

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

उच्च शिक्षा विभाग, म.प्र. शासन
 स्नातक कक्षाओं के लिए त्रिवर्षीय पाठ्यक्रम
 केन्द्रीय अध्ययन मण्डल प्राणीशास्त्र द्वारा अनुशंसित

Class / कक्षा	:	B.Sc. II year (Session-2018-19)
Paper	:	1
Subject/ विषय	:	Zoology
Title of Paper	:	Vertebrates and Evolution
Max. Mark/ अधिकतम अंक	:	40 40

<p>UNIT I</p> <ol style="list-style-type: none"> 1. Origin of Chordates, Classification of Phylum Chordate upto orders according to Parker and Haswell (Latest edition). 2. Urochordata- Type study of Herdmania 3. Cephalochordata- Type study of Amphioxus, Affinities of Amphioxus 4. Comparison between Petromyzon and Myxine.
<p>UNIT II</p> <ol style="list-style-type: none"> 1. Comparative account of integuments 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).
<p>UNIT III</p> <ol style="list-style-type: none"> 1. Comparative account of aortic arches and heart. 2. Comparative account of brain. 3. Comparative account of Urinogenital system. 4. Placentation in mammals.
<p>UNIT IV</p> <ol style="list-style-type: none"> 1. Origin of life- modern concepts only. 2. Lamarckism, Darwinism. 3. Modern synthetic theories: Variations, Mutation, Isolation & Speciation 4. Adaptation and Mimicry 5. Micro, macro evolution and mega evolution.
<p>UNIT V</p> <ol style="list-style-type: none"> 1. Fossils, methods of fossilization, determination of age of fossils. 2. Study of extinct forms: Dinosaurs and Archaeopteryx. 3. Zoogeographical distribution. 4. Evolution of man. 5. Geological time scale and Insular fauna.

Professor & Head
 Department of Zoology
 Govt. Madhav Vigyan Mahavidyalaya Ujjain

Dr. Suresh Pratap Sino
 Prof. & Head, Dept. of Zoology
 Govt. Autonomous P.G. College, Satn
 Chairman, Board of Studies, A.P.S. Univ

Dr. Anil Kumar
 Dr. M.S. Chauhan
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Class / कक्षा	:	B.Sc. II year (Session-2018-19)
Paper	:	II
Subject/ विषय	:	Zoology
Title of Paper	:	Animal Physiology and Bio-Chemistry
Max. Mark/ अधिकतम अंक	:	20 40

Unit I: Nutrition and 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, 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.

Professor & Head
Department of Zoology

Govt. Mahatma Jyoti Bapu Mahavidyalaya Ujjain

Dr. Shivesh Prasad Singh
Prof. & Head, Dept. of Zoology
Govt. Autonomous P.G. College, Satna (M.P.)
Chairman, Board of Studies, A.P.S. University, Rewa

28.2.19

(Dr. Vinodini Nigam) Dy. Secy
Dr. Ulla Yadav

VCh
Dr. N. K. Kalhore

Dr. Ramshy Singh
Dr. Shivashankar

Dr. Shobko Shauk
Dr. Shobko Shauk

Dr. Shobko Shauk

B.Sc. - II Year - Zoology

Books of MP Hindi Granth Academy

- Parker & Haswall : Text book of Vertebrate Zoology
- Kotpal, RL : Vertebrate
- Jordan, EL and Verma, PS : Chordate Zoology
- Rastogi, VB : Organic Evolution
- Singh and Chaturvedi : Organic Evolution
- Ernst W. Mayr : Evolution and the Diversity of life
- Colbert : Evolution
- Verma, PS and Agrawal, VK : Cell Biology, Genetics, Molecular Biology, Evolution
- Verma PS : Animal Physiology
- Nigam, HL : Animal Physiology
- Wood, DW : Principle of Animal Physiology
- Berry, AK : Animal Physiology and Biochemistry
- Prosser, CL : Comparative Animal Physiology
- Goyal and Shastri : Animal Physiology
- Shrivastava, HS : Biochemistry
- Lehninger : Biochemistry

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Rathore
 28.6.17
 (Dr. H.S. Rathore)

SSB
 28/4/17
 (Dr. S.S. Shivkumar)

Byg
 28.4.17
 (Dr. Ramesh Singh)

Shrivastava
 28/4/17
 (Dr. Rajiv Shrivastava)

Gyach
 28/4/17
 (Dr. Utkarsh Yadav)

Jain
 28.4.17
 (Dr. Vinodini Nigam)

Shrivastava
 28.4.17
 (Dr. Shobhar Shrivastava)

Shrivastava
 28/4/17
 (Dr. Anita Solanki)

S. K. S. S. S.
 (Dr. N. S. S. S.)
 28.4.17

S. C. S.
 (Dr. C. S.)

[Signature]

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Class / कक्षा : B.Sc. II year (Session-2018-19)
Subject/ विषय : Zoology Practical
Max. Mark/ अधिकतम अंक : 50

1. Dissections of commercially available species of locally available Fishes (Efforts may be done to use computer simulation technique).
2. Study of museum specimens (Vertebrates)
3. Study of specimens of evolutionary importance viz living fossils, connecting links, extinct animals, fossils: Limulus, Latimeria, Dianosaurs, 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. Hematological Experiment- RBC and WBC counting / Blood grouping in blood samples / Estimation of Hemoglobin 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 T. S. of Liver, T.S of Lungs and L.S. of Kidney

Distribution of Marks

1. Dissection	08
2. Spot related to evolution	05
3. Spotting (4 spot, 2 Bones, 2 Slides)	16
4. Biochemical test / Enzyme activity	05
5. Hematological Experiment	06
4. Viva -voce	05
7. Record	05

Total 50 **Professor & Head**
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