

**Mohanlal Sukhadia University  
Udaipur (Raj.)**

**Syllabus**

**Scheme of Examination and Courses of Study**

**FACULTY OF SCIENCE**



**M. Sc. ZOOLOGY**

Previous Examination : 2005-2006

Final Examination : 2006-2007

## POST GRADUATE PROGRAMME

1. At each of the Previous and Final Year Examination in a subject, a candidate must obtain for a pass (i) at least 36% marks of the aggregate marks in all the papers prescribed at the examination, and (ii) atleast 36% marks in practical, wherever prescribed, at the examination; provided that if a candidate fails to secure 25% marks in each individual paper of theory at any of the examination and also in the Dissertation; wherever prescribed, he/she shall be deemed to have failed at the examination, notwithstanding his/her having obtained the minimum percentage of marks required in the aggregate for the examination. Division will be awarded at the end of the Final Examination of the combined marks obtained at the Previous and the Final Examinations taken together as noted below. No Division will be awarded at the Previous Examination.

First Division : 60 Percent of the total aggregate

Second Division: 48 Percent marks of Previous and

Third Division : 36 Percent Final year taken together

**Note :** The candidate is required to pass

Published by :  
**Mohanlal Sukhadia University**  
Udaipur

Printed at :  
**National Printers**  
124, Chetak Marg, Udaipur  
Phone : 2523830, 2561030  
"Offset House" Bhuwana

2. Dissertation may be offered by regular students only in lieu of one paper of Final Year Examination as prescribed in the syllabus of the subject concerned. Only such candidates will be permitted to offer dissertation who have secured at least 50% marks in the aggregate at the previous examination.

**Note:** Dissertation shall be type-written and shall be submitted in triplicate, so as to reach the Controller of Examinations at least two weeks before the commencement of Examination.

3. There shall be at least eight theory in Post-Graduate Examination, 4 in Previous and 4 in Final year examinations of 100 marks each unless and otherwise prescribed. The non-credit papers wherever prescribed will remain as such. The marks of these non-credit papers will not be counted for division but passing in the same is compulsory.

4. Each theory paper will be of three hours duration.

5. Wherever practicals are prescribed the scheme will be included in the syllabus.

6. A candidate who has completed a regular course of study for one academic year and Passed M.A. / M.Sc. / M.Com. Previous Examination of

Examination for the degree of Master of Arts / Master Of Science / Master of Commerce provided that he / she has passed in at least 50% of the papers at the previous examination by obtaining at least 36% marks in each such paper.

(a) For reckoning 50% of the papers at the previous examination, practical will be included and one practical will be counted as one paper.

(b) Where the number of papers prescribed at the previous examination is an odd number it shall be increased by one for the purpose of reckoning 50% of the paper.

(c) Where a candidate fails for want of securing minimum aggregate marks but secured 36% marks in at least 50% of the papers, he/she will be exempted from re-appearing in those papers in which he/she has secured 36% marks.

(d) Where the candidate secures requisite minimum percentage in the aggregate of all the papers but fails for want of the requisite minimum percentage of marks prescribed for each individuals paper he/she shall be exempted from re-appearing in such paper (s) in which he / she has secured at least 25% marks.

7. A candidate who has declared fail at the

from re-appearing in a subsequent year in the following papers :

(a) Where a candidate fails for want of securing the minimum percentage in the aggregate marks, he/she shall be exempted from re-appearing in such paper (s) Practical (s). Dissertation in which he/she has secured atleast 36% marks; provided he/she is passing in atleast 55% of the papers. (Here passing in each paper requires 36% marks).

(b) Where a candidate secures the minimum requisite including dissertation wherever prescribed but fails for want of minimum percentage of marks prescribed for in each individual paper / dissertation, he / she shall be exempted from reappearing in such paper (s) dissertation in which he/she has secured atleast 25% marks provided he/she is passing in atleast 50% of the paper (here passing in each paper requires 25% marks)

### **SCHEME OF EXAMINATION FOR INTERNAL ASSESSMENT AND QUESTION PAPER PATTERN IN THE EXAMINATION FOR P. G. STUDENTS IN THE FACULTIES OF SCIENCE, COMMERCE, SOCIAL SCIENCES AND HUANITEIS**

Maximum marks of 100 in each theory may be divided into 75 marks for external written examination and 25 marks for internal assessment.

#### **INTERNAL ASSESSMENT : 25 MARKS**

**(A) Assignment 10 marks :** On the basis of performance in the regular assignments (minimum two assignments of 5 marks each)

**(B) Internal examination 10 marks :** On the basis of performance in two internal examinations of minimum one hour duration, one conducted in the month of November-December and other in the month of February.

**(C) Seminar 5 marks :** On the basis performance in seminar, given by the students. Students are required to give seminar on topics from the paper concerned.

Internal assessment marks may be awarded by a committee consisting of Head of the Department, one senior Faculty member and concerned teachers as per above distribution.

Internal marks to be submitted to the university in a tabular form giving total internal marks in each paper as well as marks awarded against each of the above components of internal assessment.

#### **QUESTION PAPER PATTERN FOR EXAMINATION : 75 MARKS**

SECTION A : Total 10 questions will be set from five units

short answer. Each question will be of one (1) mark (Total 10 Marks). All the questions in Section A are compulsory.

**SECTION B :-** Total 10 questions will be set from five units i.e. two question from each unit. Students are required to attempt at least one question from each unit. Each question carries 7 marks (Total 35 marks). The answer of each question should be given approximately in 250 words.

**SECTION C :-** Total 4 descriptive questions will be set from five units of the paper, not more than one question from each unit. Each question may also have two sub-divisions. Student are required to answer two questions in about 500 words. Each question carries 15 marks (Total 30 marks).

Student are required to pass separately both in internal assessment (25 marks) and in the external written examination (75 marks). The marks of the internal assessment be notified to the students and then sent to the University before the commencement of the preparation leave in the enclosed proforma.

### **M.Sc. (Previous) ZOOLOGY-2005-06**

The M.Sc. (Previous) examination shall consist of four theory papers, each of three hours duration. There shall be two practical examinations based on theory papers. The practical examination shall be of ten hours, divided in two days.

		<u>Marks</u>
Paper-I	Principles of Taxonomy and Structure and Function of Invertebrates	100
Paper-II	Gamete and Developmental Biology, Techniques and Tools for Biology	100
Paper-III	Environmental Biology and Quantitative Biology	100
Paper-IV	Molecular Cell Biology and Cytogenetics	100
	Practical -I	100
	Practical -II	100

#### **Pattern of question paper in the annual examination and distribution of marks :**

Each theory paper in the annual examination shall have three sections i.e. A,B, and C. In section A, total

least two from each unit. These questions to be answered in a word or so. All questions are compulsory. Each question carries 1 mark, total 10 marks.

In section B, there shall be total 10 questions, selecting two questions from each unit, five questions to be answered by the student selecting at least one from each unit. Answer should be given in approximately 250 words. Each question carries 10 marks, total 50 marks.

In section C, 04 descriptive type questions will be set in the examination paper from five units of the syllabus of the paper, selecting not more than one question from a unit. Each question may have two sub divisions. Students are required to answer any two questions approximately in 500 words. Each question is of 20 marks, total 40 marks.

## M.Sc. (PREVIOUS) ZOOLOGY-2005-06

### PAPER-I

### PRINCIPLES OF TAXONOMY AND STRUCTURE AND FUNCTION OF INVERTEBRATES

Duration : 3 hours

M.M.100 Marks

#### UNIT-I

- 1 Definition and basic concepts of Taxonomy.
- 2 Cytotaxonomy : Importance of cytology and genetics in Taxonomy.
- 3 Species Concepts: Species category, sub-species and other intraspecific categories.
- 4 Procedures and Taxonomy:
  - a. Taxonomic collections, preservation and curation.
  - b. Taxonomic keys: their merits and demerits.

#### UNIT-II

- 5 Interpretation and application of important rules. Zoological nomenclature, formation of scientific names of various taxa.
- 6 Basis of invertebrate classification, hierarchy of categories.
- 7 General characters and evolutionary significance of Rotifera, Entoprocta, Ectoprocta, Brachiopoda, Phoronida, Siphonuloidea.

### UNIT-III

- 8 Body plan:
- (a) Unicellular body plan
  - (b) Cell aggregate plan
  - (c) Eumetazoan plan:
    - i. Acoelomate plan
    - ii. Pseudocoelomate plan
    - iii. Eucoelomate plan
    - iv. Origin and significance of coelom
- 9 Locomotor mechanisms:
- (a) Amoeboid, ciliary and flagellar locomotion in protozoans
  - (b) Hydrostatic skeleton
  - (c) Non-jointed appendages
  - (d) Jointed appendages
  - (e) Flight mechanism in insects
- 10 Feeding mechanisms and digestion:
- (a) Amoeboid feeding
  - (b) Ciliary feeding
  - (c) Filter feeding

- (e) Endo and ectoparasitic mode of feeding
- (f) Feeding mechanisms in insects and Echinodermata
- (g) Intracellular and extracellular digestion.

### UNIT - IV

- 11 Respiration:
- (a) Organs of respiration: General body surface, gills, lungs and trachea.
  - (b) Respiratory pigments and mechanisms.
- 12 Excretion:-
- (a) Excretory areas: Nephridia, malpighian tubules and urocoel
  - (b) Excretory products and mechanism
  - (c) Osmoregulation and ionic-regulation
- 13 Nervous system :
- (a) Primitive nervous system : Coelenterata and Echinodermata
  - (b) Advance nervous system : Annelida, Arthropoda (crustacea and insecta) Mollusca (cephalopoda)

### UNIT-V

- 14 Endocrine system :

(b) Role of neurosecretion and hormones in developmental events of insects and crustaceans

15 Reproduction :

(a) Asexual reproduction

(b) Sexual reproduction and parthenogenesis

16 Invertebrate larvae :

(a) Larval forms of free living invertebrates

(b) Larval forms of parasites.

**REFERENCE BOOKS (LATEST EDITIONS) :**

- 1 Hyman, L.H. The Invertebrates. Vol.1 Protozoa through Ctenophora, McGraw Hill Co., New York.
- 2 Barrington, EJW, Invertebrate structure and function. Thomas Nelson and Sons Ltd., London.
- 3 Jagerstein, G. Evolution of Metazoan life cycle, Academic Press, New York and London
- 4 Hyman L.H. The Invertebrates. Vol.2 McGraw Hill Co., New York.
- 5 Hyman, L.H. The Invertebrates Vol.8 McGraw Hill Co., New York and London.
- 6 Barnes, R.D. Invertebrate Zoology, III Edition. W.B.Saunders Co., Philadelphia.
- 7 Russel-Hunter W D A Biology of higher inverte

8 Hyman, L.H. The Invertebrates smaller coelomate groups, Vol.V. McGraw Hill Co. New York.

9 Read, C.P. Animal Parasitism. Prentice hall Inc., New Jersey.

10 Sedgwick, A.A Student Text Book of Zoology: Vol.I,II and III. Central Book Depot, Allahabad.

11 Parker.T.J., Haswell, W.A.Text Book of Zoology Macmillan Co., London.

12 G.G.Simpson. Principle of Animal Taxonomy, Oxford IBH Publishing Company.

13 E.Mayer. Elements of Taxonomy.

14 E.O.Wilson. The Diversity of Life (The College Edition), W.W. Northem & Co.