



॥संहतीकार्यसाधिका, शिल्पं परमभूषणं॥

**Shetkari Shikshan Prasarak Mandal's
KRISHNA MAHAVIDYALYA RETHARE BK.**

Department of Chemistry
PROGRAM SPECIFIC OUTCOMES
AND
COURSE OUTCOMES
FOR OUTCOME-BASED EDUCATION
(Academic year 2019-20)



Shetkari Shikshan Prasarak Mandal's

KRISHNA MAHAVIDYALAYA, RETHARE BK

PROGRAMME OUTCOMES

DEPARTMENT OF CHEMISTRY

Academic Year 2019-2020

After completion of the B. Sc programme, the students will develop ability:

- A. The B.Sc Programme develops an insight of scientific inquisitiveness among students.
- B. It increases **scientific** temperament and attitude among science graduates.
- C. It creates a systematic method of study ie. Observation, Experiment, and Conclusion which is a basic principle of scientific research.
- D. The qualities of a science - observation, precision, analytical mind, logical thinking, clarity of thought and expression, systematic approach, qualitative and quantitative decision making are enlarged.
- E. The program also empowers the graduates to appear for various competitive examinations or choose the post graduate programme of their choice.
- F. It trains the learners to extract information, formulate a scientific method of study and solve problems in a systematic and logical manner
- G. This programme enables the learners to perform jobs in diverse fields such as agriculture, industries, engineering , education, banking, development-planning, business, public service, self-



business etc., efficiently.

- H. The programme also helps the students to perform their carrier in the field of basic and applied research.
- I. Understood the basic concepts, fundamental principles, and scientific theories related to various scientific phenomena and their relevancies in the day to-day life.

After completion of the programme, the students will develop ability:



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DEPARTMENT OF CHEMISTRY

PROGRAMME SPECIFIC OUTCOMES

Academic Year 2019-2020

PSO-A . The students will understand basic facts and concepts in chemistry

PSO-B . To make students aware about analytical industrial knowledge.

PSO-C . To develop problem solving skills in chemistry.

PSO-D .To acquire the knowledge of terms, facts, concept, processes and principles of chemistry.

PSO-E . To expose and to develop interest in the field of chemistry.

PSO-F. To develop knowledge and apply to society.

PSO-G. This programme enables the learners to perform jobs in diverse fields such as agriculture, industries, engineering, education, development-planning, business, public service, self-business etc., efficiently.

PSO-H. The programme also helps the students to perform their carrier in the field of basic and applied chemical research.



Shetkari Shikshan Prasarak Mandal's
KRISHNA MAHAVIDYALAYA, RETHARE BK
DEPARTMENT OF CHEMISTRY
CHEMISTRY COURSE OUTCOMES

Academic Year 2019-2020

B.Sc. (Chemistry)

Annexure-C

Course Outcomes: B.Sc. I Paper I: DSC -3A :Inorganic Chemistry

By the end of this Course students should be able to know about:

- CO1. The student will understand atomic structure, the nature, applications of element of S block elements.
- CO2. The student will understand the ionic solid and their crystal structure.
- CO3. The student will get the knowledge of VBT.
- CO 4. The student will get the knowledge of MOT.

Paper II: DSC-4A: Organic Chemistry

By the end of this Course students should be able to know about:

- CO1. The students will able to discuss Fundamentals of organic reactions and
- CO2. The students will able to discuss the concept of stereochemistry.
- CO3. The student will get the knowledge of aromatic and non-aromatic compounds
- CO4. The student will explain cycloalkanes , cycloalkenes and alkadienes.

Paper III: DSC-3B: Physical chemistry.

By the end of this Course students should be able to know about:

- CO1. The students will understand, thermodynamics and thermochemistry .
- CO2. The students will learn chemical equilibrium.
- CO3. The student will explain kinetic theory of gases.



CO4. The student will study rate of reaction and various order of reactions .

Paper IV: DSC-4B: Analytical Chemistry

By the end of this Course students should be able to know about:

CO1. The students will able to understand the concept of analytical chemistry.

CO2. The students will able to understand the qualitative and quantitative methods of Chromatography.

CO3. Students will understand basics of titrations methods.

CO4. The students will able to discuss water analysis.

CO5. The students will able to discuss abut fertilizer analytical methods.

B.Sc. II Paper V: DSC-C3: Physical Chemistry

By the end of this Course students should be able to know about:

CO1. Learning and understanding conductivity and transport number of the aqueous solutions with different applications.

CO2. To provide a good knowledge of physical properties of liquids.

CO3. Learning and understanding surface phenomena at heterogeneous surfaces.

CO4. Learning the various Nuclear phenomena and measurement of nuclear radiations.

CO5. Learning and understanding the knowledge about third order reaction and theories of reaction rates.

Paper VI : DSC-C4: Industrial Chemistry

By the end of this Course students should be able to know about:

CO1. The students will able to discuss the Scope and basic concept of industrial



chemistry.

CO2. The students will explain Knowledge of some unit operations

CO3. The student will explain applications Understanding the process of corrosion and Knowledge of prevention from corrosion processes.

CO4. The student will get the knowledge of Knowledge of Indian paper industry

CO5. The student will get Knowledge about the chemical nature and cleansing action of soap

Paper VII: DSC-D3 :Inorganic Chemistry

By the end of this Course students should be able to know about:

CO1. The student will get the knowledge of coordination compounds and their applications.

CO2. The student will get the knowledge chelation and applications in day today life.

CO3. The student will understand the nature, applications of P - block elements.

CO4. Student will be capable of understanding the properties of 3d series elements

CO5. The student will learn the basic knowledge about the qualitative analysis of inorganic compounds

Paper VIII : DSC-D4: Organic Chemistry

By the end of this Course students should be able to know about:

CO1. The students will To impart knowledge about the synthesis, reactivity and applications of carboxylic acids.



CO2. The students will be able to discuss Knowledge about classification, preparation and applications of amines and diazonium salts.

CO3. Understanding the classification, configuration and structure of carbohydrates.

CO4. The students are able to understand the nomenclature and reactivity of aldehydes and ketones.

CO5. The students will understand importance of stereochemistry in the processes of industries.

B.Sc. III: Paper IX: Physical Chemistry

By the end of this Course students should be able to know about:

CO1. Students will be able to understand quantum Chemistry

CO2. Students will be able to understand Knowledge about spectroscopy

CO3. Students will know Learning and understanding photochemical laws, reactions and various photochemical phenomena.

CO4. Learning the various types of solutions, relations vapour pressure, temperature relations.

CO5. Learning and understanding the knowledge of emf measurements, types of electrodes, different types of cells, various applications of emf measurements.

Paper X: Inorganic chemistry

By the end of this Course students should be able to know about:

CO1. Students will be able to understand Hard and Soft acids and Bases (HSAB)

CO2. Students will be able to understand metal ligand bonding in transition metal



complexes and their applications in industrial world.

CO3. Students will understand and learn the classification, synthesis and applications of various polymers

CO4. Students will be able to understand the concept of metal, semiconductor and superconductor and its uses.

CO5. Students will be able to understand the Organometallic chemistry.

Paper XI: Organic Chemistry

By the end of this Course students should be able to know about:

CO1. The students will be able to understand the spectroscopic methods of analysis.

CO2. The students will be able to discuss the data analysis and deductions of the structure of unknown organic compounds.

CO3. The students will understand importance of spectroscopy in the manufacturing processes of industries. It has wide applications in Research and developments section of various industries.

CO4. The students are able to understand importance data analysis and the confirmation of structure of unknown organic compounds.

CO5. The students will understand the concept and need of spectroscopy in chemical industry.


Paper XII: Industrial Chemistry

By the end of this Course students should be able to know about:

CO1. The students will be able to understand the manufacturing of heavy chemical processes and their applications.

CO2. The student will explain applications Understanding the process of corrosion and Knowledge of prevention from corrosion processes.

CO3. The students will be able to discuss mechanism sugar industry.



CO4. The student will get Knowledge about the chemical nature and cleansing action of soap.

CO5. The students will be able to discuss about nanotechnology including classification, optical properties, synthesis routes, characterization techniques and applications of nano-materials.

Paper XIII: Physical Chemistry

By the end of this Course students should be able to know about:

CO1. Students will be able to understand concepts and applications of phase rule.

CO2. Students will be able to understand Knowledge about Thermodynamics.

CO3. Students will be able to understand the term solid state chemistry.

CO4. Students will be able to learn radioactivity.

CO5. Students will know Learning of kinetics, Simultaneous reactions such as
i) opposing reaction ii) side reaction iii) consecutive reactions: iv) chain reaction v) explosive reaction

CO6. Learning and understanding surface phenomena at heterogeneous surfaces.

Paper XIV: Inorganic Chemistry

By the end of this Course students should be able to know about:

CO1. Students will be able to understand inorganic reaction mechanism.

CO2. Students will be able to understand thermodynamic and chemical kinetic aspect of metal complexes.

CO3. Students will understand nuclear reactions & actinide series.

CO4. Students will be able to understand iron and steel and their production technique.

CO5. Students will be able to understand the concept bioinorganic chemistry.



Paper XV: Organic chemistry

By the end of this Course students should be able to know about:

- CO1. Students will able to understand mechanism of various types of reactions.
- CO2. Students will able to understand of reagents used in organic transformations and various reactions used in organic synthesis.
- CO3. Students will know electrophilic addition reactions and their applicability in day to day life.
- CO4. Students will able to understand definition and scope Natural Products.
- CO5. Students will able to understand the Pharmaceutical products and their uses.


Paper XVI: Analytical Chemistry

By the end of this Course students should be able to know about:

- CO1. Students will understand basics of titrations methods.
- CO2. The students will able to understand the procedure of potentiometric titration and their application.
- CO3. Students will understand basics of colorimetry and spectrophotometry.
- CO4. The students will able to know principles and applications of flame photometry.
- CO5. Understanding the basics of ion exchange and column adsorption chromatography, Quality control practices in analytical industries / laboratories.


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