

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. I year
Subject : Zoology
Session 2018-19**

Scheme of examination

Paper	Topic of Paper	Max.Marks.			Total marks
		Theory	Quarterly Exam	Half yearly Exam	
I	Invertebrates	40	10	10	100
II	Cell biology & Developmental biology	40			
	Practical				50

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Class	- B.Sc.I year (Session 2018-19)
Paper	- I
Subject	- Zoology
Title of Paper	- Invertebrates
Max. Marks:	- 40

Unit-I

1. Elementary Knowledge of Zoological Nomenclature and International Code.
2. Classification of Lower Invertebrates (According to Parker and Haswell 7th edition)
Upto class.(i. Protozoa ii.Prorifera iii.Coelenterata iv Helminthes)
3. Classification of Higher Invertebrates (According to Parker and Haswell 7thedition)
uptoclass(i. Annelida ii. Arthropoda iii.Mollusca iv. Echinodermata v.Hemichordata)

Unit-II

1. Protozoa- Type Study of Plasmodium.
2. Protozoa and Diseases wsr. Malaria, Amoebiasis, Trypanosomiasis and Leishmaniasis
3. Porifera- Type study of Sycon wsr Morphology, Types of cell, Reproduction & Development.
4. Types of Canal system in Porifera.
5. Coelenterata- Type study of Obelia.
6. Corals and Coral Reef formation.

Unit-III

1. Helminthes- Type study of Liver Fluke (Fasciola hepatica)
2. Nematodes and diseases – Ascariasis ,Trichosomiasis,Schistosomiasis and Ancylostomiasis.
3. Annelida- Type study of earthworm (Pheretima)
4. Metamerism in annelida
5. Elementary idea of economical important species of earthworms.
6. Structure and significance of Trochophore larva.

Unit-IV

1. Arthropoda- Type study of Prawn (Palaemon)
2. Larval forms of Crustaceawsr. Nauplius, Zoea and Megalopa larva.
3. Insect as Vectors of human diseases wsr. Culex, Aedes, Anopheles mosquito & Housefly.
4. Mollusca- Type study of Pila (An Apple Snail)
5. Larval forms of Mollusca wsr. Veliger and Glochidium larva.

Unit-V

1. Echinodermata- External features and water vascular system of star fish.
2. Larval forms of Echinoderms wsr. Bipinnaria ,Brachiolaria larva and Ophiopluteus larva.
3. Minor Phyla: Structure and life history of Ectoprocta & Rotifera.
4. Hemichordata – Type study of Balanoglossus wsr External Features.
5. Structure and significance of Tornaria larva.
6. Affinities of Balanoglossus.

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Class	-	B.Sc. I year (Session 2018-19)
Paper	-	II
Subject	-	Zoology
Title of Paper	-	Cell Biology and Developmental Biology
Max. Marks:	-	40

Unit-I

1. History of Cell Biology, Cell Theory
- 2., Prokaryotic and Eukaryotic Cells.
3. Structure and function of Golgi body, Endoplasmic Reticulum and Lysosomes.
4. Structure and function of Mitochondria, Ribosomes and Centriole.
5. Elementary idea of Microsomes.

Unit-II

1. Structure and function of Nucleus and Nucleolus.
2. Structure and function of Typical Chromosome.
3. Special type of Chromosome – Lampbrush and Polytene
4. Nucleocytoplasmic interaction.
5. Cell Cycle wsr. Amitosis , Mitotic and Meiotic cell division.

Unit-III

1. Spermatogenesis
2. Oogenesis
3. Fertilization
4. Parthenogenesis
5. Regeneration

Unit-IV

Development of Frog

1. Cleavage.
2. Blastulation
3. Fate map construction
4. Gastrulation and formation of three germinal layers
5. Structure of Tadpole larva and its metamorphosis.

Unit-V

Development of Chick

1. Cleavage
2. Blastulation
3. Fate map construction
4. Gastrulation
5. Development of chick embryo upto formation of primitive streaks.
6. Extra embryonic membranes in chicks.

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;	Class	B.Sc. I year (Session 2018-19)
	Subject	Zoology Practical
	Max. Marks:	50

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 and slides relevant to invertebrates studied in theory (Any 8).
2. Mounting (Temporary Mounting) /Comment upon whole mount /Squash Preparation
 - a. Prawn- Statocyst
 - b. Pila - Ctenidium / Radula/ Osphradium
 - c. Earthworm – Septal Nephridia
 - d. Squash preparation of onion root tip/Identification of Mitochondria in buccal smear.
 - e. Mouth parts of insects
3. Dissection – (Any 1)
Dissection of cultured animals /Computer simulation technique/ Flag labeling on artificial model
 - a. Earthworm: Digestive system, nervous system and reproductive system.
 - b. Prawn: Nervous system, Appendages
 - c. Pila: Nervous system
4. Exercise related to frog and chick embryology - (Any 2)
Study of embryological slides / permanent mount
5. Exercise related to cell biology- (Any 2)
 - a. Identification of stages of mitotic and meiotic cell division through permanent slide.
 - b. Study of special types of chromosome through permanent slide.

Distribution of Marks

Time: 3 hours	MM. 50
1. Dissection	08
2. Spotting (8 spots)	16
3. Mounting /Squash preparation/ Smear preparation	06
4. Exercise related to embryology	05
5. Exercise related to cell biology	05
6. Viva - Voce	05
7. Practical Record and Collection	05