POLBA MAHAVIDYALAYA Departmental Lesson Plan 2022-2023

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'22 to June'23

Academic Period	Class	Paper	Topic to be covered	No. of lectures	Name of the Teacher	Date of Internal Assessment
July'22 to Jan.'23	SEM-I	GCC- 1A/	THEORY	64	Soumya Sinha Roy	19.12.22
		- GE1	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 SingleSolid Organic Compound(s) [Known and Unknown Samples]	16×2 = 32		-
			Inorganic Chemistry	16×2 = 32		-
July'22 to Jan.'23	SEM-III	GCC-1C/ GE3	THEORY	64	Soumya Sinha Roy	13.12.22
		_	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		-

	l

(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 DNAto Gene Therapy, Enzymes	16		-
			Biochemistry of disease: A diagnostic approach by Blood/Urine analysis.	16		
July'22 to Jan.'23	SEM-V	DSE-1A	THEORY	64	Soumya Sinha Roy	02.12.22
		_	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	
	04	
Glass & Ceramics	04	
Cement	04	
PRACTICAL	32 x 2 =64	Soumya Sinha Roy
	10	
phenolphthalein and methyl orange indicators.	10 06	
Titration of Na ₂ CO ₃ and NaHCO ₃ mixture vs HCl using phenolphthalein and methyl orange indicators. Practice Titration of HCl and CH ₃ COOH mixture vs NaOH using two different indicators to find the composition		
phenolphthalein and methyl orange indicators. Practice Titration of HCl and CH3COOH mixture vs NaOH using two	06	

	Practice	06		
	Estimation of available oxygen in pyrolusite.	10		
	Practice	06		
SEC-3	Basic & Application of Computer in Chemistryi.Mathematicsii.Computer Programming	32 16 16	Soumya Sinha Roy	

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Academic Period	Class	Paper	Topic to be covered	No. of lectures	Name of the Teacher	Date of Internal Assessment
Feb'23 to Jun.'23	SEM-II	GCC-1B/ GE2	THEORY	64	Soumya Sinha Roy	06.07.23
			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	08.05.23

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	
		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	04.05.2
		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		1

	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	2-4 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	

POLBA MAHAVIDYALAYA Implementation of Departmental Lesson Plan 2022-2023

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'22 to June'23

Academic Period	Class	Paper	Topic covered	Topic Not covered	Reason for Not covered	Date of Internal Assessment	Remarks			
July'22 to Jan.'23	SEM-I	GCC-1A/ GE1	THEORY			19.12.22				
			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		
S	SEM-III	GCC-1C/ GE3	THEORY		13.12.22	
			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 1 st 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 Practice	All completed		
Preparation of buffer solutions and find the pH of an unknown buffer solution by colour matching method (Sodium acetate acetic acid) Practice	All completed		
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) Practice	All completed			
		SEC1		Analytical Clinical Biochemistry	No student	-	
				Carbohydrates, Proteins, Structure of DNAto Gene Therapy, Enzymes Biochemistry of disease: A diagnostic approach by Blood/Urine analysis.	-		
July'22 to Jan.'23	SEM-V	DSE-1A	THEORY			02.12.22	
Jan. 25			Inorganic Chemistry	All completed			
			Transition Element			-	
			Coordination Chemistry				
			Crystal Field Theory				
			Analytical Chemistry:	All completed			
			Error Analysis				
			Computer Application				
			Industrial Chemistry	All completed			

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Fuels			
Fertilizers			
Glass & Ceramics			
Comont			
Cement			
PRACTICAL			
Titration of Na ₂ CO ₃ and	All completed		
NaHCO ₃ mixture vs HCl using			
phenolphthalein and methyl			
orange indicators.			
Practice			
	All sourcelets d		
Titration of HCl and CH ₃ COOH	All completed		
mixture vs NaOH using two			
different indicators to find the			
composition			
Practice			
Estimation of Total hardness of	All completed		
water sample by EDTA			
titration.			
Practice			
Estimation of available oxygen	All completed		
in pyrolusite.	1		
Practice			

	SEC-3	Basic & Application of Computer in Chemistry	No student	
		Mathematics		
	ſ	Computer Programming		

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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'22 to June'23

Academic Period	Class	Paper	Topic covered	Topic Not covered	Reason for Not covered	Date of Internal Assessment	Remarks
Feb'23 to Jun.'23	SEM-II	GCC- 1B/ GE2	THEORY			06.07.23	
			Kinetic Theory of Gases and Real gases	All completed			
			Viscosity	All completed			
			Surface Tension	All completed			

Chemical Bo Molecular St		ed	
Chemical Kir	etics All complete	ed	
Solid State	All complete	ed	
Comparative elements	study of p-block All complete	ed	
PRACTICAL			
tension of a l	on of the surface All complete iquid or a dilute g Stalagmometer.	ed	
Study of the surface tensi solution with concentratio	on of a detergent	ed	
and absolute	on of the relative All complete viscosity of a ite solution using viscometer	ed	

vi so	tudy of the variation of iscosity of an aqueous olution with concentration of olute	All completed	
	tudy the kinetics of Iodide ersulphate reaction	All completed	
	cid hydrolysis of methyl cetate with hydrochloric acid	All completed	
ar ki	ompare the strengths of HCl nd H2SO4 by studying inetics of hydrolysis of nethyl acetate	All completed	
	ualitative semi-micro nalysis	All completed	
Sr	asic Radicals: Na+, K+, Ca2+, r2+, Ba2+, Cr3+, Mn2+, Fe3+, i2+, Cu2+, NH4+.	All completed	
N	cid Radicals: Cl-, Br-, I-, NO2-, O3-, S2-, SO42-, PO43-, O33-, H3BO3.	All completed	
Pr	ractice		

SEM-IV	GCC- 1D/ GE4	THEORY		08.05.23
		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		
		potentiometric titration: Potassium dichromate vs. Mohr's salt	All completed	
		Practice		

		1	1	1	
		conductometric titration:	All completed		
		Weak acid vs. strong base Practice			
		Plactice			
		Rate constant for the acid	All completed		
		catalysed hydrolysis of an			
		ester Strength of the H2O2 sample	All completed		
		Strength of the H2O2 sample			
		solubility of a sparingly soluble salt, e.g. KHTa	All completed		
	SEC-2		Drugs & Pharmaceuticals	No student	
			Drug discovery, design and	No student	
			development; analgesics agents,	No student	
			antipyretic agents, anti- inflammatory		
			agents		
			Antibiotics; antibacterial and	No student	
			antifungal agents; antiviral agents		
			Antiviral agents	No student	
			Central Nervous System agents	No student	
			Cardiovascular, etc	No student	
			Antilaprosy	No student	
			minaprosy	1 to student	
			HIV-AIDS related drugs, etc.	No student	
			Question-Answer Discussion	No student	

SEM-VI	DSE-1B	THEORY		04.05.23
		1. Carboxylic Acids and Their Derivatives	All completed	
		a. Carboxylic acids (aliphatic and aromatic):	All completed	
		b. Carboxylic acid derivatives(aliphatic):	All completed	
		2. Amines and Diazonium Salts:	All completed	
		(a) Amines (aliphatic and aromatic);	All completed	
		(b) Diazonium salts	All completed	
		(c) Nitro compounds (aromatic)	All completed	
		3. Amino Acids	All completed	
		3.Amino Acids and Carbohydrates:	All completed	
		(ii) Carbohydrates	All completed	
		Polymers	All completed	
		Varnishes	All completed	
		Paints	All completed	
		Synthetic dyes	All completed	

Drugs and pharmaceuticals	All completed	
Food additives	All completed	
Fats and oils	All completed	-
Soaps and detergents	All completed	
Pesticides	All completed	
Question-Answer Discussion	All completed	
PRACTICAL		-
Organic Chemistry(Practical)	All completed	-
Functional Group Organic Chemistry	All completed	
Estimation of saponification value of oil/fat.	All completed	
Practice		
Estimation of acetic acid in commercial vinegar.	All completed	
Practice		

<u>POLBA MAHAVIDYALAYA</u> <u>Implementation of Departmental Lesson Plan 2022-2023</u>

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'22 to June'23

Academic Period	Class	Paper	Topic covered	Topic Not covered	Reason for Not covered	Date of Internal Assessment	Remarks
Feb'23 to Jun.'23	SEM-VI	SEC-4		Polymer Chemistry	No student		
				Introduction and history of polymeric materials	No student		
				Functionality and its importance	No student		
				Kinetics of Polymerisation	No student		
				Determination of molecular weights	No student		
				Properties of Polymers	No student		