

Government of Andhra Pradesh (www.governtextbook.com) Higher Education

Academic & Administrative Staff of Degree College (2017-18)

Form - III A (To be filled by Faculty and handed over to Academic Officer)

District: East Godavari

Degree College Name: Channarayana

Zone	II
Name of the College and Address	<u>S.E.R College of Women, Rajawadachannarayana</u>
Name of the Lecturer	<u>N. Sankar</u>
Name of the Subject	<u>Chemistry</u>
Date of Joining in Degree College Date	<u>13.03.2014</u>

S.No	Key Indicator	Information in support of the key indicator	Key Aspect Score	Performance of Lecturer (Nil Weightage for Key Indicator)	Grade Point (A = 5, B=2, C=1, D=0)	Key Indicator Weight (Nil Weight for A-KCP)	Key Indicator Weight (Nil Weight for A-KCP)	Key Indicator Weight (Nil Weight for A-KCP)	Key Indicator Weight (Nil Weight for A-KCP)	Grade Point
------	---------------	---	------------------	---	------------------------------------	---	---	---	---	-------------

ACADEMIC ASPECTS

1	Curricular Planning and Implementation (i.e. Awareness of College Efforts for Curriculum Design and Development to be considered)	Preparation and Implementation of 1. Annual Academic Calendar 2. Course Objectives & Outcomes 3. Teaching Plan 4. Lesson Plans 5. Active Participation in PDS	Course wise Sem wise Records for the Academic Year Course wise Sem wise Records for the Academic Year Invitation Letter & Attendance a/c course wise Sem wise additional inputs Reports	2x5 = 10 2x5 = 10 10 10	30	B	60			1) All three key indicators = 3 Grade points A 2) Any two key indicators = 2 Grade points B 3) Any one key indicator = 1 Grade point C 4) No indicator = 0 D
2	Curriculum Faculty Enrichment	1. Additional inputs related to Curriculum of the courses taught 2. Value added courses offered & completed a certificate a) Diploma b) Any Online courses like MOOC's	Course wise Sem wise all reports of feedback a) Analysis Reports b) Action taken Report	10 2x5 = 10	20	C	10			1) All three key indicators = 3 Grade points A 2) Any two key indicators = 2 Grade points B 3) Any one key indicator = 1 Grade point C 4) No indicator = 0 D
3	Feedback system	Feedback on Curriculum by Students a) Collected b) Analyzed c) Action taken	Course wise Sem wise all reports of feedback a) Analysis Reports b) Action taken Report	10	10	A	30			1) All three key indicators = 3 Grade points A 2) Any two key indicators = 2 Grade points B 3) Any one key indicator = 1 Grade point C 4) No indicator = 0 D
<b>II-TEACHING, LEARNING &amp; EVALUATION</b>										
4	Learning to Student Diversity	1. Report on grouping of students into Slow, Moderate and Advanced learners 2. Course wise activities designed for Slow, Moderate and Advanced learners	1. Course wise Sem wise Reports with lists of students (Slow, Moderate and Advanced learners) 2. Course wise Sem wise Reports designed for Slow, Moderate and Advanced learners	10 2x5 = 10	20	A	20			1) All three key indicators = 3 Grade points A 2) Any two key indicators = 2 Grade points B 3) Any one key indicator = 1 Grade point C 4) No indicator = 0 D

Key Indicator	List of Key Indicators to be kept ready as a pool of Key Indicators	Information in support of the key indicators	Key Report Source	Frequency of Key Indicators	Key Indicator Grade Point	Key Indicator Score	KIPWCR as a % of Actual Grade	Conditions
4	<p>1. Report on student career/academic performance if any in case</p> <p>2. Report on implementation of U-1 in teaching and learning (if case wise)</p> <p>3. Report on implementation of (Integrated) theoretical practical learning (if case wise)</p> <p>4. Report on the use of ICTs tools (if case wise)</p> <p>5. Report on the development of L&amp;L in the selected subject</p> <p>6. Report on student's performance/feedback</p> <p>7. Report on student's satisfaction survey/college/department</p> <p>8. Report on Participation in Department's activities/Workshops/Events/Conferences/Workshop</p> <p>9. Research and investigation</p> <p>10. Participation in Short term/Practical/Mini-projects/Workshops/Events</p> <p>11. E-Content Development/MPR/Video's/Power Point/Case study</p> <p>12. Additional Qualifications acquired during the last two years</p>	<p>Case wise Term wise Reports</p>	50	50	B	100		<p>1) All four key indicators - 1 Grade point A</p> <p>2) Any three key indicators - 1 Grade point B</p> <p>3) Any two key indicators - 1 Grade point C</p> <p>4) Below two - 0/D</p>
5	<p>1. Report on Faculty's Feedback at U-1</p> <p>2. Department's Final In-house test book and Internal board</p> <p>3. Final result in University's examination</p> <p>4. Examining Marks Register &amp; Final Marksheet register</p>	<p>Departmental wise reports regarding</p> <p>1. Mid exam/Summer Report/Assignment/Work Projects and any other work of Internal Assessment</p> <p>2. Departmental Internal Marks Register for U-1A</p>	10	10	B	60		<p>1) All four key indicators - 1 Grade point A</p> <p>2) Any three key indicators - 1 Grade point B</p> <p>3) Any two key indicators - 1 Grade point C</p> <p>4) Below two - 0/D</p>
6	<p>1. Assessment and Assessment of course/Indicators</p> <p>2. Report on Student summary/Student demonstrations (if case wise)</p> <p>3. Report on activities like Quiz/Group discussion/Poster presentation (if case wise)</p> <p>4. Report on Field trip (if case wise)</p> <p>5. Report on Student Study projects (if case wise)</p>	<p>Term wise Reports</p>	5	5	A	90		<p>1) All four key indicators - 1 Grade point A</p> <p>2) Any three key indicators - 1 Grade point B</p> <p>3) Any two key indicators - 1 Grade point C</p> <p>4) Below two - 0/D</p>
7	<p>1. Assessment and Assessment of course/Indicators</p> <p>2. Report on Student summary/Student demonstrations (if case wise)</p> <p>3. Report on activities like Quiz/Group discussion/Poster presentation (if case wise)</p> <p>4. Report on Field trip (if case wise)</p> <p>5. Report on Student Study projects (if case wise)</p>	<p>Term wise Reports</p>	5	5	A	90		<p>1) All four key indicators - 1 Grade point A</p> <p>2) Any three key indicators - 1 Grade point B</p> <p>3) Any two key indicators - 1 Grade point C</p> <p>4) Below two - 0/D</p>



Key Indicator	List of files/documents to be kept ready as a proof of key indicator	Information in support of the key indicator	Key Aspect Score	Prerequisite Weightage (W1) for Key Indicator	Key Indicator Weightage (W2) (A=1, B=2, C=3, D=4)	Key Indicator Weighted Grade Points (KWGP) = KW1 x W2	KWGP per Academic Achiever's Rating	Credibility	
									Center of institution and award letters (For current year only) (OR completed)
<b>III-RESEARCH, INNOVATION AND EXTENSION</b>									
9	Writing obtained for Research (Govt/ Non-Governmental Bodies)	1. Almost Research Projects 2. Major Research Projects 3. Consultancy Projects 4. Papers Published in Journals/ Chapters published in edited volumes 5. Books published as single author 6. Books published as Co-Author 7. Papers/Chapters published at Co-Author 8. Note: A maximum of 3 publications in Scopus/Web of Science/ICIR/ICIR-CAE/ United Journals/Any book with ISBN shall be considered)	5	20	D	0		1) All three key indicators - 3 Grade points/A 2) Any two key indicators - 2 Grade points/B 3) Any one key indicator - 1 Grade point/C	
			10 15 10 5						
10	Research Publications and Awards	a. Research Consultancy b. Awards in recognition of research work c. Academic Extension activities through DRK- Faculty Outreach (if applicable, Skill/Personnel related) d. Involvement in activities related to community service e. Sensitising the students about the value of Community Service f. Organising the activity g. A maximum of 3 programmes resulting in (Community Service like GDR, Swachh Bharat/UBA etc.)	10 10	60	D	0		1) All three key indicators - 3 Grade points/A 2) Any two key indicators - 2 Grade points/B 3) Any one key indicator - 1 Grade point/C 4) No Indicator - 0/D	
			10						
11	Extension Activities	a. Involvement in activities related to community service b. Sensitising the students about the value of Community Service c. Organising the activity d. A maximum of 3 programmes resulting in (Community Service like GDR, Swachh Bharat/UBA etc.)	5+5	20	B	20		1) All three key indicators - 3 Grade points/A 2) Any two key indicators - 2 Grade points/B 3) Any one key indicator - 1 Grade point/C 4) No Indicator - 0/D	
			10						
12	Functional Visit's Collaborations with Govt and Non-Governmental Organisations	1. Collaborations with University/Industry/MRP/ Any other Agency 2. Consultancy offered 3. Amount generated through Consultancy	10 5	20	C	20		1) All three key indicators - 3 Grade points/A 2) Any two key indicators - 2 Grade points/B 3) Any one key indicator - 1 Grade point/C 4) No Indicator - 0/D	
			20						
<b>IV - USE OF INFRASTRUCTURE &amp; LEARNING RESOURCES</b>									
13	Physical facilities	Instructional facilities in the Department Colleges a. Use of Digital Classrooms b. Use of Virtual Classroom c. Use of Lab/Use of Library d. Smart usage e. Maintenance of Departmental Library	30	20	A	60		1) Any four key indicators - 3 Grade points/A 2) Any three key indicators - 2 Grade points/B 3) Any two key indicators - 1 Grade point/C 4) Below two indicators - 0/D	
			30						

No	No/1 semester	List of their assignments to be kept ready as a proof of their studies	Information to request of the Dept. authorities	Total Marks	Percentage of the total marks	Grade	Total Marks	Percentage of the total marks	Remarks
<b>V. WORKS TO BE STUDIED BY STUDENTS IN EACH SEMESTER</b>									
14	Student Support	1. Statement of students in Semester 1 and Semester 2 2. Student Profile & activities 3. Seminars and assignments 4. Any other work. Voluntary activities 5. Academic projects for the 4th semester course following suggestions submitted by the student 6. Presentation of the above activities including study material prepared by the student 7. Creating Seminars/Workshop for 4th semester 8. Organizing of activities in regard to English Seminars	Report on the V.S.W. Form	20 20 20 40	20	A	150		1. All the four activities of each semester 2. Total marks are indicated in each semester 3. Total marks are indicated in each semester 4. Total marks are indicated in each semester 5. Total marks are indicated in each semester
<b>VI. WORKS TO BE STUDIED BY STUDENTS IN EACH SEMESTER</b>									
15	Student Progression	1. Higher in Progression (more work student progression to higher education and improvement of employability) 2. Participation in Departmental & Seminars and Departmental Activities 3. Participation in various institutional activities and preparation of activities reports 4. Participation in various institutional activities that focus on wider social activities 5. Participation in V.S.W. quality activities	Report on the V.S.W. Form	10 10 10 10	50	B	60		1. All the four activities of each semester 2. Total marks are indicated in each semester 3. Total marks are indicated in each semester 4. Total marks are indicated in each semester 5. Total marks are indicated in each semester
<b>VII. WORKS TO BE STUDIED BY STUDENTS IN EACH SEMESTER</b>									
16	Participation in Institutional Activities and Leadership	1. Participation in Institutional Activities and Leadership	Report on the V.S.W. Form	20	20	A	60		1. All the four activities of each semester 2. Total marks are indicated in each semester 3. Total marks are indicated in each semester 4. Total marks are indicated in each semester 5. Total marks are indicated in each semester

*P. A. V.*

**PRINCIPAL**  
**S.K.R. COLLEGE FOR WOMEN**  
**HITHAKARNI SAMAJ**  
 Endowment Dept. Govt. Andhra Pradesh  
 RAJANAHITHAKARNI SAMAJ



Signature of the Principal

Signature of the Headmaster/Headmistress



**Commissionerate of Collegiate Education, Andhra Pradesh.**  
**PROFORMA FOR ANNUAL CURRICULAR PLAN (Lecturer Wise) : 2021 -2022**

Name of the College : **S.K.R. COLLEGE FOR WOMEN, RAJAMAHENDRAVARAM.** Name of the Department : *Chemistry*

Name of the Lecturer : *N. Akshita* Class : *II BSc LBR HPER* Year : *2021-22* Paper : *II*

Month	Week	Hours Available	Syllabus Topic	Additional Input / Value Addition Provided / Taught	CURRICULAR ACTIVITY				CO - CURRICULAR ACTIVITY				Remarks					
					Activity Conducted	Hours allotted	Whether conducted	If not, alternate date	Activity Conducted	Hours allotted	Whether conducted	If not, alternate date						
<i>Feb</i>	<i>1st</i>	<i>12</i>																
	<i>2nd</i>		<i>Halogen Compounds</i>															
	<i>3rd</i>																	
	<i>4th</i>																	

*N. Akshita*  
Signature of the Lecturer

*H. Suresh*  
Signature of the Department I/C

*R. Prasad*  
Signature of the Principal

Name of the Lecturer : \_\_\_\_\_ Class : \_\_\_\_\_ Year : \_\_\_\_\_ Paper : \_\_\_\_\_

Month	Week	Hours Available	Syllabus Topic	Additional Input / Value Addition Provided / Taught	CURRICULAR ACTIVITY				CO - CURRICULAR ACTIVITY				Remarks					
					Activity Conducted	Hours allotted	Whether conducted	If not, alternate date	Activity Conducted	Hours allotted	Whether conducted	If not, alternate date						
	<i>1st</i>																	
	<i>2nd</i>		<i>Carbonyl Compounds</i>															
	<i>3rd</i>																	
	<i>4th</i>																	

*N. Akshita*  
Signature of the Lecturer

*H. Suresh*  
Signature of the Department I/C

*R. Prasad*  
Signature of the Principal



Name of the College : S.K.R. COLLEGE FOR WOMEN, RAJAMAHENDRAVARAM.

Name of the Department : *Chemistry*

Name of the Lecturer : *N. Anasuya*

Class :

Year :

Pages :

Month	Week	Hours Available	Syllabus Topic	Additional Input / Value Addition Provided / Taught	CURRICULAR ACTIVITY			CO - CURRICULAR ACTIVITY			Remarks
					Activity Conducted	Hours allotted	Whether conducted	If not, alternate date	Activity Conducted	Hours allotted	
	1 <sup>st</sup>	6	<i>Carboxylic acid</i>								
	2 <sup>nd</sup>	6	<i>Alkyl Halides</i>								
	3 <sup>rd</sup>	8	<i>Group 18</i>								
	4 <sup>th</sup>										

Signature of the Lecturer

Signature of the Department I/C

Signature of the Principal

Name of the Lecturer :

Class :

Year :

Paper :

Month	Week	Hours Available	Syllabus Topic	Additional Input / Value Addition Provided / Taught	CURRICULAR ACTIVITY			CO - CURRICULAR ACTIVITY			Remarks
					Activity Conducted	Hours allotted	Whether conducted	If not, alternate date	Activity Conducted	Hours allotted	
	1 <sup>st</sup>		<i>Active nitrogen</i>								
	2 <sup>nd</sup>	15	<i>Group 16</i>								
	3 <sup>rd</sup>		<i>Transition elements</i>								
	4 <sup>th</sup>		<i>Transition elements</i>								

Signature of the Lecturer

Signature of the Department I/C

Signature of the Principal



Name of the Department : Chemistry

**TEACHING**

Name of the Lecturer : N. Awatur

Date / Month / Year	Day	Class	Period / Time	Medium EM / TM	Theory / Practical
1	2	3	4	5	6
16/6/2022	Tue	III BSc	2	CBZ HPL EM	E.M
17/6/2022	Fri <sup>o</sup>	III BSc	2	MPC CBZ	E.M
18/6/2022	Sat	III BSc	3	MPC CBZ	E.M
19/6/2022	—	—	—	—	—
20/6/2022	Mon	III BSc	1	MPC CBZ	E.M
		III BSc	2-3	CBZ	T.M
		III BSc	4-6	CBZ	T.M
21/6/22	Tue	III BSc	5	CBZ	T.M
22/6/22	wed	III BSc	2, 3	CBZ	T.M MPC
23/6/22	Tue	III BSc	2	CBZ (EM) MPC	E.M
24/6/22	Fri <sup>o</sup>	III BSc	2	CBZ MPC	E.M
25/6/22	Sat	III BSc	3	CBZ MPC	E.M

N. Awatur  
Signature of the Lecturer

N. Awatur  
Signature of the Department I/C

# DIARY 20<sup>21</sup> - 20<sup>22</sup>

Topic Covered	Methodology Adopted	No. of Students attended	Teaching Aids used	Student Activity conducted	Remarks
7	8	9	10	11	12
toxic effect of Hg ph	B.B.S only c	40			
Mid Exam Conducted	Exam	45			
B.Sc unit - III started	practical	30			
<i>Sunday</i>	-	-	-		
unit - III water pollution started	B.B.S c	40			
Organic procedure Explained	pract -cal	03			
Students not came	-	-			
Carbohydrate Imp Questions given	B.B.S c	16			
Compound Analysis	practical	20			
Air pollution started	B.B.S c	20			
Types of air pollution	B.B.S c	45			

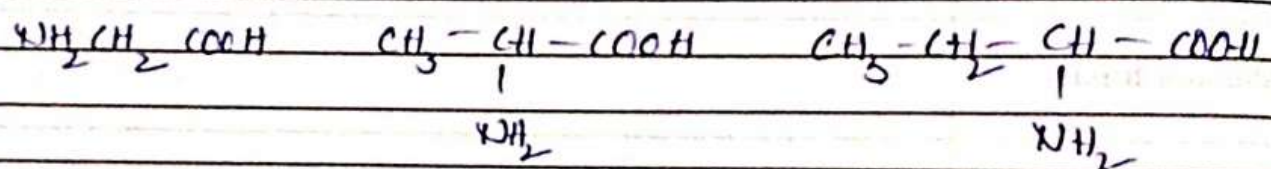


**Commissionerate of Collegiate Education, Andhra Pradesh.**  
**PROFORMA FOR TEACHING PLAN**

Name of the Department	Chemistry
Name of the Lecturer	N. Swathi
Course / Group	III BSL
Paper	VI
Name of the Topic	Amino acids
Hours required	7 hrs
Learning Objectives	
Previous Knowledge to be reminded	

Topic Synopsis : Amino acids.

The word protein comes from the Greek word proteios which means the first protein, the most essential for life. These are the building materials for the body in all living organisms.



Glycine -  $\text{NH}_2-\text{CH}_2-\text{COOH}$  It is  $\alpha$ -amino acid

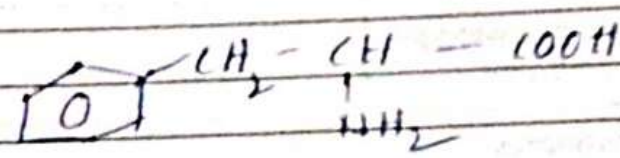
$\alpha$ -Alanine -  $\text{CH}_3-\underset{\text{NH}_2}{\text{CH}}-\text{COOH}$  It is  $\alpha$ -amino acid

Alanine -  $\text{NH}_2-\text{CH}_2-\text{CH}_2-\text{COOH}$  It is  $\beta$ -amino acid

$\text{H}_2\text{N}-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{COOH}$  It is  $\gamma$ -amino acid.

All  $\alpha$ -amino acids except glycine have chiral carbon atom and have two optically active isomers. However, all naturally occurring amino acids have L-configuration i.e. they have -NH<sub>2</sub> group



Glycine	Gly	$\text{NH}_2 - \text{CH}_2 - \text{COOH}$
Alanine	Ala	$\text{CH}_3 - \text{CH}(\text{NH}_2) - \text{COOH}$
Valine	Val	$\text{CH}_3 - \text{CH}(\text{CH}_3) - \text{CH}(\text{NH}_2) - \text{COOH}$
Leucine	Leu	$\text{CH}_3 - \underset{\text{CH}_3}{\text{CH}} - \text{CH}_2 - \underset{\text{NH}_2}{\text{CH}} - \text{COOH}$
Isoleucine	Ile	$\text{CH}_3 - \underset{\text{CH}_3}{\text{CH}} - \underset{\text{CH}_3}{\text{CH}} - \underset{\text{NH}_2}{\text{CH}} - \text{COOH}$
Phenylalanine	Phe	
Serine	Ser	$\text{HO} - \text{CH}_2 - \underset{\text{NH}_2}{\text{CH}} - \text{COOH}$

Examples / Illustrations	20 amino acids
Additional Inputs	
Teaching Aids used	Black Board & practice
Reference cited	
Student Activity planned after the teaching	Seminar conducted by student
Activity planned outside the class room if any	Seminar conducted b
Any other activity	

N. A. An  
Signature of the Lecturer

  
Signature of the Lecturer

  
Signature of the Department I/C



# RESUME

**Netti Swathi,**  
Rajahmundry,  
East Godavari Dist.  
**9573314482**  
Andhra Pradesh.  
netti.swathi@gmail.com

**Mobile: +91**

**Email:**

## OBJECTIVE

To associate with an organization which recognizes my skill set and gives me a chance to update my knowledge and be a part of the team that excellent in work towards the growth of the organization and gives me satisfaction there of.

## EDUCATIONAL QUALIFICATION

Course	Branch	Institution	University / Board	Year of Passing	% Marks
MSC	Organic Chemistry	Samhitha Degree & P.G College, Rajahmundry.	AU	2011-13	CGPA 7.09
Degree	B.Sc (Bt.Bc.Che.)	Samhitha Degree&P.G College, Rajahmundry.	AU	2010	68
12 <sup>th</sup> / Pre-University	M.L.T	Jayaram Vocational Jr College Rajahmundry.	Board of Intermediate Education A.P.	2007	82
10 <sup>th</sup> Standard	SSC	C.M.H High School, Rajahmundry.	Board of Secondary Education A.P.	2005	60

## EXPERIENCE

- One Yr. Experience as a Customer care Executive in IBM daksh at Visakhapatnam.
- One Yr. Experience as a Science Teacher in Mahaveer Vidya Niketan at Rajahmundry.

## PERSONAL SKILLS

- Good Communication Skills.
- Ability to learn new concepts quickly.
- Hard working and dedication towards work.
- Flexible and punctual.

## PROFESSIONAL SKILLS

- Office Suite : Ms-Office.
- Technical skills : HPLC, TLC,

## Hobbies:

- Reading Books
- Playing games

## PERSONAL PROFILE:

Name : **Netti Swathi**  
Father's name : **Netti Pydiraju(Late)**  
Sex : **Female**  
Date of birth : **30<sup>th</sup> May. 1990**  
  
Permanent Address : **Dr.No : 7-2-56,  
Vullithota street,  
Rajahmundry,  
East Godavari Dist. AP.**  
  
Marital status : **Unmarried**  
  
Languages known : **English & Telugu.**

## DECLARATION:

I hereby declare that the above written particulars are true to the best of my knowledge and belief.

(NETTI SWATHI)

Place: Rajahmundry  
Date :



# ANNUAL CURRICULAR PLAN (CHEMISTRY DEPARTMENT) 2021-'22

S.K.R.COLLEGE FOR WOMEN, RAJAHMUNDRY

CLASS & GROUP: CBZ(T) , CBZ & MPC (E), I, II, III B.Sc.,

NAME OF THE LECTURERS: 1. Dr. M. Sunitha, 2. Dr.Ch.V.V.Srinivas, 3. Smt. V.B.T.Sundari,  
4. Smt. N.Swathi, 5. Smt. P.N.L.Prasanna, 6. Smt.N.S.V.Sravani

Month	PAPER	Hours available	Syllabus Topic	Additional input/Value addition to be provided/taught	Curricular Activity				Co-Curricular Activity				Remarks	
					Activity to be conducted	Hours allotted	Whether Conduct ed	If not alternate date	Activity to be conducted	Hours allot ed	Whether Conduct ed	If not alternate date		
MAY.	II	6	Alkanes & Cyclo Alkanes, Surface chemistry											
	IV	4	Organo metallic compounds						Power point presentation on Madam Curie by UG students					
		4	Coordination Chemistry											
	VII	9	Unit-1Introduction, Chemical Toxicology											
	VIII A1	4	Introduction of Polymers											
	A2	4	Introduction to spectroscopic methods of analysis											
	A3	3	UNIT-I & IV											
JUN.	II	15	Alkenes & Alkynes, Chemical Bonding, HSAB		MID Exam-1					Inter collegiate quiz competitions				
	IV	15	Carbohydrates, Aminoacids & Protiens		Field Trip to ILTD, RJY									
		15	Inorganic reaction mechanism, Stability of metal complexes											
	VII	10	Air pollution, eco system, concept and functions		Guest Lecture on Spectroscopy									
	VIII A1	10	Polymers and their applications		Field trip to Visakha Dairy				WorkShop on Preparation					

*N. Swathi*



	A2	10	Molecular Spectroscopy, Unit III Partly							of House hold Chemicals				
	A3	10	Unit-I,II&IV cont...											
JUL.	II	15	Stereochemistry of carbon compounds benzene and its reactivity											
	IV	15	Nitrogen containing functional groups, Heterocyclic compounds											
		15	Phase rule ,Electro chemistry											
	VII	11	Water pollution, Ecology continued											
	VIII A1	10	Unit-II-Techniques of Polymerization, Molecular Weights of Polymers & Unit-III partly											
	A2	10	Unit-III cont. & Unit-IV Separation techniques											
	A3	11	Unit-III & Unit-V											
AUG.	II	12	Revision		MID Exam-2									
	IV	12	Photo chemistry, thermodynamics		Guest Lecture on Spectroscopy					Guest Lecture on avenues for a chemistry under graduate				
		12	Chemical kinetics											
	VII	12	Chemical toxicology, bio-diversity											
	VIII A1	11	Unit-III continued & Unit-IV											
	A2	9	Unit-V Elemental Analysis											
	A3	9	Unit-III&V cont..											

*P. S. S.*  
*P. me ..*

*V B Sreed*  
 NSVS



SKR GDC (W),RAJAMAHENDRAVARAM		
Department of Chemistry 2021-2022		
Programme & Course outcomes		
		Programme outcomes
	BSC-MPC& CBZ	<ol style="list-style-type: none"> <li>1. Understand the environment functions and how it is affected by human activities.</li> <li>2. Acquire chemical knowledge to ensure sustainable use of the world's resources and ecosystems services.</li> <li>3. Engage in simple and advanced analytical tools used to measure the different types of pollution.</li> <li>4. Explain the energy crisis and different aspects of sustainability.</li> <li>5. Gain the knowledge of chemistry through theory and practicals</li> <li>6. identify chemical formula and solve numerical problems</li> <li>7. understand good laboratory practices and safety</li> <li>8. make aware and handle the sophisticated instruments or equipments</li> </ol>
SEM	Name of the course	Course out comes
sem-1	Inorganic and Physical Chemistry	<p>Understand the basic concepts of p-block elements</p> <ul style="list-style-type: none"> <li>· Explain the difference between solid, liquid and gases in terms of intermolecular interactions.</li> <li>· Apply the concepts of gas equations, pH and electrolytes while studying other chemistry courses.</li> </ul>
sem-2	Organic & General Chemistry	<p>Understand and explain the differential behavior of organic compounds based on fundamental concepts learnt.</p> <ul style="list-style-type: none"> <li>- Formulate the mechanism of organic reactions by recalling and correlating the fundamental properties of the reactants involved</li> <li>-Learn and identify many organic reaction mechanism including Free Radical Substitution,</li> <li>-Electrophonic Addition and Electrophonic Aromatic Substitution.</li> </ul>

Sem-3	Organic chemistry & Spectroscopy	<p>Understand preparation, properties and reactions of haloalkanes, haloarenes and oxygen containing functional groups.</p> <ul style="list-style-type: none"> <li>· Use the synthetic chemistry learnt in this course to do functional group transformations.</li> <li>· To propose plausible mechanisms for any relevant reaction</li> </ul>
Sem-4	Inorganic, Organic and Physical Chemistry	<p>To learn about the laws of absorption of light energy by molecules and subsequent photochemical reactions.</p> <ul style="list-style-type: none"> <li>· To understand the concept of quantum efficiency and mechanisms of photochemical reactions</li> </ul>
SEM-5	Inorganic & Physical Chemistry	<p>Understand concepts of boundary conditions and quantization, probability distribution, most probable values, uncertainty and expectation values</p> <ul style="list-style-type: none"> <li>· Application Of Quantization To Spectroscopy.</li> <li>· Various types of spectra and their use in structure determination.</li> </ul>
SEM-6	INORGANIC & PHYSICAL CHEMISTRY	<p>Understand concepts Of boundary conditions and quantization, probability distribution, most probable values, uncertainty and expectation values</p> <ol style="list-style-type: none"> <li>2. Application of quantization to spectroscopy.</li> <li>3. Various types of spectra and the irusein structure determination</li> </ol>



cluster-A1	Polymer chemistry	<p>To understand the importance of the chemical approach to polymers and the subject provides an introduction to polymer science with respect to synthesis, polymerization kinetics and network formation/gelation of macromolecules formed by step-growth and chain-growth polymerization.</p> <ul style="list-style-type: none"> <li>• To Study the, methods of measuring the molecular weight, polymerization kinetics and Copolymerization and polymer processing technologies.</li> <li>• To understand about radical and ionic polymerization and techniques of polymer analysis</li> <li>• To study mechanical properties and applications of polymers</li> </ul>
cluster-A2	Instrumental methods of chemistry	<p>To introduce the student to principles and theory of instrument analysis.</p> <ul style="list-style-type: none"> <li>· To teach the student the correct operation of chemical instruments.</li> <li>· To introduce the student to the techniques of troubleshooting instruments in the chemical laboratory.</li> <li>· To emphasize the safe use of chemical instrumentation.</li> <li>· To teach the student to solve problems related to the use of chemical instruments.</li> </ul>
cluster-A3	Analysis of Drugs, Foods, Dairy Products and Bio chemical analysis OUT COME SFOR 2021-22	<p>Students in this course will learn about microbes in food, spoilage of food and preservation techniques of food.</p> <p>Milk and milk products:and nutritional importance of milk, processing of milk.</p>

**S K R COLLEGE FOR WOMEN**  
**RAJAMAHENDRAVARAM**  
(Re-Accredited by NAAC B+ Grade) : Affiliated to Adikavi Nannaya University)  
**DEPARTMENT OF CHEMISTRY**  
**BRIDGE COURSE**

\*\*\*\*\*  
“THE ESSENCE OF EDUCATION LIES IN DRAWING OUT THE VERY BEST THAT IS IN YOU”

A bridge course is a series of classes that help students transition from Intermediate level to graduation by providing them with necessary skills and knowledge about topics that will be covered in their new course.

**Objectives :**

- The main objective of the course is to bridge the gap between subjects studied at pre-university level and subjects they would be studying in B.Sc Course.
- To enrich the students to learn basic concepts in the subjects of B.Sc I semester.
- To give students confidence and skills to successfully transform to college and new curriculum
- Interactive and Active Learning by doing have been weaved into the Bridge Course.
- Active Learning with the help of other/ peer students.
- To achieve the concept of Assisted Learning.

**Standard Operating Procedure**

- A Bridge Course for newly admitted B.Sc Students is conducted every year before commencement of First Semester Classes. The syllabus for the B.Sc course is designed in such a way that, equal importance is given to both Chemistry discipline subjects and personality development.
- Bridge Course helps the students to open up, think creatively and become responsible and independent students. It also helps smooth transition to Chemistry course. The sound grasp of the fundamentals of Chemistry and Management subjects by the students lays the strong foundation for the entire Three/ Four Years Programme.
- **Highlights of the Bridge Course:**

**1) States of Matter**

Dr.M.Sunitha, Faculty, Department of Chemistry explained in detail about 1. The three states of matter 2. Intermolecular interaction 3. Hydrogen bonding 4. The gaseous state 5. Boyle's law, Charles law. 6. Gay Lussac's law, Avogadro law 7. Kinetic theory - molecular speeds 8. Liquid state 9. Vapour pressure 10. Surface tension 11. Viscosity. lecture come demonstration method atomic model blackboard

**2) Periodic table**

Smt. V.B.T.Sundari Faculty, Department of Chemistry explained about Overview of Periodic table Periodic trends in properties of Elements - a) Atomic radius b) Ionization potential c) Electro negativity d) Ionic radius e) Density.

**3) Fundamentals of Organic Reaction Mechanism:**

Smt. V.B.T.Sundari, Department of Chemistry explained about the basic concepts stability of Carbocation, Carbanion, and Carbon free radical 2. Types of Reagents- Electrophiles and Nucleophiles 3. Curved arrow notations, cleavage of bond-homolytic and heterolytic cleavage 4. Resonance effect, Inductive effect, Mesomeric effect and Steric effect 5. Types of reactions- Addition, Elimination, Substitution, and Rearrangement

**4) Structure of Atom:**

Dr.M.Sunitha, Faculty, Department of Chemistry gave an Overview of Structure of Atom Quantum number - i) Principal quantum number ii) Azimuthal quantum number iii) Magnetic quantum number iv) Spin quantum number, Shape of orbitals - a) s – orbital b) p – orbital c) d – orbital a) Aufbau principle b) Pauli's exclusion principle c) Hund's rule.



**ACTION PLAN / REPORT ON BRIDE COURSE**  
**FOR THE ACADEMIC YEAR 2022–2023**

\*\*\*\*\*

Date	Time/ Hour	Topic	Content/Activity	Resource Person
07/11/22	4 <sup>th</sup>	States of Matter	1. The three states of matter 2. Intermolecular interaction 3. Hydrogen bonding 4. The gaseous state 5. Boyle's law, Charles law. 6. Avogadro law 7. Kinetic theory - molecular speeds 8. Liquid state 9. Vapour pressure 10. Surface tension 11. Viscosity.	Dr.M.Sunitha
10/11/22	2 <sup>nd</sup>	Overview of Periodic table	Periodic trends in properties of Elements - a) Atomic radius b) Ionization potential c) Electro negativity d) Ionic radius e) Density.	Smt.V.B.T.Sundari
11/11/22	4 <sup>th</sup>	Fundamentals of Organic Reaction Mechanism	1. stability of Carbocation, Carbanion, and Carbon free radical 2. Types of Reagents- Electrophiles and Nucleophiles 3. Curved arrow notations, cleavage of bond-homolytic and heterolytic cleavage 4. Resonance effect, Inductive effect, Mesomeric effect and Steric effect 5. Types of reactions- Addition, Elimination, Substitution, and Rearrangement	Smt.V.B.T.Sundari
12/11/22	1 <sup>st</sup>	Structure of Atom	i) Principal quantum number ii) Azimuthal quantum number iii) Magnetic quantum number iv) Spin quantum number, Shape of orbitals - a) s – orbital b) p – orbital c) d – orbital a) Aufbau principle b) Pauli's exclusion principle c) Hund's rule	Dr.M.Sunitha

**S K R COLLEGE FOR WOMEN**  
**RAJAMAHENDRAVARAM**  
(Re-Accredited by NAAC B+ Grade) : Affiliated to Adikavi Nannaya University)  
**DEPARTMENT OF CHEMISTRY**  
**BRIDGE COURSE – 2022-2023**

\*\*\*\*\*

\*\*\*

- 1) **Dr.M.Sunitha, Faculty, Department of Chemistry giving an Overview of States of Matter**



- 2) **Smt. V.B.T.Sundari, Faculty, Department of Chemistry explain about Fundamentals of Organic Reaction Mechanism**





**3.Dr.M.Sunitha, Faculty, Department of Chemistry giving an Overview of structure of Atom.**



**4. Smt. V.B.T.Sundari, Faculty, Department of Chemistry explain about Fundamentals of Periodic table**





# S.K.R. GOVERNMENT DEGREE COLLEGE (WOMEN)



RAJAMAHENDRAVARAM

Re-Accredited at B<sup>+</sup> Grade by NAAC- Affiliated to Adikavi Nannaya University

DEPARTMENT OF CHEMISTRY

ACTION PLAN FOR THE YEAR 2022-2023

S.No	Date/Month	Proposed Activities	Remarks
1	September-2022 1 Week	Preparation of Annual action Plan	Prepared
	2 W/16/09/2022	Observed "World Ozone Day"	Conducted
	3 Week	Started Internship for II Year V SEM students	Sent to internship
	4 Week	Remedial coaching for I BSc students	conducted
2	October-2022 1 Week	Reports about activities conducted by the department	Prepared
	2 Week	Celebrations -Noble Prize winners in chemistry-2022	Presented poster
	3 Week	Orientation program for Degree First year students	Conducted
	4 Week	bridge course for the I Year students	Conducted
3	November-2022 1 Week	Inter collegiate Quiz	Not conducted due to Semester end Examinations
	2 Week	birth anniversary of Marie curie- Noble Prize winner 2 times	conducted
	3 Week	Guest Lecture	Conducted
	4 Week	Assignment for III BSc students	conducted
4	December-2022 I Week	invited lecture on Chromatography	Conducted
	II Week	I Midterm examinations schedule released for III,II & I Year students	conducted
	III Week	Assignment	Conducted



	IV Week	Planning to conducted Book Bank	Conducted
5	January-2023 I Week	Field visit Ratna plastics	Conducted
	II Week	Sankranti sambaralu	Conducted
	III Week	student seminars	Conducted
	IV Week	beautify the college campus	Conducted
6	February-2023 I Week	guest lecture on Spectroscopy	Conducted
	II Week	II Midterm examinations schedule released for III,II & I Year students by the university	Conducted
	III Week	Remedial Coaching	Conducted
	IV Week	Students feedback/ National Science day- Fiesta celebrations	Conducted
7	March-2023 I Week	study hours	conducted
	II Week	Preparation of e-content (even sem)	Prepared
	III Week	Preparation of curricular plans for even sem	prepared
	IV Week	III Year students Internship	Conducted
8	April - 2023 I Week	Assignment	Conducted
	II Week	Students Group Discussion	
	III Week	Assignments	Conducted
	IV Week	Conduct of online Quiz	
9	May - 2023 I Week	I Midterm examination for II & I Year	Conducted
	II Week	Conduct of student seminars	Conducted
	III Week	Lab to Farm	
	IV Week	Conduct of Guest Lecture	Conducted
10	June - 2023 I Week	Field visit for I Year students	Conducted
	II Week	II Midterm examinations for II & I Year (Online)	Conducted
	III Week	Remedial Coaching / Departmental feedback	Conducted
	IV Week	Conduct of study hours / Institutional feedback.	Conducted

## Programme &amp; Course outcomes

Programme	Course	Programme outcomes
BSC Semester	MPC& CBZ Name of the course	<p>1. Understand the environment functions and how it is in balance by human activities.</p> <p>2. Acquire chemical knowledge to ensure sustainable use of the world's resources and ecosystems services.</p> <p>3. Engage in simple and advanced analytical tools used to measure the different types of pollution.</p> <p>4. Knowledge about the energy crisis and different aspects of sustainability.</p> <p>5. Gain the knowledge of chemistry through theory and practice.</p>
Sem-1	Inorganic and Physical Chemistry	<p>Understand the basic concepts of p-block elements</p> <p>Explain the difference between solid, liquid and gases in terms of intermolecular interactions.</p>
Sem-2	Organic & General Chemistry	<p>Understand and explain the differential behaviour of organic compounds based on fundamental</p> <ul style="list-style-type: none"> <li>• Concepts learnt. Formulate the mechanism of organic reactions by recalling and correlating the fundamental</li> <li>• properties of the reactants involved Learn and identify many organic reaction mechanism including Free Radical Substitution,</li> <li>• Electrophonic Addition and Electrophonic Aromatic Substitution.</li> <li>• Correlate and describe the stereochemical properties of organic compounds and reactions.</li> </ul>
Sem-3	Organic chemistry & Spectroscopy	<p>Understand preparation, properties and reactions of haloalkanes, haloarenes and oxygen</p> <ul style="list-style-type: none"> <li>• Containing functional groups. Use the synthetic chemistry learnt in this course to do functional group transformations.</li> <li>• To propose plausible mechanisms for any relevant reaction</li> </ul>
Sem-4	Inorganic, Organic and Physical Chemistry	<p>To learn about the laws of absorption of light energy by molecules and subsequent photochemical reactions.</p> <p>To understand the concept of quantum efficiency and mechanisms of photochemical reactions</p>
Course 5	Inorganic & Physical Chemistry	<p>Understand concepts of boundary conditions and quantization, probability distribution, most probable values, uncertainty and expectation</p>
Sem-5	Analytical Methods in Chemistry-1	<p>Identify the importance of solvent extraction and ion exchange method.</p> <p>Acquire knowledge on the basic principles of volumetric analysis and gravimetric analysis.</p> <p>Demonstrate the usage of common laboratory apparatus used in quantitative analysis.</p> <p>Understand the theories of different types of titrations.</p> <p>Gain knowledge on different types of errors and their minimization</p>
	Analytical Methods in Chemistry-2	<p>Identify the importance of chromatography in the separation and identification of compounds in a mixture</p> <p>Acquire a critical knowledge on various chromatographic techniques.</p> <p>Demonstrate skills related to analysis of water using different techniques.</p> <p>Understand the principles of spectro chemistry in the determination of metal ions.</p>





**S.K.R. College for Women**



Rajahmendravaram, East Godavari District, Andhra Pradesh

Re-Accredited by NAAC with "B<sup>+</sup>" Grade, Affiliated to Adikavi Nannaya University

**Department of Chemistry**  
**Organized Work Shop on**  
**Qualitative Techniques for Micro Analysis**

Date-05/03/2022

The rising cost of chemicals and decreased flow of funds are causing great concerns to the chemistry teachers. A tug - of - war had also been going on in recent years, to balance the budget of running practical courses and the standards of experiments to be carried out by the students. Since the economy is always the winner, the number of experiments had been the losers. A group of scientists from University of Pune and Ferguson College, Pune are striving hard to maintain the standards of experiments at a friendly budget i.e., by adopting to preparations on a micro scale and carrying out reactions in capillaries / tiles.

Their attempts serve many purposes.

- (i). Cuts down the cost of chemicals.
- (ii). Experiments have become environment friendly.
- (iii). Less time consuming
- (iv). Less hazardous to the teachers, students and lab assistants.

In this connection, a one day workshop is being organized in our College with the support of **Dr.D.Suneetha**, Lecturer in Chemistry, Govt. (Autonomous) college, Rajahmundry, **Dr.T.Sreevarm**, Lecturer in Chemistry, Govt. (Autonomous) college, Rajahmundry and **Dr.P.Trinadha Raja**, Junior Lecturer in Chemistry, Govt. Jr. college, Korukonda as the recourse persons. All the students are very much impressed with the micro management technique and acknowledge their feelings positively. In our college

we adopted micro scale experiment methods.



**COMMISSINERATE OF COLLEGIATE EDUCATION  
GOVERNMENT OF ANDHRA PRADESH**



**STUDENT EVALUATION REPORT 2022-23  
SKR GOVERNMENT DEGREE COLLEGE, RAJAMAHENDRAVARAM**

Name of the Faculty : Dr.Ch.V.V.Srinivas,Smt.V.B.T.Sundari

Subject : Chemistry Group : CBZ(EM)

Semester : V 6B

Title of the Paper :Analytical Chemistry-I

Sl. No.	Student ID	Student Name	Program Code	Program Name	Specialization Code	Specialization	Course Code	Course Name	University Register No.	Continuous Internal Assessment (CIA)						Sem End Examination (SEE)	Total (CIA + SEE)	Result	Practical Marks	Result	Remarks		
										Mid Exam - 1	Mid Exam - 2	CIA										Total (I+II+III+IV)	Scale Down to 25
												Total (Mid -1 + Mid - 2)	Assignments	Seminar / GD / Field Trip etc.	Clean & Green & Attendance								
20	15	35	5	5	5	50	25	75	100	P/F	50	P/F											
1	OAM202100940267	AKKALA PRAVALLIKA	30540	BSc			71	CBZ	200907110086	14	14	28	5	4	5	42	21	D	P	A	P		
2	OAM202100920961	AMARA KEERTHANA	30540	BSc			71	CBZ	200907110087	18	15	33	5	5	5	48	24	B+	P	O	P		
3	OAM202100735080	BANAM LOVA SATYA DEVI	30540	BSc			71	CBZ	200907110090	12	14	26	3	4	4	37	19						
4	OAM202100781218	BORRA NAVYA	30540	BSc			71	CBZ	200907110094	14	15	29	5	4	5	43	22	D	P	A+	P		
5	OAM202100652045	CHEDEM VARALAKSHMI	30540	BSc			71	CBZ	200907110097	14	13	27	4	3	3	37	19	D	P	A+	P		
6	OAM202100560662	CHELLEY SRI LAKSHMI	30540	BSc			71	CBZ	200907110099	14	10	24	4	3	3	34	17	C	P	A	P		
7	OAM202100952869	CHILAKA SONIA	30540	BSc			71	CBZ	200907110100	11	14	25	3	4	4	36	18	D	P	B+	P		
8	OAM202100670536	CHODI HIMADEEPIKA	30540	BSc			71	CBZ	200907110104	18	14	32	5	5	5	47	24	B+	P	A+	P		
9	OAM202100682092	Dokka Smily	30540	BSc			71	CBZ	200907110108	15	10	25	5	4	3	37	19	D	P	O	P		
10	OAM202100948972	DONDAPATI SRAVYA KEERTHI	30540	BSc			71	CBZ	200907110109	10	8	18	3	3	3	27	14	D	P	A	P		
11	OAM202100951757	ELLAPU TEJASRI	30540	BSc			71	CBZ	200907110110	15	12	27	4	5	5	41	21	D	P	B+	P		
12	OAM202100671699	GUDETI SATYA SAI DEVI PRASANNA	30540	BSc			71	CBZ	200907110112	14	12	26	4	3	3	36	18	D	P	A+	P		
13	OAM202100915333	JEENU SHARON ROJA	30540	BSc			71	CBZ	200907110116	15	15	30	5	5	4	44	22	B+	P	A+	P		
14	OAM202100994326	JUPUDI PRATHYUSHA	30540	BSc			71	CBZ	200907110117	14	14	28	4	4	4	40	20	O	P	O	P		
15	OAM202100870643	KALIGITHI LAHARI	30540	BSc			71	CBZ	200907110118	19	14	33	5	5	3	46	23	A	P	O	P		
16	OAM202100734668	KALIMKOTA BHAVANI	30540	BSc			71	CBZ	200907110119	19	14	33	5	5	5	48	24	A	P	O	P		
17	OAM202100915855	KASAGANA VENI SRIDEVI	30540	BSc			71	CBZ	200907110121	19	11	30	5	5	5	45	23	A	P	A+	P		
18	OAM202100781430	KONA SRAVANI	30540	BSc			71	CBZ	200907110125	10	13	23	3	3	3	32	16	B+	P	A	P		
19	OAM202100785578	KUNDLA SRAVANI	30540	BSc			71	CBZ	200907110128	13	14	27	3	4	3	37	19	C	P	A	P		
20	OAM202100966697	KUNDUM GAYATRI	30540	BSc			71	CBZ	200907110129	14	14	28	4	4	4	40	20	C	P	A+	P		
21	OAM202100982112	MANGALAMPALLI DURGA SRIHITHA	30540	BSc			71	CBZ	200907110130	20	15	35	5	5	5	50	25						
22	OAM202100936024	MASABATHULA NIHARIKA	30540	BSc			71	CBZ	200907110131	17	15	32	5	5	4	46	23	A+	P	O	P		
23	OAM202100547119	MOLLA SHYNI	30540	BSc			71	CBZ	200907110134	15	15	30	5	5	5	45	23	C	P	A+	P		
24	OAM202100847525	NAGALLA SWATHI	30540	BSc			71	CBZ	200907110136	17	15	32	5	5	5	47	24	F	F	A+	P		
25	OAM202100925831	NALAM S L MUTYALA BHAVANA	30540	BSc			71	CBZ	200907110138	17	15	32	5	5	5	47	24						
26	OAM202100794191	PALLALA ARUNA	30540	BSc			71	CBZ	200907110141	13	14	27	3	4	4	38	19	F	F	A+	P		
27	OAM202100668440	PALLALA MEGHANA REDDY	30540	BSc			71	CBZ	200907110142	17	14	31	5	5	5	46	23	A	P	A+	P		
28	OAM202100872562	PAYAM KUSUMA BHARGAVI	30540	BSc			71	CBZ	200907110145	13	14	27	4	3	3	37	19	D	P	A+	P		
29	OAM202100558456	PEDDADA BHARATHI LUCKY	30540	BSc			71	CBZ	200907110146	17	13	30	5	5	4	44	22						
30	OAM202100947891	PRIYANKA MADAKAM	30540	BSc			71	CBZ	200907110153	16	15	31	5	5	5	46	23	B	P	A	P		



31	OAM202100709590	SETIKAMSETTI DEVI ALEKYA	30540	BSc		71	CBZ	200907110155	20
32	OAM202100824247	SIRILLI MERRY KUMARI	30540	BSc		71	CBZ	200907110156	16
33	OAM202100745950	SIYYADULA NEERAJA DEVI	30540	BSc		71	CBZ	200907110157	15
34	OAM202100806247	SUNDAM BHARGAVI	30540	BSc		71	CBZ	200907110158	14
35	OAM202100916364	SURAMPUDI VANDANA SAI	30540	BSc		71	CBZ	200907110160	17
36	OAM202100641695	THURRAM SNEHA BHARATHI	30540	BSc		71	CBZ	200907110164	14
37	OAM202100967847	VADAM HARIKA	30540	BSc		71	CBZ	200907110168	10
38	OAM202100717720	VARADA V V ANANTHA LAKSHMI	30540	BSc		71	CBZ	200907110170	20
39	OAM202100809138	VASAMSETTY AMANI	30540	BSc		71	CBZ	200907110171	14
40	OAM202100705146	VEERINA PRANITHA	30540	BSc		71	CBZ	200907110172	8
41	OAM202100642799	TURRAM SRAVANTHI	30540	BSc		71	CBZ	200907110173	13

15	35	5	5	5	50	25		A+	P	O	P	
14	30	5	4	5	44	22		A	P	A	P	
13	28	3	3	4	38	19		A+	P	O	P	
15	29	5	4	5	43	22		A	P	A	P	
	17	5	4	3	29	15		D	P	B+	P	
15	29	5	4	4	42	21		A+	P	O	P	
9	19	3	3	2	27	14		B+	P	B	P	
13	33	5	5	4	47	24		A	P	O	P	
15	29	4	5	5	43	22		C	P	A+	P	
8	16	4	3	2	25	13		B	P	B+	P	
14	27	5	4	4	40	20		A+	P	B+	P	



# COMMISSINERATE OF COLLEGIATE EDUCATION

## GOVERNMENT OF ANDHRA PRADESH

### STUDENT EVALUATION REPORT 2022-23

#### SKR GOVERNMENT DEGREE COLLEGE, RAJAMAHENDRAVARAM



Name of the Faculty :Dr.Ch.VV.Srinivas

Subject : Chemistry Group : CBZ (TM)

Semester : V 6B

Title of the Paper :Analytical Chemistry-I

Sl. No.	Student ID	Student Name	Program Code	Program Name	Specialization Code	Specialization	Course Code	Course Name	University Register No.	Continuous Internal Assessment (CIA)							Sem End Examination (SEE)	Total (CIA + SEE)	Result	Practical Marks	Result	Remarks	
										Mid Exam - 1	Mid Exam - 2	Total (Mid -1 + Mid - 2)	Assignments	Seminar / GD / Field Trip etc.	Clean & Green & Attendance	Total (I+II+III+IV)							Scale Down to 25
										20	15	35	5	5	5	50							25
										I	II	III	IV	50	25								
1	OAM202100616265	CHITTIRI APARNA	10540	BSc			71	CBZ	200907110102	13	15	28	4	4	5	41	21		D	P	B	P	
2	OAM202100823068	JAGANNADHAM SWARNA	10540	BSc			71	CBZ	200907110114	12	13	25	4	4	4	37	19		D	P	C	P	
3	OAM202100851552	PODIYAM SUNITHA	10540	BSc			71	CBZ	200907110152	13	13	26	4	4	4	38	19		F	F	B+	P	
4	OAM202100683422	NARSI BALA TRIPURA SUNDARI DEVI	10540	BSc			71	CBZ	200907110139	12	14	26	3	4	3	36	18		F	F	B+	P	
5	OAM202100811455	TURRAM SANDHYA RANI	10540	BSc			71	CBZ	200907110167	9	15	24	3	3	4	34	17		B+	P	B+	P	
6	OAM202100747199	PATARA CHANDINI	10540	BSc			71	CBZ	200907110143	12	15	27	4	3	3	37	19		F	F	B+	P	
7	OAM202100722471	KIMUDU PRAMEELA	10540	BSc			71	CBZ	200907110123	13	13	26	5	4	3	38	19		F	F	B+	P	
8	OAM202100636784	CHODI UMA NAGA MALLESWARI	10540	BSc			71	CBZ	200907110106	15	15	30	5	5	5	45	23		D	P	A+	P	
9	OAM202100813277	TURRAM RANJITHA	10540	BSc			71	CBZ	200907110166	13	14	27	4	3	4	38	19		F	F	B+	P	
10	OAM202100626400	KATHETI LALITHA	10540	BSc			71	CBZ	200907110122	12	15	27	3	4	3	37	19		B	P	C	P	
11	OAM202100653233	SEERSAM POSAMMA	10540	BSc			71	CBZ	200907110154	18	15	33	5	5	5	48	24		F	F	A	P	
12	OAM202100606351	KOTHAPALLI SANGEETHA	10540	BSc			71	CBZ	200907110127	15	12	27	5	4	4	40	20		D	P	A	P	
13	OAM202100588779	VARA MADHURIMA	10540	BSc			71	CBZ	200907110169	12	14	26	4	4	3	37	19		D	P	A+	P	
14	OAM202100586213	PENUMUNCHI MOUNIKA	10540	BSc			71	CBZ	200907110147	11	14	25	4	4	5	38	19		F	F	A	P	
15	OAM202100608881	CHODI LAKSHMI KALYANI	10540	BSc			71	CBZ	200907110105	18	15	33	5	5	5	48	24		B+	P	A+	P	
16	OAM202100923325	BATHINA DEEPIKA	10540	BSc			71	CBZ	200907110091	10	15	25	4	2	1	32	16		D	P	B+	P	
17	OAM202100651910	TURRAM KAVYANJALI	10540	BSc			71	CBZ	200907110165	14	14	28	4	3	2	37	19		A	P	B+	P	
18	OAM202100914698	CHODE NAGAMANI	10540	BSc			71	CBZ	200907110103	16	14	30	4	5	5	44	22		F	F	A	P	
19	OAM202100898677	NAKKA SWATHI	10540	BSc			71	CBZ	200907110137	16	14	30	5	5	5	45	23		F	F	B+	P	
20	OAM202100805847	CHEELI RESHMA	10540	BSc			71	CBZ	200907110098	15	15	30	5	5	5	45	23		C	P	A	P	
21	OAM202100877840	BATTINA KRUPA RATNAM	10540	BSc			71	CBZ	200907110092	15	15	30	4	3	3	40	20		F	F	A	P	
22	OAM202100926460	PODIYAM POSIVENI	10540	BSc			71	CBZ	200907110151	17	15	32	5	5	5	47	24		C	P	A	P	
23	OAM202100804612	BEERABOINA DURGABHAVANI	10540	BSc			71	CBZ	200907110093	17	15	32	5	5	5	47	24		F	F	B+	P	
24	OAM202100614363	GURUVELLI GIRIJA	10540	BSc			71	CBZ	200907110113	13	15	28	4	5	3	40	20		F	F	B+	P	
25	OAM202100556827	GADI JAYSRI	10540	BSc			71	CBZ	200907110111	18	14	32	5	4	5	46	23		B+		O	P	
26	OAM202100814542	SUNNAM VENKATA LAKSHMI	10540	BSc			71	CBZ	200907110159	10	15	25	5	2	4	36	18		F	F	B+	P	
27	OAM202100800984	MIDIYAM PAVANI DURGAMBICA	10540	BSc			71	CBZ	200907110133	19	15	34	5	5	5	49	25		C	P	A+	P	
28	OAM202100949472	BABY YANGALA	10540	BSc			71	CBZ	200907110089	15	14	29	4	5	5	43	22		D	P	A+	P	
	OAM202101019262	SURYA TEJASRI. SIRASAM	10540	BSc			71	CBZ	200907110162	18	14	32	5	5	5	47	24		C	P	B+	P	







# Smt. KANDUKURI RAJYALAKSHMI COLLEGE FOR WOMEN

Accredited at B+ level by NAAC

(Estd : 1968)

Affiliated to Adikavi Nannaya University, Rajamahendravaram (ANUR)

(Under the control of HITHAKARINI SAMAJAM, Endowments Dept., Govt. of Andhra Pradesh)

**Dr. P. Raghava Kumari**  
M.Sc., B.Ed., M.Phil., Ph.D. Principal



Opp.T.T.D. Kalyana Mandapam, Danavaipeta  
RAJAMAHENDRAVARAM - 533 103  
East Godavari District, A.P., INDIA  
☎ 0883 - 2467391, 90304 30758  
e-mail : skrcollege@yahoo.com  
website : www.skrcw-rjy.org

To  
The Assistant commissioner & Correspondent  
SKR College For Women,  
Rajamahendravaram

Sub :- SKR College For Women, Rajamahendravaram – Submission of Feedback  
Report 2021-22 Reg.

This is to submit that, as an institutional practice, SKR College For Women, Rajamahendravaram which is under the jurisdiction of Adikavi Nannaya University, Rajamahendravaram collects feedback on college / curriculum from time to time from its stakeholders.

During the academic year 2021-2022, feedback was collected from students, teachers, parents and alumni. A copy of the feedback report is submitted to your office for your information.

Thanking you, Sir.

*P. R.*

SIGNATURE OF THE PRINCIPAL

PRINCIPAL

**S.K.R. COLLEGE FOR WOMEN  
HITHAKARINI SAMAJ**

Endowments Dept., Govt. of Andhra Pradesh  
RAJAMAHENDRAVARAM



*Ch. Devaraj*  
Asst. Commissioner & Correspondent  
**S.K.R. COLLEGE FOR WOMEN  
HITHAKARINI SAMAJAM**  
Endowments Dept., Govt. of Andhra Pradesh  
RAJAMAHENDRAVARAM



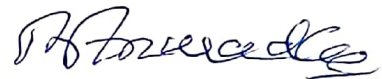
# SKR COLLEGE FOR WOMEN, RAJAMAHENDRAVARAM

## Feedback Report 2021-2022

For the academic year 2021-2022, feedback on the college functioning including teaching learning process was collected from the students, teachers, parents and alumni in offline mode. For the students, a feedback form was designed with 20 questions on 20 parameters with 5 options namely – Strongly Agree, Agree, Neutral, Strongly disagree and Disagree.

958 students submitted their feedback which was collected by the class mentors. Before collection, the purpose of feedback was explained to the students. If the students could not understand any parameter, the mentors explained the parameter and its importance. With the help of the faculty, the IQAC arranged for the analysis of the collected data; the analysis was tabulated and also presented in a graphical format. For the teachers, alumni and parents, a feedback form was customized with 10 questions covering different areas of the college functioning. The analysis report reveals that:

- Stakeholders expressed their opinion that supports the students to prepare for competitive exams.
- More Cultural activities are to be organized in the college



IQAC Coordinator  
IQAC Co-ordinator

S.K.R. COLLEGE FOR WOMEN  
HINAKARINSAMAJ  
East Godavari, Govt of Andhra Pradesh  
RAJAMAHENDRAVARAM

# SKR COLLEGE FOR WOMEN, RAJAMAHENDRAVARAM

## Action Taken Report on Feedback -2021-2022

The feedback report for the academic year 2021-2022 was placed before the staff council meeting chaired by the principal of the college. The council discussed the report in detail. For all the positive feedback about the teaching learning process, the efforts of the teachers were appreciated. The meeting resolved to take the following measures to improve the overall functioning of the college.

Student Centered Learning (SCL) practices in curriculum delivery and transaction were given much emphasis.

Based on the parents & alumnae feedback, PG coaching is continued in a more structured manner and offered support to the students seeking higher education.

The mentors were specifically directed to provide emotional support to students and be accessible to them even out of the classroom, following the spirit of the Mentor Mentee System (MMS) in place.



*P. Me*


PRINCIPAL  
S.K.R. COLLEGE FOR WOMEN  
HITHAKARINI SAMAJ  
Endowments Dept., Govt. of Andhra Pradesh  
RAJAMAHENDRAVARAM



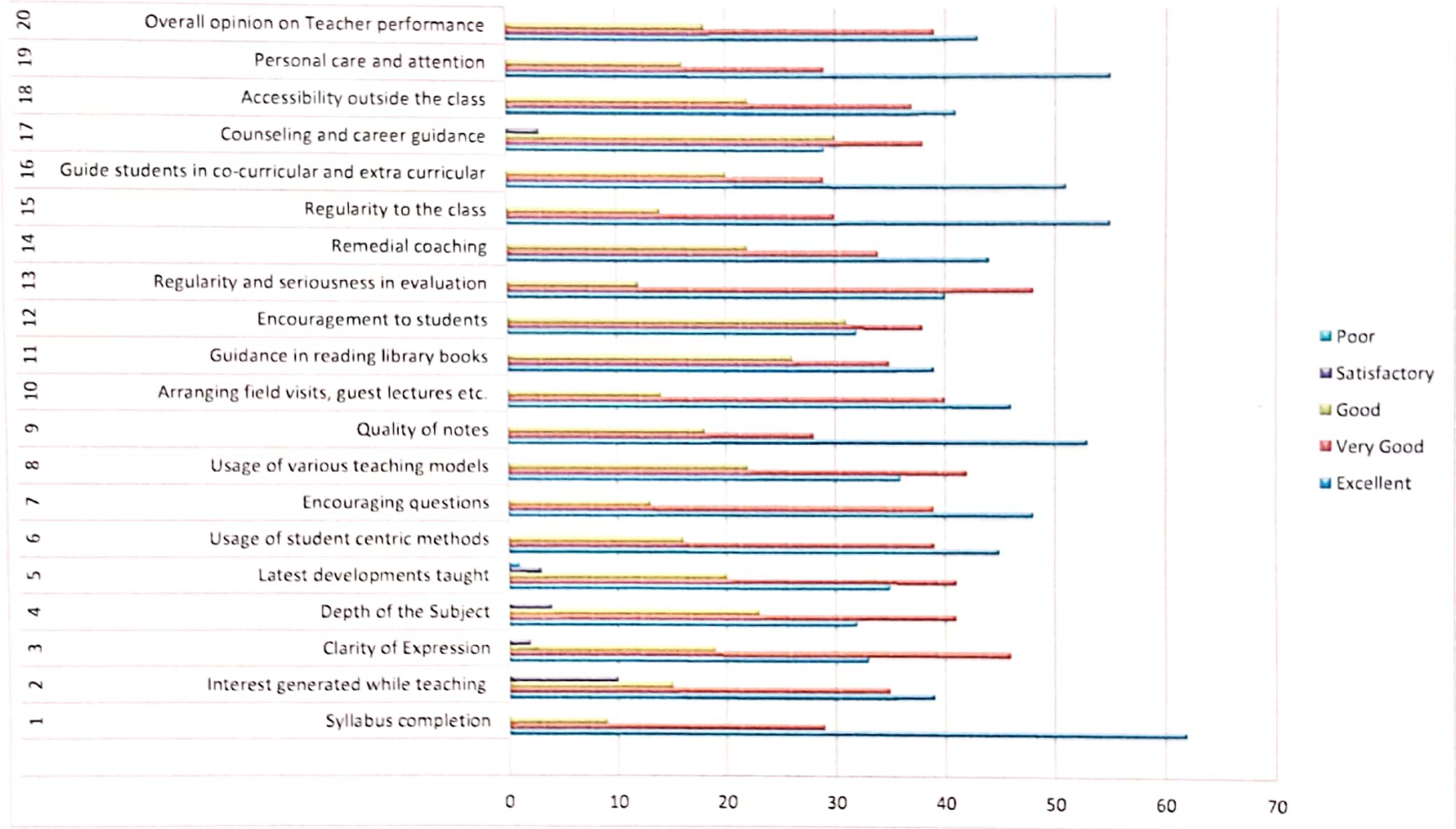
**SKR COLLEGE FOR WOMEN RAJAMAHENDRAVARAM**  
**Student Satisfaction Survey (SSS) on Teaching Learning & Evaluation for 2021-22**


SI.No	Parameters	Excellent		Very Good		Good		Satisfactory		Poor	
		No	%	No	%	No	%	No	%	No	%
1	Syllabus completion	590	62	280	29	88	09	0	0	0	0
2	Interest generated while teaching	374	39	340	35	144	15	100	10	0	0
3	Clarity of Expression	320	33	436	46	180	19	22	02	0	0
4	Depth of the Subject	306	32	396	41	220	23	36	04	0	0
5	Latest developments taught	337	35	395	41	190	20	26	03	10	01
6	Usage of student centric methods	435	45	369	39	154	16	0	0	0	0
7	Encouraging questions	463	48	374	39	121	13	0	0	0	0
8	Usage of various teaching models	346	36	398	42	214	22	0	0	0	0
9	Quality of notes	511	53	270	28	177	18	0	0	0	0
10	Arranging field visits, guest lectures etc.	442	46	386	40	130	14	0	0	0	0
11	Guidance in reading library books	373	39	332	35	253	26	0	0	0	0
12	Encouragement to students	302	32	361	38	295	31	0	0	0	0
13	Regularity and seriousness in evaluation	382	40	460	48	116	12	0	0	0	0
14	Remedial coaching	425	44	323	34	210	22	0	0	0	0
15	Regularity to the class	530	55	292	30	136	14	0	0	0	0
16	Guide students in co-curricular and extra curricular	492	51	274	29	192	20	0	0	0	0
17	Counseling and career guidance	280	29	360	38	292	30	26	03	0	0
18	Accessibility outside the class	393	41	350	37	215	22	0	0	0	0
19	Personal care and attention	523	55	280	29	155	16	0	0	0	0
20	Overall opinion on Teacher Performance	412	43	370	39	176	18	0	0	0	0



  
**PRINCIPAL**  
**S.K.R. COLLEGE FOR WOMEN**  
**HITHAKARINI SAMAJ**  
 Rajamahendravaram  
 RAJAMAHENDRAVARAM

## Analysis of Student Survey Feed back - 2021-2022



  
 PRINCIPAL  
 S.K.R. COLLEGE FOR WOMEN  
 HITHAKARINI SAMAJ  
 Endowments Dept., Govt of Andhra Pradesh  
 RAJAMAHENDRAVARAM

**SKR COLLEGE FOR WOMEN, RAJAMAHENDRAVARAM**  
**Teacher Feed Back Analysis – 2021-2022**

Sl.No	Parameters	Strongly Agree		Agree		Neutral		Strongly Disagree		Disagree	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Sufficient facilities for ICT Teaching	26	49	23	43	04	08	0	0	0	0
2	Fair & Transparent internal assessment	35	66	16	30	01	02	01	02	0	0
3	Library can meet students need	35	66	14	26	04	08	0	0	0	0
4	Discipline is good	38	72	12	23	03	06	0	0	0	0
5	Placement activities are good	16	30	27	51	10	19	0	0	0	0
6	Support for Higher Education is good	37	70	14	26	02	04	0	0	0	0
7	Academic ambience is very good	40	75	10	19	03	06	0	0	0	0
8	Sports facilities are sufficient	38	72	11	21	03	06	0	0	01	02
9	Teachers are Student – Friendly	34	64	14	26	03	06	02	04	0	0
10	Mentoring system functions well	41	77	08	15	03	06	0	0	01	02

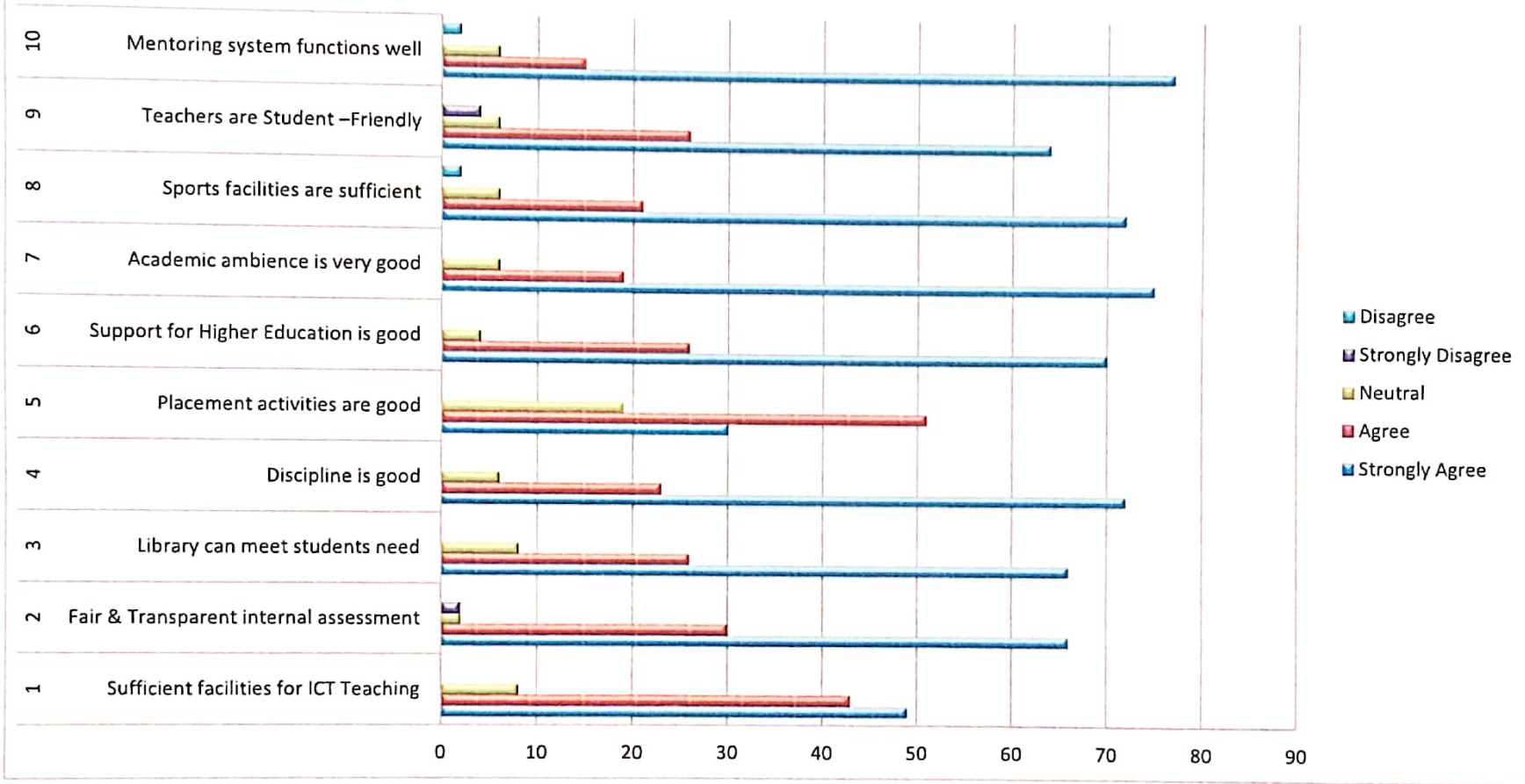



*PR*

PRINCIPAL  
**S.K.R. COLLEGE FOR WOMEN**  
**HITHAKARINI SAMAJ**  
 Endowments Dept., Govt. of Andhra Pradesh  
**RAJAMAHENDRAVARAM**



## Analysis of Teacher Feed Back 2021-2022



  
**PRINCIPAL**  
**S.K.R. COLLEGE FOR WOMEN**  
**HITHAKARINI SAMAJ**  
 Endowments Dept., Govt. of Andhra Pradesh  
**RAJAMAHENDRAVARAM**

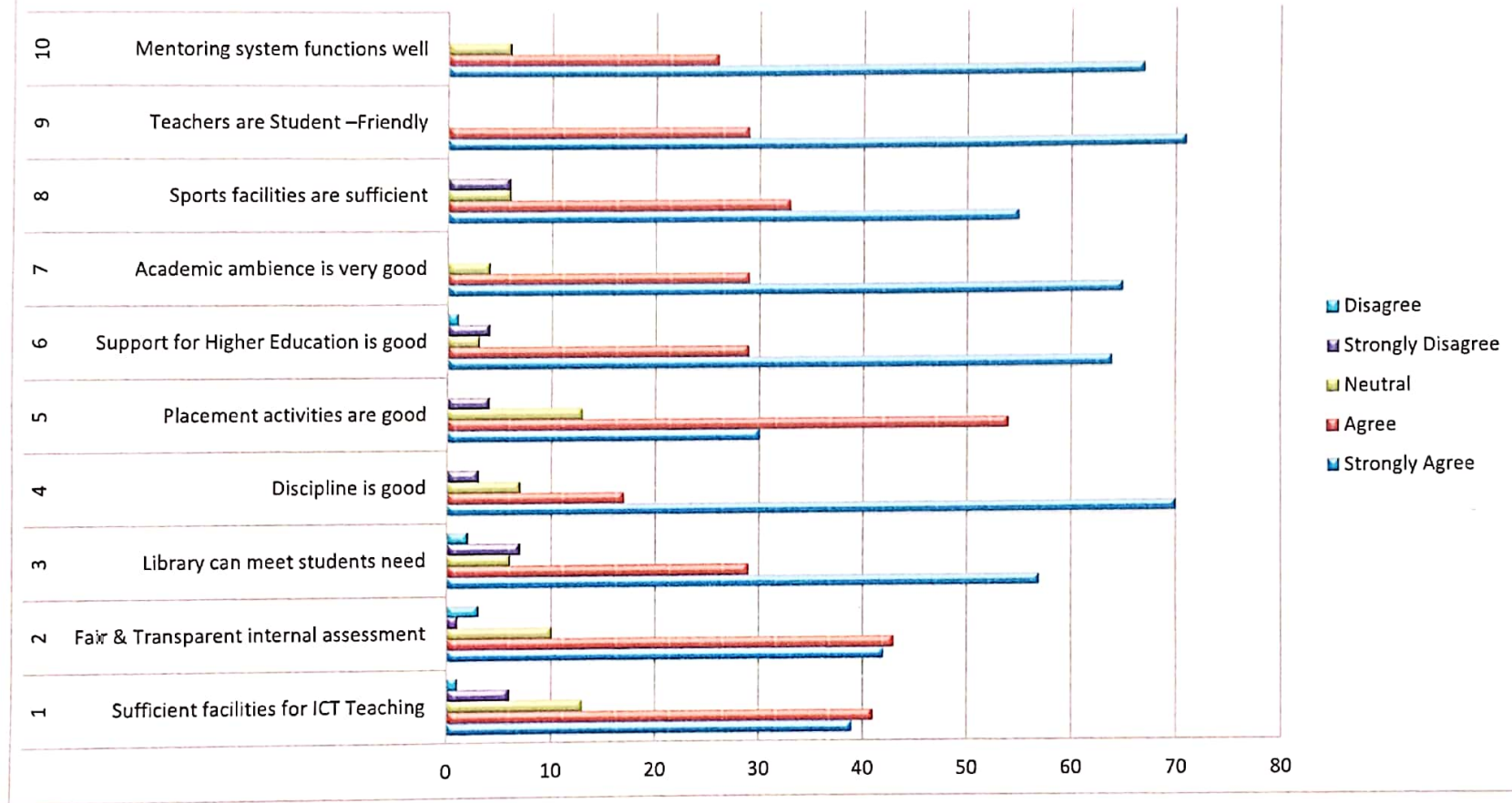
**SKR COLLEGE FOR WOMEN, RAJAMAHENDRAVARAM**  
**Alumni Feed Back Analysis – 2021-2022**


SI.No	Parameters	Strongly Agree		Agree		Neutral		Strongly Disagree		Disagree	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Sufficient facilities for ICT Teaching	27	39	28	41	09	13	04	06	01	01
2	Fair & Transparent internal assessment	29	42	30	43	07	10	01	01	02	03
3	Library can meet students need	39	57	20	29	04	06	05	07	01	02
4	Discipline is good	48	70	12	17	05	07	02	03	0	0
5	Placement activities are good	20	30	37	54	09	13	03	04	0	0
6	Support for Higher Education is good	44	64	20	29	02	03	03	04	01	01
7	Academic ambience is very good	45	65	20	29	03	04	0	0	0	0
8	Sports facilities are sufficient	38	55	23	33	04	06	04	06	0	0
9	Teachers are Student – Friendly	49	71	20	29	0	0	0	0	0	0
10	Mentoring system functions well	46	67	18	26	04	06	0	0	0	0



*P. N. S.*  
 PRINCIPAL  
**S.K.R. COLLEGE FOR WOMEN**  
**HITHAKARINI SAMAJ**  
 Endowments Dept., Govt. of Andhra Pradesh  
 RAJAMAHENDRAVARAM

## Analysis of Alumni Feed Back 2021-2022




  
 PRINCIPAL  
**S.K.R. COLLEGE FOR WOMEN**  
**HITHAKARINI SAMAJ**  
 Endowments Dept., Govt. of Andhra Pradesh  
 RAJAMAHENDRAVARAM



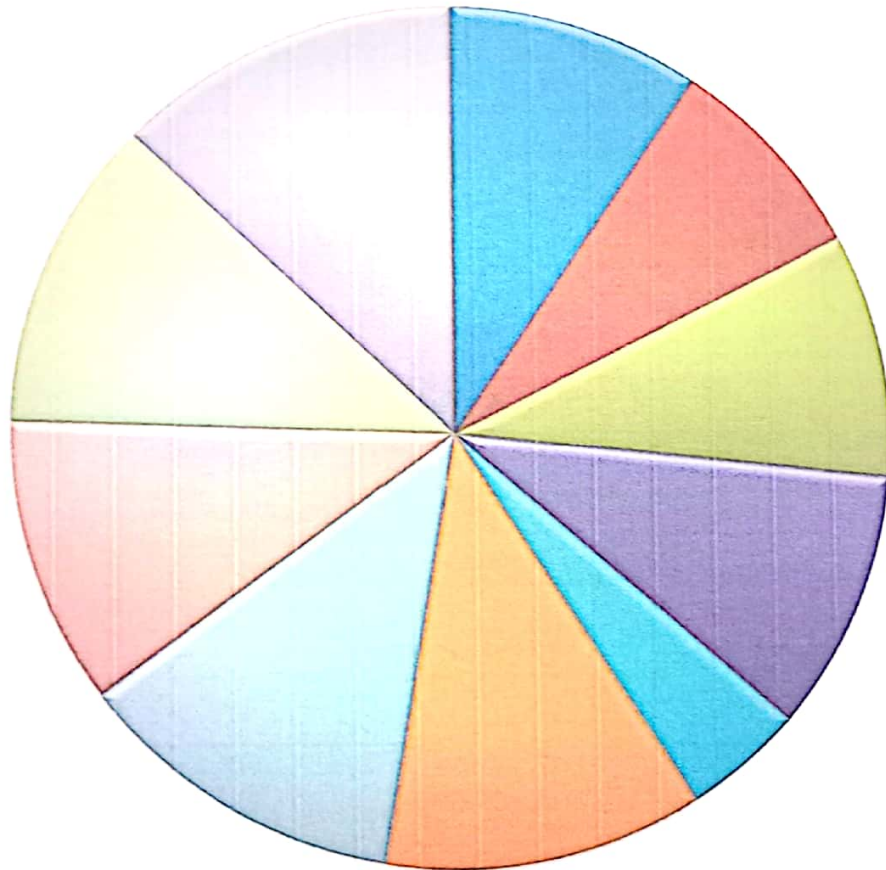
**SKR COLLEGE FOR WOMEN, RAJAMAHENDRAVARAM**  
**Parent Feed Back Analysis – 2021-2022**

Sl.No	Parameters	Strongly Agree		Agree		Neutral		Strongly Disagree		Disagree	
		No.	%	No.	%	No.	%	No.	%	No.	%
1	Sufficient facilities for ICT Teaching	33	52	22	35	04	06	04	04	0	0
2	Fair & Transparent internal assessment	28	44	28	44	05	08	0	0	02	03
3	Library can meet students need	32	51	25	40	05	08	01	02	0	0
4	Discipline is good	34	54	22	35	06	10	01	02	0	0
5	Placement activities are good	16	25	35	56	11	17	01	02	0	0
6	Support for Higher Education is good	41	65	17	27	07	11	01	02	0	0
7	Academic ambience is very good	42	67	16	25	06	10	0	0	01	02
8	Sports facilities are sufficient	37	59	23	37	03	05	01	02	0	0
9	Teachers are Student – Friendly	41	65	18	29	03	05	01	02	0	0
10	Mentoring system functions well	45	71	11	17	05	08	01	02	0	0



  
 PRINCIPAL  
 S.K.R. COLLEGE FOR WOMEN  
 HITHAKARINI SAMAJ  
 Endowments Dept., Govt of Andhra Pradesh  
 RAJAMAHENDRAVARAM

## Analysis of Parent Feed Back 2021-2022



- 1 Sufficient facilities for ICT Teaching
- 2 Fair & Transparent internal assessment
- 3 Library can meet students need
- 4 Discipline is good
- 5 Placement activities are good
- 6 Support for Higher Education is good
- 7 Academic ambience is very good
- 8 Sports facilities are sufficient
- 9 Teachers are Student-Friendly
- 10 Mentoring system functions well



*P. R. ...*

PRINCIPAL  
**S.K.R. COLLEGE FOR WOMEN**  
**HITHAKARINI SAMAJ**  
Endowments Dept., Govt. of Andhra Pradesh  
RAJAMAHENDRAVARAM



**Department of Chemistry**  
**S.K.R.College for Women**  
**RAJAMAHENDRAVARAM**



**SEM-IV, Unit: III**  
**HETERO CYCLIC COMPOUNDS**

**Faculty Members**

Dr. Ch.V.V.Srinivas

Smt N.Swathi



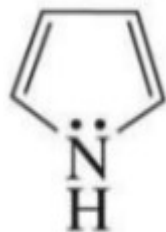
SEMESTER-V , Paper - VI (INORGANIC, ORGANIC & PHYSICAL CHEMISTRY) 45 hrs (3 h / w)  
ORGANIC CHEMISTRY

UNIT- III Heterocyclic Compounds

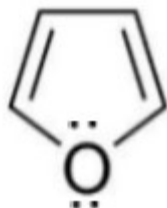
7h

Introduction and definition: Simple five membered ring compounds with one hetero atom Ex. Furan. Thiophene and pyrrole - Aromatic character – Preparation from 1,4,- dicarbonyl compounds, Paul-Knorr synthesis. Properties : Acidic character of pyrrole - electrophilic substitution at 2 or 5 position, Halogenation, Nitration and Sulphonation under mild conditions - Diels Alder reaction in furan. Pyridine – Structure - Basicity - Aromaticity - Comparison with pyrrole - one method of preparation and properties - Reactivity towards Nucleophilic substitution reaction.

**Introduction and definition** :- Incorporation of an oxygen, a nitrogen or a sulphur into an organic ring structure in place of a carbon atom gives rise to a **heterocyclic compound**. Heterocyclics containing five atoms, including one hetero atom Nitrogen is Pyrrole, Oxygen is Furan and Sulphur is Thiophene.



Pyrrole

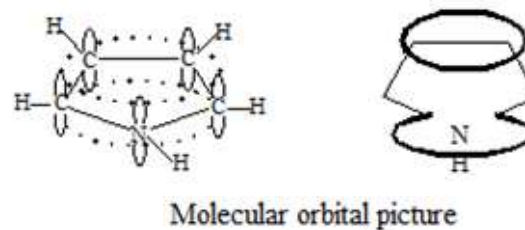
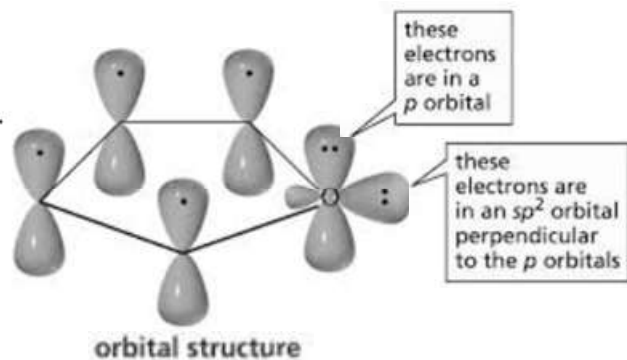


Furan



Thiophene

**Aromatic character**:- Pyrrole, Furan and Thiophene behave like Benzene. Though they are unsaturated compounds they participate in substitution reactions. The resonance energy for these compounds is 92 – 124 kJ/mol. Eventhough only two double bonds are shown in the structure the lone pair of electrons preswent on the hetero atom involve in resonance stabilization In the formation of aromatic sextet two  $\pi$  bonds and one lone pair will form 6  $\pi$  electrons ie. obeys Huckel's rule. In these compounds a cloud will present at above and below plane to the carbon framework. The carbon atoms in these compounds exhibit  $sp^2$  hybridization, hence it has planar structure.



## General preparation of hetero cyclic compounds :-

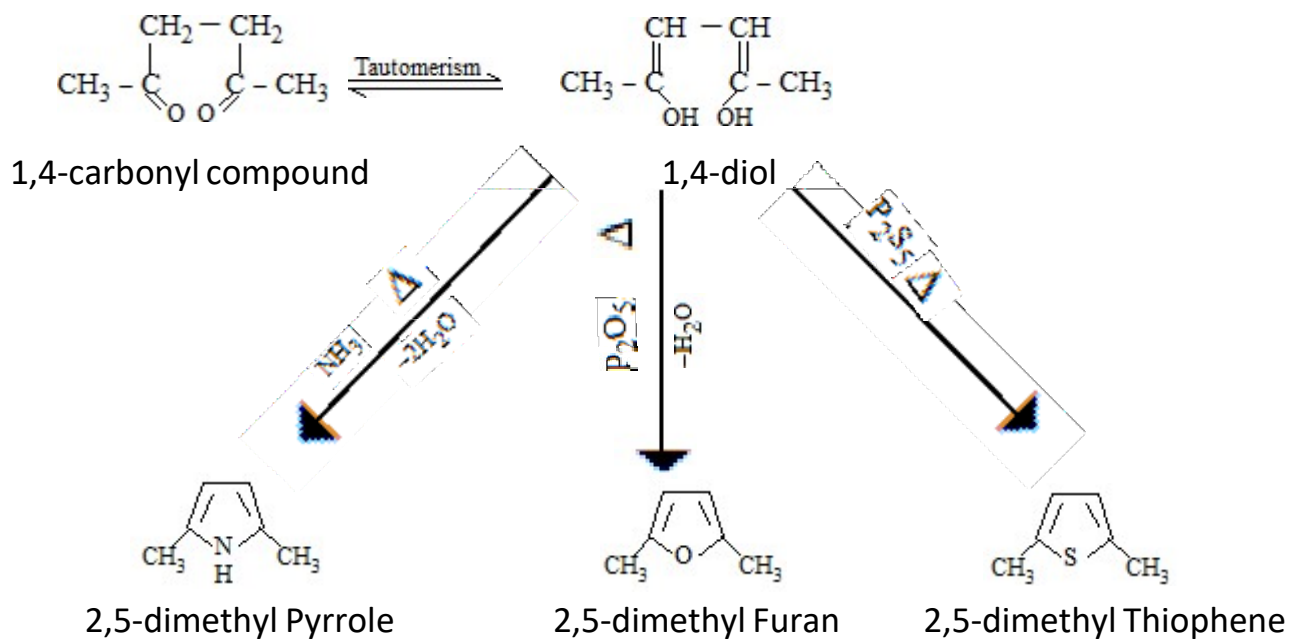
From 1,4-dicarbonyl compounds (or) 1,4-diols (or) Acetyl acetone (**Paul-Knorr synthesis**) :-

Furan, Pyrrole, Thiophene can be prepared from 1,4-dicarbonyl compounds.

If 1,4-di-carbonyl compound is heated with ammonia (or)  $\text{NH}_4\text{Cl}$ , pyrrole is formed.

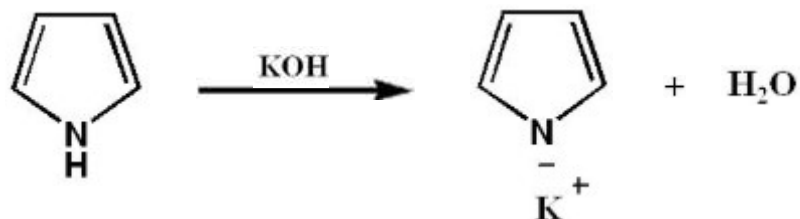
If 1,4-di-carbonyl compound is heated with  $\text{P}_2\text{O}_5$ , furan is formed.

If 1,4-carbonyl compound is heated with  $\text{P}_2\text{S}_5$ , Thiophene is formed.



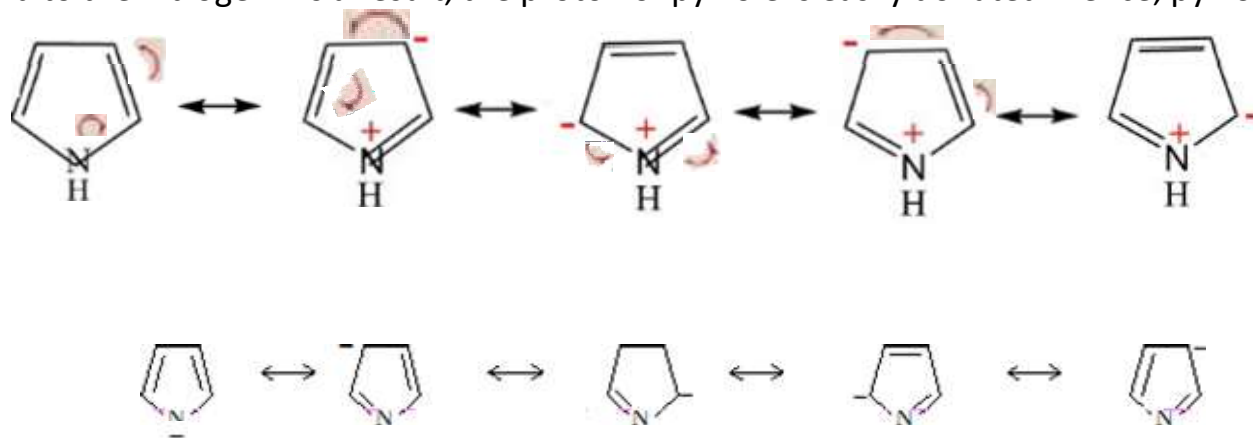


**Acidic character of pyrrole:**- Pyrrole is weakly acidic. Thus on reaction with metallic Potassium or Potassium hydroxide it forms salts, which is hydrolysed back to pyrrole on treatment with water.



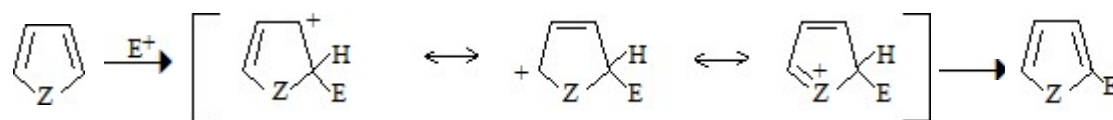
According to Bronsted Lowry theory proton donor is an acid. The acidic character of pyrrole is due to delocalization of non bonding electrons of nitrogen in resonance and resonance stabilisation of pyrrolyl ion formed by the loss of proton.

Due to participation of non bonding electrons of nitrogen in resonance, the hydrogen atom is weakly bound to the nitrogen. As a result, the proton of pyrrole is easily donated. Hence, pyrrole is acidic.



Resonance structures of Pyrrole

**Electrophilic substitution at 2 or 5 position (Halogenation, Nitration and Sulphonation under mild conditions)** :- In Pyrrole, Furan and Thiophene the electrophilic substitution reactions takes place at 2nd or 5th positions instead of 3rd and 4th positions. Because, the intermediate carbonium ion formed when the electrophilic attack is at 2nd or 5th position is more resonance stabilised than the intermediate carbonium ion formed during electrophilic attack at 3rd or 4th positions. Hence Furan, Pyrrole and Thiophene undergo electrophilic substitutions at 2nd or 5th positions.



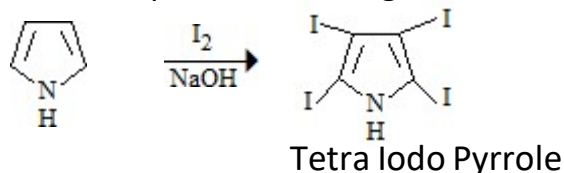
More stable carbonium ion



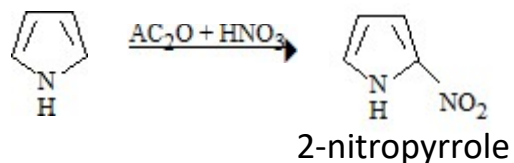
Less stable Carbonium ion

### Electrophilic Substitution Reactions (Pyrrole) :-

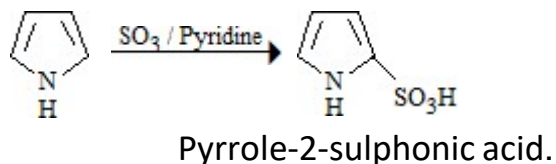
**a). Halogenation** :- Pyrrole when treated with  $I_2$  in NaOH gives tetraiodo pyrrole. Pyrrole upon reaction with Chlorine or Bromine the ring fission takes place due to vigorous reaction.



**b). Nitration** :- Pyrrole on nitration with mixture of nitric acid and acetic anhydride, gives 2-nitropyrrole.

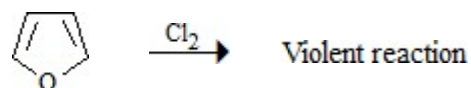


c) **Sulphonation** :- Pyrrole on treatment with sulphur trioxide in pyridine gives pyrrole-2-sulphonic acid.

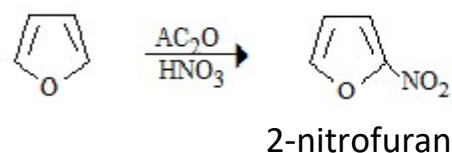


**Electrophilic Substitution Reactions (Furan) :-**

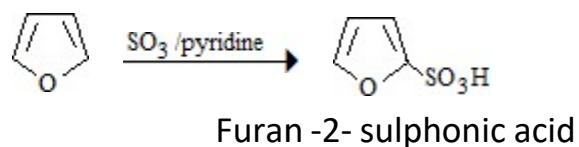
a). **Halogenation** :- Furan on treatment with halogens, chain fission take place with violent reaction.



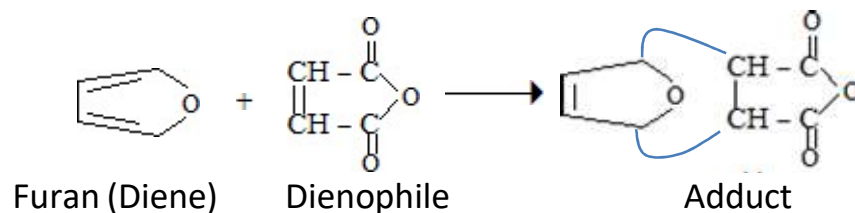
b). **Nitration** :- Furan on treatment with mixture of acetic anhydride and nitric acid gives 2-nitrofuran.



c) **Sulphonation** :- Furan on treatment with  $\text{SO}_3$  in pyridine, gives Furan -2- sulphonic acid



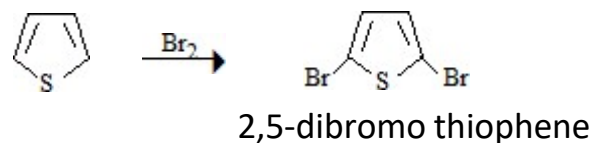
d). **Diel's-Alder Reaction** :- Furan on addition with maleic anhydride gives addition product.



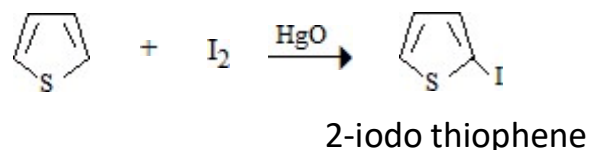


Electrophilic Substitution Reactions (Thiophene) :-

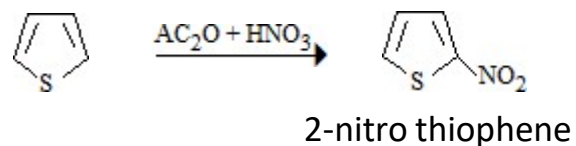
a). **Halogenation** :- Thiophene upon reaction with bromine 2,5-di bromo thiophene is formed.



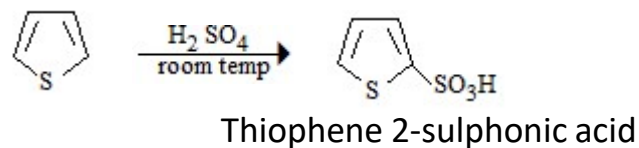
Thiophene on reaction with I<sub>2</sub> in presence of mercuric oxide gives 2-iodo thiophene (monosubstitution)



b). **Nitration** :- Thiophene on treatment with mixture of acetic anhydride and nitric acid gives 2-nitro thiophene.

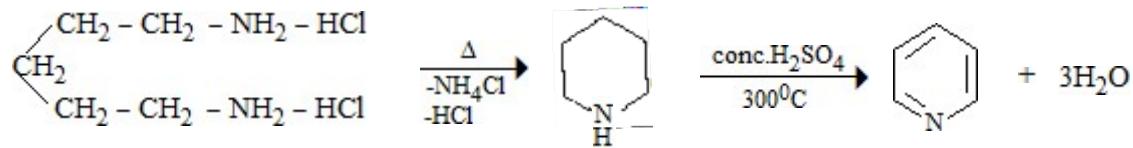


c). **Sulphonation** :- Thiophene on treatment with sulphuric acid gives thiophene 2-sulphonic acid.



Pyridine – Structure - Basicity - Aromaticity - Comparison with pyrrole - one method of preparation and properties - Reactivity towards Nucleophilic substitution reaction.

Preparation:- Pyridine is prepared by heating penta methylene diamine hydrochloride.

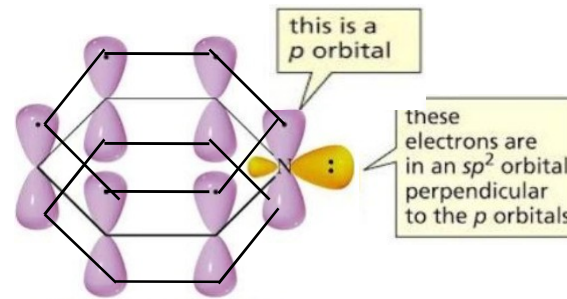
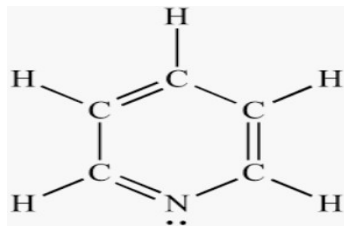


Penta methylene diamine hydrochloride    Piperidine

Pyridine

Structure of Pyridine basing on molecular orbital theory:-

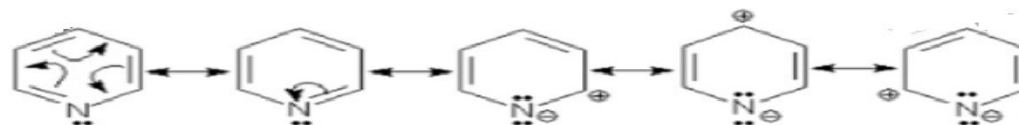
In Pyridine all the five carbon atoms and the hetero atom 'N' undergo  $sp^2$  hybridisation. Each carbon atom possess three  $sp^2$  hybridised orbitals and one unhybridised p-orbital. All these orbitals are occupied by single electrons. Similarly, the hetero atoms 'N' possess three  $sp^2$  hybrid orbitals and one unhybridised p-orbital. Two of these three  $sp^2$  hybrid orbitals and the unhybridised p-orbital are occupied with single electrons the remaining  $sp^2$  hybrid orbital is occupied with two electrons. The carbon and the hetero atom by using the  $sp^2$  hybrid orbitals form carbon frame work, involving C-H, C-C, C-N bonds. Now, the ring atoms still contain unhybridised p-orbitals. These are perpendicular to carbon frame work. These six unhybridised p-orbitals are parallel to each other and overlap side wise and form a continuous, cyclic, delocalised p-electron clouds involving six electrons.



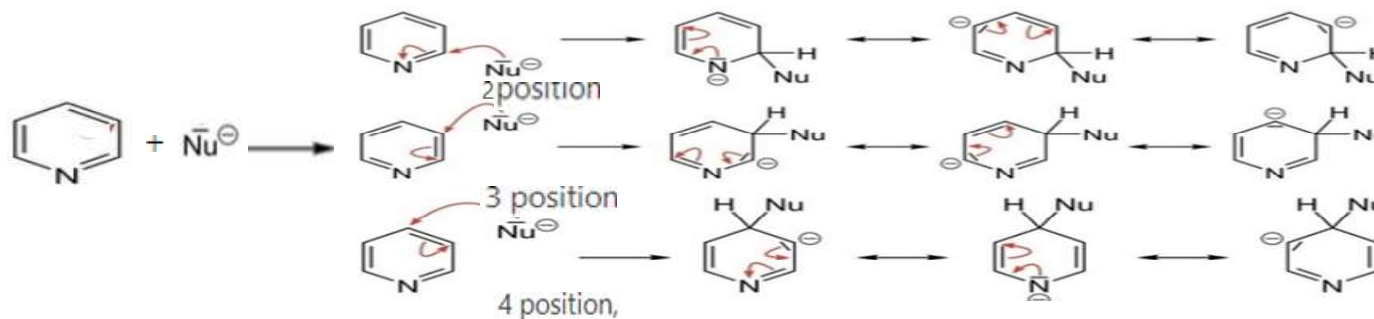
**Basicity:-** Pyridine upon reaction with hydrochloric acid forms a salt pyridine hydrochloride. So it is said to be a base. Pyridine is basic due to the presence of electron pair on the Nitrogen atom. Pyridine is less basic when compared with amines. In amines Nitrogen atom is in  $sp^3$  hybridisation hence the contribution of s-character is 25% whereas Nitrogen atom in Pyridine exhibits  $sp^2$  hybridisation and the contribution of s-character is 33%. Hence the electron pair present in Pyridine doesn't involve in the formation of coordinate covalent bond. So Pyridine is less basic than amines.

**Nucleophilic substitution reactions:-**

Pyridine undergoes nucleophilic substitution reactions at 2,4,6 positions. As the nitrogen atom of the pyridine, deactivates pyridine ring and generates positive centers on the pyridine ring. Pyridine undergoes Nucleophilic substitution reactions. It is evident from the resonance structures.



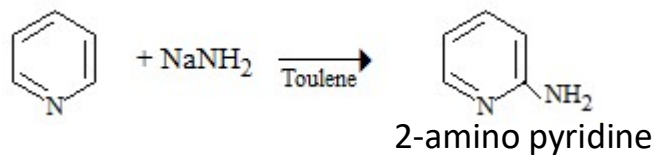
As the 2,4,6 positions of pyridine are positively charged, 2,4,6-positions of the pyridine are suitable for nucleophilic substitution reactions. Pyridine can also undergo electrophilic substitution reactions at 3 or 5 positions at high temperatures.





Nucleophilic Substitution Reactions :-

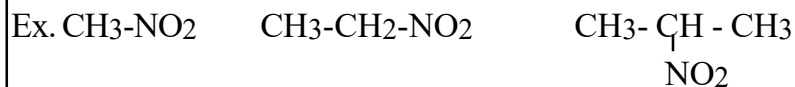
Chichibabin (Amination) reaction :- When pyridine is heated with sodamide in toluene followed by hydrolysis gives 2-amino pyridine. This reaction is known as 'Chichibabin Reaction'.



## Nitro Alkanes

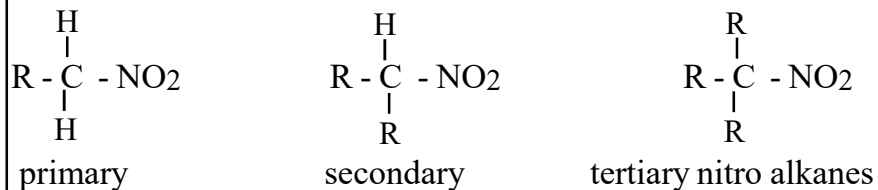
### 1. What are Nitro Alkanes? How are they classified?

Compounds with general formula R-NO<sub>2</sub> are called nitro alkanes.



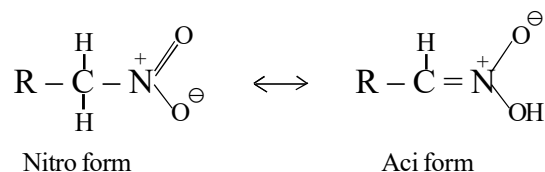
Nitro Methane      Nitro Ethane      2-nitro Propane

They are classified into primary, secondary and tertiary nitro alkanes.



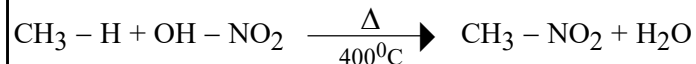
### 2. Explain tautomerism exhibited by nitro alkanes.

Isomers formed by transfer of protons are called tautomers. Like keto compounds, primary and secondary nitro alkanes undergo tautomerism. They form nitroform and aci forms. The aci forms of primary and secondary nitro alkanes form salts with strong bases. Tertiary nitro alkanes does not show tautomerism.



### 3. Write any three methods of preparations of nitro alkanes.

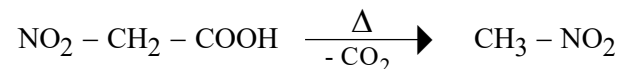
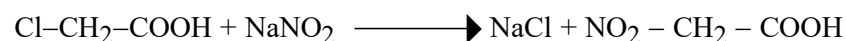
a) By direct nitration of alkanes



b) By the reaction between Alkyl halide and silver nitrite



c) By the reaction between chloroacetic acid and sodium nitrite



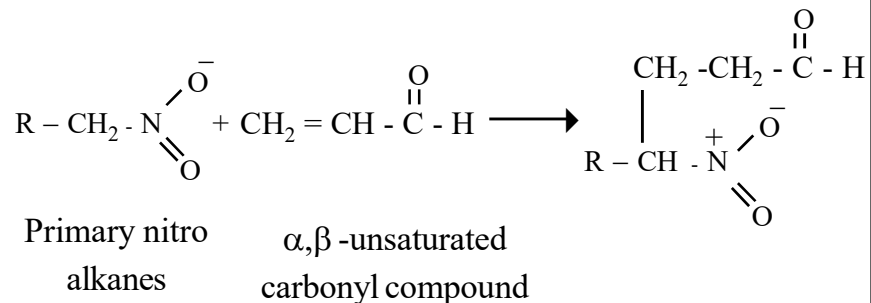
### 4. Explain the following reactions?

- (a). Halogenation      (b). Michael condensation reaction  
(c). Mannich reaction   (d). Reaction with nitrous acid  
(e). Nef reaction

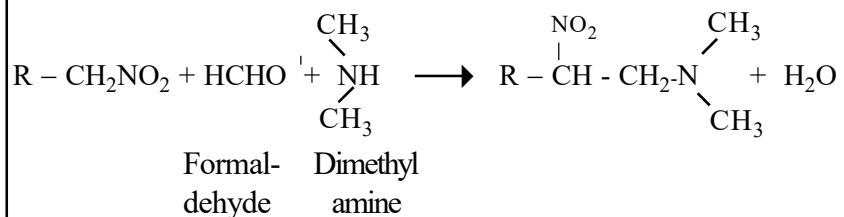
(a). **Halogenation:-** 1<sup>o</sup> and 2<sup>o</sup> nitroalkanes undergoes α - halogenation



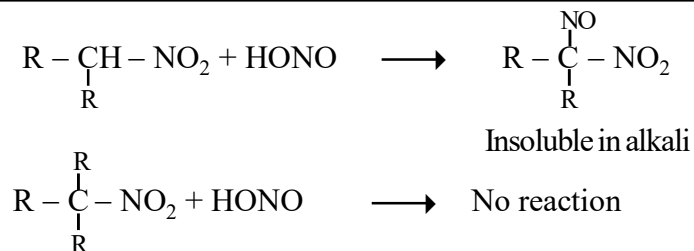
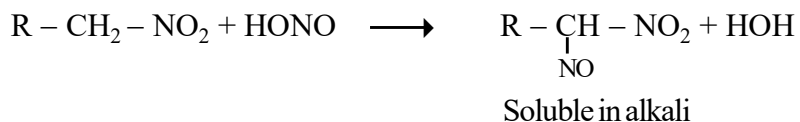
**b). Michael condensation reaction :-** Nitro alkanes undergo addition reaction with  $\alpha,\beta$ -unsaturated carbonyl compounds,  $\alpha,\beta$ -unsaturated nitro compounds,  $\alpha,\beta$ -unsaturated esters. This reaction is called Michael condensation reaction.



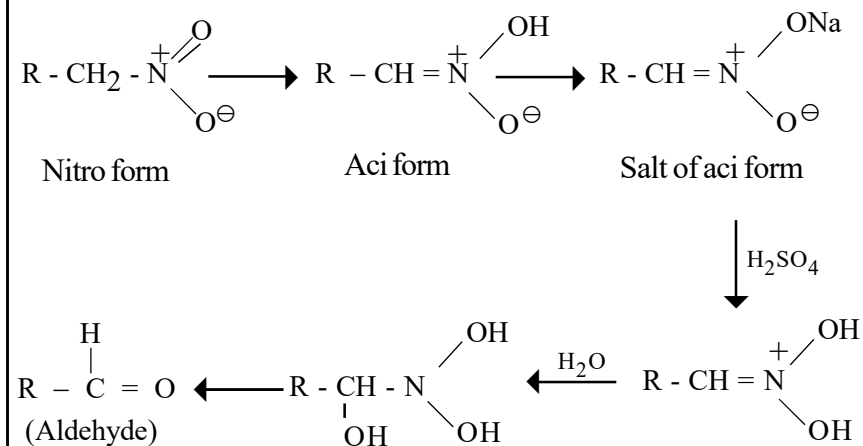
**(c). Mannich reaction:-** The condensation reaction between Nitroalkanes, formaldehyde and salts of Ammonia or 1<sup>o</sup> amine or 2<sup>o</sup> amine is known as mannich reaction



**(d). Reaction with nitrous acid :-** Primary and secondary nitro alkanes react with nitrous acid and give blue coloured nitroso derivatives



**(e). Nef reaction:-** Salts of Aciform of primary and secondary nitro alkanes on hydrolysis with sulphuric acid gives aldehydes and ketones. This reaction known as Nef reaction.



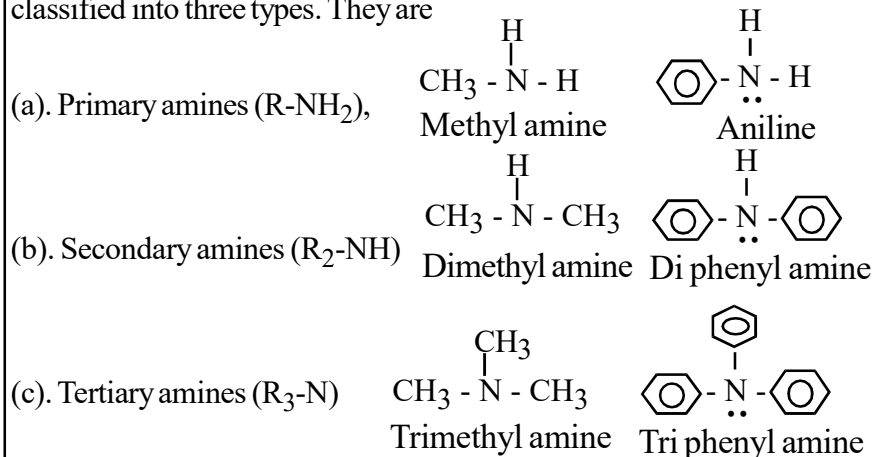


## NITROGEN COMPOUNDS

### AMINES

#### 1. What are amines? How are they classified?

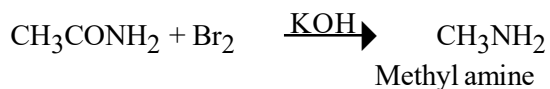
Organic compounds with general formula R-NH<sub>2</sub> are called Amines. Ex. Methyl amine (aliphatic) and Aniline (aromatic). These are classified into three types. They are



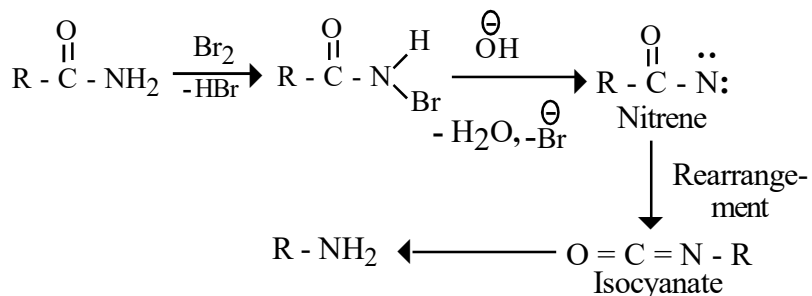
#### 2. How are the aliphatic amines prepared?

##### Preparation methods :-

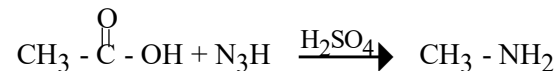
i) **Hoffman's degradation** :- Amides on treatment with Bromine in alkali gives amines. This reaction is known as Hoffman's degradation reaction.



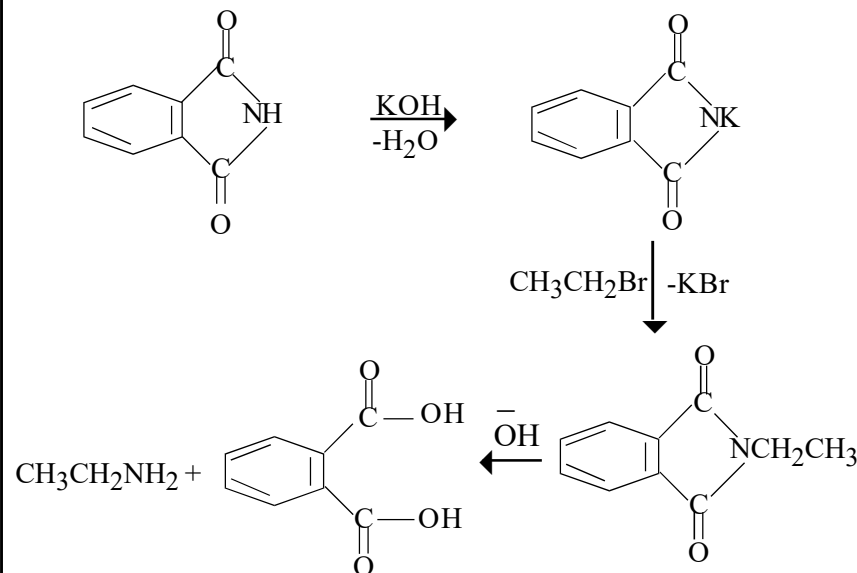
Mechanism:-



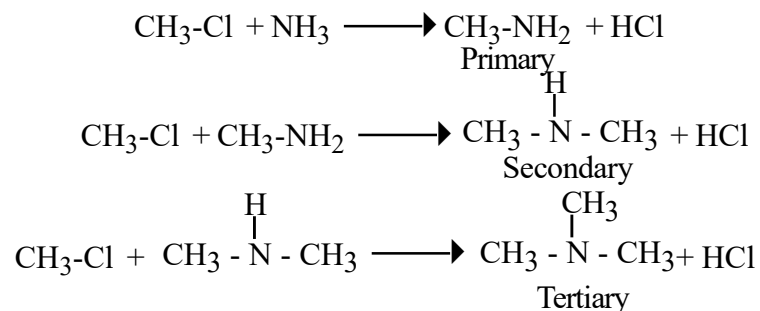
ii) **Schmidt Reaction** :- Carboxylic acids on treatment with hydrazoic acid in presence of sulphuric acid gives amines. This reaction is known as schmidt reaction.



iii) **Gabrieal Synthesis** :- In this method, N-alkyl phthalimide on basic hydrolysis gives 1<sup>o</sup> amines



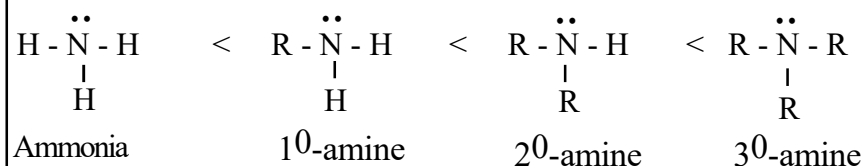
iv). **Ammonolysis of alkyl halides**:- In this method alkyl halides are treated with ammonia.



### 3. Explain the basic character of Amines.

Amines are basic. According to Lewis theory, electron pair donor is a base. As amines are electron pair donors, they are basic. The strength of the basic character of amines depends upon its ability to donate its electron pair. The more the tendency of donating electron pair by the amines, the more is their basic character.

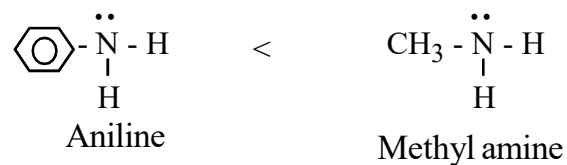
Tertiary amines are less basic than secondary amines.



Alkyl groups, through their inductive effect, increases the electron density on the nitrogen in amines. As a result, amines freely donate electron pair to others. Hence, they are more basic than ammonia. That is why,  $1^{\circ}$  amine is more basic than ammonia,  $2^{\circ}$  amine is more basic than  $1^{\circ}$  amine. Similarly,  $3^{\circ}$  amine is expected to be more basic than secondary amine but it is not so.

It is less basic than  $2^{\circ}$  amine. This is because of steric hinderance. Due to steric hinderance, the electron pair present on  $3^{\circ}$  amine is not available for protonation. Hence,  $3^{\circ}$  amine is less basic than  $2^{\circ}$  amine.

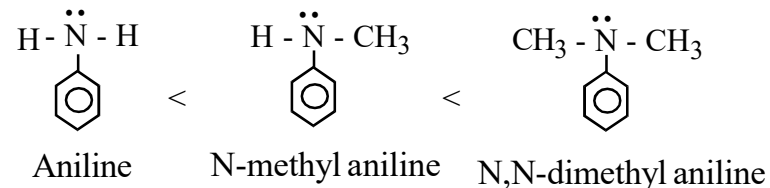
#### Aromatic amines are less basic than aliphatic amines



Aromatic amines are less basic than aliphatic amines. Because in aromatic amines, the electron pair present on the Nitrogen atom involves in the resonance. Due to involvement of electron pair in the resonance. This electron pair is not available for donation. Hence, aromatic amines are less basic than aliphatic amines.

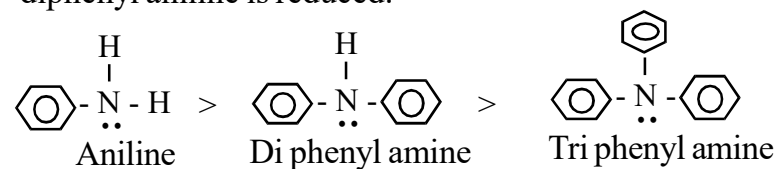
#### 4. Why N, N dimethyl aniline is more basic than aniline ?

Due to electron releasing methyl groups, the electron density on the nitrogen atom of N, N dimethyl aniline increases. Hence, the electron pair, present on the nitrogen atom of N, N dimethyl aniline is more available than the electron pair present on the nitrogen atom of aniline. Hence, N, N dimethyl aniline is more basic than aniline.



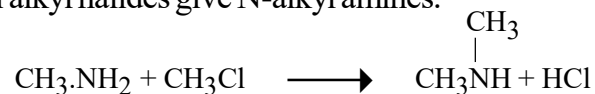
#### 5. Why Aniline is more basic than N,N diphenyl aniline ?

N,N-diphenyl aniline is less basic than aniline because in N, N-diphenyl aniline, the delocalisation of electron pair is more than aniline. Hence, the electron pair is less available for donation than aniline. Hence, N, N-diphenyl aniline is less basic than aniline. In other words, due to delocalisation of electron pair present on the Nitrogen over the two phenyl rings, the basic character of N, N-diphenyl aniline is reduced.

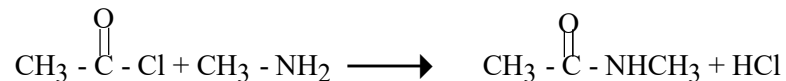


**4. Write any THREE properties of aliphatic amines.**

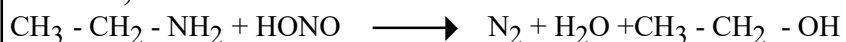
1. **Reaction with alkyl halides (Alkylation):** 1<sup>o</sup> amines on treatment with alkyl halides give N-alkyl amines.



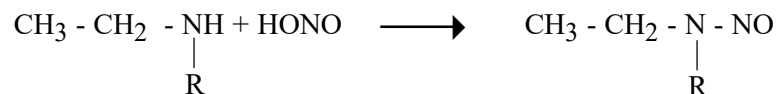
2. **Acetylation : (Acylation)** 1<sup>o</sup> amines on reaction with acid chlorides give N-substituted amides.

**3. Reaction with nitrous acid :-**

a) Primary amines with Nitrous acid produce Nitrogen gas ( as bubbles)



b) Secondary amines with nitrous acid produce yellow oily layer.

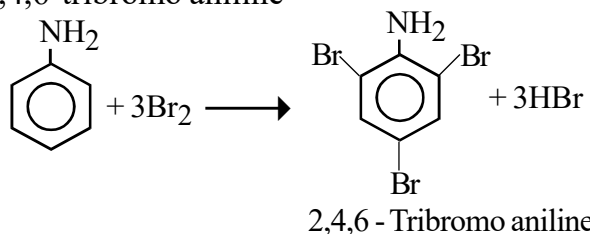


c) Tertiary amines with nitrous acid form soluble nitrite salts  
(CH<sub>3</sub>CH<sub>2</sub>)<sub>3</sub>N + HONO  $\longrightarrow$  (CH<sub>3</sub> - CH<sub>2</sub>)<sub>3</sub> NHONO

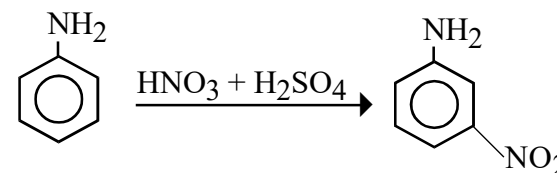
This reaction is used as a basic test to distinguish 1<sup>o</sup>, 2<sup>o</sup> & 3<sup>o</sup> amines.

**5. Discuss the properties of aromatic amines.****(i). Electrophilic substitution reactions:-**

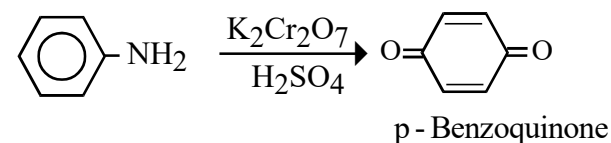
**a) Bromination** : aniline on treatment with Bromine water gives 2,4,6-tribromo aniline



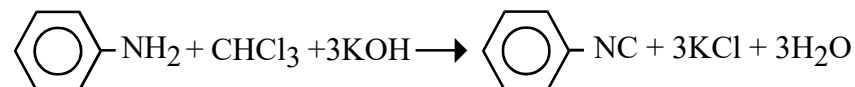
**b) Nitration** : aniline on reaction with mixture of con. HNO<sub>3</sub> and H<sub>2</sub>SO<sub>4</sub> gives meta-nitro aniline



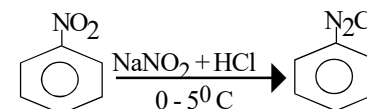
**ii). Oxidation:-** Aniline undergoes oxidation with K<sub>2</sub>Cr<sub>2</sub>O<sub>7</sub> to gives p-Benzoquinone.



**iii). Carbylamine reaction** :- Primary amines react with chloroform in alkali gives isocyanides. This reaction is known as phenyl isocyanide reaction.



**iv). Diazotisation** :- The conversion of aromatic primary amines into diazonium salts is known as diazotisation

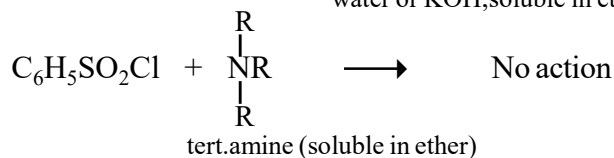
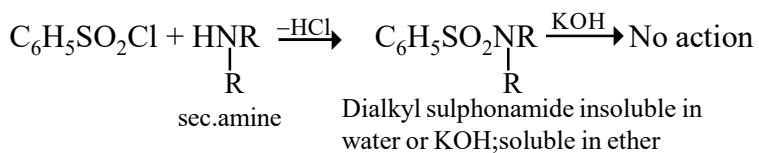
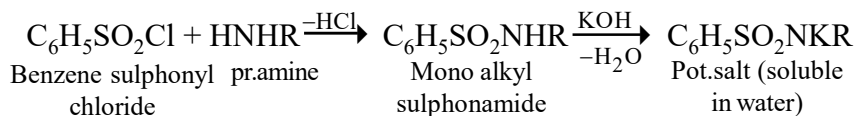




**6. Explain Hinsberg method for the separation of amines.**

In this method, the mixture of amines is treated with benzene sulphonyl chloride and shaken with 5 percent caustic potash solution.

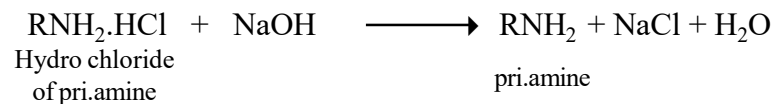
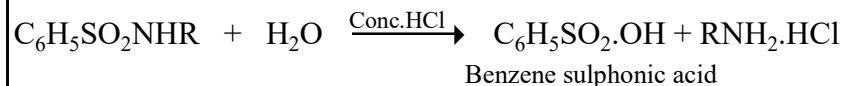
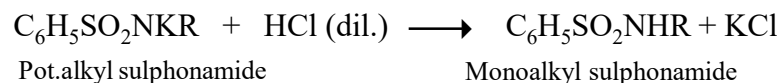
Primary amine forms alkyl benzene sulphonamide, which dissolves in caustic potash forming potassium salt. Secondary amine forms dialkyl sulphonamide, which does not dissolve in caustic potash. Tertiary amine does not react with benzene sulphonyl chloride.



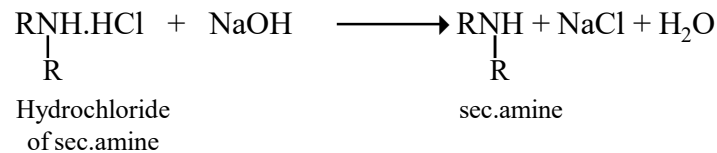
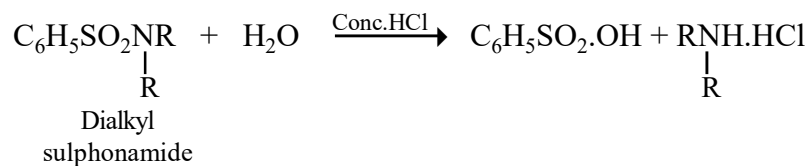
The entire product, thus obtained, is extracted with ether. Tertiary amine and dialkyl benzene sulphonamide being insoluble in water, pass over to the ethereal layer. Potassium alkyl sulphonamide remains in the aqueous layer. The aqueous and the ethereal layers are then separated.

The aqueous layer (containing  $\text{C}_6\text{H}_5\text{SO}_2\text{NKR}$ ) is acidified with dilute hydrochloric acid, alkyl benzene sulphonamide is produced. It is next heated with concentrated hydrochloric acid.

Monoalkyl benzene sulphonamide gets hydrolysed and forms the hydrochloride of primary amine. The latter is distilled with caustic soda to regenerate primary amine.



For the recovery of tertiary and secondary amines, the ethereal layer is fractionally distilled. Tert. amine passes over leaving behind the solid dialkyl benzene sulphonamide. The latter is hydrolysed by concentrated hydrochloric acid and then distilled with caustic soda to get secondary amine.





## JMJ COLLEGE FOR WOMEN (AUTONOMOUS), TENALI

Affiliated to Acharya Nagarjuna University  
Morrispet (P.O.), **TENALI-522202**, Guntur Dt., Andhra Pradesh.  
College Email: [jmjtenali@gmail.com](mailto:jmjtenali@gmail.com) Website: [jmjcollege.ac.in](http://jmjcollege.ac.in) Phone: **08644-227994**



ISO Certificate No.  
QB186414992

# Certificate of Participation

This is to certify that

*Netti.swathi*

of

*S.k.r college for women*

has participated in **Three Day International Webinar - Faculty Development Programme on Indirect Effects of COVID-19 Outbreak on the Environment and Society** organized by the Departments of Zoology, Chemistry and Telugu, JMJ College for Women (Autonomous), Tenali

From *10th to 12th June, 2020*

*M. Aruna*  
Convener  
Ms. M. Aruna

*S. Shiny KP*  
Principal  
Dr.Sr. Shiny KP

Certificate Id: 7TSWEI-CE000212

SVKP & Dr. K S RAJU ARTS & SCIENCE COLLEGE (Autonomous)

Penugonda West Godavari District - 534320

Accredited by NAAC with "A" Grade, College With Potential For Excellence

Affiliated to ADIKAVI NANNAYA UNIVERSITY



**E-CERTIFICATE OF PARTICIPATION**

*This is to Certify that **Netti.swathi** of **S.k.r.college for women Rajahmundry** has **Successfully Participated "A Three day National Level FDP On Online Teaching Using ICT Tools"** Organized by Dept Of Electronics & Computer Science in Association With IQAC From **23/06/2020 to 25/06/2020**.*

**K SASI KUMAR**  
Convener

**Dr Y V V APPARAO**  
Principal





## S.K.R. COLLEGE FOR WOMEN

Rajahmundry-533103, East Godavari District  
Andhra Pradesh, India  
Re-Accredited with "B+" Grade by NAAC  
(Affiliated to Adikavi Nannaya University)



### Certificate of Participation

**Mrs.swathi**

This is to certify that Mrs.swathi of S.k.r college for women , Rajahmundry has successfully completed National level quiz organized by Department of Chemistry on the occasion of World Environment Day on 5th June,2021 with a score of 100% .

INCHARGE OF  
THE DEPARTMENT

IQAC  
CO-ORDINATOR

PRINCIPAL