

Part	Study Components	Course Title	Ins. hrs / week	Exam			Credits
				CIA	Univ. exam	Total	
IV	Skill based Subject Technology of Dyeing of Natural Fibres	4ZB	3	20	55	75	3
IV	Tamil @/Advanced Tamil # (OR) Non-major elective -II (General Awareness #)	4FE	2	-	50	50	2
Semester V							
III	Core VIII – Chemistry Paper VI	53A	5	25	75	100	4
III	Core IX – Chemistry Paper VII	53B	5	25	75	100	4
III	Core X – Chemistry Paper VIII	53C	5	25	75	100	4
III	Core XI – Chemistry Paper IX	53D	4	25	75	100	4
III	Core - Chemistry Practical III		4	-	-	-	-
III	Elective –I From Group I <i>Polymer Chemistry</i>	5EA	4	25	75	100	4
IV	Skill based Subject Water & Effluent Treatment And Pollution Control	5ZC	3	20	55	75	3
Semester VI							
III	Core XII – Chemistry Paper X	63A	5	25	75	100	4
III	Core XIII - Chemistry Paper XI	63B	5	25	75	100	4
III	Core XIV - Chemistry Practical III Gravimetric And Physical	63P	7	40	60	100	4
III	Elective –II From Group II <i>Dye chemistry</i>	6EC	4	20	55	75	3
III	Elective –III From Group III <i>Textile</i>	6EE	4	20	55	75	3
III	Core XV– Practical for Elective subjects	63Q	3	40	60	100	4
IV	Skill based Subject Textile Chemistry Practical	(6ZP)	2	30	45	75	3
V	Extension Activities @		-	-	-	50	2
Total						3500	140

* For subjects without practical ** For subjects with Practical

@ No University Examinations. Only Continuous Internal Assessment (CIA)

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List of elective papers (colleges can choose any one of the papers as electives)

Elective I	Elective II	Elective III
(A) polymer chemistry	(A) Leather chemistry	(A) Analytical chemistry II Lab Techniques
(B) Agro industrial chemistry	(B) Chemistry of plant based products	(B) Environmental chemistry
(C) Pharmaceutical chemistry	(C) Dye chemistry	(C) Textile chemistry

ALLIED SUBJECTS

1. Mathematics, 2. Physics, 3. Botany, 4. Zoology & 5. Biochemistry

Note: The syllabus for the following papers furnished below be followed and there is no change in the existing scheme of examination and syllabi of remaining papers.

Perk
10/11/19

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Assistant Professor
Department of Chemistry

TEXTILE CHEMISTRY PAPER – IV
TEXTILE CHEMISTRY – PRACTICAL

Lab- hours : 30 Hours per semester (2 hours per week)

LIST OF EXPERIMENTS

1. Estimation of pH- paper, digital pH meter, pH solution
2. Volumetric analysis of Sodium Nitrite
3. Estimation of available chlorine in bleaching powder
4. Analysis of alkalinity of water by volumetry

PREPARATION OF DYES

1. Methyl Red
2. Malachite Green
3. Methyl Orange
4. Pare nitro benzene azo beta naphthol

Dyeing of textile Materials

1. Dyeing of cotton with direct dye
2. Dyeing of silk with acid dye
3. Variation of colour with temperature on direct dyeing
4. Screen printing on cotton fibre.

• End •

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Annexure No: 18A
SCAA Dated: 03.07.2017

CORE VIII - CHEMISTRY PAPER VI

Teaching hour : 60 hours per semester (4 hours per week)

Subject description This paper presents the principle of radio activity, acids , bases and solvents.

Goals To enable the students to know about the radio activity, acid and bases, the role of solvent in chemical reactions.

Objectives To understand the principles of radio activity.

Contents

UNIT I :

Structure of metals and alloys-substitutional and interstitial solid solution-Hume Rothery ratios-metallic bonding-electrical, optical and mechanical properties of metals-semiconductors, intrinsic and extrinsic-their uses.Super conductors-An elementary treatment.

UNIT II :

Artificial radio activity.Artificial transmutation of elements, synthesis of radio isotopes and. nuclear fission and fusion.Nuclear reactors – principle of working – production of electrical energy – atomic projects in India – Safety measures; disposal of reactor wastes – pollution.Nuclear reactions, mechanisms and different types of stellar energy.

UNIT III :

Nature of isotopes and isobars – detection and isolation of isotopes – various methods – importance of discovery of istopes – uses of isotopes in various fields. Nuclear stability n/p ratio, magic numbers, C-12 atomic weight scale, C-14 dating, mass defect and nuclear binding energies. Radio activedisintergration series.

UNIT IV :COORDINATION CHEMISTRY -I

Types of ligands , IUPAC Nomenclature, Isomerism - Ionisation,hydrate, linkage, ligand and coordination isomerism. Stereoisomerism-geometrical and optical isomerism in 4 & 6 coordinated complexes.Theories of coordination compounds – Werner's and Sidgwick's EAN concept , Valence Bond theory – hybridisation, geometry and magnetic properties of $[\text{Ni}(\text{CN})_4]^{2-}$, $[\text{NiCl}_4]^{2-}$, $[\text{Fe}(\text{CN})_6]^{4-}$, $[\text{Co}(\text{NH}_3)_6]^{3+}$ and $[\text{CoF}_6]^{3-}$,Crystal field theory – spectrochemical series , splitting of 'd' metal orbitals in octahedral and tetrahedral complexes, low spin & high spincomplexes. Explanation of colour and magnetic properties using CFT,comparison of VBT and CFT.

UNIT V :

The solvents- solubility of compounds – effect of temperature on solubility- Role of water as solvent- chemical structure and solubility.Classifications of solvents-general behaviour- properties of ionizing solvents.Types of reactions in non aqueous solvents-protonic solvents - ammonia, hydrogen fluoride.Non Protonic solvents-SO₂ and BrF₃. Organic solvents - C₂H₅OH and Ether.

Text book

1.Malik,Wahid U., G.D. Tuli and R.D .Madan . Selected Topics in Inorganic Chemistry,7th ed., New Delhi S.Chand& Company Ltd., 2007.



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CORE IX - CHEMISTRY PAPER VII

Teaching hour : 60 hours per square (4 hours per week)

Subject description This paper presents the chemistry of carbohydrate, molecular rearrangements, amino acids and hetero cyclic compound.

Goals To enable the students to learn about carbohydrates, amino acids and hetero cyclic compounds.

Objectives To understand the importance of carbohydrate, amino acids in chemistry.

Contents

UNIT I :

Optical activity of compounds with asymmetric carbon- racemisation – resolution – asymmetric synthesis- configuration D,L and R,S. nomenclature. Optical activity due to restricted rotation (biphenyls, allenes and spiranes) and molecular over crowding.

UNIT II :

Mechanism of molecular rearrangement reactions: PinacolPinacolone, Beckmann, Hoffmann, Curtius, Benzilic acid, Schmidt, Lossen, Cope and Claisen rearrangements.

UNIT III :Carbohydrates: Chemistry and structure of Glucose, Fructose, Sucrose and Maltose (cyclic structure as well). Starch and Cellulose - an elementary account. (Elucidation of structure not necessary) Inter conversion of sugars-mutarotation – Epimerisation.

UNIT IV :Aminoacids and proteins Amino acids-Classification –Preparation and properties of peptides and poly peptides-proteins classification based on physical properties and biological functions-primary, secondary and tertiary structure – properties and uses.

UNIT V :Heterocyclic compounds Chemistry of Furan, Pyrrole, Thiophene, Pyridine, Quinoline, Isoquinoline, Indolelsatin and Indigo.



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CORE X - CHEMISTRY PAPER VIII

Teaching hour : 60 hours per semester (4 hours per week)

Subject description This paper presents the principles of conduction Electro motive force, fuel cells.

Goals To enable the students to know about electro chemistry.

Objectives To study EMF, pH and their applications.

Contents

UNIT I:

Electrical conduction, conduction in metals and in electrolytic solutions. Measurement of conductivity in electrolytic solutions. Migration of ions-Kohlrausch's law. Arrhenius theory of electrolytic dissociation-Ostwald's dilution law. Theory of strong electrolytes-Debye-Huckel-Onsagar theory (elementary account only) verification. Debye-Falkenhagen effect-Wien effect-Transport numbers-**Definition and Determinations** .Conductometric titrations.

UNIT II:

Ionic Equilibria -Solubility and solubility product-determination of solubility product- Applications of solubility product principle. Dissociation of weak acids and bases-Dissociation constants-pH scale-common ion effect-buffer solutions- Determination of pH values of buffer mixtures-Henderson's equation-Hydrolysis of salts-Degree of hydrolysis.

UNIT III:

Electrode potentials-The standard hydrogen electrode kinds of electrodes and their potentials-Nernst equation.Single electrode potential-Determination and significance of electrode potentials-electro chemical series- temperature dependence of the cell EMF.Electrochemical cells-Secondary reference electrode-western-cadmium cell.EMF-computation and measurement of cell EMF.Thermodynamic quantities of cell reactions.

UNIT IV:

Reference electrodes-Electrodes for measurement of pH-concentration cells with and without transport-liquid junction potential-applications of EMF measurements.Redox potential-Redox indicators-uses.Potentiometric titrations.

UNIT V:

Fuel cells: Hydrogen- oxygen cell and hydrocarbon - oxygen cell. Storage cells. Lead storage cell and Nickel cadmium cell. Decomposition voltage-over voltage-Deposition and discharge potential.



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