

CHOICE BASED CREDIT SYSTEM (CBCS) SCHEME FORMAT SEMESTER-1st

Course Code	Course Title	Paper Category	Hours/Week			Credits	Theory Marks		Practical Marks	
			L	T	P		Ext.	Int.	Ext.	Int.
Zoo-101-CR	Animal Taxonomy and Biosystematics	Core	3	0	2	4	60(24)	15(6)	20	5
Zoo-102-CR	Structure and Function of Invertebrates	Core	3	0	2	4	60(24)	15(6)	20	5
Zoo-103-CR	General Parasitology	Core	3	0	2	4	60(24)	15(6)	20	5
Zoo-104-DCE	Medical Parasitology and Immunology	Discipline Centric	3	0	0	3	60(24)	15(6)	—	—
Zoo-105-DCE	Fish Anatomy and Reproduction	Discipline Centric	2	0	2	3	40(16)	10(4)	20	5
Zoo-106-DCE	Insect Anatomy and Physiology	Discipline Centric	2	0	2	3	40(16)	10(4)	20	5
Zoo-107-DCE	Biology of Indian Wildlife	Discipline Centric	2	0	2	3	40(16)	10(4)	20	5
Zoo-108-GE	Aquaculture and Fish Processing Technology	Generic Elective	2	0	2	3	40(16)	10(4)	20	5
Zoo-109-GE	Medical and Veterinary Entomology	Generic Elective	2	0	2	3	40(16)	10(4)	20	5
Zoo-110-OE	Wildlife Conservation & Management	Open Elective	2	0	0	2	40(16)	10(4)	—	—
Zoo-111-OE	Parasitology in Relation to Public Health	Open Elective	2	0	0	2	40(16)	10(4)	—	—
Total credits= 34		Contact hours= 42				34				

GENERAL INSTRUCTIONS FOR THE CANDIDATES

- A candidate has to obtain a minimum of 24 credits per semester i.e., 96 credits in two year programme (4 semesters).
- Out of 24 credits in a semester a candidate has to obtain 12 credits compulsorily from “**Core Courses**” while the remaining 12 credits can be obtained from the “**Electives**” in the following manner:
 - ▶ A candidate can obtain a maximum of 6 credits within his/her own Department out of the specializations offered by the Department as **Discipline Centric Electives**.
 - ▶ 6 credits shall be obtained by a candidate from the **Electives** offered by the Departments other than his/her own. The candidate shall be free to obtain these 6 credits from the **Generic** or **Open Electives** or a combination of both.
- A candidate can go with a slow pace and obtain only 20 credits in a semester or 32 credits at a high pace per semester, so as to maintain a total score of 96 credits or above in a 2-year programme (4 semesters).

Zoo-101-CR: ANIMAL TAXONOMY AND BIOSYSTEMATICS
Total Credits: 4 (3 Lecture + 0 Tutorial +1 Practical)

Maximum Marks: 100 (25/Credit)* [Marks Distribution: 20% Internal Assessment & 80% End Semester Exam.]

Minimum Marks: 40% (Internal Assessment and End Semester Exam. to be Qualified Separately, not in Aggregate)

*Note: One unit is equivalent to one credit.

UNIT I: PRINCIPLES AND METHODS OF ZOOLOGICAL CLASSIFICATION

- 1.1 Introduction: Terms and definitions
- 1.2 Taxonomic characters
- 1.3 Curating of collections
- 1.4 Taxonomic keys- kinds, merits & demerits

UNIT II: PRINCIPLES AND APPLICATION OF ZOOLOGICAL NOMENCLATURE

- 2.1 Taxonomic ranks and categories
- 2.2 ICZN, Homonymy, Synonymy and Law of priority
- 2.3 Typification and different Zoological types
- 2.4 Intraspecific Categories and their taxonomic status

UNIT III: DIMENSIONS OF SPECIATION/ NEW TRENDS IN TAXONOMY

- 3.1. Species concepts (Morphological and Biological) – their merits & demerits
- 3.2. Speciation: allopatric, sympatric and parapatric with examples
- 3.3. Cytotaxonomy with special reference to chromosome evolution in primates and grasshoppers
- 3.4. Molecular taxonomy– concept of DNA taxonomy; construction of phylogenetic trees using mitochondrial DNA/ or other markers

UNIT IV: PRACTICAL WORK

- 4.1. Curating techniques of taxonomic collection
- 4.2. Identification of some common faunistic elements of Kashmir region
- 4.3. Collection and identification of different species of butterflies & grasshoppers
- 4.4. Collection and identification of different types of insects and their larvae
- 4.5. Chromosome study in aphids/ grasshoppers
- 4.6. Construction of taxonomic keys of the given specimens (Amphibians, Reptiles and Mammals)

SUGGESTED BOOKS/READING MATERIAL

1. *Principles of Systematic Zoology* by **Ernst Mayr** Tata Mc Graw Hill Publishing Company
2. *Principles of Systematic Zoology* by **Peter D. Ashlock and Ernst Mayr** Tata Mc Graw Hill Publishing Company
3. *An Introduction to Taxonomy* by **T. C. Narendran**
4. *Biosystematics & Taxonomy* by **R. C. Tripathi**
5. *Animal Taxonomy* by **V.C. Kapoor**
6. *Genomes* by **T. A. Brown** BIOS
7. *Biology* by **Campbell and Reece** Pearson Education
8. *Strickberger's Evolution* by **Brian K. Hall and Benedikt Hallgrimsson** Jones & Bartlett Learning

ZOO-102-CR: STRUCTURE AND FUNCTION OF INVERTEBRATES

Total Credits: 4 (3 Lecture + 0 Tutorial +1 Practical)

Maximum Marks: 100 (25/Credit)* [Marks Distribution: 20% Internal Assessment & 80% End Semester Exam.]

Minimum Marks: 40% (Internal Assessment and End Semester Exam. to be Qualified Separately, not in Aggregate)

*Note: One unit is equivalent to one credit.

UNIT I: PROTOZOA, PORIFERA AND COELENTERATA

- 1.1 Flagellar and Ciliary movements in protozoa
- 1.2 Colonial protozoans and theories on origin of metazoa
- 1.3 Canal system, skeleton and reproduction in porifera
- 1.4 Coelenterata: Nematocysts, polymorphism in hydrozoa, coral reefs

UNIT II: ANNELIDS AND ARTHOPODS

- 2.1 Annelids: origin & organization of coelom
- 2.2 Adaptive radiation in polychaetes; trochophore larva and its evolutionary significance
- 2.3 Arthropoda: Crustacean larvae and their significance, importance of *Peripatus*
- 2.4 Respiration and excretion in Arthropods

UNIT III: MOLLUSCA, ECHINODERMATA AND MINOR PHYLA

- 3.1 Mollusca: Respiration, Nervous system (Cephalopoda)
- 3.2 Modification of foot and economic importance of Mollusca
- 3.3 Echinodermata: Water vascular system; larval forms and their significance
- 3.4 Salient features and affinities of minor phyla: Mesozoa, Phoronida, Ctenophora, Endoprocta and Rotifera

UNIT IV: PRACTICALWORK

- 4.1 Study of prepared slides and museum specimens of invertebrate phyla (5 from each phylum)
- 4.2 Identification of different types of insect larvae
- 4.3 Permanent slide mount preparation of crustacean larvae
- 4.4 Nervous system in Annelida & Mollusca—Earthworm/Neries/Loligo/Sepia/Octopus
- 4.5 Dissection of Sea Urchin to expose Aristotle's Lantern
- 4.6 Dissection of Star Fish/ Sea Cucumber so as to expose its, digestive system, reproductive system and water vascular system

SUGGESTED BOOKS/READING MATERIAL

1. Barnes: Invertebrate Zoology (Holt-Saunders International, 4th edition, 1980)
2. Barnes: The Invertebrates – A synthesis, 3rd edition, Blackwell, 2001
3. Hunter: Life of Invertebrates, Collier Macmillan Pub. 1979
4. Invertebrate Zoology [Jordon .Verma](#)
5. Invertebrate Zoology [P.S.Verma](#)
6. Marshall: Parker & Haswell Text Book of Zoology, Vol. I, 7th edition, Macmillan, 1972

7. Modern Text Book of Zoology: Invertebrates [Prof. R.L.Kotpal](#)
8. Moore: An Introduction to the Invertebrates, Cambridge University Press, 2001
9. Textbook of Invertebrate Zoology G.S. Sandhu & H. Bhaskar, 2004.
Dhami, P.S. & Dhami, J.K. Non-chordate Zoology. R. Chand & Co.

ZOO-103-CR: GENERAL PARASITOLOGY
Total Credits: 4 (3 Lecture + 0 Tutorial +1 Practical)

Maximum Marks: 100 (25/Credit)* [Marks Distribution: 20% Internal Assessment & 80% End Semester Exam.]

Minimum Marks: 40% (Internal Assessment and End Semester Exam. to be Qualified Separately, not in Aggregate)

*Note: One unit is equivalent to one credit.

UNIT I: INTRODUCTION TO PARASITOLOGY

- 1.1 Basic concepts and definitions in parasitology with emphasis on animal associations
- 1.2 Distribution of parasites in animal kingdom
- 1.3 Parasitic adaptations
- 1.4 Host parasite relationships– general account

UNIT II: PROTOZOOLOGY

- 2.1 General characters and outline classification of parasitic protozoans
- 2.2 Morphology, life cycle, pathogenicity and control of *Entamoeba histolytica*
- 2.3 Opportunistic protozoan parasites of man: *Pneumocystis carinii* & *Cryptosporidium parvum*
- 2.4 Host immune response to protozoan

UNIT III: HELMINTHOLOGY

- 3.1 General characters and outline classification of helminths upto orders
- 3.2 General life cycle and larval forms in trematodes
- 3.3 General life cycle and larval forms in cestodes
- 3.4 Life cycle patterns in nematodes

UNIT IV: PRACTICAL WORK

- 4.1 Slide study of protozoan parasites: *Entamoeba*, *Balantidium*, *Trypanosoma* & *Plasmodium*
- 4.2 Preparation of permanent mounts of parasitic protozoans
- 4.3 Slide study helminth parasites: *Fasciola*, *Taenia*, *Enterobius* & *Ancylostoma*
- 4.4 Processing, staining and mounting of Trematode and Cestode parasites
- 4.5 Processing and mounting of nematode parasites
- 4.6 Enface view of any Nematode

SUGGESTED BOOKS/READING MATERIAL

1. *Introduction to Parasitology* by **ASA C. Chandler & Clark P. Read**
2. *Parasitology* by **Elmer R. Nobel and Glenn A. Noble**
3. *Animal Parasitology* by **J. D. Smyth**
4. *Parasitology (Protozoology & Helminthology)* by **K. D. Chatterjee**

5. *Foundations of Parasitology* by **Gerald D. Schmidt and Larry S. Roberts**
6. *General parasitology* by **Thomas C. Cheng**
7. *Foundations of Parasitology* by **Larry S. Roberts, John Janovy and Steve Nadler**
8. *Helminthes Arthropods and Protozoa of Domesticated Animals* by **EJL Soulsby**
9. *Parasitology and Vector Biology* by **William C. Marquardt, Richard S. Demaree and Robert B. Grieve**
10. *Monning's Veterinary Helminthology and Entomology* by **Geoffrerg Lapage**
11. Besides, the students are asked to visit www.springer & www.biomed for latest advances

ZOO-104-DCE: MEDICAL PARASITOLOGY AND IMMUNOLOGY
Total Credits: 3 (3 Lecture + 0 Tutorial +0 Practical)

Maximum Marks: 75 (25/Credit)* [Marks Distribution: 20% Internal Assessment & 80% End Semester Exam.]

Minimum Marks: 40% (Internal Assessment and End Semester Exam. to be Qualified Separately, not in Aggregate)

*Note: One unit is equivalent to one credit.

UNIT I: NATURE AND CONSEQUENCES OF PARASITISM

- 1.1. Factors influencing parasitic prevalence
- 1.2. Resistance to parasitic diseases
- 1.3. Zoonosis
- 1.4. Larva migrans

UNIT II: MEDICAL PARASITOLOGY

- 2.1 Protozoans parasites of man with special reference to life-cycle, pathogenicity, and control of *Trypanosoma*
- 2.2. Trematode parasites of man with special reference to *Schistosoma haematobium*
- 2.3 Cestode parasites of man with reference to life-cycle, pathogenicity, and control of *Taenia saginata*
- 2.4 Nematode parasites of man with special reference to life- cycle, pathogenicity and control of *Entrobilus vermicularis*

UNIT III: DEFENCE MECHANISM IN HIGHER VERTEBRATES

- 3.1 Innate and acquired immunity
- 3.2 Cell mediated and humoral immunity
- 3.3 Complement system-general account
- 3.4 Immuno-deficiency diseases

SUGGESTED BOOKS/READING MATERIAL

1. *Animal Parasitology* by **J. D. Smyth**
2. *Parasitology (Protozoology & Helminthology)* by **K. D. Chatterjee**
3. *Foundations of Parasitology* by **Gerald D. Schmidt and Larry S. Roberts**
4. *Immunology* by **Kuby, J., Goldsby, R., Kindt, T.J. and Osbourne, B.A., W.H. Freeman**
5. *Medical Immunology for Students* by **Playfair, J.H.L. and Lydyard, P.M. Churchill**
6. *Immunology* by **Roitt, I.M., Brostoff, J. and Male, D. Mosby**
7. *Basic Immunology* by **Sharon, J. William and Wilkins**

8. *Immunology* by **P. M. Lydyard, A. Whelan And M. W. Fanger**
9. *Immunology* by **F. M. Burnet**
10. *The Complement System* by **Manfred M. Mayer**
11. Besides, the students are asked to visit www.springer & www.biomed for latest advances

ZOO-105-DCE: FISH ANATOMY AND REPRODUCTION

Total Credits: 3 (2 Lecture + 0 Tutorial +1 Practical)

Maximum Marks: 75 (25/Credit)* [Marks Distribution: 20% Internal Assessment & 80% End Semester Exam.]

Minimum Marks: 40% (Internal Assessment and End Semester Exam. to be Qualified Separately, not in Aggregate)

*Note: One unit is equivalent to one credit.

UNIT I: ANATOMY AND SPECIAL ORGANS

- 1.1 Accessory respiratory organs and Weberian Ossicles in fishes
- 1.2 Musculature in fishes
- 1.3 Electric organs: Location, structure, origin and functions
- 1.4 Poison and venom in fishes

UNIT II: REPRODUCTION & DEVELOPMENT

- 2.1 Reproductive organs in fishes.
- 2.2 Nest building and parental care in fishes
- 2.3 Fecundity– measurement and factors affecting fecundity
- 2.4 Types of eggs and fertilization; hatching and metamorphosis

UNIT III: PRACTICAL WORK

- 3.1 Dissection and study of accessory respiratory organs in *Anabas* and *Ophicephalus*
- 3.2 Dissection and study of accessory respiratory organs in *Clarias* and *Heteropneustes*
- 3.3 Study of weberian ossicles of carp
- 3.4 Electric organs and their nervous innervations in *Torpedo*
- 3.5 Dissection of reproductive system; Determination of fecundity (absolute and relative fecundity) in Carp

SUGGESTED BOOKS/READING MATERIAL

1. *Fish and Fisheries* by **B.N. Yadav** Daya Publishing House
2. *Fish Physiology: Fish Biomechanics* by **Shadwick & Lauder** Academic Press
3. *The Physiology of Fishes* by **Margaret E. Brown** Academic Press

4. *Ichthyology: The study of Fishes* by **Karl F. Lagler, John E. Bardach & Robert R. Miller** John Wiley & Sons, Inc., New York
5. *Fish Physiology. Volume I & II* by **W. S. Hoar & D. J. Randall** Academic Press
6. *Anatomy of Fishes Part-I* by **Whihelm Harder E. Schweizerbart'sche** Verlagsbuchhandlung Stuttgart
7. *Fish and Fisheries* by **Pandey and Shukla** Rostogi Publication
8. *Fisheries: An Introduction to Ichthyology* by **Peter B. Moyle & Joseph J. Cech, Jr** Prentice Hall , Upper Saddle River, NJ 0458

ZOO-106-DCE: INSECT ANATOMY AND PHYSIOLOGY

Total Credits: 3 (2 Lecture + 0 Tutorial +1 Practical)

Maximum Marks: 75 (25/Credit)* [Marks Distribution: 20% Internal Assessment & 80% End Semester Exam.]

Minimum Marks: 40% (Internal Assessment and End Semester Exam. to be Qualified Separately, not in Aggregate)

*Note: One unit is equivalent to one credit.

UNIT I: INSECT ANATOMY

- 1.1 Digestive System
- 1.2 Respiratory System
- 1.3 Circulatory System
- 1.4 Nervous System

UNIT II: INSECT PHYSIOLOGY

- 2.1 Physiology of digestion and assimilation
- 2.2 Physiology of respiration
- 2.3 Physiology and biochemistry of haemolymph, haemocyte and their function
- 2.4 Malpighian tubules and formation of uric acid

UNIT III: PRACTICAL WORK

- 3.1 Major dissections: Digestive, Respiratory and Nervous system of Grasshopper, Cricket and Cockroach
- 3.2 Isolation and permanent slide mount preparation of malpighian tubules of Grasshopper
- 3.3 Minor dissection/ temporary mount preparation of trachea and salivary glands of Grasshopper
- 3.4 Study of haemocytes in insects
- 3.5 Collection of insects from different localities of Kashmir

SUGGESTED BOOKS/READING MATERIAL

1. *The Insects : Structure and Function* by **R.F. Chapman** Cambridge University Press
2. *Physiological Systems in Insects* by **Marc J. Klowden** Academic Press
3. *Modern Entomology* by **D. B. Tembhare** Himalaya Publishing House
4. *Imm's General Text Book of Entomology* vol. I by **O. W. Richards and R.G. Davis** Springer
5. *Entomology* by **Cedric Gillott**
6. *Handbook of Entomology* by **M.R. DHINGRA**
7. *A Text book of Entomology* by **R. Mathur**
8. *Entomology* by **D. N. Roy and A. W. A .Brown**

ZOO-107-DCE: BIOLOGY OF INDIAN WILDLIFE

Total Credits: 3 (2 Lecture + 0 Tutorial +1 Practical)

Maximum Marks: 75 (25/Credit)* [Marks Distribution: 20% Internal Assessment & 80% End Semester Exam.]

Minimum Marks: 40% (Internal Assessment and End Semester Exam. to be Qualified Separately, not in Aggregate)

*Note: One unit is equivalent to one credit.

UNIT I: MAMMALOLOGY AND INDIAN MAMMALS

- 1.1 Diversity and classification of mammals with detailed treatment of orders represented in the Indian subcontinent
- 1.2 Adaptation in mammals: hibernation, aestivation, locomotion and water regulation
- 1.3 Metabolism and thermoregulation: ectothermy, homeothermy and cold stress
- 1.4 Status and distribution of major mammalian taxa of the family Cervidae, and order Carnivora and Primates

UNIT II: ORNITHOLOGY AND HERPETOLOGY

- 2.1 Avian systematics and classification of Indian birds, Avifauna of different habitats (montane, aquatic and desert) of India
- 2.2. Important bird areas of India and their conservation
- 2.3 Bird migration, migratory pathways, threats to migrant population
- 2.4 Biology of major Indian amphibians and reptiles: frogs, lizards and crocodiles

UNIT III: PRACTICAL WORK

- 3.1 Examination and drawing of museum specimens of birds (passerine and raptorial)

- 3.2 Comparative studies of dentition and skull of different mammals
- 3.3 Mapping distribution of primates, carnivores and ungulates
- 3.4 Examination and drawing of museum materials: beaks, claws, feathers and nests of characteristic species
- 3.5 Identification of poisonous and non-poisonous snakes

SUGGESTED BOOKS/READING MATERIAL

1. *Indian Mammals - A Field guide*, **Menon, V.** (2014) Hacette Book Publishing Pvt. Ltd. India
2. *Biology and Comparative Physiology of Birds*, **Marshall A. J.** (1961) Academic Press, New York
3. *The Life of Vertebrates*, **Young J. Z.** (1962) Oxford University Press London
4. *The Book of Indian Reptiles*, **Daniel J.C.** (1983) Bombay Natural History Society, Bombay
5. *Reptiles and Amphibians*, **Richard Oulahan** 1977 Time-Life Films, Inc.USA

ZOO-108-GE: AQUACULTURE AND FISH PROCESSING TECHNOLOGY
Total Credits: 3 (2 Lecture + 0 Tutorial +1 Practical)

Maximum Marks: 75 (25/Credit)* [Marks Distribution: 20% Internal Assessment & 80% End Semester Exam.]

Minimum Marks: 40% (Internal Assessment and End Semester Exam. to be Qualified Separately, not in Aggregate)

*Note: One unit is equivalent to one credit.

UNIT I: AQUACULTURE

- 1.1 Production level and role of aquaculture in food supply; types of culture
- 1.2 Site Selection, construction and management of fish ponds
- 1.3 Induced breeding in carps
- 1.4 Principle of organic aquaculture; procurement of stocking material for aquaculture; fish seed identification with special emphasis on Indian major carp

UNIT II: FISH PROCESSING

- 2.1 Biochemical composition and factor affecting biochemical composition in fishes
- 2.2 Fish by-product and their preparation, quality control in fish processing industry
- 2.3 Shelf life and methods of extending shelf life; use of antibiotics in fish preservation
- 2.4 Principle of freezing, chilling and thermal processing

UNIT III: PRACTICALS

- 3.1 Identification and classification of fishes of Jammu & Kashmir
- 3.2 Visit to a fish farm for studying the culture and breeding activities of trout
- 3.3 Study of different stages of fish life cycle through preserved material
- 3.4 Analysis of moisture and ash content from fish flesh
- 3.5 Preservation and curing of fishes

SUGGESTED BOOKS/READING MATERIAL

1. *Aquaculture - Principles and Practices* by **T. V. R. Pillay** Wiley-Blackwell; New edition edition (2 April 1993)
2. *Fish and Fisheries of India* by **V. G. Jhingran** Hindustan Publishing Corporation
3. *Aquaculture and Fisheries* by **N Arumugam** CRC publication
4. *Fish And Fisheries* by **B.N. Yadav** Daya Publishing House
5. *The Chemical Biology of Fishes* by **R. Malcolm Love** 1970 & 1980 Academic Press Inc.
6. *Industrial Fishery Technology* by **Maurice E. Stansby & John A. Dassow** Reinhold Publishing Corporation
Chapman & Hall London
7. *The Physiology of Fishes* by **Margaret E. Brown** Academic Press
8. *Fish in Nutrition* by **Eirik Heen & Rudolf Kreuzer** Fishing News (Book) Ltd Ludgate house London

ZOO-109-GE: MEDICAL AND VETERINARY ENTOMOLOGY

Total Credits: 3 (2 Lecture + 0 Tutorial +1 Practical)

Maximum Marks: 75 (25/Credit)* [Marks Distribution: 20% Internal Assessment & 80% End Semester Exam.]

Minimum Marks: 40% (Internal Assessment and End Semester Exam. to be Qualified Separately, not in Aggregate)

*Note: One unit is equivalent to one credit.

UNIT I: MEDICAL ENTOMOLOGY

- 1.1 Life-cycle and control of major insect vectors of human diseases, viz. Sand fly, Tsetse fly, Mosquito
- 1.2 Fleas as vectors of human diseases with emphasis on life cycle and control of *Xenopsylla* and *Pulex* species
- 1.3 Insect-borne rickettsial and protozoan diseases of man
- 1.4 Insect causing diseases of man– myiasis (types and causes)

UNIT II: VETERINARY ENTOMOLOGY

- 2.1 Life-cycle and control of the vectors *Hypoderma lineatum* and *Stomoxys calcitrans* causing major animal diseases

- 2.2 Insects as vectors of helminthic diseases of domestic animals
- 2.3 Insects as vectors of bacterial and viral diseases of domestic animals
- 2.4 Life-cycle and control of the following major vectors of animal diseases:
 - i. *Tabanus*
 - ii. *Chrysops*

UNIT III: PRACTICAL WORK

- 3.1 Collection and laboratory study of major insect vectors of medical importance viz. House fly, Mosquito, Fleas, Bed bug, Cockroach.
- 3.2 Collection and laboratory study of major insect vectors of veterinary importance viz. Dipteran flies, Sucking lice, Chewing lice.
- 3.3 Study of mouthparts of blood sucking insects– Mosquito
- 3.4 Permanent mount preparation of Body louse, Mosquito, Chewing lice, Fleas
- 3.5 Collection and laboratory study of myiasis causing flies

SUGGESTED BOOKS/READING MATERIAL

- 1. *Medical & Veterinary Entomology* by **D. S. Kettle**
- 2. *Modern Entomology* by **D. B. Tembhare** Himalaya Publishing House
- 3. *Medical & Veterinary Entomology* by **Mullen & Durden** Academic Press
- 4. *A text book of Applied Entomology –vol. II* by **K.P. Srivastava** Kalyani Publishers
- 5. *A text book of Applied Zoology* by **Pradip V. Jabde**

ZOO-110-OE: WILDLIFE CONSERVATION AND MANAGEMENT

Total Credits: 2 (2 Lecture + 0 Tutorial +0 Practical)

Maximum Marks: 50 (25/Credit)* [Marks Distribution: 20% Internal Assessment & 80% End Semester Exam.]

Minimum Marks: 40% (Internal Assessment and End Semester Exam. to be Qualified Separately, not in Aggregate)

*Note: One unit is equivalent to one credit.

UNIT I: WILDLIFE MANAGEMENT IN INDIA

- 1.1 Introduction and importance of wildlife
- 1.2 Important National parks of India with the concept of their creation
- 1.3 Wildlife Protection Act (1972), its brief structure and recent amendments
- 1.4 Conservation projects in India: Tiger, Hangul & Crocodile projects

UNIT II: WILDLIFE MANAGEMENT IN J & K

- 2.1 Wildlife of Jammu & Kashmir- an overview
- 2.2 Status and distribution of Markhor, Hangul deer and Tibetan antelope
- 2.3 Status, distribution and management of Waterfowl and Pheasants
- 2.4 Man– animal conflict and its management

SUGGESTED BOOKS/READING MATERIAL

1. *Fundamentals of wildlife Management* -2nd edition) **Rajesh Gopal** (2012) Natraj Publishers, Dehradun India
2. **Wilderness Wildlife** **G. A. Bhat** (2008) Book Vision Hazratbal Srinagar
3. *Wildlife in India*, **V. B. saharia** (1982) Natraj Publishers Dehradun
4. www.jkwildlife.com

ZOO-111-OE: PARASITOLOGY IN RELATION TO PUBLIC HEALTH

Total Credits: 2 (2 Lecture + 0 Tutorial +0 Practical)

Maximum Marks: 50 (25/Credit)* [Marks Distribution: 20% Internal Assessment & 80% End Semester Exam.]

Minimum Marks: 40% (Internal Assessment and End Semester Exam. to be Qualified Separately, not in Aggregate)

*Note: One unit is equivalent to one credit.

UNIT 1: INTRODUCTION TO PARASITOLOGY

- 1.1 Introduction to animal associations

- 1.2 Distribution of parasites in animal kingdom
- 1.3 Introduction to protozoa with special reference to protozoan parasites of man in Kashmir valley
- 1.4 Description, life-cycle, pathogenicity and control of *Entamoeba histolytica*

UNIT 2: MEDICAL HELMINTHOLOGY

- 2.1 Cestode parasites of man with reference to life-cycle, pathogenicity and control of *Taenia saginata*
- 2.2 Trematode parasites of man with special reference to life-cycle, pathogenicity and control of *Schistosoma haematobium*
- 2.3 Nematode parasite of man with special emphasis on description, life- cycle, pathogenicity and control of *Enterobius vermicularis*

SUGGESTED BOOKS/READING MATERIAL

1. Introduction to Parasitology by **ASA C. Chandler & Clark P. Read**
2. Parasitology by **Elmer R. Nobel and Glenn A. Noble**
3. Animal Parasitology by **J. D. Smyth**
4. Parasitology (Protozoology & Helminthology) by **K. D. Chatterjee**

POST GRADUATE DEPARTMENT OF ZOOLOGY