

Dept. of Zoology, Bankura Sammilani College

MODULE BREAKUP OF THE SYLLABUS

SESSION 2022-23

CLASS : Sem-I ( Zoology Programme)

(Theory Paper : T1- Animal Diversity)

Month	Topic
July – August - September	<b>Unit-1 Sub- Kingdom Protozoa</b> General characters and classification of Subkingdom Protozoa up to Phylum (Levine et al., 1980); Locomotory Organelles and locomotion in Protozoa
	<b>Unit-2 Phylum Porifera</b> General characters and classification up to classes (Hyman); Canal System in Sycon
	<b>Unit-3 Phylum Cnidaria</b> General characters and classification up to classes; Polymorphism in Siphonophora
	<b>Unit-4 Phylum Platyhelminthes</b> General characters and classification up to classes; Life history of Taenia solium
	<b>Unit-5 Phylum Nematoda</b> General characters and classification up to classes; Life history of Ascaris lumbricoides and its parasitic adaptations
	<b>Unit-6 Phylum Annelida</b> General characters and classification up to classes; Nephridia in annelids
	<b>Unit 7 Phylum Arthropoda</b> General characters and classification up to classes; Compound eye in Cockroach, Metamorphosis in insects

<p><b>October – November - December</b></p>	<p><b>. Unit-8 Phylum Mollusca</b> General characters and classification up to classes; Respiration in Pila , Torsion in gastropods.</p> <p><b>Unit-9 Phylum Echinodermata</b> General characters and classification up to classes; Water-vascular system in Asterias</p> <p><b>Unit-10 Hemichordata</b> General features; Chordate features of Balanoglossus.</p> <p><b>Unit-11 Urochordata and Cephalochordata</b> General features; Filter feeding in Branchiostoma</p> <p><b>Unit-12 Pisces</b> General features and Classification up to Subclasses (Romer, 1959); Osmoregulation in fishes</p> <p><b>Unit-13 Amphibia</b> General features and Classification up to living orders (Nobel 1924); Metamorphosis in Toad</p> <p><b>Unit-14 Reptiles</b> General features and Classification up to living Subclass (Young, 1981); Poisonous and non-poisonous snakes, Biting mechanism in snakes</p> <p><b>Unit-15 Aves</b> General features and Classification up to orders (Young, 1981); Volant adaptations in birds</p> <p><b>Unit-16 Mammals</b> Classification up to Subclasses (Young, 1981); Origin &amp; distribution of Cranial nerves in Cavia</p>
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**SESSION 2022-23**

**CLASS : Sem-I (Zoology Programme)**

**(Practical Paper : Animal Diversity)**

<b>Month</b>	<b>Topic</b>
<b>July – August - September</b>	1. Spot identification of the following specimens: Amoeba, Euglena, Paramecium, Sycon, Euspongia, Obelia, Physalia, Aurelia, Tubipora, , Taenia, Ascaris, Aphrodite, Nereis, Pheretima,, Palaemon, Limulus, Scolopendra, Julus,, Chiton, Dentalium, Unio, Loligo, Ophiura, Echinus, Cucumaria, Balanoglossus, Branchiostoma, Petromyzon, Torpedo, Labeo, Exocoetus, Ichthyophis, Salamandra, Hyla, Chelone, Chamaeleon, Draco, Naja, Passer, Alcedo, Pteropus, Funambulus, Bandicota
<b>October – November - December</b>	2. Identification of the transverse section of male and female Ascaris 3. Submission of a Project Report on ‘animal album” containing photographs, cut outs, with appropriate write up about any above mentioned taxa/ Different taxa/ topics may be given to different sets of students for this purpose

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**MODULE BREAKUP OF THE SYLLABUS**

**SESSION 2022-23**

**CLASS : Sem-III ( Zoology Programme)**

**(Theory Paper : Core T3 and SEC T1 )**

<b>Month</b>	<b>Topic</b>
<b>July – August - September</b>	<p><b>Core T3 Physiology and Biochemistry</b></p> <p><b>Unit 1: Digestion</b> Physiology of digestion in the alimentary canal; Absorption of carbohydrates, proteins, lipids</p> <p><b>Unit 2: Respiration</b> Pulmonary ventilation, Respiratory volumes and capacities, Transport of Oxygen and carbon dioxide in blood</p> <p><b>Unit 3: Cardiovascular system</b> Structure of Heart, Origin and conduction of the cardiac Impulse, Cardiac cycle, Composition of blood, Hemostasis</p> <p><b>Unit 4: Excretion</b> Structure of nephron, Mechanism of Urine formation, Counter-current Mechanism</p> <p><b>Unit 5: Nerve and muscle</b> Structure of a neuron, Resting membrane potential, Graded potential, Origin of Action potential and its propagation in myelinated and non-myelinated nerve fibres, Ultra-structure of skeletal muscle, Molecular and chemical basis of muscle contraction</p> <p><b>SEC T1 Apiculture (Economic Zoology)</b></p> <p>Unit 1: Biology of Bees</p> <ol style="list-style-type: none"><li>1. Classification and Biology of Honey Bees</li><li>2. Social Organization of Bee Colony</li></ol> <p>Unit 2: Rearing of Bees</p> <ol style="list-style-type: none"><li>1. Artificial Bee rearing (Apiary), Beehives - Newton and Langstroth</li><li>2. Bee Pasturage</li><li>3. Selection of Bee Species for Apiculture</li><li>4. Bee Keeping Equipment</li></ol>

<p><b>October – November - December</b></p>	<p><b>Core T3 Physiology and Biochemistry</b></p> <p><b>Unit 6: Reproduction and Endocrine Glands</b>          Physiology of male reproduction: hormonal control of spermatogenesis; Physiology of female reproduction: hormonal control of menstrual cycle          Pituitary, thyroid, Parathyroid, pancreas and adrenal: Structure and function.</p> <p><b>Unit 7: Carbohydrate Metabolism</b>          Glycolysis, Krebs Cycle, Pentose phosphate pathway, Gluconeogenesis, Glycogen metabolism, electron transport chain</p> <p><b>Unit 8: Lipid Metabolism</b>          Biosynthesis and <math>\beta</math> oxidation of palmitic acid</p> <p><b>Unit 9: Protein metabolism</b>          Transamination, Deamination and Urea Cycle</p> <p><b>Unit 10: Enzymes</b>          Introduction, Mechanism of action, Enzyme Kinetics, Inhibition and Regulation</p> <p><b>SEC T1 Apiculture (Economic Zoology)</b></p> <p>5. Methods of Extraction of Honey (Indigenous and Modern)</p> <p>Unit 3 Diseases and Enemies</p> <ol style="list-style-type: none"> <li>1. Bee Diseases and Enemies</li> <li>2. Control and Preventive measures</li> </ol> <p>Unit 4: Bee Economy</p> <p>Products of Apiculture Industry and its Uses (Honey, Bees Wax, propolis), Pollen etc</p> <p>Unit 5: Entrepreneurship in Apiculture</p> <p>Bee Keeping Industry – Recent Efforts, Modern Methods in employing artificial Bee hives for cross pollination in horticultural gardens</p>
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**MODULE BREAKUP OF THE SYLLABUS**

**SESSION 2022-23**

**CLASS : Sem-III (Zoology Programme)**

**(Practical Paper : Physiology and Biochemistry)**

<b>Month</b>	<b>Topic</b>
<b>July – August - September</b>	1. Preparation of haemin crystals 2. Identification of permanent histological sections of mammalian pituitary, thyroid, pancreas, adrenal gland 3. Identification of permanent slides of spinal cord, liver, lung, kidney, Cartilage, Bone
<b>October – November - December</b>	4. Qualitative tests for Glucose (Benedict's test) and Sucrose (Iodine test) 5. Estimation of total protein (Lowry's method.) 6. Study of activity of salivary amylase (Effect of Temperature) 7. Submission of Laboratory Note Book

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**MODULE BREAKUP OF THE SYLLABUS**

**SESSION 2022-23**

**CLASS : Sem-V ( Zoology Programme)**

**(Theory Paper : DSE T1 and SEC3)**

<b>Month</b>	<b>Topic</b>
<b>July – August - September</b>	<p><b>DSE T1 Applied Zoology</b></p> <p>Unit 1: Introduction to Host-parasite Relationship Host, Definitive host, Intermediate host, Parasitism, Symbiosis, Commensalism, Reservoir, Zoonosis</p> <p>Unit 2: Epidemiology of Diseases Transmission, Prevention and control of diseases: Tuberculosis, typhoid</p> <p>Unit 3: Rickettsiae and Spirochaetes Brief account of Rickettsia prowazekii, Borrelia recurrentis and Treponema pallidum</p> <p>Unit 4: Parasitic Protozoa Life history and pathogenicity of Entamoeba histolytica, Plasmodium vivax and Trypanosoma gambiense</p> <p>Unit 5: Parasitic Helminthes Life history and pathogenicity of Ancylostoma duodenale and Wuchereria bancrofti</p> <p><b>SEC T3 Sericulture (Economic Zoology)</b></p> <p>Unit 1: Introduction</p> <ol style="list-style-type: none"><li>1. Types of silkworms, Distribution and Races</li><li>2. Exotic and indigenous races</li><li>3. Mulberry and non-mulberry Sericulture</li></ol> <p>Unit 2: Biology of Silkworm</p> <ol style="list-style-type: none"><li>1. Life cycle of Bombyx mori</li><li>2. Structure of silk gland and secretion of silk</li></ol> <p>Unit 3: Rearing of Silkworms</p> <ol style="list-style-type: none"><li>1. Selection of mulberry variety and establishment of mulberry garden</li><li>2. Rearing house and rearing appliances..</li><li>3. Disinfectants: Formalin, bleaching powder, RKO</li><li>4. Silkworm rearing technology: Early age and Late age rearing</li><li>5. Types of mountages</li><li>6. Spinning, harvesting and storage of cocoons</li></ol>

<p><b>October – November - December</b></p>	<p><b>DSE T1 Applied Zoology</b></p> <p>Unit 6: Insects of Economic Importance Biology, Control and damage caused by <i>Helicoverpa armigera</i>, <i>Pyrilla perpusilla</i> and <i>Papilio demoleus</i>, <i>Callosobruchus chinensis</i>, <i>Sitophilus oryzae</i> and <i>Tribolium castaneum</i></p> <p>Unit 7: Insects of Medical Importance Medical importance and control of <i>Pediculus</i>, <i>Anopheles</i>, <i>Culex</i>, <i>Aedes</i>,</p> <p>Unit 8: Animal Husbandry Cattle breed, Preservation and artificial insemination in cattle</p> <p>Unit 9: Poultry Farming Principles of poultry breeding, Management of breeding stock and broilers, Processing and preservation of eggs, Deep litter system</p> <p>Unit 10: Fish Technology Genetic improvements in aquaculture industry; Induced breeding and transportation of fish seed</p> <p><b>SEC T3 Sericulture (Economic Zoology)</b></p> <p>Unit 4: Pests and Diseases</p> <ol style="list-style-type: none"> <li>1. Pests of silkworm</li> <li>2. Diseases: Protozoan, viral, fungal and bacterial</li> <li>3. Control and prevention of pests and diseases</li> </ol> <p>Unit 5: Entrepreneurship in Sericulture Prospectus of Sericulture in India: Sericulture industry in different states, employment, potential in mulberry and non-mulberry sericulture; Visit to sericulture centers.</p>
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**SESSION 2022-23**

**CLASS : Sem-V (Zoology Programme)**

**(Practical Paper : DSE T1 Applied Zoology Lab)**

<b>Month</b>	<b>Topic</b>
<b>July – August - September</b>	<ol style="list-style-type: none"><li>1. Identification of Plasmodium vivax, Entamoeba histolytica, Trypanosoma gambiense, Ancylostoma duodenale and Wuchereria bancrofti and their life stages through permanent slides/photomicrographs or specimens.</li><li>2. Identification of arthropod vectors associated with human diseases: Pediculus, Culex, Anopheles, Aedes</li><li>3. Identification of insect damage to different plant parts/stored grains through damaged products/photographs.</li></ol>
<b>October – November - December</b>	<p>Identifying feature and economic importance of Nilaparvata lugens, Apion corchori, Scirpophaga incertulus, Sitophilus oryzae and Tribolium castaneum</p> <ol style="list-style-type: none"><li>5. Visit to poultry farm or animal breeding centre. Submission of visit report</li><li>6. Maintenance of freshwater aquarium</li><li>7. Submission of laboratory note book</li></ol>