid junction potential, Decomposition potential, Overvoltage, Tafel equation

UNIT III (A) Phase Rule [07 Marks]

Binary system : Zn-Cd and Pb-Ag, Zeotropic and azeotropic mixtures, Steam distillation, Zone refining.

(B) Osmosis [07 Marks]

Desalination and reverse osmosis, Electrodialysis, Electrochemistry and pollution control, Removal of Cu, Ag and Fe from waste water.

UNIT IV (A) Photochemistry [07 Marks]

Laws of Photochemistry : Grotthuss-Draper Law, Einstein Law, Quantum yield, Reasons for high and low quantum yield, Fluorescence and Phosphorescence, Chemiluminescence, Photosensitized reactions.

(B) Metallic Corrosion [07 Marks]

Types of corrosion, Electrochemical series, Corrosion in acidic and neutral medium, Differential aeration principle, Atmospheric corrosion, Prevention of corrosion by various factor.