SYLLABUS

MANONMANIAM SUNDARANAR UNIVERISTY, TIRUNELVELI-12

COURSE STRUCTURE FOR

B.Sc. CHEMISTRY

(With effect from the academic year 2021-2022 onwards)

Semester-I				
Part	**Subject Status**	**Subject Title**	**Subject Code**	**Credit**
I	Language	Tamil/Other Languages		4
II	Language	Communicative English – II		4
III	Core – Paper III	Organic Chemistry - I		4
III	Core – Paper - IV	Professional English for Physical Science -II		4
III	Major Practical - II	Inorganic quantitative (Volumetric) Analysis - II		2
III	Allied I- Paper – II	Allied Chemistry - II		3
III	Allied Practical-II	Allied Chemistry Practical- II		2
IV	Common	Social Value Education		2

Total Marks: 100 Internal Exam: 25 marks + External Exam: 75 marks

A. **Scheme for internal Assessment**:
Maximum marks for written test: **20 marks**
3 internal tests, each of **I hour** duration shall be conducted every semester.
To the average of the **best two** written examinations must be added the marks scored in. The **assignment** for 5 marks.

The break up for internal assessment shall be:
Written test- 20 marks; Assignment -5 marks Total - 25 marks

B. Scheme of External Examination
3 hrs. examination at the end of the semester
A – Part : 1 mark question two - from each unit
B – Part : 5 marks question one - from each unit
C – Part : 8 marks question one - from each unit

- **Conversion of Marks into Grade Points and Letter Grades**

S.No	Marks	Letter Grade	Grade point (GP)	Performance
1	90-100	O	10	Outstanding
2	80-89	A+	9	Excellent
3	70-79	A	8	Very Good
4	60-69	B+	7	Good
5	50-59	B	6	Above Average
6	40-49	C	5	Pass
7	0-39	RA	-	Reappear
8	0	AA	-	Absent

- **Cumulative Grade Point Average (CGPA)**

$$\mathbf{CGPA} = \frac{\mathbf{\Sigma\,(GP \times C)}}{\mathbf{\Sigma C}}$$

- **GP** = Grade point, **C** = Credit
- CGPA is calculated only for Part-III courses
- CGPA for a semester is awarded on cumulative basis

- **Classification**
  a) First Class with Distinction : CGPA $\geq$ 7.5*****
  b) First Class : CGPA $\geq$ 6.0
  c) Second Class : CGPA $\geq$ 5.0 and $<$ 6.0
  d) Third Class : CGPA$<$ 5.0

Part I Tamil

இரண்டாம் பருவம்

21T	செய்யுள், இலக்கணம், உரைநடை, வாழ்க்கை வரலாறு, இலக்கிய வரலாறு	3	6	-	25	75	100

Course Code	**21T**	பகுதி – ஒன்று – பொதுத்தமிழ் - இரண்டாம்தாள் **(TITLE OF THE COURSE)**
பாடத்திட்டத்தின் நோக்கங்கள் (**Course Objectives**) ஆன்மிகச் சிந்தனையைஇ நீதி நெறிகளைப் புகட்டுதல்		
எதிர்பார்க்கும் படிப்பின் முடிவுகள் **(Expected Course Outcomes)**		
1. சமய இலக்கியங்கள் வழி, பக்தி நெறிகளை அறிவித்தல்		
2. நீதி நூல்கள் வாயிலாக ஒழுக்கச் சிந்தனைகளை எடுத்துரைத்தல்		
3. மொழி அமைப்பினை உணர்த்தி கடிதங்கள் எழுதப் பழக்குவித்தல்		
4. சான்றோர் வாழ்க்கை வரலாற்றினைப் போதித்து நல்வழிப்படுத்துதல		
5. சமயங்களால் படைக்கப்பட்ட இலக்கியங்களை அறிமுகம் செய்தல்		
K1 - நினைவில் கொள்ளுதல் **(Remember) K2-** புரிந்து கொள்ளுதல் (**understand**) **K3 -** விண்ணப்பித்தல் **(Apply) K4 -** பகுத்தாய்தல் **(Analyze) K5 -** மதிப்பிடு செய்தல் **(Evaluate) K6 -** உருவாக்குதல் (**Create**)		
Unit:1	**செய்யுள்**	**30 Hours**
தேவாரம் முதல் நன்னெறி வரை - பல்கலைக்கழக வெளியிடு, அனுசித்ரா பப்ளிகே'ன்ஸ,; சென்னை-33.தொலைபேசி எண் : 044-24743719, Email : anuchitrapublications@gmail.com.		
Unit:2	**இலக்கணம் : சொல் இலக்கணம்**	**15 Hours**

2. பெயர்ச்சொல் - இலக்கணம், வகைகள்
3. வினைச்சொல் - இலக்கணம், வகைகள்
4. இடைச்சொல் - இலக்கணம், ஏகார, ஓகார, உம்மை இடைச்சொற்கள்.
5. உரிச்சொல் - இலக்கணம், வகைகள்
6. கடிதங்கள்
   - முறையிட்டுக் கடிதம்
   - வேண்டுகைக் கடிதம்
   - விண்ணப்பக் கடிதம்
   - பத்திரிகையில் செய்திகள் வெளியிடுவதற்குப் பயிற்சி அளித்தல்

Unit:3	**உரைநடை**	**15 Hours**

உரை அமுதம் - தொகுப்பாசிரியர் - முனைவர் கெ.செல்லத்தாய்,
உங்கள் நூலகம், சென்னை -14 தொலைபேசி எண் : 044-28482441

Unit:4	**வாழ்க்கை வரலாறு**	15 **Hours**

மனோன்மணியம் சுந்தரனாரின் வாழ்வும் பணியும்
ஆசிரியர் முனைவர் அ.கா.பெருமாள்,
நெஸ்லிங் புக்ஸ் பப்ளீஷிங், சென்னை -50
தொலைபேசி எண் : 044-26251968, 26258410, 48601884

Unit:5	**இலக்கிய வரலாறு**	**15 Hours**

1. பன்னிரு திருமுறைகள்
2. நாலாயிரத் திவ்விய பிரபந்தம்
3. சமண இலக்கியங்கள்
4. பௌத்த இலக்கியங்கள்
5. கிறித்துவ இலக்கியங்கள்
6. இஸ்லாமிய இலக்கியங்கள்
7. அறநூல் பெயர்கள் மட்டும் (பதினெண் கீழ்க்கணக்கில்)

PART-1 MALAYALAM

SECOND SEMESTER
PAPER – II
A1MY21 - ഗദ്യസാഹിത്യം (Gadyasahithyam) - Prose Literature

OBJECTIVE OF THE STUDY

The aim is to impart a general understanding of the origin of Malayalam prose and the various forms of prose literature. The origin and development of Malayalam Short-Story and Novel should be briefed. For detailed study a Short-Story & a Novel of famous authors are prescribed. The change from the early short stories and novel to the present should be introduced. The teacher should explain the theme, structure and narrative style of the authors in detail. The development of prose literature should be introduced on the basis of the texts for detailed study.

UNIT - 1- Short-Story

ചെറുകഥ

ആദ്യകാല ചെറുകഥകൾ - എഴുത്തുകാർ - വളർച്ച - വികാസം - ചെറുകഥയുടെ ആധുനിക കാലം - ഉത്തരാധുനിക കാലം - സാങ്കേതിക വിദ്യ - ആസ്വാദനരീതി - മാറ്റം

FOR DETAILED STUDY

1. കാരൂർ നീലകണ്ഠപ്പിള്ള - ഉതുപ്പാന്റെ കിണർ
2. കെ. ആർ. മീര - കൃഷ്ണഗാഥ

UNIT - 2- Novel

നോവൽ

നോവലിന്റെ ഉത്ഭവവും വളർച്ചയും - ആദ്യകാല നോവലുകൾ - വിവിധതരം നോവലുകൾ - ആധുനികകാലം - ഉത്തരാധുനിക പ്രവണതകൾ

FOR DETAILED STUDY

3. വൈക്കം മുഹമ്മദ് ബഷീർ - മതിലുകൾ

UNIT - 3- Memoris

സ്മരണ

ആത്മകഥ - ജീവചരിത്രം - സ്മരണ തുടങ്ങിയവയുടെ വ്യത്യാസങ്ങളെക്കുറിച്ച് - സംസ്കാരം - സമൂഹം - ചരിത്രം തുടങ്ങിയ അറിവുകൾ

FOR DETAILED STUDY

4. കലാമണ്ഡലം കൃഷ്ണൻനായർ - ഗുരുസ്മരണ

UNIT - 4- Travalogue

സഞ്ചാരസാഹിത്യം

യാത്രാവിവരണഗ്രന്ഥങ്ങളുടെ പ്രത്യേകതകൾ - പ്രസക്തി - വായനാനുഭവം - സാഹിത്യാനുഭവം - ചരിത്രം - സംസ്കാരം എന്നിവയുമായുള്ള ബന്ധം

FOR DETAILED STUDY

5. എം. പി. വീരേന്ദ്രകുമാർ - ഹൈമവതഭൂവിൽ
(അഞ്ച്, ആറ്, ഏഴ് അധ്യായങ്ങൾ)

UNIT - 5- Essays

ഉപന്യാസം

ഉപന്യാസരചനയുടെ തത്ത്വങ്ങൾ - പ്രസക്തി - വ്യത്യസ്ത മേഖലകളുമായി ബന്ധപ്പെടുന്നവ അവതരിപ്പിക്കുന്ന രീതി - ചരിത്രപശ്ചാത്തലം

FOR DETAILED STUDY

6. പ്രൊഫ. എം. എൻ. വിജയൻ - മനസ്സും മാധ്യമങ്ങളും

REFERENCE BOOKS

മലയാള ചെറുകഥാ സാഹിത്യചരിത്രം - ഡോ. എം. എം. ബഷീർ
ചെറുകഥ ഇന്നലെ ഇന്ന് - എം. അച്ചുതൻ
ചെറുകഥയുടെ ഛന്ദസ്സ് - വി. രാജകൃഷ്ണൻ
മലയാളനോവൽ സാഹിത്യചരിത്രം - ഡോ. കെ. എം. തരകൻ
കൈരളിയുടെ കഥ - പ്രൊഫ. എൻ. കൃഷ്ണപിള്ള
ചെറുകഥാപ്രസ്ഥാനം - എം. പി. പോൾ
ഗദ്യപഥം - പ്രകാശനവിഭാഗം, കേരള സർവ്വകലാശാല
ഗദ്യമാലിക - പ്രകാശനവിഭാഗം, കേരള സർവ്വകലാശാല
ആത്മകഥാസാഹിത്യം മലയാളത്തിൽ - ഡോ. നടുവട്ടം ഗോപാലകൃഷ്ണൻ
ജീവചരിത്രസാഹിത്യം - ഡോ. കെ. എം. ജോർജ്ജ്
സഞ്ചാരസാഹിത്യം മലയാളത്തിൽ- വി. രമേഷ്ചന്ദ്രൻ
സഞ്ചാരികളും ചരിത്രകാരന്മാരും - വേലായുധൻ പണിക്കശ്ശേരി
ശുദ്ധമലയാളം - പ്രൊഫ. പന്മന രാമചന്ദ്രൻ

PART II ENGLISH

Unit I

1. Listening and Speaking
    a. Listening and responding to complaints (formal situation)
    b. Listening to problems and offering solutions (informal)

2. Reading and writing
    a. Reading aloud (brief motivational anecdotes)
    b. Writing a paragraph on a proverbial expression/motivational idea.

3. Word Power/Vocabulary
    a. Synonyms & Antonyms

4. Grammar in Context
    a. Adverbs
    b. Prepositions

Unit II

1. Listening and Speaking
    a. Listening to famous speeches and poems
    b. Making short speeches- Formal: welcome speech and vote of thanks.
    Informal occasions- Farewell party, graduation speech

2. Reading and Writing
    a. Writing opinion pieces (could be on travel, food, film / book reviews or on any contemporary topic)

b. Reading poetry
    b.i. Reading aloud: (Intonation and Voice Modulation)
    b.ii. Identifying and using figures of speech - simile, metaphor, personification etc.

3. Word Power
    a. Idioms & Phrases
4. Grammar in Context
    Conjunctions and Interjections

Unit III

1. Listening and Speaking
    a. Listening to Ted talks
    b. Making short presentations – Formal presentation with PPT, analytical presentation of graphs and

reports of multiple kinds
c. Interactions during and after the presentations

2. Reading and writing
a. Writing emails of complaint
b. Reading aloud famous speeches

3. Word Power
a. One Word Substitution

4. Grammar in Context: Sentence Patterns

Unit IV

1. Listening and Speaking
a. Participating in a meeting: face to face and online
b. Listening with courtesy and adding ideas and giving opinions during the meeting and making concluding remarks.

2. Reading and Writing
a. Reading visual texts – advertisements
b. Preparing first drafts of short assignments

3. Word Power
a. Denotation and Connotation
4. Grammar in Context: Sentence Types

Unit V

1. Listening and Speaking
a. Informal interview for feature writing
b. Listening and responding to questions at a formal interview

2. Reading and Writing
a. Writing letters of application

3. Word Power
a. Collocation

4. Grammar in Context: Working With Clauses

PAPER III
ORGANIC CHEMISTRY I

Objectives

- To understand the basic concepts of organic chemistry
- To study hydrocarbons, halogen compounds, carbonyl compounds and sulphur compounds
- To study organometallic compounds and reactive methylene compounds
- To know about the conformationl isomers

UNIT I
BASIC CONCEPTS

Classification and nomenclature of organic compounds – Open chain and closed chain compounds- Systems of naming organic compounds- Rules of IUPAC system of nomenclature, branched alkanes, cyclo alkanes – alkenes, alkynes and substituents-Compounds having functional groups, poly functional groups.

Polar effects – Inductive (+I, –I), Electromeric effect-Resonance/Mesomeric effect (+R,-R, +M, –M) – Examples- Hyper conjugation (Baker Nathan effect) and Steric effect.

Bond fission – Homolytic and heterolytic fission. Reaction intermediates – Carbocations, carbanions, free radicals carbenes and nitrenes– their generation, shapes and stability.

UNIT II
HYDROCARBONS AND HALOGEN COMPOUNDS

Addition to unsymmetrical olefins (Markownikoff's rule and peroxide effect), ozonolysis. Classification of alkadienes, stability of conjugate dienes- Mechanism of 1, 2 and 1,4-addition- Diels-Alder reaction. Acidity of alkynes and formation of metal acetylides

Type of reactions - substitution, addition, elimination and polymerisation reactions -SN1 and SN2 mechanisms – Effect of substrate, solvent, nucleophile and leaving groups - E1 and E2 mechanisms- Hoffmann's and Saytzeffs rule- Bredt's rule - Preparation, properties and uses vinyl chloride and allyl chloride

UNIT III
CARBONYL COMPOUNDS AND CARBOXYLIC ACID

Structure and reactivity of carbonyl group – Relative reactivities of aldehydes and ketones – Mechanism of nucleophilic addition reaction (HCN, NaHSO3, Grignard

reagent, condensation reaction) –Mechanism of aldol condensation, crossed aldol condensation, Knoevenagal reaction. Study of the following reactions – Wolff-Kishner reduction, Wittig reaction, Meerwein Ponndorf Verley reduction. Relative strengths of monocarboxylic acids – Effect of substituents on acidity – Hell – Volhard – Zelinsky reaction- Action of heat on α,β,γ & δ hydroxy acids - Dicarboxylic acids: action of heat on dicarboxylic acid – Blanc's rule- Preparation, properties and uses of oxalic acid and succinic acid

UNIT IV

ORGANOMETALLIC COMPOUNDS AND ORGANO SULPHUR COMPOUNDS

Preparation, structure and synthetic uses of Grignard reagent-Preparation and reactions of methyl lithium, diethyl zinc and tetraethyl lead-Reformatsky reaction. Preparation and properties of thioalcohols and thioethers – Sulphonal-mustard gas and sulphone-Benzene sulphonic acid, toluene sulphonic acids, benzene sulphonyl chloride – Importance of tosyl group – Synthesis and applications of saccharin.

UNIT V

REACTIVE METHYLENE COMPOUNDS AND CONFORMATIONAL ISOMERS

Reactivity of methylene groups – preparation and synthetic uses of diethyl malonate and ethyl acetoacetate**. Representation of organic molecules** : Fischer, Sawhorse and Newman projection formulae. Conformational isomerism : Conformation – Dihedral angle – Torsional strain – Conformational analysis of ethane and n-butane including energy diagrams - Relative stabilities of cyclo alkanes – Baeyer's strain theory –Sachse-Mohr theory – Coulson and Moffit's concept – Conformations of cyclohexane (chair, boat and skew boat forms)- axial and equatorial bonds – Ring flipping - Mono and disubstituted cyclohexanes.

Text Books

1.K.S. Tewari, N.K. Vishnoi, S.N. Mehrotra. A Text Book of Organic Chemistry, Vikas publishing house (P) Ltd.2002

2.Arun Bahl and B. S. Bahl, Advanced Organic chemistry, S. Chand and Company Ltd., Reprint 2005

3. P.L. Soni, Text Book of Organic chemistry, Sultans chand, 1991, New Delhi,

Reference Books

1. R. T. Morrison and R. N. Boyd, Organic Chemistry, 6th Edition, PHI Limited, New Delhi,1992.

2. L.Finar Organic chemistry, The Fundamental Principles, Volume I, 6th edition, 1973.
3. N.Tewari, Advance Organic Reaction Mechanism, Books and allied (P) Ltd. Kolkata 700010 India Second revised edition 2005.
4. M.K.Jain and S.C.Sharma Modern organic chemistry, Vishal publishing co., 4th edition 2012.
5. Jerry March, Advanced Organic Chemistry, Reactions Mechanisms and Structure, 4th Edition. 2013

PAPER IV
PROFESSIONAL ENGLISH FOR PHYSICAL SCIENCE – II

Objectives:

The Professional Communication Skills Course is intended to help Learners in Arts and Science colleges.

- Develop their competence in the use of English with particular reference to the workplace situation.
- Enhance the creativity of the students, which will enable them to think of innovative ways to solve issues in the workplace.
- Develop their competence and competitiveness and thereby improve their employability skills.
- Help students with a research bent of mind develop their skills in writing reports and research proposals.

LEARNING OUTCOMES:

At the end of the course, learners will be able to,

- Attend interviews with boldness and confidence.
- Adapt easily into the workplace context, having become communicatively competent.
- Apply to the Research &Development organizations/ sections in companies and offices with winning proposals.

UNIT I

COMMUNICATIVE COMPETENCE

Listening – Listening to two talks/lectures by specialists on selected subject specific topics -(TED Talks) and answering comprehension exercises(inferential questions) **Speaking**: Small group discussions (the discussions could be based on the listening and reading passages- open ended questions. **Reading**: Two subject-based reading texts followed by comprehension activities/exercises. **Writing**: Summary writing based on the reading passages. Grammar and vocabulary exercises/tasks to be designed based on the discourse patterns of the listening and reading texts in the book. This is applicable for all the units.

UNIT II

PERSUASIVE COMMUNICATION

Listening: Listening to a product launch- sensitizing learners to the

nuances of persuasive communication. **Speaking**: debates – Just-A Minute Activities. **Reading**: reading texts on advertisements (on products relevant to the subject areas) and answering inferential questions. **Writing**: Dialogue writing- writing an argumentative /persuasive essay.

UNIT III –
DIGITAL COMPETENCE

Listening: Listening to interviews (subject related). **Speaking**: Interviews with subject specialists (using video conferencing skills)Creating V logs (How to become a v logger and use v logging to nurture interests – subject related). **Reading**: Selected sample of Web Page (subject area)Writing: Creating Web Pages. **Reading Comprehension**: Essay on Digital Competence for Academic and Professional Life. The essay will address all aspects of digital competence in relation to MS Office and how they can be utilized in relation to work in the subject area.

UNIT IV
CREATIVITY AND IMAGINATION

Listening to short (2 to 5 minutes) academic videos (prepared by EMRC/ other MOOC videos on Indian academic sites –
E.g. https://www.youtube.com/watch?v=tpvicScuDy0)

Speaking: Making oral presentations through short films – subject based Reading: Essay on Creativity and Imagination (subject based). Writing – Basic Script Writing for short films (subject based) - Creating blogs, flyers and brochures (subject based) - Poster making – writing slogans/captions(subject based)

UNIT V
WORKPLACE COMMUNICATION

Speaking: Short academic presentation using PowerPoint. **Reading & Writing**: Product Profiles, Circulars, Minutes of Meeting. Writing an introduction, paraphrasing Punctuation (period, question mark, exclamation point, comma, semicolon, colon, dash, hyphen, parentheses, brackets, braces, apostrophe, quotation marks, and ellipsis) Capitalization (use of upper case).

PAPER II
ALLIED CHEMISTRY II

Objectives

- To know the importance of coordination chemistry
- To understand the electronic effects and stereoisomerism in organic compounds
- To learn the conductance of the solution and emf of the cell.
- To study about the biomolecules
- To know the various diseases and treatment

UNIT I

INORGANIC CHEMISTRY

Coordination Chemistry: Definition of ligand and Complexes- Coordination number and valency of metal ions - IUPAC Nomenclature – Werner's, sidgwick and Pauling's theories. Effective Atomic Number rule- Metal carbonyls. Chelation – Chelate Effect- Applications of EDTA in Qualitative and Quantitative Analysis . Biological role of haemoglobin, Vitamine B12 and Chlorophyll.

UNIT II

ORGANIC CHEMISTRY

Covalent Bond-Orbital Overlap-Hybridisation – sp, sp^2, & sp^3 hybridisations – Geometry of Organic molecules- Methane, Ethylene and Acetylene. **Electron displacement Effects:** Inductive, Resonance, Hyper conjugative & steric effects. Their effect on the properties of compounds.

Stereoisomerism: Symmetry-elements of symmetry- cause of optical activity, Tartaric acid. Racemisation. Resolution. Geometrical isomerism of Maleic and Fumaric acids.

UNIT III

PHYSICAL CHEMISTRY

Electro Chemistry: Molar and equivalent conductance – Effect of dilution on conductivity- Ostwald dilution law - Kohlrausch law -Measurement of conductance - pH determination- Conductometric titrations. Galvanic cells-EMF-standard electrode potentials- Nernst equation(derivation not required) – EMF of electrode and cell - reference electrodes – pH determination using glass electrode – Potentiometric titrations. Corrosion: Definition- Methods of prevention of corrosion.

UNIT IV

BIO-ORGANICHEMISTRY

Carbohydrates: Classification and examples – Reducing and non reducing sugars - glucose and fructose – preparation and properties –structure of glucose – Fischer and Haworth cyclic structures.

Amino acids and proteins: Amino acids – Classification based on structure. Essential and non – essentials amino acids – preparation, properties and uses – peptides (elementary treatment only) – proteins – Classification based on physical properties and biological functions. Structure of proteins – primary and secondary (elementary treatment).

UNIT V

PHARMACEUTICAL CHEMISTRY

Common diseases – Infective diseases – Insect borne –Air borne – Water borne – Hereditary diseases. Definition and examples of analgesics, antipyretics, sulpha drugs, antimalarials and, antibiotics. Diabetes – causes – hyper and hypoglycaemic drugs. Indian medicinal plants – Tulsi, neem, keezhanelli- their importance.

Reference Books

1. B.R. Puri, L .R. Sharma, K. C. Kalia , Principles of Inorganic chemistry, 21st edition, ValllabhPublications, 2005.
2. P. L. Soni, "Text Book of Organic Chemistry" 26th Edition, S. Chand & Co, New Delhi, 1994.
3. R.T. Morrision, R.N. Boyd, S.K Bhattacharjee, Organic Chemistry, 7th Edition, Pearson, India,2011.
4. B.R. Puri, L .R. Sharma, Pathania, Principles of Physical chemistry, 35th edition, Shoban LalNagin Chand and Co., 2013.
5. Principles of Biochemistry, 6th Edition, D.L. Nelson and M.M. Cox , W. H. Freeman andcompany (Newyork).6. G.R. Chatwal, Pharmaceutical Chemistry, Himalaya, Publishing House, New Delhi, 2002.
7. Text Book of Pharmaceutical Chemistry, Jeyashree Gosh S. Chand andCompany,New Delhi,2003.
8. S. Lakshmi, Pharmaceutical Chemistry, Sultan Chand and sons, 3rd Edition , 2004

MAJOR PRACTICAL PAPER II

INORGANIC QUANTITATIVE (VOLUMETRIC) ANALYSIS – II

Objectives

- To enable the students to acquire the quantitative skills in volumetric analysis.
- At the end of the course, the students should be able to plan experimental projects and execute them.

Iodometry

- Estimation of copper – Std. copper sulphate
- Estimation of K2Cr2O7 – Std. K2Cr2O7

Dichrometry

- .Estimation of ferrous iron – Std. ferrous ammonium sulphate
- Estimation of K2Cr2O7 – Std. K2Cr2O7
- Estimation of ferrous iron using diphenylamine as internal indicator

Complexometry

- Estimation of Zn – Std. ZnSO4
- Estimation of Pb – Std. ZnSO4
- Estimation of Mg – Std. ZnSO4
- Estimation of copper – Std. CuSO4
- Estimation of Total Hardness of water

Internal –50 marks

25 marks - Regularity

25 marks – Average of best four estimations in regular class work

External -50 marks

10 marks – Record (atleast 4 volumetric estimations)*

10 marks – Procedure

30 marks – Result

*Experiments done in the class alone should be recorded

(Students having a bonafide record only should be permitted to appear for the practical examination

ALLIED CHEMISTRY PRACTICALS II

INORGANIC QUALITATIVE ANALYSIS

Inorganic simple salt containing one acidic radical (interfering radical) and one basic radical

1.Acidic radical

Interfering acidic radicals:

Borate, Fluoride, Oxalate and Phosphate.

2. Basic radicals

Group I : Lead
Group II : Copper, Cadmium
Group IV : Cobalt, Nickel
Group V : Strontium
Group VI : Magnesium, Ammonium.

Internal –50 marks

25 marks - Regularity
25 marks – Average of four experiments in regular class work

External -50 marks

10 marks – Record (atleast 4 experiments)*
10 marks – Procedure
30 marks – Result

*Experiments done in the class alone should be recorded
(Students having a bonafide record only should be permitted to appear for the practical examination)

Reference books:

1. G.H.Jeffery, J.Bassett, J.Mendham and R.C.Denny 'Vogel's Text book of Quantitative Chemical Analaysis' 5th Edition ELBS.
2. I.M.Kolthoff and E.A.Sanderson, Quantitative Chemical Analysis, S Chand
3. O.P. Pandey, D.N Bajpai, S. Gini, Practical Chemistry, for I, II & III BSc. Students. S.Chand & Company Ltd reprint 2009.
4. V.K.Ahluwalia, Sunitha Dhingra, Adarsh Gulate, College Practical Chemistry, Universities Press (India) Pvt Ltd 2008 (reprint)