

Krantiguru Shyamji Krishna Verma

Kachchh University

Mundra Road

Bhuj – 370001

SYLLABUS

B.Sc Semester IV: (Four)

ZOOLOGY

Two papers:

Semester - IV
ZO-405: Animal Diversity, Parasitology and Genetics.
ZO-406: Animal adaptations, Zoogeography and Developmental biology.



KSKV Kachchh University, Bhuj
ZOOLOGY Syllabus
Semester-IV

(Theory)

ZO-405: Animal Diversity, Parasitology and Genetics

Total Marks: 60

UNIT I: Animal diversity (Chordata)

(15 Marks)

Study of following chordate groups along with their salient features, classification from Kingdom to Order along with suitable examples;

- i. Reptiles
- ii. Aves
- iii. Mammals

UNIT II: Type study – Chordata (through charts/ models/ multimedia) (15 Marks)

Calotis (*Calotis versicolor*): Indian Garden lizard

- i. External characters
- ii. Digestive system
- iii. Circulatory system
- iv. Mounting – Pectin and Hyoid apparatus

UNIT III: Human Parasitology

(15 Marks)

1. Basic Terminologies: Parasite, Host and Parasitology (Only for short questions)
2. Types of Parasites: Facultative, Obligate, Endoparasites and Ectoparasites
3. Types of Hosts: Principal, Intermediate and Reservoir
4. Study of life cycle and pathogenicity for following human parasites;
 - i. *Plasmodium vivax*
 - ii. *Faciola hepatica* (Liver fluke)

UNIT IV: Genetics

(15 Marks)

1. Sex linked inheritance
 - a. Eye colour in drosophila
 - b. Colorblindness in humans
 - c. Hemophilia in humans
2. Crossing over: Mechanism of crossing over
3. Linkage : Linkage in drosophila



Reference Books:

Modern Text book of Vertebrates by R. L. Kotpal, Rastogi Publication, Meerut

Genetics by P. K. Gupta

The Structure of the Question Paper for the University exam

Semester IV (Zoology) Paper no: 405

Total Mark: 60 (Total 4 units each carries 15 Marks)

Total Number of Question: 04

Question No.	Sub Question	Question Type	Mark
Question 1 Unit I	A	*Short question (no internal option)	05
	B	Descriptive Questions with Internal Option	10
Question 2 Unit II	A	*Short question (No internal Option)	05
	B	Descriptive Questions with Internal Option	10
Question 3 Unit III	A	*Short question (No internal Option)	05
	B	Descriptive Questions with Internal Option)	10
Question 4 Unit IV	A	*Short question (No internal Option)	05
	B	Descriptive Questions with Internal Option	10

Note: * Short questions may include: one to two line question/ definition/ drawing small figures/ filling the blanks/ multiple choice question/ match the pairs etc)



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Zoology Syllabus as CBCS System

Zoology Semester –IV (PRACTICALS)

CEZO 405: Animal Diversity, Parasitology and Genetics

Identification and classification upto order giving reasons (Practical 1-3)

Practical 1: Classification of Reptiles: Calotis, house lizard, gecko, Cobra, rat snake, Saw scaled viper, Chameleon, Crocodile, Tortoise, Turtle, Varanus, Mabuya, spiny tailed lizard

Practical 2: Classification of Aves: Pigeon, Sparrow, Kite, Vulture, Hoopoe, Green bee eater, Goose, Partridge, Crane, Kingfisher, Parakeet, Owl, Crow, Lapwing, Swift.

Practical 3: Classification of Mammals: Hedgehog, Flying fox, Human, Dog, Blue-whale, Blue bull, Elephant, Dugong, Squirrel, Indian hare, Pangolin

Practical 4: Study of external characters of Calotis

Practical 5: Study of Digestive system of Calotis

Practical 6: Study of Circulatory system of Calotis

Practical 7: Mounting (Pecten and Hyoid apparatus)

Practical 8: Study of human parasites: *Plasmodium vivax*, Liver fluke, Anopheles and culex mosquitoes, tape worm, mites, hair louse. (*Short description, type of parasite/host and its parasitic effects for each*)

Practical 9: To solve the problems of sex linked inheritance Eye color in drosophila

Practical 10: To solve the problems of sex linked inheritance Colorblindness in Human

Practical 11: To solve the problems of sex linked inheritance Hemophilia in Human

Local field excursion – Report submission

Journal Submission



Instructions:

- ***The Zoological excursion is compulsory to study the ecosystem, Animal behavior and their life style for the students.*** Excursion report is mandatory for all the students and marks will be calculated in practical examination
- This is compulsory to record laboratory work in the journal. The journal is to be certified by the incharge concerned and the Head of the Department. Certified journal should be produced while appearing at the time of Practical examination.

KSKV Kachchh University, Bhuj - Kachchh
(SKELETON QUESTION PAPER FOR PRACTICAL EXAMINATION)

ZOOLOGY 405: Animal Diversity, Parasitology and Genetics

Date: _____

Total Marks: 30

Time: 4 hours

Q.1 Draw/Demonstrate & explain the _____ system of the given animal to examiner. 07

Q.2 Show how to prepare temporary mounting of _____ from calotis and show to examiner. 03

Q.3 Solve the given problem of sex linked inheritance 03

Q.3 Identify specimens 1 to 5 as per instructions: 10

1. Identify and classify giving reason
2. Identify and classify giving reason
3. Identify and describe
4. Identify and do as directed
5. Identify and do as directed

Q.4. Viva voice 02

Q. 5 Report /submission(local field excursion) 02

Q.5 Journal 03



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Zoology Syllabus as CBCS System
Zoology Semester –IV (THEORY)

CEZO-406: Animal adaptations, Zoogeography and Developmental biology

Unit I: Adaptations

Introduction to adaptation. Details of following adaptations with suitable examples

1. Arboreal Adaptation
2. Aquatic adaptation
3. Cursorial adaptation
4. Fossorial adaptation

Unit II: Animal behavior

1. Parental care – in general
 - a. Case studies Pisces, amphibians, reptiles and mammals
2. Adaptation of feet in Birds
3. Adaptation of beak in birds
4. Variation and Mimicry
5. Darwin theory of Natural selection

Unit III: Zoogeography

1. Introduction
2. Brief account of Zoogeographical realms with mammalian fauna
 - i. Australian Region
 - ii. Oriental Region
 - iii. Neotropical Region
 - iv. Ethiopian Region
 - v. Nearctic Region
 - vi. Palearctic Region

Unit IV: Developmental biology

1. Types of eggs (with examples) and cleavage
2. Fertilization and parthenogenesis
3. Blastulation and Gastrulation
4. Three germ layers
5. Organogenesis

Reference books:

Modern Text book of Vertebrates by R. L. Kotpal
Genetics by P. K. Gupta
A Manual of Zoology Vol. I & II by Ekambernath Ayar



The Structure of the Question Paper for the University exam

Semester IV (Zoology) Paper no: CEZO 406

Total Mark: 60 (Total 4 units each carries 15 Marks)

Total Number of Question: 04

Question No.	Sub Question	Question Type	Mark
Question 1 Unit I	A	*Short question (no internal option)	05
	B	Descriptive Questions with Internal Option	10
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Question 3 Unit III	A	*Short question (No internal Option)	05
	B	Descriptive Questions with Internal Option	10
Question 4 Unit IV	A	*Short question (No internal Option)	05
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Note: * Short questions may include: one to two line question/ definition/ drawing small figures/ filling the blanks/ multiple choice question/ match the pairs etc)



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Zoology Syllabus as CBCS System

Zoology Semester –IV

(PRACTICAL)

CEZO-406: Animal adaptations, Zoogeography and Developmental biology

Practical 1: Study of Arboreal adaptations with suitable examples

Practical 2: Study of Aquatic adaptations with suitable examples

Practical 3: Study of Cursorial adaptations with suitable examples

Practical 4: Study of Fossorial adaptations with suitable examples

Practical 5: Study Parental care in different animals with suitable examples

Practical 6: Study of various types of feet in birds

Practical 7: Study of various types of beaks in birds

Practical 8: Marking various zoogeographic zones on the map. (*Using world map*)

Practical 9: Zoogeographic distribution of mammalian fauna on map. (*Using world map*)

Practical 10: To study the embryonic developments of i). Egg type ii). Cleavage iii). Blastulation and Gastrulation (*Using permanent slides and/or charts*)

Local field visits to study animal adaptations and behavior.

Journal submission

Instructions:

- *The Zoological excursion is compulsory to study the ecosystem, Animal behavior and their life style for the students.*
- *Excursion report is mandatory for all the students and marks will be calculated in practical examination*
- *This is compulsory to record laboratory work in the journal. The journal is to be certified by the incharge concerned and the Head of the Department. Certified journal should be produced while appearing at the time of Practical examination.*



KSKV Kachchh University, Bhuj - Kachchh
(SKELETON QUESTION PAPER FOR UNIVERSITY PRACTICAL
EXAMINATION)

ZOOLOGY 406: Animal adaptations, Zoogeography and Developmental biology

Date: _____

Total Marks: 30

Time: 4 hours

- | | |
|---|----|
| Q.1 Mark the given Zoogeographic zones on the given world map. | 05 |
| Q.2. Mark the Zoogeographic animal distribution on the given world map. | 04 |
| Q.3. Identify specimens 1 to 6 as per instructions: | 12 |
| <div style="margin-left: 40px;"><ol style="list-style-type: none">1. Identify animal and write about its adaptation2. Identify animal and write about its adaptation3. Identify animal and write about its parental care4. Do as directed - type of feet5. Do as directed – type of beak6. Do as directed – Egg type/cleavage/ gastrulation/blastulation</div> | |
| Q.4. Viva voice | 03 |
| Q. 5 Report /submission | 03 |
| Q.6 Journal | 03 |

