



Department of Higher Education, Govt. of M.P.
Under Graduate Semester wise Syllabus
as recommended by Central Board of Studies in Zoology

उच्च शिक्षा विभाग, म.प्र. शासन
स्नातक कक्षाओं के लिये सेमेस्टर अनुसार पाठ्यक्रम
केन्द्रीय अध्ययन मण्डल प्राणीशास्त्र द्वारा अनुशंसित

Class / कक्षा	:	B.Sc.
Semester / सेमेस्टर	:	I
Subject / विषय	:	Zoology (प्राणीशास्त्र)
Title of Paper	:	Invertebrate
Max. Marks:	:	85

Unit-I

1. Elementary Knowledge of Zoological Nomenclature and International Code.
2. Classification of Lower Invertebrates (According to Parker and Haswell 7th edition)
3. Classification of Higher Invertebrates (According to Parker and Haswell 7th edition)
4. Protozoa- Type Study of Plasmodium.
5. Protozoa and Diseases.

Unit-II

1. Porifera- Type study of Sycon.
2. Types of Canal system.
3. Coelenterata- Type study of Obelia
4. Corals and Coral Reef formation.

Unit-III

1. Helminthes- Type study of Liver Fluke.
2. Nematodes and diseases.
3. Annelida- Type study of earthworm, metamerism.
4. Type Study of Hirudinaria.
5. Structure and significance of Trochophore larva.

Unit-IV

1. Arthropoda- Type study of Prawn.
2. Types study of Periplanata.
3. Larval forms of Crustacea.
4. Insect as Vectors of human diseases.

Unit-V

1. Mollusca- Type study of Pila
2. Echinodermata- External features and water vascular system of Star fish.
3. Larval forms of Echinoderms.
4. Minor Phyla – Ectoprocta & Rotifera.

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Class / कक्षा	:	B.Sc.
Semester / सेमेस्टर प्रथम	:	Practical.I
Subject / विषय	:	Zoology (प्राणीशास्त्र)
Max. Marks:		50

PRACTICAL

The Practical's work will be based on theory syllabus and the candidates will be required

to show knowledge of the following -

1. Study of Museum Specimens, slides relevant to the type study in theory
2. Mounting (Temporary)
 - a. Mouth parts of insects
 - b. Statocyst of Prawn
 - c. Ctenidium and Osphradium of Pila
 - d. Mounting Material
3. Major Dissection
 - a. Earthworm: Digestive system, nervous system and reproductive system.
 - b. Cockroach : Digestive system, Nervous system,.
 - c. Prawn : Nervous system, Appendages.
 - d. Pila: Nervous system
- 4 Minor Dissection
 - a. Hastate plate and appendages of Prawn.
 - b. Salivary glands of Cockroach.
 - c. Radula of Pila.
 - d. Earthworm: Typhlosole

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Class / कक्षा	:	B.Sc.
Semester / समेस्टर	:	III
Subject / विषय	:	Zoology (प्राणीशास्त्र)
Title of Paper	:	Cell biology and Developmental Biology

Max. Marks

85

Unit-I	<ol style="list-style-type: none">1. History of Cell Biology.2. Cell Theory , Prokaryotic and eukaryotic Cells.3. Microscopy : Principle and application of Compound microscope & Electron microscope.4. Structure and transport across the plasma membrane.5. Extra nuclear organization of cell.
Unit-II	<ol style="list-style-type: none">1. Nuclear organization of cell.2. Nucleo cytoplasmic interactions.3. Amitosis , mitosis and meiosis.4. Cell death : Necrosis and Apoptosis.
Unit-III	<ol style="list-style-type: none">1. Spermatogenesis2. Oogenesis3. Fertilization4. Parthenogenesis5. Patterns of cleavage.
Unit-IV	<ol style="list-style-type: none">1. Frog and Chick embryology upto the formation of three germinal layers.2. Fate map construction in frog and chick.3. Gastrulation in Frog and chick up to the formation of germinal layers.
Unit-V	<ol style="list-style-type: none">1. Concept of competence2. Determination and differentiation3. Extra embryonic membranes in chick4. Concept of regeneration5. Stem cells..

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केन्द्रीय अध्ययन मण्डल प्राणीशास्त्र द्वारा अनुशंसित

Class / कक्षा	B.Sc.
Semester / समेस्टर	V
Subject / विषय	Zoology (प्राणीशास्त्र)
Title of Paper	Animal Physiology and Biochemistry
Max. Marks	85

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 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

Unit III: Regulatory Mechanisms and Enzymes

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

Unit IV: Neuromuscular Co-ordination

1. Introduction to functional anatomy of human brain
2. Types of neurons and glial cells
3. Theory of muscle contraction and its biochemistry.
4. Physiology of nerve impulse conduction

Unit V: Endocrine system and Reproductive 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 Langerhans.
5. Physiology of Male reproductive organ and female reproductive organ

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केन्द्रीय अध्ययन मण्डल प्राणीशास्त्र द्वारा अनुमोदित

Class / कक्षा	B.Sc.
Semester / समेस्टर V	Practical
Subject / विषय	Zoology (प्राणीशास्त्र)

1. Detection of protein, carbohydrate and lipid.
2. Study of Human salivary enzyme activity in relation to pH
3. Detection of nitrogenous waste products - Ammonia & Urea
4. Blood pressure measurements
5. Exercise on Haematology - Counting of RBC /WBC and Blood grouping in blood samples.
6. 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 Alimentary canal & various digestive organs - T.S of Stomach , T.S of
Intestine ,T.S of Pancreas, and T. S. of liver.
9. Histological study of Visceral organs - T.S of Lungs, L.S. of Kidney
10. Histological study of Muscles - Striated, Unstriated & Cardiac muscle

Distribution of Marks

Time 3 hours

Maximum Marks: 50

Marks Allotted

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| 1. Spotting (10 Spots). | 20Marks |
| 2. Biochemical tests | 05 Marks |
| 3. Physiological Experiment (RBC/WBC Count/ Blood Group / Tib) | 10 Marks |
| 4. Exercise on enzyme activity | 05 Marks |
| 4 Viva-Voce. | 05 Marks |
| 5. Practical Record and Collection. | 05Marks |

Total

50Marks

2