

B.Sc Zoology
SEM II, IV, VI
PRACTICAL SYLLABUS

PRACTICAL PAPERS

Semester	Batch	Paper	Subject	Alloted Teacher
Sem II	HONS	CC-3	Non- Chordates II LAB	Souren Dutta
				Piyali Pakhira
				Sudha Anjella Dhan
		CC-4	Cell Biology LAB	Eureka Mondal
				Palas Kanti Manna
				Baisakhi Saha
	GEN	GE/CC-2	COMPARATIVE ANATOMY AND DEVELOPMENTAL BIOLOGY OF VERTEBRATES LAB	Eureka Mondal
				Piyali Pakhira
				Souren Dutta
SEM IV	HONS	CC-8	Comparative Anatomy of Vertebrates LAB	Piyali Pakhira
				Souren Dutta
		CC-9	Animal Physiology: Life Sustaining Systems LAB	Baisakhi Saha
				Palas Kanti Manna
		CC-10	Immunology LAB	Sudha Anjella Dhan
				Eureka Mondal
	GEN	GE/CC-4	GENETICS AND EVOLUTIONARY BIOLOGY LAB	Eureka Mondal
Souren Dutta				
Sem VI	HONS	CC 13	Developmental Biology LAB	Eureka Mondal
				Piyali Pakhira
		CC-14	Evolutionary Biology LAB	Souren Dutta
				Sudha Anjella Dhan
		DSE-3	Animal Behaviour LAB	Piyali Pakhira
				Sudha Anjella Dhan
		DSE-4	Endocrinology LAB	Baisakhi saha
				Palas Kanti Manna
	GEN	DSE-2	IMMUNOLOGY LAB	Sudha Anjella Dhan
			Eureka Mondal	

SEM 2(Honours)

CC -P3 Non- Chordates II Lab	1. Spot identification of following specimens (based on specimen characters): a. Annelids- <i>Aphrodite, Nereis, Heteronereis, Sabella, Chaetopterus, Pheretima, Hirudinaria</i> b. Arthropods- <i>Carcinoscorpius, Palamnaeus, Palaemon, Daphnia, Balanus, Sacculina, Cancer, Eupagurus, Scolopendra, Julus, Bombyx, Periplaneta, Odontotermes</i> and <i>Apis</i> c. Onychophora- <i>Peripatus</i>	PP
	d. Molluscs - <i>Chiton, Dentalium, Pila, Doris, Helix, Lamellidens, Ostrea, Pinctada, Sepia, Octopus, Nautilus</i> e. Echinoderms- <i>Pentaceros/Asterias, Ophiura, Clypeaster, Echinus, Cucumaria</i> and <i>Antedon</i>	SND
	f. Hemichordates - <i>Balanoglossus</i>	SND
	2. Study of digestive system, septal nephridia and pharyngeal nephridia of earthworm using model and chart	SRD
	3. T.S. through pharynx, gizzard, and intestine at typhlosolar region of earthworm	PP
	4. Mount of mouth parts and study of digestive system and nervous system of <i>Periplaneta</i>	PP
	5. To submit a Project Report on any related topic on larval forms (arthropods, mollusc)	SRD
Examination Pattern: Dissection (From item No. 2 and/or 4) any one (8 ×1) = 08 Spot identification (any four)----- (2×4) =08 Project Report----- = 02 Laboratory Note Book -----= 02		

CC P4– Cell Biology Lab	1. Preparation of temporary stained squash of onion root tip to study various stages of mitosis .	BS
	2. Squash preparation of grasshopper testis and study of the various stages of meiosis	PKM
	3. Preparation of permanent slide to show the presence of Barr body in human female blood cells/cheek cells.	EM
	4. Study of cell viability by Trypan Blue staining from onion root tip/ blood cell.	PKM
Examination Pattern: 1 question on squash preparation from Item No. 1 or 2 ----- (6X 1) = 06 Preparation of slide (From Item 3 or 4) ----- (4X 1) = 04 Identification of stages of mitosis and meiosis----- (2X4) = 08 Laboratory Note Book ----- = 02		

SEM 2(General)

GE/CC 2 COMPARATIVE ANATOMY AND DEVELOPMENTAL BIOLOGY OF VERTEBRATES LAB	1.a) Identification of limb bones and girdles of <i>Columba</i> and <i>Cavia</i> b) Mammalian skulls: <i>Cavia</i> and <i>Canis</i> .	SRD
	2. Frog - Study of developmental stages - whole mounts and sections through permanent slides or photomicrographs – cleavage stages, blastula, gastrula, neurula, tail bud stage, tadpole external and internal gill stages.	EM
	3. Study of the different types of placenta- histological sections through permanent slides or photomicrographs.	PP
	4. Examination of gametes - frog/rat - sperm and ova through permanent slides or photomicrographs.	PP
Examination Pattern: Spot identification (5 from item 1) -----(5 × 2) = 10 Spot identification (4 from item 2, 3 &4) -----(4 × 2) = 08 Laboratory Note Book ----- =02		

SEM 4(Honours)

CC P8– Comparative Anatomy of Vertebrates Lab	1. Mounting of cycloid and ctenoid scales	PP
	2. Study of disarticulated skeleton of Toad, Pigeon and Guineapig	SRD
	3. Demonstration of Carapace and plastron of turtle from model/chart	PP
	4. Identification of mammalian skulls:One herbivorous(Guineapig) and one carnivorous animal (Dog)	SRD
	5. Study and Dissection of Afferent arterial system, brain, pituitary in Carp	PP

Examination Pattern:

One question on Dissection (Item No. 5) ----- (8X 1) = 08

One question (From Item No. 1) -----(4 X 1)= 04

Spot Identification of three Specimen (from item 2,3,and 4) -----(2X3) = 06

Laboratory Note Book ----- = 02

CC P9– Animal Physiology: Life Sustaining Systems Lab	1. Determination of ABO Blood group	BS
	2. Enumeration of red blood cells and white blood cells using haemocytometer	PKM
	3. Estimation of haemoglobin using Sahli's haemoglobinometer	PKM
	4. Preparation of haemin crystals	PKM
	5. Recording of blood pressure using a sphygmomanometer	BS

Examination Pattern:

One Experiment from Item No. 3 or 4 ----- (6X 1) = 06

One Experiment from Item No. 2 ----- (7X 1) = 07

One experiment from Item No. 1 or 5 -----(1 X5) = 05

Laboratory Note Book ----- = 02

CC P10– Immunology Lab	1. Demonstration of lymphoid organs in human through model/ photograph.	SND
	2. Histological study of spleen, thymus and lymph nodes through slides/photographs	SND
	3. Preparation of stained blood film to study various types of blood cells.	EM
	4. Total count (TC) & Differential count (DC) of WBC	EM
	5. Demonstration of ELISA by available teaching kit	EM,SND
Examination Pattern: One Experiment from Item No. 3 or 4 ----- (10X 1) = 10 Identification of slides/ photographs/apparatus (item 1, 2, 5) (any two) (2 X4) = 08 Laboratory Note Book ----- = 02		

SEM 4(General)

GE/CC-4 Genetics and Evolutionary Biology LAB	1. Study of Mendelian Inheritance and gene interactions using suitable examples. Verify the results using Chi-square test.	EM
	2. Study of Linkage, recombination, gene mapping using the data.	EM
	3. Study of Human Karyotypes; normal and abnormal (Turner's, Down's and Klinefelter syndrome) from photographs.	EM
	4. Study of fossil evidences from plaster cast models /pictures	SRD
	5. Study of homology and analogy from suitable specimens/ pictures	SRD
	6. Charts: a) Phylogeny of horse with diagrams/ cut outs of limbs and teeth of horse ancestors b) Darwin's Finches with diagrams/ cut outs of beaks of different species	SRD
	7. Visit to any Zoological Museum and submission of report	EM
Examination Pattern: One question from Item No. 1 ----- (5 × 1) = 05 One question from Item No. 2 ----- (5× 1) = 05 Identification any three from Item No. 3, 4, 5 & 6 (2 × 3) = 06 Excursion Report _____ = 02 Laboratory Note Book ----- = 02		

SEM 6(Honours)

CC P13– Developmental Biology Lab	1. Identification of whole mounts of developmental stages of chick through permanent slides: Primitive streak (13 to 18 hours), 21-33h, 36-48h and 72-96 hours of incubation (Hamilton and Hamburger stages)	PP
	2. Study of the developmental stages and lifecycle of Drosophila from stock culture	PP
	3. Study and identification of different sections of placenta (through photo micrograph/slides)	EM
	4. Project report on Drosophila culture/chick embryo development	EM

Examination Pattern:

One question from Item No. 2 ----- (6 X 1) = 06

Identification any four from Item No.1 and 3 (2 X 4) = 08

Project report ----- = 04

Laboratory Note Book ----- = 02

CC P14– Evolutionary Biology	1. Study of fossils from models/pictures	SND
	2. Study of homology and analogy from suitable specimens	SRD
	3. Study and verification of Hardy-Weinberg Law by chi-square analysis	SND
	4. Graphical representation and interpretation of data of height /weight of a sample of 100 humans in relation to the age and sex.	SRD

Examination Pattern:

One question from Item No. 3 ----- (8 X 1) = 08

One question from Item No. 4 ----- (6X 1) = 06

Identification any two from Item No. 1 and 2 -----(2 X 2) = 04

Laboratory Note Book ----- = 02

DSE P5 – Animal Behaviour Lab	1. Study of nests and nesting habits of the birds and social insects.	PP
	2. Study of the behavioral responses of woodlice to dry and humid conditions.	SND
	3. Study of geotaxis behaviour in earthworm.	PP
	4. Study of photo taxis behaviour in insect larvae.	SND
	5. Visit to Forest/Wildlife Sanctuary/Biodiversity Park/Zoological Park to study behavioural activities of animals and prepare a short report.	
	6. Study and actogram construction of locomotor activity of suitable animal models.	SND
	7. Study of circadian functions in humans (daily eating, sleep and temperature patterns).	PP

Examination Pattern:

One question from Item No. 1, 2, 3 and 4 ----- (5X 1) = 05

One question from Item No. 6 ----- (5X 1) = 05

One question from Item No. 7 ----- (5X 1) = 05

Excursion Report ----- = 03

Laboratory Note Book ----- = 02

DSE P7 – Endocrinology Lab	1. Dissect and display of Endocrine glands in laboratory bred rat.	PKM
	2. Study of the permanent slides of all the endocrine glands (Thyroid, Adrenal, Pancreas, Testis and Ovary)	BS
	3. Tissue fixation, embedding in paraffin, microtomy and slide preparation of any endocrine gland	PKM
	4. Demonstration of hormone assay through ELISA from available teaching kit	BS
<p>Examination Pattern: One question from Item No. 3 ----- (7 X 1) = 07 One question from Item No. 1 and 4 ----- (5X 1) = 05 Identification of two specimens from item no.2 ----- (2 X 3) = 06 Laboratory Note Book ----- = 02</p>		

SEM 6(General)

DSE 2 IMMUNOLOGY LAB	1. Demonstration of lymphoid organs in human through model/ photograph.	EM
	2. Histological study of spleen, thymus and lymph nodes through slides/photographs	EM
	3. Preparation of stained blood film to study various types of blood cells.	SND
	4. ABO blood group determination	SND
Examination Pattern: One Experiment from Item No. 3 ----- (10 × 1) = 10 One Experiment from Item No. 4 ----- (6× 1) = 04 Identification of slides/ photographs (Two)----- (2 × 2) = 04 Laboratory Note Book ----- = 02		