

Department of Higher Education, Govt. of M.P.
Under Graduate Syllabus for B.Sc.(Bio) 3 years
As recommended by Central board of Studies in Zoology

B.Sc. II year
Subject : Zoology
Session 2018-19

Scheme of examination

Paper	Topic of Paper	Max. Marks.			Total marks
		Theory	Quarterly Exam	Half yearly Exam	
I	Vertebrate and Evolution	40	10	10	100
II	Animal Physiology and Biochemistry	40			
	Practical				50

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Class	- B.Sc. II year
Paper	- I
Subject	- Zoology
Title of Paper	- Vertebrate and Evolution
Max. Marks:	- 40

Unit-1

1. Origin of Chordates Classification of phylum Chordata upto order according to Parker and Haswell (Latest edition).
2. Urochordata - Type study of Herdmania- Morphology, Digestive System, Circulatory System, Excretory System, Nervous System and Reproductive system.
3. Cephalochordata - Type study of Amphioxus- Morphology, Digestive System and Respiratory System.
4. Affinities of Amphioxus.
5. Comparison between Petromyzon and Myxine.

Unit-2

1. Comparative account of integuments (Amphibia, Reptiles, Birds and Mammals)
2. Comparative account of limb bones and girdles of vertebrates (Amphibia, Reptiles, Birds and Mammals)
3. Comparative account of digestive system (Amphibia, Reptiles, Birds and Mammals)
4. Comparative account of respiratory system (Amphibia, Reptiles, Birds and Mammals)

Unit-3

1. Comparative account of aortic arches and heart wsr Fish, Amphibia, Reptiles, Aves and Mammals.
2. Comparative account of brain wsr. Amphibia, Birds and Mammals.
3. Comparative account of urinogenital system
4. Placentation in mammals

Unit-4

1. Origin of life- modern concepts only .
2. Lamarckism, Darwinism
3. Modern synthetic theories: Variations, Mutation, Isolation & speciation.
4. Adaptation (Aquatic, Aerial, Desert & Arboreal) and mimicry.
5. Micro, macro and mega evolution.

Unit-5

1. Fossils, methods of fossilization, determination of age of fossils.
2. Study of extinct forms: Dinosaurs wr. Brontosaurus, Stegosaurus and Archaeopteryx.
3. Zoogeographical distribution: Palaeartic, Oriental and Australian region .
4. Evolution of man
5. Geological time scale and Insular fauna wr Wallace's line and Weber's line

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Class	- B.Sc. II year
Paper	- II
Subject	- Zoology
Title of Paper	- Animal Physiology and Biochemistry
Max. Marks:	- 40

Unit I: Nutrition, Metabolism

1. Physiology of digestion in mammals
2. Protein Metabolism: Deamination, Decarboxylation. Transamination of amino acids, and Ornithine cycle.
3. Carbohydrate metabolism- Glycogenesis, Glycogenolysis, glycolysis, The Citric acid cycle, Gluconeogenesis.
4. Lipid Metabolism-Beta oxidation of fatty acids.

Unit II: Respiration Excretion and Immune System

1. Mechanism and physiology of respiration in mammals (transport of gases, chloride shift).
2. Physiology of Excretion- urea and urine formation in mammals
3. Innate and acquired immunity, immune cells and lymphoid system
4. Immune response: cellular and humoral immunity

Unit III: Regulatory Mechanisms of Enzymes and role of vitamins

1. Thermoregulation.
2. Definition and nomenclature of enzymes, classification of enzymes.
3. Mechanism of enzyme action.
4. Co-enzymes
5. Vitamins

Unit IV: Neuromuscular Co- ordination

1. Types of neurons and glial cells
2. Physiology of nerve impulse conduction.
3. Types and structure of muscles
4. Theory of muscle contraction and its biochemistry.

Unit V: Endocrine system

1. Structure and functions of Pituitary Gland.
2. Structure and functions of Thyroid Gland.
3. Structure and functions of Adrenal Gland.
4. Structure and functions of Parathyroid, Thymus and Islets of langerhan's.
5. Physiology of Male and female Sex hormones.

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Class - **B.Sc. II year**
Subject - **Zoology Practical**
Max. Marks: - **50**

1. Dissection of commercially available species of local fishes (Efforts may be done to use computer simulation techniques)
2. Study of museum specimens (Vertebrates)
3. Study of specimens of evolutionary importance viz. living fossils, connecting links, extinct animals, fossils, Limulus Latimeria, Dianosaurus, Asiatic Chital, Archeopteryx, Peripatus etc.
4. Osteology: Limb bones and girdle bones of frog, Varanus, Pigeon and Rabbit.
5. Detection of protein, carbohydrate and lipid/ Study of Human salivary enzyme activity in relation to pH.
6. Haematological Experiments – RBC and WBC Counting /Blood grouping in blood samples/ Estimation of Haemoglobin and sugar in blood samples.
7. Histological study of various endocrine glands –T. S. of Thyroid, T. S. of Pituitary gland, T. S. of Adrenal gland , T. S. of Testis, T. S. of Ovary.
8. Histological study of digestive and visceral organs – T.S of Stomach , T.S of Intestine, T.S of Pancreas, and T. S. of liver, T.S of Lungs, L.S. of Kidney

Scheme of Practical Examination

Distribution of Marks

1. Dissection	08
2. Spot related to evolution	05
3. Spotting (4 Specimen, 2 bones, 2 slides).	16
4. Biochemical tests/ enzyme activity	05
5. Hematological experiment	06
6. Viva-Voce	05
7. Record	05

Total 50 Marks
