

## **DEPARTMENT OF CHEMISTRY**

### **COURSE OUTCOMES**

#### **SEMESTER - I**

#### **Chemistry Paper I**

<b>CO#</b>	<b>Course Outcome</b>
<b>C01</b>	Differentiate Inter halogen compounds and pseudo halogens. (K4)
<b>C02</b>	Define and classify the organometallic compounds. (K4)
<b>C03</b>	Describe the preparation, properties and applications of alkyls of Li and Mg elements. (K2)
<b>C04</b>	Identify and judge the structure, type of reaction and mechanism. (K5)
<b>C05</b>	Illustrate the nomenclature, synthesis, isomerism and physical properties of alkanes and cycloalkanes. (K4)
<b>C06</b>	Differentiate between Ring activating and deactivating groups in benzene. (K4)

#### **SEMESTER - II**

#### **Chemistry Paper II**

<b>CO#</b>	<b>Course Outcome</b>
<b>C01</b>	Describe the characteristic of the three states of matter. (K2)
<b>C02</b>	Determine the differences between solids, liquids and gases. (K3)
<b>C03</b>	Explain the liquefaction of gases by (i) Linde's method (ii) Claude's method. (K3)
<b>C04</b>	Explain classification and applications of liquid crystals. (K3)
<b>C05</b>	Correlate the M.O Diagrams of Diatomic molecules. (K4)
<b>C06</b>	Distinguish between Enantiomers and Diastereomers. (K5)

**SEMESTER – III**  
**Chemistry Paper III**

<b>CO#</b>	<b>Course Outcome</b>
<b>C01</b>	Predict the magnetic and spectral properties of d-block elements. (K3)
<b>C02</b>	Distinguish between the Stability of various oxidation states of d-block elements. (K4)
<b>C03</b>	Diagram the structures and shapes of metal carbonyls. (K4)
<b>C04</b>	Explain the $\text{SN}^1$ and $\text{SN}^2$ -reactions with mechanism. (K2)
<b>C05</b>	Distinguish aldehydes and ketones. (K4)
<b>C06</b>	Prepare monocarboxylic acids and Dicarboxylic acids from acetoacetic ester. (K3)

**SEMESTER – IV**  
**Chemistry Paper IV**

<b>CO#</b>	<b>Course Outcome</b>
<b>C01</b>	Describe the applications of Beer-Lambert law for quantitative analysis. (K2)
<b>C02</b>	Explain the Selection rules for electronic spectra. (K3)
<b>C03</b>	Illustrate how N.M.R technique is useful in quality control and research for determining the contents and purity of a sample as well as its molecular structure. (K4)
<b>C04</b>	Distinguish between Elevation of boiling point & Depression of Freezing Point. (K5)
<b>C05</b>	Explain the construction and working of Hydrogen electrode and Calomel electrode. (K3)
<b>C06</b>	Diagram water-system and Lead-Silver system. (K4)

**SEMESTER – V**  
**Chemistry Paper V**

<b>CO#</b>	<b>Course Outcome</b>
<b>C01</b>	Explain Crystal Field Theory to understand the magnetic properties of coordination compounds with CN 4 & 6. (K3)
<b>C02</b>	Assess the structures of coordination compounds based on their names. (K5)
<b>C03</b>	Calculate the magnetic moment of a complex compound by using spin-only formula. (K3)
<b>C04</b>	Classify Amines into 1°, 2°, 3° Amines and write the chemical properties of amines. (K2)
<b>C05</b>	Differentiate Cyanides from Isocyanides. (K3)
<b>C06</b>	Develop and apply the continuity equation for open and closed Systems. (K3)

**SEMESTER – V**  
**Chemistry Paper VI**

<b>CO#</b>	<b>Course Outcome</b>
<b>C01</b>	Explain the substitution reactions of square planar complexes. (K2)
<b>C02</b>	Diagram Haemoglobin, Myoglobin & Chlorophyll. (K4)
<b>C03</b>	Deduce the Rate constants for First, Second, Third and Zero order reactions and examples. (K4)
<b>C04</b>	Predict the qualitative description of fluorescence, phosphorescence, photosensitized reactions. (K3)
<b>C05</b>	Produce evidences for the cyclic structure of Glucose. (K3)
<b>C06</b>	Deduce Osazone from Glucose and Fructose. (K4)

## SEMESTER – VI

### Paper-VII-B (Elective paper)

#### ENVIRONMENTAL CHEMISTRY

CO#	Course Outcome
C01	Analyze chemical processes involved in different environmental problems (air, water & soil). (K4)
C02	Illustrate air pollution problems and interpret air quality data on chemical characteristics. (K3)
C03	Distinguish various biotic abiotic environmental transformation processes of pollutants. (K5)
C04	Estimate the hardness of water by EDTA. (K4)
C05	Assess Air and Water quality parameters. (K5)
C06	Measure dose-response relationships as the basis of toxicity. (K5)

## SEMESTER – VI

### CLUSTER ELECTIVE –VIII B – 1

#### FUEL CHEMISTRY AND BATTERIES

CO#	Course Outcome
C01	Compare the composition of coal gas, water gas, producer gas and their manufacture. (K4)
C02	Explain how to convert crude oil and natural gas into various effective fuels of high calorific value like LPG, CNG, petrol etc., (K2)
C03	Determine the composition and importance of various fuels. (K3)
C04	Classify various types of lubricants and their properties. (K2)
C05	Distinguish between primary and secondary batteries. (K5)
C06	Explain the construction and working of various batteries. (K2)

## SEMESTER – VI

### CLUSTER ELECTIVE – VIII – B – 2

#### INORGANIC MATERIALS OF INDUSTRIAL IMPORTANCE

CO#	Course Outcome
C01	Differentiate the periodicity in s- and p- block elements with respect to electronic configuration, atomic size, ionization enthalpy, electronegativity. (K4)
C02	Compare the anomalous behaviour of diagonal relationship for first member of each group. (K4)
C03	Determine the composition of soda lime glass and lead glass. Safety glass, and photosensitive glass. (K3)
C04	Explain the manufacture of cement setting process, quick setting cements. (K3)
C05	Differentiate various types of fertilizers. Explain the manufacture of urea. (K4)
C06	Distinguish between compound and mixed fertilizers. Explain about potassium chloride and potassium sulphate. (K5)

## SEMESTER – VI

### CLUSTER ELECTIVE – VIII B – 3

#### ANALYSIS OF APPLIED INDUSTRIAL PRODUCTS

CO#	Course Outcome
C01	Determine the various parameters of testing quality of soaps and oils. (K5)
C02	Differentiate the composition of different types of paints. (K4)
C03	Analyse the quality of various paints and industrial solvents. (K4)
C04	Determine the composition of various fertilisers and pesticides. (K3)
C05	Assess the quality of fuels like petrol and diesel through their Octane number and Cetane number. (K5)
C06	Explain how you test the quality of cement. (K3)