

SEMESTER -I
CC-I - FAUNAL DIVERSITY - INVERTEBRATA

Int-25

Exam Hrs : 3

Ext-75

Subject Code : UZA

Objectives:

To understand the systematic and functional morphology of various groups of invertebrates.

To study the characteristics, economic importance, affinities and adaptations of invertebrates.

General characters and classification up to classes with suitable examples of biological interest.

UNIT-I

18hours

Phylum Protozoa - Detailed study of Paramecium and Plasmodium

1. Nutrition in Protozoa
2. Protozoa and Human diseases (Entamoeba, Trypanosoma, Leishmania, Trichomonas, Toxoplasma, Balantidium with special reference to mode of infection, pathology and control)

Phylum Porifera- Detailed study of Sycon

1. Canal system in sponges
2. Spicules in sponges

UNIT-II

18hours

Phylum Coelenterata - Detailed study of Obelia

1. Corals and Coral reefs
2. Ctenophora-General organization and affinities.

Phylum-Platyhelminthes-Detailed study of Fasciola hepatica.

3. Parasites affecting Man & Domestic animals
(Schistosoma haematobium, Taenia solium, Hymenolepis nana, Diphyllbothrium latum, Schistosoma nasalis and Echinococcus granulosa)

UNIT-III

18hours

Phylum-Nemathelminthes Detailed study of Ascaris

1. Nematode parasites in man (Enterobius vermicularis, Ancylostoma duodenale, Wuchereria bancrofti, Dracunculus medinensis, Trichinella spiralis with special reference to mode of infection, pathology and control).

Phylum Annelida-Detailed study of Nereis

2. Adaptive radiation in Polychaetes

UNIT-IV

18hours

Phylum Arthropoda - Detailed study of Penaeus monodon

1. Organisation & affinities of Peripatus
2. Crustacean larvae & their significance
3. Economic importance of Insects.

UNIT-V

18hours

Phylum Mollusca - Detailed study of Pila globosa

1. Economic importance of mollusca

Phylum Echinodermata - Detailed study of starfish- Asterias rubens

2. Larval forms of Echinoderms & their significance
3. Water vascular system in Echinoderms.

TEXT BOOK

1. **Ekambaranatha Ayyar M** and **Ananthakrishnan.T.N**(1994)
Manual of Zoology vol.I, S.Viswanathan pvt.Ltd.,Madras.
2. **N.Arumugan N.C.Nair,Dr.T.Murugan etal**-Text book of Invertebrates ,Saras Publications.

REFERENCE

1. **Barnes R.D.**(1968)Invertebrate zoology W.B.,Saunders company, Philadephia.
2. **Cheng** (1964) Parasitology W.B.company, Philadephia.
3. **Hyman .L.H.**,-The Invertebrates vol.I to VII (M.C.Hraw hill book co.,)
5. **Jordon E.L** and **Verma P.S.**(1983) Invertebrate zoology S.chand & co
6. **Koptal R.L**(1997)Modern text book of zoology, Rastogi company, Meerut(VP),India.
7. **Parker** and **Hasewell**(1964) Text book of zoology vo.I(Invertebrate)AZTBS. Publishers and distributes-New Delhi 11051- 874pp.
8. **Prasad .S.N.**- Text book of Invertebrate zoology kitab mahal, Allahabad.
9. **Dhami.P.S** and **J.K.Dhami.** Invertebrate Zoology, Chand .R and Co Publishers – New Delhi.
10. **Kadam .K** .The Invertebrates Emkay Publication, Delhi.

SEMESTER-II
CC II – PRACTICAL I
(C C - I & III : FAUNAL DIVERSITY - INVERTEBRATA & CHORDATA)

Int-40
Ext-60

Exam hrs: 3
Subject Code : UZBY

Objectives:

To demonstrate the internal anatomy of Invertebrate and vertebrate animals
To study about the various characteristic features and adaptations of Invertebrates and vertebrate animals.
To mount the important parts of Invertebrate animals.

FAUNAL DIVERSITY - INVERTEBRATA

DISSECTIONS

1. Earthworm: Nervous system
2. Lamellidens: Digestive system
3. Pila: : Digestive and Reproductive system
4. Prawn : Nervous system

MOUNTING

1. Earthworm: Body setae
2. Prawn: Appendages
3. Mouth parts of Mosquito, Honey Bee and House Fly.
4. Pila: Radula

SPOTTERS

1. Classify Giving Reason.

Paramecium, Plasmodium, Sycon, Obelia, Metridium, Taenia, Ascaris (Male & Female), Nereis, Megascolex, Penaeus, Periplaneta, Pila, Lamellidens, Asterias.

2. Draw labeled sketch

T.S. of Planaria, T.S. of Fasciola hepatica, T.S of Taenia solium, T.S of Ascaris (Male & Female) & T.S of Nereis.

3. Biological significance

Paramecium – Binary fission, Conjugation, Gemmule of sponge, Ephyra larva of Aurelia, Physalia, Obelia-medusa, Wuchereria bancrofti, Enterobius vermicularis, Heteronereis, Nauplius larva, Zoea larva, Megalopa larva, Limulus, Chiton, Sepia, Bipinnaria.

4. Relate structure and function

Sponge Spicules, Tape worm- Scolex, Nereis- Parapodium, , Pila - Radula, Starfish Pedicellari, Seurchin - Airstotle's lantern.

5. Write notes on adaptation

Madrepora, Gorgonia, Favea, Fungia, Arenicola, Chaetopterus, Cyclops, Lepas, Hippa, Murex, Octopus, Cuttle bone of sepia, Mytilus, Sea Urchin.

FAUNAL DIVERSITY - CHORDATA

Dissection

Shark: Mounting of placoid scales
Fish - Digestive system

Spotters

a) Classify giving reasons: Balanoglossus, Shark, Rana hexadactyla, Hyla, Bufo
Calotes versicolor, Hemidactylus brooki, Varanus monitor, Chelone mydas
Pigeon, Rabbit

b) Biological significance

Amphioxus, Tornaria larva of Balanoglossus, Ascidian, Narcine
Axolotyl larva, Draco volans, Bat

c) Write notes on

Gambusia affinis, Hippocampus, Anabas scandans, Periophthalmus
Ophiocephalus, Alytes, Naja naja, Viper, King fisher

d) Relate structure and function

Echeneis, Exocoetus, Poison apparatus of Cobra, Quill feather of bird
Dentition in Rabbit, Dentition in man, Bat

e) Draw labeled Diagram

T.S. of Amphioxus, Endoskeleton of Frog: Skull, Pectoral, Pelvic girdle, Fore limbs and hind limbs.

A record of lab work should be maintained and submitted at the time of practical examination for valuation.

SEMESTER-II
CC III - FAUNAL DIVERSITY - CHORDATA

Int : 25

Exam hrs: 3

Ext :75

Subject Code : UZC

Objectives:

To impart current knowledge about the chordate animals of biological interest.

To know about the Origin ,systematic and functional morphology of various groups of chordates.

To study the salient features, affinities and adaptations of chordates.

General characters and classification up to classes with suitable examples of biological interest.

UNIT-I

18 hours

Prochordates and cyclostomes

1. Origin of Chordates
2. **Protochordata** - Distinctive features and affinities of Amphioxus, Balanoglossus and **Ascidian**.
 - 1.General Topic: Retrogressive metamorphosis in Ascidian.
3. **Cyclostomata** - Distinctive features and affinities

UNIT-II

18 hours

Fishes and Amphibians

Gnathostomata- Detailed study of Scoliodon(shark)

General Topic

- 1.Dipnoi and its affinities
2. Accessory respiratory organs in fishes.
- 3.Adaptive features of Apoda.
- 4.Parental care in Amphibia.

UNIT-III

18 hours

Reptiles and Birds

Detailed study of Calotes and Pigeon

- 1.Identification and distribution of poisonous and non- poisonous snakes of India. Poison apparatus and biting mechanism, Venom and Antivenom
- 2.Migration of Birds.

UNIT-IV**18 hours****Mammals**

Detailed study of Rabbit.

1. Dentition in Mammal.
2. Aquatic mammals and their adaptations.
3. Prototheria special features with examples.

UNIT-V**18 hours****Comparative Anatomy**

1. Comparative study of Heart and Brain in Shark, Frog, Calotes, Pigeon and Rabbit.
2. Endoskeleton of Frog.

TEXT BOOK

1. **Ayyar E.M** and **Ananthkrishnan .T.N** ,1992. Manual of zoology ,Vo.II(chordata), Viswanathan .S (Printers and Publishers), Pvt., Ltd., Madras 981pp.
2. **Dhami, D.S** and **. Dhami J.K.** 1978. Chordate Zoology Chand .R & Co.
3. **Dr.Thangamani .A, Dr.Prasannakumar.S, Dr.Narayannan .L.M, Dr.Arumugam. N,** 9th Revised Edition. Saras Publication.

REFERENCE:

1. **Jordon, E.L** and **Verma .P.S.** 1955. Chordate Zoology and Elements of Animal Physiology., S.Chand & Co.
2. **Koptal , R.L**(1997) Modern Text Book of Zoology Vertebrates, Rastogi Publications Meerut, India.
3. **Majupuria T.C.,** 1978. Introduction to Chordates, Pradeep Publications, Jullundur.
4. **Parker and Hasewell .**1964.Text book of zoology Vol.II (Chordata), A.Z.T.B.S Publishers and distributors , New Delhi 110051m 952 pp.

SEMESTER-III
SBE I - APICULTURE

Int-25

Exam hrs: 2

Ext-75

Subject Code : UZS1

UNIT-I

History and Scope of Bee keeping:

Systematics - Species diversity - Types of Honeybees in India; Biology and life-history.

UNIT-II

Honey bee colony:

Caste polymorphism, Types of Honey bees, Bee keeping equipments-Newton's Bee hive.

Honey extracting equipments and Honey extractor, Smoker, Queen excluder, Drone excluder, Bee veil.

UNIT-III

Apiary Management:

Selection of Apiary site - Supplementary feeding in dearth season - Protective measures against Bee predators - Economics of Bee keeping - Cost benefit analysis – Promotional Institution for Apiculture.

UNIT-IV

Bee products:

Bee Products and benefits - Honey - Chemical nature and use. Bee wax, Propolis, Royal Jelly, Bee Pollen.

Bee pollination and advantages.

UNIT-V

Honey bee diseases, Causes and their control measures

1. Protozoan
2. Mites
3. Viral-causes and control

Reference:

1. Cherian, R. & K.R.Ramanathan, 1992, - Bee keeping in India.
2. Mishra, R.C., 1985 – Honey bees and their Management in India, ICAR.
3. Singh, S. 1992 – Bee Keeping – ICAR
4. Sharma, P. and Singh, L. 1987 – Hand book of Bee keeping, controller printing and stationery, Chandigar.
5. Rare, S. 1988 – Introduction to Bee keeping, Vikas Publishing house.
6. Shukla, G.S. and Upadhyay V.B (1997) Economics zoology, Rastogi Publication, Meerut.
7. Morse, R.A. 1990. The ABC and XYZ of Bee culture 40th edition A.1 Root & co., Ohio.
8. Manju yadav – Economic zoology – Discovery Publishing house – New Delhi.
9. Ravindranathan K.R. – A Text book of Economic Zoology.
10. Sathe T.V. – Fundamentals of Bee Keeping –Daya Publishing House – Delhi.
11. Nagaraja.N & Rajagopal.D – Honey Bees, Disease,Parasites,Pests,Predators and their Management – MJP Publishers – Chennai.
12. Mahindru.S.N – BeeKeeping – APH Publishing Corporation – New Delhi