



MUGBERIA GANGADHAR MAHAVIDYALAYA

P.O.—BHUPATINAGAR, Dist.—PURBA MEDINIPUR, PIN.—721425, WEST BENGAL, INDIA

NAAC Re-Accredited B-Level Govt. aided College

CPE (Under UGC XII Plan) & NCTE Approved Institutions

DBT Star College Scheme Award Recipient

E-mail : mugberia_college@rediffmail.com // www.mugberiangangadharmahavidyalaya.ac.in

SYLLABUS

DEPARTMENT: CHEMISTRY

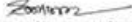
Mugberia Gangadhar Mahavidyalaya, Bhupatinagar, Purba Medinipur

Semester	Paper	Topic
SEM-I	C1T (Organic Chemistry-I)	<u>Basics of Organic Chemistry –</u> 1. Bonding and Physical Properties 2. General Treatment of Reaction Mechanism Stereochemistry – 1 (total)
	C2T (Physical Chemistry-I)	Chemical Thermodynamics 1. Kinetic Theory and Gaseous State 2. Chemical Kinetics
	C1P (Organic Chemistry-I lab)	1. Separation of organic compound using solubility. 2. Boiling point of organic liquid compound. 3. Identification of a pure organic compound.
	C2P (physical Chemistry-I lab)	1. Heat of neutralization of a strong acid by a strong base. 2. Study of kinetics of decomposition of H ₂ O ₂ 3. Heat of solution of oxalic acid from solubility measurement. 1. PH of unknown Buffer Solution . 2. Study of kinetics of decomposition of H ₂ O ₂ .
	GE-1T	Atomic Structure, Chemical Periodicity, Acids and Bases, Redox reactions, General Organic Chemistry & Aliphatic Hydrocarbons 1. Atomic structure 2. Chemical periodicity 3. Acid and bases 4. Redox reactions 1. Fundamentals of organic chemistry 2. Stereochemistry 3. Nucleophilic substitution and Elimination Reactions 4. Aliphatic Hydrocarbons
	GE-1P	1. Estimation of sodium carbonate and sodium hydrogen carbonate. 2. Estimation oxalic acid by KMnO ₄ . 3. Estimation of water of crystallization in Mohr's salt by KMnO ₄ . 4. Estimation of Fe(II) by K ₂ Cr ₂ O ₇ . 5. Estimation of Cu(II) by Na ₂ S ₂ O ₃ . 1. Detection special element 2. Detection of functional groups
	SEM II	C3T (Inorganic Chemistry-I)

	C3P (Inorganic Chemistry-I lab)	1. Acid and Base Titrations 2. Oxidation –Reduction Titrimetric
	C4T (Organic Chemistry-II)	Stereochemistry II 1.General Treatment of reaction Mechanism II 2. Substitution and Elimination reactions
	C4P (Organic Chemistry-II lab)	Organic Preparations
	GE-2T	States of Matter & Chemical Kinetics, Chemical Bonding and Molecular Structure, P-block elements Kinetic theory of gases and real gases 1. Liquids 2. Solids 3.Chemical kinetics 1. Chemical Bonding and Molecular Structure 2. Comparative study of P-block elements
	GE-2P	1. Surface tension measurements. 2. Viscosity measurements. 3. Kinetics Study Qualitative study of Acid and Basic Radicals
SEM III	C5T (Physical Chemistry-II)	1. Viscosity 2. Chemical Equilibrium 3. Partial properties and Chemical Potential 1. Conductance and transport number. 2. Fick's law 3. Foundation of Quantum Mechanics.
	C5P (Physical Chemistry-II lab)	1. Viscosity measurements. 2. Determination of Partition Coefficient. 3. Determination of equilibrium constant using partition coefficient. 1. Conductometric titration. 2. Study of saponification. 3. Verification of Ostwald,s dilution law.
	C6T (Inorganic Chemistry-II)	Chemical Bonding -I 1. Chemical Bonding –II. 2. Radioactivity
	C6P (Inorganic Chemistry-II lab)	1. Iodimetric Titrations . 2. Estimation of metal content in some selective samples (Brass, Steel, Cement)
	C7T (Organic Chemistry-III)	1. Chemistry of alkenes and alkynes. 2. Aromatic Substitution. 1. Carbonyl and Related Compounds 2. Organometallics
	C7P (Organic Chemistry-III lab)	Qualitative analysis of single solid organic compounds
	SEC1T	Pharmaceutical Chemistry 1. Drugs and Pharmaceuticals. 2. Fermentation.
	SEC1P	1. Preparation of Aspirin and its analysis. 2. Preparation of magnesium bisilicate .
	GE -3T	Chemical Energetics, Equilibria, Organic Chemistry-II 1. Chemical Equilibrium. 2. Ionic Equilibria. 1. Aromatic Hydrocarbons 2. Organometallic

		Compounds 3. Aryl Halides 4. Alcohols, phenols, ether 5. Carbonyl Compounds.
	GE-3P	1. Determination of heat capacity of Calorimeter for different volumes. 2. Determination of enthalpy of ionization. 3. Determination of enthalpy of neutralization.
		1. Find the PH of an unknown buffer solution. 2. Study of the solubility of benzoic acid in water.
SEM - IV	C8T (Physical Chemistry-III)	1. Electromotive Force. 2. Quantum Chemistry.
		1. Colligative Properties 2. Phase rule 3. Binary solutions. 4. Ionic equilibria.
	C.8P (Physical Chemistry-III lab)	1. Determination of solubility of sparingly soluble salt in water. 2. Determination of solubility product .3. Effect of ionic strength on the rate of Persulphate – Iodide reaction.
		1. Potentiometric titration of Mohr’s salt . 2. Study of phenol – Water phase diagram. 3. PH - metric titration of acid against base.
	C.9T (Inorganic Chemistry-III)	1. General Principle of Metallurgy 2. Inorganic Polymers 3. Coordination Chemistry – 1.
		1. Chemistry of s and p Block elements .2. Nobel Gases .
	C9P (Inorganic Chemistry-III lab)	1.Complexometric titration 2.Inorganic Preparation
	C10T (Organic Chemistry-IV)	1.Nitrogens Compound 2.Rearrangements
		1.Organic Synthesis 2.Organic Spectroscopy
	C10P (Organic Chemistry-IV lab)	Quantitative Estimations
	SEC -2T	Pesticides Chemistry
	SEC -2P	Determination of PH, acidity, alkalinity, ion exchange capacity. TLC, ion exchange paper chromatography method, Complexometric titration. Or Preparation
	GE4T	Solutions, Phase equilibria, Conductance, Electrochemistry and Analytical and Enviromental Chemistry-I
		Solutions and Phase equilibrium
		Conductance and Electrochemistry
		Analytical and Enviromental Chemistry
	GE4 P	Distribution law , Phase equilibria Conductance , Potentiometry titration
SEM -V	C11T (Inorganic Chemistry-IV)	Coordination Chemistry-II Chemistry of d- and f- block elements
	C11P (Inorganic Chemistry-IV lab)	Chromatography of metal ions, Gravimetry and spectrophotometric method.
	C12T (Organic Chemistry-V)	Carbocycles and Heterocycles , Cyclic Stereochemistry ,Pericyclic reactions

		Carbohydrates , Bio-molecules
	C12P (Organic Chemistry-V lab)	Chromatographic Separations ,Spectroscopic Analysis of Organic Compounds
	DSE-1T	Advanced Physical Chemistry
		Crystal Structure , Polymers
		Statistical Thermodynamics
	DSE-1P	Computer programs based on numerical methods
	DSE-2T	Analytical Methods in Chemistry Or Instrumental Methods of Chemical Analysis
	DSE-2P	Separation Techniques , Solvent Extractions , Spectrophotometry Or Instrumental Methods of Chemical Analysis
SEM-VI	C13T (Inorganic Chemistry-V)	Bioinorganic Chemistry , Reaction Kinetics and Mechanism
		Organometallic Chemistry
	C13P (Inorganic Chemistry-V lab	Qualitative Analysis
	C14T (Physical Chemistry-IV)	Molecular Spectroscopy , Surface phenomenon Photochemistry
	C14P (Physical Chemistry-IV lab)	Determination of surface tension and CMC Verification of Beer and Lambert's Law , Study of kinetics of $K_2S_2O_8 + KI$ reaction , Determination of pH of unknown buffer and CMC spectrophotometrically
	DSE3T	Inorganic Materials of Industrial Importance
	DSE3P	1. Determination of free acidity in ammonium sulphate fertilizer. 2. Estimation of Calcium in Calcium ammonium nitrate fertilizer. 3. Estimation of phosphoric acid in superphosphate fertilizer. 4. Electrolysis metallic coatings on ceramic and plastic material. 5. Determination of composition of dolomite (by complexometric titration). 6. Analysis of (Cu, Ni); (Cu, Zn) in alloy or synthetic samples. 7. Analysis of Cement. 8. Preparation of pigment (zinc oxide).
	DSE4T	Polymer Chemistry
	DSE4P	Polymer characterization, Polymer analysis.


 Dr. Swapan Kumar Misra
 Principal
 Mugberia Gangadhar Mahavidyalaya
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