

SAURASHTRA UNIVERSITY

RAJKOT

Accredited Grade 'A' by NAAC

(CGPA 3.05)

FACULTY OF SCIENCE

[Three Years (6 Semesters) Full Time Course]

ZOOLOGY SYLLABUS

WITH EXAMINATION CODING SYSTEM

16-03-04-01-01-01-00

16-03-04-01-01-02-00

2019 - 20

Saurashtra University

University Campus, Rajkot – 360 005.

Gujarat, India.

Website: www.saurashtrauniversity.edu

EXAMINATION CODING SYSTEM

Sr.No.	Name Of Programme	B.Sc. ZOOLOGY	
1	Title Of Paper	(In Sem -I) Non Chordates : Systematics, Forms & Functions, Cell biology & Genetics, Applied Zoology and Ecology	(In Sem -II) Chordate: Systematic, Forms & Functions, Physiology & Histology Wild life biology and Comparative account of integuments, Reproductive physiology Embryology
2	Theory Credit	4	4
3	Practical Credit	3	3
4	Total Credit	7	7
5	External Marks Of Theory	70	70
6	Internal Marks Of Theory	30	30
7	Total Marks Of Theory	100	100
8	External Marks Of Practical	35	35
9	Internal Marks Of Practical	15	15
10	Total Marks Of Practical	50	50
11	Grand Total	150	150
12	External Exam Time Duration	2½ Hours	2½ Hours

Course / Paper Code					
13	Year	1	6	1	6
14	Faculty	0	3	0	3
15	Subject	0	4	0	4
16	UG/PG	0	1	0	1
17	Semester	0	1	0	2
18	Paper	0	1	0	2

19	Core	0	0	0	0
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SAURASHTRA UNIVERSITY

RAJKOT

ZOOLOGY

SYLLABUS

WITH EXAMINATION CODING SYSTEM

16-03-04-01-01-01-00

16-03-04-01-01-02-00

[SYLLABUS FOR THE CHOICE BASED CREDIT SYSTEM (CBCS)]

(F.Y. B.Sc.)

SEMESTER I – PAPER – Z-01

&

SEMESTER II – PAPER – Z-02

Revised Syllabus

INFORCE FROM JUNE – 2019

SAURASHTRA UNIVERSITY

RAJKOT

[SYLLABUS FOR CHOICE BASED CREDIT SYSTEM (CBCS)]

INFORCE FROM JUNE – 2019

SUBJECT: ZOOLOGY

WITH EXAMINATION CODING SYSTEM

16-03-04-01-01-01-00

16-03-04-01-01-02-00

SEMESTER – I

ZOOLOGY PAPER – Z – 01

Non- chordates:- Systematic, forms and functions, Cell biology & Genetics,
Applied Zoology and Ecology

SEMESTER – II

ZOOLOGY PAPER – Z – 02

Chordate: Systematic, Forms & Functions, Physiology & Histology Wild life
biology and Comparative account of integuments, Reproductive physiology
Embryology

FORWARD

Renewing and updating of the Curriculum is the prime important criteria in the University education system.

Syllabus provides an educational guide line and demarks the horizon of a subject. Syllabus of different Theory and Practical papers should have subjective harmony and gradual relationship within periphery of a subject.

Formulation of Curriculum for a particular subject requires the following criteria.

- (A) Background of previous Curriculum.
- (B) Relationship with other related subjects.
- (C) Resources of Educational needs at regional level as well as national level.
- (D) Financial and Statuary provisions of the State government.

All the above criteria are taken into consideration in formulation of this Curriculum.

This Curriculum is the result of prolonged discussions among the experienced teacher in this subject because after all, the college teachers are the real catalysts for implementation of this Syllabus.

The proposed Syllabus after required formalities will be implemented in the first year B.Sc.

Valuable guidelines and all facilities in this curriculum are provided by the authorities of the Saurashtra University, Rajkot.

DR. A.N UPADHAYAYA

Chairman,
Board of Studies, Zoology,
Saurashtra University,
Rajkot – 360 005.

Dr. S.K TERAIYA

Other than Chairman,
Board of Studies, Zoology,
Saurashtra University,
Rajkot – 360 005

SAURASHTRA UNIVERSITY

RAJKOT

(CBCS Syllabus)

SEMESTER – I

ZOOLOGY

16-03-04-01-01-01-00

PAPER – Z-01

**Non- chordates:- Systematic, forms and functions, Cell biology & Genetics,
Applied Zoology and Ecology**

UNIT – 1: SYSTEMATICS

Salient feature & classification up to classes in Non-chordates, structural

Organization in different phylum of Non-chordates with examples.

Phylum- Protozoa, Porifera, Coelenterata, Platyhelminthes, Aschelminthes,

Annelida, Arthropoda, Mollusca, Echinodermata,

Hemichordata.

UNIT – 2: FORMS AND FUNCTIONS IN ANIMALS

General structures and morphology with functional anatomy of following type Animals.

2.1 PLATYHELMINTHES – Type study: Taenia solium.

2.2 ANNELIDA – Type Study: Earth worm.

UNIT - III CELL BIOLOGY & GENETICS

3.1 Cell Biology: Only structure and function of following organelles.

- (i) Plasma membrane
- (ii) Endoplasmic reticulum
- (iii) Mitochondria
- (iv) Nucleus

3.2 Genetics:

Mendelian laws of heredity:

- (i) Mono hybrid cross
- (ii) Di hybrid cross

Incomplete dominance

Co-dominance

Multiple alleles (ABO Blood group in human being)

UNIT - IV APPLIED ZOOLOGY

4.1 A study of general structure and characters of following pathogenic animals

- (1) Entamoeba
- (2) Trypanosoma
- (3) Filarial worm
- (4) Guinea worm
- (5) Round worm
- (6) Pin worm

4.2 Poultry science

- (i) A general account of poultry science
- (ii) Types of poultry farming
- (iii) Different apparatus used in poultry farm

UNIT - V ECOLOGY

5.1 Introduction to ecology

5.2 Fresh water ecology

5.3 Marine ecology

5.4 Ecological adaptations:

- (i) Fossorial adaptation
- (ii) Aquatic adaptation
- (iii) Arboreal adaptation
- (iv) Volant adaptation
- (v) Desert adaptation

PRACTICALS RELATED TO PAPER – Z-01

Practical: 1 : Identification and classification of Invertebrate animals

- (i) Phylum: Protozoa: - Arcella, Ceratium, Vorticella, Plasmodium
- (ii) Phylum: Porifera: - Leucosolenia, Euplectella, Euspongia
- (iii) Phylum: Coelenterata: - Hydra, Rhizostoma, Metridium

Practical: 2 : Identification and Classification of Invertebrate animals.

- (i) Phylum: Platyhelminthes: - Planaria, Liver fluke, Tape worm
- (ii) Phylum; Aschelminthes: - Ascaris, Hookworm
- (iii) Phylum: Annelida: - Aphrodite, Earthworm, Leech

Practical: 3: Identification and Classification of Invertebrate animals

- (i) Phylum: Arthropoda: - Peripetus, Lobster, Millipede, Dragon fly, Scorpion
- (ii) Phylum: Mollusca: - Chiton, Pila, Unio, Octopus, Dentalium

Practical: 4: Identification and Classification of Invertebrate animals

- (i) Phylum: Echinodermata: - Star fish, Brittle Star, Sea Urchin, Sea-Cucumber,
and Feather Star
- (ii) Phylum: Hemichordata: - Balanoglossus

Practical: 5: Systems of Earth worm:

- (i) External Characters.
 - (ii) Digestive System.
 - (iii) Nervous System.
 - (iv) Reproductive System
- Through chart or Multimedia

Practical: 6: Mounting of Earth worm:

- (i) Septal Nephridia
 - (ii) Body Setae
 - (iii) Blood Gland
 - (iv) Ovary
- Through chart or Multimedia or Slide

Practical: 7 : Study of permanent slides (*Taenia solium*):

- (i) Scolex
- (ii) Mature segment
- (iii) Gravid segment
- (iv) Bladder worm

Practical: 8 : Study of permanent slides (Earth worm):

- (i) T.S. Through Pharynx
- (ii) T.S. Through Gizzard
- (iii) T.S. Through Typhlosole

Practical: 09: Study of following cell organelles.

- (i) Mitochondria
 - (ii) Nucleus
 - (iii) Endoplasmic Reticulum
 - (iv) Cell Membrane
- By photograph, Chart, Model, or multimedia.

Practical: 10 : Solve the given problem of genetics

- (i) Mono hybrid ratio

- (ii) Di hybrid ratio
- (iii) Incomplete dominance,
- (iv) Co-dominance,
- (v) Multiple alleles (ABO Blood group in human being)

Practical: 11 : To determine own blood group and Rh factor

Practical: 12: Study of following pathogenic animals.

- (i) Entamoeba
- (ii) Trypanosoma
- (iii) Filarial worm
- (iv) Guinea worm
- (v) *Ascaris lumbricoides* (Round worm)
- (vi) *Enterobius vermicularis* (Pin-worm)

Practical: 13: Study of following poultry apparatus.

- (i) Types of poultry farms
 - (ii) Apparatus used in poultry farm: Feeder, Brooder, Waterer.
- By photographs, charts or by Multi-media.

Practical: 14: Study of different animals for Ecological Adaptation.

- (i) Fossorial: Earthworm, Rat.
- (ii) Aquatic: Labeo, Whale
- (iii) Arboreal: Chameleon, Monkey.
- (iv) Volant: Draco, Pigeon
- (v) Desert: Uromastix, Phrynosom

DISTRIBUTION OF UNITS

16-03-04-01-01-01-00

SEMESTER – I

<u>PAPER – Z-01</u>			
Unit No.	Unit Title	Theory Period	Marks.
Unit : 1	Systematic	10	14
Unit : 2	Forms and Functions	18	14
Unit : 3	Cell biology & Genetics	14	14
Unit : 4	Applied Zoology	13	14
Unit : 5	Ecology	10	14
TOTAL :		65	70

- Above statement concerned to only Theory portion of the paper.
- Above mentioned third column ‘Theory Period’ indicates total number of theory lectures per unit.
- Total syllabus should be completed within 65 theory lectures.
- Each and every unit carry equal 14 marks.
- Total marks for theory examination are 70 marks.
- **PAPER SETTER MUST FOLLOW THE UNIT WISE MARK SETUP.**

SAURASHTRA UNIVERSITY - RAJKOT
THEORY EXAMINATION

SEMESTER – I

ZOOLOGY

16-03-04-01-01-01-00

(Based on Paper – Z-01)

Time: 2½ Hours

Total Marks: 70

Instructions:

1. Illustrate your answer with neat and labeled diagrams.
2. Figure to the right side indicates full marks of questions.

QUESTION-1 (THIS QUESTION IS TAKEN FROM UNIT-1)

QUESTION-2 (THIS QUESTION IS TAKEN FROM UNIT-2)

QUESTION-3 (THIS QUESTION IS TAKEN FROM UNIT-3)

QUESTION-4 (THIS QUESTION IS TAKEN FROM UNIT-4)

QUESTION-5 (THIS QUESTION IS TAKEN FROM UNIT-5)

**- ANY TYPE OF MCQ IS NOT INCLUDED IN THIS PAPER
STYLE.**

- EACH QUESTION CARRIES EQUAL MARKS – 14.

- THERE ARE 5 QUESTIONS CONTAINING SUBQUESTIONS

(A), (B), (C), (D).

QUESTION-1: (From UNIT-1) [14]

(A) Give the answer of following questions. [04]

Only short questions, Definitions and Fill in the blanks and NOT INCLUDED MCQs.

Each Question carries 1 Mark.

(1)

(2)

(3)

(4)

(B) Write any one out of Two. [02]

Each Question carries 2 Marks.

(1)

(2)

(C) Write any one out of Two. [03]

Each Question carries 3 Marks.

(1)

(2)

(D) Write any one out of Two. [05]

Each Question carries 5 Marks.

(1)

(2)

QUESTION-2: (As Above) (From UNIT-2) [14]

QUESTION-3: (As Above) (From UNIT-3) [14]

QUESTION-4: (As Above) (From UNIT-4) [14]

QUESTION-5: (As Above) (From UNIT-5) [14]

SAURASHTRA UNIVERSITY - RAJKOT
PRACTICAL EXAMINATION
SEMESTER – I

ZOOLOGY

16-03-04-01-01-01-00

(Based on Paper – Z-01)

Time: 3 Hours

Total Marks: 35

- Que -1: Sketch and label _____ system of Earth worm. [06]
- Que – 2: Sketch and label/Mountings of earth worm _____.
(Practical-6 & 7) [03]
- Que – 3: Do as per instruction and show it to examiner [03]
(Practical – 11)
- Que – 4: Do as per instruction and show it to examiner [03]
(Practical – 10)
- Que – 5: Write as per instruction. [14]
- (A) Identify and classify giving reasons.
(Lower invertebrate)
- (B) Identify and classify giving reasons.
(Higher invertebrate)
- (C) Identify and describe. (Practical- 9)
- (D) Identify and describe. (Practical-8)
- (E) Identify and describe (Practical-12)
- (F) Identify and describe (Practical-14)
- (G) Identify and describe (Practical-13)
- Que. – 5: Report and Viva-voice. [03]
- Que – 6: Certified Journal. [03]

SAURASHTRA UNIVERSITY – RAJKOT
List of Slides, Specimens, Charts, Models &

Photographs

SEMESTER – I

ZOOLOGY

16-03-04-01-01-01-00

(Based on Paper – Z-01)

LIST OF SLIDES:

- (1) All animals from Protozoa. [Practical-1, (i)]
- (2) Mountings of Earthworms. [Practical-6]
- (3) Permanent slides of Taenia solium. [Practical-7]
- (4) Permanent slides of Earth worm. [Practical-8]

LIST OF SPECIMENS:

- (1) All animal specimens from Phylum- Porifera to Phylum-Hemichordata.
[Practical-1 to Practical-4]
- (2) All animal specimens for Ecological Adaptations. [Practical-12]

LIST OF CHARTS/MODELS/PHOTOGRAPHS:

- (1) Cell organelles : Plasma membrane, Endoplasmic reticulum,
Mitochondria, Nucleus

LIST OF INSTRUMENTS:

- (1) Light Microscope
- (2) Types of Poultry Farms, Feeder, Brooder & Waterer as Poultry apparatus.

REFERENCE BOOKS

16-03-04-01-01-01-00

SEMESTER – I

List of books For Unit-1 & 2

- 1 : Invertebrate Zoology.....E.L.Jordan & Dr.P.S.Verma
- 2 : Invertebrate Zoology.....P.S.Dhami &J.K.Dhami.
- 3 : A modern textbook of Zoology Invertebrate Zoology.....R.L.Kotpal.
- 4 : A textbook of Practical Zoology-Invertebrates.....S.S.Lal
- 5 : Kotpal Series – Platyhelminthus.....R.L.Kotpal
- 6 : Kotpal Series – Annelida.....R.L.Kotpal
- 7 : Kotpal Series – Arthropoda.....R.L.Kotpal
- 8 : A Manual of Practical Zoology, Invertebrates.....P.S.Verma

List of books For Unit-3

- 9 : Cell Biology.....Dr. Satyeshchandra Roy.
- 10 : Cell Biology.....C.B.Power
- 11 : Cytology & Genetics.....P.K.Gupta
- 12 : Cell & Molecular Biology.....De Robertis.
- 13 : Biotechnological Cell Biology.....V.B.Rastogi.
- 14 : Molecular Biology.....V.B.Rastogi
- 15 : Histology.....Atlas.
- 16 : Cell Biology, Genetics, Molecular Biology, Evolution and Ecology.....P.S.Varma & V.K.Agrawal.
- 17 : Cytology.....P.S.Verma & V.K.Agarwal
- 18 : Cytology, Genetics & Evolution.....P.K.Gupta

List of books for Unit-4

- 19 : Applied Zoology.....Arumugam, T. Murugan, Rajeshwar, Ram Prabhu.
- 20 : Economic Zoology.....Shukla &Upadhyay.
- 21 : Economic Zoology.....Venkitaraman.

22 : Cell Biology, Genetics, Molecular Biology, Evolution and Ecology.....P.S.Varma & V.K.Agrawal.

List of books for Unit-5

23 : Fundamentals of Ecology.....Odum E.P. & Barrett G.W.

24 : Basic Concepts of Ecology.....A. Arumugam

25 : Elements of Ecology.....Robert & Thomas.

26 : Environmental Biology.....P.S.Verma & V.K.Aggrwal

SAURASHTRA UNIVERSITY

RAJKOT

(CBCS Syllabus)

SEMESTER - II

ZOOLOGY

16-03-04-01-01-02-00

PAPER – Z-02

Chordate: Systematic, Forms & Functions, Physiology & Histology

Wild life biology and Comparative account of integuments,

Reproductive physiology Embryology

UNIT- 1: SYSTEMATIC, FORMS AND FUNCTIONS IN

ANIMALS:

1.1 Salient features and classification up to class in Chordates with examples.

UNIT- 2: FORMS AND FUNCTIONS IN ANIMALS

2.1 General structure and morphology with functional anatomy of following type.

(I) PROTOCHORDATA: Type study: Amphioxus

(i) External Features

(ii) Digestive system

(iii) Endostyle

(iv) T.S. through Pharynx region

(II) Embryonic development of Amphioxus:

- (i) Sperm
- (ii) Ovum
- (iii) Fertilization
- (iv) Blastulation
- (v) Gastrulation

UNIT- 3: PHYSIOLOGY & HISTOLOGY

3.1 PHYSIOLOGY

- (i) Physiology of digestion in the alimentary Canal.
- (ii) Absorption of carbohydrates, proteins, lipids.

3.2 BLOOD:

- (i) composition of blood.

3.3 HISTOLOGY

Stomach

Intestine

Liver

Pancreas

UNIT-4: WILDLIFE BIOLOGY & COMPARATIVE ACCOUNT OF INTEGUMENTS

5.1 General introduction of wild life biology

5.2 Difference between national Park and sanctuary

5.3 Wildlife in Gujarat:

(I) NATIONAL PARKS:

- (i) Gir National Park.

(ii) Marine National Park

(II): SANCTUARIES:

(i) Kutch desert wildlife sanctuary.

(iv) Khijadia bird sanctuary.

5.4 Methods for conservation of Wildlife & Its importance

Causes of depletion of wild life

5.5 Integumentary System:

Derivatives of integument:

Glands and digital cornification

UNIT-5: REPRODUCTIVE BIOLOGY & EMBRYOLOGY

REPRODUCTIVE PHYSIOLOGY

5.1 Menstrual cycle

5.2 Estrus cycle

5.3 Menopause

Embryology

Oogenesis

Spermatogenesis

PRACTICAL RELATED ON PAPER – Z-02

Practical: 1 : Identification and classification of Chordate animals.

- (i) Sub-Phylum: Urochordata: Herdmania
- (ii) Sub-Phylum: Cephalochordata: Amphioxus.
- (iii) Class: Cyclostomata: Petromyzon.
- (iv) Super Class: Pisces: Shark, Electric Ray, Eel, Sea-horse.

Practical: 2 : Identification and classification of Chordate animals.

- (i) Class: Amphibia: Ichthyophis, Bufo, and Salamander.
- (ii) Class: Reptiles : Turtle, Draco, Chameleon, Mabuia (Skink),
Varanus, Snake, Crocodile.

Practical: 3 : Identification and classification of Chordate animals.

- (i) Class: Aves : Weaver Bird, Parrot, Owl, Wood pecker.
- (ii) Class : Mammal : Duck-bill, Kangaroo, Hedge hog, Bat, Dolphin

Practical: 4 : Forms and Function in Animals :

- (i) Amphioxus: External characters
- (ii) Amphioxus: Lateral view with digestive system
- (iii) Amphioxus: Food & feeding mechanism with endostyle
- (iv) T.S. of pharynx in Amphioxus.

-By slides or charts or Multimedia.

Practical: 5 : Embryology of Amphioxus :

- (i) Sperm

- (ii) Ova
- (iii) Fertilization
- (iv) Cleavage
- (v) Blastulation
- (vi) Gastrulation

-By slides or charts or Multimedia.

Practical: 6 : Test of salivary Amylase for digestion of Starch.

Practical: 7 : To observe different types of blood cells by preparing blood smear

Practical: 8 : To study histology of following organs:

Stomach
Intestine
Liver
Pancreas

Practical: 09: Study of Wild animals.

(i) Study of National parks and Sanctuaries of Gujarat state.

Practical: 10 : Study of following wild animals on the basis of zoo-geographical region as per theory

- (a) Asiatic Lion
- (b) Leopard
- (c) Corals
- (f) Spotted deer
- (g) Greater flamingo

- by photograph, Chart, stuffed animals or multimedia.

Practical: 11 : To study of Integumentary derivatives: Glands,

**Practical: 12 : To study of Integumentary derivatives: Claws, Hoofs,
Nails, Horns.**

Practical: 13 : General Emryology:

Study of oogenesis and spermatogenesis by chart or model.

**Practical: 14 : Visit to any one National Park or Sanctuary OR Fish processing
plant OR Fishing area OR Reserve forest area.**

DISTRIBUTION OF UNITS

16-03-04-01-01-02-00

SEMESTER – II

<u>PAPER – Z-01</u>			
Unit No.	Unit Title	Theory Period	Marks.
Unit : 1	Systematic	10	14
Unit : 2	Forms and Functions	18	14
Unit : 3	Physiology & Histology	14	14
Unit : 4	Wild life biology and Comparative account of integuments,	13	14
Unit : 5	Reproductive physiology Embryology	10	14
TOTAL :		65	70

- Above statement concerned to only Theory portion of the paper.
- Above mentioned third column ‘Theory Period’ indicates total number of theory lectures per unit.
- Total syllabus should be completed within 65 theory lectures.
- Each and every unit carry equal 14 marks.
- Total marks for theory examination are 70 marks.
- **PAPER SETTER MUST FOLLOW THE UNIT WISE MARK SETUP.**

SAURASHTRA UNIVERSITY - RAJKOT

THEORY EXAMINATION

SEMESTER – II

ZOOLOGY

16-03-04-01-01-02-00

(Based on Paper – Z-02)

Time: 2½ Hours

Total Marks: 70

Instructions:

1. Illustrate your answer with neat and labeled diagrams.
2. Figure to the right side indicates full marks of questions.

QUESTION-1 (THIS QUESTION IS TAKEN FROM UNIT-1)

QUESTION-2 (THIS QUESTION IS TAKEN FROM UNIT-2)

QUESTION-3 (THIS QUESTION IS TAKEN FROM UNIT-3)

QUESTION-4 (THIS QUESTION IS TAKEN FROM UNIT-4)

QUESTION-5 (THIS QUESTION IS TAKEN FROM UNIT-5)

**- ANY TYPE OF MCQ IS NOT INCLUDED IN THIS PAPER
STYLE.**

- EACH QUESTION CARRIES EQUAL MARKS – 14.

**- THERE ARE 5 QUESTIONS CONTAINING SUBQUESTIONS
(A), (B), (C), (D).**

QUESTION-1: (From UNIT-1) [14]

(A) Give the answer of following questions. [04]

Only short questions, Definitions and Fill in the blanks and NOT INCLUDED MCQs.

Each Question carries 1 Mark.

(1)

(2)

(3)

(4)

(B) Write any one out of Two. [02]

Each Question carries 2 Marks.

(1)

(2)

(C) Write any one out of Two. [03]

Each Question carries 3 Marks.

(1)

(2)

(D) Write any one out of Two. [05]

Each Question carries 5 Marks.

(1)

(2)

QUESTION-2: (As Above) (From UNIT-2) [14]

QUESTION-3: (As Above) (From UNIT-3) [14]

QUESTION-4: (As Above) (From UNIT-4) [14]

QUESTION-5: (As Above) (From UNIT-5) [14]

SAURASHTRA UNIVERSITY - RAJKOT

PRACTICAL EXAMINATION

SEMESTER – II

ZOOLOGY

16-03-04-01-01-02-00

(Based on Paper – Z-02)

Time : 3 Hours

Total Marks : 35

- Que – 1: Sketch and label _____ system of Amphioxus. [05]
(Practical-4)
- Que – 2: Sketch and label _____ (Practical-5 & 13) [04]
- Que – 3: Do as per instruction & show it to examiner.(Practical-6 & 7) [04]
- Que – 4 : Do as per instruction and show it to examiner. (Practical-8) [03]
- Que – 5 : Write as per instruction. [10]
(A) Identify and classify giving reasons.(Lower chordate)
(B) Identify and classify giving reasons. (Higher Chordate)
(C) Identify and describe. (Practical-9)
(D) Identify and describe. (Practical-10)
(E) Identify and describe. (Practical-11 & 12)\
- Que – 6 : Tour Report [03]
- Que – 7 :Viva – voice. [03]
- Que – 8 ; Certified Journal. [03]

SAURASHTRA UNIVERSITY – RAJKOT
List of Slides, Specimens, Charts, Models &

Photographs

SEMESTER – II

ZOOLOGY

16-03-04-01-01-02-00

(Based on Paper – Z-02)

LIST OF SLIDES:

- (1) T.S. of Pharynx in Amphioxus. [Practical-4,(IV)] , Also available in Chart.
- (2) All slides of Embryology of Amphioxus. [Practical-5] , Also available in Chart.
- (3) Histological structure of mammalian organs [Practical- 8]

LIST OF SPECIMENS:

- (1) All animal specimens from Sub-Phylum-Hemichordata to Class- Mammals. [Practical-1 to 3]
- (2) Integumentary Derivatives- Glands, Claws, Hoofs, Nails & Horns. [Practical-11], Also available in chart.

LIST OF CHARTS/MODELS/PHOTOGRAPHS:

- (1) Amphioxus: External characters, Lateral view with Digestive System, Food & Feeding Mechanism with Endostyle, T.S. of Pharynx [Practical-4].
- (2) Spermatogenesis & Oogenesis. [Practical-12]
- (3) Types of eggs. [Practical-13],

(4) Integumentary Derivatives- Glands, Claws, Hoofs, Nails & Horns.[Practical-11]

LIST OF INSTRUMENTS/CHEMICALS &

MATERIALS:

- (1) Light Microscope
- (2) Dissection Box, blood lancet, leishman stain, Spirit & Cotton. [Practical-7]
- (3) Saliva, Iodine (I_2), Starch-Solution, Cavity plate, Dropper.[Practical-6]

REFERENCE BOOKS

16-03-04-01-01-02-00

SEMESTER – II

List of Books for Unit -1 & 2

- 1 : Chordate Zoology.....E.L.Jordan & Dr.P.S.Verma
- 2 : Modern textbook of Zoology VertebratesR.L.Kotpal.
- 3 : Chordate Embryology.....P.S.Verma & V.K.Agraval
- 4 : A manual of practical Zoology, Vertebrates.....P.S.Verma
- 5 : Practical Zoology, Vertebrates.....S.S.Lal

List of Books for Unit - 3

- 5 : Animal Physiology.....P.K.Gupta.
- 6 : Animal Physiology.....V.K.Agrawal.
- 7 : Animal Physiology.....M.P.Arora
- 8 : A textbook of Animal Physiology.....Tyagi Prasm
- 9 : Human Physiology, Vol- I & II.....Chatterjee C.C.
- 10 : A text book of Animal Physiology.....A.K.Berry & K.Berry
- 11 : Animal Physiology & Bio-Chemistry.....R.A.Aggrawal & Anil k. Shrivastva & Kaushal Kumar

- 12 : Chordate Embryology.....P.S.Verma & V.K.Agraval

List of Books for Unit – 4

- 13 : Wild Life of Gujarat.....H.S.Singh.
- 14 : Indian National Parks and Sanctuaries.....Khati & Annand S.
- 15 : Modern textbook of Zoology Vertebrates.....R.L.Kotpal
- 16 : Vertebrate Zoology.....E.L.Jordan & Dr.P.S.Verma
- 17 : Practical Zoology Vertebrate.....S.S.Lal

List of Books for Viva-Voices

- 18 : Practical Zoology Invertebrate.....S.S.Lal
- 19 : Practical Zoology Vertebrate.....S.S.Lal

List of Books for Unit – 5

- 20 : Reproductive Physiology.....A.V.Nalbandow.
21 : Chordate Zoology.....E.L.Jordan & Dr.P.S.Verma
22 : Modern textbook of Zoology VertebratesR.L.Kotpal.
23 : Animal Physiology.....M.P.Arora
24 : Animal Physiology & Bio-Chemistry.....R.A.Aggrawal &
Anil k. Shrivastva & Kaushal Kumar

List of Books for Viva-Voice

- 25 : Practical Zoology Invertebrate.....S.S.Lal
26 : Practical Zoology Vertebrate.....S.S.Lal