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UNIVERSITY OF MYSORE

Estd. 1916

VishwavidyanilayaKaryasoudha
Crawford Hall, Mysuru- 570 005

No.AC2(S)/55/2024-25

Dated: 20.07.2024

Notification

Sub:-Syllabus and Scheme of Examinations of Zoology (UG) programme (I & II Semester) with effect from the Academic year 2024-25.

Ref:-1. Decision of Board of Studies in Zoology (CB) meeting held on 07-06-2024.
2. Decision of the Faculty of Science & Technology meeting held on 19-06-2024.
3. Decision of the Academic Council meeting held on 28-06-2024.

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The Board of Studies in Zoology (CB) which met on 07-06-2024 has resolved to recommend & approved the Syllabus and Scheme of examination of Zoology (UG) programme (I & II Semester) with effect from the Academic year 2024-25.

The Faculty of Science & Technology and Academic Council at their meetings held on 19-06-2024 and 28-06-2024 respectively has also approved the above said Syllabus and Scheme of examinations hence it is hereby notified.

The Syllabus and Scheme of Examinations content may be downloaded from the University Website i.e., www.uni-mysore.ac.in.

Registrar

Registrar
University of Mysore
Mysore

To;

1. All the Principal of affiliated Colleges of University of Mysore, Mysore.
2. The Registrar (Evaluation), University of Mysore, Mysuru.
3. The Chairman, BOS/DOS in Zoology, Manasagangothri, Mysore.
4. The Dean, Faculty of Science & Technology, DOS in Mathematics, MGM.
5. The Director, Distance Education Programme, Moulya Bhavan, Manasagangothri, Mysore.
6. The Director, PMEB, Manasagangothri, Mysore.
7. Director, College Development Council, Manasagangothri, Mysore.
8. The Deputy Registrar/Assistant Registrar/Superintendent, Administrative Branch and Examination Branch, University of Mysore, Mysuru.
9. The PA to Vice-Chancellor/ Registrar/ Registrar (Evaluation), University of Mysore, Mysuru.
10. Office Copy.

ANNEXURE –I

UNIVERSITY OF MYSORE

Syllabus for B.Sc.

SUBJECT: ZOOLOGY

OVERVIEW

Semester	Code	Course title	Theory	Tutorials	Practical	Total Credits	Marks			
							C1	C2	C3	Total
I	DSC1A	Animal diversity-I (Non Chordata)	3	0	2	5	10	10	80	100
II	DSC1B	Animal diversity-II (Chordata)	3	0	2	5	10	10	80	100
III	DSC1C	Biochemistry, Physiology	3	0	2	5	10	10	80	100
IV	DSC1D	Cell and Molecular Biology	3	0	2	5	10	10	80	100
V	DSE1A (Elective 1)	Genetics and Biotechnology	3	0	2	5	10	10	80	100
	DSE1A (Elective 2)	Developmental Biology and Endocrinology	3	0	2	5	10	10	80	100
VI	DSE 1B (Elective 1)	Evolution, Ethology & Applied Zoology	3	0	2	5	10	10	80	100
	DSE1B (Elective 2)	Environmental Biology, Wildlife Biology & Conservation	3	0	2	5	10	10	80	100

Note: Theory: C1 – Theory Class Attendance +Assignment for 10 marks,
C2 –IA Test for 10 marks
C3- 80 marks (3 hr)

Practical: C1 – Practical Attendance +Submission of report for 05 marks,
C2 –IA Test for 05 marks
C3- 40 marks (3 hr)

SYLLABUS FOR B. Sc, COURSE
SUBJECT: ZOOLOGY

I SEMESTER: ZOOLOGY

ANIMAL DIVERSITY-I (Non-chordata)

03 Credits 03 hr/ week X 16 =48 hrs

***Note**: Salient features should be elaborated while giving general characteristics of each group. Local examples with common and scientific names from all groups to be mentioned. Some of the examples not found in India can be included because of taxonomic/phylogenic or other significance.*

UNIT I **16 hrs**

Biodiversity and its importance.
Classification: Five kingdom concept, Biological nomenclature, Definition of a species, outlines of animal classification.
Concept of Metazoa; Levels of organization - Cell, tissue, organ, organ system (Definition with examples).

Protozoa: General characters and classification up to classes with examples; Locomotion (amoeboid, flagellar and ciliary- excluding theories) and reproduction (fission and
conjugation) in protozoa. Plasmodium: Morphology, life cycle, pathogenicity and preventive measures of *Plasmodium vivax*.

Porifera: General characters with classification up to classes with examples; Sponge spicules-types(microscleres in detail), Canal system (Ascon, Sycon, Leucon,) and larvae amphiblastula and parenchymula).

Cnidaria: General characters and classification up to classes with examples;
Polymorphism in Cnidaria:- Obelia,
Structure of corallite, types of coral reefs, importance of corals.
Acnidaria: Salient features and systematic position of Ctenophora.

UNIT II **16 hrs**

Concept of coelom: Acoelom, Pseudocoelom, Eucoelom (Definition with examples).

Helminthes

Platyhelminthes: General characters and classification up to classes with examples; *Taenia solium* - Life cycle, pathogenicity and preventive measures.

Aschelminthes: General characters and examples; morphology, transmission, pathogenicity and preventive measures of *Ascaris*.
Pathogenic helminthes; (any two examples with disease caused-*Ancyclostoma* and *Wucheraria)*.
Parasitic adaptations in helminthes.

Annelida: General characters and classification up to classes with examples.
Type study: Pheretima- Morphology, setae, digestive, excretory (nephridium), nervous and reproductive system,
Leech- Morphology and parasitic adaptations;
Tubiculous worms- tubiculous adaptations in *Nereis* and *chaetopterus*.

UNIT III **16 hrs**

Onychophora: Salient features of *Peripatus* and systematic position of Onychophora.

Arthropoda: General characters and classification up to classes with examples.
Type study- Cockroach- Morphology, digestive, respiratory and nervous systems;
Social organization in insects (Termite).

Mollusca: General characters and classification with examples; Type study- Fresh water Mussel- morphology, digestive and nervous systems; Foot in mollusca. Diversity in Molluscan shells and economic importance of Mollusca.

Echinodermata: General characters and classification with examples;
Type study: - Star fish-morphology and water-vascular system.

Regenerative ability in invertebrates (Hydra, Planaria, Earthworm, Seaurchin)
Symmetry in invertebrates.

I SEMESTER: ZOOLOGY

ANIMAL DIVERSITY -I (Non-chordata) Practical: 2 Credits

Animal Diversity-I (Non-chordata) 4 hrs/week x16= 48 hrs

1. Study of Microscope (Simple and Compound).
2. Study of permanent slides of protozoa: Amoeba, Entamoeba, Polystomella, Euglena, Paramecium, Balantidum, Vorticella.
3. Porifera: Study of slides/specimens –Sycon, Spongilla, Euspongia, Sponge Gemmule, Monaxon spicules.
4. Cnidaria: Hydra, Physalia, Aurelia, Madrepora, Pennatula, Fungia.
5. Helminthes: Planaria, Fasciola, Taenia, Ascaris-male and female, Scolex of Taenia, T.S. of Taenia.
6. Annelida: Pheritima, Nereis, Chaetopterus, Aphrodite. Leech, T.S of Nereis.
7. Observation and mounting of Cnidarian colonies: Obelia, Sertularia, Bougainvillea, Companularia , Pennaria (any two)
8. Onychophora: Peripatus. Arthropoda : Panaeus, Scolopendra, Spirostreptus, Palamnaeus, Aranea,
9. Field study: Observation of Arthropods in and around the college campus, identifying and recording in the practical record (Minimum five).
10. Study of Arthropodan pests: Periplaneta, Rhinicerous beetle,
    Study of Arthropodan vectors: Mosquito and house fly.
    Study of beneficial insects: Honey bee and butterfly.
11. Study and mounting of mouth parts of insects: Cockroach, Mosquito, house fly and honey bee (any two)
12. Cockroach: Study of digestive system and nervous system.
13. Earthworm: Study of digestive system and nervous system.
14. Mollusca: Chiton, Dentallium shell, Xancus shell, Aplysia, Unio, Octopus.
15. Echinodermata: - Astropecten, Ophiothrix, Salmacis, Holothuria, Antedon and Pedicellaria of sea urchin.

Note: Dissection on availability of lab bred specimens

ANIMAL DIVERSITY - I (NON CHORDATA)
Scheme of Practical Examination

Duration 3 Hours — Max. Marks 40 Marks

1. Dissection: Flag labeling of the given display — 10 M
   (Cockroach: Digestive/ Nervous system.
   Earth worm : Digestive/ Nervous system)
2. Mounting: — 5 M
   (cockroach/ Honey bee mouth part/ earth worm setae/
   spicules/ coelenterate colony/ foraminiferan shells)
3. Identify the specimen/ slide A to C with reasons — 4x3=12M
   (Protozoa to Echinodermata specimens/ slides)
4. Identify and comment on spot D — 3 M
   (pest/ vector/ beneficial insects)
5. Practical record and viva — 10 M

ANIMAL DIVERSITY - I (NON CHORDATA)

SCHEME OF VALUATION

1. Dissection and display-10M/ Flag labeling with diagram-10M
2. Mounting-04M, Identification-01M
3. Identification with classification-01M, Labeled diagram with reasons-03M
4. Identification -01M, Comments–02M
5. Record-07M, Viva-03M.

II SEMESTER: ZOOLOGY

ANIMAL DIVERSITY- II (Chordata)

3 Credits **03hr/week X 16=48hrs**

UNIT I **16 hrs**

Chordata: General characters and classification up to classes with examples; concept of protochordata.

Hemichordata: General characters, Balanoglossus- externals, Tornaria larva; Affinities of Hemichordata with Annelida, Echinodermata and Chordata.

Cephalochordata: Amphioxus- externals, feeding mechanism, digestive and circulatory system.

Urochordata: Ascidia- externals and brief description of internal morphology, larva and metamorphosis.

Cyclostomata: Salient features of Petromyzon, Ammocoetes larva and its significance.

Vertebrata**:** General characters and classification with examples.

Pisces: General characteristics of fishes; Differences between Chondrichthyes and Osteichthyes; Type study: *Scoliodon*- Morophology, respiratory and lateral line systems; Scales in fishes, Salient features and discontinuous distribution of Dipnoi.

UNIT II **16 hrs**

Amphibia: General characters and classification up to orders, distinguishing features of living amphibians with suitable examples; Type study-Frog: Externals, digestive, respiratory,

Reptilia: General characters and classification of living orders with suitable examples; Temporal fossae and arcades in reptiles and their significance; Poison apparatus, Key identification of poisonous and nonpoisonous snakes.

Aves: General characters and classification up to sub classes, Distinctive features of Archaeornithes and Neornithes - Palaeognathae, Impennae and Neognathae with suitable examples; *Archaeopteryx*- evolutionary significance. Flight Adaptations in birds -morphological, anatomical and physiological; Bird migration-causes, types and advantages.

UNIT III **16 hrs**

Mammalia: General characters and classification up to subclasses; Distinctive features of prototheria, metatheria and eutheria with important examples; **Type study**- Rabbit**:** Externals, digestive, respiratory.

Important characters and distribution with examples – Primates, Chiroptera, Cetacea, Perissodactyla, Artiodactyla, Carnivora, Rodentia and Proboscidia; Dentition in mammals – tooth structure, types, specialization and dental formula in Carnivora (cat, dog), Rodentia (rat), Proboscidia (Elephant), Artiodactyla (Horse), Perissodactyla (Cow) and Primates (Man and Monkey).

Comparative anatomy: Comparative anatomy of heart- Pisces (Shark), Amphibia (frog), Reptilia (Garden lizard) Aves (pigeon), Mammalia (man); Evolution of brain in vertebrates-brain of shark, frog, varanus, pigeon and man.

II SEMESTER: ZOOLOGY PRACTICAL 2 Credit
ANIMAL DIVERSITY -II (Chordata) 4 hrs/week x16= 64 hrs

1. Hemichordata: Balanoglossus, T.S. through proboscis, collar, branchio-genital region. Urochordata: Ascidia.
2. Cephalochordata: Amphioxus, T.S. through pharynx and intestine.

   Cyclostomata: Petromyzon, Ammocoetes larva, Myxine.
3. Fishes: Scoliodon, Zygaena, Pristis, Narcin, Trygon.: Echeinis, Hippocampus, Anguilla.
4. Mounting: placoid, cycloid and ctenoid scales.
5. Amphibia: Ichthyophis. Salamander, Axolotl larva, Rana,
6. Reptilia: Varanus, Chelone, cobra, Viper, Krait,, sea snake, Rat snake.
7. Aves: Kingfisher, Parakeet, Woodpecker, Crow, Owl, Duck. Structure of a quill feather.
8. Mammalia: Rabbit, Rat, Bat, Loris.
9. Osteology: Skulls of Frog, Pigeon and Rabbit.
10. Osteology: Vertebrae (atlas, pro, amphi, and acoelous) of frog, Pigeon (atlas, heterocoelous and synsacrum) and Rabbit (atlas, axis and thoracic).
11. Osteology: Pectoral girdles and forelimb skeletons of Frog, Pigeon and Rabbit.
12. Pelvic girdles and hind-limbs of Frog, Pigeon and Rabbit.
13. Study of organ systems-Frog- Circulatory system (arterial and venous); Urinogenital system (Male and Female).
14. Study of organ systems-Rabbit- Circulatory system(arterial and venous); Urinogenital system (Male and Female).
15. Bird watching: Preparation and submission of checklist of birds in and around the college the campus/ near by places.

ANIMAL DIVERSITY - II (CHORDATA)
Scheme of Practical Examination

Duration 3 Hours Max. Marks 40 Marks

1. Flag labeling of the given display 10 M
   (Frog: Arterial/ Venous system; Male / Female urino-genital system;/
   Rabbit: Arterial/ Venous system; Male / Female urino-genital system).
2. Mounting: 5 M
   (Placoid/ Ctenoid/ Cycloid Scales of fishes)
3. Identify the specimen/ slide A to C with reasons 3x3=09M
   (Protochordata to mammalian specimens/ slides)
4. Identify and comment on spot D and E 3x2=6 M
   (one Axial and one appendicular skeleton)
5. Practical Record and Viva 10 M

ANIMAL DIVERSITY - II (CHORDATA)

SCHEME OF VALUATION

1. Flag labeling with diagram-10M
2. Mounting-04M, Identification-01M
3. Identification with classification-01M, Labeled diagram with reasons-02M
4. Identification -01M, Comments–02M
5. Record-07M, Viva-03M.

COMPULSORY FIELD VISIT / STUDY TOUR: A study tour, accompanied by teachers should be arranged for on the spot study of the bio-diversity.

Theory Question paper pattern for Semester End examination (C3)

(Common to all semesters I to VI semester paper)

Duration: 3 Hours **Max. Marks 80 M.**

I. Answer any FIVE of the following. **1x5=05.**

1.
2.
3.
4.
5.
6.

II. Write short notes on any FIVE of the following. **3x 5= 15.**

7.
8.
9.
10.
11.
12.

III. Write Explanatory note on any FIVE of the following. **6x 5= 30.**

13.
14.
15.
16.
17.
18.

IV. Answer any THREE of the following. **10x3=30.**

19.

20.

21.

22. Write note on the following.

a) unit I 4 M
b) unit II 3M
c) unit III 3M
