CSSR & SRRM DEGREE & PG COLLEGE
(Autonomous)

Kamalapuram - 516289, Kadapa, A.P.

Academic Year:2024-2025
Board of Studies
Semester-II
Minutes of the Meeting -I
(Virtual)
Department of Chemistry

Dated:31/12/2024

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Recognized Under 2(f) & 12(B) of UGC Act 1956
13/521, Reddy Colony, Kamalapuram-516 289, Kadapa Dist. A.P.
ISO 9001:2015

Date: 24/12/2024

To
The Members
Board of Studies in Chemistry

Dear Sir/Madam,

Sub: CSSR & SRRM Degree & PG College (A), Kamalapuram, - Conducting of Board of Studies Meeting in Department of Chemistry on – Acceptance & Invitation request- reg.

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I am very much delighted to invite you to the Board of Studies Meeting of Chemistry department to be held on 31-12-2024 to discuss the following agenda. We request your acceptance and presence at the meeting.

Principal

Copy To:
All the BoS Members

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ISO 9001:2015

Date: 25-07-2024

PROCEEDINGS OF THE PRINCIPAL
Present: Dr.G. Vinod Kumar M.Sc., Ph.D., Principal

The Board of Studies for Department of Chemistry has been constituted by the Principal of CSSR & SRRM Degree & PG College (A), Kamalapuram as per UGC autonomous 2023 regulations of BoS for the period of three years i.e., 2024-2025 to 2026-2027 with the following members.

Name of the Faculty	Designation	Position In Bos
Y Venkata Lakshmi	Head of the Department	Chairperson
Dr. Seelolla Gangadhara Assistant Professor in Chemistry, RGUKT, Ongole, Ph: 9703566695 Email: sgangadhara@rguktong.ac.in	Associate Professor	Subject expert
Mr O. Akbar Basha Assistant Professor, Department of Chemistry Annamacharya University, Rajampeta, Andhra Pradesh, Ph: 9704682821 Email: othuru.akbar@gmail.com	Assistant Professor	Subject Expert
Dr. K.S.V. Krishna Rao, Professor Department of Physics +91 9704278890 drksvkrishna@yvu.edu.in	Profesor	Subject Expert Universtity Nominee
N.Praveen Kumar Reddy	Industrialist	Member
P. Salma	Alumni	Member

AGENDA

1. To approve the Chemistry as a minor paper for I B.Sc. Honours (Botany) for II semester.
2. To approve the Course Structure, Continuous Internal Assessment **(CIA)**, Semester End Examination **(SEE)** Practical Examinations Patterns.
3. To approve course outcomes, revised syllabus, Blue Print, Model Question Paper, for
   (i) **Chemistry**- General & Inorganic Chemistry (**Minor Paper**) for I Year, Semester - II, B.Sc. Honours (Botany) in the academic year 2024-25.
4. To suggest panel of names for appointment of paper setters and examiners
5. To approve other academic activities of the department.
6. Any discussions with approval of the chair.

Y.V. Lakshmi

RESOLUTIONS

In BoS meeting, all the panel members have discussed and unanimously approved the following agendas:

1. The members of BoS Unanimously approved to take Chemistry as a Minor Paper for B.Sc. Honours (Botany) for the academic year and made minor modifications as mentioned below.
2. The Members also approved the pattern of course structure, Continuous Internal Assessment, and Semester End Pattern, Practical examinations, Course outcomes, revised syllabus, Blue Print, Model Question Paper.

Course Structure

Year	Semester	Course	Course Code	Title of the Course	No. of Hrs/Week	No. of Credits	CIA	SEE	TOTAL
I	II	1	BOT203	General and Inorganic Chemistry (T)	3	3	30	70	100
				General and Inorganic Chemistry (P)	2	1	-	50 (P)	50

Continuous Internal Assessment:

In each semester, for every subject there are two Internal Examination with 30 marks each and time duration of 1 Hour. The Thirty marks are divided as:

Sl. No	Name of the Activity	Marks Allotted
1	**Internal Examination**	20
2	**Co Circular Activities:** Seminar/Assignment/JAM/Group Discussion	5
3	**Extra Circular Activities:** NSS/NCC/Sports/Clean & Green Activities/Community Services	5

Semester End Examinations:

The semester end examination is for 70 marks with the time duration of 3 Hours.

Practical Examinations:

The Practical examination is for 50 marks with the time duration of 3 Hours

Sl. No	Name of the Activity	Marks Allotted
1	Record	10
2	Viva voice	10
3	Practical	30

.The members approved the list of Question Paper Setters & Examiners.
.The members of the board discussed to focus on the student activities such as like field visit, assignments etc.

. Y.V. Lakshmi

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Credits: 03

I B.Sc. Honours

(Botany) Semester-II

Minor- Chemistry

Title: General and Inorganic Chemistry

COURSE OUTCOMES

At the end of the course the student will be able to-

CO1: Understand the structure of atom and the arrangement of elements in the periodic table.

CO2: Understand the nature and properties of ionic compounds.

CO3: Identify the structure of a given inorganic compound.

CO4: Explain the existence of special types of compounds through weak chemical forces.

CO5: Define acids and bases and predict the nature of salts.

Syllabus

Unit I: Atomic Structure and Periodic table (9 Hrs)

Electronic configuration: Bohr theory, duel nature of electrons, Heisenberg uncertainty principle, the Schrodinger equation, significance of wave functions, normalization of wave function, radial and angular wave functions, Pauli's exclusion principle, Hund's rule, sequence of energy levels (Aufbau principle).

Periodicity: periodic law and arrangement of elements in the periodic table, IUPAC nomenclature and group number, horizontal, vertical, and diagonal relationships in the periodic table. 1.3 General properties of atoms: size of atoms and ions-atomic radii, ionic radii, covalent radii; trend in ionic radii, ionization potential, electron affinity; electro negativity - Pauling, Mulliken-Jaffe, Allred-Rochow definitions; oxidation states and variable valence; iso electronic relationship; inert-pair effect;

UNIT 2: Ionic bond (9 Hrs)

Properties of ionic compounds, factors favouring the formation of ionic compounds- ionization potential, electron affinity, and electro negativity. Lattice energy: definition, factors affecting lattice energy, Born-Haber cycle-enthalpy of formation of ionic compound and stability. Stability of ionic compounds in terms of ΔHfand Uo. Solubility and thermal stability of ionic compounds. Covalent character in ionic compounds- polarization and Fajan's rules; effects of polarization-solubility, melting points, and thermal stability of typical ionic compounds.

UNIT 3: The Covalent Bond (9 Hrs)

Valance Bond theory-arrangement of electrons in molecules, hybridization of atomic orbital's and geometry of molecules-BeCl2, BF3, CH4, PCl5, SF6– VSEPR model-effect of bonding and nonbonding electrons on the structure of molecules, effect of electro negativity, isoelectronic principle, illustration of structures by VESPR model-NH3, H2O, SF4, ICl^- , $_4ICl^-{}_2$ XeF4, XeF6

Molecular orbital theory -LCAO method, construction of M.O. diagrams for homo-nuclear and hetero-nuclear diatomic molecules (N2, O2, CO and NO).

UNIT 4: Metallic and Weak Bonds (9 Hrs)

The Metallic bond: metallic properties, free electron theory, Valence Bond Theory, band theory of metals. Explanation of conductors, semiconductors and insulators.

Weak bonds: hydrogen bonding-intra- and intermolecular hydrogen bonding, influence on thephysical properties of molecules, comparison of hydrogen bond strength and properties of hydrogen bonded N, O and F compounds; associated molecules-ethanol and acetic acid; Vanderwaals forces, ion dipole-dipole interactions.

UNIT 5: Acids and Bases (9 Hrs)

Theories of acids and bases: Arrhenius theory, Bronsted-Lowry theory, Lewis theory, the solvent system, Non aqueous solvents: classification-protonic and aprotic solvents, liquid ammonia as solvent-solutions of alkali and alkaline earth metals in ammonia.

Types of chemical reactions: acid-base, oxidation-reduction, calculation of oxidation number. Definition of pH, pKa, pKb. Types of salts, Salt hydrolysis. Pearson's concept, HSAB principle & its importance, bonding in Hard-Hard and Soft-Soft combinations.

Activities
Seminar/Quiz/Assignments/ Group Discussion

List of Reference Books:

1. J. D. Lee, Concise Inorganic Chemistry, 5th ed., Blackwell Science, London, 1996.
2. . B. R. Puri, L. R. Sharma, K. C. Kalia, Principles of Inorganic Chemistry, Shoban LalNagin Chand and Co., 1996.

Y.V. Lakshmi

II - SEMESTER
GENERAL AND INORGANIC CHEMISTRY

Credits: 01

Practical- I Qualitative Analysis of SIMPLE SALT

Qualitative inorganic analysis (Minimum of Six simple salts should be analyzed) 50 M

Course outcomes:

At the end of the course, the student will be able to;

1. Understand the basic concepts of qualitative analysis of inorganic simple salt.
2. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory
3. Apply the concepts of common ion effect, solubility product and concepts related to qualitative analysis

I. *Laboratory course syllabus:*

Analysis of Simple salt 50 M

Analysis of simple salt containing ONE anion and ONE cation from the following:

Anions: Carbonate, Sulphate, Chloride, Bromide, Acetate, Nitrate, Borate, Phosphate.

Cations: Lead, Copper, Iron, Aluminium, Zinc, Nickel, Manganese, Calcium,Strontium, Barium, Magnesium and Ammonium.

Co-curricular activities and Assessment Methods

1. Continuous Evaluation: Monitoring the progress of student's learning.
2. Class Tests, Work sheets and Quizzes

Reference books:

Vogel's Qualitative Inorganic Analysis, Seventh edition

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I B.Sc. Honours (Botany)

Semester-II

Minor- Chemistry

Title: General and Inorganic Chemistry

BLUE PRINT

Duration: 3 Hrs **Total Marks: 70**

SECTION-A

Answer any **Five questions.** Each question carries **4 Marks.** **5×4 = 20 M**

Topics	Questions Given	Allotted Marks
UNIT-I	1	4
	2	
UNIT-2	3	4
	4	
UNIT-3	5	4
	6	
UNIT-4	7	4
	8	
UNIT-5	9	4
	10	

SECTION-B

Answer **ALL the** Questions. Each question carries **10 MARKS.** **5×10 = 50 M**

Topics	Questions Given	No. of Questions to be Answered	Allotted Marks
UNIT-1	11	1	10
	12		
UNIT-2	13	1	10
	14		
UNIT-3	15	1	10
	16		
UNIT-4	17	1	10
	18		
UNIT-5	19	1	10
	20		

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I B.Sc. Honours (Botany)

Semester-II

Minor- Chemistry

Title: General and Inorganic Chemistry

MODEL QUESTION PAPER

Time: 3 Hours **Max. Marks: 70**

Section – A

Answer any FIVE questions **(5 x 4 = 20 Marks)**

1) Define and explain Ionic radii
2) Write short note on Pauli's Exclusion principle
3) Write short note on Electro affinity
4) Discuss Thermal stability of typical ionic compounds
5) Write the effect of Electro negativity of bonding
6) Explain the LCAO method of molecular orbital theory with suitable examples
7) Explain briefly about conductors, semi-conductors and insulators
8) Write short on Dipole – Dipole interactions
9) Explain Lewis Theory with suitable examples.
10) Define and explain pH

Section – B

Answer **ALL the** Questions. **5×10 = 50 M**

11. Write a brief note on IUPAC nomenclature and group number, horizontal, vertical of the periodic table

(OR)

12. Explain the classification of Long form of Periodic table into different blocks

13. Explain the factors favouring the formation of Ionic compound

(OR)

14. Explain Born-Harber cycle of Enthalpy of formation of ionic compound

15. Explain the structure of SF_4 and ICI^{-4} by VSPER model

(OR)

16. Construct and explain MO diagram for Hetero nuclear diatomic molecule of NO

17. What is Hydrogen bond? Explain its types with suitable examples

(OR)

18. Write a brief note on Valence Bond Theory of metals

19. Explain briefly about the theories of Acids and Bases with examples

(OR)

20. HSAB principle and its importance

Y. V. Lakshmi

LIST OF THE QUESTION PAPER SETTERS

Sl. No	Name & Designation of the Teacher	Institutional Address	Mobile No	E-mail id
1	Dr. S.Venkata Lakshmi Reddy	GDCW, Rayachoti	9063467494	svlreddy2003@gmail.com
2	P V Ramana Reddy	GDC , Yerraguntla	9052074029	ramanareddypv29@gmail.com
3	S.Sowjanya	Sri Hari Degree College, Kadapa	8341471728	sowjisomireddy@gmail.com
4	M.Pavan Kumar Reddy	SKSC Degree College, Proddatur.	8919034475	moola.pavan19@gmail.com
5	G.Mallikharjuna Reddy	Sai Parameswara Degree College, Jammalamadugu	9494123613	gopireddymalli222@gmail.com

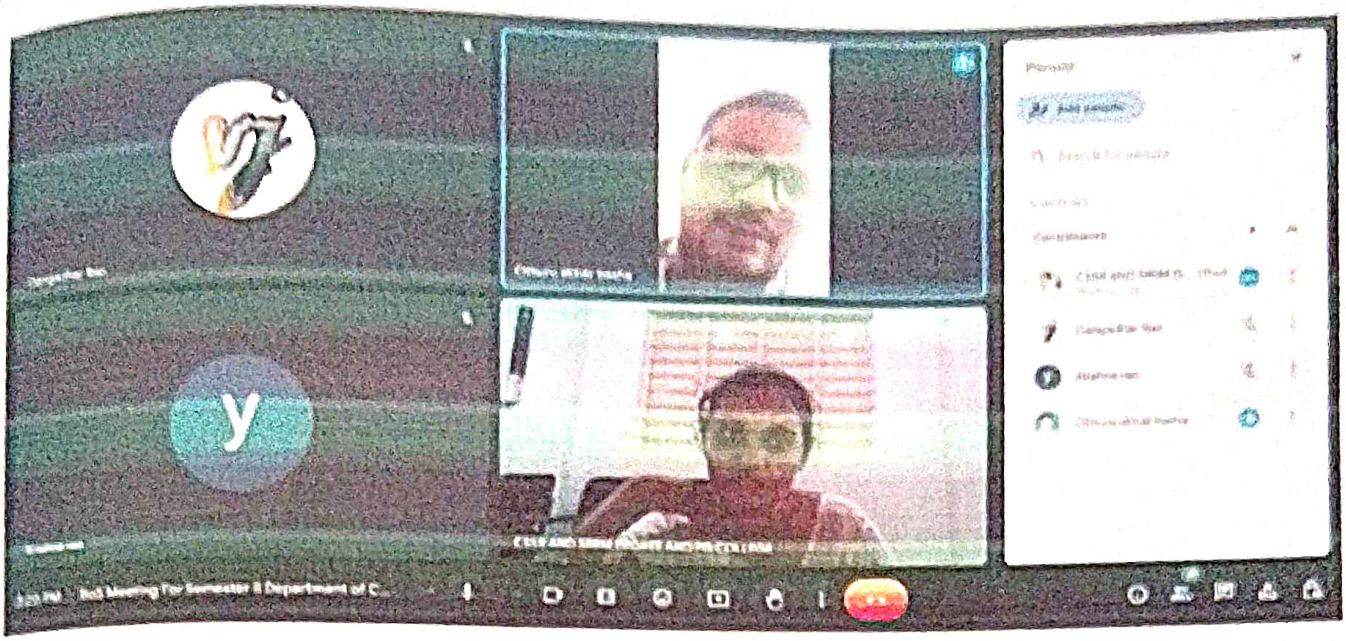
Y.V. Lakshmi

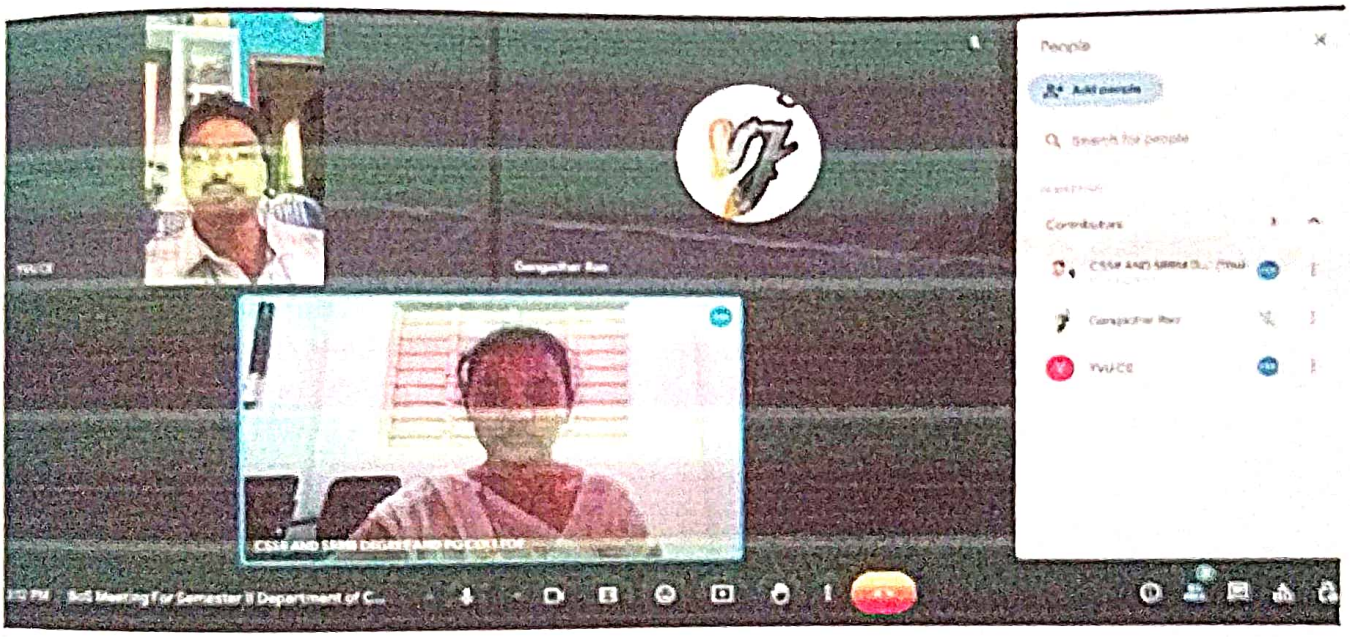
LIST OF THE EXAMINERS

Sl. No	Name & Designation of the Lecturer	Institutional Address	Mobile No	E-mail id
1	V.Bala Narasimha Reddy	SV College of Higher Education, Mydykur.	9441502226	vbnreddy009@gmail.com
2	M.Madhavi	Nagarjuna Degree College for Women, Kadapa	9573299321	mallumadhavi95@gmail.com
3	P.Srilakshmi	Srinivasa Degree College Jamalmadugu.	8o19477545	sri.pallalakshmi.com
4	D.Sambasivudu	Medha DC, Mydukur	8919945852	sambasiva12@gmail.com
5	O.Rajasekhar	SVCHE, Mydukur	8374047579	rajasekharobulapu@gmail.com

Y.V. Lakshmi

Board of Studies Meeting -I for the Academic Year 2024-2025 Semester-II





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Department of Chemistry

2024-2025

Members Present for the Board of Stuides:

Name of the Faculty	Designation	Position In Bos	Signature
Y Venkata Lakshmi	Head of the Department	Chairperson	Y.V. Lakshmi
Dr.Seelolla Gangadhara Assistant Professor in Chemistry, RGUKT, Ongole, Ph: 9703566695 Email: sgangadhara@rguktong.ac.in	Associate Professor	Subject expert	virtual
Mr O. Akbar Basha Assistant Professor, Department of Chemistry Annamacharya University, Rajampeta, Andhra Pradesh, Ph: 9704682821 Email: othuru.akbar@gmail.com	Assistant Professor	Subject Expert	virtual
Dr. K.S.V. Krishna Rao	Profesor	Subject Expert Universtity Nominee	virtual
N.Praveen Kumar Reddy	Industrialist	Member	virtual
P.Salma	Alumni	Member	virtual