



**AUXILIUM COLLEGE (Autonomous)**

(Accredited by NAAC with A+ Grade with a CGPA of 3.55 out of 4 in the 3<sup>rd</sup> cycle)  
Gandhi Nagar, Vellore – 6.

# **DEPARTMENT OF ZOOLOGY**

## **LESSON PLAN**

### **2018-2019**

2018-2019

UC20217 - CELL BIOLOGY AND BIOPINSTRUMENTATION

UNIT I :

Introduction to cell biology, Brief account on cell theory, Prokaryotes - PPLO - Eukaryotes - animal cell (structure and comparison) - cell cycle and cell division - Mitosis - Meiosis.

UNIT II :

Structure and functions of cell organelles - Cell membrane, Mitochondria, Golgi complex, Endoplasmic reticulum, Ribosomes, Lysosomes and centrioles, Nucleus and Nuclear Chromosomes: Structure and functions - Giant Chromosome - Polytene - Lamp brush chromosome.

UNIT III :

Nucleic acids: DNA - Ultra structure and Replication, RNA - Structure and type, Genetic code - Protein Synthesis - Gene regulation - Lac operon.

Reference :

1. Verma P. S. and V. K. Agarwal - Cytology.
2. Pastogi - Cell biology.
3. Arumugam - Cell biology and Molecular biology.
4. Philip Sheeler - Cell and Molecular Biology
5. E. D. P. De Robertis, E. M. F. De Robertis - Cell & Molecular Biology
6. Bruce Alberts - Molecular Biology of the Cell, 5<sup>th</sup> Edition.

Month	Week	Topic
June	<u>III</u>	Introduction to cell biology, Prokaryotes.
	<u>IV</u>	Eukaryotes.
July	<u>I</u>	Cell theory, PPLD, animal cell (structure and comparison), cell cycle, cell division - Mitosis - Meiosis.
	<u>II</u>	Structure and functions of cell organelles - cell membrane, Mitochondria, Golgi complex.
	<u>III</u>	Endoplasmic reticulum, Ribosomes, Lysosomes
	<u>IV</u>	Centrioles, Nucleus and Nucleolus, chromosome: polytene - Lamp brush chromosome.
August	<u>I</u>	Nucleic acids - DNA - Ultra structure
	<u>III</u>	Replication, RNA - mRNA - structure
	<u>IV</u>	tRNA - structure and function.
September	<u>I</u>	Ribosomal RNA - structure and function
	<u>II</u>	Models of DNA replication.
October	<u>I</u>	Genetic code - Protein synthesis.
	<u>II</u>	Gene regulation - Lac operon.

## SEM. V UCZOG17 - DEVELOPMENTAL BIOLOGY

### UNIT I :

Introduction and history of Developmental Biology - Spermatogenesis and Oogenesis. Types of eggs, polarity and symmetry, Egg membranes - Extra embryonic membranes in chick.

### UNIT II :

Fertilization - Mechanism and Physiology of Fertilization, Theories of fertilization, Experimental works of Spemann and Mangold, Parthenogenesis, Cleavage.

### UNIT III :

Fate map, morphogenetic movements and Gastrulation in Mammals - Organogenesis in Mammal - Development of eye, ear, brain and heart.

### UNIT IV :

Assisted Reproductive technology - Super Ovulation, Artificial insemination, Cryopreservation, In vitro Fertilization (IVF), Test tube babies, Embryo transfer, Amniocentesis - Bio ethics.

### REFERENCES:

Veer Bala Rastogi - Developmental Biology,

Month	Week	Topic
June	<u>II</u>	Introduction of Developmental Biology, Branches, Scope of Developmental biology.
	<u>III</u>	History of Developmental biology.
July	<u>I</u>	Spermatogenesis and Oogenesis.
	<u>II</u>	Types of eggs, polarity and Symmetry. Egg membranes
	<u>III</u>	Extra embryonic membranes in chick. Fertilization.
	<u>IV</u>	Mechanism and physiology of fertilization, Theories, experimental works of Spemann and Mangold. Parthenogenesis.
August	<u>II</u>	Cleavage, Fate map.
	<u>III</u>	morphogenetic movements and Gastrulation in Mammals.
	<u>IV</u>	Organogenesis in Mammal - Development of eye,
September	<u>I</u>	Development of ear, brain
	<u>II</u>	Development of heart. Assisted Reproductive Technology - Super ovulation.
	<u>III</u>	Artificial insemination, Cryopreservation.
October	<u>I</u>	IVF, Test tube babies. Embryo transfer.
	<u>II</u>	Amniocentesis, Bio ethics.

Date 07/10/19  
 Utter  
 at 1/19.

19.3.2018 TO 23.3.2018 → Semester

## Practical Examination

→ Syllabus completed for the  
End - semester

J. J. J.  
4/4/18

2018 - 2019 - Odd semester

### Invertebrata

#### Unit I

General character and outline classification of Invertebrata up to class level with examples - Structure, function and life cycle of all the type studies - Binomial nomenclature

Phylum - Protozoa  
Type study - Plasmodium vivax

General essay: Nutrition in Protozoa

#### Unit II

Phylum - Platyhelminthes

Type study: Tapeworm

General essay: Parasitic adaptations in Helminthes

Phylum: Aschelminthes

Type study: Ascaris

#### Unit III

Phylum: Echinodermata

Type study: Sea star

General essay: Larval forms in Echinodermata and their significance

Month	Week	Topic
July	I	General character and outline classification up to class level with examples.
	II	Structure, function and life cycle of all the type studies - Binomial nomenclature.
	III	Phylum Protozoa. Outline classification of <del>algae</del>
	IV	Type study - Plasmodium vivax. Life cycle, Nutrition in protozoa.
August	I	Phylum Platyhelminthes - outline classification.
	II	Type study - Tapeworm. Body wall Feeding, Respiratory system, Excretory system, Nervous system
	III	Reproductive system, Life cycle
	IV	Parasitic adaptations in Helminthes.
Sep.	I	Phylum Aschelminthes - outline classification.
	II	Type study - Ascaris - Body wall, Body cavity, Digestive system
	III	Respiratory, Excretory system, Nervous system, Reproductive system - Life cycle.
	IV	Phylum Echinodermata - Type outline classification. Type study - sea star
Oct.	I	Digestive system, Respiratory system, Water vascular system, Circulation system, Nervous system. Reproductive system.
	II	Larval forms of Echinodermata and their significance.

**I PH. PCZOAN - Phylogeny of invertebrata & chordata.**  
 structural, functional and phylogenetic significance of Lophophoro - Phylum Phoronida; Rotifera.

Month	Weeks	Topics to be covered
July	I	structural, function of Lophophora
	II	Phylogenetic significance of Lophophora
	III	Phylum Rotifera - External characters, Corona.
	IV	Phylum rotifera - body wall and associated glands
August	I	Muscular system, Digestive system, Nervous system
	II	Sensory structures, Excretory system
	III	Reproductive system, Affinity



PCZOK17 - ANIMAL BEHAVIOR

Unit - II :

Habitat selection - Dispersal environmental signals for dispersal, Habitat imprinting, Tradition, Theory of habitat selection, Foraging methods - Prey Model, Patch Model; Techniques for acquiring food. Modifying food supply - construction of Traps.

Unit - III :

Anti-Predator Behaviors - Individual strategies, escaping and freezing, deception, toxicity, Mimicry, distraction, displays.

SYLLABUS FOR ODD SEMESTER 2018-2019

UGZOAI7 - NME : MATERNAL AND CHILD PSYCHOLOGY

UNIT : I Hormonal changes of Puberty, Mechanism of Genetic Transmission, <sup>Prenatal</sup> Parental Period - Hazards during the <sup>Pre-natal</sup> ~~parental~~ period - physical - Psychological maternal stress - Pregnancy - Maternal body changes

Unit - II : Growth and Development - stages - Influence of Heredity and Environment, Physical growth during Infancy and Early childhood, Motor Development - Gross and Motor development. Gross and fine Motor skills.

Unit - III : Cognitive Development, sensorimotor stage, Preoperational - concrete operational, formal operation, Personality Theories - Carl Roger's Self-theory, Dollard and Miller's ~~Learn~~ Learning Theory, Bandura and Walter's Social Learning theory - Self-Understanding and Identity.

Unit - IV : Socio-Emotional Development - Emotions in Babyhood - Early childhood - Late childhood - Emotional Problems of childhood - Psychological Development - Moral Development - Pre-conventional level, conventional and Post conventional level.

Unit - V : Exceptional children - Gifted children - Needs and Problems of gifted children -

Needs and Problems Identification of Gifted children - Education of the Gifted children - Mentally retarded - Identifying, classifying the mentally retarded - Prevention - Background children - kinds causes Education.

LESSON PLAN FOR ODD SEMESTER 2018-2019

PCZOK17 - ANIMAL BEHAVIOR

Month	Week	Portions to be covered
JUNE	III	Introduction - case study on Animal Behaviour
	IV	Habitat Selection - Dispersal: Environmental signals for Dispersal.
JULY	I	Habitat Imprinting - Tradition.
	II	Theories of Habitat Selection - Foraging Models
	III	Techniques for acquiring food
AUGUST	I	CA - I Modifications of food supply.
	II	construction of Traps
	III	Anti Predator Behaviour
	IV	Revision Individual Strategies - Escaping
SEPTEMBER	I & II	Individual strategies - Freezing, Deception
	III	CA - II
	IV	Toxicity, Mimicry
	I	Distractions
OCTOBER	II	Displays.

Month	Week	Portions to be covered
JUNE	<u>III</u>	Introduction - overview of syllabus.
	<u>IV</u>	Changes in Hormones during Puberty.
JULY	<u>I</u>	Mechanism of Genetic Transmission. <sup>Prenatal</sup> <del>Postnatal</del> <sub>Period,</sub> - Hazards during <sup>Prenatal</sup> <del>Postnatal</del> Period - Physical and Psychological.
	<u>II</u>	Maternal stress : Pregnancy - Maternal body changes.
	<u>III</u>	Growth and Development - stages - Influence of Heredity and Environment. <sup>Physical</sup> Growth during Infancy & Early childhood.
	<u>IV</u>	Motor Development - Gross and Motor development, Gross and fine motor development
AUGUST	<u>I</u>	Cognitive Development, Sensory motor stage, Pre-operational - concrete operational, Formal operational.
	<u>II</u>	Personality Theories - Carl Roger's self theory, Dollard and Miller's learning theory, Bandura Walter's social learning theory.
	<u>III</u>	Self-Understanding - Identity. Socio-Emotional development - Emotions in childhood.
	<u>IV</u>	Early childhood - Late childhood - Problems (Emotional) of childhood - Psychological development.
SEPTEMBER	<u>I</u>	Moral development - Pre-conventional level conventional and post conventional level.
	<u>II</u>	Exceptional children - Gifted children, Needs and problems of Gifted children

SEPTEMBER  
-ER

III  
IV

CA - II

Identification of Gifted children, Education of Gifted children

OCTOBER

IV I

Mentally retarded - Identification - classification of mentally retarded - Prevention.

II

Backward children - Kind causes - Education.

LESSON PLAN FOR ODD SEMESTER, 2018-2019

SBE: USZ0C517 ORNAMENTAL FISH KEEPING

Month	Week	Portions to be covered.
JUNE	III	Construction of Home aquarium. Materials used - Wooden and Metal frames.
	IV	Frameless tanks, Sealants, Gums, Design and construction of Aquarium tanks. Accessories used in Aquarium tanks.
JULY	I	Aerators, Filters, Heaters, Thermostat, Handnets, Gravel, Pebbles, objects.
	II	Aquarium Plants, Nutritional requirements.
	III	Kinds of feed, Live feeds, Artificial feeds - Feed formulation - Balanced Diet.
	IV	Culture of live feeds organism, chironomus culture, Mosquito larva, Tubifex, Problems of Overfeeding.
AUGUST	II	Popular Ornamental fish - Live bearers, Red sword tail, Guppy, Molly, Egg layers - Gold fish
	III	Siamese Siamese fighting fish, Gourami, Angel fish, Oscar, Neon Tetra, Discus fish
	IV	Fish handling, Aquarium maintenance, Water quality, pH, O <sub>2</sub> , CO <sub>2</sub> , hardness, Ammonia Nitrite, Nitrate, Common diseases, diagnosis and treatment.

OCTOBER	I	Common Marine fishes - Anemone fish, butterfly fish, other Marine organisms
	II	Loan Availability, credit Policies.
	III	Export Potential.

SYLLABUS PLAN FOR ODD SEMESTER, 2018-2019  
UCZODIT - CELL BIOLOGY AND BIOINSTRUMENTATION

UNIT III: Genetic Code, Protein Synthesis, Gene regulation - Lac operon.

UNIT IV: Principle, construction and application of Microscopy, compound Microscope, Inverted Microscope, TEM, SEM. Centrifugation - Ultracentrifuge, Differential centrifugation, Cell Homogenization, Fractionation.

UNIT V: Chromatography - Paper, Thin Layer and column chromatography. Electrophoresis - SDS PAGE, Gel electrophoresis, Disc - gel Electrophoresis.

LESSON PLAN FOR ODD SEMESTER, 2018-2019  
UCZODIT - CELL BIOLOGY AND BIOINSTRUMENTATION.

Month	Week	Portions to be covered.
JUNE	III	Introduction and overview of syllabus.
	IV	Principle, construction and application of Microscopy.
JULY	I	Compound Microscopy, Phase contrast Microscopy.

II Inverted Microscopy, TEM

III SEM, centrifuge

IV Ultra centrifuge, Differential centrifuge.

AUGUST I Cell Homogenization, Fractionation

III chromatography - Paper chromatography, Thin Layer chromatography, & column chromatography

IV Electrophoresis - SDS PAGE, Gel Electrophoresis,

OCTOBER I Disc-gel electrophoresis, Genetic code Protein Synthesis.

II Gene regulation

III Lac operon

Semester - I - 2018 - 19.

UCZOA17 - INVERTEBRATA

(Odd Semester)

Unit - II

Phylum - Porifera, Type Study: Sycon

General essay: Canal system in sponges

Phylum - Coelenterata Type Study: Obelia

General essay: Corals and Coral Reef, Polymorphism

Unit - IV

Phylum - Annelida, Type Study: Nereis

General essay: Adaptive radiation in polychaeta

Phylum: Arthropoda, Type Study: Prawn

General essay: Social life in Insects, Peripatus and its affinities.

Unit - V

Phylum: Mollusca, Type Study: Freshwater Mussel

General essay: Respiration in Mollusca.

Month	Week	Portion to be Cover.
June	<u>IV</u>	Phylum - Porifera (Introduction of Animal Kingdom).
July	<u>I</u>	Introduction of Animal Kingdom, General character of porifera
	<u>II</u>	Classification of Porifera
	<u>III</u>	Type Study - Porifera - Sycon Canal system, Body wall, Skeleton, Reproduction
	<u>IV</u>	Development canal system in Sponges. General character and classification of coelenterata.

August

I

Obelia - Polyps, Blastostyles, Histology of colony, Nematocyte, Medusa. Life history of obelia.

II

Corals and Coral Reef, Polymorphism.

III

Phylum - General characters and Classification upto class.

IV

Type Study - Nereis - parapodium, Body wall, Locomotion, Digestion, Respiration, Circulatory, Excretory, Nervous, Sense, Reproduction, Heteronemert.

September

I

Development of Trochophore larva, Adaptive radiation in polychaetes.

II

General characteristics and Classification of Arthropoda, Prawn - appendages, Digestion, Respiration, Nervous, Excretion, Sense organ, and Reproductive system, Larval forms & Development, Social life in Insects, -menb.

October

I

Peripatus and its affinities, Mollusca - General characters & Classification, Freshwater Murex.

II

Musculature, Respiration, Digestion, Circulation, Excretory, Sensory organ, Reproduction and fertilization & Development, Respiration in Mollusca.



PCZOKIT - Animal Behaviour

Unit V :

Social Behaviour - Social organization in

Insects and Mammals ; Advantages of Social Behaviour ; Reproductive Behaviour - mating and Courtship.

Month	Week	Portion to be Cover.
June	<u>I</u>	Social Behaviour
July	<u>I</u>	Social organization Insects
	<u>II</u>	
	<u>III</u>	
	<u>IV</u>	
August	<u>I</u>	Social organization Mammals.
	<u>II</u>	
	<u>III</u>	
	<u>IV</u>	
September	<u>I</u>	Advantages of Social Behaviour
	<u>II</u>	
	<u>III</u>	
	<u>IV</u>	
October	<u>I</u>	Reproductive Behaviour
	<u>II</u>	
	<u>III</u>	
	<u>IV</u>	
		Mating
		Courtship.

# PCZOCH- Applied Biotechnology and Microbiology

## Unit - I

(Microbes in food production - Bread, Yoghurt, Cheese, Butter), (Vinegar, Beer and wine.)  
(Food Spoilage and Preservation.)

## Unit - II

Gene therapy - Forensic Medicine - DNA fingerprinting  
using minisatellite, Autoantibody fingerprinting,  
Hybridoma technology - (Monoclonal antibodies)  
(Polyclonal antibodies.)

## Unit - III

Use of genetically engineered organisms for  
removal of specific pollutants - GEM for  
treating oil spills, GEM for detecting pesticides  
in the soil and their degradation - Biobleaching,  
Biomining, Biosurfactants, Biosensors - Conventional  
Microbial, Urea, Alcohol and Integrated  
Multi biosensor

## Unit - IV

GM Papaya, GM Tomato, Bt cotton,  
Bt Brinjal and Golden Rice - Transgenic plant  
Application - Industrial enzymes, organic  
chemical, plastics - Vaccine - Producing plants  
Biotextilizers (645)

## Unit - V

Transgenic fish, Chickens, Mouse, Cow, Goat,  
Sheep, Pig, Dog - Applications Transgenic  
animals - Molecular pharmacy / Gene Pharmacy  
in Transgenic animals.



Month	Week	Portion to be Cover.
<u>XV</u>	<u>IV</u>	Conventional Microbial, Urea, Alcohol and Integrated Multi biosensor.
October	<u>I</u>	GM Papaya, GM Tomato, Bt cotton, Bt brinjal and Golden rice - Transgenic plant Application
	<u>II</u>	Industrial enzymes, organic Chemical, plastics - vaccine-producing plants Biofertilizer
	<u>III</u>	Transgenic - fish, Chickens, Mouse, Cow, Goats, Sheep, pig - Dog.
	<u>IV</u>	Applications Transgenic animals - Molecular pharming / gene pharming in Transgenic animals.

SYLLABUS FOR ODD SEMESTER, 2018-2019, I.M.Sc.,  
PCZOBIS - MOLECULAR BIOLOGY AND GENETICS

UNIT - I: MOLECULAR STRUCTURE OF DNA - Identification of DNA and RNA as genetic materials. Characterization of Genetic code - non ambiguous - non overlapping - Degenerative code - Chemical structure double helix, DNA Replication - Chargoff's rule, geometry, Enzymology of DNA Replication, discontinuous replication, Events in replication - forks, Initiation of synthesis of leading strand, Bidirectional replication, Termination of replication, methylation of DNA; DNA Damage and repair - Excision repair (Base and nucleotide) Mismatch repair, recombination repair.

UNIT - II: RNA - Chemical structure types, Transcription: Enzymatic synthesis of RNA, RNA Polymerase Structure; Basic features of RNA synthesis - Template recognition; Core promoters (-10 and -35 box), UP element, initiation Elongation, Termination, Rho independent and Rho dependent. Operons - prokaryotic transcriptional control. Negative control by repressor and positive control by CAP (catabolic activator protein) - Lac operon, trp operon - Role of Genome, imprinting, in Epigenetic regulation of gene expression.

UNIT III: Post-transcriptional modification - splicing - Splicing signals, Mechanism of splicing of nuclear mRNA precursor - branched Lariat shaped intermediate; snRNPs; Spliceosome - Spliceosome assembly and functions; alternative splicing - Self splicing; RNA's - group I and II introns - tRNA splicing - Capping; structure; synthesis, function - polyadenylation: Poly A tailing; Mechanism, functions. 20

## GENETICS

UNIT IV: Chromosomal mapping in eukaryotes - man-Heterokaryon and translocation studies; inborn errors of metabolism - protein; carbohydrate; lipid; Nucleic acid, Recombination: Types of recombination, breakage and rejoining and Heteroduplexes, Branch migration. The Holiday model - the rec BCD protein. Evolution of sex chromosomes; Dosage compensation and X inactivation in sex determination.

UNIT V: Gene in development and differentiation in Drosophila: Binary fate decision, Positional pattern formation - A-P axis, D-V axis; cell fate; refining pattern; Comparison of vertebrate pattern with insects - Neoplasia - difference between normal and cancer cells - Biochemical, cytoskeleton, cell surface; Genetic basis of human cancer; Transforming agents - oncoviruses (RNA & DNA); Chemical Carcinogenesis - Application of genetics in crime - DNA Finger printing; Genetic basis of intelligence.

MONTH	WEEK	PORTIONS TO BE COVERED
JULY	I	Molecular structure of DNA - Identification of DNA and RNA as genetic material. Characterization of genetic code - non ambiguous.
	II	non overlapping, Degenerative code, Chemical structure, double helix, DNA Replication, Chargaff's rule, Geometry.
	III	Enzymology of DNA replication, Discontinuous replication, Events in the replication fork. Initiation of synthesis of the leading strand, Bidirectional replication, Termination of Replication.
	IV	Methylation of DNA, DNA damage and repair. Excision repair (Base and Nucleotide), mismatch repair, recombination repair.
AUGUST	I	RNA - Chemical structure, Types - Transcription, Enzymatic synthesis of RNA; RNA polymerase structure; Basic features of RNA synthesis, Template recognition - Core promoters (-10 and -35 box), UP element,
	II	Initiation, elongation, Termination, Rho independent and Rho dependent, operons - prokaryotic transcriptional control, negative control by repressor and positive control by (CAP)
	III	post transcriptional modifications, splicing - splicing signals, Mechanism of splicing of nuclear mRNA precursor - branch point intermediate - SnRNPs, Spliceosome

IV spliceosome assembly and function, alternative splicing - self splicing RNAs - Group I and Group II introns - tRNA splicing, capping, structure, synthesis, function - polyadenylation, Poly A-tailing, Mechanism and functions.

SEPTEMBER

I Chromosomal mapping in Eubaryotes - man - Heterokaryotes and translocation studies; inborn errors of metabolism - protein; carbohydrates, lipid, Nucleic acid, Recombination

III Types of recombination, breakage and rejoining and Heteroduplexes, branch migration. The Holliday model - the Rec BCD protein - Evolution of sex chromosomes; Dosage compensation and X inactivation in sex determination

IV Chromosomal mapping - gene development and differentiation in *Drosophila*; Binary Fate decision, positional pattern formation - A-P axis, D-V axis; cell fate refining pattern.

OCTOBER

I Comparison of vertebrate / pattern with insects - Neoplasia - difference between normal and cancer cells - Biochemical, Cytoskeleton, Cell surface

II Genetic basis of human cancer; Transformation agents - oncoviruses (RNA & DNA); Chemical Carcinogenesis - Application of genetics in crime - DNA fingerprinting, Genetic basis of intelligence



# SYLLABUS FOR SKILL BASED COURSE - II - UG

## USZDA17 - SERICULTURE

UNIT I: SCOPE of Sericulture in India and in global market; Economics; Central Silk Board (CSB) - Training facilities in Sericulture; Types of silkworm - Mulberry, Tassar, Eri, muga; Life cycle of *Bombyx mori*.

UNIT II: Varieties of Mulberry; Mulberry cultivation - propagation, manuring, pruning, Harvesting, storing.

UNIT III: Silkworm Rearing - Rearing House, Appliances used for rearing, Feeding, Cleaning and spinning - Factors for rearing - Temperature, Humidity.

UNIT IV: Rearing operations - Disinfection, Brushing, Feeding, Bed cleaning, spacing, Care during moulting, mounting, and Harvesting of cocoons.

UNIT V: Silkworm <sup>vectors</sup> diseases and control - Pebrine, Flacherie, Muscardine, Grasserie and Natural enemies - Cocoon Marketing

MONTH	WEEK	PORTIONS TO BE COVERED
JUNE	III	Scope of sericulture in India and in global market.
	IV	Central Silk Board (CSB)
JULY	I	Training facilities in sericulture
	II	Types of silk worm, Mulberry, Tassar.
	III	Types of silk worm - Muga, Eri and Life cycle of Bombyx mori
	IV	Mulberry cultivation - propagation, plantation, Manuring, pruning, Harvest
AUGUST	I	Storing. Silk worm Rearing - Rearing House, Appliances used for Rearing;
	II	Feeding, cleaning and spinning
	III	Factors for rearing - Temperature, Humidity.
	IV	Rearing operations - Disinfection, Brushing, Feeding, Bed cleaning.
SEPTEMBER	I	Spacing, care during moulting, mounting and harvesting of cocoons.
	II	Silkworm Diseases and control Pebrine, Flacherie

MONTH

WEEK

PORTIONS TO BE COVERED

IV

Silkworm Diseases - Muscardine, Grasserie

OCTOBER

I

Natural enemies of silkworms

II

Cocon marketing.

SYLLABUS FOR ODD SEMESTER 2018-2019 II-M-3e  
PEZOEIT-CLINICAL LABORATORY TECHNIQUES - ELECTIVE III

UNIT I: scope of clinical laboratory Technique (CLT),  
 management and administration; first aid in Laboratory,  
 General lab apparatus and general procedures -  
 glasswares used in CLT studies - sterilization and  
 disposal of infected materials.

UNIT II: Haematology - Blood - Haemopoiesis - Collection -  
 Capillary and venipuncture; Anticoagulants - Basic  
 hematology techniques - Tc, DC, PCV, ESR, RBC Fragility  
 test, clotting time, Bleeding time, prothrombin time,  
 GroD/POD; Bivret Blood grouping - Platelets and its  
 importance - blood coagulation.

MONTH	WEEK	PORTIONS TO BE COVERED
JUNE	III	scope of clinical laboratory technique
	IV	Management and administration
JULY	I	First aid in laboratories
	II	General lab apparatus -
	III	General procedures in laboratory. Glass wares used in CLT studies.
AUGUST	I	sterilization and disposal of infected materials.
	II	Blood - Haemopoiesis - Collection of Blood

SEPTEMBER

III

Collection of blood - capillary and venipuncture.

IV

Anti coagulants - Basic hematology techniques - TC, DC, PCV.

I

ESR, RBC fragility test.

II

Clotting time, bleeding time, prothrombin time.

IV

God/POD; Buret blood grouping.

OCTOBER

I

Platelets and its importance.

II

Blood coagulation.

18.06-2018 to 28.06-2018

CLASS

WORK DONE

REFERENCE

II PG

Scope of clinical lab technique  
Management and administration  
First aid in laboratories.  
General lab apparatus

Medical  
Laboratory  
Technique  
- Mukherjee

III PG

Scope of sericulture in India  
and in global market.

Sericulture  
- Ganga and  
Sulokshana  
- Web notes

Lecture  
29/6/18  
29.6.18

2018-19

SEMESTER IV UCZOE17 - GENETICS AND EVOLUTION

UNIT - II

Linkage and Crossing over - Sex linkage, Sex limited genes and sex influenced genes in Man - Cytoplasmic inheritance in Snail and Paramecium - Non-disjunction and Gynandromorphs, Sex determination - Genic balance theory, theory of heterogenesis and environmental factors.

UNIT - III

Gene mutation and chromosomal aberrations, Genetic disorders - chromosomal - Autosomal - Down Syndrome, Sex chromosomal - Turner's and Klinefelter's Syndrome - Inborn errors in Metabolism - Phenyl alanine metabolism.

UNIT - IV

Applied genetics: Population genetics - Hardy Weinberg Law, Gene frequency, factors affecting gene frequency, Pedigree Analysis, Eugenics, Euthenics and Euphenics.

UNIT - V

Theories of Evolution - Lamarck, Darwin. Mimicry, Isolation and Speciation. Evolution of Man.

Month	Week	Topic
Nov.	<u>IV</u>	Linkage, Lamark
Dec.	<u>I</u>	Crossing over - Sex linkage.
	<u>II</u>	Sex limited genes, Sex influenced genes in Man
	<u>III</u>	Cytoplasmic inheritance in Snail and Paramecium
		Non-disjunction and Gynandromorphs. Sex determination - Genic balance theory, theory of heterogenesis and environmental factors.
Jan	<u>I</u>	Darwin, Mimicry.
	<u>III</u>	Gene mutation and chromosomal aberration, Genetic disorders - chromosomal - Autosomal - Down syndrome, Sex chromosomal - Turner's and Klinefelter's Syndrome - Inborn errors in Metabolism - Phenyl alanine metabolism.
Feb.	<u>II</u>	Isolation and Speciation. Evolution of Man.
	<u>III</u>	Applied genetics: Population genetics - Hardy Weinberg law, Gene frequency, factors affecting gene frequency.
March	<u>II</u>	Pedigree Analysis, Eugenics, Euthenics and Euphenics.

Month	week	Topic
Nov.	IV	Biotechnology - Introduction, Definition
Dec.	I	Scope and Importance, Branches of Biotechnology; DNA Structure and Composition
	II	Introduction to Genetic Engineering. Gene cloning - Cloning strategies - Restriction Endonucleases; cloning vectors - plasmids - pBR322.
	III	Bacteriophages - Lambda Phage - Cosmids - YAC; Ligases, linkers and Adaptors, rDNA Technology - Construction of rDNA.
Jan	I	Gene Transfer Mechanism - Transformation, Transfection, Microinjection, Electroporation, Biolistics, colony Hybridization. Expression of cloned Genes.
	III	Sanger's Method of DNA sequencing; Genomic Library; cDNA Library; Blotting Techniques - Southern, Western, Northern Techniques; PCR and its Applications.
Feb.	II	Animal Cell culture - Definition - Requirements of Cell culture - Laboratory, Equipments, culture Media; Tissue Dis-aggregation; Primary and Secondary cell culture.
	III	Establishment of cell line - Monolayer Culture, Suspension Culture, Methods of culture - Petridish



Month	Week	Topic
March	II	Test Tube, Flask culture - Applications of Cell culture.
Nov.	IV	Criteria of good Research
Dec.	I	Scientific Method and its goal - Research Process
	II	Research Problem - Criteria for selecting the problem.
	III	Necessity of defining the problem.
Jan.	I	Hypothesis - types of hypothesis.
	III	Testing of hypothesis and their limitations.
Nov.	IV	Protective Adaptation - cryptic.
Dec.	I	Warning Mimicry, Structural adaptation - Cursorial
	II	Fossorial, Arboreal, Desert, Aquatic.
	III	Volant, Cave, Deep sea,
Jan	I	Extinction, Types of extinction
	III	Causes, Extinct animals, Significance of Extinction

Handwritten notes  
11-17

PCZOM17 - APPLIED ENTOMOLOGY

Unit II :

Vegetable - *Epilachna dodecastigma*,  
*Pieris brassicae*, *Leucinodes orbonalis*,  
 Fruits - *Sternochelus mangifera*, *Cosmopolites*  
*sordidus*, *Partho demoleus*, stored product -  
 Paddy<sup>3</sup> - *Leptocorisa varicornis*, *Tryporyga*  
*incertulus*, *Sitophilus oryzae*; wheat -  
*Tritium vulgare*, *Mythimna separata*, *Spodoptera*  
*mauritia*; Household pest - *Ctenolepisma*  
*saccharina*, *Anthrena pimpinella*,  
*Tetchoptaga abruptella*.

Unit v :

Biological control of plant pest - Viral  
 insecticides, Bacterial insecticides, Fungal  
 insecticides, Integrated Pest Management

UCZOB17 - CHORDATA

Unit I :

General character and outline classification of  
 Chordates up to class level.

Protochordata : Type study : *Amphioxus*

General essay : Origin of chordate

Unit III : Amphibia

Type study : Frog

General essay : Parental care in Amphibians,  
 Adaptive radiations in Amphibians

Unit IV : Aves

Type study : Pigeon

General essay : Flight adaptations in birds,  
 Migration in birds and Flightless birds.

YEAR PLAN

PCZO E17 - Developmental Biology and Immunology

Month	Week	Topics to be covered
November	IV	Nucleus of cleavage cells.
December	I	Distribution of cytoplasmic substances in the egg during cleavage; Role of egg cortex; Nucleocytoplasmic interactions; Role of maternal genes during early development; Involvement of paternal genes in the control of development.
	II	
	III	Cells of Immune system - stem cells - Lymphoid cells, mononuclear cells, Granulocytes Mast cells - Immunoglobulin structure, isotypes and biological function; Antigenic determinants on immunoglobulin - isotype, allotype & idiotype
	IV	B. cell Receptors, T-cell receptors Antigen - Antibody interaction MHC - structure, Antigen Processing and Presentation
January	I	Organizer: Spemann's primary organizer - analysis of nature and mechanism of induction; nuclear transplantation - cellular differentiation and protein synthesis.
	II	Developmental genetic defects Role of cell death in development Ageing, Regeneration, Teratogenesis Asexual reproduction - occurrence and forms of asexual reproduction - cloning
	III	Artificial fertilization - embryo transfer - stem cell research and its significance. Artificial division of stem cells vs Embryonic stem cells, Therapeutic cloning, stem cell therapy

Month	Week	Topics to be covered.
February	IV	Transplantation Immunology - Types of grafts, process of graft acceptance and graft rejection.
	II	Immunosuppressive Therapy - vaccines
	III	DNA Recombination vaccines.
March	I	Immuno diagnostics and Immuno Therapy.

### PCZOMI7 - APPLIED ENTOMOLOGY

Month	Week	Topics to be covered.
November	IV	Epitachna dodecastigma Pieris brassicae, Leucinodes orbonalis
December	I	Sternonchetus mangrifera, Cosmopolites sordidus, Papilio demoleus
	II	Paddy - Leptocosisa varicornis, Trypoxyna nebulosus, Sitophilus Oryzae
January	III	Triticum vulgare, Mythima separata, Spodoptera mauritia.
	I	Ctenolepisma saccharina, Anthona pimpinella, Trichophaga abraoptella
	III	Biological control of plant pest - viral insecticides, Bacterial insecticides.
February	IV	Fungal insecticides
	I	Integrated Pest Management.

### UCZOBI7 - CHORDATA

November	IV	General character and outline classification of chordata upto class level.
December	I	Amphioxus - External Features Body wall, skeleton, Movement & locomotion, Digestive system
	II	Respiratory mechanism, Blood vascular system, Excretory system

Month      Week      Topics to be covered

December      III      Neural system, Reproductive system

January

I      General essay: Origin of Chordates  
 Type study: ~~snake~~ frog Locomotion  
 External features, Muscular system  
 Digestive system

III      Respiratory system, Blood vascular system, Neural system.

IV      Sense organs, Urinogenital system

February

I      Parental care in Amphibians  
 Adaptive radiations in Amphibians

II      Aves: type study pigeon, External features, Digestive system,

III      Respiratory system, Circulatory system  
 Excretory system, Reproduction.

March  
 30-11-15

I      Flight adaptations in birds,  
 II      Migration in birds,  
 III      Flightless birds.

USZOD617 - SBE: ANIMAL BEHAVIOUR

UNIT - I: Introduction to Behaviour, Branches of Ethology, Types of Studying behaviour - In Lab and In wild - Ad libitum, Focal Animal, scan, All occurrence, Sequence one zero.

UNIT - II: Rhythm, Sleep, methods and Models of communication, Locomotion, Foraging and catching.

UNIT III: Homing, Migration, Territorialism, Courtships, Parental care, Play, Learning and Memory.

Unit - IV: Innate Behaviour, Neural and Hormonal control of Behaviour. Social Behaviour - aggregation, Schooling in Fish, Flocking in birds, herding in mammals, Social organization in insects - Advantages of being social.

UNIT - V: Abnormal behaviour - Wild animals under natural conditions and in Zoo - Domestic live stocks, Pets - causes, prevention, curing of Abnormal behaviour.

SYLLABUS FOR EVEN SEMESTER, 2018-2019

PCZOM17 - APPLIED ENTOMOLOGY

UNIT I: causes of Insects assuming Pest status; Forecasting Pest outbreak - Biology, Nature, extent of damage and control measures of insect Pests of some important crops - Sugarcane - *Chilo infuscatellus*, *Tryporyza nivella*, *Chilo sacchariphages*; Cotton - *Aphis gossypii*, *Dysdercus koenigii*, *Thrips tabaci*; Groundnut - *Aphis craccivora*, *Aprosaema modicella*, *Helicoverpa armigera*; coconut - *Rhynophorus ferrugineus*, *Oryctes rhinoceros*, *Nephantis seiropa*.

UNIT IV : Classification of Insecticides, chemical nature - Inorganic - Arsenic and Fluorine compounds; Organic compounds - Animal Origin - Nereistoxin; Plant Origin - Nicotinoids, Pyrethroids, Rotenoids; Hydrocarbons; Synthetic Organic compounds - DDT, BHC, Parathion - Mode of action Physical Poison, Protoplasmic poison, Respiratory Poison, Nerve Poison - Mode of Entry - Stomach Poisons, Contact poison, Fumigants.

UNIT V : Non-conventional Pest control - Insect Attractants, Repellents, Antifeedants, Genetic radiations - Plant Protection appliances - Duster, Sprayers and Fumigators.

SY LESSON PLAN FOR EVEN SEMESTER, 2018-2019  
UNEVSIT - ENVIRONMENTAL STUDIES.

Month	Week	Portions to be covered.
Nov	III	The multidisciplinary nature of Environmental Studies, Definitions, scope, importance and need for Public awareness.
	IV	Natural Resources: Renewable and non-renewable resources - Water, Land, Energy, Forest, Mineral and food resources.
DEC	I	Role of individuals in conservation of natural resources. Ecosystem - Introduction, Types, characteristic features. Structure - functions of Forest Ecosystem.
	II	Grassland Ecosystem, Desert Ecosystem, Aquatic Ecosystem. Biodiversity - value of BD.
	III	Biodiversity in India, Hotspots of Biodiversity, Threats to Biodiversity.
Jan	I	Conservation of Biodiversity.

- III Endangered species, In-situ conservation and Ex-situ conservation.
- IV Environmental Pollution; Definition, causes Effects and control measures of Air, water, Soil and Noise pollution.
- I climatic change, Global Warming - Rain water harvesting, solid Waste management.
- II Human Population, Environment Act, Forest conservation Act, Wildlife conservation Act.
- II Population Explosion - its impact on human health and Environment.
- III Transmission of diseases, Sustainable development, Role of IT in Environmental conservation.

LESSON PLAN FOR EVEN SEMESTER, 2018-2019  
USZOD617: SBE ANIMAL BEHAVIOUR

- III Introduction, of Behaviours, Branches of Ethology, Types of studying Behaviour - In lab and In wild.
- IV Ad libitum, Focal Animal, Scan, All occurrence Sequence one zero.
- I Rhythm sleep, Methods and methods of communication, Locomotion, Biological clock.
- II Foraging and catching, Memory.
- III Homing, Migration, Territorialism courtship, Parental care, Play, Learning.
- I Innate Behaviours, Neural and hormonal control of Behaviour.



III Social Behaviour - aggregation, Schooling in Fish, flocking in birds, herding in Mammals

IV Social Organization in Insects. Advantages of being social.

Feb I Abnormal Behaviour - Wild animals that under natural conditions and in zoo.

II Domestic live stocks, Pets - Causes.

III Prevention, curing of abnormal behaviours.

### LESSON PLAN FOR EVEN SEMESTER 2018-2019

#### PCZOMIT : APPLIED ENTOMOLOGY

Nov. III Causing of Insects assuming Pest status, Forecasting Pest outbreak

IV Biology, nature, extent of damage, control measures of insect Pest of Sugarcane.

Dec I *Chilo infuscatellus*, *Trypomyza nivella*, *Chilo sacchariphagus*.

II Cotton : *Aphis gossypii*, *Dysdercus Koenigii*, *Thrips tabaci*. Groundnut - *Aphis craccivora*, *Aphorisma nodicella*.

II ~~Ground~~ Coconut - *Rhyncophorus ferrugineus*, *Oryctes rhinoceros*, *Nephantis sciropa*, Groundnut Pest : *Helicoverpa armigera*.

Jan I Classification of Insecticides - Chemical nature.

III Inorganic - Arsenic, fluorine compounds; organic compounds. Animal origin - Nereis toxin; Plant Origin - Nicotinoids, Pyrethroids, Retenoids, Hydrocarbons.

IV Synthetic Organic compound - DDT, BHC.

- Feb
- I Parathion - Mode of action - Physical Poison  
Protoplasmic Poison, Respiratory Poison,  
Nerve poison.
- II Mode of Entry - Stomach Poisons, Contact  
Poison, Fungicides.
- III Non-conventional Pest control - Insect  
Attractants, Repellents, Antifeedants.
- March
- I Genetic Radiations - Plant Protection appliances,  
Dusters, Sprayers and fumigators.

LESSON PLAN FOR EVEN SEMESTER 2018-2019

UGZOAI7 - NME: MATERNAL AND CHILD PSYCHOLOGY

- Nov
- III changes in Hormones during Puberty. Transmission  
of Genetic ~~trans~~ materials - Mechanisms.
- IV Pre-natal <sup>Periods &</sup> hazards during pregnancy - Physical  
and Psychological. Maternal stress - Maternal  
body changes.
- Dec
- I Growth and Development - stages - influence of  
heredity and Environment. Growth during  
Infancy & Early childhood.
- II Motor development - Gross and Motor development  
Gross and fine motor development.
- III Cognitive development - Sensory Motor stage -  
Pre-operational - concrete operational -  
formal operations.
- Jan
- I Personality Theories - Carl Roger's self Theory -  
Dollard and Miller's Learning Theory.
- III Bandura and Walter's social learning theory.  
Self-Understanding and Identity.
- IV Socio-Emotional Development - Emotions in  
childhood - Early & Late childhood.

Feb

I

Emotional Problems in children. Psychological development.

II

Moral Development - Pre conventional level - conventional level and Post-conventional level.

III

Mo. Exceptional children - Gifted children Needs and problems. Identification of gifted children and Education of Gifted children.

March

I

Mentally retarded - Identification - classification of Mentally retarded - Prevention.

Backward children - Kinds causes & Reasons - Education

Shree  
26.11.14

## PEZOG17 - ELECTIVE A: FISHERY BIOLOGY

## Unit - I

(Water quality - temperature, pH,  $CO_2$ , salinity, nutrients and trace elements for the growth of fishes; Biology of Marine edible fish - oil sardines; Biology of freshwater edible fish - catla; (Indian capture methods - Shallo and gears - Economic Importance of Commercial fisheries.

Unit: III

Sea weeds - Types and different culture methods; pearl culture - stages of pearl formations; (Byproducts of fishes - fish meal - fish oil - fish manure - chanks)

Month	Week	Topic
November	<u>III</u>	Water quality - temperature
	<u>IV</u>	pH, $CO_2$ , salinity.
December	<u>I</u>	Nutrients and trace elements for the growth of fishes.
	<u>II</u>	Biology of Marine edible fish
	<u>III</u>	oil sardines.

January

IV

IV

Biology of freshwater edible fish & catla.

III

Indian Captive methods - Shakti gears.

IV

gears.

V

Economic Importance of Commercial Fisheries.

February

I

Sea weeds - Types and different culture methods.

II

Pearl culture

III

Stages of pearl formation.

March

I

Byproducts of fishes -

fish meal.

II

fish oil

III

fish manure.

IV

Chanks.

## SEMESTER-II

### UCZOBIT - CHORDATA.

#### Unit - II - Pisces.

Type Study: Shark, classification and

General characters.

General essay: Migration of fishes, Accessory respiratory organs. Parental care in fishes.

#### Unit - III - Reptilia.

General character and outline classification of Chordata up to class level.

Type Study: Calotes.

Poison apparatus and biting mechanism in Snakes, Identification of poisonous and non-poisonous Snakes.

#### Unit - V - Mammals.

General characters and outline classification up to class.

Type Study - Rabbit.

General essay - Dentition in mammals, Adaptive radiation in mammals, Characteristics of Prototheria, Eutheria and Metatheria.

Month	Week	Topic
November	III	General characters of Pisces classification, Morphology, fin, placoid scales.
	IV	
December	I	Digestive system, Respiratory system, Circulatory system.

January

Nervous system, Sense organs.  
Urogenital System, Reproductive  
System, Endoskeleton.

February

Migration of fish, Accessory,  
respiratory organs.  
Parental care in fish.

March

Reptilia - General Characters  
and classification.  
Catales - Morphology,  
Digestive, Respiratory, Circulatory  
Nervous System.

April

Sense organ, Urogenital system,  
Reproductive & Endoskeleton.

May

Endoskeleton - Poison  
apparatus and biting mechanism  
Identification of Poisonous  
and non-poisonous Snakes.

June

Mammals - General  
Characters & classification.

July

Rabbit - Morphology  
Digestive, Respiratory,  
Circulatory, Nervous system.

August

Sense organ, Urogenital  
Reproductive & Endoskeleton,  
Dentition, Adaptive radiation

September

Characteristics of Prototheria,  
Eutheria and Metatheria.

## SEMESTER - II

### PEZOCIT - ELECTIVE IIA: BIOCHEMISTRY

Month	Week	Topic
November	<u>III</u>	Structure of an atom
	<u>IV</u>	Types of bonds - Covalent, ionic, hydrogen - Zwitter ions, isoelectrical point.
December	<u>I</u>	Water - Biological Importance, Physical properties, Structure, Interaction in aqueous solution.
	<u>II</u>	pH and buffers - Acid Base balance, Henderson Hasselbach equation, Biological importance of Buffer.
	<u>III</u>	Acidosis and Alkalosis, Electrolyte and water balance, Body fluids, Milk, Colostrum, Amniotic fluid and CSF.
	<u>I</u>	Urine, Amino acids: Structure, classification of amino acids and properties.
	<u>III</u>	Proteins: classification of Protein based on the structure, Properties, Metabolism - Deamination, Transamination, Transmethylation.
January	<u>IV</u>	Kreb's Henshick cycle, Enzyme, Nomenclature, Classification, Properties of



February

V

Enzymes, Mode of Enzyme action, enzyme Substrate Compounds.

Carbohydrates, Structure, classification and metabolism. Glycogenesis, Glycogenolysis, Gluconeogenesis, Glycolysis - EMP.

I

HMP Shunt - Lipids - Structure and classification - Biosynthesis and oxidation of fatty acids.

II

Biological Significance of Carbohydrates, Protein and lipids. Convergence of Central Metabolic Pathway - TCA.

III

Electron transport System.

March

I

Water and fat soluble vitamins. Structure, classification, Sources, functions.

II

Hyper and Hypo vitaminosis and deficiencies in man.

III

Metabolism of xenobiotics -

IV

Detoxification and Biotransformation.

Shree  
30.11.18

SYLLABUS FOR EVEN SEMESTER - 2018-2019  
PCZOL17 - Research Methodology

UNIT I:

Principles and biological uses of phase contrast, Fluorescence, Scanning and transmission electron microscope; Spectroscopic techniques - Absorption and Emission principles - UV, visible spectroscopy, X-ray crystallography, NMR, Fluorescence and Raman Spectroscopy.

UNIT II:

Principle and application of - Chromatography - Gel-Ion, Column, Affinity, HPLC and GLC, Electrophoresis - Agarose, SDS-PAGE, Immuno electrophoresis, PEG, Autoradiography, Centrifugation - principle, ultra centrifugation; Applications of Radioactive Isotopes in biology, Counting methods - GM Counters, Scintillation Counters.

UNIT III:

Reference work and preparation of dissertation: Pubmed, Google Scholar, and Infliibnet. Computer aided techniques for data analysis, Spss Software, data presentation and power point presentation. - preparation of research paper and Research collection - preparation of thesis - preparation of Scientific paper for publication in a Journal.

## YEAR PLAN

MONTH	WEEK	PORTIONS TO BE COVERED
November	<u>IV</u>	Principles and biological uses of phase contrast.
December	<u>I</u>	Fluorescence microscope, Scanning electron microscope, Transmission electron microscope.
	<u>II</u>	Spectroscopic techniques, atomic Absorption Spectroscopy, atomic Emission spectroscopy, NMR.
	<u>III</u>	UV-Visible spectroscopy, X-ray crystallography, Fluorescence & Raman spectroscopy.
January	<u>I</u>	Gel - Ion, Chromatography, Column, Chromatography, HPLC & GLC.
	<u>III</u>	Electrophoresis - Agarose, SDS, PAGE, Immuno electrophoresis, PEG, Autoradiography.
	<u>IV</u>	Centrifugation - principle, ultra centrifugation, Applications of Radioactive Isotopes in biology.
February	<u>I</u>	Counting methods - GM Counter, Scintillation Counter.
	<u>II</u>	Reference work & dissertation. Pubmed, Google scholar & Infilibnet.
	<u>III</u>	Computer aided techniques for data analysis SPSS software, data presentation & PPT.

MONTH	WEEK	PORTIONS TO BE COVERED.
February	<u>IV</u>	Preparation of research Paper and research collection.
March	<u>I</u>	Preparation of thesis.
	<u>II</u>	Preparation of scientific paper for publication in a Journal.

# PCZOMIT - APPLIED ENTOMOLOGY

## UNIT III

Insect pest of domestic animals - Cattle - Cattle fly, Ox-warble fly; Fowl - Chicken flea, Shaft louse; Sheep and goat - Head Maggot, Sheep ked, Biting louse - Insect Vectors of Animals - Mites, Ticks.

II - MSc, Applied Entomology - PCZOMIT

## YEAR PLAN

MONTH	WEEK	PORTIONS TO BE COVERED
NOVEMBER	<u>IV</u>	Insect pest of domestic animals - Cattle - Cattle fly.
DECEMBER	<u>I</u>	Ox - Warble fly.
	<u>II</u>	Chicken flea.
	<u>III</u>	Shaft louse.
JANUARY	<u>I</u>	Insect pest of sheep and goat - Head, maggot.
	<u>II</u>	Pest of sheep - Sheep ked.

February

I

Biting louse.

February

II

Insect vector of animals  
Mites

III

Ticks.

# PERIOD - PHYSIOLOGY AND ENDOCRINOLOGY

## Unit IV:

Endocrine glands in mammals - Hormones -  
Classification, function and chemical nature,  
Physiology of endocrine glands - Pituitary  
gland, Pancreas gland, Thyroid gland &  
Adrenal gland.

## Unit V:

Endocrinology & Reproduction: Physiology  
of Mammalian reproductive hormones -  
Testis & ovaries; Estrous & menstrual cycle -  
Neuroendocrine regulation of pregnancy,  
Parturition & Lactation.

### YEAR PLAN

MONTH	YEAR	PORTIONS - TO BE COVERED.
NOVEMBER	<u>IV</u>	Endocrine glands in mammals Hormones.
DECEMBER	<u>I</u>	Classification of hormones and function of hormones.
	<u>II</u>	Chemical nature of hormones.
	<u>III</u>	pituitary gland.
JANUARY	<u>IV</u>	Pancreas gland.
	<u>V</u>	Thyroid gland.

III Adrenal gland.

IV physiology of mammalian reproduction of hormones.

FEBRUARY

I Testis & ovaries

II Estrous & menstrual cycle.

III Neuro endocrine regulation of pregnancy.

MARCH

I Parturition & Lactation.

Okhane  
30-11-18