

M.SC I LABORATORY WORK SYLLABUS

ZO-505

COURSE – I

ANIMAL DIVERSITY & ECOLOGY

Unit –1 : Identification of evolutionary significant specimens and important

Connecting links and biodiversity

Unit –2 : Diversity of Beaks in Birds

Unit –3 : Mode of life and Modification of feet of Birds

Unit –4 : Preparation of check list of Animals in a Zoo-Park or a Sanctuary

Or a National Park

Unit –5 : Protected areas (Sanctuaries and National Parks) extinction

And biodiversity conservation

Unit –6 : Aquatic ecosystems and animal diversity

Unit –7 : Freshwater crab (Paratelphusa) Nervous System

Unit –8 : Grasshopper (Locust) Reproductive System

Unit –9 : Digestive System in Chick

Unit –10 : Circulatory system in Chick

Unit –11 : Urinogenital System in Chick

Unit –12 : Respiratory System in Chick

COURSE – II CELL & MOLECULAR BIOLOGY

Unit –1 : Preparation of Blood Smear, Cell Type Identification and
Differential Counts

Unit –2 : Osmotic Fragility of Erythrocytes

Unit –3 : Estimation of RNA and DNA in Tissues

Unit –4 : Extraction of DNA
Unit –5 : Extraction of RNA
Unit –6 : Fractionation of Proteins by Ammonium Sulfate Precipitation
Unit –7 : Localization of RNA by Methyl Green – Pyronin Y
Unit –8 : Feulgen reaction Method for DNA Localization
Unit –9 : Tissues Homogenization and Fractionation by Differential Centrifugation for Isolation of Nuclei and Mitochondria
Unit –10 : Separation of Proteins by Polyacrylamide Gel Electrophoresis
Unit –11 : Polytene Chromosomes
Unit –12 : Cell Division

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COURSE – III

Physiology & Physiological Chemistry

BLOCK – I Laboratory Techniques – I –

Estimations.

Unit –1 : Determination of Proteins by Biuret Method
Unit –2 : Determination of Glucose by Anthrone Method / Somogi Method
Unit –3 : Determination of Lipids by Vanillin Method
Unit –4 : Determination of Glycogen by Kemp's Method
Unit –5 : Estimation of Cholesterol by Acetic Anhydride Method

BLOCK – II Laboratory Techniques – II

- Enzyme Activities & Kymograph – Muscle Contractile Parameters.

Unit –6 : Determination of Enzyme Activities of SDH, LDH and GDH
Unit –7 : Effect of Substrate Concentration and pH on Succinate Dehydrogenase Activity

Unit –8 : Effect of Competitive Inhibitor on SDH Activity

Unit –9 : Estimation of Blood Chlorides under Hetero Osmatic Media

Unit –10 : Estimation of Acetyl Cholinesterase (ACHE)

Unit –11 : Adrenalin and Insulin induced changes in Blood

Glucose Levels in Frog

Unit –12 : Estimation of Haemoglobin, Erythrocytes Sedimentation Rate (ESR), Coagulation Time

Unit –13 : Kymograph Recording of Muscle Twitch, Tetanus and Fatigue

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COURSE – IV

Human Cytogenetics & Development Biology

BLOCK – I Human Cytogenetics

Unit –1 : Culture setup and harvest

Unit –2 : Slide preparation

Unit –3 : Staining

Unit –4 : Microscopy Training and Mitotic Index Calculation

Unit –5 : Scoring

Unit –6 : Karyotyping

BLOCK – II Development Biology

Unit –7 : Procedure for isolating and culturing early hours chick

Embryo by filter paper ring method

Unit –8 : Development of a microlecithal

Egg: Spiral cleavage in a snail

Unit –9 : Demonstration of vitellogenesis by classifying the

Development stages of oocytes in the crustacean ovary

Unit –10 : Fecundity Index

Unit –11 : Culturing of *Drosophila* and observing its embryonic
And larval stages