

" अंतरी पेटवू ज्ञानज्योत "
उत्तर महाराष्ट्र विद्यापीठ, जळगांव.
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जा. क्र. उमवि/९३/६/

दिनांक २.१०.१९९३

प्रति,

मा. सहाय्यक कुलसचिव,
परीक्षा विभाग,
उत्तर महाराष्ट्र विद्यापीठ,
जळगांव-४२५ ००१.

विषय :- प्राणीशास्त्र [एम.एस्सी.] अभ्यासक्रमाबाबत...


महोदय,

एम.एस्सी. भाग-१ या वर्गाचे प्राणीशास्त्राचे Applied Parasitology आणि Helminthology यांचे अभ्यासक्रमांना तसेच एम.एस्सी. भाग-२ साठी प्रॅक्टिकल कोर्स ३४५ Endocrinology याचा अभ्यासक्रमास चेअरमन, प्राणीशास्त्र अभ्यासमंडळ यांनी तत्वतः मान्यता दिलेली आहे. त्यास अगामी सभेत मान्यता घेण्यांत येईलच. तरी कृपया सदर अभ्यासक्रमाचा समावेश यापूर्वी पाठविलेल्या अभ्यासक्रमात करण्यांत * याचा व त्यानुसार प्रश्नपत्रिकांचा देखील विचार करण्यांत याचा ही विनंती.

कळावे,

सोमनाथ दोग प्रतिनिधि सहाय्यक कुलसचिव.

आपला विश्वासू,


सहाय्यक कुलसचिव.

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from June - 1993

List of Practicals for M.Sc. Second Year.

Zoology Practicals - Course No. 347 ENDOCRINOLOGY.

1. Histology of Endocrine Glands.
2. Study of endocrine glands of rat (Dissection)
3. Effect of hormones on the metamorphosis of insects (House fly)
4. Effect of iodine and thyroxine on the metamorphosis of frog.
5. Effect of insulin on the blood sugar level of rat.
6. Induced breeding in frog.
7. Effect of adrenaline on the heart beat of frog.

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S Y L L A B U S : M.Sc. Zoology : Applied Parasitology
(Specialization).
from (June - 1993)

Applied Parasitology: I

A : Protozoans of Medical and Veterinary importance :-

A-1: Classification of parasitic protozoa.

A-2: Flagellates of digestive and urinogenital tracts of human and domestic animals.

A-3: Life cycle, transmission, pathogenicity, diagnosis, prevention and treatment of Trypanosomes and Leishmania parasites of man and animals.

A-4: Life cycle, transmission, pathogenicity, diagnosis, treatment and prophylaxis of Naegleria fowleri.

A-5: Life cycle, transmission and pathogenicity of coccidia of poultry, sheep, goat and cattle.

A-6: Life cycle, pathogenicity and transmission of Plasmodia.

A-7: Types of malaria, clinical features, diagnosis, immunity, prevention and treatment.

A-8: Piroplasmia, Toxoplasmosis, Sarcocystis and Isospora infections.

A-9: Balantidium and Pneumocystis infections.

(B): Helminths of medical and veterinary importance.

B-1: Broad outline classification of helminth parasites.

B-2: Biology of the eggs in helminth parasites.

B-3: Biology of the larvae of helminths.

B-4: Patterns of the life cycle in helminth parasites.

B-5: Morphology, life cycle, pathogenicity, diagnosis, treatment and control of following types :-

a: Schistosomes.

b: Gastrodiscoides.

c: Clonorchis.

d: Fasciolopsis.

e: Paragonimus.

f: Diphyllbothrium.

g: Sparganum.

h: Taenia.

i: Hymenolepis.

j: Opisthorchis.

k: Proteocephalus.

l: Ancylostoma.

m: Necator.

n: Trichuris.

o: Strongyloids.

p: Enterobius.

q: Toxocara.

r: Dracunculus.

Practical Course corresponding to :-

Applied Parasitology - I : 18 practs.

1. Techniques for the detection and preparation of stained smears^{90%} of intestinal and blood protozoans (3 practs.)
2. Study of skeletal structures and locomotor organelle in parasitic protozoa. (1 practs.)
3. Study of permanent slides of representative groups of parasitic protozoa. (2 practs.)
- 4) Techniques for collection of cysts of protozoa and their study. (1 practs.)
- 5) Study of permanent slides of representative parasitic helminths (2 practs.)
- 6) Study of holdfast organs in helminths. (1 practs.)
- 7) Study of uteri in helminths. (2 practs.)
- 8) Alimentary canal in trematodes and nematodes. (2 practs.)
- 9) Techniques for collection, preservation, staining and identification of helminth parasites. (5 practs.)

Applied Parasitology- II

A) General Principles of parasitology:

- A-1: Parasitism: Origin, evolution; Advantages and disadvantages of parasitic life.
- A-2: Types of parasites and kinds of hosts.
- A-3: Host specificity- defn. origin, types, structural, physiological, ethological, response, tissue, ecological and phylogenetic.
- A-4: Modes of parasitic invasion: Passive mechanical, active, contact, transovarial, pathways of entry, sites of habitation.
- A-5: Structural, physiological and biological adaptations of the parasites.
- A-6: Host's reactions to parasites.
- A-7: Hyper infestation and Hyperparasitism.
- A-8: Measures of control of parasites, chemical, biological, cultural and therapeutic.
- A-9: Population Biology- Parasite- host, prey predator interactions pyramid of numbers, seasonal variations influences of host age effect of host migration on parasite population.
- A-10: Parasites and Zoonosis - Viral, rickettsial, bacterial, protozoan, helminthic and arthropod diseases.

B) Arthropods of Medical and veterinary importance.

- B-1: General Principles of insect parasites and parasitism.
- B-2: Parasitic ticks, mites and tongue worms.
- B-3: Parasitic siphonoptera, Mallophaga and Anopleura.
- B-4: Parasitic flies, gnats and mosquitoes.
- B-5: Parasites hymenoptera.
- B-6: Parasitic coleoptera.
- B-7: Parasitic Hemiptera.
- B-8: Parasitic strepsiptera.
- B-9: Insects causing vesication, urtication, and veneration in man.

Practical course corresponding to:

Applied parasitology - II 7 Practicals.

- 1) Study of permanent slides/specimens corresponding to part-B in theory. (2 pract.)
- 2) Comparative study of mouth parts of orthopod vectors.(1 Pract.)
- 3) Techniques for collection, preservation, mounting, staining and identification of representative types of parasitic orthopods. (4 pract.)

Reference books:-

for a Appl. Parasitology I & II :-

- 1) Introduction to parasitology - Chandler and Read.
- 2) General Parasitology - Cheng.
- 3) Clinical parasitology- Faust and Russel.
- 4) Parasitism - Cameron.
- 5) Animal parasitism - Read.
- 6) Biochemistry of parasites - Van Brand.
- 7) Parasitic Protozoa - Baker.
- 8) Protozoan parasites of domestic animals, and man- Levine.
- 9) Nematode parasites of domestic animals and man - Levine.
- 10) Medical parasitology - K.D.Chatterjee.
- 11) A textbook of parasitology - Kelkar and Kelkar.

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: SYLLABUS :

M.Sc. : (ZOOLOGY)

[June 1993]

HELMINTHOLOGY (SPECIALIZATION)

HELMINTHOLOGY : I

(Trematodes and Cestodes)

A. Trematodes :-

- A.1 General classification of trematodes :- Monogenea, Aspidobothria and Digenea.
- A.2 Morphology of different classes of trematodes.
- A.3 Aspects of the metabolism of flukes - Oxygen consumption, Carbohydrate, protein and lipid metabolism.
- A.4 Egg shell formation and factors influencing embryonation and hatching.
- A.5 Intra molluscan stages and their effects on hosts.
- A.6 Various types of Cercariae and life cycle patterns of digenetic trematodes.
- A.7 Geographical distribution, Habitat, Morphology, life cycle, pathogenicity, diagnosis, treatment and prophylaxis of following types.
 - a. Schistosoma haematobium.
 - b. Gastrodiscoides hominis.
 - c. Fasciolopsis buskii.
 - d. Paragonimus westermani.

B. Cestodes :-

- B.1 Broad outline classification of cestodes Cestodaria and Eucestoda.
- B.2 General organization of different classes of cestoda.
- B.3 Structure and reproductive account of cestodarians, pseudophyllideans and cyclophyllideans.
- B.4 Hoffmann's organs, modifications of uterus and larval forms of cestodes.
- B.5 Egg shell formation, Embryonation and hatching.
- B.6 Nutrition, respiration and metabolism of tapeworms.
- B.7 Geographical distribution, Habitat, morphology, life cycle, pathogenicity, diagnosis, treatment and prophylaxis of following types.
 - a. Diphyllobothrium latum.

- b. *Hymenolepis nana*.
- c. *sparganum* spp.
- d. *Proteocephalus tigrinum*.

Practical course corresponding to :-

: Helminthology : I : (18 Practicals)

1. Study of permanent slides of different types of trematodes of medical and veterinary importance (02 Pract.)
2. Life cycle stages, morphology and classification of trematodes belonging to diff. families (02 Pract.)
3. Collection, Preservation, staining, mounting and identification of trematodes from various hosts and their submission. (5 Pract.)
4. Study of diff. types of cestodes of medical and veterinary importance (2 Pract)
5. Life cycle stages, morphology and classification of cestodes belonging to diff. families (2 Pract.)
6. Collection, preservation, staining, mounting and identification of cestodes from various hosts and their submission (5 Pract)

HELMINTHOLOGY : II

(NEMATOTOLOGY)

- A. Nematode parasites of vertebrates.
 - A.1 Broad outline classification and general organization of parasitic nematodes.
 - A.2 Structure of lips and cephalic papillae.
 - A.3 Ultra structure of cuticle and cuticular ornamentations.
 - A.4 Stroma, oesophagus and associated glands, feeding and nutrition in nematode parasites of animals.
 - A.5 Respiration and oxygen transport, excretion and osmoregulation in parasitic nematodes.
 - A.6 Reproductive system, fertilization, development, hatching and moulting processes.
 - A.7 Biology of following parasitic nematodes with reference to Seasonality, periodicity, specificity and pathology.
 - a. *Trichuris trichiura*.
 - b. *Diectophyme renale*.
 - c. *Strongylodides starcalaries*.
 - d. *Necator americanus*.
 - e. *Toxocara canis*.
 - f. *Physaloptera hispida*.

B. Plant Nematodes. :-

- B.1 Outline classification and general organization of plant nematodes.

- B.2 Feeding habits and modifications in anterior region of the body.
- B.3 Reproductive system, fertilization, development and hatching in plant nematodes.
- B.4 Symptoms of nematode; injury to plants - above ground symptoms and below ground symptoms.
- B.5 Controlling the nematode diseases of plants - Physical, Chemical, biological methods.
- B.6 Life cycle and control of following types :-
 - a) Root knot nematode (Meloidogyne).
 - b) Cyst nematode (Heterodra).
 - c) Burrowing nematode (Radopholus).
 - d) Lesion nematode (Paratylenchus).
 - e) Citrous nematode (Tylenchulus).
 - f) Bud and leaf nematode (Aphelenchoides).
 - g) Stem nematode (Ditylenchus).
 - h) Seed gall nematode (Anguina).
 - i) Needle nematodes (Longidorus, Trichostrongylus).
 - j) Ring Pin and sheath nematodes (Criconemoides; Hemicyclophora).

Practical Course : Corresponding to :-

Helminthology : II 7 Practicals.

1. Study of permanent slides for stroma, oesophagus and related structures, male posterior^{end} and other taxonomic characters (1 Pract.)
2. Study of common nematode parasites of vertebrates and plants. (1 pract.)
3. Study of different nematode eggs (1 Pract).
4. Collection of nematodes from locally available plants and animals, preservation, staining mounting identification and submission of the slides (4 Pract.)

Reference books :- (Helminthology : I & II)

- A. Systema Helminthum : Inter-science publication NewYork/London
 - Vol.I : Digentic trematodes of vertebrates,
 - Vol.II : Cestodes.
 - Vol.III : Monogenea and aspidocotylea.
 - Vol.IV : Nematodes.
- B. Bibliography of the monogenea - W.J. Hargis; Theory Virginia Institute of Marine Sciences.
- C. The trematodes - Ben Dawes, Cambridge Uni. Press.

- D. Synopsis of Digentic trematodes of Vertbrates Vol. I & II.
- Satyu Yamaguti. : Keigaku Publishing Co. Tokyo - Japan.
- E. Keys to the trematodes of animals and man :
K.I. Srijabin and others.
University of Illinois Press, Urbana.
- F. Principles of nematology : Thorne.
- G. Plant nematology : Jenkins or Taylor.
- H. Plant parstic nematodes : Cristie.
- I. Vertebrate Nematodes : Yorke and Mapelstone.
- J. Biology of nematodes : Croll.
- K. Physiology of Nematodes : Lee.
- L. An Instration to nematology : Chitmoood.
- M. Parasitology - Chattergee.
- N. Instration to parasitology - Chandler and Read.

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