<u>POLBA MAHAVIDYALAYA</u> Departmental Lesson Plan 2019-2020

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'19 to June'20

Academic Period	Class	Paper	Topic to be covered	No. of lectures	Name of the Teacher	Date of Internal Assessment
July'19 to Jan.'20	SEM-I	GCC- 1A/	THEORY	64	Soumya Sinha Roy	16.12.19
		- 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 Single Solid Organic Compound(s) [Known and Unknown Samples]	16×2 = 32		-
			Inorganic Chemistry	16×2 = 32		-
July'19 to Jan.'20	SEM-III	GCC-1C/ GE3	THEORY	64	Soumya Sinha Roy	13.12.19
		-	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		-

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(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	13.12.19
			Carbohydrates, Proteins, Structure of DNAto Gene Therapy, Enzymes	16		-
			Biochemistry of disease: A diagnostic approach by Blood/Urine analysis.	16		
July'19 to Jan.'20	SEM-V	DSE-1A	THEORY	64	Soumya Sinha Roy	03.12.19
			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
	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	

POLBA MAHAVIDYALAYA Departmental Lesson Plan 2019-2020

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Academic Period	Class	Paper	Topic to be covered	No. of lectures	Name of the Teacher	Date of Internal Assessment
Feb'20 to Jun.'20	SEM-II	GCC-1B/ GE2	THEORY	64	Soumya Sinha Roy	20.05.20
			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	13.05.20

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
		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	06.05
		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	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	

<u>POLBA MAHAVIDYALAYA</u> <u>Implementation of Departmental Lesson Plan 2019-2020</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'19 to June'20

Academic Period	Class	Paper	Topic covered	Topic Not covered	Reason for Not covered	Date of Internal Assessment	Remarks				
July'19 to Jan.'20	SEM-I	GCC-1A/ GE1	THEORY			16.12.19					
			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		
SI	EM-III GCC-1C/ GE3	THEORY		13.12.19	
		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	All completed	13.12.19	
			Carbohydrates, Proteins, Structure of DNAto Gene Therapy, Enzymes			
			Biochemistry of disease: A . diagnostic approach by Blood/Urine analysis.			
July'19 to Jan.'20	SEM-V	DSE-1A	THEORY		03.12.19	
			Inorganic Chemistry	All completed		
			Transition Element			
			Coordination Chemistry			
			Crystal Field Theory			
			Analytical Chemistry:	All completed		
			Error Analysis			
			Computer Application			

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

		Practice			
	SEC-3		Basic & Application of Computer in Chemistry	No student	
			Mathematics		
			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'19 to June'20

Academic Period	Class	Paper	Topic covered	Topic Not covered	Reason for Not covered	Date of Internal Assessment	Remarks
Feb'20 to Jun.'20	SEM-II	GCC- 1B/ GE2	THEORY			20.05.20	
			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		13.05.20
		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		

		4.11 1 . 1		1
	conductometric titration:	All completed		
	Weak acid vs. strong base			
	Practice			
	Rate constant for the acid	All completed		
	catalysed hydrolysis of an			
	ester			
	Strength of the H2O2 sample	All completed		
	solubility of a sparingly	All completed		
	soluble salt, e.g. KHTa			
SEC-2	Drugs & Pharmaceuticals	All completed	14.05.20	
			11.00.20	
	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			
	A			
	Antilaprosy			
	HIV-AIDS related drugs, etc.			
	_			
	Question-Answer Discussion			
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SEM-VI	DSE-1B	THEORY		06.05.20
		1. Carboxylic Acids and Their Derivatives	All completed	06.05.20
		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 2019-2020</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'19 to June'20

Academic Period	Class	Paper	Topic covered	Topic Not covered	Reason for Not covered	Date of Internal Assessment	Remarks
Feb'20 to Jun.'20	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		