॥संहतीकार्यसाधिका, शिलंम परमभूषणंम॥

**Shetkari Shikshan Prasarak Mandal's**

**KRISHNA MAHAVIDYALYA RETHARE BK.**

# Department of Chemistry

# PROGRAM SPECIFIC OUTCOMES

# AND

# COURSE OUTCOMES

# FOR OUTCOME-BASED EDUCATION

## (Academic year 2017-18)

Shetkari Shikshan Prasarak Mandal's

# KRISHNA MAHAVIDYALAYA, RETHARE BK

## PROGRAMME OUTCOMES

## DEPARTMENT OF CHEMISTRY

**Academic Year 2017-2018**

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 2017-2018

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.

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# KRISHNA MAHAVIDYALAYA, RETHARE BK

## DEPARTMENT OF CHEMISTRY

## CHEMISTRY COURSE OUTCOMES

### Academic Year 2017-2018

**B.Sc. (Chemistry )** **Annexure-C**

**Course Outcomes: B.Sc. I Paper I: Physical chemistry.**

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

CO1. Students will know Learning and understanding distribution laws.

CO2. The students will understand, thermodynamics.

CO3. The student will study rate of reaction and various order of reactions .

CO4. The student will explain kinetic theory of gases.

CO5. The students will able to discuss types of nuclear radiations and various terms in nuclear chemistry.

**Paper II: Inorganic Chemistry**

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

CO1. The student will understand the ionic solid and their crystal structure.

CO2. The student will get the knowledge of Covalent bonding.

CO3. The student will study concept of acids and bases.

CO 4. The student will understand atomic structure, the nature, applications of element of p block elements.

CO 5. The student will get the knowledge of nobel gases.

**Paper III: 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.

CO2. The students will able to discuss the concept of stereochemistry.

CO3. The student will explain cycloalkanes , cycloalkenes and alkadienes.

CO4. The student will get the knowledge of synthetic reagents.

CO5. The student will study aromatic compounds.

**Paper IV: 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 able to discuss different parameters of water.

CO3. The student will get Knowledge about classification and properties of fuel.

CO4. Students will explain Knowledge of some unit operations

CO5. The students will able to discuss about fertilizers.

**B.Sc. II Paper V: Organic Chemistry**

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

CO1. The students will understand importance of stereochemistry in the processes of industries.

CO2.The students will To impart knowledge about the synthesis, reactivity and applications of polynuclear hydrocarbons.

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

CO3. The students are able to understand the classification and reactivity of Heterocyclic compounds.

CO4. The students are able to know reactions and mechanism of name reactions.

CO5. Understanding the principles and green organic synthesis.

**Paper VI : 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 concept of gravimetry.

CO3. The students will able to understand the qualitative analysis.

CO4. The students will able to study conductometric titrations.

CO5. The students will able to discuss about fertilizer analysis.

**Paper VII: 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 concept of entropy and third law of thermodynamics.

CO3. Learning and understanding the knowledge about third order reaction and theories of reaction rates.

CO4. The student will understand classification and study of physical properties of liquids.

**Paper VIII : Inorganic Chemistry**

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

CO1. Student will be capable of understanding the properties of first transition elements

CO2. The student will understand the nature, applications of f - block elements.

CO3. The student will get the knowledge of coordination compounds and their applications.

CO4. The student will get the knowledge chelation and applications in day today life.

CO5. The student will understand the classification of catalyst and their applications.

CO6. The student will learn the basic knowledge about the non-aqueous solvents

**B.Sc. III: Paper IX: Physical Chemistry**

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

CO1. Students will able to understanding quantum Chemistry

CO2. Students will 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 able to understand Hard and Soft acids and Bases (HSAB)

CO2. Students will able to understand metal ligand bonding in transition metal complexes and their applications in industrial word.

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

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

CO5. Students will 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 able to understand the spectroscopic methods of analysis.

CO2. The students will 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 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 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 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 able to understand concepts and applications of phase rule.

CO2. Students will able to understand Knowledge about Thermodyanamics.

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

CO4. Students will 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 able to understand inorganic reaction mechanism.

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

CO3. Students will understand nuclear reactions & actinide series.

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

CO5. Students will 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.

HEAD
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