POLBA MAHAVIDYALAYA
Departmental Lesson Plan 2018-2019

Name of the Department : Department of Chemistry
Name of the Programme : B.Sc.(General)
Name of the Course (Subject) : ……CHEMISTRY……
Period of the Lesson Plan : July'18 to June'19

Academic Period	Class	Paper	Topic to be covered	No. of lectures	Name of the Teacher	Date of Internal Assessment
July'18 to Jan.'19	SEM-I	GCC-1A/ GE1	**THEORY**	**64**	Soumya Sinha Roy	18.12.18
			Organic Chemistry	32		
			1. Fundamentals of Organic Chemistry	04		
			2. Stereochemistry	04		
			3. Nucleophilic Substitution and Elimination Reactions	05		
			4. Aliphatic Hydrocarbons	02		
			Question-Answer Discussion	01		
			5. Alkanes	03		
			6. Alkenes	05		
			7. Alkynes	05		
			8. Some specific Reactions	03		

			Inorganic Chemistry	32		
			PRACTICAL	**32 x 2 =64**	Soumya Sinha Roy	
			Qualitative Analysis of Single Solid Organic Compound(s) [Known and Unknown Samples]	16×2 = 32		
			Inorganic Chemistry	16×2 = 32		
July'18 to Jan.'19	SEM-III	GCC-1C/ GE3	**THEORY**	**64**	Soumya Sinha Roy	11.12.18
			1. Aromatic Hydrocarbons	04		
			2. Organometallic Compounds	06		
			3. Aryl Halides	03		
			4. Alcohols, Phenols and Ethers:			
			(i) Alcohols	03		
			(ii) Phenols	03		
			(iii) Ethers	02		
			5. Carbonyl Compounds:			
			Aldehydes and Ketones (aliphatic and aromatic) :	02		
			(i) Preparations	03		

			(ii) Reactions	03		
			Thermodynamics upto 1st law	08		
			Thermodynamics 2nd law	08		
			Chemical Equilibrium	08		
			Ionic Equilibrium	08		
			Question-Answer Discussion	03		
			PRACTICAL	**32 x 2 =64**	Soumya Sinha Roy	
			Identification of a pure organic compound (Known & Unknown Sample)	16		
			Identification of a pure organic compound	16		
			Measurement of pH of different solutions like aerated drinks, fruit juices, shampoos and soaps (use dilute solutions of soaps and shampoos to prevent damage to the glass electrode) using pH meter and compare it with the indicator method	04		
			Practice	04		
			Preparation of buffer solutions and find the pH of an unknown buffer solution by colour matching method (Sodium acetate acetic acid)	04		
			Practice	04		
			Study of the solubility of benzoic acid in water	04		

			Practice	04		
			Preparation of buffer solutions and find the pH of an unknown buffer solution by colour matching method (Ammonium chloride ammonium hydroxide)	04		
			Practice	04		
		SEC-1	**Analytical Clinical Biochemistry**	**32**	Soumya Sinha Roy	
			Carbohydrates, Proteins, Structure of DNA--------to Gene Therapy, Enzymes	16		10.12.18
			Biochemistry of disease: A diagnostic approach by Blood/Urine analysis.	16		
July'18 to Jan.'19	SEM-V	DSE-1A	**THEORY**	**64**	Soumya Sinha Roy	
			Inorganic Chemistry	32		
			Transition Element	12		
			Coordination Chemistry	12		
			Crystal Field Theory	08		
			Analytical Chemistry:	16		
			Error Analysis	08		

			Computer Application	08		
			Industrial Chemistry	16		
			Fuels	04		
			Fertilizers	04		
			Glass & Ceramics	04		
			Cement	04		
			PRACTICAL	**32 x 2 =64**	Soumya Sinha Roy	
			Titration of Na_2CO_3 and $NaHCO_3$ mixture vs HCl using phenolphthalein and methyl orange indicators.	10		
			Practice	06		
			Titration of HCl and CH_3COOH mixture vs NaOH using two different indicators to find the composition	10		
			Practice	06		
			Estimation of Total hardness of water sample by EDTA titration.	10		

			Practice	06		
			Estimation of available oxygen in pyrolusite.	10		
			Practice	06		
		SEC-3	**Basic & Application of Computer in Chemistry** i. Mathematics ii. Computer Programming	**32** **16** **16**	Soumya Sinha Roy	

Academic Period	**Class**	**Paper**	**Topic to be covered**	**No. of lectures**	**Name of the Teacher**	**Date of Internal Assessment**
Feb'19 to Jun.'19	SEM-II	GCC-1B/ GE2	**THEORY**	**64**	Soumya Sinha Roy	17.05.19
			Kinetic Theory of Gases and Real gases	08		
			Viscosity	03		
			Surface Tension	05		
			Chemical Bonding and Molecular Structure	16		
			Chemical Kinetics	08		
			Solid State	08		
			Comparative study of p-block elements	16		

			PRACTICAL	**64**	Soumya Sinha Roy	
			Determination of the surface tension of a liquid or a dilute solution using Stalagmometer.	04		
			Study of the variation of surface tension of a detergent solution with concentration	04		
			Determination of the relative and absolute viscosity of a liquid or dilute solution using an Ostwald's viscometer	04		
			Study of the variation of viscosity of an aqueous solution with concentration of solute	04		
			Study the kinetics of Iodide persulphate reaction	06		
			Acid hydrolysis of methyl acetate with hydrochloric acid	04		
			Compare the strengths of HCl and H2SO4 by studying kinetics of hydrolysis of methyl acetate	04		
			Qualitative semi-micro analysis			
			Basic Radicals: Na+, K+, Ca2+, Sr2+, Ba2+, Cr3+, Mn2+, Fe3+, Ni2+, Cu2+, NH4+.	16		
			Acid Radicals: Cl-, Br-, I-, NO2-, NO3-, S2-, SO42-, PO43-, BO33-, H3BO3.	16		
			Practice	02		
	SEM-IV	GCC-1D/ GE4	**THEORY**	**64**	Soumya Sinha Roy	14.05.19
			Colligative Property	08		
			Phase Equilibrium	08		
			EMF	08		

			Conductance	08		
			Gravimetric Analysis	04		
			Chromatography	04		
			Volumetric Analysis	08		
			Environmental Chemistry: The Atmosphere	08		
			Environmental Chemistry: The Hydrosphere	08		
			PRACTICAL	**64**	Soumya Sinha Roy	
			Distribution Law	04		
			Practice	04		
			Determination of dissociation constant of a weak acid (Conductometrically)	04		
			Practice	04		
			Total hardness of water by EDTA titration	08		
			PH of an unknown solution by comparing color	08		
			potentiometric titration: Potassium dichromate vs. Mohr's salt	08		
			Practice	02		
			conductometric titration: Weak acid vs. strong base	06		
			Practice	02		
			Rate constant for the acid catalysed hydrolysis of an ester	08		
			Strength of the H2O2 sample	04		
			solubility of a sparingly soluble salt, e.g. KHTa	04		
		SEC-2	**Drugs & Pharmaceuticals**	**32**	Soumya Sinha Roy	14.05.19
			Drug discovery, design and development; analgesics agents, antipyretic agents, anti- inflammatory agents	07		

			Antibiotics; antibacterial and antifungal agents; antiviral agents	06		
			Antiviral agents	03		
			Central Nervous System agents	03		
			Cardiovascular, etc	02		
			Antilaprosy	04		
			HIV-AIDS related drugs, etc.	04		
			Question-Answer Discussion	03		
	SEM-VI	DSE-1B	**THEORY**	**64**	Soumya Sinha Roy	
			1. Carboxylic Acids and Their Derivatives			
			a. Carboxylic acids (aliphatic and aromatic):	04		
			b. Carboxylic acid derivatives(aliphatic):	04		
			2. Amines and Diazonium Salts:			
			(a) Amines (aliphatic and aromatic);	03		
			(b) Diazonium salts	02		
			(c) Nitro compounds (aromatic)	03		
			3. Amino Acids	06		
			3. Amino Acids and Carbohydrates:			
			(ii) Carbohydrates	08		
			Polymers	06		

			Varnishes	02		
			Paints	04		
			Synthetic dyes	04		
			Drugs and pharmaceuticals	05		
			Food additives	03		
			Fats and oils	02		
			Soaps and detergents	03		
			Pesticides	03		
			Question-Answer Discussion	02		
			PRACTICAL	**64**	Soumya Sinha Roy	
			Organic Chemistry(Practical)	16		
			Functional Group Organic Chemistry	16		
			Estimation of saponification value of oil/fat.	12		
			Practice	04		
			Estimation of acetic acid in commercial vinegar.	12		
			Practice	04		
		SEC-4	**Polymer Chemistry**	**32**	Soumya Sinha Roy	
			Introduction and history of polymeric materials	08		
			Functionality and its importance	08		
			Kinetics of Polymerisation	06		
			Determination of molecular weights	06		
			Properties of Polymers	04		

Academic Period	Class	Paper	Topic to be covered	No. of lectures	Name of the Teacher	Date of Assessment
July'18 to June'19	Part III	Paper IV	**THEORY**	**128**	Soumya Sinha Roy	09.03.19
			1. Analytical Chemistry			
			(a) Accuracy and precision in analysis etc.	08		
			(b) Principles of acid-base titration etc.	08		
			(c) Single electrode potential and emf of a chemical cell etc.	08		
			2. Green Chemistry	16		
			3. Chemistry of Selected Biomolecules	24		
			4. Medicinal Chemistry	16		
			5. Nano Chemistry	12		
			6. Colloidal State	12		
			7. Macromolecular Chemistry	24		
		Paper V	**PRACTICAL**	**128**	Soumya Sinha Roy	
			Inorganic Quantitative			
			a. Titration of Na_2CO_3 + $NaHCO_3$ mixture vs HCl using phenolphthalein and methyl orange indicators	12		
			Practice	08		
			b. To find the total hardness of water by EDTA titration	12		
			Practice	08		
			c. To find the pH of an unknown solution by comparing colour of a series of (HCl solutions + 1 drop of methyl orange) and a similar series of	16		

			(NaOH solutions + 1 drop of phenolphthalein).			
			Practice	12		
			d. Estimation of saponification equivalent of a supplied ester/oil	12		
			Practice	08		
			e. Titration of ferrous iron by $KMnO_4/K_2Cr_2O_7$	12		
			Practice	08		
			f. Titration of ferric iron by $KMnO_4/K_2Cr_2O_7$ using $SnCl_2$ reduction	12		
			Practice	08		

POLBA MAHAVIDYALAYA

Implementation of Departmental Lesson Plan 2018-2019

Name of the Department : Department of Chemistry
Name of the Programme : B.Sc.(General)
Name of the Course (Subject) : ……CHEMISTRY……
Period of the Lesson Plan : July'18 to June'19

Academic Period	Class	Paper	Topic covered	Topic Not covered	Reason for Not covered	Date of Internal Assessment	Remarks
July'18 to Jan.'19	SEM-I	GCC-1A/ GE1	**THEORY**			18.12.18	
			Organic Chemistry	All completed			
			1. Fundamentals of Organic Chemistry				
			2. Stereochemistry				
			3. Nucleophilic Substitution and Elimination Reactions				

			4. Aliphatic Hydrocarbons				
			Question-Answer Discussion				
			5. Alkanes				
			6. Alkenes				
			7. Alkynes				
			8. Some specific Reactions				
			1. Fundamentals of Organic Chemistry				
			2. Stereochemistry				
			3. Nucleophilic Substitution and Elimination Reactions				
			4. Aliphatic Hydrocarbons				
			Question-Answer Discussion				
			Inorganic Chemistry	All completed			
			PRACTICAL				
			Qualitative Analysis of Single Solid Organic Compound(s) [Known and Unknown Samples]	All completed			
			Inorganic Chemistry	All completed			
	SEM-III	GCC-1C/ GE3	**THEORY**			11.12.18	

			1. Aromatic Hydrocarbons	All completed			
			2. Organometallic Compounds	All completed			
			3. Aryl Halides	All completed			
			4. Alcohols, Phenols and Ethers:	All completed			
			(i) Alcohols	All completed			
			(ii) Phenols	All completed			
			(iii) Ethers	All completed			
			5. Carbonyl Compounds:	All completed			
			Aldehydes and Ketones (aliphatic and aromatic) :	All completed			
			(i) Preparations	All completed			
			(ii) Reactions	All completed			
			Thermodynamics upto 1st law	All completed			

			Thermodynamics 2nd law	All completed			
			Chemical Equilibrium	All completed			
			Chemical Equilibrium	All completed			
			Ionic Equilibrium	All completed			
			Question-Answer Discussion	All completed			
			PRACTICAL				
			Identification of a pure organic compound (Known & Unknown Sample)	All completed			
			Identification of a pure organic compound	All completed			
			Measurement of pH of different solutions like aerated drinks, fruit juices, shampoos and soaps (use dilute solutions of soaps and shampoos to prevent damage to the glass electrode) using pH meter and compare it with the indicator method	All completed			
			Practice				
			Preparation of buffer solutions and find the pH of an unknown buffer solution by colour	All completed			

			matching method (Sodium acetate acetic acid)				
			Practice				
			Study of the solubility of benzoic acid in water	All completed			
			Practice				
			Preparation of buffer solutions and find the pH of an unknown buffer solution by colour matching method (Ammonium chloride ammonium hydroxide)	All completed			
			Practice				
		SEC1	**Analytical Clinical Biochemistry**	All completed			
			Carbohydrates, Proteins, Structure of DNA--------to Gene Therapy, Enzymes			10.12.18	
			Biochemistry of disease: A diagnostic approach by Blood/Urine analysis.	.			
July'19 to Jan.'20	SEM-V	DSE-1A		**THEORY**			
				Inorganic Chemistry	No student		
				Transition Element			
				Coordination Chemistry			

				Crystal Field Theory			
				Analytical Chemistry:	No student		
				Error Analysis			
				Computer Application			
				Industrial Chemistry	No student		
				Fuels			
				Fertilizers			
				Glass & Ceramics			
				Cement			
				PRACTICAL	No student		
				Titration of Na_2CO_3 and $NaHCO_3$ mixture vs HCl using phenolphthalein and methyl orange indicators.	No student		
				Practice			
				Titration of HCl and CH_3COOH mixture vs NaOH using two different indicators to find the composition	No student		

				Practice			
				Estimation of Total hardness of water sample by EDTA titration.	No student		
				Practice			
				Estimation of available oxygen in pyrolusite.	No student		
				Practice			
		SEC-3		**Basic & Application of Computer in Chemistry**	No student		
				Mathematics			
				Computer Programming			

Academic Period	**Class**	**Paper**	**Topic covered**	**Topic Not covered**	**Reason for Not covered**	**Date of Internal Assessment**	**Remarks**
Feb'19 to Jun.'19	SEM-II	GCC-1B/ GE2	**THEORY**			17.05.19	
			Kinetic Theory of Gases and Real gases	All completed			
			Viscosity	All completed			

			Surface Tension	All completed			
			Chemical Bonding and Molecular Structure	All completed			
			Chemical Kinetics	All completed			
			Solid State	All completed			
			Comparative study of p-block elements	All completed			
			PRACTICAL				
			Determination of the surface tension of a liquid or a dilute solution using Stalagmometer.	All completed			
			Study of the variation of surface tension of a detergent solution with concentration	All completed			

			Determination of the relative and absolute viscosity of a liquid or dilute solution using an Ostwald's viscometer	All completed			
			Study of the variation of viscosity of an aqueous solution with concentration of solute	All completed			
			Study the kinetics of Iodide persulphate reaction	All completed			
			Acid hydrolysis of methyl acetate with hydrochloric acid	All completed			
			Compare the strengths of HCl and H2SO4 by studying kinetics of hydrolysis of methyl acetate	All completed			
			Qualitative semi-micro analysis	All completed			
			Basic Radicals: Na+, K+, Ca2+, Sr2+, Ba2+, Cr3+, Mn2+, Fe3+, Ni2+, Cu2+, NH4+.	All completed			
			Acid Radicals: Cl-, Br-, I-, NO2-, NO3-, S2-, SO42-, PO43-, BO33-, H3BO3.	All completed			

			Practice				
	SEM-IV	GCC-1D/ GE4	**THEORY**			14.05.19	
			Colligative Property	All completed			
			Phase Equilibrium	All completed			
			EMF	All completed			
			Conductance	All completed			
			Gravimetric Analysis	All completed			
			Chromatography	All completed			
			Volumetric Analysis	All completed			
			Environmental Chemistry: The Atmosphere	All completed			
			Environmental Chemistry: The Hydrosphere	All completed			
			PRACTICAL				
			Distribution Law	All completed			
			Practice				
			Determination of dissociation constant of a weak acid (Conductometrically)	All completed			
			Practice				
			Total hardness of water by EDTA titration	All completed			
			PH of an unknown solution by comparing color	All completed			

			potentiometric titration: Potassium dichromate vs. Mohr's salt	All completed			
			Practice				
			conductometric titration: Weak acid vs. strong base	All completed			
			Practice				
			Rate constant for the acid catalysed hydrolysis of an ester	All completed			
			Strength of the H2O2 sample	All completed			
			solubility of a sparingly soluble salt, e.g. KHTa	All completed			
		SEC-2	**Drugs & Pharmaceuticals**	All completed		14.05.19	
			Drug discovery, design and development; analgesics agents, antipyretic agents, anti-inflammatory agents				
			Antibiotics; antibacterial and antifungal agents; antiviral agents				
			Antiviral agents				
			Central Nervous System agents				
			Cardiovascular, etc				
			Antilaprosy				

			HIV-AIDS related drugs, etc.				
			Question-Answer Discussion				
	SEM-VI	DSE-1B		**THEORY**	No student		
				1. Carboxylic Acids and Their Derivatives			
				a. Carboxylic acids (aliphatic and aromatic):			
				b. Carboxylic acid derivatives(aliphatic):			
				2. Amines and Diazonium Salts:			
				(a) Amines (aliphatic and aromatic);			
				(b) Diazonium salts			
				(c) Nitro compounds (aromatic)			
				3. Amino Acids			
				3.Amino Acids and Carbohydrates:			
				(ii) Carbohydrates			
				Polymers			
				Varnishes			

				Paints			
				Synthetic dyes			
				Drugs and pharmaceuticals			
				Food additives			
				Fats and oils			
				Soaps and detergents			
				Pesticides			
				Question-Answer Discussion			
				PRACTICAL	No student		
				Organic Chemistry(Practical)			
				Functional Group Organic Chemistry			
				Estimation of saponification value of oil/fat.			
				Practice			
				Estimation of acetic acid in commercial vinegar.			
				Practice			

Academic Period	Class	Paper	Topic covered	Topic Not covered	Reason for Not covered	Date of Internal Assessment	Remarks
Feb'19 to Jun.'19	SEM-VI	SEC-4		**Polymer Chemistry**	No student		
				Introduction and history of polymeric materials			
				Functionality and its importance			
				Kinetics of Polymerisation			
				Determination of molecular weights			
				Properties of Polymers			

Academic Period	Class	Paper		Topic Not covered	Reason for Not covered	Date of Internal Assessment	Remarks
July'18 to June'19	Part III	Paper IV		**THEORY**	No student		
				1. Analytical Chemistry			
				(a) Accuracy and precision in analysis etc.			
				(b) Principles of acid-base titration etc.			
				(c) Single electrode potential and emf of a chemical cell etc.			
				2. Green Chemistry			
				3. Chemistry of Selected Biomolecules			
				4. Medicinal Chemistry			
				5. Nano Chemistry			
				6. Colloidal State			

				7. Macromolecular Chemistry			
		Paper V		**PRACTICAL**	No student		
				Inorganic Quantitative			
				a. Titration of Na_2CO_3 + $NaHCO_3$ mixture vs HCl using phenolphthalein and methyl orange indicators			
				Practice			
				b. To find the total hardness of water by EDTA titration			
				Practice			
				c. To find the pH of an unknown solution by comparing colour of a series of (HCl solutions + 1 drop of methyl orange) and a similar series of (NaOH solutions + 1 drop of phenolphthalein).			
				Practice			
				d. Estimation of saponification equivalent of a supplied ester/oil			
				Practice			
				e. Titration of ferrous iron by $KMnO_4/K_2Cr_2O_7$			
				Practice			
				f. Titration of ferric iron by $KMnO_4/K_2Cr_2O_7$ using $SnCl_2$ reduction			
				Practice			