

DEPARTMENT OF PHYSICS

U.G. PROGRAMME

SYLLABUS

2017 – 2020 BATCH

IV SEMESTER



A. D. M. COLLEGE FOR WOMEN

NAGAPATTINAM

நான்காம் பருவம் தாள் IV – பண்டைய இலக்கியமும், உரைநடையும்

அகமதிப்பீடு: 25

மணிகள் : 6

புறமதிப்பீடு: 75

3

மொத்த மதிப்பெண் : 100

3

பயிற்று

தரப்பள்ளிகள் :

தேர்வுமணிகள் :

நோக்கம்:

1. பழந்தமிழ் இலக்கிய வளத்தை உணர்த்துதல்.
2. சங்க அக, புற பாடல் மரபுகளைப் பயிற்றுவித்தல்.

மாணவர் பெறும் திறன்:

1. பழந்தமிழ் இலக்கிய மரபை அறிவர்
2. வாழ்வியல் அறங்கள் மற்றும் வரலாற்றுச் செய்திகளை அறிவர்.

அலகு – I

குறுந்தொகை

1. 'வில்லோன்' எனத் தொடங்கும் பாடல் (பா.எ. 07)
2. 'அகவன்' எனத் தொடங்கும் பாடல் (பா.எ. 23)
3. 'கான்' எனத் தொடங்கும் பாடல் (பா.எ. 38)
4. 'தலைப்புணை' எனத் தொடங்கும் பாடல் (பா.எ. 222)
5. 'பாலும்' எனத் தொடங்கும் பாடல் (பா.எ. 396)

நற்றிணை

1. 'நின்றசொல்லர்' எனத் தொடங்கும் பாடல் (பா.எ. 01)
2. 'தடமருப்பு' எனத் தொடங்கும் பாடல் (பா.எ. 120)

ஐங்குறுநூறு

1. பாலைத்திணை – தலைவி இரங்கு பத்து (331 முதல் 340 வரை) – 10 பாடல்கள்

அகநானூறு

1. 'அகல்அறை' எனத் தொடங்கும் பாடல் (பா.எ. 105)
2. 'நோகோ' எனத் தொடங்கும் பாடல் (பா.எ. 153)

அலகு – II

கலித்தொகை

1. குறிஞ்சிக்கலி
'சுடர்த்தொடி' எனத் தொடங்கும் பாடல் (பா.எ. 15)
2. நெய்தல்கலி
'மாமலர்' எனத் தொடங்கும் பாடல் (பா.எ. 16)

அகநானூறு

1. 'வள்ளியோர்' எனத் தொடங்கும் பாடல் (பா.எ. 47)
2. 'நின்னயந்து' எனத் தொடங்கும் பாடல் (பா.எ. 163)
3. 'உண்டாலம்ம' எனத் தொடங்கும் பாடல் (பா.எ. 182)
4. 'ஈயென்' எனத் தொடங்கும் பாடல் (பா.எ. 204)

5. 'நினைக்குங்காலை' எனத் தொடங்கும் பாடல் (பா.எ. 217)

சிறுபாணாற்றுப்படை

1. சிறுபாணாற்றுப்படை முழுவதும்

அலகு - III

திருக்குறள்

1. புறங்கூறாமை (அதிகாரம் 19)
2. மானம் (அதிகாரம் 97)
3. நெஞ்சொடு கிளத்தல் (அதிகாரம் 125)

நாலடியார்

1. 'அரும்பெறல்' எனத் தொடங்கும் பாடல் (பா.எ. 34)
2. 'கல்லாதுபோகிய' எனத் தொடங்கும் பாடல் (பா.எ. 169)
3. 'கோட்டுப்பூப்போல' எனத் தொடங்கும் பாடல் (பா.எ. 215)
4. 'நன்னிலைக்கண்' எனத் தொடங்கும் பாடல் (பா.எ. 248)
5. 'ஒருநன்றி' எனத் தொடங்கும் பாடல் (பா.எ. 357)

பழமொழி நானூறு

1. 'புலமிக்கவரை' எனத் தொடங்கும் பாடல் (பா.எ. 07)
2. 'முல்லைக்கு' எனத் தொடங்கும் பாடல் (பா.எ. 74)
3. 'பூத்தாலும்' எனத் தொடங்கும் பாடல் (பா.எ. 93)
4. 'செயல்வேண்டா' எனத் தொடங்கும் பாடல் (பா.எ. 263)
5. 'நாடிநமரென்று' எனத் தொடங்கும் பாடல் (பா.எ. 346)

அலகு - IV

உரைநடைத்திரட்டு - தமிழ்த்துறை வெளியீடு

அலகு - V

1. இலக்கிய வரலாறு - சங்க இலக்கியம்
பாட்டும் தொகையும்
பதினெண் கீழ்க்கணக்கு

LED

A.D.M. COLLEGE FOR WOMEN (AUTONOMOUS) NAGAPATTINAM

DEPARTMENT OF ENGLISH

Credit Point : 3

SEMESTER-IV CATEGORY – PART II- ENGLISH

Paper IV – ENGLISH FOR COMPETITIVE EXAMINATIONS

SEMESTER IV

ELC IV – ENGLISH FOR COMPETITIVE EXAMINATIONS

Text Prescribed:

- **English for Competitive Examinations – R.R. Bhatnagar and Rajul Bhatnagava**
- **Spoken English – V. Sasikumar and P.V.Dhamaja.**

Units:

1. Articles
2. Indirect Speech
3. Tenses
4. Errors and how to avoid them
5. Spotting Errors
6. Sentence Completion
7. Synonyms-50
8. Antonyms-50
9. Idiomatic Expression-36
10. Reconstructing Passages-20
11. Precis Writing
12. Letter Writing (Formal and Informal)
13. Comprehension
14. Essay Writing
15. Dialogues

Unitized Syllabus

Unit-I

1. Articles
2. Indirect Speech
3. Tenses
4. Errors and how to avoid them
5. Spotting Errors

Unit-II

6. Synonyms-50
7. Antonyms-50
8. Idiomatic Expression-36

Unit-III

9. Reconstructing Passages
10. Sentence Completion
11. Letter Writing (Formal and Informal)

Unit-IV

12. Precis Writing
13. Comprehension

Unit-V

14. Essay Writing

15. Dialogues

Pattern of Evaluation

CIA – 25 Marks (Passing minimum of 40%)

Test (Written) – 10 Marks

Assignment - 5 Marks

Quiz / Group Discussion - 5 Marks

Attendance - 5 Marks

S/E – 75 Marks

Total Marks – 100 (Passing minimum of 40%)

Question Pattern:

Section A - 20 Marks

Vocabulary (20 x 1 = 20)

1. Synonyms - 5 Marks
2. Antonyms - 5 Marks
3. Idiomatic Expression - 5 Marks
4. Sentence Completion - 5 Marks

Section B – 25 Marks

Grammar Components

1. Spotting Errors - 5 Marks
2. Errors and How to avoid them - 5 Marks
3. Reconstructing Passages - 5 Marks
4. Tense Form - 5 Marks
5. Articles -3 Marks
6. Direct to Indirect Speech - 2 Marks

Section C (30 Marks)

1. Letter Writing - 5 Marks Personal Letter / Informal Letter (Either Or Pattern)
2. Précis Writing - 5 Marks
3. Comprehension - 5 Marks
4. Essay Writing -10 Marks
5. Dialogues - 5 Marks

**SEMESTER IV
CORE COURSE V
MAJOR PRACTICAL II**

Internal: 40

External : 60

Instruction Hours: 2

Exam Hours: 3

Credit: 4

Objective:

To enhance the knowledge in experimental physics.

1. Uniform bending –Pin and Microscope.
2. Static Torsion -Determination of Rigidity modulus (n).
3. Torsional Pendulum – Rigidity modulus (n) and moment of inertia (I).
4. Stoke's method - Viscosity of highly viscous liquid.
5. Coefficient of viscosity of highly viscous liquid –Searle's viscometer method.
6. Emissive power of a surface - Spherical calorimeter.
7. Thermal conductivity of a bad conductor -Lee's disc method.
8. Carey Foster's Bridge –specific resistance determination.
9. Potentiometer - Ammeter calibration.
10. Potentiometer - Voltmeter calibration - low range.
11. Potentiometer - determination of resistance.
12. Figure of merit of a mirror Galvanometer.
13. Spectrometer -Determination μ of a liquid.
14. Spectrometer- Grating--normal incidence method.
15. Air Wedge - determination of Thickness of a thin wire.

SEMESTER IV
CORE COURSE VI
ELECTRICITY, MAGNETISM AND ELECTROMAGNETISM

Internal: 25

External : 75

Instruction Hours: 5

Exam Hours: 3

Credit: 5

Objective:

This course provides an in depth coverage of behaviour of stationary electric charges, electricity, magnetism and how they are connected.

UNIT I Electrostatics

15hrs

Coulomb's Law – Gauss's Law and its applications (Electric Field due to a uniformly charged sphere, hollow cylinder & solid cylinder)– Electric Potential – Potential at a point due to a uniformly charged conducting sphere – Principle of a capacitor– Capacity of a spherical and cylindrical capacitors – Energy stored in a charged capacitor–Loss of energy on sharing of charges between two capacitors.

UNIT II Current Electricity

15hrs

Ampere's circuital law and its applications -Field along the axis of a circular coil and Solenoid–Theory of Ballistic Galvanometer –Figure of merit– Damping Correction– Kirchhoff's Laws of Electricity –Wheatstone's Bridge–Carey Foster's Bridge– Potentiometer– Calibration of Ammeter – Calibration of Voltmeter (Low range and High range) – Comparison of Resistances.

UNIT III Magnetism

15hrs

Intensity of Magnetization– Magnetic Susceptibility– Magnetic Permeability – Types of magnetic materials– Properties of para, dia and ferromagnetic materials–Langevin's theory of dia and para magnetism– Weiss's theory of ferromagnetism – B-H curve–Energy loss due to magnetic hysteresis – Ballistic Galvanometer method for plotting B-H curve - Magnetic properties of iron and steel.

UNIT IV Electromagnetic Induction

15hrs

Laws of electromagnetic induction– Self and mutual induction– Self-inductance of a solenoid– Mutual inductance of a pair of solenoids–Coefficient of coupling–Experimental

determination of self (Rayleigh's method) and mutual inductance– Growth and decay of current in a circuit containing L and R–Growth and decay of charge in a circuit containing C and R.

UNIT V AC Circuits

15hrs

Alternating EMF applied to series circuits containing LC, LR and CR– Alternating EMF applied to circuits containing L, C and R–Series and Parallel resonance circuits– Sharpness of resonance–Q factor—Power in AC circuits (R, L-R, L-C-R only) – Power factor–Wattless current – Choke Coil – Transformer – Uses of Transformers – Skin Effect.

Books for Study:

1. BrijLal and N. Subrahmanyam, *A Text Book of Electricity and Magnetism*, Ratan Prakashan Mandir Educational & University Publishers, New Delhi, 2000.

Books for Reference:

1. D. L. Sehgal, K. L. Chopra and N. K. Sehgal, *Electricity and Magnetism*, S. Chand & Sons. New Delhi. 1996.
2. R. Murugesan, *Electricity and Magnetism*, S. Chand & Company Pvt. Ltd., New Delhi – 2015

UQA2Y

A.D.M. COLLEGE FOR WOMEN (AUTONOMOUS), NAGAPATTINAM

SEMESTER IV/ II

I ALLIED COURSE II –

ALLIED CHEMISTRY II – PRACTICAL

(For candidates admitted from the year 2017 – 2018 onwards)

SEMESTER –IV for Zoology and Physics &

SEMESTER –II for Bio-Chemistry and Geology

INT MARK : 40

Hours : 4

EXT MARK: 60

Credit : 3

I. VOLUMETRIC ANALYSIS

1. Acidimetry and alkalimetry

- a) Strong acid Vs Strong base
- b) Weak acid Vs Strong base
- c) Determination of hardness of water

2. Permanganimetry

- a) Estimation of Ferrous Sulphate
- b) Estimation of Oxalic Acid

3. Iodometry

- a) Estimation of Copper
- b) Estimation of Potassium dichromate
- c) Estimation of Potassium permanganate

II.ORGANIC ANALYSIS

A study of the reactions of the following organic compounds

1. Carbohydrate
2. Amide
3. Aldehyde
4. Ketone
5. Acid
6. Amine
7. Phenol

UQA3

A.D.M. COLLEGE FOR WOMEN (AUTONOMOUS), NAGAPATTINAM

SEMESTER IV/ II

I ALLIED COURSE III –

INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY III

(For candidates admitted from the year 2017 – 2018 onwards)

SEMESTER –IV for Physics & SEMESTER – I for Geology

INT MARK : 25

Hours : 4

EXT MARK: 75

Credit : 4

Objectives:

1. To understand the various theories of coordination chemistry
2. To study polymers.
- 3.

UNIT-I

(12 Hrs)

1.1 Coordination Chemistry Nomenclature of mononuclear complexes – Werner, Sidgwick, and Pauling's theories. Chelation and its industrial importance to EDTA. Biological role of hemoglobin and chlorophyll. Application of complexes in qualitative and quantitative analysis.

1.2 Metallic Bond Electron gas, Pauling and band theories. Semiconductors, Intrinsic, n – type and p-type.

UNIT – II

(12 hrs)

2.1 Ionic Equilibria in aqueous solution- Acids and bases, Arrhenius theory, Lowry – Bronsted concept, Lewis concept – self ionization of water – weak acids and bases, dissociation constant. Hydrolysis – buffer solutions, action of buffers – acid base indicators – Acid base titrations – basic complex ion equilibria.

UNIT III

(12 hrs)

3.1 Synthetic Polymers Teflon, alkyd and epoxy resins, poly esters – general treatment only.

3.2 Stereoisomerism Optical isomerism- lactic and tartaric acid-racemic mixture and resolution. Geometrical isomerism– maleic and fumaric acids. Keto-enol tautomerism.

UNIT IV (12 hrs)

4.1 Surface Chemistry Emulsions, gels- preparation, properties and applications.

Electrophoresis, chromatography- column, paper and thin layer chromatography

4.2 Photochemistry Laws of photochemistry and applications.

UNIT V (12 hrs)

5.1 Electrochemistry Specific and equivalent conductivities – their determination – effect of dilution on conductivity. An elementary idea about ionic theory- Ostwald's dilution law, Kohlrausch law, conductivity measurements, conductometric titrations.

5.2 pH and Buffer Importance of pH and buffers in living systems – pH determination by colorimetric and electrometric methods.

References:

4. B.R Puri ,L.R.Sharma and M.S.Pathania , -“ Principles of Physical Chemistry ,”
5. Puri B.R.. Sharma L.R., Kalia K.K - Principles of Inorganic chemistry.35th edition ,
New edition: Shoban Lal Nagin chand and co. 2013.

Textbook:

- 1.Organic Chemistry – P.L.Soni.
2. Inorganic Chemistry – P.L.Soni.
3. Physical Chemistry – Puri & Sharma

UPS1

SEMESTER IV
Skill Based Elective – I
ASTROPHYSICS

Internal: 25

External : 75

Instruction Hours: 2

Exam Hours: 3

Credit: 2

Objective:

To impart an understanding of the great number of diverse phenomena in the Universe through Physics

UNIT – I: Elements of Space Dynamics

6hrs

Mans quest for space – the energy requirements – Rocket propulsion - suborbital flights – Artificial earth satellites – Lunar and planetary probes.

UNIT – II: The Heart of the Solar System

6hrs

Vital statistics of the Sun – the solar photosphere – the Fraunhofer lines – Structure of solar atmosphere – the solar interior sunspots and solar activity – Other features of the solar activity – Radio studies of the quiet Sun – Radio radiation of the distributed Sun.

UNIT- III: Small Bodies in the Solar System

6hrs

Asteroids – Meteorites – Comets as members of the Solar System – Physical properties of comets – origin of evolution of comets – Space studies of comets – Meteors – an inventory of satellites - the large satellites - Medium , small and tiny satellites – Planetary rings.

UNIT – IV: Our Home and the Nearest Neighbor

6hrs

EARTH : Gross properties – internal structure – the terrestrial atmosphere – the Earth's magnetic field – motion – solar terrestrial relations – the Earth in space – atmospheric circulation in the troposphere.

MOON: Some basic facts - telescopic studies – internal structure – surface features – Origin of the Moon the lunar environment – Solar and Lunar eclipses

UNIT - V: Galaxies

6hrs

Introduction-General structure of the galaxy – general region and the nucleus –the galactic disc –the galactic halo-the mass of the galaxy-continuous radio emission in the galaxy-black holes.

BOOK FOR STUDY

- 1.Astrophysics of the Solar System – KD Abhyankar, University press pvt. Ltd., Hyderabad, 1999
- 2.An Introduction To Astrophysics- Baidyanath Basu (unit v)

SECTION UNIT

3.1 - 3.61 I
4.1 – 4.10 II
9.1 - 9.11 III
5.1 – 5.9, 6.1 – 6.6 IV
15.8,16.1,16.7,16.8,16.11V

UPE2

SEMESTER IV
NON MAJOR ELECTIVE II
WEATHER FORECASTING

Internal: 25

External : 75

Instruction Hours: 2

Exam Hours: 3

Credit: 2

Unit - I Introduction to atmosphere 6hrs

Elementary ideas of atmosphere – meteoroids, hydrosphere, cry sphere, sea breeze – land breeze – Difference between weather, climate, and seasons – The Earth Orbit around the sun – climate.

Unit -II Measuring the weather 6hrs

Clouds – types of clouds – Atmospheric pressure – Clouds – Humidity – Visibility - Surface Observation – Upper Air Observatory – Warm rain – Artificial rain.

Unit - III Weather systems 6hrs

Thunder clouds & Hazards – Aviation hazards due to thunderstorms – Cyclones – Cyclones genesis & dissipation – Cyclone structure – Anticyclones.

Unit - IV Climate and climate change 6hrs

Climatic classifications – climate – Causes of Climate change – Mechanisms of Climate Change – Acid rain – Pollution – Atmospheric Pressure.

Unit - V Basics of weather forecasting 6hrs

Weather – Fore casting – Numerical Weather Prediction (NWP) – Weather Observation – Weather Analysis and Forecasting – Metrological Analyses – Types of Analyses.

Book for study

1. Metrology and Weather – C.Rangannathan , forms Director , India metrological Department.

