M.B.P. GOVT.P.G. COLLEGE, ASHIYANA, LUCKNOW

ACADEMIC CALENDAR : SESSION- (2024

NAME OF TEACHER : DR. KIRAN YADAV

DEPARTMENT : DEPARTMENT OF ZOOLOGY

CLASS : B.Sc. (Sem.1,Sem.3,Sem.5 Applicable from J

S.No.	CLASS (YEAR, SEMESTER)	PAPER	UNIT
1	B.Sc.I Sem 1	Paper-1 Diversity and Biology of Non Chordata	

UNIT-1

UNIT-2

UNIT-3

P2 Practical Sem 1

B.Sc.I Sem 2

Paper-3 Diversity and Biology of Chordata

UNIT-1

UNIT-2

UNIT-3

3 UNIT-4

P3 Practical Sem 2

4

5	B.Sc.II Sem 3	Paper-5 Environmental Biology and Wildlife
		UNIT-1
		UNIT-2
		UNIT-3
		UNIT-4
6		Practical Sem 3
	B.Sc.II Sem 4	P-7 Applied Zoology
		UNIT-1

			UNIT-2
			UNIT-3
7			UNIT-4
8		P-8	
9	B.Sc.III Sem 5	Paper-9 Animal Physiology and Biochemistry	
			UNIT-1
			UNIT-2
			UNIT-3
			UNIT-4

	Paper-10 Theory based Practicals (Animal Physiology and Biochemistry)

B.Sc.III Sem 6	P11: Cytogenetics and Molecular Biology

B.Sc.III Sem 6	Paper-12 Theory based Practicals (Cytogenetics and Molecular Biology)

-2025)

uly 24) (Sem.2,Sem.4,Sem.6 Applicable from January 25)

TOPIC NAME	MONTHLY/WEEKLY PLAN
Protozoa General features and life history of: Paramecium, Plasmodium and Leishmania	
Porifera Skeleton, canal system, and reproduction in Porifera	Min 12 Lectures
Cnidaria General features and life history : Obelia Polymorphism Coral reefs and their formation	
Platyhelminthes General features and life history:Fasciola hepatica Parasitic adaptations	
Aschelminthes General features and life history of Wuchereria bancrofti Parasitic adaptations	Min 15 Lectures
Annelida General features and life history : Earthworm,Nereis and Hirudinaria Coelom and metamerism	
Arthropoda General features and life history:Palaemon Mouth parts, vision, respiration, larval forms, metamorphosis and its hormononal regulation, parasitic crustaceans, social organization in honey bee and termites	Min 15 Lectures

Mollusca
General features and life history: Pila and Lamellidens
Torsion and detorsion

Echinodermata
General features and life history: .Asterias
Larval forms of Echinodermata
Water-vascular system

Hemichordata
General characters, life history: Balanoglossus
Affinities

Min 14 Lectures

Protozoa
Observation and identification of common freshwater protozoans, with emphasis on Amoeba, Arcella, Euglena, Paramecium, Vorticella.
Demonstration of tricbocyst discharge and cyclosisin in Paramecium Permanent preparation of monocystis to demonstrate its life history stages
Study of prepared slides

Porifera
Study of prepared slides and specimens
Glycerin preparation of spicules and spongin fibres
Permanent preparation of gemmules

Cnidaria
Study of prepared slides and specimens
Permanent preparation of Hydra and Obelia

Platyhelminthes
Study of prepared slides and specimens

Aschelminths
Study of prepared slides and specimens

Min 14 Periods

Annelida
Study of prepared slides and specimens
Permanent preparation of parapodium of Nereis, ovary and septal nephridia of Pheretima
Glycerin preparation of setae in situ from Pheretima
Nerve ring of Pheretima

Arthropoda
Study of prepared slides and specimens.
Glycerin preparation of mouth parts of housefly and mosquito (both sexes) Permanent preparation of statocysts
Palaemon: Appendages, Hastate plate, Dissection of Central nervous system

Mollusca
Study of prepared slides and specimens
Permanent preparations of gill lamella of Lamellidens and Pila.
Pila : Dissection of Central nervous system

Echinodermata
Study of prepared slides and specimens

Hemichordata
Study of prepared slides and specimens

Min 15 Periods

Protochordata
Origin of chordates
General features and life history: Herdmania and Amphioxus

Agnatha
General features: Petromyzon and Myxine

Pisces
Locomotion, respiration, osmoregulation and migration
General features and life history: Scoliodon

Min 15Lectures

Amphibia
Origin of tetrapods
Paedogenesis, Parental care

Reptilia
Origin of reptiles
Venomous & non-venomous snakes of India & their identification
Dinosaurs

Aves
Origin of birds
Flight adaptations and mechanism of flight

Mammalia
Origin of mammal
Dentition
Adaptive radiation

Min 14Lectures

Comparative functional anatomy: integument and its derivatives, endoskeleton, and locomotory organs

Min 13 Lectures

Comparative functional anatomy: digestive system, circulatory system, urinogenital system ,nervous system and sense organs.

Min 12 Lectures

Protochordata
Study of prepared slides and specimens

Cyclostomata
Study of prepared slides and specimens

Pisces
Study of prepared slides and specimens
Permanent preparation of scales
Labeo rohita
- Afferent branchial system
- Efferent branchial system
- V,VII, IX and X cranial nerves and their branches
- Weberian ossicles
- Air bladder

Min14 Periods

Amphibia Study of prepared slides & and specimens	
Reptilia Study of prepared slides and specimens Study of carapace and plastron	
Aves Study of prepared slides and specimens Beak modifications, feathers	
Mammalia Study of prepared slides and specimens	
Comparative histology of Amphibia and Mammalia Comparative endoskeleton of Reptilia, Aves and Mammalia.	Min14 Periods
Ecosystem structure and function Ecosystem: concept, components and funadamental operations (energy flow. energy transformation, nutrient cycling) Trophic levels, Food chain and food web Population: Characteristics, dynamics and regulation r- and k-strategies Ecological Processes and Adaptations Ecological succession Ecological niche Adaptations (aquatic, volant, arboreal. cursorial, fossorial and desert) Animal Distribution and Zoogeographical Realms	Min 15 Lectures Min 14 Lectures
Wildlife and Its Conservation IUCN Categories; Basis of Categorization Wildlife conservation and Biodiversity acts In situ conservation: Sacred groves, Reserve Forests, Wildlife Corridors, Heritage sites, National Parks, Sanctuaries, Biodiversity Parks and Biosphere reserves (special emphasis on Dudhwa National Park, Kukrail Gharial Breeding Centre, Katarniaghat Wildlife Sanctuary. Bakhira Bird Sanctuary. Pilibhit Tiger Reserve) Ex situ conservation Pollution and Toxicology Concept. sources, types (air, water, soil. noise & radiation), and control of environmental pollution. Environmental Problems (Acid rain, ozone depletion, global warming) and Priorities, Environmental Ethics Exposure of toxicants (routes of exposure, and duration and frequency of exposure): dose- response relationship, toxic effects and antidotal therapy.	Min 13 Lectures Min 13 Lectures
Theory based Practical	14 Periods
Major infectious and communicable diseases: (malaria, filaria, tuberculosis, cholera and 15 AIDS), their vectors, pathogens and prevention.	Min 13 Lectures

Cattle and livestock diseases, their pathogens (helminthes) and vectors (ticks, mites,Tabanus, Stomoxys). Pests of sugarcane (Pyrilla perpusiella) and rice (Sitophilus oryzae)	Min 14 Lectures
Lac culture Sericulture Apiculture	Min 13 Lectures
Aquaculture Poultry Vermiculture	Min 14 Lectures
Theory based Practical	14 Periods
Digestion Physiology of digestion and absorption of protein, carbohydrates and lipid **Respiration** Transport of oxygen and carbon dioxide in blood Respiratory volumes and capacities Ventilators **Circulation** Composition and constituents of blood Blood groups and Rh factor Factors and mechanisms ofcoagulation Origin and conduction of the cardiac impulse Cardiac cycle **Excretion** Structure of nephron and urine formation Regulation of water and acid-base balance	Min 13 Lectures
Nerve Physiology Structure of neuron, conduction of nerve impulse Synaptic transmission Neurotransmittors **Muscles** Types of muscles andmechanism of contraction of skeletal muscles Effects of exercise on muscles **Endocrine glands** Structure and function of pitiutary, pineal, thyroid, parathyroid, pancreas and adrenal glands.	
Reproduction Physiology of reproduction, puberty and menopause Proteins: Structure, transamination, deamination and urea cycle Carbohydrates: Structure, Glycolysis, Krebs cycle, Electron transport chain, Glycogenolysis, gluconeogenesis Lipids: Structure and Beta oxidation of palmitic acid	Min 14 Lectures Min 13 Lectures
Enzymes: nomenclature and classification; cofactors, coenzymes, ribozymes, isozymes, abzymes; mechanism of action; kinetics Vitamins and deficiency diseases	Min 14 Lectures

1. Preparation of Haemin crystals

2. Preparation of neuron, cartilage, striated muscle and smooth muscle.

3. Demonstration of use of Respirometer

4. Study of blood film

5. Blood group demonstration

6. Rh factor

7. Bleeding time and clotting time

8. Haemoglobinometer

9. Haemocytometer

10. Kymograph

11. Qualitative tests for presence of glucose, acetone, amino acids and albumin.

12. Preparation of bead and stick models of amino acids and dipeptides

Min 14 Periods

Structureand function of cell and cell organelles (Plasma membrane, Mitochondria, Nucleus,
Endoplasmic reticulum, Golgi Complex, ribosome and lysosomes)

Unit II

Chromosome: types (polytene and lampbrush), organisation of chromatin.
Heterochromatin
and euchromatin
Cell division (Mitosis and Meiosis), mitotic spindle and mitotic apparatus, chromosome movement
Cell Cycle

Unit III

Mendel's law of inheritance and its extension (Incomplete dominance, Codominance, multiple
alleles, sex-linked traits)
Recombination, linkage
Sex determination
Mutation: Chromosomal mutations (deletion, duplication, inversion, translocation, aneuploidy and
polyploidy), Gene mutation and mutagenesis
Pedigree analysis
Hereditary diseases of men

Min 13 Lectures

Unit IV

Nucleic Acids: structure, replication, central dogma, genetic code 15
Protein synthesis (Transcription, Translation)
RNA processing
Gene regulation

1. Preparation of temporary stained squash of onion root tip to study various stages of mitosis 2. Study of permanent slides of meiosis 3. Staining of cheek epithelial cells using methylene blue 4. Study of Polytene chromosomes from Chironomus / Drosophila larvae 5. Study and interpretation of electron micrographs/ photograph showing 6. DNA replication 7. Transcription 8. Split genes 9. Preparation of models of nitrogenous bases, nucleosides and nucleotides 10. Study of mode of inheritance of the following traits by pedigree charts – attached ear lobe, widow's peak and tongue rolling. 11. Probability assessment of above traits for future generations. 12. Frequency of the following genetic traits in human: widow's peak, attached ear lobe, dimples in chin, hypertrichosis, colour blindness. 13. Experiments demonstrating genetic laws and their exceptions 14. Pedigree analysis	Min 14 Periods

TECHING PEDAGOGY	ANY OTHER DETAILS
OFFLINE	EVALUATION THROUGH TEST,ASSIGNMENT AND DISCUSSION
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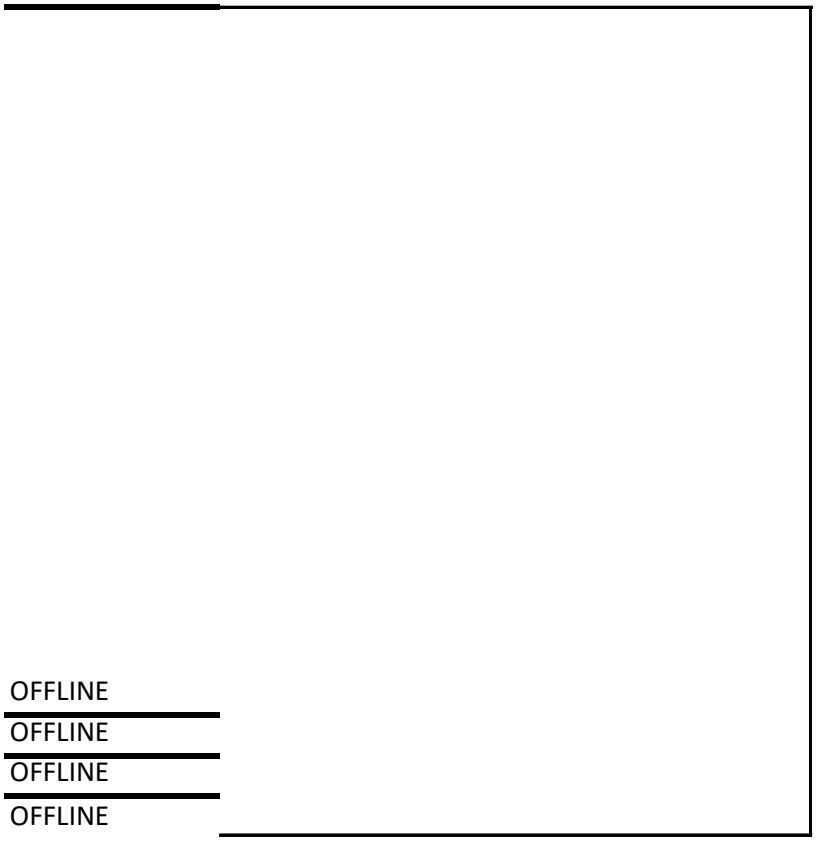
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