

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. III year (Session-2019-20)
Paper	:	I
Subject/ विषय	:	Zoology
Title of Paper	:	Genetics
Max. Mark/ अधिकतम अंक	:	40 40

UNIT I : Heredity and Genetic material

1. Mendel's laws of heredity.
2. Variations- sources and types
3. Structure, molecular organization and function of DNA and RNA and types of RNA
4. DNA replication in Prokaryotes.
5. Nucleosome (Solenoid model)

UNIT II Gene Expression

1. Genetic Code
2. Transcription in Prokaryotes
3. Translation in Prokaryotes
4. Gene expression: Regulation of protein synthesis and Lac operon model.
5. Split gene, overlapping gene, pseudo gene

UNIT III : Linkage and Chromosomal aberration

1. Linkage and crossing over- Types and significance
2. Sex determination- Chromosomal and genetic balance theory.
3. Sex linked inheritance (Haemophilia, colour blindness)
4. Structural and numerical changes in chromosomes
5. Mutation-Types and Mutagens

UNIT IV : Human Genetics

1. Human Karyotype
2. Human Genome Project
3. Multiple allele and inheritance of blood group
3. Autosomal and Sex Chromosome Syndromes in human
4. Genetic diseases in human- Sickle cell anaemia, Albinism and Thalassaemia

UNIT V : Genetic Engineering

1. Recombinant DNA technology and Gene Cloning
2. Polymerase chain reaction.
3. Blotting- Southern and Northern
4. DNA finger printing
5. Gene therapy

Professor & Head

Department of Zoology

Govt. Madhav Vigyan Mahavidyalaya Ujjain

Dr. Shivraj Pratap Singh

- Prof. & Head, Dept. of Zoology
Govt. Autonomous P.G. College, Satna (M.P.)

& P.S. University, Rewa

28.4.17
Dr. Vinodini Nigam
Dr. Ramesh Singh
Dr. S. Shrivastava
Dr. Shashi Shekhar

(Dr. N. J. Jaiswal)
Dr. R. K. Jaiswal

Dr. Shashi Shekhar

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Class / कक्षा	:	B.sc III year (Session-2019-20)
Paper	:	II
Subject/ विषय	:	Zoology
Title of Paper	:	Ecology and Applied Zoology
Max. Mark/ अधिकतम अंक	:	42 40

<p>Unit-I Concept of Ecology</p> <ol style="list-style-type: none"> 1. Abiotic and biotic factors, Component of ecosystem. 2. Energy flow in ecosystem : Food chain, Food web and Pyramids. 3. Biogeochemical cycle : Carbon, Oxygen, Nitrogen, Phosphorus 4. Population Concept – Characteristics of population. Factors affecting Population growth.
<p>Unit-II Habitat Ecology</p> <ol style="list-style-type: none"> 1. Fresh water , marine and terrestrial habitat 2. Ecological division of India. 3. Biodiversity : Natural resources and their conservation with special reference to forests.
<p>Unit-III Wild Life and Environment</p> <ol style="list-style-type: none"> 1. Wild life Protection Act ,National Parks and Sanctuaries of Madhya Pradesh. 2. Endangered species of India. 3. Types of pollution : Air, water, soil, thermal and noise pollution. 4. Urbanisation and effect of human population on environment.
<p>Unit-IV Aquaculture</p> <ol style="list-style-type: none"> 1. Prawn culture: Culture of fresh water prawn , methods of prawn fishing , preservation and processing of prawns 2. Pearl culture and pearl industry. 3. Frog culture. 4. Major carp culture : Management of ponds , preservation and processing of fishes. 5. Maintenance of Aquarium.
<p>Unit-V Economic Entomology</p> <ol style="list-style-type: none"> 1. Sericulture: Species of silkworm, life history of <i>Bombyx mori</i>, Sericulture Industry in India. 2. Apiculture – Life cycle of the honey bee, methods of bee keeping, products of bees, enemies of bees. 3. Lac culture: Lifecycle of lac insect and host plant of lac insects. 4. Common pests: Stored grains: <i>Sitophilus oryzae</i> and <i>Tribolium castanearum</i> Vegetable pest: <i>Piers brassicae</i> and <i>Dacus cucurbitae</i>. 5. Biological control of insect pests.

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

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

Dr. N. S. Singh
 Dr. Vinod Chandra Nigam
 Dr. S. S. Singh
 Dr. S. S. Singh

Dr. Ujjwal Yadav
 Dr. Ramshankar Singh
 28/4/17
 28/4/17

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B.Sc. - III Year - Zoology

Books of MP Hindi Granth Academy

- Lewin : Genetics (Latest Edition Strickberger : Genetics)
- Gardner, MJ : Principles of Genetics
- Singh, BD : Genetics
- Singh, BD : Biotechnology
- Gupta, PK : Genetics
- Gupta, PK : Molecular Biology and Genetic Engineering
- Verma, PS and Agrawal, VK : Genetics
- Purohit : Biotechnology
- Kohli and Ansar : Economic Zoology
- Kohli : Ecology
- Odum, EP : Fundamental of Ecology
- Sharma PD : Environmental Biology and Toxicology
- Natrajan, SS : A Manual of Fresh Water Aquaculture
- Upadhaya : Economic Zoology
- Pal Ajay : Cellular & Molecular Biology

Pragya Khanna
 28.4.17
 (Prof. H.S. Rathore)
 Brij
 28.4.17
 (Dr. Roushas Singh)
 V.S. K.
 (Dr. N. S. K.)
 W.B.

Cell & Molecular Biology
 286
 28/4/17
 Dr. S. S. Shrivastava
 Shrivastava
 28/4/17
 (Dr. Rajiv Shrivastava)
 28/4/17
 (Dr. Vinodini Nigam)
 28/4/17
 (Dr. Anita Solanki)

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 Chairman, Board of Studies, A.P.S. University, Rewa
 28/4/17
 (Dr. Celtes Yadav)
 28.4.17
 (Dr. Shobha Shourey)
 (Dr. C. R. S.)

Prof

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Class / कक्षा : B.Sc. III year (Session-2019-20)
Subject/ विषय : Zoology Practical
Max.-Mark/ अधिकतम अंक : 50

The practical's work will be as per theory syllabus and the candidates will be required to show the knowledge of the following :-

1. Study of fresh water, marine and terrestrial fauna, Major carps, Common stored grain pest and vegetable pest
2. Water analysis – Dissolve Oxygen, pH, Hardness, Turbidity.
3. Study of Ecosystems and maintenance of Aquarium
4. Study of instrument related to Genetics- Centrifuge, PCR, Gel electrophoresis, DNA finger printing.
5. Wild life - Endangered species.
6. Life cycle of silkworm, Honey Bee, Lac insect

Distribution of Marks

1. Spotting	
2. Analysis of water	12
3. Exercise based on wildlife	04
4. Ecosystem	05
5. Study of Instruments	04
6. Problem on Genetics	05
7. Life Cycle	05
8. Viva -voce	05
9. Practical Record and collection	05

Total	50	<i>Professor Head</i>
		Department of Zoology
		Govt. Madhav Vigyan Mahavidyalaya Ujjain

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Dr. Shobha Shouche
28/4/17

Prof. H. S. Rathore
(Prof. H. S. Rathore)

Dr. C. S. Shivastava
28/4/17

Dr. M. S. Choudhary
28/4/17

Dr. Ramesh Singh
28-4-17

Dr. Rajwade Shivastava
28/4/17

Dr. Vinodini Nigam
28/4/17

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28/4/17

Dr. ...

Dr. ...

Dr. ...