

BHARATHIDASAN UNIVERSITY, TIRUCHIRAPPALLI -24

(For the candidates admitted from the academic year 2016 – 2017 onwards)

Allied Zoology I

Biology of Invertebrates and Chordates

Objectives:

To enlighten the students about the diverse forms of Invertebrate and Vertebrate animals present around us. To help our students to distinguish various animals and to know the evolutionary sequence of them.

UNIT I

General characteristics and classification of Nine Invertebrate Major Phyla up to Class level with examples. Type study: Protozoa: *Paramecium-Paramecium caudatum*; Porifera: Canal System in Sponges; Coelenterata: *Aurelia-Aurelia aurita*; Platyhelminthes: Liver fluke *Fasciola hepatica*; Nematelminthes: Parasitic adaptations in helminthes.

UNIT II

Type study: Annelida: Earthworm- *Lampito mauritii*; Arthropoda: Mouthparts and their modifications in Insects and Insect Pests of Crops (Paddy, Cotton, Coconut and Brinjal) and their management, Mollusca: *Pila*; Echinodermata: Water vascular system in Echinoderms.

UNIT III

General characteristics and classification of Chordates up to class level with examples. Type study: Pisces: Shark- *Scoliodon sorrakowah*.(except Endoskeleton); General essay: Migration in fishes.

UNIT IV

Type study: Amphibia: Frog- *Rana hexadactyla*, (except Endoskeleton); Reptiles: Poisonous and non- poisonous snakes in India; Aves: Pigeon - *Columba livia*. (Except Endoskeleton).

UNIT V

Type study: Mammals: Rabbit - *Oryctolagus cuniculus*. (Except Endoskeleton); General essay: Prototherian mammals, Metatherian mammals.

Text book.

1. Manual of Zoology (Invertebrata), Ekambaranatha Ayyar and T.N. Ananatha Krishnan (1992) Part-I & II Vishwanathan Pvt.Ltd.
2. Manual of Zoology (Vertebrata), Ekambaranatha Ayyar and T.N. Ananatha Krishnan (1992) Part-I & II Vishwanathan Pvt.Ltd.

References

1. Jordon EL and Verma P.S. (1995), Invertebrate Zoology, S Chand and Co, Zoology Delhi.
2. Kotpal, R.L,S.K. Agarwal, R.P.R. Khetarpal 1998. Modern text Book of Zoology. Rastogi Publication,
3. N. Arumugam, Invertebrata, Saras Publication, Nagercoil.

Allied Zoology (P)

Biology of Invertebrates & Chordates and Commercial Zoology

Objectives:

To impart training on the techniques of dissecting the animals and to understand the various systems present in their body. To demonstrate the technique of in silico dissection of invertebrate and chordate animals. To make them aware of commercially important animals.

Dissection:

Cockroach and Fish: Digestive system and Nervous system/Demo/CD/Virtual.

Mountings/Slide:

Mouth parts - Honey bee, Cockroach, Mosquito, (slides).

Earthworm –Body setae (slide).

Identification of Cycloid, Placoid and Ctenoid scales – (slides).

Spotters

Invertebrates: Amoeba, Paramecium, Entamoeba, Euglena, Sycon, Leucosolenia, Aurelia, Obelia, Planaria, Liver fluke, Tapeworm, Neries, Leech, Crab, Cockroach, Honey bee, Mosquito, Scorpion, Scolopendra, freshwater mussel, Octopus, Sepia, Oyster, Star fish, Sea urchin, Sea cucumber.

Chordates: Shark, Teleost, Frog, Ichthyophis, Calotes, Chameleon, Cobra, Viper, Pigeon, Parrot, Rat and Rabbit.

Commercial Importance: Newton's Bee hive, Honey extracting devices, Honey, Wax, Bombyx mori, Mulberry leaves, Silk worm rearing appliances, Cocoons, Silk thread, Lampito mauritii, Eudrilus eugeniae, Perionyx excavates, Eisenia fetida, Vermicompost

Allied Zoology II

COMMERCIAL ZOOLOGY

Objectives:

To enlighten the students about the honey bees, its life style, the social behavior. The silkworm and Vermiculture and its self-employment opportunities. Students may be benefitted by the culture practices and the economic importance.

UNIT I

Apiculture: Bees and their Economic Importance: Wild Bees – Species of Honey Bees– Colony Organization and Life Cycle - Bee Keeping Equipments: Newton's Bee Hive – Other Bee Keeping Equipment – Equipment for Handling Bees. Social Behaviour of Bees.

UNIT II

Bee Pasturage: Nectar Composition – Honey Extraction - Bee Hive Products: – Honey - Chemical composition of honey – Nutritional and Medicinal values of Honey - Wax – Bee Venom – Propolis – Royal Jelly;

UNIT III

Sericulture: Silk producing organisms: Mulberry Silk worm, Tasar silk worm, Muga silk worm and Eri silkworm. Moriculture: Optimum conditions for mulberry growth; Methods of propagation: Vegetative propagation - Irrigation, manuring, pruning, harvesting and storing of mulberry leaves.

UNIT IV

The Mulberry Silk worm - *Bombyx mori*: Commercial races of India; Rearing Facilities: Rearing house - Rearing appliances - Appliances used for feeding - Bed cleaning - disinfection and maintaining optimum culture conditions; Rearing methods. Storage of cocoons - Cocoon and silk Marketing.

UNIT V

Vermiculture: Organic farming –Biology of Earthworm- types –Materials required for vermiculture – preparation of predigested materials – selection of suitable earthworm species – optimal culture conditions required –Methods of harvesting, packing and storage, Nutrient composition of vermicompost. Advantages of using vermicompost and their benefits to environment.

Text Books:

1. Mishra.R.C. 1995. Honey Bees and Their Management in India. Indian Council of Agricultural Research. New Delhi.
2. Ganga, G. and Sulochana Chetty, J. An Introduction to Sericulture (2nd Edition). Oxford and IBH Publishing co. Pvt-Ltd., New Delhi.
3. Ranganathan, L.S. 2006.Vermibiotechnology. From Soil Health to Human Health. Agrobios (India), Jodhpur.

Reference Books:

1. Taxima, Y. 1972. Hand Book of Silkworm Rearing. Fuji Publication, Tokyo.

2. Ullal, S.R. and Narasimhanna, M.N. 1979. Hand book of Practical Sericulture. Central Silk Board, Bombay.
3. Tomar, B.S and N.Singh. A Text Book of Applied Zoology. 2007. Emkay publications. Delhi
4. Fenemore, P.G. and A. Prakash. 2006. Applied Entomology. New Age International Publishers. Chennai.
5. Abrol, D.P. 1997. Bees and Beekeeping in India. Kalyani Publishers, Ludhiana.
6. Gupta, P.K. 2005. Vermicomposting for sustainable agriculture (SE) Agrobios [India], Jodhpur, India 210p.
7. Bhatnagar, R.K. and Palta, R.K. 1996. Earhtworm vermiculture and vermicomposting. Kalyani Publishing. Luthiana. India. 106p.
8. Ismail, S.A. 2005. The Earthworm Book. Other India Press. Goa.
9. Talashilkar, S.C. and Dosani, A.A.K. 2005. Earthworms in agriculture. Agrobios (India), Jodhpur.
