

**DEPARTMENT OF ZOOLOGY**  
**LESSION PLAN**  
**SESSION 2023-24**  
**SEMESTER – III**

**NAME OF TEACHER: DR. SUTAPA BISWAS**

**PAPER ALLOTTED: ZOOACOR06T, ZOOACOR06P, ZOOHGEC03T**

Month	Paper	Topic	No of classes
September 2023 (25.09.2023)	ZOOACOR06T	Unit 1 Tissue Structure, locations, classification and functions of epithelial tissues, connective tissues, muscular tissues and nerve tissues	4
October 2023 And November 2023	ZOOACOR06T	Unit 3 Nervous System Structure of neuron, resting membrane potential, Origin of action potential and its propagation across the myelinated and unmyelinated nerve fibers; Types of synapse, Synaptic transmission and Neuromuscular junction; Reflex action and its types	10
	ZOOACOR06P	1. Recording of simple muscle twitch with electrical stimulation (or Virtual) 2. Preparation of temporary mounts: Squamous epithelium, Striated muscle fibers and nerve cells	8
	ZOOHGEC03T	Unit 1 Introduction to Insects	2
		PUJA VACATION (19.10.2023 to 15.11.2023)	
November 2023	ZOOACOR06P	Study of permanent slides of Mammalian skin, Cartilage, Bone, Spinal cord, Nerve cell, Pituitary, Pancreas, Testis, Ovary, Adrenal, Thyroid 4. Microtomy: Preparation of permanent slide of any five (lung, salivary gland, stomach, small intestine, large intestine only) mammalian (white rat) tissues	10
	ZOOHGEC03T	Unit 3 Insects as Vectors	2
3rd Week of December 2023		REVISION	6
26.12.2023 to 02.01.2024 2 <sup>nd</sup> week of January 2024		Internal Examination & Class for Slow Learners	6
27.01.2024		End Semester Examination	
<b>Total Classes</b>		<b>Total Classes</b>	<b>46</b>

NAME OF TEACHER: DR. NITHAR RANJAN MADHU

PAPER ALLOTTED: ZOOACOR05T, ZOOACOR05P

Month	Paper	Topic	No of classes
September 2023 (25.09.2023)	ZOOACOR05T	Unit 2 Protochordata General characteristics and classification of sub-phylum Urochordata and Cephalochordata up to Classes. Metamorphosis in Ascidia Chordate Features and Feeding in Branchiostoma	4
October 2023 And November 2023	ZOOACOR05T	Unit 4: Agnatha General characteristics and classification of cyclostomes up to order	2
	ZOOACOR05T	Unit 6: Amphibia General characteristics and classification up to living Orders Metamorphosis and parental care in Amphibia	4
		PUJA VACATION (19.10.2023 to 15.11.2023)	
November 2023	ZOOACOR05T	Unit 9: Mammals General characters and classification up to living orders Phylogenetic significance of Prototheria Exoskeleton derivatives of mammals Adaptive radiation in mammals with reference to locomotory appendages Echolocation in Microchiropterans and Cetaceans	10
December 2023	ZOOHGEC05P	1. Protochordata <i>Herdmania, Branchiostoma</i> , Colonial Urochordates; Sections of <i>Balanoglossus</i> through proboscis and branchiogenital regions, Sections of <i>Amphioxus</i> through pharyngeal, intestinal and caudal regions, <i>Herdmania</i> spicules 2. Agnatha  <i>Petromyzon, Myxine</i> 4. Amphibia  <i>Ichthyophis/Ureotyphlus, Necturus, Bufo, Hyla, Alytes, Salamandra</i> 7. Mammalia  <i>Sorex, Bat (Insectivorous and Frugivorous), Funambulus, Loris, Herpestes, Erinaceous.</i>	16
3rd Week of December 2023		REVISION	6
26.12.2023 to 02.01.2024 2 <sup>nd</sup> week of January		Internal Examination & Class for Slow Learners	6

<b>2024</b>			
<b>27.01.2024</b>		<b>End Semester Examination</b>	
<b>Total Classes</b>		<b>Total Classes</b>	<b>48</b>

**NAME OF TEACHER: DR. SOUMOSISH PAUL**

**PAPER ALLOTTED: ZOOACOR05T, ZOOACOR06T, ZOOHGEC03T**

<b>Month</b>	<b>Paper</b>	<b>Topic</b>	<b>No of classes</b>
<b>September 2023 (25.09.2023)</b>	<b>ZOOACOR05T</b>	<b>Unit 1: Introduction to Chordates General characteristics and outline classification of Phylum Chordata</b>	<b>4</b>
<b>October 2023 And November 2023</b>	<b>ZOOACOR05T</b>	<b>Unit 8: Aves General characteristics and classification up to Sub-Classes Exoskeleton and migration in Birds Principles and aerodynamics of flight</b>	<b>4</b>
	<b>ZOOACOR05P</b>	<b>5. Reptilia Chelone, Trionyx, Hemidactylus, Varanus, Uromastix, Chamaeleon, Ophiosaurus, Draco, Bungarus, Vipera, Naja, Hydrophis, Zamenis, Crocodylus Key for Identification of poisonous and non-poisonous snakes 6. Aves  Study of six common birds from different orders (Stork, Owl/Falcon, Sun Bird, Jacanna, Duck)- types of beaks and claws.</b>	<b>10</b>
	<b>ZOOACOR06T</b>	<b>Unit 2: Bone and Cartilage Structure and types of bones and cartilages, Ossification</b>	<b>4</b>
	<b>ZOOHGEC03T</b>	<b>Unit 5 Siphonaptera as Disease Vectors Fleas as important insect vectors; Host-specificity, Study of Flea-borne diseases – Plague, Typhus fever; Control of fleas</b>	<b>6</b>
		<b>PUJA VACATION (19.10.2023 to 15.11.2023)</b>	
<b>November 2023</b>	<b>ZOOACOR06T</b>	<b>Unit 4: Muscular system Histology of different types of muscle; Ultra structure of skeletal muscle; Molecular and chemical basis of muscle contraction; Characteristics of muscle fiber</b>	<b>4</b>
<b>December 2023</b>	<b>ZOOHGEC03T</b>	<b>Unit 3 Insects as Vectors</b>	<b>2</b>
	<b>ZOOHGEC03T</b>	<b>Unit 6 Siphunculata as Disease Vectors Human louse (Head, Body and Pubic louse) as important insect vectors; Control of human louse</b>	<b>4</b>
	<b>ZOOHGEC03T</b>	<b>Unit 7 Hemiptera as Disease Vectors Bugs as insect vectors; Blood-sucking bugs; Chagas disease, Bed bugs as mechanical vectors, Control and prevention measures</b>	<b>4</b>

3rd Week of December 2023	EDCACOR06T	REVISION	6
26.12.2023 to 02.01.2024 2 <sup>nd</sup> week of January 2024		Internal Examination & Class for Slow Learners	6
27.01.2024		End Semester Examination	
Total Classes			54

NAME OF TEACHER: DR. PHULJHURI CHAKRABORTY

PAPER ALLOTTED: ZOOACOR06T, ZOOACOR06P

Month	Paper	Topic	No of classes
September 2023 (25.09.2023)	ZOOACOR06T	Unit 5: Reproductive System Histology of testis and ovary; Physiology of Reproduction	6
October 2023 And November 2023	ZOOACOR06T	Unit 6: Endocrine System 16 Histology and function of pituitary, thyroid, pancreas and adrenal; Classification of hormones; Mechanism of Hormone action; Signal transduction pathways for Steroidal and Non steroidal hormones; Hypothalamus (neuroendocrine gland) - principal nuclei involved in neuroendocrine control of anterior pituitary and endocrine system; Placental hormones	8
		PUJA VACATION (19.10.2023 to 15.11.2023)	
November 2023 And December 2023	ZOOACOR06P	3. Study of permanent slides of Mammalian skin, Cartilage, Bone, Spinal cord, Nerve cell, Pituitary, Pancreas, Testis, Ovary, Adrenal, Thyroid 4. Microtomy: Preparation of permanent slide of any five (lung, salivary gland, stomach, small intestine, large intestine only) mammalian (white rat) tissues	12
3rd Week of December 2023		REVISION	6
26.12.2023 to 02.01.2024 2 <sup>nd</sup> week of January 2024		Internal Examination & Class for Slow Learners	6

27.01.2024		End Semester Examination	
Total Classes			38

NAME OF TEACHER: GOUTAM BISWAS

PAPER ALLOTTED: ZOOACOR07T, ZOOACOR07P, ZOOHGEC03T

Month	Paper	Topic	No of classes
September 2023 (25.09.2023)	ZOOACOR07T	Unit 1: Fundamentals of biochemical reactions and metabolism Ionization of water, weak acids and bases, buffering and pH changes in living systems Metabolism: Catabolism and Anabolism, Compartmentalization of metabolic pathways, Shuttle systems and membrane transporters; ATP as "Energy Currency of cell"; coupled reactions; Use of reducing equivalents and cofactors; Intermediary metabolism and regulatory mechanisms.	4
October 2023 And November 2023	ZOOACOR07T	Unit 4: Proteins Amino acids Structure, Classification, General and Electro chemical properties of $\alpha$ -amino acids; Physiological importance of essential and non-essential amino acids Proteins Bonds stabilizing protein structure; Levels of organization Protein metabolism: Transamination, Deamination, Urea cycle, Fate of C-skeleton of Glucogenic and Ketogenic amino acids.	6
	ZOOACOR07T	Unit 5: Nucleic Acids Structure: Purines and pyrimidines, Nucleosides, Nucleotides, Nucleic acids Types of DNA and RNA, Complementarity of DNA, Hypo- Hyperchromaticity of DNA Outlines of nucleotide metabolism	6
		PUJA VACATION (19.10.2023 to 15.11.2023)	
November 2023	ZOOACOR07P	1. Qualitative tests of functional groups in carbohydrates, proteins and lipids. 2. Paper chromatography of amino acids. 3. Quantitative estimation by Lowry Method 4. Demonstration of proteins separation by SDS-PAGE. 5. Study of the enzymatic activity of Trypsin and Lipase. 6. Performing the Acid and Alkaline phosphatase assay from serum/ tissue.	10
December 2023	ZOOHGEC03T	Unit 2 Brief introduction to Vectors (mechanical and biological), Reservoirs, Host-vector relationship, Adaptations as vectors, Host specificity	2
	ZOOHGEC03T	UNIT 4 Study of important Dipteran vectors – Mosquitoes, Sand fly, Houseflies Study of mosquito-borne diseases – Malaria, Dengue, Chikungunya, Viral encephalitis, Filariasis Control of mosquitoes	8
3rd Week of December 2023		REVISION	6

26.12.2023 to 02.01.2024 2 <sup>nd</sup> week of January 2024		Internal Examination & Class for Slow Learners	6
27.01.2024		End Semester Examination	
Total Classes			48

NAME OF TEACHER: DIPTAK CHAKROBORTY

PAPER ALLOTTED: ZOOACOR07T, ZOOACOR07P, SEC

Month	Paper	Topic	No of classes
September 2023 (25.09.2023)	ZOOACOR07T	Unit 2: Carbohydrates Structure and Biological importance: Monosaccharides, Disaccharides, Polysaccharides; Derivatives of Monosachharides Carbohydrate metabolism: Glycolysis, Citric acid cycle, Pentose phosphate pathway, Gluconeogenesis	4
October 2023 And November 2023	ZOOACOR07T	Unit 3: Lipids Structure and Significance: Physiologically important saturated and unsaturated fatty acids, Triacylglycerols, Phospholipids, Sphingolipid, Glycolipids, Steroids, Eicosanoids and terpinoids. Lipid metabolism: $\beta$ -oxidation of fatty acids; Fatty acid biosynthesis	6
	ZOOACOR07T	Unit 6: Enzymes Nomenclature and classification; Cofactors; Specificity of enzyme action; Isozymes; Mechanism of enzyme action; Enzyme kinetics; Derivation of Michaelis-Menten equation, LineweaverBurk plot; Factors affecting rate of enzyme-catalyzed reactions; Enzyme inhibition; Allosteric enzymes and their kinetics; Strategy of enzyme action- Catalytic and Regulatory (Basic concept with one example each)	6
	ZOOACOR07T	Unit 7: Oxidative Phosphorylation Redox systems; Review of mitochondrial respiratory chain, Inhibitors and un-couplers of Electron Transport System	6
		PUJA VACATION (19.10.2023 to 15.11.2023)	
November 2023	ZOOACOR07P	1. Qualitative tests of functional groups in carbohydrates, proteins and lipids. 2. Paper chromatography of amino acids. 3. Quantitative estimation by Lowry Method 4. Demonstration of proteins separation by SDS-PAGE. 5. Study of the enzymatic activity of Trypsin and Lipase. 6. Performing the Acid and Alkaline phosphatase assay from serum/ tissue.	10
	SEC	SERICULTURE: INTRODUCTION	2
December 2023	SEC	SERICULTURE: BIOLOGY OF SILKWORM	4
	SEC	SERICULTURE: PESTS AND DISEASE	2
3rd Week of December		REVISION	6

2023			
26.12.2023 to 02.01.2024 2 <sup>nd</sup> week of January 2024		Internal Examination & Class for Slow Learners	6
27.01.2024		End Semester Examination	
Total Classes			52

NAME OF TEACHER: SHRINKA GHOSH

PAPER ALLOTTED: ZOOACOR05T, ZOOACOR05P

Month	Paper	Topic	No of classes
September 2023 (25.09.2023)	ZOOACOR05T	Unit 3: Origin of Chordata Dipleurula concept and the Echinoderm theory of origin of chordates Advanced features of vertebrates over Protochordata	4
October 2023 And November 2023	ZOOACOR05T	Unit 5: Pisces General characteristics and classification of Chondrichthyes and Osteichthyes up to Subclasses Accessory respiratory organ, migration and parental care in fishes Swim bladder in fishes. Classification up to Sub Classes	6
	ZOOACOR05T	Unit 7: Reptilia General characteristics and classification up to living Orders Poison apparatus and Biting mechanism in Snake	4
	ZOOACOR05T	Unit 10: Zoogeography Zoogeographical realms, Plate tectonic and Continental drift theory, Distribution of birds and mammals in different realms	4
		PUJA VACATION (19.10.2023 to 15.11.2023)	
November 2023	ZOOACOR05P	3. Fishes Scoliodon, Sphyrna, Pristis, Torpedo, Chimaera, Mystus, Heteropneustes, Labeo, Exocoetus, Echeneis, Anguilla, Hippocampus, Tetraodon, Anabas, Flat fish	3
	ZOOACOR05P	5. Reptilia Chelone, Trionyx, Hemidactylus, Varanus, Uromastix, Chamaeleon, Ophiosaurus, Draco, Bungarus, Vipera, Naja, Hydrophis, Zamenis, Crocodylus Key for Identification of poisonous and non poisonous snakes	4
December 2023	SEC	SERICULTURE: Unit 3 Rearing of Silkworm	4
	SEC	SERICULTURE: Unit 5 Entrepreneurship in sericulture	4
3rd Week of December 2023		REVISION	6
26.12.2023 to		Internal Examination & Class for Slow Learners	6

<b>02.01.2024</b> <b>2<sup>nd</sup> week of</b> <b>January</b> <b>2024</b>			
<b>27.01.2024</b>		<b>End Semester Examination</b>	
<b>Total Classes</b>			<b>45</b>