Lesson Plan Session 2023 -2024

Name of Assistant/ Associate Professor: Dr. Rekha Saini
Class and Section: BSc. First year (2-4days)
Subject ;ZOOLOGY
LESSON PLAN

August 2023

UNIT I

Phylum- Protozoa

i) General characters and classification up to order level
ii) Biodiversity and economic importance
iii) Type study of Plasmodium
iv) Parasitic protozoans: Life history, mode of infection and pathogenicity of Entamoeba, Trypanosoma, Leishmania and Giardia.

UNIT II

Phylum- Porifera: i) General characters and classification up to order level
ii) Biodiversity and economic importance
iii) Type study - Sycon.
iv) Canal system in sponges
v) Spicules in sponges

September 2023

UNIT-III

Phylum - Coelentrata:

i) General characters and classification up to order level
ii) Biodiversity, economic importance
iii) Type Study – Obelia
iv) Corals and coral reefs
v) Polymorphism in Siphonophores

UNIT-IV

Phylum - Helminths:

i) General characters and classification up to order level
ii) Biodiversity, economic importance
iii) Type study - Fasciola hepatica
iv) Helminths parasites: Brief account of life history, mode of infection and pathogenesity of Schistosoma, Ancylostoma, Trichinella, Wuchereria and Oxyuris.

October 2023

UNIT-I

1. Ultrastructure of different cell organelles of animal cell.

2. Plasma Membrane: Fluid mosaic model, various modes of transport across the membrane, mechanism of active and passive transport, endocytosis and exocytosis.

3. Endoplasmic reticulum (ER): types, role of ER in protein synthesis and transportation in animal cell.

4. Goigi complex: Structure, Associated enzymes and role of golgi-complex in animal cell.

UNIT-II

1 Ribosomes: Types, biogenesis and role in protein synthesis.

2 Lysosomes: Structure, enzyme and their role; polymorphism

3 Mitochondria: Mitochondrial DNA; as semiautonomous body, biogenesis, mitochondrial enzymes (only names), role of mitochondria.

4 Cytoskeleton: Microtubules, microfilaments, centriole and basal body.

5 Cilia and Flagella

November 2023

UNIT-III

1. Ultrastructure and functions of Nucleus: Nuclear· membrane, nuclear lamina, nucleolus, fine structure of chromosomes, nucleosome concept and role of histones,

2. Euchromatin and heterochromatin, lampbrush chromosomes and polytene chromosomes.

UNIT-IV

1. Mitosis and Meiosis (Cell reproduction)

2. Brief account of causes of cancer.

3. An elementary idea of cellular basis of Immunity.

Lesson Plan Session 2023 -2024

Name of Assistant/ Associate Professor: Dr. Rekha Saini
Class and Section: BSc. Second year(2-4 days)
Subject ;ZOOLOGY
LESSON PLAN

July 2023

UNIT I

Introduction, Classification, Structure, function and general properties of carbohydrates and lipids

August 2023

UNIT II

Introduction, Classification, Structure, function and general properties of proteins; Nomenclature, Classification and mechanisms of enzyme action. Transport through biomembranes (Active and Passive), buffers

UNIT III

Nutrition: Nutritional components; Carbohydrates, fats, lipids, Vitamins and Minerals. Types of nutrition & feeding, Digestion of dietary constituents, viz. lipids, proteins, carbohydrates & nucleic acids; symbiotic digestion. Absorption of nutrients & assimilation; control of enzyme secretion.

September 2023

UNIT IV

Muscles: Types of muscles, ultra-structure of skeletal muscle. Bio-chemical and physical events during muscle contraction; single muscle twitch, tetanus, muscle fatigue muscle, tone, oxygen debt., Cori's cycle, single unit smooth muscles, their physical and functional properties. Bones: Structure and types, classification, bone growth and resorption, effect of ageing on skeletal system and bone disorders.

UNIT I PAPER I

Chordates: Principles of classification; Origin and Evolutionary tree; Role of amnion in evolution; Salient features of chordates; Functional morphology of the types with examples emphasizing their biodiversity, economic importance and conservation measures where required

October 2023

UNIT II

General characters and classification of phyla upto orders with examples emphasizing their biodiversity, economic importance and conservation measures where required. Protochordates: Systematic position, distribution, ecology, morphology and affinities Urochordata: Herdmania – type study Cephalochordata; Amphioxus – type study

UNIT III

General characters and classification of phyla upto orders with examples emphasizing their biodiversity, economic importance and conservation measures where required. Cyclostomes: Classification and ecological significance Type study of Petromyzon.

November 2023

UNIT IV

General characters and classification of all phyla upto orders with examples emphasizing their biodiversity, economic importance and conservation measures where required. Pisces: Scales & Fins, Parental care in fishes, fish migration. Types study of Labeo Note: Type study includes detailed study of various system

Lesson Plan Session 2023 -2024

Name of Assistant/ Associate Professor: Dr. Rekha Saini
Class and Section: BSc. Final (4-6 days)
Subject ;ZOOLOGY

July 2023 Unit I

1. Introduction to world fisheries: Production, utilization and demand.
2. Fresh Water fishes of India: River system, reservoir, pond, tank fisheries; captive and culture fisheries, cold water fisheries.

August 2023 Unit II

3 Fishing crafts and gears.

4. Fin fishes, Crustaceans, Molluscs and their culture

Unit III

Seed production: Natural seed resources – its assessment, collection, Hatchery production. 2 Nutrition: Sources of food (Natural, Artificial) and feed composition (Calorie and chemical ingredients)

September 2023 Unit IV

3 Field Culture: Ponds-running water, recycled water, cage, culture; poly culture

4. Culture technology: Biotechnology, gene manipulation and cryopreservation of gametes

Unit I Paper II

1. Basic concepts of ecology: Definition, significance. Concepts of habitat and ecological niche
2. Factors affecting environment: Abiotic factors (light-intensity, quality and duration), temperature, humidity, topography; edaphic factors; biotic factors

October 2023 Unit II

1. Ecosystem: Concept, components, properties and functions; Ecological energetics and energy flow-food chain, food web, trophic structure; ecological pyramids concept of productivity
2. Biogeochemical cycles: Concept, reservoir pool, gaseous cycles and sedimentary cycles

3. Population: Growth and regulation

Unit III

Origin of life.

1. Concept and evidences of organic evolution
2. Theories of organic evolution
3. Concept of microevolution and concept of species

November 2023

UnitIV

1. Concept of macro-and mega-evolution.
2. Phylogeny of horse
3. Evolution of man.

Lesson Plan Format

Name of Assistant/ Associate Professor: Dr. Rekha Saini

Class and Section: BSc. Final (1-3days)

Subject lesson plan: Zoology

Session:2023-24

Week 1
Chapter:

Assignments
Week 1, Day 1, Date 15-01-2024 Introduction to Pests & Management
Week 1, Day 2, Date 16-01-2024 Pests of Sugarcane (White fly, top borer)
Week 1, Day 3, Date 17-01-2024 Guru Govind Singh Jayanti
Week 2, Day 1, Date 22-01-2024 Pests of Sugarcane (top borer, Root Borer) Gurdaspur Borer Life Cycle of Pyrilla Perpusilla
Week 2, Day 2, Date 23-01-2024 Life Cycle of Pectinophore gossypiella
Week 2, Day 3 , Date 24-01-2024 Pests of Cotton (Red Cotton bug, Cotton grey weevil, Cotton jassid)
Week 3 Day 1,Date 29-01-2024 Life Cycle of Sesamia inferens

Week 1 Chapter:
Week 3, Day 2, Date 30-01-2024 Pest of Paddy (Rice grasshopper, Rice stem borer, Rice hispa)
Week 3, Day 3, Date 31-01-2024 Life Cycle of Loptocrisa acuta Pests of Vegetables (Fruit fly, mite, hadda beetle)
Week 4, Day 1, Date 05-02-2024 Life Cycle of Aulacophora Favcicolls Pest of stored grains (Pulse beetle Rice weevil)
Week 4, Day 2, Date 06-02-2024 Life Cycle of Trogoderma granariun Rust red flour beetle, Lesser grain borer
Week 4, Day 3, Date 07-02-2024 Grain & Flour moth Biological Control
Week 5, Day 1, Date 12-02-2024 Chemical Control
Week 5, Day 2, Date 13-02-2024 Intergrated Pest Management-II
Week 5, Day 3, Date 14-02-2024 Basant Panchmi
Week 6, Day 1, Date 19-02-2024 Important bird & Rodent Pest
Week 6, Day 2, Date 20-02-2024 Historical Perspective of development bioiogy
Week 6, Day 3, Date 21-02-2024 Structure of sperm Structure of ovum
Assignments
Week 7, Day 1, Date 26-02-2024 Spermatogenesis

Week 1 Chapter:
Week 7, Day 2, Date 27-02-2024 Oogenesis
Week 7, Day 3, Date 28-02-2024 Fertilization
Week 8, Day 1, Date 04-03-2024 Parthenogenesis Different type of eggs
Week 8, Day 2, Date 05-03-2024 Pattern of Clevage in invertebrates
Week 8, Day 3, Date 06-03-2024 Pattern of Clevage in Vertebrates
Week 9, Day 1, Date 11-03-2024 Process of blastulation in vertebrates
Week 9, Day 2, Date 12-03-2024 Blastulation in invertebrates
Week 9, Day 3, Date 13-03-2024 Fate map Construction in Frog
Week 10, Day 1, Date 18-03-2024 Fate map construction in chick
Week 10, Day 2, Date 19-03-2024 Gastrulation General Introduction
Week 10, Day 3, Date 20-03-2024 Gastrulation in invertebrates
Week 11, Day 1, Date 25-03-2024 Holiday
Week 11, Day 2, Date 26-03-2024 Holiday
Week 11, Day 3, Date 27-03-2024 Holiday
Week 12, Day 1, Date 01-04-2024 Gastrulation in invertebrates

Week 1 Chapter:
Week 12, Day 2, Date 02-04-2024 Gastrulation in frog
Week 12, Day 3, Date 03-04-2024 Gastrulation in chick
Week 13, Day 1, Date 08-04-2024 Test
Week 13, Day 2, Date 09-04-2024 Problem solving session
Week 13, Day 3, Date 10-04-2024 Elementary knowledge of Primary Organizers
Week 14, Day 1, Date 15-04-2024 Structure of Extra Embruonic Membrane
Week 14, Day 2, Date 16-04-2024 Structure of Extra Embruonic Membrane
Week 14, Day 3, Date 17-04-2024 Holiday
Week 15, Day 1, Date 22-04-2024 Structure & Significance of Extra embryonic Membrane
Week 15, Day 2, Date 23-04-2024 Structure & Significance of Extra embryonic membrane is Birds
Week 15, Day 3, Date 24-04-2024 Structure & Significance of Extra embryonic membrane in chick
Week 16, Day 1, Date 29-04-2024 Concept of Competence-I
Week 16, Day 2, Date 30-04-2024 Concept of Determination- Morphollaxis
Week 16, Day 3, Date 01-05-2024 Concept of Regeneration Discussion to students problem

Lesson Plan Format

Name of Assistant/ Associate Professor: Dr. Rekha Saini

Class and Section: BSc. 2nd year sem 4th (3-5days)

Subject lesson plan: Zoology

Session:2023-24

Week 1 Chapter:
Assignments
Week 1, Day 3, Date 17-01-2024 Guru Govind Singh Jayanti
Week 1, Day 4, Date 18-01-2024 **Circulation:** Origin, conduction and regulation of heart beat, cardiac cycle, electrocardiogram, cardiac output, fluid pressure and flow pressure in closed and open circulatory system
Week 1, Day 5, Date 19-01-2024 Composition and functions of blood & lymph; Mechanism of coagulation of blood, coagulation factors; anticoagulants, haempoiesis
Week 2, Day 3, Date 24-01-2024 **Respiration:** Exchange of respiratory gases, transport of gases, lung air volumes
Week 2, Day 4, Date 25-01-2024 oxygen dissociation curve of hemoglobin, Bohr's effect, Haburger's phenomenon (Chloride shift), control / regulation of respiration.
Week 2, Day 5 , Date 26-01-2024 Republic Day
Week 3 Day 3,Date 31-01-2024 **Excretion:** Patterns of excretory products viz. Amonotelic, ureotlic uricotelic
Week 3, Day 4, Date 01-02-2024 ornithine cycle (Kreb's– Henseleit cycle) for urea formation in liver Urine formation, counter-current mechanism of urine concentration, osmoregulation, micturition.
Week 3, Day 5, Date 02-02-2024 **Neural Integration:** Nature, origin and propagation of nerve impulse along with medullated & non-medullated nerve fibre
Week 4, Day 3, Date 07-02-2024 conduction of nerve impulse across synapse.
Week 4, Day 4, Date 08-02-2024 **Chemical integration of Endocrinology:** Structure and mechanism of hormone action
Week 4, Day 5, Date 09-02-2024 physiology of hypothalamus, pituitary, thyroid, parathyroid, adrenal, pancreas and gonads.

Week 1 Chapter:
Week 5, Day 3, Date 14-02-2024 Basant Panchmi
Week 5, Day 4, Date 15-02-2024 **Reproduction:** Spermatogenesis, Capacitation of spermatozoa, ovulation,
Week 5, Day 5, Date 16-02-2024 formation of corpus luteum, oestrous-anoestrous cycle, Menstrual cycle in human; fertilization, implantation and gestation.
Week 6, Day 3, Date 21-02-2024 **Amphibia:** Origin, Evolutionary tree.
Week 6, Day 4, Date 22-02-2024 Type study of frog (*Rana tigrina*)
Week 6, Day 5, Date 23-02-2024 Type study of frog (*Rana tigrina*)
Week 7, Day 3, Date 28-02-2024 Type study of frog (*Rana tigrina*)
Week 7, Day 4, Date 29-02-2024 Type study of frog (*Rana tigrina*)
Week 7, Day 5, Date 01-03-2024 Parental Care in Amphibia
Week 8, Day 3, Date 06-03-2024 **Reptilia:** Origin, Evolutionary tree
Week 8, Day 4, Date 07-03-2024 Extinct reptiles; Poisonous and non-poisonous snakes; Poison apparatus in snakes.
Week 8, Day 5, Date 08-03-2024 Maha Shivatri
Week 9, Day 3, Date 13-03-2024 Type study of Lizard (Hemidactylus)
Week 9, Day 4, Date 14-03-2024 Type study of Lizard (Hemidactylus)
Week 9, Day 5, Date 15-03-2024 Type study of Lizard (Hemidactylus)
Week 10, Day 3, Date 20-03-2024 Flight adaptation,
Week 10, Day 4, Date 21-03-2024 Principles of aerodynamics in Bird flight, migration in birds.
Week 10, Day 5, Date 22-03-2024 Type study of Pigeon (*Columba livia*)
Week 11, Day 3, Date 27-03-2024 Holiday

Week I
Chapter:

Week 11, Day 4, Date 28-03-2024
Holiday

Week 11, Day 5, Date 29-03-2024
Holiday

Week 12, Day 3, Date 03-04-2024
Type study of Pigeon (*Columba livia*)

Week 12, Day 4, Date 04-04-2024
Type study of Pigeon (*Columba livia*)

Week 12, Day 5, Date 05-04-2024
Type study of Pigeon (*Columba livia*)

Week 13, Day 3, Date 10-04-2024
Adaptive radiations of mammals and dentition.

Week 13, Day 4, Date 11-04-2024
Id- Ul-Fitar

Week 13, Day 5, Date 12-04-2024
Classification Of Mammals

Week 14, Day 3, Date 17-04-2024
Ram Navami

Week 14, Day 4, Date 18-04-2024
type study of Rat;

Week 14, Day 5, Date 19-04-2024
type study of Rat;

Week 15, Day 3, Date 24-04-2024
type study of Rat;

Week 15, Day 4, Date 25-04-2024
type study of Rat;

Week 15, Day 5, Date 26-04-2024
Test

Week 16, Day 3, Date 01-05-2024
Problem Solving Session

Week 1 Chapter:
Week 16, Day 4, Date 02-05-2024 Revision
Week 16, Day 5, Date 03-05-2024 Revision

Signature

Dr. Rekha Saini

Lesson Plan Format

Name of Assistant/ Associate Professor: Dr. Rekha Saini

Class and Section: BSc. 1styear sem 2nd (3-5days)

Subject lesson plan: Zoology

Session:2023-24

Week 1 Chapter:
Assignments
Week 1, Day 3, Date 17-01-2024 Guru Govind Singh Jayanti
Week 1, Day 4, Date 18-01-2024 Phylum - Annelida: i) General characters and classification up to order level
Week 1, Day 5, Date 19-01-2024 Biodiversity and economic importance of Annelida
Week 2, Day 3, Date 24-01-2024 Type study - Pheretima (Earthworm)
Week 2, Day 4, Date 25-01-2024 Type study - Pheretima (Earthworm)
Week 2, Day 5 , Date 26-01-2024 Republic Day
Week 3 Day 3,Date 31-01-2024 Metamerism in Annelida
Week 3, Day 4, Date 01-02-2024 . Trochophore larva:. Affinities, evolutionary significance
Week 3, Day 5, Date 02-02-2024 Phylum - Arthropoda: i) General characters and classification up to order level
Week 4, Day 3, Date 07-02-2024 . Biodiversity and economic importance of insects
Week 4, Day 4, Date 08-02-2024 Type study – Grasshopper
Week 4, Day 5, Date 09-02-2024 Type study – Grasshopper
Week 5, Day 3, Date 14-02-2024 Basant Panchmi
Week 5, Day 4, Date 15-02-2024 Phylum - Mollusca: i) General characters and classification up to order level
Week 5, Day 5, Date 16-02-2024 Biodiversity and economic importanc

Week 1 Chapter:
Week 6, Day 3, Date 21-02-2024 . Type study - Pila
Week 6, Day 4, Date 22-02-2024 Type study - Pila
Week 6, Day 5, Date 23-02-2024 Torsion and detorsion in gastropoda
Week 7, Day 3, Date 28-02-2024 iv) Respiration and foot
Week 7, Day 4, Date 29-02-2024 Phylum - Echinodermata: i) General characters and classification up to order level
Week 7, Day 5, Date 01-03-2024 Biodiversity and economic importance
Week 8, Day 3, Date 06-03-2024 Type Study -Asteries (Sea Star)
Week 8, Day 4, Date 07-03-2024 Type Study -Asteries (Sea Star)
Week 8, Day 5, Date 08-03-2024 Maha Shivatri
Week 9, Day 3, Date 13-03-2024 Echinoderm larvae ,
Week 9, Day 4, Date 14-03-2024 Aristotle's Lantern
Week 9, Day 5, Date 15-03-2024 Phylum hemichordate General characters
Week 10, Day 3, Date 20-03-2024 Type study of balanoglossus
Week 10, Day 4, Date 21-03-2024 Type study of balanoglossus
Week 10, Day 5, Date 22-03-2024 Elements of Heredity and variations.
Week 11, Day 3, Date 27-03-2024 Holiday
Week 11, Day 4, Date 28-03-2024 Holiday
Week 11, Day 5, Date 29-03-2024 Holiday

Week 1 Chapter:
Week 12, Day 3, Date 03-04-2024 The varieties of gene interactions
Week 12, Day 4, Date 04-04-2024 Linkage and recombination: Coupling and repulsion hypothesis, crossing-over and chiasma formation; gene mapping.
Week 12, Day 5, Date 05-04-2024 Sex determination and its mechanism: male and female heterozygous systems, genetic balance system; role of Y -chromosome,
Week 13, Day 3, Date 10-04-2024 male haploidy, cytoplasmic and environmental factors, role of hormones in sex determination
Week 13, Day 4, Date 11-04-2024 Id- Ul-Fitar
Week 13, Day 5, Date 12-04-2024 Extra chromosomal and cytoplasmic inheritance: i) Kappa particles in Paramecium. ii) Shell coiling in snails. iii) Milk factor in mice.
Week 14, Day 3, Date 17-04-2024 Ram Navami
Week 14, Day 4, Date 18-04-2024 Sex linked inheritance: Haemophilia and colour blindness in man, eye colour in Drosophila, Nondisjunction of sex-chromosome in Drosophila; Sex-linked and sex influenced inheritance
Week 14, Day 5, Date 19-04-2024 Multiple allelism: Eye colour in Drosophila; A, B, 0 blood group in man.
Week 15, Day 3, Date 24-04-2024 Human genetics: Human karyotype, Chromosomal abnormalities involving autosomes and sex chromosomes, monozygotic and dizygotic twins
Week 15, Day 4, Date 25-04-2024 Inborn errors of metabolism (Alcaptonuria, Phenylketonuria, Albinism, sickle-cell anaemia).
Week 15, Day 5, Date 26-04-2024 Nature and function of genetic material; Structure and type of nucleic acids; Protein synthesis. spontaneous and induced (chemical and radiations) mutations; gene mutations;

Week 1 Chapter:
Week 16, Day 3, Date 01-05-2024 Chemical basis of mutations; transition, transversion, structural chromosomal aberrations (deletion, duplication, inversion and translocation); Numerical aberrations (autoploidy, euploidy and polyploidy in animals)
Week 16, Day 4, Date 02-05-2024 Applied genetics: Eugenics, euthenics and euphenics; genetic counseling, pre-natal diagnostics, DNA-finger printing, transgenic animals
Week 16, Day 5, Date 03-05-2024 Test

Signature

Dr. Rekha Saini