

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI 600 086

B.SC. DEGREE : BRANCH IV-CHEMISTRY

COURSE SCHEDULE

SEMESTER V

SUBJECT CODE	TITLE OF COURSE
19CH/MC/OC54	ORGANIC CHEMISTRY III
19CH/MC/PC54	PHYSICAL CHEMISTRY II
19CH/MC/BC54	BIOCHEMISTRY
19IC/ID/BA55	BIOANALYTICAL TECHNIQUES
19ID/IC/BA55	BIOANALYTICAL TECHNIQUES
19CH/MC/P551	BIOCHEMISTRY PRACTICAL
19CH/MC/P652	PHYSICAL CHEMISTRY PRACTICAL-I
19CH/GE/CE22	CHEMISTRY IN EVERYDAY LIFE

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule – June –November 2024

Department : **CHEMISTRY**
Name/s of the Faculty : **Dr. MARY N. L.**
Course Title : **ORGANIC CHEMISTRY-III**
Course Code : **19CH/MC/OC54**
Shift : **I**

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Jun 19 – 26, 2024 5 hrs	Unit I Heterocyclic Compounds 1.1 Classification, Preparation of Furan, Pyrrole, Thiophene, Pyridine. Reactions- Electrophilic and Nucleophilic Substitutions. Oxidation and Reduction reactions.	Lecture , Discussion	Text Books P. L. Soni & H. M. Chawla, (2010) Textbook of Organic Chemistry, Sultan Chand & Sons, New Delhi Morrison R. T. & R. N. Boyd, (2005), Organic Chemistry , Prentice Hall of India Pvt.Ltd., New Delh Tewari K.S. , N. K. Vishnoi, S. N. Mehrotra (2007), A Textbook of Organic Chemistry , Vikas Publishing House Ltd., New Delhi Graham Solomons and Craig Fryhle (2007) Organic Chemistry , 7th Edn. John Wiley & Sons, New York	Quiz
Jun 27 – July 4, 2024 5 hrs.	1.2 Condensed Ring Systems - Indole, Quinoline, Isoquinoline - Comparison of Reactions. Preparation of Quinoline by Skraup's Synthesis and Isoquinoline by Bischler-Napieralsky Synthesis. Mechanism of Electrophilic and Nucleophilic substitutions, oxidation and reduction reactions.	Power point, Lecture and Discussion	Text Books P. L. Soni & H. M. Chawla, (2010) Textbook of Organic Chemistry, Sultan Chand & Sons, New Delhi Morrison R.T. & R.N. Boyd, (2005), Organic Chemistry , Prentice Hall of India Pvt.Ltd., New Delh Tewari K.S. , N. K. Vishnoi, S. N. Mehrotra (2007), A Textbook of Organic Chemistry , Vikas Publishing House Ltd., New Delhi Graham Solomons and Craig Fryhle (2007) Organic Chemistry , 7th Edn. John Wiley & Sons, New York.	Short Test
July 5 – 12, 2024	1.2 Relationship between Indole,	Video, Power point, Lecture	Text Books P. L. Soni & H. M. Chawla, (2010)	Short answer test

5 hrs	Isatin and Indigo. Unit 2 Carbohydrates 2.1 Classification by various methods- Explanation of Diastereomer, Enantiomer, Epimer, Anomer. Building of carbohydrate from D-Glyceraldehyde, D and L sugars	and Discussion	Textbook of Organic Chemistry, Sultan Chand & Sons, New Delhi Morrison R.T. & R.N. Boyd, (2005), Organic Chemistry , Prentice Hall of India Pvt.Ltd., New Delh Tewari K.S. , N. K. Vishnoi, S. N. Mehrotra (2007),	
July 15 – 23, 2024 5 hrs	2.2 Monosaccharides - HIO ₄ . Oxidation, Mechanism of mutarotation, osazone formation. Haworth structure, structural elucidation of Glucose and Fructose, Determination of configuration and ring size. Interconversion of Glucose and Fructose. Ascending and Descending the Sugar Series.	Power point, Lecture and Discussion	Morrison R. T. & R. N. Boyd, (2005), Organic Chemistry , Prentice Hall of India Pvt.Ltd., New Delh Tewari K.S. , N. K. Vishnoi, S. N. Mehrotra (2007),	Short answer test
July 24 – 31, 2024 5 hrs	2.3 Disaccharides - Formation of Glycosidic Bond: Haworth's Structure of Sucrose, Maltose, Lactose. Difference between Maltose and Cellobiose. Polysaccharides - Structure and Reactions of Starch and Cellulose. Applications of Cellulose - acetate and xanthate	Power point, Lecture and Discussion	Morrison R. T. & R. N. Boyd, (2005), Organic Chemistry , Prentice Hall of India Pvt. Ltd., New Delhi Tewari K.S. , N. K. Vishnoi, S. N. Mehrotra (2007),	III Component Test (unit 1&2.1-2.2) 20 marks
Aug 1 – 5, 2024 3 hrs	Unit 3 Natural Products 3.1 Occurrence and Extraction of Terpenoids, Carotenoids in nature.	Lecture and Discussion	Text Book Finar, I.L., (2009), Organic Chemistry , Vol. II, ELBS, London B. S. Bahl, & Arun Bahl, Advanced Organic Chemistry,(2010) S. Chand Co., New Delhi.	Short answer test
CONTINUOUS ASSESSMENT TEST – I				

Aug 6 – 10, 2024				
Aug 12 – 14, 2024 2 hrs	3.1 Occurrence and Extraction of Steroids and Alkaloids in nature.	Lecture and Discussion	Text Book Finar, I.L., (2009), Organic Chemistry , Vol. II, ELBS, London B. S. Bahl, & Arun Bahl, Advanced Organic Chemistry,(2010) S. Chand Co., New Delhi.	Short answer test
Aug 16 – 23, 2024 5 hrs	3.2 Alkaloids - Definition and Classification, General Properties, Determination of the chemical constitution of the alkaloids, functional group analysis, estimation of groups - OH, NH ₂ and OCH ₃ , degradation and synthesis. Structural Elucidation of Piperine, Nicotine.	Power point, Lecture and Discussion	Text Book Finar, I.L., (2009), Organic Chemistry , Vol. II, ELBS, London B. S. Bahl, & Arun Bahl, Advanced Organic Chemistry,(2010) S. Chand Co., New Delhi	Quiz
Aug 27 – Sep 3, 2024 5 hrs	3.3 Terpenoids - Classification, Isoprene Rule, General Properties, Structure Determination of the following Monoterpenoids – Citral, α -Terpeneol.	Power point, Lecture and Discussion	Text Book Finar, I.L., (2009), Organic Chemistry , Vol. II, ELBS, London B. S. Bahl, & Arun Bahl, Advanced Organic Chemistry,(2010) S. Chand Co., New Delhi	III Component Quiz (20 marks) Unit 3
Sep 4 – 11, 2024 5 hrs	3.3 Structural Determination of α -Pinene Unit 4 Molecular rearrangement 4.1 Classification - Anionotropic, Cationotropic, Free Radical, Inter and Intramolecular rearrangements 4.2 Pinacol – Pinacolone (mechanism, evidence for intermediate	Power point, Lecture and Discussion	Text Books B. S. Bahl, & Arun Bahl, Advanced Organic Chemistry,(2010) S. Chand Co., New Delhi Peter Sykes., (1991), A Guide Book to mechanism in Organic Chemistry , Orient Longman Ltd., New Delhi.	

	formation - migratory aptitude)			
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Sep 12 - 20, 2024 5 hrs	4.2 Beckmann, Hoffmann, Curtius, Lossen, Wolff and Benzilic acid rearrangements (mechanism, evidence for intermediate formation - migratory aptitude) 4.4 Claisen and Cope (Sigmatropic rearrangement). Fries rearrangement (- evidence for intramolecular nature and allylic carbon attachment)	Lecture and Discussion	Text Books B. S. Bahl, & Arun Bahl, Advanced Organic Chemistry,(2010) S. Chand Co., New Delhi Peter Sykes., (1991), A Guide Book to mechanism in Organic Chemistry , Orient Longman Ltd., New Delhi.	Quiz
Sep 23 - 26, 2024 5 hrs	Unit 5 Functional Group interconversion and Designing Organic Synthesis 5.1 Protection of Functional Groups – Need for and methods of protection of – NH ₂ , -OH, >C=O Groups. Protection of Functional Groups – Need for and methods of protection of – >C=C and -COOH Groups	Video, Power point, Lecture and Discussion	Text Books B. S. Bahl, & Arun Bahl, Advanced Organic Chemistry,(2010) S. Chand Co., New Delhi Peter Sykes., (1991), A Guide Book to mechanism in Organic Chemistry , Orient Longman Ltd., New Delhi.	Short answer test/Quiz
Sep 27 – Oct 3, 2024	CONTINUOUS ASSESSMENT TEST - II			
Oct 4 – 5, 2024 2 hrs.	5.2 Functional Group Modifications by Reduction, Oxidation Processes.	Lecture and Discussion	Text Books B. S. Bahl, & Arun Bahl, Advanced Organic Chemistry,(2010) S. Chand Co., New Delhi Peter Sykes., (1991), A Guide Book to mechanism in Organic Chemistry , Orient Longman Ltd., New Delhi.	Quiz
Oct 7 - 15, 2024	5.2 Functional Group Modifications by	Lecture and Discussion	Text Books	Third component

5 hrs	Addition, Elimination,		B. S. Bahl, & Arun Bahl, Advanced Organic Chemistry,(2010) S. Chand Co., New Delhi Peter Sykes., (1991), A Guide Book to mechanism in Organic Chemistry, Orient Longman Ltd., New Delhi.	Presentation Unit 5(10 marks)
Oct 16 - 22, 2024 5hrs.	Displacement and Addition – Elimination Processes Revision and class discussion Problem solving	Power point, Lecture and Discussion Lecture and Discussion	REVISION	Problem solving
Oct 23 - 24, 2024	REVISION			

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI**Course Schedule: June - November 2024**

Department : CHEMISTRY
Name/s of the Faculty : Dr. REVATHY RAJAGOPAL
Course Title : PHYSICAL CHEMISTRY II
Course Code : 19CH/MC/PC54
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Jun 19 – 26, 2024 (Day Order 1 - 6)	Unit 1: Introduction to Thermodynamics : 1. 1Types of Systems, Extensive and Intensive Properties, Different Forms of Energy. First Law – Statements, Internal Energy and Enthalpy, State and Path Functions and their characteristics	Presentation and group discussion	Rajaram, J & Kuriakose, J. C. Chemical Thermodynamics - Classical, Statistical and Irreversible Thermodynamics. Pearson, 2013. Peter Atkins & Julio de Paula, Physical Chemistry 10 th Ed., Oxford University Press 2016.	Worksheet on types of system, path and work function
Jun 27 – July 4, 2024 (Day Order 1 - 6)	Unit 1.2: Isothermal and Adiabatic Changes for ideal gases - Work Done, Internal Energy Changes, Thermodynamics of Real Gases obeying van der Waal's Equation of State, Isothermal and Adiabatic Changes for Real Gases- Work Done, Internal Energy Changes, Difference between Heat Capacities at Constant Pressure and Volume of ideal and real gases	Presentation and group discussion	Peter Atkins & Julio de Paula, Physical Chemistry 10 th Ed., Oxford University Press 2016.	MCQ on first law thermodynamics
July 5 – 12, 2024 (Day Order 1 - 6)	1.3 Joule- Thomson Effect, Inversion Temperature 1.4 Thermochemistry- Change in enthalpy of Chemical reaction, Endothermic and Exothermic reactions,	Presentation and group discussion	Bahl, A, Bahl, B.S. & Tuli, G.D., Essentials of Physical Chemistry, S.Chand, 2018	Concepts MCQ (III Component)

<p>July 15 – 23, 2024 (Day Order 1 - 6)</p>	<p>1.4 (contd) Kirchoff's equation (Variation of enthalpy with temperature), Enthalpy of formation, Enthalpy of combustion and bond energy, resonance energy Unit 2: Second Law of Thermodynamics 2.1 Need for Second Law, Different Forms of stating the Law, Carnot's Cycle and Carnot's Theorem, Thermodynamic Scale of Temperature</p>	<p>Presentation and group discussion</p>	<p>Bahl,A, Bahl,B.S.& Tuli, G.D., Essentials of Physical Chemistry, S.Chand, 2018</p>	<p>MCQ on Hess law</p>
<p>July 24 – 31, 2024 (Day Order 1 - 6)</p>	<p>2.2 Concept of Entropy, S as a Function of T&P, P&V and T&V. Entropy Changes in a Phase change (Trouton's Rule), Entropy Change for Irreversible Processes (Clausius Inequality) Comparison of ΔS for Reversible and Irreversible Processes, Criteria for Spontaneity of Process in Terms of ΔS, Entropy of Mixing and Entropy as a Measure of Disorder, Third Law Statement 2.3Helmholtz and Gibb's Energies, Maximum and Net Work done, Variation in A & G in Terms of P, V and T, Condition for Equilibrium and Spontaneity, Maxwell's Relations, Standard Free Energies, Gibbs-Helmholtz Equation and its Application in Chemistry</p>	<p>Presentation and group discussion</p>	<p>Rajaram, J & Kuriakose, J. C. Chemical Thermodynamics - Classical, Statistical and Irreversible Thermodynamics. Pearson, 2013. Klotz, I.M. Introduction to Chemical Thermodynamics. New York: W.A. Benjamin, 2000. Rastogi, R.P. & R.R. Misra. An Introduction to Chemical Thermodynamics. New Delhi: Vikas, 1990.</p>	<p>Short answer test</p>
<p>Aug 1 – 5, 2024</p>	<p>2.4 Chemical Equilibria: Law of</p>	<p>Presentation and group</p>	<p>Rastogi, R.P. & R.R. Misra. An Introduction to Chemical</p>	<p>Worksheet on equilibrium</p>

(Day Order 1 - 3)	Mass Action, Equilibrium Constant and Free Energy, Significance of K, Application of Law of Mass Action to Homogenous systems, Le Chatelier's Principle, van't Hoff Equation (Reaction Isochore) and van't Hoff's Reaction Isotherm.	discussion	Thermodynamics. New Delhi: Vikas, 1990.	
Aug 6 – 10, 2024	Unit 1 & 2 C.A. Test – I			
Aug 12 – 14, 2024 (Day Order 4-6)	Unit 3 Introduction to Phase Equilibria 3.1 Phase, Component, Degree of freedom, Gibbs Phase rule, Thermodynamic derivation of Phase rule, Phase diagram of One component system – water, sulphur and carbon dioxide, application of Clausius-Clapeyron Equation to phase systems	Presentation and group discussion	Rajaram, J & Kuriakose, J. C. Chemical Thermodynamics - Classical, Statistical and Irreversible Thermodynamics. Pearson, 2013. Peter Atkins & Julio de Paula, Physical Chemistry 10 th Ed., Oxford University Press 2016.	Worksheet on phase equilibria
Aug 16 – 23, 2024 (Day Order 1-6)	3.2 Measures of Concentration- Molality and Mole Fraction, Partial Molal Properties, Concept of Chemical Potential, Gibbs-Duhem Equation 3.3 Raoult's Law (with conditions for deviations) and Henry's Law, Real Solutions, Concept of Activity and Activity Coefficient	Presentation and group discussion	Rajaram, J & Kuriakose, J. C. Chemical Thermodynamics - Classical, Statistical and Irreversible Thermodynamics. Pearson, 2013. Peter Atkins & Julio de Paula, Physical Chemistry 10 th Ed., Oxford University Press 2016. Klotz, I.M. Introduction to Chemical Thermodynamics. New York: W.A. Benjamin, 2000. Rastogi, R.P. & R.R. Misra. An Introduction to Chemical Thermodynamics. New Delhi: Vikas, 1990.	Short answer test
Aug 27 – Sep 3, 2024 (Day Order 1-6)	Unit 4 Separation of Liquid Mixtures using Phase Equilibria	Presentation and group discussion	Puri, B.R., Sharma, L.R. & Pathania, M.S., Principles of Physical Chemistry, Vishal Publishing Co,	Long answer test

	<p>4.1 Phase Diagrams of Binary liquids - Mixtures of Volatile liquids (Fractional distillation, Low and High Boiling Azeotrope), Lever Rule and fractional distillation</p> <p>4.2 Distillation of immiscible liquids Steam Distillation, Solubility of partially miscible liquids- Phase Diagram Nitrobenzene & Hexane and Water & Triethylamine)</p>		<p>Jalandar, Delhi, 2018 Bahl,A, Bahl,B.S.& Tuli, G.D., Essentials of Physical Chemistry, S.Chand, 2018</p>	
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Sep 4 – 11, 2024 (Day Order 1-6)	4.3 Nernst Law, Distribution Conditions, Derivation, Applications Unit 5 Phase Equilibria in Real Systems 5.1 Two-component systems- Cooling curves, Simple eutectic system (Pb-Ag)	Presentation and group discussion	Puri, B.R., Sharma, L.R.& Pathania, M.S., Principles of Physical Chemistry, Vishal Publishing Co, Jalandar, Delhi, 2018	Concepts worksheet
Sep 12 - 20, 2024 (Day Order 1-6)	5.2 Phase diagram of compound with congruent melting point (FeCl ₃ -water system)Phase diagram of compounds with incongruent melting points (sodium sulphate water system) efflorescence, deliquescence	Presentation and group discussion	Puri, B.R., Sharma, L.R.& Pathania, M.S., Principles of Physical Chemistry, Vishal Publishing Co, Jalandar, Delhi, 2018 Bahl,A, Bahl,B.S.& Tuli, G.D., Essentials of Physical Chemistry, S.Chand, 2018	MCQ test III Component
Sep 23 - 26, 2024 (Day Order 1-4)	5.3 Colligative Properties – Depression in Freezing Point, Elevation in Boiling Point	Presentation and group discussion	Puri, B.R., Sharma, L.R.& Pathania, M.S., Principles of Physical Chemistry, Vishal Publishing Co, Jalandar, Delhi, 2018 Bahl,A, Bahl,B.S.& Tuli, G.D., Essentials of Physical Chemistry, S.Chand, 2018	Quiz on colligative properties
Sep 27 – Oct 3, 2024	(Unit 3,4 5.1, 5.2) C.A. Test – II			
Oct 4 – 5, 2024 (Day 5 & 6)	5.3(Contd) Colligative Properties – Osmosis	Presentation and group discussion	Rajaram, J & Kuriakose, J. C. Chemical Thermodynamics - Classical, Statistical and Irreversible Thermodynamics. Pearson, 2013.	worksheet
Oct 7 - 15, 2024 (Day Order 1 to 6)	5.3 (contd) van't Hoff Factor Abnormal Molar Mass, Degree of Dissociation and Association	Presentation and group discussion	Peter Atkins & Julio de Paula, Physical Chemistry 10 th Ed., Oxford University Press 2016.	worksheet
Oct 16 - 22, 2024 (Day Order 1	5.3 (contd) van't Hoff Factor Abnormal Molar Mass, Degree	Presentation and group discussion	Rajaram, J & Kuriakose, J. C. Chemical Thermodynamics -	worksheet

to 6)	of Dissociation and Association		Classical, Statistical and Irreversible Thermodynamics. Pearson, 2013. Peter Atkins & Julio de Paula, Physical Chemistry 10 th Ed., Oxford University Press 2016.	
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION			

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule: June - November 2024

Department : CHEMISTRY
Name/s of the Faculty : Dr. Shiny John Vairamon
Course Title : BIOCHEMISTRY
Course Code : 19CH/MC/BC54
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Week 1 Jun 19 – 26, 2024 (Day Order 1 - 6)	Unit 1 Introductory Biochemistry 1.1 Molecular Logic of Living Organisms 1.2 Relationship of Biochemistry and Medicine	Lecture & Discussion	TEXT BOOKS (TB) TB.1. Jain J.L. Fundamentals of Biochemistry. New Delhi: S. Chand, 2001. BOOKS FOR REFERENCE (RB) RB- Robert Murray, Daryl K. Granner, Victor W. Rodwell. Harper's Illustrated Biochemistry. Singapore: McGraw Hill Education (Asia), 2006.	Objective test
Week 2 Jun 27 – July 4, 2024 (Day Order 1 - 6)	1.3 Blood - Composition of Blood, Blood Coagulation - Mechanism. Hemophilia and Sickle Cell Anaemia 1.4 Maintenance of pH of Blood - Bicarbonate Buffer, Acidosis, Alkalosis	Lecture, Video presentation and group discussion	RB- Robert Murray, Daryl K. Granner, Victor W. Rodwell. Harper's Illustrated Biochemistry. Singapore: McGraw Hill Education (Asia), 2006. RB- Rastogi. Biochemistry. New Delhi: Tata McGraw Hill Publishing Company Limited, 1995.	Descriptive Test
Week 3 July 5 – 12, 2024 (Day Order 1 - 6)	Unit 2 Structure of Biomolecules 2.1 Amino Acids- Classification Based on R Groups and their Metabolism, Zwitter ions, isoelectric point, peptide bond formation, Chemical Reactions - with Mineral	Flipped classroom: Reading material given prior followed by Group Discussion	TB.1. Jain J.L. Fundamentals of Biochemistry. New Delhi: S. Chand, 2001.	Short answer test

	Acid,(HNO ₂) Formaldehyde, FDNB, and CO ₂ , Ninhydrin Test, Action of Heat on α , β and γ - Amino acids			
Week 4 July 15 – 23, 2024 (Day Order 1 - 6)	2.2 Proteins - Primary, Secondary, Tertiary and Quaternary Structures. Sequencing of Proteins -N Terminal and C Terminal Determination. Ramachandran Plot 2.3 Lipids– Classification of Lipids as Saponifiable and Non-Saponifiable, Definitions and Significance of Iodine Value, Acid Value, Saponification Value, RM Value and Acetyl Value	Power Point presentation and discussion	TB.1. Jain J.L. Fundamentals of Biochemistry. New Delhi: S. Chand, 2001. TB. 2. Doraiswamy Yesodha, Swaminathan Geetha and V. Radhakrishnan. Allied Biochemistry. Chennai: Margham, 2002. TB.3. Dushyant Kumar Sharma. Biochemistry. New Delhi: Narosa Publishing House, 2010.	Quiz
Week 5 July 24 – 31, 2024 (Day Order 1 - 6)	2.4 Nucleic Acids – Structure and Functions. Nucleosides, Nucleotides, Structure of DNA, RNA - Types and Differences. DNA Replication and Protein Synthesis	Lecture, Video presentation and discussion	TB.1. Jain J.L. Fundamentals of Biochemistry. New Delhi: S. Chand, 2001. TB.3. Dushyant Kumar Sharma. Biochemistry. New Delhi: Narosa Publishing House, 2010 RB- Donald J. Voet, Judith G. Voet, Charlotte W. Pratt. International Student Version, Principles of Biochemistry. New Jersey: John Wiley & Sons, 2008.	Third component Case study on unit 2.5, 3.2- inborn errors & 5.1 followed by Quiz (20 marks)
Week 6 Aug 1 – 5, 2024 (Day Order 1 - 3)	2.5 Genetic Engineering: Definition, overview of tools (type II restriction enzymes) and techniques (creating genetically modified organism	Lecture & Discussion	RB- Gupta PK. Elements of Biotechnology- A Textbook for University Students, Rastogi Publications TB.3. Dushyant Kumar Sharma. Biochemistry. New Delhi: Narosa Publishing House, 2010	Quiz

	through microinjection and agrobacterium mediated recombination), Applications			
Aug 6 – 10, 2024	Continuous Assessment Test I: Total Marks: 50 Duration: 90 minutes Portions: Unit 1& 2 Section A – 15 x 1 = 15 Marks (All questions to be answered) Multiple choice - 5, Fill in the Blanks - 5, T/F or Match the following or single line answer - 5 Section B – 3 x 5 = 15 Marks (3 out of 5 to be answered) Section C – 2 x 10 = 20 Marks (2 out of 3 to be answered)			
Week 6 (continued) Aug 12 – 14, 2024 (Day Order 4-6)	Unit 3 Metabolism 3.1 Carbohydrate Metabolism - Glycolysis, TCA Cycle	Lecture & Discussion	RB- Gupta PK. Elements of Biotechnology- A Textbook for University Students, Rastogi Publications	Quiz
Week 7 Aug 16 – 23, 2024 (Day Order 1-6)	Glycogenesis, Glycogenolysis, Gluconeogenesis, Oxidative Phosphorylation, Electron Transport Chain 3.2 Proteins - Transamination, Oxidative Deamination and Urea Cycle	Lecture and discussion (Power point presentation)	TB.3. Dushyant Kumar Sharma. <i>Biochemistry</i> . New Delhi: Narosa Publishing House, 2010. RB- Berry, A.K. <i>Textbook of Biochemistry</i> . Emkay, 2001. http://www.rsc.org/Education/Teachers/Resources/cfb/carbohydrates.htm	Quiz
Week 8 Aug 27 – Sep 3, 2024 (Day Order 1-6)	. Inborn Errors of Amino Acid Catabolism – Albinism, Alkaptonuria and Phenyl Ketonuria 3.3 Amino Acids: Synthesis - Gabriel's Synthesis, Strecker's Synthesis. Preparation of Tryptophan from Indole	Power point presentation and Group discussion	TB.1. Jain J.L. Fundamentals of Biochemistry. New Delhi: S. Chand, 2001. TB.3. Dushyant Kumar Sharma. <i>Biochemistry</i> . New Delhi: Narosa Publishing House, 2010. RB- Berry, A.K. <i>Textbook of Biochemistry</i> . Emkay, 2001. https://www.youtube.com/watch?v=Gt-hNq9ZHSk RB- Morrison, Robert Thorton; Boyd, Robert Neilson Neilson, Bhattacharjee S.K. <i>Organic Chemistry</i> . New Delhi: Pearson, 2012.	Third component Computer Based Testing (Multiple choice) Unit 1, 2 & 3 (20 marks)

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Week 9 Sep 4 – 11, 2024 (Day Order 1-6)	3.4 Lipids - Oxidation of Fatty Acids, Biosynthesis of Fatty Acids, Ketone Bodies Unit 4 Enzymes 4.1 Definition of Enzymes and Coenzymes (TPP, NAD, NADP, FAD, ATP) Cofactors-Prosthetic Group of Enzymes	Power point presentation and discussion	TB.1. Jain J.L. Fundamentals of Biochemistry. New Delhi: S. Chand, 2001. TB.3.Dushyant Kumar Sharma. Biochemistry. New Delhi: Narosa Publishing House, 2010.	Short answer test
Week 10 Sep 12 - 20, 2024 (Day Order 1-6)	4.2 Classification of Enzymes (with Examples) 4.3 Enzyme Specificity - Factors affecting Enzyme Action	Power point presentation and discussion	TB.1. Jain J.L. Fundamentals of Biochemistry. New Delhi: S. Chand, 2001. TB.3. Dushyant Kumar Sharma. Biochemistry. New Delhi: Narosa Publishing House, 2010	Quiz
Week 11 Sep 23 - 26, 2024 (Day Order 1-4)	4.4 General Mechanism of Enzyme Catalysis - Michaelis - Menten Theory – Fischer's Lock and Key Model, Koshland's Induced Fit Model 4.5 Mechanism of Inhibition (Competitive, Non-Competitive, Allosteric) 4.6 Structure and Function of Carboxypeptidase A	Power point presentation and discussion	TB.3. Dushyant Kumar Sharma. <i>Biochemistry</i> . New Delhi: Narosa Publishing House, 2010. RB- Satyanarayana, U, U. Chakrapani. <i>Biochemistry</i> . Delhi: New Central Book Agency, 2006.	Third component Prepare a Scrap book containing the sources and functions of fat and water soluble vitamins (10 Marks)
Sep 27 – Oct 3, 2024	Continuous Assessment Test II: Total Marks: 50 Duration: 90 minutes			
	Portions: Unit 3 &4			
	Section A – 15 x 1 = 15 Marks (All questions to be answered) Multiple choice - 5, Fill in the Blanks - 5, T/F or Match the following or single line answer - 5			
	Section B – 3 x 5 = 15 Marks (3 out of 5 to be answered)			
	Section C – 2 x 10 = 20 Marks (2 out of 3 to be answered)			
Week 11 (continued) Oct 4 – 5, 2024 (Day 5 & 6)	Unit 5 Vitamins and Hormones 5.1 Vitamins: Definition, Classification (as	Group assignment and Discussion	RB- Satyanarayana, U, U. Chakrapani. Biochemistry. Delhi: New Central Book Agency, 2006	Quiz

	water and fat soluble), sources, structure and functions of Vitamins A and C			
Week 12 Oct 7 - 15, 2024 (Day Order 1 to 6)	5.2 Definition, Classification of Hormones (Steroid and Non-Steroid Only) Source and Functions of Insulin,	Lecture and Discussion (Power point presentation)	TB.1. Jain J.L. Fundamentals of Biochemistry. New Delhi: S. Chand, 2001. RB- Rastogi. Biochemistry. New Delhi: Tata McGraw Hill Publishing Company Limited, 1995. RB- Lehninger A.L. Principles of Biochemistry. New Delhi: CBS Publishers, 2006.	Descriptive Test
Week 13 Oct 16 - 22, 2024 (Day Order 1 to 6)	Source and Functions of Thyroxin and Sex Hormones, Mechanism of Hormone Action	Power point presentation and Discussion	TB.1. Jain J.L. Fundamentals of Biochemistry. New Delhi: S. Chand, 2001	Short answer test
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION			

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule: June - November 2024

Department : CHEMISTRY
Name/s of the Faculty : Dr. Revathy Rajagopal & Dr. Shakila
Course Title : Bioanalytical Techniques
Course Code : 19IC/ID/BA55
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Jun 19 – 26, 2024 (Day Order 1 - 6)	UNIT:1 Microscopy: Principle, Construction and Application: 1.1 Light microscopes – Compound, Phase Contrast, Unit 5 Spectroscopic Techniques and Spectrochemical Methods 5.1 Introduction to Spectroscopy, Beer-Lambert's law-statement and deviation;	PPT and video presentations	Plant Microtechnique and Microscopy by Steven, E Ruzin Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Short answer test
Jun 27 – July 4, 2024 (Day Order 1 - 6)	1.1 Differential Interference Contrast and Confocal Microscopes. 1.2 Preparation of Specimen for Light Microscopy 5.1 UV- Visible-instrumentation and applications- estimation of Mn ²⁺	lecture, PPT and video presentations	Principles And Techniques of Biochemistry and Molecular Biology by Wilson And Walker Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	MCQ test on basics of spectroscopy
July 5 – 12, 2024 (Day Order 1 - 6)	1.2 Paraffin Techniques – Fixatives: FAA, Carnoy's, Dehydration	lecture, PPT and video presentations	Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014.	Assignment III Component Numerical test (10

	<p>and Infiltration, Embedding and Sectioning (Paraffin Blocks), Staining and Mounting</p> <p>5.2 Nephelometry and Turbidimetry Principle, Instrumentation and Applications- determination of TDS of water sample</p>		<p>Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.</p>	Marks)
<p>July 15 – 23, 2024 (Day Order 1 - 6)</p>	<p>1.3 Electron Microscopes – TEM, specimen preparation for TEM.</p> <p>5.3 Principle, Instrumentation and Applications of Atomic absorption Spectroscopy (estimation of Ca</p>		<p>Principles And Techniques of Biochemistry and Molecular Biology by Wilson And Walker</p> <p>Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014.</p> <p>Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.</p>	<p>Concept understanding discussion</p>
<p>July 24 – 31, 2024 (Day Order 1 - 6)</p>	<p>Unit 2</p> <p>Centrifugation: Principle, Instrumentation and Application</p> <p>2.1 Bench, Ultracentrifuge,</p> <p>5.3 Principle, Instrumentation and Applications Flame photometry (estimation of K/Na)</p>	<p>lecture, PPT and video presentations</p>	<p>Analytical Chemistry by Usharani, S.</p> <p>Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014.</p> <p>Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.</p>	<p>MCQ test on unit 5 III Component (15 Marks)</p>
<p>Aug 1 – 5, 2024 (Day Order 1 - 3)</p>	<p>2.1 Refrigerated, Continuous flow centrifuge and Microfuge.</p> <p>5.3 Principle, Instrumentation and</p>	<p>lecture, PPT and video presentations</p>	<p>Fundamentals of Analytical Chemistry by Skoog, D.A, West, D.M.</p>	<p>Long answer test</p>

	Applications of Fluorimetry (estimation of Fluorescein)			
Aug 6 – 10, 2024	Unit 1, 2.1 & 5 C.A. Test – I			
Aug 12 – 14, 2024 (Day Order 4-6)	2.2 Density gradient and differential centrifugation Unit 4 Purification techniques 4.1 Desiccants: Types, efficiency, regeneration and choice of desiccants	lecture, PPT and video presentations	Analytical Chemistry by Usharani, S Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Short answer test
Aug 16 – 23, 2024 (Day Order 1-6)	2.3 Isolation of Chloroplast (Practical) 4.2 Technique of drying of solids, Distillation: Types, Theory and techniques of fractional, Steam and Vacuum distillation	lecture, PPT and video presentations	Principles And Techniques of Biochemistry and Molecular Biology by Wilson And Walker Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Group Discussion
Aug 27 – Sep 3, 2024 (Day Order 1-6)	Unit 3 - Separation Techniques: 3.2 Capillary Electrophoresis (Capillary Zone and Capillary Gel) 4.3 Recrystallisation, Sublimation - Types, techniques and applications	lecture, PPT and video presentations	Handbook of Capillary Electrophoresis by Landers, James P. Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Group Discussion
Sep 4 – 11,	3.2 Gel	lecture, PPT	Separation of DNA by	

2024 (Day Order 1-6)	Electrophoresis – Agarose and Polyacrylamide, Orthogonal-Field-Alternation, Gel Electrophoresis (OFAGE) 4.3 Recrystallisation, Sublimation - Types, techniques and applications	and video presentations	Capillary Electrophoresis by Herb Schwartz and Andras Guttman.	Long answer test
Sep 12 - 20, 2024 (Day Order 1-6)	3.2 Field Inversion Gel Electrophoresis (FIGE) Unit 3 Separation Techniques 3.1 Separation by solvent extraction: Principle, Extraction by chemically active solvents, Soxhlet extraction, Factors Influencing the Extraction Efficiency.	lecture, PPT and video presentations	Handbook of Capillary and Microchip Electrophoresis by James P. Landers, Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Conceptual questions test
Sep 23 - 26, 2024 (Day Order 1-4)	3.2 Immuno-electrophoresis 3.4 Separation by Precipitation, methods of Filtering, Drying-Ignition & Incineration of Precipitate,	lecture, PPT and video presentations	Handbook of Capillary and Microchip Electrophoresis by James P. Landers, Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Long answer test
Sep 27 – Oct 3, 2024	Unit 3.1, 3.2, 4 C.A. Test – II			
Oct 4 – 5, 2024 (Day 5 & 6)	3.3 Separation of Proteins/ DNA using Gel Electrophoresis (Practical)	Online lecture, PPT and video presentations	Principles And Techniques of Biochemistry and Molecular Biology by Wilson And Walker Skoog, D.A, West, D.M.	

	3.4 Nucleation, Crystal Growth, Solubility Product,		Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Group Discussion
Oct 7 - 15, 2024 (Day Order 1 to 6)	3.3 Separation of Proteins/ DNA using Gel Electrophoresis (Practical) 3.4 Solubility Product, Principle, Factors affecting Solubility, Purity of Precipitates, Co-precipitation and Post Precipitation	Online lecture, PPT and video presentations	Principles And Techniques of Biochemistry and Molecular Biology by Wilson And Walker Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Numerical on solubility product
Oct 16 - 22, 2024 (Day Order 1 to 6)	3.3 CONTD..Separation of Proteins/ DNA using Gel Electrophoresis (Practical) 3.4 CONTD..Solubility Product, Principle, Factors affecting Solubility, Purity of Precipitates, Co-precipitation and Post Precipitation	Online lecture, PPT and video presentations	Principles And Techniques of Biochemistry and Molecular Biology by Wilson And Walker Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Numerical on solubility product
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION			

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule: June - November 2024

Department : BOTANY/CHEMISTRY
Name/s of the Faculty : Dr. Janet Sabina X/Dr. Diana Vinodhini S*
Course Title : Bioanalytical Techniques
Course Code : 19ID/IC/BA55
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Jun 19 – 26, 2024 (Day Order 1 - 6) 3* 3	*UNIT:1 Microscopy: Principle, Construction 1.1 Light microscopes – Compound, Phase Contrast Unit 5 Spectroscopic Techniques and Spectrochemical Methods 5.1 Introduction to Spectroscopy, Beer Lambert's law-statement and deviation;	Lecture, PPT and video presentations Students given hands on experience with the microscopes	Steven, E Ruzin, Plant Microtechnique and Microscopy, USA: Oxford University, 1999. Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Group Discussion
Jun 27 – July 4, 2024 (Day Order 1 - 6) 3* 3	* 1.1 Differential Interference Contrast and Confocal Microscopes. 1.2 Preparation of Specimen for Light Microscopy 5.1 UV- Visible-instrumentation and applications- estimation of Mn ²⁺	Lecture, PPT and video presentations Students given hands on training for specimen preparation with light microscopy	Wilson, K, Walker,J, Principles And Techniques of Biochemistry and Molecular Biology. 6 th edition Cambridge University Press, 2007 Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	MCQ test on Microscopy (10 Marks)

July 5 – 12, 2024 (Day Order 1 - 6) 3*	*1.2 Paraffin Techniques – Fixatives: FAA, Carnoy's, Dehydration and Infiltration, Embedding and Sectioning (Paraffin Blocks), Staining and Mounting 1.3 Electron Microscopes – TEM, specimen preparation for TEM. 5.2 Nephelometry and Turbidimetry Principle, Instrumentation and Applications- determination of TDS of water sample	Lecture through chalk and blackboard and video presentations Students given hands on training for specimen preparation using paraffin blocks with light microscopy	Srivastava, T.N & P.C.Kamboj. Systematic Analytical Chemistry. New Delhi: Shobanlal Nagin Chand, 1999 Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Assignment on general topics (10 Marks)
July 15 – 23, 2024 (Day Order 1 - 6) 3*	UNIT 2 Centrifugation: Principle, Instrumentation and Application 2.1 Bench, Ultracentrifuge 5.3 Principle, Instrumentation and Applications of Flame photometry (estimation of K/Na)	Lecture through chalk and black board and practical exposure	Wilson, K, Walker,J, Principles And Techniques of Biochemistry and Molecular Biology. 6 th edition Cambridge University Press, 2007	MCQ test on unit 5 Other Component (15 Marks)
July 24 – 31, 2024 (Day Order 1 - 6) 3*	*2.1 Refrigerated, Continuous flow centrifuge and Microfuge. 5.3 Principle, Instrumentation and Applications of Fluorimetry (estimation of Fluorescein)	Lecture through chalk and blackboard and practical exposure	Skoog, D.A, West,D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014.	Quiz
Aug 1 – 5, 2024 (Day Order 1 - 3)	Revision			
Aug 6 – 10, 2024	C.A. Test – I			
Aug 12 – 14,	2.2 Density gradient	Lecture	Skoog, D.A, West, D.M.	Group Discussion

2024 (Day Order 4-6)	centrifugation	through chalk and blackboard and practical exposure	Fundamentals of Analytical Chemistry. Thomson Asia, 2014.	
Aug 16 – 23, 2024 (Day Order 1-6) 3* 3	*2.2 Differential centrifugation Unit 4 Purification techniques 4.1 Desiccants: Types, efficiency, regeneration and choice of desiccants	Lecture through chalk and blackboard and practical exposure	Gopalan, R, Subramanian, P.Sand Rengarajan, K. Elements of Analytical Chemistry. New Delhi: Sultan Chand, 2004. Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia,2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. PrenticeHall, Science, 2000.	Quiz
Aug 27 – Sep 3, 2024 (Day Order 1-6) 3* 3	*2.3 Isolation of Chloroplast (Practical) 4.2 Technique of drying of solids, Distillation: Types, Theory and techniques of fractional, Steam and Vacuum distillation	Lecture through PPT and video presentations Practical exposure	Wilson, K, Walker,J, Principles And Techniques of Biochemistry and Molecular Biology. 6 th edition Cambridge University Press, 2007 Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Worksheet
Sep 4 – 11, 2024 (Day Order 1-6) 3* 3	* Unit 3 - Separation Techniques: 3.2 Capillary Electrophoresis (Capillary Zone and Capillary Gel) 4.3 Recrystallisation, Sublimation - Types, techniques and applications	Lecture through, PPT and video presentations	James P. Landers, Handbook of Capillary and Microchip Electrophoresis and Associated Microtechniques, USA: CRC, 2008. Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia,2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. PrenticeHall, Science, 2000.	MCQ test on Unit 3 Other Component(15 Marks)
Sep 12 - 20, 2024	*3.2 Gel Electrophoresis –	Lecture through chalk	Separation of DNA by Capillary Electrophoresis by	Group Discussion

(Day Order 1-6) 3*	Agarose and Polyacrylamide, Orthogonal-Field-Alternation, Gel Electrophoresis (OFAGE)	and blackboard and practical exposure	Herb Schwartz and Andras Guttman.	
3	4.4 Criteria and test for purity- melting point, boiling point and density			
Sep 23 - 26, 2024 (Day Order 1-4) 2*	*3.2 Field Inversion Gel Electrophoresis (FIGE) Unit 3 Separation Techniques 3.1 Separation by solvent extraction: Principle, Extraction by chemically active solvents, Soxhlet extraction, Factors Influencing the Extraction Efficiency.	Lecture through, PPT and video presentations	James P. Landers, Handbook of Capillary and Microchip Electrophoresis and Associated Microtechniques, USA: CRC, 2008. Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000. Prentice Hall, Science, 2000.	Conceptual questions test
3				
Sep 27 – Oct 3, 2024	C.A. Test – II			
Oct 4 – 5, 2024 (Day 5 & 6) *2	*3.2 Immuno-electrophoresis 3.4 Separation by Precipitation, methods of Filtering, Drying-Ignition & Incineration of Precipitate,	Lecture through, PPT and video presentations	Landers, James P. Handbook of Capillary Electrophoresis. USA: CRC, 1996. Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014. Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	Conceptual questions test
Oct 7 - 15, 2024 (Day Order 1 to 6) 3*	*3.3 Separation of Proteins/ DNA using Gel Electrophoresis (Practical)	Lecture through PPT and video Presentations Practical exposure	Wilson, K, Walker, J, Principles And Techniques of Biochemistry and Molecular Biology. 6th Edition Cambridge University Press, 2007 Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry. Thomson Asia, 2014.	Group Discussion
3	3.4 Nucleation, Crystal Growth, Solubility			

	Product		Vogel, A.I. Vogel's Textbook of Quantitative Chemical Analysis. Prentice Hall, Science, 2000.	
Oct 16 - 22, 2024 (Day Order 1 to 6) 3*	*3.3 Separation of Proteins/ DNA using Gel Electrophoresis (Practical) 3.4 Solubility Product, Principle, Factors affecting solubility, Purity of Precipitates, Co-precipitation and Post Precipitation	Lecture through PPT and practical demonstratio n	Wilson, K, Walker,J, Principles And Techniques of Biochemistry and Molecular Biology. 6 th edition Cambridge University Press, 2007 Skoog, D.A, West, D.M. Fundamentals of Analytical Chemistry.	Numerical on solubility product
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION			

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule: June - November 2024

Department : Chemistry
Name/s of the Faculty : Dr. Mary George* and Dr. Mary N L
Course Title : Biochemistry Practical
Course Code : 19CH/MC/P551
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Jun 19 – 26, 2024 2 hrs	1.1 Estimation of Glycine by Sorensen's formalin method	Discussion of Theory behind practical followed by Demonstration of experiment		Scheme: Equations and short Procedure (10 minutes) 10 marks upto 2% error 40 marks 2.1 – 3.0% 35 marks 3.1 – 4.0 % 25 marks 4.1 -5% 15 marks Above 5% 10 Marks
Jun 27 – July 4, 2024 2 hrs	1.2 Estimation of Glucose by Benedicts method	Discussion of Theory behind practical followed by Demonstration of experiment	Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Practical Organic Chemistry, 5th Ed., Pearson Education (2012) Vogel, A.I. Quantitative Organic Analysis, Part 3, Pearson Education (2012). Swaminathan G. and George M. Laboratory Chemical Methods in Food Analysis. Chennai Margham, 2010.	Scheme: Equations and short Procedure (10 minutes) 10 marks upto 2% error 40 marks 2.1 – 3.0% 35 marks 3.1 – 4.0 % 25 marks 4.1 -5% 15 marks Above 5% 10 Marks
July 5 – 12, 2024 2 hrs	1.3 Estimation of Ascorbic acid by Dye method	Discussion of Theory behind practical followed by Demonstration of experiment		Scheme: Equations and short Procedure (10 minutes) 10 marks upto 2% error 40 marks 2.1 – 3.0% 35 marks 3.1 – 4.0 % 25 marks 4.1 -5%

				15 marks Above 5% 10 Marks
July 15 – 23, 2024 2 hrs	1.4 Estimation of Protein by Biuret method	Discussion of Theory behind practical followed by Demonstration of experiment		Scheme: Equations and short Procedure (10 minutes) 10 marks upto 2% error 40 marks 2.1 – 3.0% 35 marks 3.1 – 4.0 % 25 marks 4.1 -5% 15 marks Above 5% 10 Marks
July 24 – 31, 2024 2 hrs	Practical CA -I			Scheme: Equations and short Procedure (10 minutes) 10 marks upto 2% error 40 marks 2.1 – 3.0% 35 marks 3.1 – 4.0 % 25 marks 4.1 -5% 15 marks Above 5% 10 Marks
Aug 1 – 5, 2024 No practical class				
Aug 6 – 10, 2024	C.A. Test – I			

Aug 12 – 14, 2024 2 hrs	1.5 Estimation of Catalase activity	Discussion of Theory behind practical followed by Demonstration of experiment	Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Practical Organic Chemistry, 5th Ed., Pearson Education (2012) Vogel, A.I. Quantitative Organic Analysis, Part 3, Pearson Education (2012). Swaminathan G. and George M. Laboratory Chemical Methods in Food Analysis. Chennai Margham, 2010.	Scheme: Equations and short Procedure (10 minutes) 10 marks upto 2% error 40 marks 2.1 – 3.0% 35 marks 3.1 – 4.0 % 25 marks 4.1 -5% 15 marks Above 5% 10 Marks
Aug 16 – 23, 2024 2 hrs	1.6 Vitamin A by colorimetry			
Aug 27 – Sep 3, 2024 2 hrs	1.7 Estimation of DNA (Spectrophotometry)			
Sep 4 – 11, 2024 2 hrs	1.7 Estimation of RNA (Spectrophotometry)			
Sep 12 - 20, 2024 2 hrs	Practical CA -II			Scheme: Equations and short Procedure (10 minutes) 10 marks upto 2% error 40 marks 2.1 – 3.0% 35 marks 3.1 – 4.0 % 25 marks 4.1 -5% 15 marks Above 5% 10 Marks
Sep 23 - 26, 2024 No Practical class				
Sep 27 – Oct 3, 2024	C.A. Test – II			
Oct 4 – 5, 2024 2 hrs	2.1 Separation of amino acids by paper chromatography	Discussion of Theory behind practical followed by Demonstration of experiment	Furniss, B.S.; Hannaford, A.J.; Smith, P.W.G.; Tatchell, A.R. Practical Organic Chemistry, 5th Ed., Pearson Education (2012) Vogel, A.I. Quantitative Organic Analysis, Part 3, Pearson Education (2012). Swaminathan G. and George M. Laboratory Chemical Methods in Food Analysis.	Equations and short Procedure (10 minutes) 10 marks Above 5% 40 Marks
Oct 7 - 15, 2024 2 hrs	2.2 Separation of o- and p-nitrophenol by thin layer chromatography (TLC) chromatography			
Oct 16 - 22, 2024	2.2 Separation of o- and p-nitrophenol by column			

2 hrs	chromatography		Chennai: Margham, 2010.	
Oct 23 - 24, 2024	REVISION			

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule: June - November 2024

Department : CHEMISTRY
Name/s of the Faculty : DR. MARY TERESITA V* & DR. AVILA JOSEPHINE B
Course Title : PHYSICAL CHEMISTRY PRACTICAL-I
Course Code : 19CH/MC/P652
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Jun 19 – 26, 2024 (Day Order 1 - 6) 3 Hrs	Unit 1 to 5: Theory behind practical. *Preparation and standardization of stock solutions by students on the same day	Lecture & Hands on experience	Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005. Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.	Quiz & Group Discussion
Jun 27 – July 4, 2024 (Day Order 1 - 6) 3 Hrs	Unit 2, 3& 5 Batch-1 1.Determination of Molecular Weight by Rast Method- Group 1 2.Construction of the Phase Diagram of Phenol - Water system and determination of-CST, CSC and composition of the given unknown mixture- Group 2 3.Determination of Rate Constant of Acid Catalyzed hydrolysis of ester- Group 3 4.Verification of Hendersons' Equation- Group 4 Batch-2 1.Verification of Ostwald's dilution law Group 1 2.Determination of Fe ²⁺ in the given sample potentiometrically using potassium dichromate – Group 2 3.Determination of strength of the given strong acid using	Hands on experiment – Individually	Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005. Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.	Principle & Procedure = 10 marks Tabulation, calculation & graph = 15 marks Experimental Result = 25 marks

	quinhydrone potentiometrically – Group 3 4.Determination of strength of the given weak acid using quinhydrone potentiometrically – Group 4			
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<p>July 5 – 12, 2024 (Day Order 1 - 6) 3 Hrs</p>	<p>Unit 2, 3& 5 Batch-1 1.Determination of Molecular Weight by Rast Method- Group 4 2.Construction of the Phase Diagram of Phenol - Water system and determination of-CST, CSC and composition of the given unknown mixture- Group 1 3.Determination of Rate Constant of Acid Catalyzed hydrolysis of ester- Group 2 4.Verification of Hendersons' Equation- Group 3</p> <p>Batch-2 1.Verification of Ostwald's dilution law Group 4 2.Determination of Fe²⁺ in the given sample potentiometrically using potassium dichromate – Group 1 3.Determination of strength of the given strong acid using quinhydrone potentiometrically – Group 2 4.Determination of strength of the given weak acid using quinhydrone potentiometrically – Group 3</p>	<p>Hands on experiment – Individually</p>	<p>Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005. Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.</p>	<p>Principle & Procedure = 10 marks Tabulation, calculation & graph = 15 marks Experimental Result = 25 marks</p>
<p>July 15 – 23, 2024 (Day Order 1 - 6) 3 Hrs</p>	<p>Unit 2, 3& 5 Batch-1 1.Determination of Molecular Weight by Rast Method- Group 3 2.Construction of the Phase Diagram of Phenol - Water system and determination of-CST, CSC and composition of the given unknown mixture- Group 4 3.Determination of Rate Constant of Acid</p>	<p>Hands on experiment – Individually</p>	<p>Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005. Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.</p>	<p>Principle & Procedure = 10 marks Tabulation, calculation & graph = 15 marks Experimental Result = 25 marks</p>

	<p>Catalyzed hydrolysis of ester- Group 1</p> <p>4.Verification of Hendersons' Equation- Group 2</p> <p>Batch-2</p> <p>1.Verification of Ostwald's dilution law Group 3</p> <p>2.Determination of Fe²⁺ in the given sample potentiometrically using potassium dichromate – Group 4</p> <p>3.Determination of strength of the given strong acid using quinhydrone potentiometrically – Group 1</p> <p>4.Determination of strength of the given weak acid using quinhydrone potentiometrically – Group 2</p>			
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<p>July 24 – 31, 2024 (Day Order 1 - 6) 3 Hrs</p>	<p>Unit 2, 3& 5</p> <p>Batch-1 1.Determination of Molecular Weight by Rast Method- Group 2 2.Construction of the Phase Diagram of Phenol - Water system and determination of-CST, CSC and composition of the given unknown mixture- Group 3 3.Determination of Rate Constant of Acid Catalyzed hydrolysis of ester- Group 4 4.Verification of Hendersons' Equation- Group 1</p> <p>Batch-2 1.Verification of Ostwald's dilution law Group 2 2.Determination of Fe²⁺ in the given sample potentiometrically using potassium dichromate – Group 3 3.Determination of strength of the given strong acid using quinhydrone potentiometrically – Group 4 4.Determination of strength of the given weak acid using quinhydrone potentiometrically – Group 1</p>	<p>Hands on experiment – Individually</p>	<p>Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005. Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.</p>	<p>Principle & Procedure = 10 marks Tabulation, calculation & graph = 15 marks Experimental Result = 25 marks</p>
<p>Aug 1 – 5, 2024 (Day Order 1 - 3)</p>	<p>No Class</p>			
<p>Aug 6 – 10, 2024</p>	<p>C.A. Test – I</p>			

<p>Aug 12 – 14, 2024 (Day Order 4-6) 3 Hrs</p>	<p>Unit 2, 3& 5 Batch-2 1.Determination of Molecular Weight by Rast Method- Group 1 2.Construction of the Phase Diagram of Phenol - Water system and determination of-CST, CSC and composition of the given unknown mixture- Group 2 3.Determination of Rate Constant of Acid Catalyzed hydrolysis of ester- Group 3 4.Verification of Hendersons' Equation- Group 4</p> <p>Batch-1 1.Verification of Ostwald's dilution law Group 1 2.Determination of Fe²⁺ in the given sample potentiometrically using potassium dichromate – Group 2 3.Determination of strength of the given strong acid using quinhydrone potentiometrically – Group 3 4.Determination of strength of the given weak acid using quinhydrone potentiometrically – Group 4</p>	<p>Hands on experiment – Individually</p>	<p>Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005. Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.</p>	<p>Principle & Procedure = 10 marks Tabulation, calculation & graph = 15 marks Experimental Result = 25 marks</p>
<p>Aug 16 – 23, 2024 (Day Order 1-6) 3 Hrs</p>	<p>Unit 2, 3& 5 Batch-2 1.Determination of Molecular Weight by Rast Method- Group 4 2.Construction of the Phase Diagram of Phenol - Water system and determination of-CST, CSC and composition of the given unknown mixture- Group 1</p>	<p>Hands on experiment – Individually</p>	<p>Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005. Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.</p>	<p>Principle & Procedure = 10 marks Tabulation, calculation & graph = 15 marks Experimental Result = 25 marks</p>

	<p>3.Determination of Rate Constant of Acid Catalyzed hydrolysis of ester- Group 2</p> <p>4.Verification of Hendersons' Equation- Group 3</p> <p>Batch-1</p> <p>1.Verification of Ostwald's dilution law Group 4</p> <p>2.Determination of Fe²⁺ in the given sample potentiometrically using potassium dichromate – Group 1</p> <p>3.Determination of strength of the given strong acid using quinhydrone potentiometrically – Group 2</p> <p>4.Determination of strength of the given weak acid using quinhydrone potentiometrically – Group 3</p>			
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<p>Aug 27 – Sep 3, 2024 (Day Order 1-6) 3 Hrs</p>	<p>Unit 2, 3& 5 Batch-2 1.Determination of Molecular Weight by Rast Method- Group 3 2.Construction of the Phase Diagram of Phenol - Water system and determination of-CST, CSC and composition of the given unknown mixture- Group 4 3.Determination of Rate Constant of Acid Catalyzed hydrolysis of ester- Group 1 4.Verification of Hendersons' Equation- Group 2</p> <p>Batch-1 1.Verification of Ostwald's dilution law Group 3 2.Determination of Fe²⁺ in the given sample potentiometrically using potassium dichromate – Group 4 3.Determination of strength of the given strong acid using quinhydrone potentiometrically – Group 1 4.Determination of strength of the given weak acid using quinhydrone potentiometrically – Group 2</p>	<p>Hands on experiment – Individually</p>	<p>Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005. Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.</p>	<p>Principle & Procedure = 10 marks Tabulation, calculation & graph = 15 marks Experimental Result = 25 marks</p>
<p>Sep 4 – 11, 2024 (Day Order 1-6) 3 Hrs</p>	<p>Unit 2, 3& 5 Batch-2 1.Determination of Molecular Weight by Rast Method- Group 2 2.Construction of the Phase Diagram of Phenol - Water system and determination of-CST, CSC and composition of the given unknown mixture- Group 3</p>	<p>Hands on experiment – Individually</p>	<p>Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005. Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.</p>	<p>Principle & Procedure = 10 marks Tabulation, calculation & graph = 15 marks Experimental Result = 25 marks</p>

	<p>3.Determination of Rate Constant of Acid Catalyzed hydrolysis of ester- Group 4</p> <p>4.Verification of Hendersons' Equation- Group 1</p> <p>Batch-1</p> <p>1.Verification of Ostwald's dilution law Group 2</p> <p>2.Determination of Fe²⁺ in the given sample potentiometrically using potassium dichromate – Group 3</p> <p>3.Determination of strength of the given strong acid using quinhydrone potentiometrically – Group 4</p> <p>4.Determination of strength of the given weak acid using quinhydrone potentiometrically – Group 1</p>			
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Sep 12 - 20, 2024 (Day Order 1- 6) 3 Hrs	Unit 1 & 4 Batch-1 1.Determination of enthalpy of neutralization of strong acid by strong base - Group 1 to 4 Batch-2 1. Verification of the Freundlich isotherm for the adsorption of acetic acid on activated charcoal - Group 1 to 4	Hands on experiment – Individually	Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005. Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.	Principle & Procedure = 10 marks Tabulation, calculation & graph = 15 marks Experimental Result = 25 marks
Sep 23 - 26, 2024 (Day Order 1- 4)	No Class			
Sep 27 – Oct 3, 2024	C.A. Test – II			
Oct 4 – 5, 2024 (Day 5 & 6) 3 Hrs	Unit 1 & 4 Batch-2 1.Determination of enthalpy of neutralization of strong acid by strong base - Group 1 to 4 Batch-1 1. Verification of the Freundlich isotherm for the adsorption of acetic acid on activated charcoal - Group 1 to 4	Hands on experiment – Individually	Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005. Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.	Principle & Procedure = 10 marks Tabulation, calculation & graph = 15 marks Experimental Result = 25 marks
Oct 7 - 15, 2024 (Day Order 1 to 6) 3 Hrs	Unit 2, 3& 5 Repeat Experiments: Group 1 to 4	Hands on experiment – Individually	Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005. Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.	Principle & Procedure = 10 marks Tabulation, calculation & graph = 15 marks Experimental Result = 25 marks
Oct 16 - 22, 2024 (Day Order 1 to 6)	Unit 2, 3& 5 Repeat Experiments:		Viswanathan, B. and Raghavan, P.S., Practical Physical Chemistry, New Delhi, Viva Books 2005.	Principle & Procedure = 10 marks Tabulation,

3 Hrs	Group 1 to 4		Venkateswaran, V. R. Veeraswamy, and A. R. Kulandaivelu. Basic Principles of Practical Chemistry. New Delhi: Sultan Chand, 1993.	calculation & graph = 15 marks Experimental Result = 25 marks
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION			

STELLA MARIS COLLEGE (AUTONOMOUS), CHENNAI

Course Schedule: June - November 2024

Department : CHEMISTRY
Name/s of the Faculty : DR. SHINY JOHN VAIRAMON*/DR. JANET SABINA X
Course Title : CHEMISTRY IN EVERYDAY LIFE
Course Code : 19CH/GE/CE22
Shift : I

Week & No. of hours	Units & Topics	Teaching Methodology	Text & References	Method of Evaluation
Jun 19 – 26, 2024 (Day Order 1 - 6) 1 Hour* 1 Hour	Food Additives 1.1 Food Colours - Permitted and Non-Permitted Cosmetics 3.1 Skin Products	Lecture, presentation, and discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	Group discussion
Jun 27 – July 4, 2024 (Day Order 1 - 6) 1 Hour* 1 Hour	1.1 Artificial Sweeteners – Aspartame 3.1 Soaps and Shampoos	Lecture, presentation, and discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	Quiz
July 5 – 12, 2024 (Day Order 1 - 6) 1 Hour* 1 Hour	1.1 Saccharin and Cyclamate 3.1 Creams and Lotions	Lecture, presentation, and Group discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	Group discussion
July 15 – 23, 2024 (Day Order 1 - 6)	1.1 Preservatives - Natural and	Lecture, presentation, and	Gem Mathew G.D. Chemistry in Everyday	Quiz

1 Hour*	Synthetic	discussion	Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	
1 Hour	3.1 Lipstick and Hair Dye			
July 24 – 31, 2024 (Day Order 1 - 6) 1 Hour*	1.1 Flavours – Monosodium glutamate	Lecture, presentation, and discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	Group discussion
1 Hour	3.2 Perfume – General Formulation			
Aug 1 – 5, 2024 (Day Order 1 - 3) 1 Hour	3.2 Deodorants	Lecture, presentation, and discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	Group discussion
Aug 6 – 10, 2024	C.A. Test – I			

Aug 12 – 14, 2024 (Day Order 4-6) 1 Hour*	1.2 Stabilising and Suspending Agents – Gelatine	Lecture, presentation, and discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	Group Discussion
Aug 16 – 23, 2024 (Day Order 1-6) 1 Hour*	1.2 Stabilising and Suspending Agents – Pectin	Lecture, presentation, and discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	Other component: Prepare a scrap book containing a) any two food products each to identify and specify the food colours, preservatives, flavours, stabilising and suspending agents b) any three pharmaceuticals from unit 2.1 and state the definition and specify their therapeutic uses (10 marks)
Aug 27 – Sep 3, 2024 (Day Order 1-6) 1 Hour*	1.2 Toxic Effects of Food Additives	Lecture, presentation, and discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	Case Study
1 Hour	3.2 Perspirants			
1 Hour	3.3 Toxicology of Cosmetics			
Sep 4 – 11, 2024 (Day Order 1-6) 1 Hour*	1.2 Toxic Effects of Food Additives	Lecture, presentation, and discussion	Gem Mathew G.D. Chemistry in Everyday Life.	Case Study

1 Hour	3.3 Toxicology of Cosmetics		Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	
Sep 12 - 20, 2024 (Day Order 1- 6) 1 Hour* 1 Hour	2. Pharmaceuticals and Nutraceuticals Antimalarials, Antipyretics, Analgesics, Antiseptics Unit 2 Pharmaceuticals and Nutraceuticals 2.2 Nutraceuticals – Vitamins - Water and Fat Soluble	Lecture, presentation, and Group discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	Other component: Preparation and exhibition of any two products (do it yourself) from unit 3.1 and 3.2. (15 marks)
Sep 23 - 26, 2024 (Day Order 1-4) 1 Hour	2.2 Minerals and Trace Elements	Lecture, presentation, and discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	Quiz
Sep 27 – Oct 3, 2024	C.A. Test – II			
Oct 4 – 5, 2024 (Day 5 & 6) 1 Hour*	2.1 Antibiotics- Antacids, Antihistamines	Lecture, presentation, and discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New	C.A. Test (25 marks)

			Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	
Oct 7 - 15, 2024 (Day Order 1 to 6) 1 Hour*	2.1 Chemotherapy – Definition and Therapeutic Uses 2.2 Antioxidants. Role of Nutraceuticals in Disease Prevention	Lecture, presentation, and discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	Quiz
Oct 16 - 22, 2024 (Day Order 1 to 6) 1 Hour*	2.1 Diabetes - Types and Causes	Lecture, presentation, and Group discussion	Gem Mathew G.D. Chemistry in Everyday Life. Jalandhar-Delhi: Vishal, 2009 Chakrabarty, B.N. Industrial Chemistry. New Delhi: Shiv Narain, 2002. Sharma B. K. Industrial Chemistry. Meerut: GOEL Publishing House, 2000	Group Discussion
Oct 23 - 24, 2024 (Day Order 1 to 2)	REVISION			