

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI 600 086

B.Sc. DEGREE : BRANCH IV-CHEMISTRY

COURSE SCHEDULE

SEMESTER III

Subject Code	Title of Course
23CH/MC/IC34	INORGANIC CHEMISTRY I
23CH/MC/PC33	PHYSICAL CHEMISTRY I
23CH/MC/P332	SEMI-MICRO QUALITATIVE ANALYSIS PRACTICAL II
23CH/AC/FB33	FUNDAMENTALS OF BIOCHEMISTRY I (BOTANY)
23CH/AC/FB33	FUNDAMENTALS OF BIOCHEMISTRY I (ZOOLOGY)
23CH/AC/FC33	FUNDAMENTALS OF CHEMISTRY I
23CH/AC/PI32	Biochemistry Practical-I (BOTANY)
23CH/AC/PI32	Biochemistry Practical-I (PHYSICS)
23CH/AC/PI32	Biochemistry Practical-I (ZOOLOGY)
23CH/GE/CP22	COSMETICS AND PERSONAL CARE

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**COURSE PLAN June - November 2024**

Department : CHEMISTRY
Name/s of the Faculty : DR. MARY TERESITA V/DR. JANET SABINA X*
Course Title : INORGANIC CHEMISTRY I
Course Code : 23CH/MC/IC34
Shift : I

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	Recall the types of bonding and properties of s and p block elements	K1
CO2	Illustrate the bonding involved in the s- and p-block elements and their compounds	K2
CO3	Analyse the bonding and properties of s- and p- block elements and their compounds based on the periodicity of elements	K3
CO4	Evaluate the bonding, properties of s and p block elements based on their position in the periodic table	K4
CO5	Integrate structure and bonding of s- and p- block elements and their compounds to their properties	K5

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 19 – 26, 2024 (Day Order 1 - 6)	1	Introduction to Chemical Bonding Types of Bonds - Ionic, Covalent, Metallic, Coordinate Bonds and properties- melting point, conductivity, solubility, speed of reaction, Lattice Energy - Born-Lande Equation, Born-Mayer and Kapustinksii equations (derivation not required) - Factors affecting Lattice Energy, Born Haber Cycle and its Applications	K1 – K5	3	1 – 5	Lecture and Discussion	Quiz
	4 4.1	Chemistry of p-Block Elements–Groups 15, 16 & 17 Nitrogen Family: Comparison of Nitrogen group Elements with respect to Oxides	K1 – K5	2	1 – 5	Lecture and Discussion	Test
Jun 27 – July 4, 2024 (Day Order 1 - 6)	1	Covalent Bond – Lewis Structures of Simple Molecules and Ions, formal charge, Valence Shell Electron Pair Repulsion Theory- effect of lone pair, effect of electronegativity	K1 – K5	3	1 – 5	Group Discussion	Worksheet
	4.1	Nitrogen Family: Comparison of Nitrogen group Elements with respect to Hydrides	K1 – K5	2	1 – 5	Lecture and Discussion	Quiz

July 5 – 12, 2024 (Day Order 1 - 6)	1	Application of VSEPR theory on BF_3 , $[\text{BF}_4]^-$, NH_3 , H_2O , PCl_5 , SF_4 , ClF_3 , I_3^- . Covalent Character in Ionic Compounds - Polarisation and Fajan's Rules	K1 – K5	3	1 – 5	Lecture and Discussion	Problem solving
	4.1	Nitrogen Family: Comparison of Nitrogen group Elements with respect to Halides	K1 – K5	2	1 – 5	Lecture and Discussion	Test
July 15 – 23, 2024 (Day Order 1 - 6)	1	Valence Bond Theory (VBT) – Hybridization of orbitals (Acetylene, BeF_2 , Ethene, BF_3 , CH_4 , H_2O , NH_3)	K1 – K5	3	1 – 5	Lecture and Discussion	Worksheet
	4.1& 4.2	Preparation, Properties and Structure of Hydrazine, Hydroxylamine, Hydrazoic Acid, Oxyacids and Peracids of Sulphur. Thionic Acids					Other Component Assignment 10 Marks
	4.1	Oxyacids of Nitrogen - Preparation, Properties and Structure.	K1 – K5	2	1 – 5	Lecture and Discussion	Quiz
July 24 – 31, 2024 (Day Order 1 - 6)	1	Molecular Orbital Theory (MOT) – Bonding, Antibonding and Nonbonding Orbitals, Linear combination of atomic orbitals, rules for linear combination of atomic orbitals, Application of MOT to He_2 , N_2 , O_2 , O_2^- , O_2^{2-} , CO , NO , HF , Comparison between VBT and MOT.	K1 – K5	3	1 – 5	Presentation	Other Component (MCQ – 15 marks) Unit 1.2 - 1.4
	4.1	Oxyacids of Phosphorus - Preparation, Properties and Structure.	K1 – K5	2	1 – 5	Lecture and Discussion	Test

Aug 1 – 5, 2024 (Day Order 1 - 3)	2	Chemistry of s-block elements	K1 – K5	2	1 – 5	Lecture and Discussion	Group Discussion
	4.1	Group 1 Alkali Metals: Position of Alkali Metals in the Periodic Table, difference between lithium and other group I elements, biological importance of Na, K, Structure and Applications of Phosphonitrilic Compounds	K1 – K5	1	1 – 5	Lecture and Discussion	Test
Aug 6 – 10, 2024	C.A. Test – I						
Aug 12 – 14, 2024 (Day Order 4-6)	2	Discussion of Alkali Metal Group with respect to their Oxides, superoxide, Hydroxides and oxo salts.	K1 – K5	1	1 – 5	Lecture and Discussion	Worksheet
	4.2	Oxygen Family: Comparison of Oxygen Group Elements with respect to Hydrides	K1 – K5	1	1 – 5	Lecture and Discussion	Test
Aug 16 – 23, 2024 (Day Order 1-6)	2	Extraction of Lithium from Spodumene. Importance of Cryptates and Crown Ethers (complexes, crowns and crypts)	K1 – K5	3	1 – 5	Group Discussion	Quiz
	4.2	Oxygen Family: Comparison of Oxygen Group Elements with respect to Hydrides and Halides	K1 – K5	2	1 – 5	Lecture and Discussion	Test

Aug 27 – Sep 3, 2024 (Day Order 1-6)	2	Group 2 Alkaline Earth Metals: Position of Alkali Metals in the Periodic Table, difference between beryllium and other group II elements, biological importance of calcium and Magnesium, Physical and Chemical Properties with respect to Oxides	K1 – K5	3	1 – 5	Lecture and Discussion	Worksheet
	4.2	Oxygen Family: Comparison of Oxygen Group Elements with respect to Halides and oxides	K1 – K5	2	1 – 5	Lecture and Discussion	Test
Sep 4 – 11, 2024 (Day Order 1-6)	2	Peroxides, Hydroxides, Halides and Sulphates. Extraction of Beryllium	K1 – K5	3	1 – 5	Group Discussion	Worksheet
	3	Chemistry of p-Block Elements – Groups 13 & 14 Boron Family: Periodicity in the Properties of Boron Group with respect to their Oxides					
	4.3	Halogen Family: Comparison of Halogens with respect to the Elements, Hydrides and Oxides.	K1 – K5	2	1 – 5	Lecture and Discussion	Quiz
	4.3	Preparation and Structure of OF ₂ , Cl ₂ O, I ₂ O ₅ and Cl ₂ O ₇ , HClO ₄					Other Component Test – 10 Marks

Sep 12 - 20, 2024 (Day Order 1-6)	3	Hydroxides and Halides. Preparation, properties and Bonding of B ₂ H ₆ .	K1 – K5	3	1 – 5	Lecture and Discussion	Quiz
	4.4	Interhalogen Compounds: Preparation and Structure of ICl, BrF ₃ , IF ₃ , IF ₅ and IF ₇ . Basic Nature of Iodine.	K1 – K5	2	1 – 5	Lecture and Discussion	Worksheet
Sep 23 - 26, 2024 (Day Order 1-4)	3	Preparation, Structure and uses of Boron Nitride and Borazole	K1 – K5	2	1 – 5	Group Discussion	Other Component (MCQ – 15 marks) Unit 3.1 – 3.2
	4.4	Pseudohalogens and Polyhalides	K1 – K5	1	1 – 5	Lecture and Discussion	
Sep 27 – Oct 3, 2024	C.A. Test – II						
Oct 4 – 5, 2024 (Day 5 & 6)	3	Carbon Family: Comparison of Carbon Group Elements	K1 – K5	1	1 – 5	Lecture and Discussion	Quiz
	5	Chemistry of Group 18 elements Occurrence, Position of Noble Gases in the Periodic Table.	K1 – K5	1	1 – 5	Lecture and Discussion	Worksheet
Oct 7 - 15, 2024 (Day Order 1 to 6)	3	Hydrides, Oxides and Halides. Silicates: Classification	K1 – K5	3	1 – 5	Presentation	Worksheet
	5.2	Clathrate Compounds and its Applications					
	5.1	Preparation, Properties and Structure of Compounds of Xenon - XeF ₂ , XeF ₆ , XeO ₃ , XeOF ₂ as per VSEPR Theory	K1 – K5	2	1 – 5	Lecture and Discussion	Test

Oct 16 - 22, 2024 (Day Order 1 to 6)	3	Silicates: Structure. Silicones- Preparation, Properties and uses	K1 – K5	3	1 – 5	Group Discussion	Group Discussion
	5.1	Preparation, Properties and Structure of Compounds of Xenon - XeF ₂ , XeF ₆ , XeO ₃ , XeOF ₂ as per VSEPR Theory	K1 – K5	2	1 – 5	Lecture and Discussion	Test
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**COURSE PLAN June - November 2024**

Department : CHEMISTRY
Name/s of the Faculty : DR. AVILA JOSEPHINE B
Course Title : PHYSICAL CHEMISTRY I
Course Code : 23CH/MC/PC33
Shift : I

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	Define the various terms and principles involved in the study of solid state structures, electrical and magnetic properties of materials, ionic and solubility equilibria	K1
CO2	Discuss the characteristic features of crystalline structures inclusive of liquid crystals, types of magnetic materials, acid-base systems and sparingly soluble salts	K2
CO3	Interpret the XRD patterns of cubic systems, solve problems based on acid-base systems, pH of various solutions and buffers and applications of electrical and magnetic properties of materials.	K3
CO4	Analyse various parameters of crystal systems, dipole moment of materials, dissociation constants of acid-base systems, salts using significant mathematical expressions	K4
CO5	Assess concepts related to solid state structures, electrical and magnetic properties of materials and chemical equilibria	K5

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 19 – 26, 2024 (Day Order 1 - 6)	1	Solid State:	K1 – K5	4	1-5	Lecture and Discussion	Quiz
	1.1	Elements of Symmetry in a cube, Crystalline and amorphous Solids, Isotropy and Anisotropy, Interfacial Angles, Symmetry in Crystal Systems					
Jun 27 – July 4, 2024 (Day Order 1 - 6)	1.2	Unit Cell, Seven Crystal Systems, Space Lattice and Bravais Lattices	K1 – K5	4	1-5	Lecture and Discussion (Use of Models)	Test
	1.3	X-Ray Diffraction-Bragg's Law, Derivation of Bragg's Equation,					
July 5 – 12, 2024 (Day Order 1 - 6)	1.4	Experimental Technique-Powder Method, X-Ray Diffraction Patterns of a Cubic System Primitive, Body Centered and Face Centered Cubic Lattice	K1 – K5	4	1-5	Lecture and Discussion (Use of Models)	Other component Test – 25 Marks
	2	Closed Packed Structures of Ionic Crystals Closed Packed Structures-CCP and HCP, Percentage Void, Packing Efficiency, Radius Ratio Rule					
	2.1		K1 – K5	4	1-5	Lecture and Discussion (Use of Models)	Short Test

July 15 – 23, 2024 (Day Order 1 - 6)	2.3 2.4	Point Defects – Schottky and Frenkel Defects, Non-Stoichiometric Defects Liquid Crystals – Types, Structures, Textures and Applications	K1 – K5	4	1-5	Lecture and Discussion	Short Test
July 24 – 31, 2024 (Day Order 1 - 6)	3 3.1	Electrical & Magnetic Properties of Atoms and Molecules Electrical properties: Polarisation, ClausiusMossotti equation, Debye equation, polarisability and frequency	K1 – K5	4	1-5	Lecture and Discussion	Short Test
Aug 1 – 5, 2024 (Day Order 1 - 3)	3.2	Dipole moment and molecular polarisabilities and their measurements.	K1 – K5	2	1-5	Lecture and Discussion	Quiz
Aug 6 – 10, 2024	C.A. Test – I Unit 1(1.3 partly), Unit 2- 2.1, 2.3 & 2.4 & Unit 3 – 3.1 & 3.2						
Aug 12 – 14, 2024 (Day Order 4-6)	2.2 3.3	Simple Structures: Types - AX (NaCl, ZnS, NiAs), AX ₂ (CaF ₂ , TiO ₂ , CdCl ₂ and CdI ₂) Magnetic properties: Magnetic permeability, magnetic susceptibility, Diamagnetism, Paramagnetism, Ferro and Anti-ferromagnetism	K1 – K5	2	1-5	Presentation Lecture and Discussion	Other Component Assignment & MCQ-10 +15 Marks Quiz

Aug 16 – 23, 2024 (Day Order 1-6)	4 4.1 4.2	Ionic Equilibria Proton Transfer Equilibria- Bronsted Lowry Theory, Protonation and Deprotonation (pKa, pKb, pH, pOH, Kw and pKw), Polyprotic Acids, Amphiprotic Systems (H ₂ O) Buffers: Acid, Basic and Single salt buffer, buffer capacity, buffer action,	K1 – K5	4	1-5	Lecture and Discussion	Test
Aug 27 – Sep 3, 2024 (Day Order 1-6)	4.2 4.3	Derivation of Henderson Hasselbach Equation Hydrolysis of Salts (weak acid & strong base,)	K1 – K5	4	1-5	Lecture and Discussion	Test
Sep 4 – 11, 2024 (Day Order 1-6)	4.3	Hydrolysis of Salts (weak base & strong acid ,weak acid & weak base), Hydrolysis Constant, Relation between Kh, Ka (Kb), Kw and Degree of hydrolysis	K1 – K5	4	1-5	Lecture and Discussion	Test
Sep 12 - 20, 2024 (Day Order 1-6)	5 5.1	Solubility Equilibria Solubility, Solubility Product, relation between molar solubility and solubility product of a sparingly soluble salt,	K1 – K5	4	1-5	Lecture and Discussion	Test

Sep 23 - 26, 2024 (Day Order 1-4)	5.1	Common Ion effect	K1 – K5	2	1-5	Lecture and Discussion	Quiz
Sep 27 – Oct 3, 2024	C.A. Test – II Unit 3- 3.3, Unit 4 & Unit 5 – 5.1						
Oct 4 – 5, 2024 (Day 5 & 6)	5.2	Applications of solubility product- in determination of solubility of sparingly soluble salts	K1 – K5	1	1-5	Lecture and Discussion	Short test
Oct 7 - 15, 2024 (Day Order 1 to 6)	5.2	Applications of solubility product -predicting precipitation reactions, precipitation of soluble salts	K1 – K5	4	1-5	Lecture and Discussion	Group Discussion
Oct 16 - 22, 2024 (Day Order 1 to 6)	5.2	Applications of solubility product - Qualitative semi micro inorganic salt analysis	K1 – K5	4	1-5	Lecture and Discussion	Group Discussion
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN June - November 2024

Department : CHEMISTRY
Name/s of the faculty : DR. MARY GEORGE/DR. JANET SABINA X*
Course Title : SEMI MICRO QUALITATIVE ANALYSIS PRACTICAL II
Course Code : 23CH/MC/P332
Shift : I

COURSE OUTCOMES (COs)

COs	Description	CL
CO 1	Recollect the concepts of solubility product and common ion effect.	K1, K2
CO 2	Differentiate between non-interfering and interfering acid radicals and identify the appropriate elimination procedure for the interfering radical	K3
CO 3	Apply the concepts of solubility product and common ion effect in separating the two acid and two basic radicals present in the given inorganic salt.	K4

CO 4	Examine the characteristics of a given salt mixture through various chemical tests						K5
CO 5	Analyse the given inorganic salt mixture, identify the acid and basic radicals present in the inorganic salt mixture and eliminate the interfering acid radical present						K6
Week	Unit No.	Content	Cog nitiv e Leve l	Teachi ng Hours	COs	Teaching Learning Methodology	Assessment Methods

<p>Jun 19 – 26, 2024</p> <p>(Day Order 1 - 6)</p>	<p>1.1</p>	<p>Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals: Solubility Product Principle, Common Ion Effect</p>	<p>K1- K3</p>	<p>3</p>	<p>1-2</p>	<p>Discussion of Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals</p>	<p>Two to three questions in inorganic qualitative analysis - 05 marks</p> <p>General Procedure - 06 marks</p> <p>Acid radicals (2 x 10) - 20 marks</p> <p>Elimination procedure - 04 marks</p> <p>Basic radicals (2 x 7.5) - 15 marks</p>
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<p>Jun 27 – July 4, 2024 (Day Order 1 - 6)</p>	<p>2.1</p>	<p>Use of organic and inorganic reagents in spot tests (Equations Relating to Reactions and Confirmatory Tests)</p>	<p>K1-K6</p>	<p>3</p>	<p>1-5</p>	<p>Discussion of Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals</p>	<p>Two to three questions in inorganic qualitative analysis - 05 marks</p> <p>General Procedure - 06 marks</p> <p>Acid radicals (2 x 10) - 20 marks</p> <p>Elimination procedure - 04 marks</p> <p>Basic radicals (2 x 7.5) - 15 marks</p>
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<p>July 5 – 12, 2024 (Day Order 1 - 6)</p>	<p>2.1</p>	<p>Use of organic and inorganic reagents in spot tests (Equations Relating to Reactions and Confirmatory Tests)</p>	<p>K1-K6</p>	<p>3</p>	<p>1-5</p>	<p>Discussion of Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals</p>	<p>Two to three questions in inorganic qualitative analysis - 05 marks</p> <p>General Procedure - 06 marks</p> <p>Acid radicals (2 x 10) - 20 marks</p> <p>Elimination procedure - 04 marks</p> <p>Basic radicals (2 x 7.5) - 15 marks</p>
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<p>July 15 – 23, 2024 (Day Order 1 - 6)</p>	<p>3.1</p>	<p>Analysis of a salt mixture-1 containing two cations and two anions (simple and interfering)</p>	<p>K1- K6</p>	<p>3</p>	<p>1-5</p>	<p>Discussion of Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals</p>	<p>Two to three questions in inorganic qualitative analysis - 05 marks</p> <p>General Procedure - 06 marks</p> <p>Acid radicals (2 x 10) - 20 marks</p> <p>Elimination procedure - 04 marks</p> <p>Basic radicals (2 x 7.5) - 15 marks</p>
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<p>July 24 – 31, 2024</p> <p>(Day Order 1 - 6)</p>	<p>3.1</p>	<p>Analysis of a salt mixture - 2 containing two cations and two anions (simple and interfering)</p>	<p>K1- K6</p>	<p>3</p>	<p>1-5</p>	<p>Discussion of Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals</p>	<p>Two to three questions in inorganic qualitative analysis - 05 marks</p> <p>General Procedure - 06 marks</p> <p>Acid radicals (2 x 10) - 20 marks</p> <p>Elimination procedure - 04 marks</p> <p>Basic radicals (2 x 7.5) - 15 marks</p>
<p>Aug 1 – 5, 2024</p> <p>(Day Order 1 - 3)</p>		<p>No Practical Class</p>					

Aug 6 – 10, 2024	C.A. Test - I						
Aug 12 – 14, 2024 (Day Order 4-6)	3.1	Analysis of a salt mixture – 3 containing two cations and two anions (simple and interfering)	K1- K6	3	1-5	Discussion of Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals	<p>Two to three questions in inorganic qualitative analysis - 05 marks</p> <p>General Procedure - 06 marks</p> <p>Acid radicals (2 x 10) - 20 marks</p> <p>Elimination procedure - 04 marks</p> <p>Basic radicals (2 x 7.5) - 15 marks</p>

<p>Aug 16 – 23, 2024 (Day Order 1-6)</p>	<p>3.1</p>	<p>Analysis of a salt mixture - 4 cations and two anions (simple and interfering)</p>	<p>K1-K6</p>	<p>3</p>	<p>1-5</p>	<p>Discussion of Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals</p>	<p>Two to three questions in inorganic qualitative analysis - 05 marks</p> <p>General Procedure - 06 marks</p> <p>Acid radicals (2 x 10) - 20 marks</p> <p>Elimination procedure - 04 marks</p> <p>Basic radicals (2 x 7.5) - 15 marks</p>
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<p>Aug 27 – Sep 3, 2024</p> <p>(Day Order 1-6)</p>	<p>3.1</p>	<p>Practical CA – I (Salt Mixture – 5)</p>	<p>K1- K6</p>	<p>3</p>	<p>1-5</p>	<p>Discussion of Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals</p>	<p>Two to three questions in inorganic qualitative analysis - 05 marks</p> <p>General Procedure - 06 marks</p> <p>Acid radicals (2 x 10) - 20 marks</p> <p>Elimination procedure - 04 marks</p> <p>Basic radicals (2 x 7.5) - 15 marks</p>
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<p>Sep 4 – 11, 2024</p> <p>(Day Order 1-6)</p>	<p>3.1</p>	<p>Analysis of a salt mixture - 6 containing two cations and two anions (simple and interfering)</p>	<p>K1-K6</p>	<p>3</p>	<p>1-5</p>	<p>Discussion of Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals</p>	<p>Two to three questions in inorganic qualitative analysis - 05 marks</p> <p>General Procedure - 06 marks</p> <p>Acid radicals (2 x 10) - 20 marks</p> <p>Elimination procedure - 04 marks</p> <p>Basic radicals (2 x 7.5) - 15 marks</p>
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<p>Sep 12 - 20, 2024</p> <p>(Day Order 1-6)</p>	<p>3.1</p>	<p>Analysis of a salt mixture - 7 containing two cations and two anions (simple and interfering)</p>	<p>K1- K6</p>	<p>3</p>	<p>1-5</p>	<p>Discussion of Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals</p>	<p>Two to three questions in inorganic qualitative analysis - 05 marks</p> <p>General Procedure - 06 marks</p> <p>Acid radicals (2 x 10) - 20 marks</p> <p>Elimination procedure - 04 marks</p> <p>Basic radicals (2 x 7.5) - 15 marks</p>
<p>Sep 23 - 26, 2024</p> <p>(Day Order 1-4)</p>		<p>No Practical Class</p>					

Sep 27
– Oct 3,
2024

C.A. Test - II

Oct 4 –
5, 2024

(Day 5
& 6)

3.1

Practical CA – II
(Salt Mixture – 8)

K1-
K6

3

1-5

Discussion of
Principles and
Techniques in
Inorganic qualitative
analysis of Acid and
Basic Radicals

**Two to three questions in inorganic
qualitative analysis - 05 marks**

General Procedure - 06 marks

Acid radicals (2 x 10) - 20 marks

Elimination procedure - 04 marks

Basic radicals (2 x 7.5) - 15 marks

<p>Oct 7 - 15, 2024 (Day Order 1 to 6)</p>	<p>3.1</p>	<p>Analysis of a salt mixture - 9 containing two cations and two anions (simple and interfering)</p>	<p>K1-K6</p>	<p>3</p>	<p>1-5</p>	<p>Discussion of Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals</p>	<p>Two to three questions in inorganic qualitative analysis - 05 marks</p> <p>General Procedure - 06 marks</p> <p>Acid radicals (2 x 10) - 20 marks</p> <p>Elimination procedure - 04 marks</p> <p>Basic radicals (2 x 7.5) - 15 marks</p>
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<p>Oct 16 - 22, 2024</p> <p>(Day Order 1 to 6)</p>	<p>3.1</p>	<p>Analysis of a salt mixture - 10 containing two cations and two anions (simple and interfering)</p>	<p>K1-K6</p>	<p>3</p>	<p>1-5</p>	<p>Discussion of Principles and Techniques in Inorganic qualitative analysis of Acid and Basic Radicals</p>	<p>Two to three questions in inorganic qualitative analysis - 05 marks</p> <p>General Procedure - 06 marks</p> <p>Acid radicals (2 x 10) - 20 marks</p> <p>Elimination procedure - 04 marks</p> <p>Basic radicals (2 x 7.5) - 15 marks</p>
<p>Oct 23 - 24, 2024</p> <p>(Day Order 1 to 2)</p>	<p>REVISION</p>						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN June - November 2024

Department : CHEMISTRY
Name/s of the Faculty : Dr. MARY GEORGE
Course Title : FUNDAMENTALS OF BIOCHEMISTRY I
Course Code : 23CH/AC/FB33 (BOTANY)
Shift : I

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	Recall the fundamentals of biochemistry, biomolecules and bioenergetics	K1
CO2	Relate blood buffers with the pH of blood, digestion and absorption of carbohydrates with carbohydrate metabolism	K2
CO3	Analyse the metabolism of glucose, hormone action and mechanism of enzyme action	K3
CO4	Evaluate free energy, enthalpy and entropy in a biochemical process, spontaneity of a biochemical reaction, glucose levels in blood through haematological tests and pH of blood	K4
CO5	Summarise the steps involved in different stages of carbohydrate metabolism, mechanism of enzyme action and coagulation of blood	K5

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 19 – 26, 2024	1.1 1.2	Molecular Logic of Living Organisms Water – Physical Properties and Hydrogen Bonding of Water-Solvent Properties of Water	K1-K3	3	1-2	Lecture & Discussion	Short questions
Jun 27 – July 4, 2024	1.2	Hydrophobic Interactions, the Ionic Product of Water, the pH Scale. Acid Base Indicators- Phenolphthalein and Methyl Orange	K3-K5	3	1-5	Demonstration Experiment	Short questions/problem solving
July 5 – 12, 2024	1.3	Maintenance of pH of Blood, Bicarbonate Buffers, Acidosis and Alkalosis, Buffers and electrolytes in the body	K1-K5	3	1-5	Lecture & Discussion	Quiz
July 15 – 23, 2024	2.1	Blood - Composition of Blood, Blood Coagulation – Mechanism. Haemophilia and Sickle Cell Anemia	K1-K5	3	1-5	Lecture & Demonstration experiment on Bloodgrouping	Short questions
July 24 – 31, 2024	2.2	Clinical significance of RBC, WBC and Platelet Count in blood	K5	3	1-5	Discussion- Case study	Component MCQ TEST (20 marks) UNIT 1 & 2
Aug 1 – 5, 2024	3.1	Enthalpy, Entropy, Free Energy, Standard Free Energy, spontaneous and non-spontaneous. Exergonic and Endergonic Reactions	K1-K3	3	1-5	Demonstration experiment	Problem solving

Aug 6 – 10, 2024	C.A. Test – I Unit 1,2 &Unit 3.1						
Aug 12 – 14, 2024	3.2	High Energy Compounds ATP and ADP, Structural Basis for the Role of ATP as the currency of the cell	K3-K5	2	1-5	Discussion	Component Assignment (10 marks) Unit 2,2,3,2,4.2 &4.3
Aug 16 – 23, 2024	4.1 4.2	Classification of Carbohydrates Haworth's Structure and Reactions of Glucose, Fructose and Sucrose. Polysaccharides – Homopolysaccharides - Cellulose	K1-K5	3	1-5	Power Point Presentation	Worksheet
Aug 27 – Sep 3, 2024	4.2 4.3	Starch - Amylose and Amylopectin (Structural Elucidation not required) Digestion of di and polysaccharides in the body, maintenance of glucose level in Blood- significance of HbA1c	K1-K5	3	1-5	Power Point Presentation	Short questions
Sep 4 – 11, 2024	4.4	Carbohydrate Metabolism - Metabolism of Glucose - Glycolysis, TCA Cycle (structures not required),	K4-K5	3	1-5	Lecture &Discussion	Short questions
Sep 12 - 20, 2024	4.4	Glycogenesis, Glycogenolysis, Gluconeogenesis.	K4-K5	3	1-5	Lecture &Discussion	Component MCQ TEST (20 marks) UNIT 3 &Unit 4(4.1-4.4)
Sep 23 - 26, 2024	4.5	Oxidative phosphorylation and electron transport chain	K5	2	1-5	Lecture &Discussion	Short questions

Sep 27 – Oct 3, 2024	C.A. Test – II Unit 3.2, Unit 4 and Unit 5(5.1&5.2)						
Oct 4 – 5, 2024	5.1	Definition of Enzymes, Coenzymes and Apoenzymes	K1-K2	1	1-5	Lecture & Discussion	Short questions
Oct 7 - 15, 2024	5.2 5.3	Nomenclature and Classification of Enzymes Enzyme Specificity - Factors affecting Enzyme Action	K3-K4	3	1-5	Lecture & Discussion	Worksheet
Oct 16 - 22, 2024	5.4	Mechanism of Enzyme Action - Michaelis- Menten Theory (No Derivation) – Fischer's lock and key model and Koshland's induced fit model	K5	3	4-5	Lecture & Discussion	Short questions
Oct 23 - 24, 2024 1 hr	REVISION						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN June - November 2024

Department : CHEMISTRY
Name/s of the Faculty : Dr. Revathy Rajagopal
Course Title : Fundamentals of Biochemistry
Course Code : 23CH/AC/FB33 (ZOOLOGY)
Shift : I

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	Recall the fundamentals of biochemical principles, blood buffers, bioenergetics, metabolisms	K1
CO2	Relate the blood buffers, maintaining pH of blood, digestion & absorption of carbohydrates and carbohydrate metabolism	K2
CO3	Analyze the metabolism of glucose, hormone action, mechanism of enzyme action	K3
CO4	Evaluate free energy, enthalpy and entropy in a biochemical process, spontaneity of a biochemical reaction, the glucose levels in blood through hematological tests, pH of blood	K4
CO5	Predict the spontaneity of a step-in carbohydrate & mineral metabolism,	K5

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 19 – 26, 2024 (Day Order 1 - 6)	1	Introduction to Biochemistry 1.1 Molecular Logic of Living Organisms Water – Physical Properties and Hydrogen Bonding of Water-Solvent Properties of Water,	K1- K5	3	CO 1-5	Presentation and group discussion	Worksheet
Jun 27 – July 4, 2024 (Day Order 1 - 6)	1	1.1 contd..Hydrophobic Interactions, the Ionic Product of Water, the pH Scale. Acid Base Indicators- Phenolphthalein and MethylOrange 1.2 Maintenance of pH of Blood,	K1- K5	3	CO 1-5	Presentation and group discussion	Group discussion
July 5 – 12, 2024 (Day Order 1 - 6)	1	1.2 contd..Bicarbonate Buffers, Acidosis and Alkalosis, Buffers and electrolytes in the body	K1- K5	3	CO 1-5	Presentation and group discussion	MCQ on pH III Component (15)
July 15 – 23, 2024 (Day Order 1 - 6)	2	Blood 2.1 Blood - Composition of Blood, 2.1 contd.. Blood Coagulation – Mechanism. Hemophilia and Sickle Cell Anemia	K1- K5	3	CO 1-5	Presentation and group discussion	Quiz
July 24 – 31, 2024 (Day Order 1 - 6)	2	2.2 Clinical significance of RBC, WBC and Platelet Count in blood Bioenergetics 3.1 Enthalpy, Entropy, Free Energy, Standard	K1- K5	3	CO 1-5	Presentation and group discussion	Worksheet on enthalpy, free energy calculation

Aug 1 – 5, 2024 (Day Order 1 - 3)	3	3.1 contd.. Free Energy, Spontaneous and Non-Spontaneous. Exergonic and Endergonic Reactions 3.2 High Energy Compounds ATP and ADP, Structural Basis for the Role of ATP as the currency of the cell	K1- K5	3	CO 1-5	Presentation and group discussion	Short answer test
Aug 6 – 10, 2024	Unit 1,2 &3 C.A. Test - I						
Aug 12 – 14, 2024 (Day Order 4-6)	4	Carbohydrates 4.1 Classification of Carbohydrates Haworth's structure and reactions of Glucose, Fructose and Sucrose. Polysaccharides –	K1- K5	1	CO 1-5	Presentation and group discussion	Assignment III Component (10M)
Aug 16 – 23, 2024 (Day Order 1-6)	4	4.1 contd...Classification of Carbohydrates Haworth's structure and reactions of Glucose, Fructose and Sucrose. Polysaccharides -	K1- K5	3		Presentation and group discussion	Worksheet
Aug 27 – Sep 3, 2024 (Day Order 1-6)	4	4.1 contd.. Polysaccharides - Homopolysaccharides- Cellulose, Starch-Amylose and Amylopectin (Structural Elucidation notrequired) Digestion of di and polysaccharides in the body, maintenance of glucose level in Blood- significance ofHbA1c	K1- K5	3	CO 1-5	Presentation and group discussion	Quiz

Sep 4 – 11, 2024 (Day Order 1-6)	4	4.3Carbohydrate Metabolism - Metabolism of Glucose - Glycolysis, TCA Cycle (structures not required), Glycogenesis	K1- K5	3	CO 1-5	Presentation and group discussion	Quiz
Sep 12 - 20, 2024 (Day Order 1-6)	4	Glycogenolysis, Gluconeogenesis. Oxidative phosphorylation and electron transportchain	K1- K5	3	CO 1-5	Presentation and group discussion	Test on carbohydrate metabolism III Component (25)
Sep 23 - 26, 2024 (Day Order 1-4)	4	Glycogenolysis, Gluconeogenesis. Oxidative phosphorylation and electron transportchain	K1- K5	2	CO 1-5	Presentation and group discussion	quiz
Sep 27 – Oct 3, 2024	Unit 4 C.A. Test - II						
Oct 4 – 5, 2024 (Day 5 & 6)	5	Enzymes 5.1 Definition of Enzymes, Coenzymes and Apoenzymes	K1- K5	1	CO 1-4	Presentation and group discussion	worksheet
Oct 7 - 15, 2024 (Day Order 1 to 6)	5	5.2 Nomenclature and Classification of Enzymes 5.3 Enzyme Specificity - Factors affecting EnzymeAction	K1- K5	3	CO 1-4	Presentation and group discussion	MCQ test

<p>Oct 16 - 22, 2024 (Day Order 1 to 6)</p>	<p>5</p>	<p>5.4 Mechanism of Enzyme Action – Michaelis- Menten Theory (No Derivation) – Fischer’s lock and key model and Koshland’s induced fit model</p>	<p>K1- K5</p>	<p>3</p>	<p>CO 1-4</p>	<p>Presentation and group discussion</p>	<p>quiz</p>
<p>Oct 23 - 24, 2024 (Day Order 1 to 2)</p>	<p>REVISION</p>						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**COURSE PLAN June - November 2024**

Department : CHEMISTRY
Name/s of the Faculty : DR. AVILA JOSEPHINE B
Course Title : FUNDAMENTALS OF CHEMISTRY I
Course Code : 23CH/AC/FC33
Shift : I

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	Identify various organic functional groups, label compounds, define terms related to polymers, biomolecules, kinetics and ionic equilibrium	K1
CO2	Compare types of organic intermediates and reactions, indicate the uses of polymers and study of ionic equilibria, discuss structures of biomolecules and summarise the kinetics and equilibrium conditions of reactions	K2
CO3	Classify molecules and calculate various physical parameters of compounds	K3
CO4	Predict functionality of different organic molecules, biomolecules and polymers, differentiate between various reactions using kinetics and analyse the strength of acids and bases	K4
CO5	Evaluate and estimate physical parameters to study reaction mechanisms of various molecules	K5

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 19 – 26, 2024 (Day Order 1 - 6)	1 1.1	Introduction to Organic Chemistry: Identification of common functional groups in Organic compounds (alcohols, amines, alkyl halides, aldehydes, ketones, carboxylic acids, esters and amides)	K1 – K4	3	1-4	Lecture and Discussion	Quiz
Jun 27 – July 4, 2024 (Day Order 1 - 6)	1.2 1.3	Nature of bond fission-homolytic and heterolytic, types of reagents - nucleophile and electrophile (examples) Types of intermediates - carbocations, carbanions and free radicals - definition, structure and examples	K1 – K4	3	1-4	Lecture and Discussion	Worksheet
July 5 – 12, 2024 (Day Order 1 - 6)	1.4 2 2.1	Substitution, Addition and Elimination Reactions definition with an example each Polymer Chemistry Classification of Polymers, types of polymerisations - addition (cationic, anionic and free radical mechanism) and condensation	K1 – K4 K1 – K5	1 2	1-4 1-5	Lecture and Discussion Lecture and Discussion	Worksheet Test

July 15 – 23, 2024 (Day Order 1 - 6)	2.1 2.2	Addition (cationic, anionic and free radical mechanism) and condensation Thermosetting and Thermoplastics–Definition with examples, Structure of Polyethylene, Polyvinylchloride, Nylon 66 and Bakelite	K1 – K5	3	1-5	Lecture and Discussion	Short Test
July 24 – 31, 2024 (Day Order 1 - 6)	2.2 2.3 3 3.1	Applications of Polyethylene, Polyvinylchloride, Nylon 66 and Bakelite Natural and synthetic rubber, vulcanisation of rubber Biodegradable and non-biodegradable polymers Chemistry of Biomolecules Amino acids – Classification based on R groups, Zwitter ion and isoelectricpoint- definition and illustrations, chemical reactions of amino acids Ninhydrin test	K1 – K5	3	1-5	Lecture and Discussion	Other Component Assignment & MCQ- (10+15) 25 Marks Short Test
Aug 1 – 5, 2024 (Day Order 1 - 3)	3.2	Polypeptides-Introduction and nomenclature,	K1 – K5	1	1-5	Lecture and Discussion	Quiz
Aug 6 – 10, 2024	C.A. Test – I Unit 1, Unit 2- 2.1, 2.2 & 2.4 & Unit 3 – 3.1						

Aug 12 – 14, 2024 (Day Order 4-6)	3.2	Proteins-Structure (primary, secondary, tertiary and quaternary)	K1 – K5	2	1-5	Lecture and Discussion	Test
Aug 16 – 23, 2024 (Day Order 1-6)	3.2 3.3	Protein- functions, Denaturation and Renaturation of proteins Carbohydrates- Classification, structure of Glucose and Fructose –	K1 – K5	3	1-5	Lecture and Discussion	Test
Aug 27 – Sep 3, 2024 (Day Order 1-6)	3.3	Fischer and Haworth projections, Structure and uses of Maltose and Sucrose, Starch structure and reaction with iodine, Uses of starch and cellulose	K1 – K5	3	1-5	Lecture and Discussion	Test
Sep 4 – 11, 2024 (Day Order 1-6)	3.4 4 4.1 4.2	Analysis for carbohydrates- Molisch, Barfoed, Tollen's and Fehling's tests, preparation of Osazone derivative Chemical Kinetics Rate of reaction, Order and Molecularity Zero order, First order, Pseudo- unimolecular and Second order reactions	K1 – K5	3	1-5	Lecture and Discussion	Other Component MCQ – 25 Marks Quiz

Sep 12 - 20, 2024 (Day Order 1-6)	4.3	Determination of order – Graphical, Half - life, Integrated rate equation and Ostwald's isolation methods	K1 – K5	3	1-5	Lecture and Discussion	Test
Sep 23 - 26, 2024 (Day Order 1-4)	4.4	Energy of activation - Effect of temperature on reaction rates-Arrhenius equation	K1 – K5	1	1-5	Lecture and Discussion	Quiz
Sep 27 – Oct 3, 2024	C.A. Test – II Unit 3- 3.2 & 3.3 & Unit 4						
Oct 4 – 5, 2024 (Day 5 & 6)	5 5.1	Ionic Equilibrium: Acid-base concept - Arrhenius, Lowry Bronsted and Lewis Concepts	K1 – K5	1	1-5	Lecture and Discussion	Quiz
Oct 7 - 15, 2024 (Day Order 1 to 6)	5.2 5.3	Strength of acids and bases- Dissociation constants of acids (Ka), bases (Kb) and water (Kw), pKa, pKb and pKw Definition of pH and pOH, significance of pH scale	K1 – K5	3	1-5	Lecture and Discussion	Short Test
Oct 16 - 22, 2024 (Day Order 1 to 6)	5.4	Buffer solutions – Types, buffer action, Derivation and importance of Henderson- Hasselbach equation	K1 – K5	3	1-5	Lecture and Discussion	Test
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN June - November 2024

Department : CHEMISTRY
Name/s of the Faculty : Dr. Mary NL* & Dr. Mary George
Course Title : Biochemistry Practical-I
Course Code : 23CH/AC/PI32 (BOTANY)
Shift : I

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	Recall the procedure for the analysis of carbohydrates, amino acids and proteins.	K1, K2
CO2	Identify various carbohydrates, amino acids and proteins based on their structure and property	K3
CO3	Distinguish various carbohydrates, amino acids and proteins based on the structural characteristics	K4
CO4	Perform chemical reactions in a laboratory according to standard procedure and safety precautions	K5
CO5	Analyse a given organic compound qualitatively and identify carbohydrates, amino acids and proteins	K6

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 19 – 26, 2024 (Day Order 1 - 6)	1	1.1 Reactions of Carbohydrates Glucose, Fructose,	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Jun 27 – July 4, 2024 (Day Order 1 - 6)	1	1.1 Reactions of Carbohydrates Maltose, Sucrose and Starch	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
July 5 – 12, 2024 (Day Order 1 - 6)	1	1.2 Identification of Unknown Organic Compound-I (carbohydrate)	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
July 15 – 23, 2024 (Day Order 1 - 6)	2	2.1 Reactions of Amino Acids - Reactions of Tryptophan, Tyrosine, (Aromatic amino acids)	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
July 24 – 31, 2024 (Day Order 1 - 6)	2	2.1.1 Reactions of Amino Acids - Reactions of Arginine and Cysteine (Aliphatic amino acid)	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Aug 1 – 5, 2024 (Day Order 1 - 3)	2	2. 2 Identification of Unknown Organic Compound-II (amino acid)	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Aug 6 – 10, 2024	C.A. Test - I						

Aug 12 – 14, 2024 (Day Order 4-6)	3	3.1 Reactions of Proteins - Reactions of Casein and Egg Albumin	K1-K6	-	CO1- CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Aug 16 – 23, 2024 (Day Order 1-6)	3	3.2 Identification of Unknown Organic Compound (protein)- III	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Aug 27 – Sep 3, 2024 (Day Order 1-6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein) -IV	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Sep 4 – 11, 2024 (Day Order 1-6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein) -V	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	CA 1 (50Marks) – (Preliminary 15 Marks, Confirmatory tests 30 Marks, Final report -5 Marks)
Sep 12 - 20, 2024 (Day Order 1-6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein) -VI	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Sep 23 - 26, 2024 (Day Order 1-4)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein)- VII	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	CA 2 (50Marks)
Sep 27 – Oct 3, 2024	C.A. Test - II						
Oct 4 – 5, 2024 (Day 5 & 6)	-	-		-			

Oct 7 - 15, 2024 (Day Order 1 to 6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein)- VIII	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Oct 16 - 22, 2024 (Day Order 1 to 6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein) -IX	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN June - November 2024

Department : CHEMISTRY
Name/s of the Faculty : DR. AVILA JOSEPHINE B* and DR. MARY TERESITA V
Course Title : Biochemistry Practical-I (PHYSICS)
Course Code : 23CH/AC/PI32
Shift : I

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	Recall the procedure for the analysis of carbohydrates, amino acids and proteins.	K1, K2
CO2	Identify various carbohydrates, amino acids and proteins based on their structure and property	K3
CO3	Distinguish various carbohydrates, amino acids and proteins based on the structural characteristics	K4
CO4	Perform chemical reactions in a laboratory according to standard procedure and safety precautions	K5
CO5	Analyse a given organic compound qualitatively and identify carbohydrates, amino acids and proteins	K6

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 19 – 26, 2024 (Day Order 1 - 6)	1	1.1 Reactions of Carbohydrates Glucose, Fructose,	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Jun 27 – July 4, 2024 (Day Order 1 - 6)	1	1.1 Reactions of Carbohydrates Maltose, Sucrose and Starch	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
July 5 – 12, 2024 (Day Order 1 - 6)	1	1.2 Identification of Unknown Organic Compound-I (carbohydrate)	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
July 15 – 23, 2024 (Day Order 1 - 6)	2	2.1 Reactions of Amino Acids - Reactions of Tryptophan, Tyrosine, (Aromatic amino acids)	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
July 24 – 31, 2024 (Day Order 1 - 6)	2	2.1.1 Reactions of Amino Acids - Reactions of Arginine and Cysteine (Aliphatic amino acid)	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Aug 1 – 5, 2024 (Day Order 1 - 3)	2	2. 2 Identification of Unknown Organic Compound-II (amino acid)	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Aug 6 – 10, 2024	C.A. Test - I						

Aug 12 – 14, 2024 (Day Order 4-6)	3	3.1 Reactions of Proteins - Reactions of Casein and Egg Albumin	K1-K6	-	CO1- CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Aug 16 – 23, 2024 (Day Order 1-6)	3	3.2 Identification of Unknown Organic Compound (protein)- III	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Aug 27 – Sep 3, 2024 (Day Order 1-6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate, amino acid/ protein) -IV	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Sep 4 – 11, 2024 (Day Order 1-6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate, amino acid/ protein) -V	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	CA 1 (50Marks) – (Preliminary 15 Marks, Confirmatory tests 30 Marks, Final report -5 Marks)
Sep 12 - 20, 2024 (Day Order 1-6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate, amino acid/ protein) -VI	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Sep 23 - 26, 2024 (Day Order 1-4)	1,2,3	Identification of Unknown Organic Compound (carbohydrate, amino acid/ protein)- VII	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	CA 2 (50Marks)
Sep 27 – Oct 3, 2024	C.A. Test - II						
Oct 4 – 5, 2024 (Day 5 & 6)	-	-		-			

Oct 7 - 15, 2024 (Day Order 1 to 6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein)- VIII	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Oct 16 - 22, 2024 (Day Order 1 to 6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein) -IX	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

COURSE PLAN June - November 2024

Department : CHEMISTRY
Name/s of the Faculty : Dr. Shiny John Vairamon and Dr. Revathy Rajagopal*
Course Title : Biochemistry Practical-I
Course Code : 23CH/AC/PI32 (ZOOLOGY)
Shift : I

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	Recall the procedure for the analysis of carbohydrates, amino acids and proteins.	K1, K2
CO2	Identify various carbohydrates, amino acids and proteins based on their structure and property	K3
CO3	Distinguish various carbohydrates, amino acids and proteins based on the structural characteristics	K4
CO4	Perform chemical reactions in a laboratory according to standard procedure and safety precautions	K5
CO5	Analyse a given organic compound qualitatively and identify carbohydrates, amino acids and proteins	K6

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 19 – 26, 2024 (Day Order 1 - 6)	1	1.1 Reactions of Carbohydrates Glucose, Fructose,	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Jun 27 – July 4, 2024 (Day Order 1 - 6)	1	1.1 Reactions of Carbohydrates Maltose, Sucrose and Starch	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
July 5 – 12, 2024 (Day Order 1 - 6)	1	1.2 Identification of Unknown Organic Compound-I (carbohydrate)	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
July 15 – 23, 2024 (Day Order 1 - 6)	2	2.1 Reactions of Amino Acids - Reactions of Tryptophan, Tyrosine, (Aromatic amino acids)	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
July 24 – 31, 2024 (Day Order 1 - 6)	2	2.1.1 Reactions of Amino Acids - Reactions of Arginine and Cysteine (Aliphatic amino acid)	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Aug 1 – 5, 2024 (Day Order 1 - 3)	2	2. 2 Identification of Unknown Organic Compound-II (amino acid)	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Aug 6 – 10, 2024	C.A. Test - I						

Aug 12 – 14, 2024 (Day Order 4-6)	3	3.1 Reactions of Proteins - Reactions of Casein and Egg Albumin	K1-K6	-	CO1- CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Aug 16 – 23, 2024 (Day Order 1-6)	3	3.2 Identification of Unknown Organic Compound (protein)- III	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Aug 27 – Sep 3, 2024 (Day Order 1-6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein) -IV	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Sep 4 – 11, 2024 (Day Order 1-6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein) -V	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	CA 1 (50Marks) – (Preliminary 15 Marks, Confirmatory tests 30 Marks, Final report -5 Marks)
Sep 12 - 20, 2024 (Day Order 1-6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein) -VI	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Sep 23 - 26, 2024 (Day Order 1-4)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein)- VII	K1-K6	3	CO1- CO5	Demonstration and hands on experiment	CA 2 (50Marks)
Sep 27 – Oct 3, 2024	C.A. Test - II						
Oct 4 – 5, 2024 (Day 5 & 6)	-	-		-			

Oct 7 - 15, 2024 (Day Order 1 to 6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein)- VIII	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Oct 16 - 22, 2024 (Day Order 1 to 6)	1,2,3	Identification of Unknown Organic Compound (carbohydrate,/ amino acid/ protein) -IX	K1-K6	3	CO1-CO5	Demonstration and hands on experiment	Preliminary and confirmation test (practical and procedure writing)
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION						

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI
COURSE PLAN June - November 2024

Department : CHEMISTRY
Name/s of the Faculty : DR. MARY TERESITA V
Course Title : COSMETICS AND PERSONAL CARE
Course Code : 23CH/GE/CP22
Shift : I

COURSE OUTCOMES (COs)

COs	Description	CL
CO1	List the different aspects of skin, hair, personal care and cosmetics	K1
CO2	Classify different types of hair, skin, beauty treatments and cosmetics	K2
CO3	Select the correct cosmetic for personal care	K3

Week	Unit No.	Content	Cognitive Level	Teaching Hours	COs	Teaching Learning Methodology	Assessment Methods
Jun 19 – 26, 2024 (Day Order 1 - 6)	1 1.1	Skin Care Skin - Structure and Functions-	K1 – K3	2	1-3	Lecture and Discussion	Quiz
Jun 27 – July 4, 2024 (Day Order 1 - 6)	1.1	Skin - Structure and Functions-	K1 – K3	2	1-3	Lecture and Discussion	Quiz
July 5 – 12, 2024 (Day Order 1 - 6)	1.1	pH and Moisture Balance, Maintenance of Skin	K1 – K3	2	1-3	Lecture and Discussion	Demonstration

July 15 – 23, 2024 (Day Order 1 - 6)	1.1	pH and Moisture Balance, Maintenance of Skin	K1 – K3	2	1-3	Lecture and Discussion	Analysing the pH of the cosmetic products used in day to- day life
July 24 – 31, 2024 (Day Order 1 - 6)	1.1 1.2 3.5	pH and Moisture Balance, Maintenance of Skin Types of Skin - Dry Skin, Oily Skin, Wrinkled Skin Demonstration by Experts in the Field of Cosmetology	K1 – K3	2	1-3	Guest - Lecture & Demonstratio n	Demonstration with student model
Aug 1 – 5, 2024 (Day Order 1 - 3)	-	-	-	-	-	-	-
Aug 6 – 10, 2024	C.A. Test – I						

<p>Aug 12 – 14, 2024 (Day Order 4-6)</p>	<p>1.3 2.2 3.2</p>	<p>Cleansing of Skin, Creams and Lotions, Astringent and Skin Tonics, Skin Lighteners, Depilatories, and Food Habits Related to Skin Care. Shampoos and Conditioners, Hair Styling Products, Hair Ironing and Methods of Colouring /Dyeing-Precautionary Measures Lipstick, Eyeliner, Mascara, Eye Shadow - Chemical Composition</p>	<p>K1 – K3</p>	<p>1</p>	<p>1-3</p>	<p>Group Assignment & MCQ</p>	<p>Other Components (25 Marks)</p>
<p>Aug 16 – 23, 2024 (Day Order 1-6)</p>	<p>2 2.1</p>	<p>Scalp and Hair Treatments Structure of Hair, Growth and Type of Hair</p>	<p>K1 – K3</p>	<p>2</p>	<p>1-3</p>	<p>Lecture and Discussion</p>	<p>Group Discussion</p>

Aug 27 – Sep 3, 2024 (Day Order 1-6)	2..1	Structure of Hair, Growth and Type of Hair	K1 – K3	2	1-3	Lecture and Discussion	Group Discussion
Sep 4 – 11, 2024 (Day Order 1-6)	2.3 3.3 3.5	Personal Care and Cleanliness of Hair. AHA Exfoliation & Aroma Therapy Demonstration by Experts in the Field of Cosmetology	K1 – K3	2	1-3	Guest - Lecture & Demonstratio n	Demonstration with student model
Sep 12 - 20, 2024 (Day Order 1-6)	3 3.1	Beauty Treatments Facials – Types, Advantages and Disadvantages	K1 – K3	2	1-3	Lecture & Animated Videos	Group Discussion
Sep 23 - 26, 2024 (Day Order 1-4)	3.1	Facials – Types, Advantages and Disadvantages	K1 – K3	1	1-3	Lecture & Animated Videos	Group Discussion

Sep 27 – Oct 3, 2024	C.A. Test – II						
Oct 4 – 5, 2024 (Day 5 & 6)		Units: 1.1, 1.2 & 2.1	K1 – K3	1	1-3	C.A Test	25 Marks
Oct 7 - 15, 2024 (Day Order 1 to 6)	3.4	Toxicology of Cosmetics	K1 – K3	2	1-3	Lecture & Animated Videos	Quiz
Oct 16 - 22, 2024 (Day Order 1 to 6)	3.4	Toxicology of Cosmetics	K1 – K3	2	1-3	Lecture & Animated Videos	Quiz
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION						

