

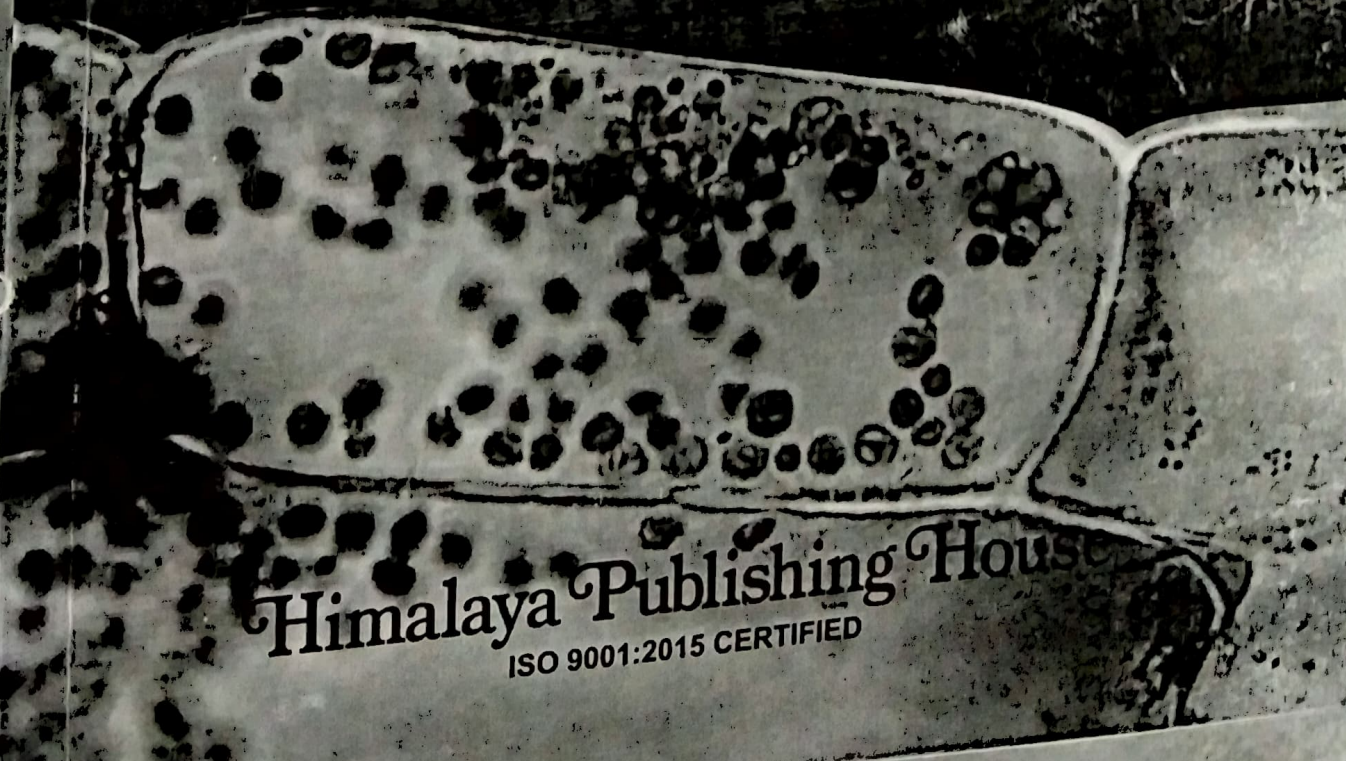
332 2019-20
As per the New Semester-wise Syllabus of Gondwana University

BOTANY

B.Sc. Semester IV (CBCS)

Paper – I Cell Biology, Genetics and Biotechnology
Paper – II Plant Ecology

Dr. Aparna S. Margonwar
Dr. Sharadkumar Patil
Mr. Vijay S. Khonde
Miss Nilima Rangari



Himalaya Publishing House
ISO 9001:2015 CERTIFIED

CONTENTS

B.Sc. SEMESTER – IV

Paper – I - Cell Biology, Genetics and Biotechnology

UNIT – I:

1. Ultrastructure and function of typical plant cell: Cell wall, Plasma Membrane; General structure of Nucleus, Mitochondria, Plastids, Endoplasmic Reticulum, Golgi Complex, Vacuole, Lysosome, Peroxisome, Glyoxisome.
2. Cell Division: Mitosis, Meiosis with respect to plant cells.
3. DNA: Structure and replication of DNA.
4. Plant Tissue culture: Concept of totipotency, Steps of plant tissue culture from explant to whole plant regeneration.

UNIT – II:

1. Mendelism: Laws of inheritance (Dominance, Segregation and Independent Assortment), back cross and test cross.
2. Interaction of genes: with reference to plants. a) Allelic interaction – Incomplete Dominance (1:2:1) b) Non-allelic interaction – Complementary genes (9:7), Supplementary genes (9:3:4).
3. Extra nuclear genome: Structure and functions of Mitochondrial and Plastid DNA.

UNIT – III:

1. Linkage: Definition, Gene theory of Morgan, types of linkage- Complete and Incomplete, significance.
2. Crossing over: Definition, theories (Breakage and Reunion, Copy Choice), significance.
3. Variation in Chromosome number: Polyploidy (Auto- and Allo-), Aneuploidy (Nullisomy, Monosomy, Trisomy and Tetrasomy), Significance.
4. Structural changes in chromosome: Deletion and Deficiency, Duplication, Inversion and Translocation.
5. Mutation: Definition, Types- Spontaneous and Induced; Substitution and Frame-shift, Mutagens- Physical and Chemical, application of Induced Mutation in Crop Improvement.

UNIT – IV

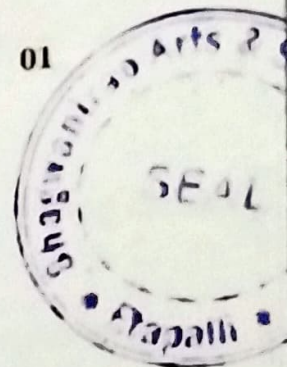
1. Genetic Engineering: Tools and techniques of Recombinant DNA technology (RDT)- a) Cloning vectors (Plasmids – PBR 322, Bacteriophages-T4 phage, lambda Phage and Agrobacterium) b) Restriction enzymes and Ligases c) Genomic and complementary DNA (c-DNA) libraries
2. Protein synthesis-transcription and translation
3. Jumping genes (Transposons): Ac/Ds elements in Maize.
4. Regulation of gene action in Prokaryotes: Lac-Operon concept.

01

45

68

91



UNIT I

ULTRASTRUCTURE AND FUNCTION OF TYPICAL PLANT CELL

Introduction

All organisms are composed of structural and functional units of life called 'cells'. The body of some organisms like bacteria, protozoans and some algae is made up of a single cell while the body of plants and animals are composed of many cells.

Anton van Leewenhock invented the microscope, Robert Hooke in 1665 observed a piece of cork under the microscope and found it to be made of small compartments which he called "cells" (Latin cell = small room). In 1672, Leewenhock observed bacteria, sperm and red blood corpuscles. In 1831, Robert Brown, an Englishman observed that all cells had a centrally positioned body which he termed the nucleus. In 1838 M.J. Schleiden and Theodore Schwann formulated the "cell theory." The cell theory maintains that all organisms are composed of cells. Cell is the structural and functional unit of life. Which arise from pre-existing cells.

A cell may have a unit of protoplasm bounded by a plasma or cell membrane and possessing a nucleus. Protoplasm is the living substance and includes the cytoplasm and the nucleus. The cytoplasm has in it organelles such as ribosomes, mitochondria, golgi bodies (in plant dictyosome), plastids (present in plant cell) lysosomes and endoplasmic reticulum. Plant cells have in their cytoplasm large vacuoles containing non-living inclusions like crystals, pigments etc.

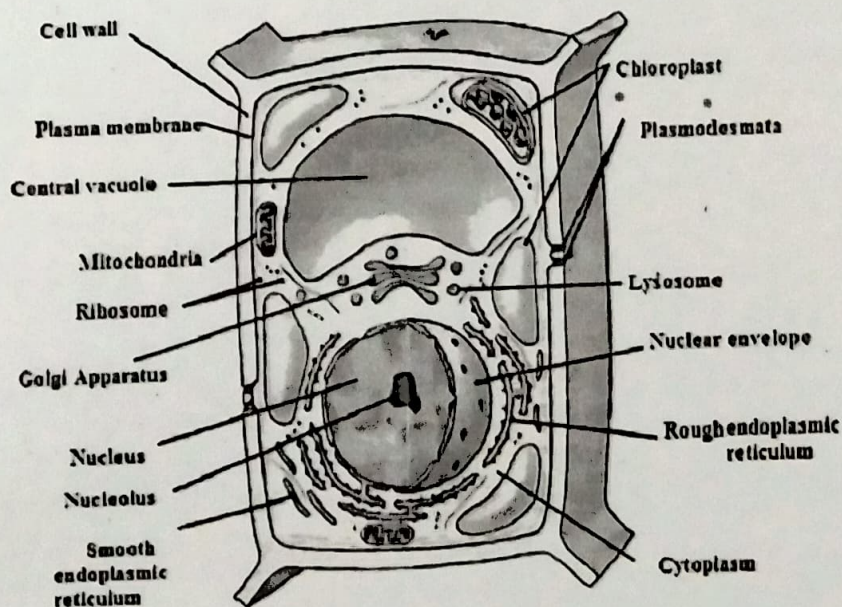


Fig. 1.1 : Typical Plant Cell

As per the New Semester-wise Syllabus of Gondwana University

BOTANY

B.Sc. Semester V (CBCS)

Discipline Specific Elective-I (DSE-I)

Paper - I Genetics and Plant Breeding - I

Paper - II Genetics and Plant Breeding - II

Dr. Aparna S. Margonwar

Dr. Sharadkumar P. Patil

Ms. Nilima U. Rangari

Dr. Sivaprasad Hari

Mr. D. N. Watakhare



Himalaya Publishing House

ISO 9001:2015 CERTIFIED

CONTENT

Unit	Page No.
Paper-I : Genetics and Plant Breeding - I	
Unit - I <ul style="list-style-type: none"> ➤ Brief History of Mendel, Terminology of genetics, Mendel's laws of Inheritance ➤ Non-Mendelian Inheritance: Lethal gene (2:1); Co-dominance (1:2:1), Dominant epistasis (12:3:1), Recessive epistasis (13:3); Inhibitory gene (15:1); Polymeric gene (9:6:1). ➤ Multiple allelism and Pleiotropism. 	1 - 25
Unit - II <ul style="list-style-type: none"> ➤ Cytoplasmic Inheritance: Leaf variegation in <i>Mirabilis jalapa</i>, Mutations in mitochondrial DNA cause human disorders, Kappa particles in <i>Paramecium</i>, maternal effect. ➤ Chromosome theory of inheritance. ➤ Genetic maps: Construction of genetic maps with 2-point and 3- point test cross data. ➤ Sex determination and sex-linked inheritance: Sex determination in <i>Drosophila</i>, humans and plants, Klinefelter and Turner's syndrome, Barr bodies, Lyon's hypothesis. 	26 - 47
Unit - III <ul style="list-style-type: none"> ➤ Plant Breeding: Introduction and objectives ➤ Modes of reproduction in crop plants with suitable examples ➤ Important achievements and undesirable consequences of plant breeding. ➤ Crop improvement: Centers of origin and domestication of crop plants. 	48 - 65
Unit - IV <ul style="list-style-type: none"> ➤ Plant genetic resources, acclimatization ➤ Plant Introduction: Procedure of plant introduction -quarantine- cataloguing-evaluation - multiplication, distribution - acclimatization, purpose of plant introduction, achievements, merits and demerits. ➤ Selection & breeding methods - for self-pollinated crops (Population improvement, mass selection, recurrent selection); for cross pollinated crops (pedigree & mass selection, bulk & 7 back cross) and vegetatively propagated plants (clonal selection). ➤ Hybridization: history, objectives, types, procedure (Emasculation methods, bagging, tagging, pollination, harvesting and storing of F1 seeds, selfing), techniques and consequences, advantages and limitations. 	66 - 82



Paper - I

Unit - I

Brief History of Mendel

Gregor Johann Mendel was born Johann Mendel on July 22, 1822, to Anton and Rosine Mendel on his family's farm in Heinzendorf, Austria. He spent his early youth in that rural background until age 11. A local schoolmaster was impressed with Mendel attitude for learning and that's why he recommended for secondary school in Troppau to continue his education. Mendel had financial problem but he excelled in his studies and in 1840, he graduated from the school with honors.

After his graduation, Mendel enrolled in a two-year program at the Philosophical Institute of the University of Olmutz. There he again distinguished himself academically particularly in the subjects of physics and math. He graduated from the program in 1843.

That same year Mendel father expected him to take over the family farm but Mendel want studying to be a monk. He joined the Augustinian order at the St. Thomas Monastery in Brno and was given the name Gregor. At that time, Mendel was immediately exposed to the research and teaching of its members. He also gained access to the monastery's extensive library and experimental facilities.



Gregor Johann Mendel
(1822-1884)

In 1849, when his work in the community in Brno exhausted him to the point of illness, Mendel was sent to fill a temporary teaching position in Znaim but he failed a teaching-certification exam. Then he was sent to the University of Vienna at the monastery's expense to continue his studies in the sciences. While there, Mendel studied Mathematics and Physics under Christian Doppler, after whom the Doppler effect of wave frequency is named. He studied Botany under Franz Unger who begun using a microscope in his studies, and who was a proponent of a pre-Darwinian version of evolutionary theory.

In 1853, upon completing his studies at the University of Vienna Mendel returned to the monastery in Brno and was given a teaching position at a secondary school where he would stay for more than a decade.

Between 1856 and 1863 Mendel cultivated and tested 29,000 pea plants and carefully analyzing seven pairs of contrasting character of Pea plants. Mendel worked on this for several years carefully self-pollinating and wrapping each individual plant to prevent accidental pollination by insects. He collected the seeds produced by the plants and studied the offspring of these seeds observing that some plants breed true and others not. Mendel discovered that by crossing tall and short parent plants he got hybrid offspring that resembled the tall parent rather than being a medium height blend. He explained the concept of heredity units, now called genes. These often expressed dominant or recessive characteristics. He then worked out the pattern of inheritance of various traits and produced two generalizations that became known as the laws of heredity.

RBD 2019-20

According to the new syllabus of
Gondwana University, Gadchiroli



A H A N D B O O K
O F

PRACTICAL CHEMISTRY



B.Sc. - II

SEMESTER - III & IV

Prof. Narayan C. Das

Dr. Ambedkar College of Arts,
Commerce and Science,
Chandrapur.

Prof. V. A. Giratkar/ Khankho

Department of Chemistry
Sardar Patel College,
Chandrapur

Prof. M. D. Akkaiwar

Head Dept. of Chemistry Chintamani College
of Arts and Science, Gondapuri,
Dist. Chandrapur

Prof. Rajiv B. Dange

Head Dept. of Chemistry
Bhagwantrao Arts and Science
College Etapalli, Dist. Gadchiroli

Dr. Niren Kathale

Department of Chemistry
Sardar Patel College, Chandrapur

Revised Edition : October 2019

© All Right Reserved

No part of this book shall be reproduced, stored in retrieval system, or
translated in any form or by any means, electronic, mechanical,
photocopying and/or otherwise without the prior written permission of the
publishers



ISBN No. : 978-93-82683-78-0

Rs. : 100/-

M/s. RAJNI PRAKASHAN

Plot No. 69, Bajarang Nagar, Manewada Road, Nagpur-440 027

Mob. : 9890447994, 7066792113, 9325595862

E-mail : rajniprakashan@gmail.com

Rajni
Principal
Bhagwantrao Arts & Science
College, Etapalli Dist. Gadchiroli



CONTENTS

1. INORGANIC CHEMISTRY SECTION (Semester-III) 1 to 15
2. PHYSICAL CHEMISTRY SECTION (Semester-III) 16 to 42
3. INORGANIC CHEMISTRY SECTION (Semester-IV) 43 to 74
4. ORGANIC CHEMISTRY SECTION (Semester-IV) 75 to 120

SEMESTER - III

1.

INORGANIC CHEMISTRY

Experiment Number-1

Aim: To determine two acidic and two basic radicals in the given mixture.

Apparatus : Test tubes, pair of tongs, test tube holder, burner, wash bottle etc.

Principle : Qualitative analysis of any inorganic salt involves the identification of cation and anion in the salt.

If a mixture of two salts is given for analysis it contains four ions, two cations and two anions. In general, they are called as radicals. Positive ions are called as basic radicals while negative ions are called as acidic radicals. Hence one has to identify two acidic and two basic radicals in the mixture of two salts.

Identification of acidic radicals is done by individual tests. However, analysis of basic radicals requires systematic procedure so that they can be identified correctly without interference of their ions.

Separation of basic radicals is based on the concepts of solubility product and common ion effect. When the ionic product of any salt exceeds the solubility product, it gets precipitated.

Hence, it is possible to separate various ions in the form of their salt like chlorides, sulphides, hydroxides, etc, by exceeding their solubility products.

Detection of Acidic Radicals (Anions)

Tests for Common Acidic Radicals

Group-I

1) Test for Carbonate (CO_3^{--})

a) Take a pinch of mixture in dry test tube and + dil. HCl or if not dil. H_2SO_4 . If colorless gas with brisk effervescence is produced then Carbonate (CO_3^{--}) present.

RBD

2019-20

AS PER CBCS PATTERN SYLLABUS OF GONDWANA UNIVERSITY,
GADCHIROLI

Text Book Of Inorganic Chemistry

B.Sc. Part - III
(Semester - VI) Paper - I



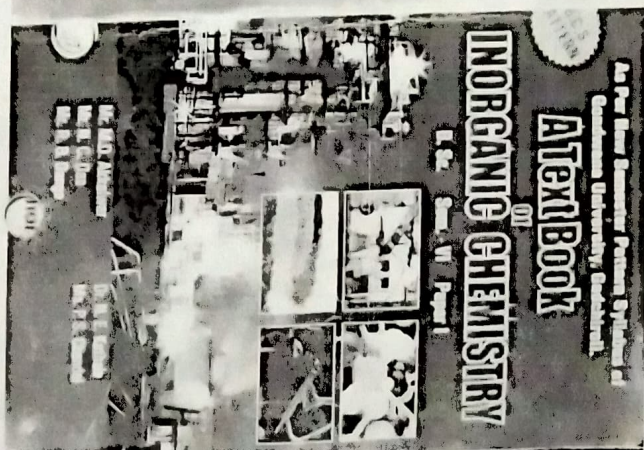
Mr. Mahendra D. Akkalwar
Assistant Professor
Dept. of Chemistry & Head
Chintamani College of Arts and Science
Gondpipri, Dist. Chandrapur

Dr. Niren K. Kathale
Associate Professor
Dept. of Chemistry
Sardar Patel College
Chandrapur

Mr. Narayan C. Das
Assistant Professor
Dept. of Chemistry
Dr. Ambedkar College Arts,
Commerce and Science
Chandrapur

Mrs. Punam S. Chandel
Assistant Professor
Dept. of Chemistry & Head
Chintamani College of Arts and
Science Gondpipri, Dist.
Chandrapur

Mr. Rajiv B. Dange
Assistant Professor
Dept. of Chemistry & Head
Bhagwantrao Arts and Science College,
Etapalli, Dist. Gadchiroli

1st Edition : Feb. - 2020

© ALL RIGHT RESERVED

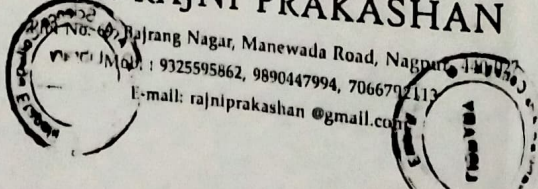
No part of this shall be reproduced, reprinted or translated for any purpose
whatsoever without prior permission of the publisher in writing.



ISBN: 978-93-82683-82-7

Rs. 100/-

M/s. RAJNI PRAKASHAN



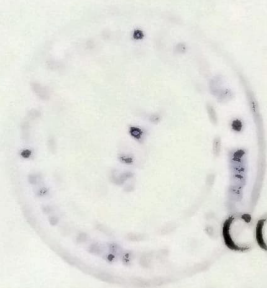
No. 67, Rajrang Nagar, Manewada Road, Nagpur

Mod. : 9325595862, 9890447994, 7066792112

E-mail: rajniprakashan@gmail.com

Principal

Bhagwantrao Arts & Science
College, Etapalli Dist. Gadchiroli



CONTENTS

UNIT - I

A. Qualitative & Quantitative Aspects of Analysis 1-20

B. Flame Photometry 21-29

UNIT - II

A. Separation Techniques 30-54

B. Fertilizers 57-70

C. Basic Principal of Soil Chemistry 71-87

UNIT - III

A. Organometallic Chemistry 88-108

B. Nanomaterials 109-112

UNIT - IV

A. Water Pollution 113-132

Unit - I

A. Qualitative & Quantitative Aspects of Analysis

Definition

The process by which researchers select a representative sub-population that could be studied for their topic so that to draw conclusions about the entire population.

OR

Sampling is the process to get a representative and homogeneous sample.

Representative means that content of analytical sample should reflect the composition of the bulk.

Homogeneous means that the analytical sample has the same composition as the bulk.

- A sample is the representative of the whole bulk. It should reflect the composition of the bulk.
- Critical step in analysis as the significance and accuracy of the results depend on the quality of the sample.
- Sample can be solid, liquid, gas and heterogeneous sample.

Homogeneous sample: A grab sample is often ok. For instance, a sample (blood, urine) can be analyzed directly as it is homogeneous.

Heterogeneous sample: several individual samples are taken to get a representative sample. For example, to determine the protein content of shipment of grains. One has to collect little portions from different locations during loading / unloading using a sampling spear (sack sampler) to get a gross sample.

RBD 2019-20

As Per U.G.C. Semester Pattern New Syllabus of Gondwana
University, Gadchiroli

3795

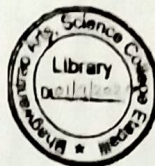


Text Book of Chemistry

PHYSICAL CHEMISTRY

Paper-II

B.Sc. Semester-VI (CBCS)



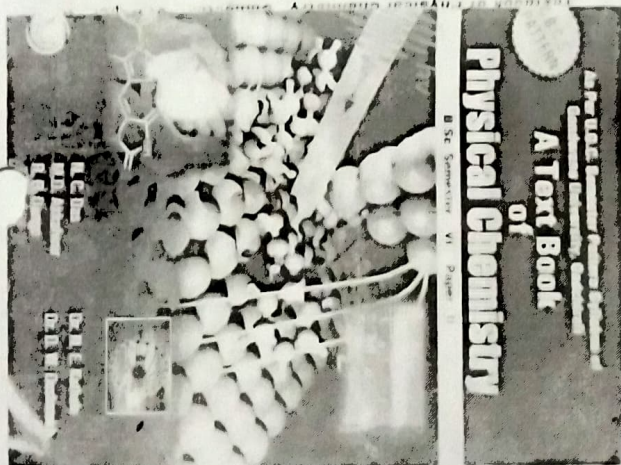
Mr. N. C. Das
Dept. of Chemistry
Dr. Ambedkar College of
Arts, Commerce and Science,
Chandrapur.

Dr. N. E. Kathale
Dept. of Chemistry
Sardar Patel College
Chandrapur.

Mr. M. D. Akkalwar
Head, Dept. of Chemistry
Chintamani College of
Arts & Science,
Dist. Chandrapur.

Dr. D. W. Deshmukh
Dept. of Chemistry
Guru Nanak College of Science,
Ballarpur.

Mr. R. B. Dange
Head, Dept. of Chemistry
Bhagwantrao Arts & Science College Etapalli
Dist. Gadchiroli.



Revised Edition : January 2020

© All Right Reserved

No part of this book shall be reproduced, stored in retrieval system, or translated in any form or by any means, electronic, mechanical, photocopying and/or otherwise without the prior written permission of the publishers.



ISBN No. : 978-93-82683-81-0

Rs. : 80/-

M/s. RAJNI PRAKASHAN

Plot No. 69, Bajarang Nagar, Manewada Road, Nagpur-440 027

Mob. : 9890447994, 7066792113, 9325595862

E-mail : rajniprakashan@gmail.com

Principal
Principal
Bhagwantrao Arts & Science
College, Etapalli Dist. Gadchiroli



CONTENTS

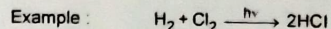
1.	PHOTOCHEMISTRY	1-20
2.	DIPOLE MOMENT	21-32
3.	ROTATIONAL SPECTROSCOPY	33-48
4.	VIBRATIONAL SPECTROSCOPY	49-59
5.	SURFACE CHEMISTRY	60-73
6.	COLLOIDAL CHEMISTRY	74-89
7.	NUCLEAR CHEMISTRY	90-112

000

1 PHOTOCHEMISTRY

1.1 Introduction

1) "Photochemistry deals with the reaction involving absorption or emission of radiation. The reacting molecules absorb photons of light and get excited. Excited molecules ultimately yield product. Such a chemical reaction which is initiated by absorption of ultra violet/visible radiations is called as Photochemical Reaction."



2) It differs from the ordinary chemical reaction. Ordinary reaction occurs by absorption of heat energy and in absence of light. Such a reaction is termed as Dark reaction or thermal reaction. eg. $\text{N}_2 + 3\text{H}_2 \rightarrow 3\text{NH}_3$, $\text{H}_2 + \text{I} \rightarrow 2\text{HI}$.

3) Now-a-days photochemistry has become one of the important branches of research. Many chemical syntheses like vitamin D, formation of ozone, natural products, insecticides can be carried out photochemically.

4) Fluorescence and phosphorescence phenomena have emerging applications in fluorescent tube light, TV and X-ray screens, luminescent watch dials, optical fibers, in white cloth etc.

1.2 Interaction of Radiation with Matter

When light falls on any system, the part of incident light energy is reflected, the part may get absorbed and the remaining may be transmitted. Photochemistry, however, is concerned with the part of light which is absorbed by the matter.

RBD 2019-20

AS PER CBCS PATTERN SYLLABUS OF GONDWANA UNIVERSITY
GADCHIROLI



Text Book

Of

Physical Chemistry

B.Sc. Part - III

(Semester - V) Paper - II

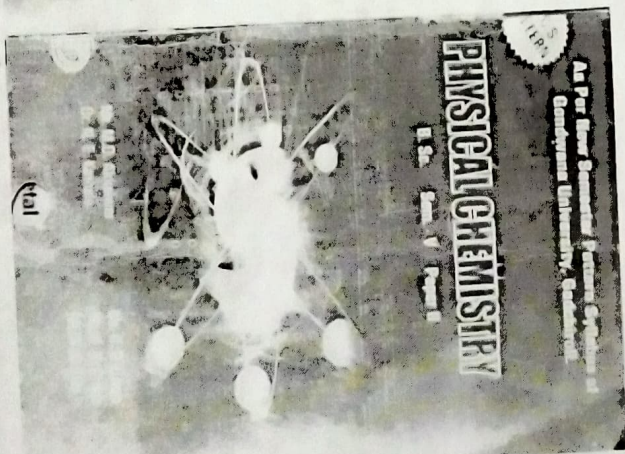
Mr. Mahendra D. Akkalwar
Assistant Professor
Dept. of Chemistry & Head
Chintamani College of Arts and Science
Gondpipri, Dist. Chandrapur

Dr. Niren E. Kathale
Associate Professor
Dept. of Chemistry
Sardar Patel College
Chandrapur

Mr. Rajiv B. Dange
Assistant Professor
Dept. of Chemistry & Head
Bhagwantrao Arts and Science College,
Etapalli, Dist. Gadchiroli

Mr. Sunil R. Chikte
Assistant Professor
Dept. of Chemistry
Sardar Patel College,
Chandrapur

Mr. Narayan C. Das
Assistant Professor
Dept. of Chemistry
Dr. Ambedkar College Arts, Commerce and Science
Chandrapur



2nd Edition : July - 2019

© ALL RIGHT RESERVED

No part of this shall be reproduced, reprinted or translated for any purpose
whatsoever without prior permission of the publisher in writing.



ISBN: 978-93-82683-68-1

Rs. 90/-

M/s. RAJNI PRAKASHAN

Plot No. 69, Bajrang Nagar, Manewada Road, Nagpur-440 027

Mob. : 9890447994, 7066792113, 9325595862

E-mail: rajniprakashan@gmail.com

Signature
Principal
Bhagwantrao Arts & Science
College, Etapalli Dist. Gadchiroli

CONTENTS



Electrochemistry - I	1-29
Electrochemistry- II	30-54
Cells of Reversible Electrodes	55-82
Quantum Mechanics	83-115

1.

Electrochemistry – I

1.1 Introduction:

The branch of chemistry which deals with the study of relationship between electrical energy, chemical energy and interconversion of one form of electrical energy into another is called electrochemistry. In the present unit, we shall focus our attention on the study of various aspects of conductance, and its measurements.

1.2 Electrical Conductance

All substances do not conduct electrical current. The substances which allow the passage of electric current are called **conductors**. The best conductors are metals such as copper, silver, tin, etc. On the other hand, the substances which do not allow the passage of electric current through them are called **non-conductors or insulators**. Some common examples of insulators are rubber, wood, wax, etc.

1.3 Types of Conductors

Conductors are mainly divided into two types :

(a) **Metallic conductors** : These are the metallic substances which allow the passage of electricity through them without undergoing any chemical change. Some common examples are copper, silver, aluminium, etc. The conduction through metals is due to the movement of electrons in the metallic crystals.

(b) **Electrolytic conductors or electrolytes**: These are the substances which allow the passage of electricity through their molten state or through their aqueous solutions and also undergo chemical decomposition at the same time. Some common examples of

RBD 2019-20

As per New Semester Pattern Syllabus
Gondwana University, Gadchiroli



ORGANIC CHEMISTRY

B.Sc. Sem - V (Paper - I)

Mr. Narayan C. Das

Assistant Professor
Dept. of Chemistry
Dr. Ambedkar College of Arts,
Commerce and Science,
Chandrapur.

Mr. Sunil R. Chikte

Assistant Professor
Dept. of Chemistry
Sardar Patel College,
Chandrapur.

Mr. Rajiv B. Dange

Assistant Professor
Dept. of Chemistry & Head
Bhagwantrao Arts and Science College
Etapalli, Dist. Gadchiroli.

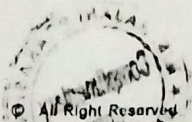
Mr. Mahendra D. Akkalwar

Assistant Professor
Dept. of Chemistry & Head
Chintamani College of Arts and Science
Gondpipri, Dist. Chandrapur.

Dr. Niren E. Kathale

Associate Professor
Dept. of Chemistry
Sardar Patel College,
Chandrapur.

Revised Edition : July-2019



No part of this book shall be reproduced, stored in retrieval system, or translated in any form or by any means, electronic, mechanical, photocopying and/or otherwise without the prior written permission of the publishers



ISBN No. : 978-93-82683-73-5

Rs. : 80/-

M/s. RAJNI PRAKASHAN

Plot No. 69, Bajarang Nagar, Manewada Road, Nagpur-440 027

Mob. : 9890447994, 7066792113, 9325595862

E-mail : rajniprakashan@gmail.com

Rajni Prakashan
Principal
Bhagwantrao Arts & Science
College, Etapalli Dist. Gadchiroli



Contents

Spectroscopy	1-40
Organic Synthesis via Enolate	41-54
Polymers	55-77
Green Chemistry and Technology for Sustainable Development	78-98

Spectroscopy

1.

Introduction:-

Spectroscopy is the branch of science that deals with the interaction of electromagnetic radiations with the matter. Spectroscopic methods are generally used to measure the energy difference between various molecular energy levels and to determine the atomic and molecular structures. The instruments used in such studies, called spectrophotometers. These are the devices to measure the relative energy that is emitted, transmitted or reflected in the infrared, visible or ultraviolet regions, as a function of wavelength or wavenumber.

Nuclear Magnetic Resonance (NMR) Spectroscopy

Nuclear magnetic resonance (NMR) spectroscopy is an absorption spectroscopy in which sample absorb electromagnetic radiation in the radio-frequency region (3MHz to 30,000MHz). As the name itself indicates, NMR spectroscopy involves nuclear magnetic resonance which depends on the magnetic property of atomic nuclei. Thus, NMR spectroscopy deals with nuclear magnetic transitions between magnetic energy levels of the nuclei in molecules.

NMR signals were first observed in 1945 independently by Purcell and Bloch. Ethanol was the first compound studied in NMR spectroscopy. In 1952, Purcell and Bloch won the nobel prize in physics for their discovery. NMR Spectroscopy is more useful for structure elucidation of organic compound than UV - visible and IR - Spectroscopy.

There are about 100 isotopes for which NMR spectroscopy is possible, but the most commonly used are proton nuclear magnetic resonance (PMR or ^1H NMR) Spectroscopy and carbon-13 (^{13}C NMR) Spectroscopy.

ISBN : 978-93-88732-09-3



अण्णा भाऊ साठे : समताधिष्ठित समाज व्यवस्थेचे तत्त्वज्ञ

संपादक
विठ्ठल गुडे
नवनाथ पवळे
दयाराम मस्के

28.	लोकशाहीर अण्णाभाऊ साठे:जीवन चरित्र डॉ.मार्डनाथ राधेशाम बनमोडे	149
29.	अण्णा भाऊ साठे यांचे जिवन कार्य प्रा.डॉ. संजय मगर	152
30.	"साहित्यरत्न अण्णा भाऊ साठे यांच्या साहित्यातील स्त्री जीवन" संतोष बाबुराव गालफाडे	155
31.	लोकशाहीर आण्णाभाऊ साठे यांचे सामाजिक जीवन, साहित्य व कार्य प्रा. शिंदे नारायण भर्तरीनाथ	161
32.	"अण्णाभाऊ साठे यांचे आर्थिक विचार" सौ. सय्यद शाहीन शफी	166
33.	अण्णाभाऊंची लोकनाट्ये : एक दृष्टीक्षेप प्रा. डॉ. सोपान सुरवसे	169
34.	'अण्णाभाऊ साठे जीवन, साहित्य और कार्य' प्रा. सुनिल बाबुराव काळे	173
35.	आण्णा भाऊ साठेजीवन, साहित्य आणि कार्य सुवर्णा विशाल कांबळे	176
36.	अण्णा भाऊ साठे : जीवन आणि कार्य नेहा. स्वाती आदिनाथ बांगर	179
37.	अण्णाभाऊ साठे : सर्वहारा वर्ग की ललकार प्रा. डॉ. सिद्धार्थ राजेंद्र टाकणखार	182
38.	अण्णाभाऊ साठे यांच्या साहित्यातील परिवर्तनवादी विचार: एक अभ्यास प्रा.तिजारे गौतम उकडर्डा	190
✓ 39.	"अण्णाभाऊ साठे : दलित साहित्य आणि आंबेडकरी चळवळ" तुळ्यशिराम शंकर कांबळे, प्रा. सुधीर टि. भगत	195
40.	अण्णाभाऊ साठे उपेक्षित वंचितांचा हुंकार प्रा. वैशाली तुकाराम लोणे	200
41.	अण्णा भाऊ साठे : एक मार्क्सवादी तत्वज्ञ प्रा. डॉ. विजया यादवराव गोडाम	204
42.	आण्णा भाऊ साठे तथा उनके स्त्री पात्र डॉ. पवार विक्रमसिंह विजयसिंह	211

अभिव्यक्ती हेतूने
मांडला. त्यांच्या
शोषित जनतेची
जात-पात धर्म
त निर्माण करून
अभिव्यक्त होत

साठे यांच्या
आठ साठे यांच्या
वातावर कमी
विषमता
अण्णाभाऊंच्या

त्य संस्कृती

पाटील
आळे

व कुंभार, डॉ.

ही.एच.हनवते

रायण कांबळे.

- २०१९"

“अण्णाभाऊ साठे : दलित साहित्य आणि आंबेडकरी चळवळ”

तुळशिराम शंकर कांबळे

संशोधक, एम.ए.मराठी, अर्थ, बि.एड, बी.पी.एड

मु. मोदुमतुरा पो. इंदाराम ता. अहेरी जि. गडचिरोली.

प्रा. सुधीर टि. भगत,

मार्गदर्शक, एम.ए.मराठी, पि.एच.डी, (मराठी विभाग प्रमुख)

भगवंतराव कला/विज्ञान महाविद्यालय एटापल्ली

अण्णा भाऊ साठे एक दलित साहित्यिक असून दलित साहित्य प्रवाह हा परिवर्तनाच्या चळवळीतून उदयास आलेला आहे. जीवनाची बांधिलकी मानणारे दलित साहित्य हे जीवनातले वास्तव प्रश्नांना घेऊन समोरा जात आहे. दलितांच्या आयुष्यातील विविध वचना, वेदना, दुःख, दैन्य, दास्य, आणि जीवनानुभव हेच साहित्याच्या केंद्रस्थानी आहे. आज बाबासाहेबांच्या अनुयायांनी “दलित” हा शब्द नाकारून प्रस्तुत साहित्याला आंबेडकरी साहित्य आणि दलित चळवळीला आंबेडकरी चळवळ असे नामाभिधान दिले आहे. हा शब्द प्रयोग निःसंशय यथार्थ आहे, अपूर्व असा आहे.

वास्तविक पाहता विश्वात कुठेही अस्तित्वात नसलेली विषमता व मानवतेला कलंकीत करणारी धर्मव्यवस्था व वर्णव्यवस्था फक्त याच देशात आहे. जात, धर्म, पंथ व वंशाच्या नावाखाली असमानता, अमानवता, अस्पृश्यता प्रस्तापित करून हजारो वर्षे या देशातील दलीत, शोषित, वंचीत, आदिवासी, परीघावरील अन्य उपेक्षित समाजाचा शोषण चालविला, त्यांच्यावर अन्याय, अत्याचार केले, पिडवणुक केली, त्यांचा अनन्वित छड केला. या व्यवस्थेच्या विरुद्ध अण्णाभाऊंची लेखनी बंड पुकारते. साहित्याचा माध्यमातून आंबेडकरी विचारधारेवर आधारीत समताधिष्ठीत नव समाजरचनेचे स्वप्न प्रत्येकाच्या मना-मनात पेरणा-या अण्णा भाऊंचा जन्म दिनांक १ ऑगस्ट १९२० मध्येवाटेगाव येथील दलित समाजात झाला. हा समाज आपलं जीवन गाव कुसाबाहेर व्यथित करित होता. सत्ता, संपत्ती व शिक्षणापासून वंचीत होता.

शिक्षणाशिवाय मनुष्य गुलाम बनतो. दुःख, दैन्य, दास्यातून संपूर्ण मनुष्यत्व येण्यासाठी शिक्षणाची नितांत गरज आहे. याची जाणीव अण्णा भाऊंच्या वडिलांना होती. म्हणून आपला मुलगा शिक्षण घेतला पाहीजे, प्रस्थापित व्यवस्थेशी बंड करण्यासाठी म्हणून अण्णा भाऊंना शाळेत घातले. परंतु वर्ण व्यवस्था त्यांच्याशिक्षणाच्या आड आली.

“गुरूवीना मार्ग नाही” यासुभाषीतेला कालबाह्य ठरवत स्वकर्तृत्वाच्या बळावर एकलव्यानी धनुर्विद्या शिकलेली असतांना अंगूठा मागून त्यांची विद्या हिस्कावारे द्रोणाचार्य, शुद्रांना विद्यार्जनाचा अधिकार नसल्याच्या सबबीखाली शंबुकाचे मुंडके उडविणारे प्रभू श्रीराम,

RESEARCH JOURNAL

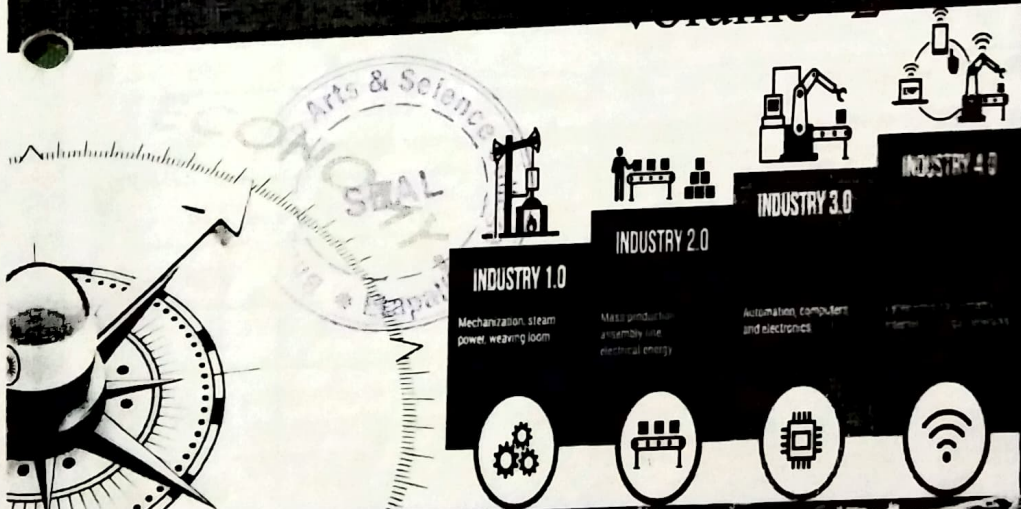
RESEARCH JOURNAL

Research Journal

December -2019

मासिक

VOLUME 2



Guest Editor

Dr. Subodh kumar Singh
(Principal)

Prof. Ravindra B. Shende
HOD, Dept of Economics
Lokmanya Mahavidyalaya,
Warora, Dist-Chandrapur (MS)

Chief Editor

Mr. Dhanraj T. Dhangar,
Assist. Prof. (Marathi)
MGV's Arts & Commerce College,
Yeola, Dist - Nashik [M.S.] INDIA

Executive Editor:
Prof. Virag S. Gawande
Director,
Aadhar Social
Research & Development
Training Institute Amravati

This Journal is indexed in :

- Scientific Journal Impact Factor (SJIF)
- Cosmos Impact Factor (CIF)
- Global Impact Factor (GIF)
- Universal Impact Factor (UIF)
- International Impact Factor Services (IIFS)
- Indian Citation Index (ICI)
- Dictionary of Research Journal Index (DRJI)



For Details Visit To : www.researchjourney.net

SWATIDHAN PUBLICATIONS



INDEX

No.	Title of the Paper	Authors' Name	Page No.
52	लघू उद्योगांचि प्रगती दूरपरेषा	प्रा. डॉ. आर. ए. फुलकर	210
53	एक आर्थिक विचारवंत - डॉ. आंबेडकर	डॉ. संगीता जी. टक्कामोरे	216
54	भारतीय अर्थव्यवस्था सद्यस्थिती व आव्हाने श्री. मदन जी. प्रधान, डॉ. जयंतकुमार एम. मस्के,		220
55	भारतीय अर्थव्यवस्थेत क्रिकेट खेळाची भुमिका	प्रा. उत्तम रामचंद्र देउळकर	223
56	भारतीय अर्थव्यवस्थेत शाश्वत शेती आजच्या काळाची गरज डॉ. कल्पना भजनी / डॉ. कांचनमाला क्षीरसागर		226
57	भारतीय अर्थव्यवस्था की वर्तमान स्थितीतथा आर्थिक सर्वेक्षण	प्रा. डॉ. प्रिति ई. बंडे	230
58	जागतिकीकरणाचा भारतीय अर्थव्यवस्थेतील प्रवास: एक आर्थिक अध्ययन प्रा. डॉ. अमोल गिरीधरराव आवंडकर		233
59	ग्रामीण विकास व दारिद्र्य निर्मुलन कार्यक्रमांची परिणामकारता	डॉ. एस पी. झांबरे,	236
60	भारतातील वस्तु व सेवा कर - एक विश्लेषण	प्रा. डॉ. विठ्ठल निलकंठ ठावरी	238
61	लोकसंख्यावाढ :- एक सामाजिक समस्या	प्रा. बाळकृष्ण कारु रामटेके	242
62	लिंगभाव आणि विकास-अर्थकारणाचे स्त्रीवादी दृष्टीकोणातून विश्लेषण डॉ. प्रविण दिगांबर मुधोळकर		246
63	जागतिकीकरणाचे परिणाम	प्रा. डॉ. मेघमाला अं. मेश्राम	251
64	जागतिकीकरण आणि भारताची राष्ट्रीय सुरक्षा	प्रा. तानाजी माने	254
65	आर्थिक मंदी उद्भवण्याची कारणे आणि उपाययोजना	डॉ. रंजना सुखदेव लांजेवार	257
66	भारतातील ग्रामिण विकासाचे वास्तव: एक अवलोकनात्मक अभ्यास	प्रा. डॉ. मंगेश कडू	260
67	गिग अर्थव्यवस्थेचा (Gig Economy) फ्रीलान्सच्या (Freelance) दृष्टीकोनातून भारतीय अर्थव्यवस्थेवरील परिणाम - एक नवप्रवर्तनात्मक अध्ययन	प्रा. हितेश मा. दडमल	263
68	कृषी विकासात शिक्षण व संशोधनाचे महत्त्व	डॉ. विठ्ठल धिनमिने	267
69	आदिवासी विकास विभागाच्या योजना आणि आदिवासी शेतकरी	प्रा. एन. एस. गेडाम	272
70	डॉ. बाबासाहेब आंबेडकरांचे अर्थव्यवस्थादृष्टीकोण	प्रा. निलेश अरूण दूर्गे	276
71	Industry 4.0 आणि भारत	प्रा. निहार अशोक बोदेले	281
72	कृषीआधारीत उद्योग व इतर उद्योग	प्रा. डॉ. प्रज्ञा बागडे	285



डॉ.बाबासाहेब आंबेडकरांचे अर्थशास्त्रीयदृष्टिकोण

प्रा. निलेश अरूण दुर्गे

अर्थशास्त्र विभाग भगवंतराव कला व विज्ञान महाविद्यालय एटापल्ली, जि.गडचिरोली

भारतरत्न डॉ.बाबासाहेब आंबेडकरांना आपण घटनातज्ञ, कायद्याचे गाढ अभ्यासक, संसदपटू राजकारणी अशा विविध रुपात ओळखतो. पण एक अर्थतज्ञ म्हणून त्यांची ओळख फार दुर्मिळ अशी आहे. डॉ.बाबासाहेब आंबेडकरांच्या समृद्ध आणि विविधांगी व्यक्तिमत्त्वाचा एक पैलू म्हणजे ते जागतिक किर्तीचे व्यासंगी अर्थतज्ञ होते. डॉ.बाबासाहेब आंबेडकरांनी स्वतःला मानवमूक्तीच्या लढयात झोकून दिल्यामुळे त्यांचे सामाजिक, राजकीय, आणि धार्मिक विचार जितके समाजाला समजते त्या प्रमाणे आर्थिक विचार समजले नाहीत. डॉ.बाबासाहेब आंबेडकरांच्या विचारांचा त्या त्या कालावधीत विचार होऊन त्या आधारावर आर्थिक नियोजनाची अमलबजावणी झाली असती तर आज भारताचा वेगळ्या नकाशा जगाला पहायला मिळाला असता.

डॉ.बाबासाहेब आंबेडकरांचे आर्थिक विचार

१) आर्थिक नियोजन

डॉ.बाबासाहेब आंबेडकरांच्या मते, आर्थिक विकासात उद्दीष्ट साध्य करण्यासाठी देशाने एक उचित आर्थिक नियोजनाची पध्दत स्विकारणे आवश्यक होते. जवळपास १९० वर्षांच्या ब्रिटीश राजवटीतील पिढ्यवृत्तीनंतर आणि द्वितीय महायुद्धातील भयंकर संहारानंतर स्वतंत्र झालेल्या भारताने स्वातंत्र्य लढयात अग्रेसर राहिलेल्या भारतीय राष्ट्रीय काँग्रेस पक्षाच्या आणि प्रथम पंतप्रधान जवाहरलाल नेहरूंच्या प्रेरणादायी नेतृत्वात आर्थिक नियोजनाशी आपली प्रगत व्हायला पाहिजे होती, पण ती आर्थिक नियोजन नसल्याने झालेली नाही. पण डॉ.बाबासाहेब आंबेडकर स्वतंत्र भारताचे पहिले मजुरमंत्री या नात्याने त्यांनी स्वतःच्या देशाच्या विकासाकरिता आर्थिक नियोजनाची काही वैशिष्ट्ये ठळकपणे मांडली, त्यामध्ये भारतातील वाढत्या लोकसंख्येच्या गरजा भागवण्यासाठी अन्नधान्याचे उत्पादन वाढव करणे, राष्ट्रीय उत्पन्नात घर घालणे, भविष्यातील आर्थिक विकासाचा पाया असणाऱ्या औद्योगीकरणाचा वेग वाढवणे, श्रमिक आणि सुशिक्षित तरुणांसाठी अनेकांअनेक रोजगाराच्या संधी उपलब्ध करून देणे, तंत्रज्ञानाचा वापर करून अधिकाधिक रोजगार निर्माण करणे, ग्रामीण भागातील लघू व कुटीर उद्योगांना विशेष सवलती देवून आर्थिक सन्ता व संपत्तीचे विकेंद्रीकरण करणे, आणि शहरी व ग्रामिण भागातील आर्थिक असमानता दूर करून सामाजिकदृष्ट्या मागासलेल्या दलित, आदिवासी, ओ.बी.सी., अल्पसंख्याक व महिला वर्गाचे सर्वांगीण विकासाकरिता संधी उपलब्ध करून देणे आणि स्वावलंबन व गरीबी दूर करणे इत्यादींचा समावेश आर्थिक नियोजनात सुचविले.

२) औद्योगिक पायाभरणी

डॉ.बाबासाहेब आंबेडकर बॉम्बे लेजिस्लेटिव्ह असेम्ब्लीचे सदस्य असताना (१९२६) ग्रामीण भागातील गरिबांच्या समस्यांविषयीचे त्यांचे समग्र आकलन त्यांनी उभारलेल्या जनआंदोलनांमध्ये प्रतिबिंबित होते. शेतीमधील खोती पध्दतीविरुद्ध त्यांनी केलेल्या यशस्वी आंदोलनामुळे अनेक ग्रामीण गरीबांची आर्थिक शोषणातून मुक्तता झाली. महार पतन या नावाखाली सुरू असलेल्या शुद्ध गुलामगिरीविरुद्ध त्यांनी आवाज उठविल्यानंतर ग्रामीण भागातील गरिबांचा मोठा वर्ग शोषणमुक्त झाला. सावकारांच्या मनमानीला चाप लावण्यासाठी त्यांनी असेम्ब्लीमध्ये विधेयक आणले. औद्योगिक कामगारांच्या क्षेत्रात डॉ.आंबेडकरांनी १९३६मध्ये स्वतंत्र मजूर पक्षाची स्थापना केली. त्याकाळी कामगारांचा आवाज बुलंद करणाऱ्या अन्य संघटना होत्याच, मात्र त्यांना अस्पृश्य कामगारांच्या मानवाधिकारांशी काहीही देणे घेणे नव्हते. नव्या राजकीय पक्षाने ही उणीव भरून काढली. त्याचप्रमाणे व्हॉइसरॉयज एक्झिक्युटिव्ह कौन्सिलचे कामगार सदस्य या नात्याने १९४२ ते १९४६ या काळात डॉ.बाबासाहेब आंबेडकर यांनी कामगारविषयक धोरणात आमूलाग्र सुधारणा घडवून आणल्या. त्यात सेवायोजन कार्यालयाची स्थापना ही महत्वपूर्ण घटना होती आणि स्वतंत्र भारतातील औद्योगिक संबंधांची तीच पायाभरणी ठरली. डॉ.बाबासाहेब आंबेडकरांनी पाटबंधारे, ऊर्जा आणि इतर सार्वजनिक बांधकामे ही खातीही सांभाळली. देशाचे पाटबंधारे धोरण निश्चित करण्यात त्यांनी महत्वाची भूमिका बजावली, त्यामध्ये दामोदर व्हॅली प्रकल्पाचा यात प्राधान्याने समावेश करावा लागेल.

३) कुषी विचार

डॉ. आंबेडकरांनी शेतीतील उत्पादन वाढवण्यासाठी यंत्रप्रधान शेती, विस्तृत शेती, सहकारी व सामुदायिक शेतीचा पुरस्कार केला. त्यांच्यामते जमिन मालकाकडून जेनेटिव्ह वडिवाटीचे हक्क काढून घेवून त्या बदल्यात त्यांना नुकसान भरपाई द्यावी. जमिनीचे एकत्रीकरण करून योग्य उच्चवर्गीय जमिनी तयार करून. सामूहीक शेती विकसीत करावीत. जात, धर्म