

**DEPARTMENT OF ZOOLOGY**

**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  
6

புறமதிப்பீடு: 75  
மொத்த மதிப்பெண் : 100

பயிற்று மணிகள் :

தரப்புள்ளிகள் : 3  
தேர்வுமணிகள் : 3

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  
'சுடர்த்தொடீஇ' 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. 'ஈயென' 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. மாணம் (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. 'கோட்டுப்பூப்போல்' 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

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**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

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

**SEMESTER IV  
CORE COURSE VI**

**PRACTICAL II - (CORE COURSE IV & V ) CELL AND MOLECULAR  
BIOLOGY, DEVELOPMENTAL BIOLOGY & IMMUNOLOGY)**

Int-40

Inst hrs: 2

Ext-60

Credit: **3**

## **1. CELL AND MOLECULAR BIOLOGY**

1. Handling of Compound Microscope to study cell types.
2. Squash preparation of Onion root tip to study the stages of Mitosis
3. Squash preparation of Grasshopper testis to study the stages of Meiosis
4. Squash preparation of Salivary gland of Chironomous larva to study the Giant Chromosome
5. Spotters: Centrifuge – Microtome  
Cell types – Epithelial (3) – Muscular (3) – Vascular – human

## **II .DEVELOPMENT BIOLOGY**

- 1.Mouting of Chick blastoderm
- 2.Observation of developmental stages of.  
Frog: Egg, Cleavage, Blastula & Yolk plug stage  
Chick: 24 hrs, 48hrs, 72hrs & 96hrs.

## **III . IMMUNOLOGY**

### **(SPOTTERS)**

1. Lymphoid organs of Calotes (Thymus and Spleen)
2. Calotes-Cell imprinting of Thymus and Spleen.

**A.D.M COLLEGE FOR WOMEN (AUTONOMOUS), NAGAPATTINAM.****SEMESTER IV****CORE COURSE V -****DEVELOPMENTAL BIOLOGY AND IMMUNOLOGY****Int- 25****Inst hrs:5****Ext-75****Credit: 5****Objectives :**

To Understand the fundamentals of development

To Understand the factors involving in regulation of development process

To Understand the basics of immune system

**DEVELOPMENTAL BIOLOGY****UNIT – I****16Hrs**

Gametogenesis – Spermatogenesis ,. Oogenesis

Structure of human sperm and ovum. Types of Eggs,

Fertilization – Physiological changes

**UNIT – II****16Hrs**

Cleavage – Planes and patterns –Blastulation in Frog,

Gastrulation in frog and chick up to the formation of three germ layers

Fate map in Frog

Organogenesis – Eye and Brain in Frog

**UNIT – III****16Hrs**

Foetal membranes in mammals, Reproductive Cycles - Menstrual cycle, Placentation,

Hormonal control of reproduction, Precaution and Health care during Pregnancy and

Gestation. Birth Control.

**IMMUNOLOGY****UNIT – IV****16Hrs**

Types of immunity : Innate and Acquired immunity, Active &amp; Passive.

Immune System - Lymphoid organs - primary and secondary. Cells of immune system –

Lymphocytes, Monocytes, Macrophages, Neutrophils, Basophils, Eosinophils, NK Cells and Null Cells.

**UNIT – V****16Hrs**

Immunoglobulin – Structure and Functions. Antigen – Antibody Reaction

Cell mediated and humoral mediated immunity- Immune responses- Primary & Secondary  
Complement factors – Hypersensitivity.

### **TEXT BOOK**

- 1.**ARUMUGAM.N** Developmental Biology, Saras publication
- 2.**BREEY A.K** An Introduction to Embryology Emkay Publications

### **REFERENCE**

- 1.**BALINSH.B.I** 1981 An introduction to Embryology. W.B Saunders company. Philadelphia.
- 2.**CLARK, W.R** 1991 The experimental foundations of modern immunology, Jhon wiley & sons.
- 3.**DULSY FATHIMA .I** and **N. ARUMUGAM** 1998 immunology Saras Publications.
- 4.**ROIFF. J.M** 1998 Essential immunology. Backwell scientific publishers.
- 5.**ROIFF.J.M BROSTH OFF.J** and **D.K MALE** 1997 immunology, Mobby international Ltd.
- 6.**CHAKARAVARTHY .A.K** Immunology, Tata MC Graw Hill Publishing Co.Ltd New Delhi.
- 7.**VEERA BALA RASTOGI**, Developmental Biology, Kedar Nath Ram Nath Publishers, Meerut.
- 8..**S.BANERJEE**, Developmental Biology, Dominant Publishers, New Delhi.
- 9..**VAMAN RAO** ,Immunology , Narosa Publishing -Chennai.
- 10.**LEON.W.BROWDER** , Developmental Biology, Sounders College Publishing, Sounders Japan.
- 11.**BERRIL..N.J.** Developmental Biology T.M.H. edition ,Hill Publishing Company Ptd, New Delhi.



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**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

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 2016 – 2017 onwards)

**SEMESTER –IV for Zoology and SEMESTER – II for Bio-Chemistry**

**INT MARK : 25**

**Hours : 4**

**EXT MARK: 75**

**Credit : 4**

### **Objectives:**

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

### **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 Carbohydrates-** Classification- glucose and fructose-preparation – elucidation of structure of glucose- configuration of glucose- Fischer and Haworth cyclic structures.

**2.2 Amino acids and protein** – Amino acids- classification based on structure and essential and non-essential amino acids- preparation and properties – peptides (elementary treatment)- proteins -classification based on physical properties and biological functions. Structures of proteins -primary and secondary(elementary treatment).

### **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 Identification of Organic compounds** – Phenol, Carbohydrate, Amine, Amide, aldehyde, Ketone and Carboxylic acid.

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

#### **References:**

1. B.R Puri ,L.R.Sharma and M.S.Pathania , -“ Principles of Physical Chemistry ,”
2. Puri B.R.. Sharma L.R., Kalia K.K - Principles of Inorganic chemistry.35<sup>th</sup> 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

**UZS2**

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

**SEMESTER IV**

**SKILL BASED ELECTIVE II –  
POULTRY SCIENCE AND MANAGEMENT**

**Int- 25**

**Inst hrs:2**

**Ext-75**

**Credit: 2**

**Objectives:**

- To understand the basics in poultry science.
- To understand the management strategy
- To Understand the economic importance of Poultry

**UNIT-I**

**12Hrs**

Introduction of Poultry Science – History & Development of Commercial Poultry Industry in India. Classification and Types of Fowls. Housing and Equipments – Construction of Poultry shed, Deep litter system, Cage system. Farming practices of Emu, Turkey, Quail and their importance.

**UNIT – II**

**12Hrs**

Poultry Nutrition – Feed formulation for Chicks, Growers, Phase I to Phase III Layers & Broilers. Processing and Preservation, Feed additives.

**UNIT – III**

**12Hrs**

Poultry Breeding – Incubation, Hatchery Management. Brooding, Debeaking – Vaccination, Sanitation and Waste disposal.

**UNIT – IV**

**12Hrs**

Economically important Poultry diseases – Bacterial[Salamonellosis, Pasteurellosis, E.Coli infection], Viral[Ranikhet disease, Fowl pox infections, Bronchitis Infection, Bursal disease], Fungal [Aflatoxicosis, Ochratoxicosis], Protozoan[Coccidiosis] – Ticks and Mites – Prevention and Control.

**UNIT – V**

**12Hrs**

Composition and Nutritive value of egg – Microbial spoilage – Preservation and storage of egg. Poultry meat – Care and Management of Slaughtering – Preservation of Poultry meat – Marketing of Poultry meat – Marketing of Poultry meat. Economic importance of Chicken.

## **REFERENCE**

1. **BANERJEE, G.C** (1992) A Text book of Animal Husbandry, Oxford and IBM Publishing & co., New Delhi.
2. **SHUKULA, G.S** and **UPADHYAY, V.B** (1997) Economic Zoology, Rakesh Rastogi Meerut.
3. **M.R. GNANAMANI** – Modern aspects and commercial Poultry keeping – Deepam Publication.
4. **JAGADISH PRASAD** – Animal Husbandry & Dairy Science.
5. **GOVE HAMBIDGE** ( 2012) Diseases and Parasites of Poultry. Published by Biotech Books, New Delhi.
6. **KEITH WILSON** (2007) A Hand book of Poultry Practice. Published by Agrobios, Jodhpur.
7. **RAM PRAKASH SINGH** (2008) Published by Biotech Books, New Delhi.

## UZE2

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

### SEMESTER IV

### NON MAJOR ELECTIVE II – COMMERCIAL ZOOLOGY

**Int- 25**

**Inst hrs: 2**

**Ext-75**

**Credit: 2**

#### **Objectives:**

To bring about awareness to the various branch of Zoology available to get self employment opportunity

To generate employments

To motivate to become entrepreneurs

#### **UNIT – I**

**12Hrs**

**Vermiculture :** Common species – Eigenia, Endrilues and Perionix excavatus  
Biology of Earthworm – Vermicomposting – Required conditions- Methods (Pit & Heap) – Advantages - Economic importance.

#### **UNIT – II**

**12Hrs**

**Apiculture** – Species of Honey Bee, Types of Honey Bee – Newton’s Bee hive – Care and Management – Honey extraction and Honey Extracting Equipments (Honey Extractor, Smoker, Queen excluder, Drone excluder, Bee veil) – Nutritive and Medical value of Honey. Advantages – Economic importance of Apiculture.

#### **UNIT – III**

**12Hrs**

**Lac Culture** – Life cycle of Lac insect – Economic importance of Lac.  
Sericulture: Life cycle of Bombyx mori – Economic of Silk.

#### **UNIT – IV**

**12Hrs**

**Aquaculture** – Construction and Management of Pond. Culture practices of Common carp.  
Shrimp Culture – Penaeus monodon- Pearl culture

#### **UNIT – V**

**12Hrs**

**Poultry farming** – Types of Poultry – Care and Management – Poultry Nutrition – Diseases and their management – Composition and Nutritive value of egg – Economics of Poultry production.

#### **REFERENCE:**

1. **PILA, T.V.R** 1988, Aquaculture principles and practices. Fishing news books.
2. **RAMASAMY P** 1992 Disease of Shrimps in Aquaculture systems, Vanitha publication
3. **SANTHANAM R** 1987 Fisheries science Daya publishing house.

4. **SHUKLA G.S** and **UPADHYAY V.B** 1997 Economics Zoology Rastogi publications, Meerut.
5. **ARUMUGAM N** Aquaculture Saras publications.
6. **MORSE R.A** 1990 The ABC and XYZ of Bee Culture 40<sup>th</sup> Edition A.I Root & Co Ohio.
7. **MARY VIOLET CHRISTY.A.** Vermitechnology , MJP Publishing ,Chennai.