# DEPARTMENT OF ZOOLOGY

**Syllabus of Zoology 2012 (Grading system)**

## B.Sc. Zoology (General) Syllabus

<table>
<thead>
<tr>
<th>YEAR</th>
<th>SEMESTER</th>
<th>COURSE CODE</th>
<th>COURSE TITLE</th>
<th>MAXIMUM MARKS WITH CREDITS</th>
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### B.Sc. Zoology (Honours) Syllabus

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**SEMIESTER I (PASS & HONOURS)**

Course Code: **Zoo (P&H) 101**  
[**Credits: 4**]

Course Name: **General Zoology I**  
**Theory: (20+50) marks**

**Unit I: Classification**
Principles of classification; Classification of animals; Non-chordates salient features up to classes.

**Unit II: Protozoa**
Study of *Amoeba, Euglena, Paramecium* and *Monocystis* with reference to Nutrition, Locomotion and Reproduction; Parasitic Protozoans: *Entamoeba* and *Trypanosoma*; Mode of infection and diseases caused in man by the parasitic protozoans with reference to their diagnostic characters (Malaria, Sleeping sickness, Giardiasis, Leishmaniasis).

**Unit III: Porifera**
Study of *Leucosolenia* and *Sycon* with reference to Structure, Reproduction, Development and Canal System.

**Unit IV: Cnidaria**

**Unit V: Platyhelminthes**
Structure, Reproduction, Life Cycle and Parasitic adaptations in *Fasciola* and *Taenia*.

**Unit VI: Annelida**
Types and significance of coelom; Metamerism and significance; Parasitic adaptations of *Hirudinaria*; Structure and Reproduction of *Neries*.

Course Code: **Zoo (Pr) 101**  
[**Credit: 1**]

Course Name: **General Zoology I**  
**Practical: (10+20) marks**

1. Museum specimen study: Representatives from Non-chordates (Protozoa to Annelida) with systematic position and identifying characters.

2. Mountings:
   - *Paramoecium* w/m.
   - *Euglena* w/m
   - Spicules of sponges.
   - Nephridia and ovary of Earthworm.
   - Parapodia of *Neries*.
   - Scolex of *Taenia*.
   - Fasciola or, *Taenia* w/m

3. Dissections:
   - Reproductive system of Earthworm.
   - Digestive system of Earthworm.
   - Urinogenital system of Leech.

**Suggested Readings:**
Rupert & Barnes: “*Invertebrate Zoology*”, Harcourt Asia Pvt. Ltd.
Kotpal series.
SEMMESTER I (HONOURS)

Course Code: Zoo (H) 103  
Course Name: Functional anatomy of Non-chordates and Chordates.  
Theory: (20+50)  
Credits: 4

Unit I: Forms and Movements
Structure and functions of cilia; Types of movement in animals; Flight and flight muscles in insects and birds; Ultrastructure of Muscle cell.

Unit II: Respiration and Nutrition
Comparative study of Respiratory system of Fish, Frog, Birds and Mammals; Mechanism of feeding in animals.

Unit III: Integumentary and skeletal systems
Exoskeleton & Endoskeleton: General considerations; Axial skeleton; Appendicular skeleton; Comparative anatomy of skull; Integument and its derivatives: scales, feathers, skin, hair and hoofs.

Unit IV: Circulatory system
Evolution of Heart and Aortic arches; Lymphatic System; Portal system.

Unit V: Nervous system
General plan of Brain and Spinal cord; Evolution of Cerebral hemispheres and Cerebellum; Receptors & Sense organs: chemoreceptor, photoreceptor (human eyes) and phonoreceptor (human ears).

Course Code: Zoo (Pr) 103  
Course Name: Functional anatomy of Non-chordates and Chordates  
Practical: (10+20) mks

Mountings:
- Placoid scales of fish
- Ctenoid scales of fish
- Cycloid scales of fish
- Statocyst of Palaemon

Dissections:
- Nervous System of Palaemon.
- Nervous system of Pila.
- Internal ear of Scoliodon.
- Accessory respiratory organs in teleosts.

Demonstration of internal anatomy with emphasis on flight muscles and air sacs in pigeon.

Osteology: comparative study (Amphibia & Mammal)
- Atlas, Axis, Sacral vertebra
- Limbs and bones
- Girdles
- Ribs of birds and mammals
- Skull of pigeon and Rabbit/ Guinea pig.

Suggested Readings:
- Rupert & Barnes: “Invertebrate Zoology”, Harcourt Asia Pvt. Ltd.
**SEMESTER II**  
(PASS & HONOURS)

**Course Code:** Zoo (P&H) 102  
**[Credits: 4]**  
**Course Name:** General Zoology II.  
**Theory: (20+50) marks**

**Unit I: Nemathelminthes**  
Structure, Reproduction and Life Cycle of *Ascaris*. Parasitic adaptations of *Ascaris*.

**Unit II: Mollusca**  
Study of *Pila* and *Unio* with reference to structure and reproduction; Torsion in gastropoda.

**Unit III: Echinodermata**  
Structure, Locomotion, mode of feeding and Reproduction in *Asterias*; Water vascular system; Larval forms and their significance with emphasis on Dipleurula.

**Unit IV: Arthropoda**  
Structure and Reproduction of *Periplaneta*; Management of household pests and household veterinary insects (flea, ticks).

**Unit V: Protochordates**  
Salient features and classification up to subclasses with examples; General anatomy, digestive and circulatory system in *Balanoglossus*, *Herdmania* & *Amphioxus*.

**Unit VI: Chordates**  
Salient features and classification up to orders with examples; Migration & parental care in fishes; Neoteny in *Urodela*; Poison apparatus & biting mechanism in snakes; Migration in birds.

**Course Code:** Zoo (Pr) 102  
**[Credit: 1]**  
**Course Name:** General Zoology II  
**Practical: (10+20) marks**

Study of museum specimen: Representatives from Non-chordates (Nemathelminthes to Chordates) with systematic position and identifying characters.

Mountings:  
Radula of *Pila*.  
Mouth parts of insects.

Dissections:  
Digestive system of *Pila*.  
Arterial system of *Calotes / Frog*.  
Nervous system of cockroach/grasshopper.  
Afferent and Efferent branchial vessels of *Scoliodon*.  
Cranial nerves (5th, 7th and 10th) of *Scoliodon*.  
Study of the slides of Protochordates.

**Suggested Readings:**
Rupert & Barnes: *Invertebrate Zoology*, Harcourt Asia Pvt. Ltd.  
SEMESTER II
(HONOURS)

Course Code: Zoo (H) 104  
[Credits: 4]  
Course Name: Biometrics, Biophysics, Parasitology & Animal Behaviour

Theory: (20+50) marks

Unit I: Biometrics
Definition, Sampling method, Diagrams & graphs, Measurement of Central Tendency, Arithmetic mean, Harmonic mean, Geometric mean; Median, Mode; Dispersion, Range, Mean Deviation, Standard Deviation and Variation; Tests of significance; Student’s t-test; Chi-square test; ANOVA test & Probability.

Unit II: Biophysics
pH; Buffer solution; Various buffers used in biochemical estimation, Structure of Atoms: Protons, Neutrons and Electrons; Principles and applications of Tracer Techniques; Radioactive isotopes and their half-life periods; Radiation effects on Biological systems; Geiger-Muller counter.

Unit III: Parasitology
Definition of host & parasites; Differences between Parasitism, mutualism & commensalism; Host-parasite relationships, Primary and secondary hosts & their significance; Parasitic nematodes of man (Ancylostoma, Enterobius and Wucheraria); Parasitic adaptations.

Unit IV: Animal Behaviour
Introduction to Ethology; Animal communications; Dance language of Honey bee; Definitions and forms of learning behaviour; Social organization of Bees and Ants; Territoriality; Social hierarchy; Parental care; Pheromone; Altruism; Circadian rhythm.

Course Code: Zoo (Pr) 104
[Credits: 1]
Course Name: Biometrics, Biophysics, Parasitology & Animal Behaviour

Practical: (10+20) marks
1. Orientation of Housefly to salt/sugar solutions.
2. Chaemotaxis in Paramecium.
3. Phototaxis in Earthworms.
4. Study of parasites from permanent slides.
7. Calculation of Mean, Median, Mode, Standard Deviation, Probability, ANOVA, $x^2$-test & t-test from given set of data.
9. Preparation of buffer of specific strength.
10. Project on the culture of Honey bee/Life cycle of any household pest.
Suggested Readings:

2. Chatterjee, K.D.: “Parasitology: Protozoology and Helminthology in relation to clinical medicine”, Published by the author.
5. Gupta, P.K.: “Cytology, Genetics, Biotechnology and Biostatistics”, Rastogi Publications.

SEMESTER III
(PASS & HONOURS)

Course Code: Zoo (P&H) 205
[Credits: 4]
Course Name: Cytology I & Biochemistry
Theory: (20+50) marks

Unit I: Cell & cellular organelles
Structure of Prokaryotic and Eukaryotic cells; Structure, composition and functions of plasma membrane, Golgi complex, Endoplasmic Reticulum, Ribosomes, Lysosomes, Centrioles, Mitochondria, Nucleus, Nuclear envelope, Nucleolus and Nucleoid.

Unit II: Chromosomes & cell cycle
Structure & function of Chromosome; Euchromatin and Heterochromatin; Structure and functions of special types of chromosomes (Polytene, Lampbrush and Supernumerary chromosomes) and their significance; Cell cycle; Mitosis and Meiosis; Elementary idea of cell transformation and Cancer cells.

Unit III: Structural biochemistry
Structure & Classification of Carbohydrates; Biological significance of carbohydrates; Structure & types of Amino acids; Amino acid as natural buffer; Iso-electric pH; Organization and classification of proteins; Classification and Biological significance of Lipids; Structure & classification of Enzymes; Active & allosteric site; Mechanism of enzyme action; Isozymes; Michaelis-Menten's equation; Enzyme inhibition; Structure, composition and types of DNA & RNA.

Unit IV: Metabolical biochemistry
Glycolysis; Gluconeogenesis; TCA Cycle; Pentose phosphate Pathway; Transmination and Deamination of amino acids; Ornithine cycle; Uric acid formation; β-oxidation of Fatty acids; Basic idea of Intermediary metabolism.
Course Code: Zoo (Pr) 205  
[Credits: 1]  
Course Name: Cytology I & Biochemistry  
Practical: (10+20) marks  
1. Amino acid separation by Paper chromatography.  
2. Biochemical detection of Albumin in urine sample.  
3. Detection and estimation of the amount of glucose present in urine sample.  
4. Estimation of the amount of protein present in a given amount of muscle of fish/chicken.  
5. Ascorbic acid estimation in citrus fruits by titration.  
6. Study of cytoplasmic organelles and cell inclusion in permanent slides / electronmicrograph.  
7. Study of various stages of Mitosis and Meiosis in permanent slide.  
8. Preparation and study of Mitosis by squash method from Onion root tip.  
9. Preparation and study of Meiosis by squash method from Grasshopper testis.  

Suggested Readings:  
SEMESTER III
(HONOURS)
Course Code: Zoo (H) 207 [Credits: 4] Theory: (20+50) marks
Course Name: Cytology II, Biotechniques & Molecular Biology

Unit I: Cytology-II
Modifications of Plasma membrane in various cell types; cytoskeleton; Protein sorting & transport; Transport of small molecules across plasma membrane & nuclear envelope.

Unit II: Biotechniques
Principles and applications of ultracentrifuge, light microscopy, phase contrast microscopy, electron microscopy, chromatography, electrophoresis, colorimetry, autoradiography, radioimmunoassay and ELISA technique.

Unit III: DNA & Gene
Structure of DNA- its organization in chromosome; Nucleosome and higher order packaging; Organization of DNA in prokaryotes & eukaryotes; Fine structure of gene.

Unit IV: Replication, Transcription & Translation
Central dogma theory; Replication, transcription & translation: Principles, enzymes and inhibitors of replication & transcription of DNA; Genetic code & fundamentals of translation of RNA.

Unit V: Regulation of gene expression
Post transcriptional modification of primary transcript; Operon concept for regulation of gene expression with a detailed emphasis on Lac & trp Operon.

Course Code: Zoo (Pr) 207 [Credits: 1]
Course Name: Cytology II, Biotechniques & Molecular Biology
Practical: (10+20) marks

1. Staining technique for the study of Nucleus & Mitochondria& Golgi complex.
2. Cytochemical staining of protein with Bromophenol blue.
3. Cytochemical staining of histones with Fast green.
4. Cytochemical staining of DNA with Feulgen.
5. Project work (to visit Scientific Institutes and observe advanced techniques in Cell Biology).

Suggested Readings:
SEMMESTER IV
(PASS & HONOURS)

Course Code: Zoo (P&H) 206
[Credits: 4]
Course Name: Physiology I, Endocrinology I and Histochemistry.

Theory: (20+50) marks

Unit I: Excretion, Osmoregulation & Coordination
Structure and functions of kidney; Nitrogenous wastes; Osmoregulation in freshwater, marine and terrestrial environments; Types of neurons; Ultra-structure of neurons; Nerve impulse genesis and transmission, Synaptic transmission; Neuromuscular junction and Muscle contraction.

Unit II: Respiration, Circulation and Nutrition
Respiration: - types of respiration; respiratory pigments; physiology of respiration.  
Circulation: - Blood composition and functions; ABO blood groups; Rh factor.  
Nutrition: - Digestive system of human; Digestion and assimilation of Proteins, carbohydrates and Lipids; Regulation of digestive activity, Nutritional importance of vitamins & minerals.

Unit III: Endocrinology
Hormones, Types of hormones- Trophic & local hormones; General characters of hormones; Mechanism of Hormone action; Hypothalamic hormones and pituitary integration; Structure and functions of mammalian Pituitary, Thyroid, Parathyroid, Endocrine Pancreas, Adrenal; Role of hormones in mammalian reproduction.

Unit IV: Histochemistry
Tissue fixatives and preservatives; Dehydration; Wax-embedding and microtomy; Single, double and vital staining.

Course Code: Zoo (Pr) 206
[Credits: 1]
Course Name: Physiology I, Endocrinology I and Histochemistry.

Practical: (10+20) marks

1. Study of Endocrine glands of Chick/Frog/Rat.
2. Histology of various Endocrine glands (Pituitary, Thyroid, Pancreas & Adrenal).
3. Preparation of pituitary extract from Fish/Frog/Rat.
4. Preparation and study of Haemin crystal.
5. Estimation of Oxygen uptake by Fish (Winkler’s method) by fish/frog/rat.
6. Quantitative demonstration of lipid by Sudan black.
7. Project work on microtomy technique- preparation of histological slides.
8. Double staining of blood.
9. Determination of ABO blood-groups and Rh-factor using Monoclonal antisera.
Suggested Readings:


SEMESTER IV
(HONOURS)

Course Code: Zoo (H) 208
[Credits: 4]
Course Name: Physiology II, Endocrinology II & Environmental Adaptations
Theory: (20+50) marks

Unit I: Circulation

Structure, function & composition of Haemoglobin, Oxy-haemoglobin dissociation curve. Hemopoiesis; Coagulation of blood-Intrinsic & extrinsic pathway; Structure of heart; Cardiac cycle, Cardiac output & its regulation; Pace makers; Buffer system in blood; Blood pressure & its regulation; Electrocardiogram.

Unit III: Nerves & muscles

Types & structure of muscle proteins, Mechanism of contraction of muscles; muscle fatigue; Isotonic, anisotonic, isometric and titanic contraction; Transmission of nerve impulse, Neurotransmitters; Action potential; Reflex actions; Central & autonomic nervous system.

Unit III: Endocrinology II

Structure and functions of mammalian Testis, Ovary and Thymus gland; Role of hormones in mammalian reproduction; Role of hormones in metamorphosis of insects; Gastro-intestinal hormones; Signal transduction pathway; Role of c-AMP as secondary messenger.

Unit IV: Environmental Adaptations

Hibernation; Aestivation; Colouration and Mimicry; Poikilothermy and homeothermy; Stress physiology; Bioluminescence.
Course Code: Zoo (Pr) 208  
[Credits: 1]

Course Name: Physiology II, Endocrinology II & Environmental Adaptations.

Practical: (10+20) marks

1. RBC count in blood of frog/fish/rat/man.
2. WBC count in blood of frog/fish/rat/man.
5. Museum specimen study of colouration and mimicry in animals.
6. Project work.

Suggested Readings:


**SEMESTER V**

(PASS & HONOURS)

Course Code: Zoo (P&H) 309  [Credits: 4]  **Theory: (20+50) marks**

Course Name: Genetics I, Evolution & Environmental biology

**Unit I: Cytogenetics**

Concept of genotype, phenotype, dominance, recessiveness; Mendel’s experiment: methods and laws; Intra-allelic interaction: Incomplete dominance, co-dominance, superdominance & lethal gene; Inter-allelic interaction of genes: complementary, supplementary, inhibitory and duplicate types; segregation of genes; Chromosomal traits; Chromosomal theory of inheritance; Pleiotropism, Bateson factor hypothesis & allelism; Linkage; Crossing over; Sex-linked inheritance and sex-linked traits; Sex-determination: Chromosomal, hormonal & environmental basis.

**Unit II: Mutation**

Basic concept of DNA, RNA & Nucleosome; Mutation & mutagenic agents; Point mutation; Chromosomal aberration; Euploidy & aneuploidy.

**Unit III: Evolution**

Origin of life; Darwinism, Neo-Darwinism, Synthetic theory of organic evolution; Molecular evolutionary ideas; Fossils & radio-dating of fossils; Natural selection; Isolating mechanism and Speciation; Adaptations- convergence, divergence; Genetic equilibrium & genetic drift, Hardy-Weinberg’s law; Evolution of man; Geological time scale.

**Unit IV: Environmental Biology**

Introduction to ecology and its sub-divisions (autecology & synecology); Concept of ecosystem, Habitat, Energy flow in ecosystem, Productivity, Food chain, Food webs, Ecological pyramids; Ecological niche; Ecotone & ecotype; Biosphere; Aquatic ecosystem - freshwater & marine, Lotic and lentic ecosystems; Physico-chemical properties of water; Ecological succession; Biogeochemical cycles for C, N & S; Environmental pollution; Depletion of ozone layer and its impact, Greenhouse effect; Ecological indicators; Management of Wildlife.
Course Code: Zoo (Pr) 309
[Credits: 1]

Course Name: Genetics I, Evolution & Environmental biology

Practical: (10+20)marks

1) Study of Polytene chromosome in Chironomous/Drosophila larva.
2) Calculation of monohybrid & dihybrid crosses.
3) Study of different stages of mitosis in Onion/Garlic root-tip.
4) Study of different stages of meiosis in Cockroach/Grasshopper testis.
5) Study of fossils.
6) Study of soil fauna by quadrate method.
7) Estimation of pH & moisture content in soil samples.
8) Study of soil texture in different soil samples.
9) Study of aquatic ecosystems- qualitative study of phytoplankton & zooplanktons.
10) Permanent mount of some commonly found zooplanktons- Cyclops, Daphnia, Paramecium, Euglena and Amoeba.
11) Estimation of pH of water samples.
12) Estimation of free CO₂ in water samples.
13) Estimation of dissolved O₂ in water samples.
14) Project work on dihybrid cross in mice.

Suggested Readings:

SEMESTER V  
(HONOURS)  
Course Code: Zoo (H) 311 [Credits: 4]  
Course Name: Ecomanagement, Genetics II & Toxicology  
Theory: (20+50) marks

Unit I: Environmental analysis & management

Abiotic factors- Laws of limiting factors, Liebig’s law; System analysis in ecology; Ecosystem-homeostasis and management; Soil types & soil erosion; Community structure- Species diversity, Biotic communities; Unitary & modular populations, Population growth pattern & population dispersal, Impact of population on eco-degradation; Sustainability of bioresources.

Unit II: Modern genetics

Modern idea of gene & its inheritance; Cytological demonstration of crossing over; Mutation and mutagenic agents; Mutation detection in Drosophila & Neurospora; Cytoplasmic inheritance-Kappa particles, sigma substance & plasmon concept; Concept of dynamic nature of genes- Split gene, Overlapping gene; C-value paradox ; Dosage compensation & barr bodies.

Unit III: Human genetics

General idea of genetic disorders in man- Down’s syndrome, Klinefelter’s syndrome, Turner’s syndrome, Gynandromorphism, Phenylketonuria, Alkaptonuria, Albinism, Haemophilia, Sickle-cell anaemia; Concept of Inbreeding & outbreeding; Hybrid vigour; Normal human karyotype; Pedigree analysis; Sex chromosomal non-disjunctions.

Unit IV: Toxicology

Introduction to toxicology; Classification of toxicants; Toxic agents and their mode of actions – pesticides, Carcinogens, Radiation; Xenobiotics; Biological control of pests; Integrated pest management.

Course Code: Zoo (Pr) 311  
[Credits: 1]
Course Name: Ecomanagement, Genetics II & Toxicology  
Practical: (10+20) marks

1) Study of human karyotypes.  
2) Study of Barr-bodies in buccal epithelial cells.  
3) Determination of carbonates and nitrates in soil samples.  
4) Estimation of primary productivity in pond ecosystem.  
5) Estimation of physico-chemical parameters, alkalinity, phosphates & nitrates in water samples.  
6) Determination of LC50 of certain insecticides.
Suggested Readings:


SEMESTER VI
(PASS & HONOURS)

Course Code: Zoo (P&H) 310
Credits: 4
Theory: (20+50) marks

Course Name: Developmental Biology, Immunology & Applied Zoology I

Unit I: Developmental biology-I
Introduction to Developmental Biology; Structure of gametes; Gametogenesis; Fertilization (morphology and biochemistry); Fertilizin-antifertilizin reaction, Events of fertilization, Cortical reaction; Types of eggs; Parthenogenesis.

Unit I: Developmental biology-II
Types and patterns of cleavage; Blastulation & Gastrulation in Amphioxus, Amphibia and Chick; Extra-embryonic membranes; Fate map construction in frog and chick; Metamorphosis in amphibians; Morphogenesis; Organogenesis with special reference to brain.

Unit III: Immunology
Definition & classification of immunity; Antigen & Antibody; Antibody- structure and functions, Classes of antibodies; Epitopes; Allergy; Cell-mediated and Humoral immunity; Interferron; APC; MHC; Immune tolerance; Autoimmune diseases; AIDS.

Unit IV: Applied Zoology I
Apiculture: concepts and methods; Products of apiculture and their economic importance; Diseases of bees; Pisciculture: concepts; Culturable fishes of India; Management of fish culture with special reference to pond culture; Composite fish culture; Economic importance of Pisciculture; Basic concept of sericulture & laciculture.
Course Code: Zoo (Pr) 310
[Credits: 1]

Course Name: Developmental Biology, Immunology & Applied Zoology

Practical: (10+20) marks

1) Study of eggs- fish, frog & chicks.
2) Study of larval forms from permanent slides- annelids, crustaceans, molluscs and echinoderms.
3) Study of development of frogs by metamorphosis through prepared slides and models.
4) Study of in ovo development of chick embryo by window technique.
5) Study of whole mount preparations of chick embryos at 24-28 hrs & 42-48 hrs of development.
6) Study of metamorphosis in insects/frog.
7) Study of different types of sperms by smear preparation (frog/grasshopper/rat).
8) Identification of different castes of bee.
9) Identification of common culturable fishes.
10) Demonstration of lymphoid organ.

Suggested Readings:

SEMESTER VI
(HONOURS)

Course Code: Zoo (H) 312
[Credits: 4]
Course Name: Biotechnology, Applied Zoology II, Reproduction & Development
Theory: (20+50) marks

Unit I: Biotechnology
Regulatory region of a gene- Promoter, Operator & Repressor; Cryopreservation of cell culture; Restriction enzymes; Recombinant DNA technology; Gene homeostasis; Southern blotting and Northern blotting; DNA sequencing; PCR; DNA fingerprinting; DNA probes; Gene libraries; Basic concept of RFLP & RAPD; Transgenic animals; Bio-safety regulations for gene cloning.

Unit II: Applied Zoology II
Health & diseases during pregnancy in human being; Cause, diagnosis and management of infertility in male & female; Assisted reproductive technology; Sperm banks; Frozen embryos; in vitro fertilization (IVF).

Unit III: Reproduction & development-I
Hypothalamic hormones of reproduction & development; pituitary-gonadal axis; Hormonal regulation of gametogenesis; Environmental & hormonal co-ordination of reproduction.

Unit IV: Reproduction & development-II
Concept of organizer & embryonic induction; Development of foetal membranes; Placentation in mammals; Gene expression in realization of phenotypes; Brief idea of developmental defects; General concept of regeneration and senescence.

Course Code: Zoo (Pr) 312
[Credits: 1]
Course Name: Biotechnology, Applied Zoology II, Reproduction & Development
Practical:(10+20) marks

1) Study of slides of developmental stages of chick embryo (33-38 hrs., 42-48 hrs., 70-76hrs.).
2) Study of mammalian foetal development through models and charts.
3) Effect of Thyroid hormones ($T_3$ & $T_4$) on frog metamorphosis
4) Demonstration of the synergistic effect of estrogen and progesterone in cocks.
5) Regeneration of tail in tadpole/lizard.
6) Whole mount preparation of chick embryo.
7) Cholesterol estimation by colorimetric method in pregnant and non-pregnant females.
8) Estimation of DNA by colorimetric method.
Suggested Readings:


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