

SHRI GAVISIDDESHWAR ARTS, SCIENCE AND COMMERCE COLLEGE, KOPPAL - 583231 <u>DEPARTMENT OF CHEMISTRY</u>

Course	:	BACHELOR OF SCIENCE (B. Sc)	Semester	:	First Semester
Title of the Paper	:	Paper - I : Organic Chemistry-1	Paper Code	:	CHT-101
Name of the Faculty	:	Dr. S. B. Ummapure	Credits	:	4

Objectives	:	To understand the basics of chemistry about structure and bonding in organic molecules, Organic reactions and their mechanism, Stereochemistry of organic reactions.
Pedagogy	:	Combination of lectures, assignment, group discussion, laboratory experiments on different of chemical estimations, etc.

Chapter	Syllabus	Curriculum Plan	Method of Teaching	Cross Cutting Issues	Outcomes	Assessment of Outcomes
Structure and bonding in organic molecules	Causes of bond formation, types of bonds: ionic, covalent and coordinate – definition with examples. Bond length, bond angle, bond energy and bond order – definition with examples. Hybridization in carbon – definition. Explanation of sp3, sp2, sp hybridizations by taking methane, ethylene and acetylene molecules respectively, sigma and pi bonds definition & examples	to recollect the basics of structure and bonding in organic molecules by bond formation and different types of hybridization	method, PowerPoint presentations,	Structure, bonding, and hybridization in organic molecules.	Understanding of basics and importance of bonding and hybridization.	IA Test, Question and answer, seminars, assignments, laboratory experiments etc.,

	Types of organic reactions:	_		Different	Basics for	IA Test,
	Substitution, addition,	understand the Types	· ·	Types of	organic	Question
	elimination, rearrangement,			organic	reaction	and answer,
	hydrolysis, oxidation, reduction	cleavage, reagents in	presentations,	reactions, bond	mechanism	seminars,
	– definition with examples.	organic synthesis and	seminars,	cleavage,	understanding.	assignments,
	Types of bond	mechanism.	assignments,	reagents,		laboratory
	cleavage:Homolytic &		Discussion, subject	reactive		experiments
	heterolytic fission-definition		related videos.	intermediates		etc.,
Omaania	with examples.		Google classroom	and reaction		
Organic	Types of reagents: Electrophiles		etc.	mechanism.		
reactions and	and nucleophiles – definition					
their mechanism	with examples.Reactive					
	intermediates: Carbonium ions,					
	carbanions – definition,					
	methods of generation					
	and stability. Free radicals and					
	carbenes— definition with					
	examples. Types of reaction					
	mechanisms (Ionic and free					
	radical mechanisms).					

types. Optical isomerism, Optical activity, chiral carbon, and molecular dissymmetry, chiral carbon, E-Z nomenclature, acid. Enantiomers, diastereomers, mesocompound, reactions reactions **Fereochemistry of organic reactions** **Laboratory: Titrimetric estimations** Titrimetric estimations Titrimetric estimation Titrimetric Titrimetric estimation Titrimetric estimation Titrimetric Titrim			361 1 1 1 1	C1 11 1 1 11	m °	D 1 . 1	T.A. (T)
Stereochemistry of organic reactions Stereochemistry of organic reactions Stereochemistry of organic reactions Titrimetric estimations Laboratory: Titrimetric estimations Laboratory: Titrimetric estimations Divided activity, chiral carbon, and molecular dissymmetry. plane of symmetry, plane of symmetry, and center of symmetry, optical isomerism in tartaric acid. Enantiomers, mesocompound, racemic mixture meaning & example. Geometrical isomerism: definition with examples (malcic & fumaric acids) E-Z nomenclature with examples (conformational analysis of ethane. Titrimetric estimations Titrimetric estimation		Concept of isomerism and	Make the students to	Chalk and talk,	71		IA Test,
Stereochemistry of organic reactions Stereochemistry of organic reactions Teactions Titrimetric estimations Titrimetric estimations of water, Zn in Zincapper sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in experiments of symmetry, plane of symmetry, plane of symmetry, plane of symmetry, and center of symmetry, and center of symmetry, plane of symmetry, plane of symmetry, and center of symmetry, plane of symmetry, and center of symmetry, plane of symmetry, plane of symmetry, and center of symmetry, plane of symmetry, and center of symmetry. Conformations, assignments, ass		1 21 1		· · · · · · · · · · · · · · · · · · ·	, and the second		•
Elements of symmetry; plane of symmetry, and center of symmetry, and sysis of organic matraic acid. Enantiomers, disassignments, assignments, assignments			l '		elements of		,
Stereochemistry of organic reactions Stereochemistry of organic mixture meaning & cacid, Enantiomers, mesocompound, racemic mixture meaning & cample. Geometrical isomerism: definition with examples Conformation isomers: Definition with examples Conformation analysis of ethane. Titrimetric estimations of solum hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in Stereochemistry of organic molecules. Somerism, E-Z confirmation analysis of organic molecules. Somerism, E-Z conformational analysis of organic molecules. Somerism, E-Z confirmation analysis of organic molecules. Somerism, E-Z confirmation analysis of organic molecules. Somerism, E-Z confirmation analysis of organic molecules. Somerism (analysis of organ		1	,	presentations,	symmetry,	nomenclature	seminars,
Stereochemistry of organic reactions Stereochemistry of organic mixture meaning & example. Geometrical isomerism: definition with examples (maleic & fumaric acids) E-Z nomenclature with examples. Conformational analysis of ethane. Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl3, hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in symmetry. Optical isomerism in tartaric acid. Enantiomers, molecules. Google classroom etc. Conformational analysis Conformational analysis Conformational analysis Conformational analysis Sougle classroom etc. Sougle classroom etc. Soughas analysis Chalk and talk, method, demonstration, discussion, assignments. Still in the quantitative analysis by doing titrations in the volumetric shallysis. Still for quantitative analysis by volumetric titrations with examples analysis by volumetric titrations. Soughas analysis of organic molecules. Soughas analysis of chase. Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in FeCl3, hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in specific analysis of organic molecules. Soughas analysis of organic molecules. Soughas analysis of chase. The students will get skill in the method, demonstration, discussion, assignments. Soughas analysis of organic molecules. Soughas analysis of organic molecules. Soughas analysis of chase. String the fermion of the samples analysis of organic molecules. Soughas analysis of organi		Elements of symmetry: plane of	nomenclature,	seminars,	optical	and structural	assignments,
Stereochemistry of organic reactions Stereochemistry of organic mixture meaning & example. Geometrical isomerism: definition with examples (maleic & fumaric acids) E-Z nomenclature with examples. Conformational analysis of ethane. Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl3, hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in symmetry. Optical isomerism in tartaric acid. Enantiomers, molecules. Google classroom etc. Conformational analysis Conformational analysis Conformational analysis Conformational analysis Sougle classroom etc. Sougle classroom etc. Soughas analysis Chalk and talk, method, demonstration, discussion, assignments. Still in the quantitative analysis by doing titrations in the volumetric shallysis. Still for quantitative analysis by volumetric titrations with examples analysis by volumetric titrations. Soughas analysis of organic molecules. Soughas analysis of chase. Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in FeCl3, hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in specific analysis of organic molecules. Soughas analysis of organic molecules. Soughas analysis of chase. The students will get skill in the method, demonstration, discussion, assignments. Soughas analysis of organic molecules. Soughas analysis of organic molecules. Soughas analysis of chase. String the fermion of the samples analysis of organic molecules. Soughas analysis of organi		symmetry, and center of	Conformational	assignments,	isomerism, E-Z	confirmation	laboratory
diastereomers, mesocompound, racemic mixture meaning & example. Geometrical isomerism: definition with examples (maleic & fumaric acids) E-Z nomenclature with examples Conformation isomers: Definition with examples. Conformational analysis of ethane. Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl3; hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in		symmetry. Optical isomerism in	analysis of organic	Discussion, subject	nomenclature,		experiments
of organic reactions acemic mixture meaning & example. Geometrical isomerism: definition with examples (maleic & fumaric acids) E-Z nomenclature with examples. Conformation isomers: Definition with examples. Conformational analysis of ethane. Titrimetric estimations Titrimetric estimations Laboratory: Titrimetric estimations Laboratory: Titrimetric estimations Laboratory: Titrimetric estimations Accomple classroom etc. Chalk and talk, method, method, method, estimations of demonstration, discussion, assignments. Coogle classroom analysis Chalk and talk, method, estimations of laboratory of laboratory skill for quantitative analysis by doing titrations in the volumetric analysis. Laboratory: Titrimetric estimations Chalk and talk, method, estimations of laboratory of laboratory assignments, assignments. Accomplex classroom etc. Chalk and talk, method, estimations of laboratory of laboratory and demonstration, discussion, assignments. Accomplex classroom etc.	Ctomo o als amaigtans	tartaric acid. Enantiomers,	molecules.	related videos.	Conformational		etc.,
reactions		diastereomers, mesocompound,		Google classroom	analysis		
example. Geometrical isomerism: definition with examples (maleic & fumaric acids) E-Z nomenclature with examples Conformation isomers: Definition with examples. Conformational analysis of ethane. Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCls. hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in	\mathbf{C}	racemic mixture meaning &		etc.			
isomerism: definition with examples (maleic & fumaric acids) E-Z nomenclature with examples Conformation isomers: Definition with examples. Conformational analysis of ethane. Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl3, hardness of water, Zn in Zinsulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in The students will get skill in the quantitative analysis by doing titrations in the volumetric analysis. Chalk and talk, method, estimations of laboratory skill for quantitative analysis by doing titrations in the volumetric analysis. Chalk and talk, method, estimations of laboratory skill for quantitative analysis by volumetric titrations etc.,	reactions	example. Geometrical					
acids) E-Z nomenclature with examples Conformation isomers: Definition with examples. Conformational analysis of ethane. Titrimetric estimations Laboratory: Titrimetric estimations Titrimetric estimations Laboratory: Titrimetric estimations Laboratory: Titrimetric estimations Aboratory: Titrimetric estimations Laboratory: Titrimetric estimations Laboratory: Titrimetric estimations Aboratory: Titrimetric estimation of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl ₃ , hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in		<u> </u>					
acids) E-Z nomenclature with examples Conformation isomers: Definition with examples. Conformational analysis of ethane. Titrimetric estimations Laboratory: Titrimetric estimations Titrimetric estimations Laboratory: Titrimetric estimations Laboratory: Titrimetric estimations Aboratory: Titrimetric estimations Laboratory: Titrimetric estimations Laboratory: Titrimetric estimations Aboratory: Titrimetric estimation of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl ₃ , hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in		examples (maleic & fumaric					
isomers: Definition with examples. Conformational analysis of ethane. Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl3. hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium quantitative analysis by doing titrations in the volumetric analysis. The students will get skill in the quantitative analysis by doing titrations in the volumetric analysis. Titrimetric estimations Titrimetric estimations of laboratory skill for quantitative analysis by volumetric titrations assignments. Titrimetric estimations Titrimetric estimations of laboratory skill for quantitative analysis by volumetric titrations analysis by volumetric titrations experiments etc.,		<u> </u>					
isomers: Definition with examples. Conformational analysis of ethane. Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl3 hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in The students will get skill in the quantitative analysis by doing titrations in the volumetric analysis. Chalk and talk, method, estimations of laboratory skill for quantitative analysis by volumetric analysis. IA Test, Odeenonstration, discussion, assignments. IA Test, of laboratory experiments titrations etc.,		examples Conformation					
examples. Conformational analysis of ethane. Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl3. hardness of water, Zn in Zinc estimations Laboratory: Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl3. hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in		<u>*</u>					
analysis of ethane. Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl3, hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl3, hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in							
Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl ₃ , hardness of water, Zn in Zinc estimations Laboratory: Titrimetric estimations of sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium quantitative analysis by doing titrations in the volumetric analysis. Laboratory: Titrimetric estimations of skill in the quantitative analysis by doing titrations in the volumetric analysis. Laboratory: Titrimetric estimations of laboratory skill for quantitative analysis by volumetric titrations etc., experiments etc.,		-					
Laboratory: Titrimetric estimations Sodium hydroxide, oxalic acid, Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl3, hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in skill in the quantitative analysis by doing titrations in the volumetric analysis. method, demonstration, discussion, assignments. method, demonstration, discussion, assignments. i demonstration, discussion, assignments. analysis by volumetric titrations etc.,		· ·	The students will get	Chalk and talk,	Titrimetric	Development	IA Test,
Laboratory: Titrimetric estimations Fe in Mohr's salt, calcium content in lime stone, copper in copper sulphate, Fe in FeCl3, hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in glucose, and answer, discussion, discussion, assignments. demonstration, discussion, discussion, assignments. skill for quantitative analysis by volumetric titrations experiments etc.,				,	estimations	-	Ouestion
Laboratory: Titrimetric estimations Content in lime stone, copper in copper sulphate, Fe in FeCl ₃ , hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in Content in lime stone, copper in the volumetric analysis oby doing titrations in the volumetric analysis. Giscussion, assignments. Adiscussion, assignments. Idiscussion, assignments. In the volumetric analysis oby volumetric titrations Experiments etc.,		,	quantitative analysis	·		_	`
Laboratory: Titrimetric estimations Copper sulphate, Fe in FeCl3, hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in the volumetric assignments. The volumetric analysis by volumetric titrations experiments etc.,			*	· · · · · · · · · · · · · · · · · · ·		quantitative	,
Titrimetric estimations hardness of water, Zn in Zinc sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in		1		· · · · · · · · · · · · · · · · · · ·		*	_
sulphate, phenol, glucose, vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in			analysis.	8			•
vitamin C, aldehyde and ketone, percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in		· ·	, ,			titrations	1
percentage of hydroxyl groups, amines, saponification value, dissolved oxygen (DO) in	estimations						,
amines, saponification value, dissolved oxygen (DO) in		· ·					
dissolved oxygen (DO) in							
		<u> </u>					
water.		water.					



SHRI GAVISIDDESHWAR ARTS, SCIENCE AND COMMERCE COLLEGE, KOPPAL - 583231 <u>DEPARTMENT OF CHEMISTRY</u>

Course	:	BACHELOR OF SCIENCE (B. Sc)	Semester	:	Third Semester
Title of the Paper	:	Paper - III : Organic Chemistry - 3	Paper Code	:	CHT-301
Name of the Faculty	:	Dr. S. B. Ummapure	Credits	:	4

Objectives		To study and critically analyse the basic concepts of Organic halogen compounds, alcohols, phenols, Carboxylic acids and acid derivatives.
Pedagogy	:	Combination of lectures, assignment, group discussion, laboratory experiments on Inorganic semi micro qualitative analysis of binary mixture, etc.

Chapter	Syllabus	Curriculum Plan	Method of Teaching	Cross Cutting Issues	Outcomes	Assessment of Outcomes
Organic halogen compounds	Alkyl halides, alkenyl halides & acyl halides-definition with examples. Alkyl halides: Classification with examples. Mechanism of SN¹ and SN² reactions by taking hydrolysis of tertiary butyl bromide and methyl bromide as examples. E¹ and E² reactions of alkyl halides with mechanism. Aryl halides: Methods of formation, Nucleophilic displacement reactions with NaOH, NH₃ and KCN. Wurtz-Fitting reaction and Ullmann reaction (C ₆ H ₅ Cl)	understanding classification, methods of formation, SN ¹ and SN ² reactions,	method, PowerPoint presentations, seminars, assignments, Discussion, subject related videos. Google classroom etc.	Definition, Classification SN ¹ , SN ² , E ¹ , E ² reactions. Wurtz-Fitting reaction and Ullmann reaction	Enables the students to get a clear idea about Methods of formation, Nucleophilic displacement reactions of Alkyl and aryl halides	IA Test, Question and answer, seminars, assignments, laboratory experiments etc.,

	Classification with examples. Monohydric	To enable the	Chalk and talk,	Classification,	Promotes	IA Test,
	alcohols-classification with examples.	students about	method,	isomerism,	understanding	Question
	Isomerism in monohydric alcohols up to	classification,	PowerPoint	methods of	about Methods	and answer,
	C5. Methods of preparation of monohydric	isomerism,	presentations,	preparation,	of formation,	seminars,
	alcohols by hydrolysis of alkyl halides,	preparation,	seminars,	distinguishing	Distinguishing	assignments,
Alcohols	hydroboration-oxidation of alkenes and	Distinguishing	assignments,	tests, pinacole	tests for	laboratory
Aiconois	reduction of aldehydes and ketones.	tests for alcohols	Discussion,	pinacolone	alcohols and	experiments
	Distinguishing tests for primary,	and mechanism of	subject related	rearrangement	rearrangement.	etc.,
	secondary and tertiary alcohols by Lucas	rearrangement.	videos. Google	mechanism.	Tearrangement.	Cic.,
	test and dichromate test. Mechanism of	rearrangement.	classroom etc	meenamsm.		
	pinacol-pinacolone rearrangement		Classiconi etc			
	Classification with examples, manufacture	Make students to	Chalk and talk,	Cumene and	Students get a	IA Test,
	of phenol by Cumene and Dow process.	understand the	method,	Dow process.	clear idea	Question
	Acidity of phenol. Effect of substituents	synthesis, acidic	PowerPoint	Acidic	about	and answer,
	on acidity. Mechanism of Reimer-	character, and	presentations,	character,	synthesis,	seminars,
	Tiemann and	named reactions of	seminars,	effect of	acidity of	assignments,
Phenols	Kolbe reactions. Gattermann reaction and	phenols.	assignments,	substituents,	phenol, effect	laboratory
1 Henois	Fries rearrangement.	phenois.	Discussion,	and	of substituent	experiments
	The fourthingoment.		subject related	mechanism of	and named	etc.,
			videos. Google	named	reactions of	cic.,
			classroom etc	reactions.	phenols with	
			Classicolli Cic	reactions.	mechanism.	
	Carboxylic acids: Introduction,	To promote	Chalk and talk,	Classification,	Enables the	IA Test,
	Classification into aliphatic & aromatic	understanding	method,	preparation	students to get	'
	acids with examples. Methods of	classification,	PowerPoint	by alcols,	a clear idea	and answer,
	preparation of aliphatic monocarboxylic	methods of	presentations,	cyanides,	about	seminars,
	acids from alcohols, cyanides, esters and	formation, acidity,	seminars,	esters, acidic	classification	assignments,
Carboxylic	Grignard reagent. Acidity of carboxylic	reactions, HVZ	assignments,	character,	Methods of	laboratory
acids and	acids. Effect of substituents on acidity.	reaction, and acid	Discussion,	HVZ reaction	formation,	experiments
acid	Reactions of acids (salt formation,	derivatives with	subject related	and acid	acidity and	etc.,
derivatives	formation of acid halides, esters and	examples.	videos. Google	derivatives.	preparation of	
	amides) Hell-Volhard-Zelinsky (HVZ)		classroom etc		acid	
	reaction. Acid derivatives: Definition with				derivatives.	
	examples of different acid derivatives of					
	acids. Preparation and reactions of acid					
	chloride (acetyl chloride) and acid amides.					

	Systematic semi micro qualitative analysis	Understanding	Chalk and talk,	Semimicro	To impart the	IA Test,
	of mixture of two simple inorganic salts	Basic principles of	method,	qualitative	knowledge of	Question
	(containing two basic radicals and two	qualitative nalysis:	demonstration,	analysis of	Systematic	and answer,
Laboratory:	acidic radicals).	Solubility,common	discussion,	mixture of	qualitative	assignments,
Inorganic	Acidic radicals: CO ₃ , Cl, Br, I, NO ₃ , SO ₄ ,	ion effect,	assignments.	two simple	analysis of	laboratory
semi micro	BO ₃ , acetate & oxalate	complex formation		inorganic	mixtures	experiments
qualitative	Basic radicals: NH ₄ , Cu, Bi, Al, Fe, Cr	etc. and various		salts.	containing two	etc.,
analysis of	Mn, Zn, Ni, Co, Ba, Sr, Ca, Mg, K, Na &	reaction equations			acid and two	
binary	Li.	for acidic radicals			basic radicals	
mixture		tests, basic radicals			with	
		group pptn. and			interfering	
		cause of flame			radical.	
		coloration.				



SHRI GAVISIDDESHWAR ARTS, SCIENCE AND COMMERCE COLLEGE, KOPPAL - 583231 <u>DEPARTMENT OF CHEMISTRY</u>

Course	:	BACHELOR OF SCIENCE (B. Sc)	Semester	:	Fifth Semester
Title of the Paper	:	Paper - V : Organic Chemistry – 5.1	Paper Code	• •	CHT-501
Name of the Faculty	:	Dr. S. B. Ummapure	Credits	:	4

Objectives	:	To study and critically analyse the basic concepts of Spectroscopy, Organo-sulphur compounds and Amino acids
Pedagogy	:	Combination of lectures, assignment, group discussion, laboratory experiments on Organic mixture separation and
		analysis of single compound, etc.

Chapter	Syllabus	Curriculum Plan	Method of Teaching	Cross Cutting Issues	Outcomes	Assessment of Outcomes
Spectroscopy	Introduction and types of spectroscopic methods, advantages of spectroscopic methods, general principles of spectroscopy, basic components of spectrophotometer. Salient features and applications of Infra red (IR) spectroscopy. Nuclear magnetic resonance (NMR) spectroscopy: Principle and instrumentation of NMR spectroscopy, salient features and applications. Meaning of the terms equivalent and nonequivalent protons, chemical shift, down-field shift, spinspin coupling and (n+1) rule in NMR spectra.		method, PowerPoint presentations, seminars, assignments,	Spectroscopic methods, advantages, principle, components of spectrophotometer. Salient features and applications of IR and NMR spectroscopy.	instrument and applications	Question and answer,

Organo- sulphur compounds	Thiols: Nomenclature, methods of preparations and chemical reactions of thiols Thioethers: Nomenclature, methods of preparation and chemical reactions of thioethers.	To enable the students about nomenclature, reactions synthesis and reactions of organosulphur compounds.	Chalk and talk, method, PowerPoint presentations, seminars, assignments, Discussion,	Nomenclature, methods of preparation, and chemical reactions.	Promotes understanding about Methods of naming, formation, and reactions	and answer, seminars, assignments, laboratory experiments
			subject related videos. Google classroom etc		of thiols and thioethers.	etc.,
Amino acids	Introduction, classification and structure of amino acids. Synthesis of α-amino acids (from acids, Strecker & Gabriel's pthalimide method). Acid-base behavior and isoelectric point of amino acid.	Make students to understand the synthesis, structure and acid-base behavior of amino acid.	Chalk and talk, method, PowerPoint presentations, seminars, assignments, Discussion, subject related videos. Google classroom etc	Classification, methods of preparation, structure and isoelectric point.	Imparts the students thorough idea in chemistry of amino acids	IA Test, Question and answer, seminars, assignments, laboratory experiments etc.,
Laboratory: Organic mixture separation and analysis of single compound	Separation of mixture containing two solid compounds. Analysis of any one compound with preparation of derivative. The mixtures may be A+N, P+N and B+N combinations. Acids: Benzoic, Salicylic, Cinnamic and Pthalic acid. Phenols: α-naphthol, β-naphthol and resorcinol. Bases: p-Toluidine, o-Toluidine, m-Toluidine, Neutrals: Naphthalene, Diphenyl, m-Dinitrobenzene. Acetanilide.	Separation of mixture containing two different type solid compounds. basis of separation and reactions of elements tests and functional group tests and preparation of derivative.	Chalk and talk, method, demonstration, discussion, assignments.	Separation of mixture containing two different nature solid compounds and analysis.	To impart the knowledge of separation of mixture. Analysis of functional group and preparation of derivative.	Question and answer, assignments,



SHRI GAVISIDDESHWAR ARTS, SCIENCE AND COMMERCE COLLEGE, KOPPAL - 583231 DEPARTMENT OF CHEMISTRY

Course	:	BACHELOR OF SCIENCE (B. Sc)	Semester	:	Fifth Semester
Title of the Paper	:	Paper - V : Organic Chemistry – 5.2	Paper Code	:	CHT-502
Name of the Faculty	:	Dr. S. B. Ummapure	Credits	••	4

Objectives	:	To study and critically analyse the basic concepts of
Pedagogy	:	Combination of lectures, assignment, group discussion, physical chemistry instrumental experiments etc.

Chapter	Syllabus	Curriculum Plan	Method of Teaching	Cross Cutting Issues	Outcomes	Assessment of Outcomes
	Reactive methylene compounds –	To promote	Chalk and talk,	methylene	Enables the	IA Test,
	Introduction. Acidity of α-H atoms in	understanding	method,	compounds,	students to get	Question and
	ethyl	methylene	PowerPoint	acidity,	an idea about	answer,
Organic	acetoacetate. Synthesis of ethyl	compounds.	presentations,	synthesis,	methylene,	seminars,
synthesis via	acetoacetate (mechanism of Claisen	Acidity of α-H	seminars,	tautomerism	acidic	assignments,
Enolates	condensation). Ketoenol tautomerism in	atoms, Synthesis	assignments,	and	character,	laboratory
Ellolates	ethylacetoacetate. Synthetic applications	of EAA,	Discussion,	applications.	preparation,	experiments
	of ethyl acetoacetate	tautomerism EAA	subject related		tautomerism	etc.,
		and applications	videos. Google		and uses.	
			classroom etc.			

	Introduction and classification,	To enable the	Chalk and talk,	Osazone,	Promotes	IA Test,
	mechanism of osazone formation.	students osazone,	method,	glucose into	understanding	Question and
Carbohydrates	Interconversion of	interconversion,	PowerPoint	fructose and	about	answer,
	glucose into fructose and vice-versa, chain	chain lengthening	presentations,	vice-versa,	chemistry of	seminars,
	lengthening in aldoses (Killiani-Fischer	and shortening,	seminars,	chain	carbohydrates.	assignments,
	synthesis). Chain shortening in aldoses	epimers, structure	assignments,	lengthening/	,	laboratory
	(Ruff degradation) Epimerization and	of D-glucose	Discussion,	shortening,.		experiments
	mutarotation. Elucidation of open-chain	C	subject related	structure of		etc.,
	structure of D-glucose. Cyclic structures		videos. Google	D-glucose.		·
	of		classroom etc			
	glucose (Fischer & Haworth					
	representations)					
	Oils & fats – composition of oils & fats.	Make students to	Chalk and talk,	Industrial	Imparts about	IA Test,
	Determination of saponification number	understand	method,	process of	the oils, fats,	Question and
	and	composition,	PowerPoint	oils fats soaps	soaps and	answer,
Oils, fats,	iodine number of oils & fats. Soaps –	manufacture and	presentations,	and	detergents	seminars,
soaps and	Introduction, manufacture of soap by	uses of oil fat	seminars,	detergents.	industries	assignments,
detergents	hydrolyser process. Synthetic detergents	soap and	assignments,		chemistry.	laboratory
uctergents	(syndets) – Introduction, synthesis of	detergents	Discussion,			experiments
	sodium lauryl sulfate and sodium dodecyl		subject related			etc.,
	benzene sulfonate. Cleaning action of		videos. Google			
	soaps.		classroom etc			
	Definition, classification with examples.	Understanding	Chalk and talk,	Industrial	Enables the	IA Test,
	Synthesis and uses of teflon, nylon and	synthesis and uses	method,	methods for	students about	Question and
	terylene. Thermoplastic & thermosetting	of different types	PowerPoint	making of	preparation	answer,
	polymers.	of polymers	presentations,	teflon, nylon	and uses of	seminars,
Synthetic			seminars,	and terylene.	polymers.	assignments,
polymers			assignments,			laboratory
			Discussion,			experiments
			subject related			etc.,
			videos. Google classroom etc			
			ciassiooni etc			

	Introduction, Classification of dyes based	Giving a idea	Chalk and talk,	Classification	Promotes the	IA Test,
	on structure, chromophore & oxochrome	about Different	method,	structure and	knowledge of	Question and
	theory of color & constitution. Synthesis	types of dyes and	PowerPoint	synthesis of	color	answer,
	of methyl orange, Bismarck brown &	their composition.	presentations,	dyes.	constitution	seminars,
Synthetic dyes	malachite green		seminars,		and synthesis	assignments,
Synthetic dyes			assignments,		of dyes.	laboratory
			Discussion,			experiments
			subject related			etc.,
			videos. Google			
			classroom etc			
	Conductometric titrations, amount of Cu2+	To enable	Chalk and talk,	Theory,	Imparts the	IA Test,
	in CuSO ₄ (Beer-Lambert's law).	students about the	method,	principle and	knowledge of	Question and
Laboratory:	Potentiometric estimations, Determining	theory and	demonstration,	handling of	instruments	answer,
Physical	specific and molecular refractrivities and	principle of each	discussion,	different	and its uses in	assignments,
chemistry	density of two given liquids by Abbey's	experiment.	assignments.	types of	determining	laboratory
instrumental	refractometer. specific rotation of cane-			instruments.	different	experiments
experiments	sugar solution using polarimeter,				physical	etc.,
_	Conductometric precipitation, Preparation				aspects.	
part-I	of buffer solutions and determination of					
	their pH using pH meter, Estimation of					
	vitamin C by UV spectrophotometer.					