

Syllabus: B.Sc. Part-III (Pass Course)
Zoology Practical

Min. Marks: 18

4 Hrs. / Week

Max. Marks: 50/75

I. Anatomy:

- (a) **Any edible fish (*Wallago, Labeo*, etc.):** External features, general viscera, afferent and efferent branchial blood vessels, eye muscles and their innervations, brain, cranial nerves and internal ear.
- (b) **Rat or any other suitable mammal:** Blood vascular, urino-genital and nervous system (brain, cranial nerves). In this exercise CAL (Computer Assisted Learning) May be used with a software COMPURAT.

II. Study of the following through Permanent Slide preparations:

Striped muscle fibers; Smooth muscle fibers, scales of edible fish, hair of man, dog, goat and cow.

III. Study of Microscopic Slides: Whole mounts of oral hood, velum and pharyngeal wall of *Amphioxus*; T. S. of *Amphioxus* through various regions; tadpole larva of *Ascidia*; whole mounts of *Salpa*, *Doliolum* and *Oikopleura*, V. S. of skin of fish, T. S. body of fish through various regions, V. S. of skin of bird, V. S. mammalian skin, T. S. mammalian liver, kidney, stomach, intestine, bone, spinal cord, lung, duodenum, pancreas, testis and ovary.

IV. Study of Museum Specimens: *Ascidia*, *Ciona*, *Botryllus*, *Ammocoete* larva, *Petromyzon*, *Myxine* or *Bdellostoma*, *Zygaena* (*Sphyrna*), *Torpedo*, *Chimaera*; *Acipenser*, *Amia* or *Lepidosteus*, *Labeo*, *Clarias*, *Anguilla*, *Hippocampus*, *Exocoetus*, *Echeneis*, any flat-fish, *Protopterus*, *Ichthyophis* or any blind-worm, *Proteus*, *Ambystoma*, *Axolotl*, *Siren*, *Alytes*, *Hyla*, *Testudo*, *Chelone*, and Fresh Water Tortoise, *Sphenodon*, *Hemidactylus*, *Phrynosoma*, *Draco*, *Chameleon*; *Eryx*, *Hydrophis*, *Naja*, *Viper*, *Crocodilus*, *Alligator*, *Archaeopteryx*, any Running Bird,

Pavocristatus, Choriotisnigriceps, Ornithorhynchus, Tachyglossus, Didelphys, Macropus, Bat, Loris, Scaly anteater.

V. **Osteology:** A comparative study of articulated and disarticulated bones of skull, vertebrae, limb bones and girdles of any amphibian, reptile, bird and mammal with the help of models/ charts/ artificial skeleton/bones.

VI. **Environmental Biology:**

Analysis of Environment:

1. Soil pH
2. Water analysis: pH, alkalinity, acidity, dissolved O₂ and free CO₂, Salinity (Chloride).
3. Qualitative estimation of zoo-plankton in given sample of water.
4. Methods of ecological census of soil fauna.

VII. **Ethology:**

1. Study of any stored insect pest (food preference and response to light)
2. Antennal grooming in cockroach.
3. Chemical communication: Ants/earthworm.
4. Visit to a Zoo/ Museum of Natural History /Wild life Sanctuary and/or Study of local faunal biodiversity (Candidates are expected to submit a detailed report of such visit).

VIII. **Biostatistics:**

1. Construction of frequency table, bar diagram, line diagram, histogram, frequency polygon and pie chart.
2. Exercises on mean, median and mode (direct, short-cut and step-deviation methods).
3. Standard deviation and standard error.

B.Sc. Part - III

Scheme of Practical Examination and Distribution of Marks

Time: 4 Hrs.

Min Pass Marks: 18

Max. Marks: 50/75

	Regular	Ex. /N.C. Students
Anatomy (any system)	3/4	3/6
Permanent Preparation	6	6/8
Environmental Biology	7/8	7/10
Ethology	3/5	5/7
Biostatistics	5/8	7/10
Identification and comments on Spots (1 to 8)	16/24	16/24
Viva Voce	5/10	5/10
Class Record	5/10	-
	50/75	50/75

Notes:

1. With reference to anatomy and study of museum specimens, candidates must be well versed in the study of various systems with the help of charts/models/CD- ROMs, multimedia computer based simulations including computer assisted learning (CAL) and other softwares.
2. With reference to permanent preparations and microscopic slides, in case of non-availability, the exercise should be substituted with diagrams, photographs, models, charts, etc.
3. Candidates must keep a record of all work done in the practical class and submit the same for inspection at the time of the practical examination.
4. The candidates may be asked to write detailed methodology wherever necessary and separate marks may be allocated for the same.
5. Mounting material for permanent preparations would be as per the syllabus or as available through collection and culture methods.
6. It should be ensured that animals used in the practical exercises are not covered under the wild life act 1972 and amendments made subsequently.