Satyaniketan’s

**Adv. M. N. Deshmukh Arts, Science and Commerce College, Rajur**

**Annual Teaching Planning 2022-2023**

**F.Y. B.Sc. Zoology** Semester I

**Subject Name -: ZO-111 Animal Diversity I**

**Teacher’s Name- Dr. B. K. Tapale**

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| **Sr. No.** | **Month** | **Topic** | **No. of Periods** |
|  | July 2022 | **1.Principles of Classification: Taxonomy & Systematics**  1.1 Taxonomy:  1.2 Systematics: definition introduction  1.3 Linnaean system of classification  1.4 Concept of Species: Biological & Evolutionary  1.5 Introduction to Binomial Nomenclature.  1.6 Introduction to Five kingdom system.  **2.General Features of kingdom Animalia**  2.1 General characters of Kingdom Animalia, Grades of organization  2.2 Symmetry. | (07) |
|  | August 2022 | **3.Kingdom Protista (Phylum: Protozoa)**  3.1 Introduction to Phylum Protozoa  3.2 Salient features of Phylum Protozoa  3.3 Classification of Phylum Protozoa up to classes with two examples of each class  3.4 Locomotion in Protozoa: Amoeboid, Ciliary and Flagellar with suitable examples  3.5 Type Study: Paramecium caudatum:  3.6. Economic importance of Protozoa  3.6.1-Harmful Protozoa:  3.6.2- Useful Protozoa: | (07) |
|  | September 2022 | **4.Origin of Metazoa**  4.1 Introduction Origin and importance of Metazoa  **5.Phylum Porifera**  5.1. Introduction to Phylum Porifera  5.2 Classification of Phylum Porifera up to classes with two examples of each class  5.3 Canal system in sponges  5.4 Skeleton in sponges: Spicules, its types:  5.5 Regeneration in sponges.  5.6 Economic importance of Phylum Porifera. | (07) |
|  | October 2022 | **6.Phylum: Cnidaria**  6.1 Introduction to Phylum Cnidaria  6.2 Salient features of Phylum Cnidaria  6.3 Classification of Phylum Cnidaria up to class level with given examples each class (names of examples only)  Class Hydrozoa e.g.: Hydra, Physalia (Portuguese man of war)  Class Scyphozoa e.g: Aurelia (Jelly fish), Leucernaria (trumpet shaped Jellyfish)  Class Anthozoa: e.g; Metridium (Common sea anemone0  6.4 Polymorphism in Hydrozoa: Polyps & Medusa (polyp types: gastrozooids, dactylozooids, gonozooids) and functions  6.5 Economic importance of Cnidarians with reference to Corals and Coral reefs. | (05) |
| 5. | November 2022 | **7.Phylum Platyhelminthes**  7.1 Introduction to Phylum Platyhelminthes  7.2 Salient features of Phylum Platyhelminthes  7.3 Classification of Phylum Platyhelminthes up to classes with two examples each class (names of examples only).  7.4 Parasitic adaptations in Platyhelminthes: structural and physiological.  7.5 Economic importance of Platyhelminthes | (04) |
| **Total** | | | **30** |

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**Adv. M. N. Deshmukh Arts, Science and Commerce College, Rajur**

**Annual Teaching Planning 2022-2023**

**S.Y. B.Sc. Zoology** Semester III

**Subject Name -: ZO-231 Animal Diversity III**

**Teacher’s Name- Dr. B. K. Tapale**

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| **Sr. No.** | **Month** | **Topic** | **No. of Periods** |
|  | July 2022 | **1. Introduction to Phylum Chordata – (03)**  1.1 Origin & Ancestry of Chordates.  1.2 Comparative account of fundamental characters of Chordates with Non Chordates.  1.3 Salient features of Phylum Chordata.  1.4 Classification of Phylum Chordata upto classes – Pisces, Amphibia, Reptilia, Aves,  Mammalia | 03 |
|  | August 2022 | **2. Introduction to Group – Protochordata. (03)**  2.1 Salient features of Protochordata.  2.2 Salient features of subphylumswith two example each - Names only.  Hemichordata – *Balanoglossus*and*Rhabdopleura*, Urochordata - *Herdmania*and*Salpa*,  Cephalochordata –*Branchiostoma*(Amphioxus) and*Asymmetron*.  **3. Introduction to subphylum – Vertebrata (02)**  3.1 Salient features of Vertebrata.  3.2 Introduction and General characters of sections with two examples - Names only.  Agnatha–*Petromyzon&Myxine*&Gnathostomata–Frog&*Labeo*. | 05 |
|  | September 2022 | **4. Introduction to Class – Pisces (04)**  4.1 Salient features of Class – Pisces.  4.2 Introductaionand Salient features of sections with two examples - Names only.  Class – Chondrichthyes–*Scoliodon*and *Chimaera*&Osteichthyes – *Labeo*and*Catla*  4.3 Types of Scales in Fishes.  4.4 Types of Fins in Fishes. | 04 |
|  | October 2022 | **5. Introduction to Class – Amphibia (03)**  5.1 Salient features of Class – Amphibia.  5.2 Introduction to order – Apoda–*Ichthyophis,*Urodela–*Salamandra*(Salamander) and&  Annura - *Rana*.  5.3 Parental care in Amphibia. | 03 |
| 5. | November 2022 | **6. Study of *Scoliodon* (15)**  *Scoliodon* – 6.1 - Systematic position, Geographical distribution, Habit, Habitat 01  6.2 - External characters 01  6.3 - Digestive System, Food and feeding mechanism. 02  6.4 - Respiratory System – Structure of Holobranch only. 02  6.5- External & Internal Structure of heart, Working of heart. 02  6.6 - Nervous System – Brain only. 03  6.7 - Male urinogenital system & Female reproductive System. 03 | 15 |
| **Total** | | | **30** |

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**Adv. M. N. Deshmukh Arts, Science and Commerce College, Rajur**

**Annual Teaching Planning 2022-2023**

**T.Y. B.Sc. Zoology** Semester V

**Subject Name -: ZO-355 Developmental Biology**

**Teacher’s Name- Dr. B. K. Tapale**

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| **Sr. No.** | **Month** | **Topic** | **No. of Periods** |
|  | July 2022 | **--** |  |
|  | August 2022 | -- |  |
|  | September 2022 | **1. Fundamentals of Developmental Biology:**  1.1 Definition and scope.  1.2 Concepts in Developmental Biology: Growth, Differentiation,  Dedifferentiation, Cell determination, Cell communication,  Morphogenesis, Induction and Regeneration.  **2. Theories of Developmental Biology:**  2.1 Preformation.  2.2 Pangenesis.  2.3 Epigenesis.  2.4 Axial gradient.  2.5 Germplasm. | 06 |
|  | October 2022 | **3. Gametogenesis:**  3.1 Spermatogenesis & Structure of sperm with respect to human.  3.2 Oogenesis & Structure of ovum with respect to human.  3.3 Types of eggs.  **4.Fertilization:**  4.1 Concept and types.  4.2 Chemotaxis.  4.3 Sperm penetration: Acrosome reaction, Capacitation & Decapacitation.  4.4 Activation of ovum: Fertilization cone.  4.5 Prevention of polyspermy: Fast block & Slow block.  4.6 Significance of fertilization. | 11 |
| 5. | November 2022 | |  |  | | --- | --- | | **5. Cleavage and Blastula:**  5.1 Planes and symmetry of cleavage.  5.2 Types of cleavage.  5.3 Significance of cleavage.  5.4 Definition and types of Blastula. |  | | **6. Gastrulation:**  6.1 Definition and Concept.  6.2 Basic cell movements in gastrulation: Epiboly, Emboly, Convergence,  Invagination, Ingression & Involution with reference to frog.  6.3 Concept of Organizer : Primary, Secondary and Tertiary. |  | | **7. Chick Embryology:**  7.1 Structure of Hen’s egg  *Savitribai Phule Pune University Page 14*   |  | | --- | | 7.2 Fertilization and cleavage in Chick.  7.3 Formation of primitive endoderm.  7.4 Primitive streak development.  7.5 Head process and regression of Primitive streak. | | | | 14 |
| **Total** | | | **30** |

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**Adv. M. N. Deshmukh Arts, Science and Commerce College, Rajur**

**Annual Teaching Planning 2022-2023**

**F.Y. B.Sc. Zoology** Semester II

**Subject Name -: ZO-121 Animal Diversity II**

**Teacher’s Name- Dr. B. K. Tapale**

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| **Sr. No.** | **Month** | **Topic** | **No. of Periods** |
|  | February 2023 | **1.Phylum Aschelminthes**  1.1 Introduction to phylum Aschelminthes  1.2 Salient features of Phylum Aschelminthes  1.3 Classification of Phylum Aschelminthes (Class Nematoda only with two examples – Ascaris lumbricoides (common round worm), Wuchereria bancrofti (Elephantiasis)).  1.4 Economic importance of class Nematoda. | 04 |
|  | March 2023 | **2.Phylum Annelida**  2.1 Introduction to Phylum Annelida  2.2 Salient features of Phylum Annelida.  2.3 Classification of Phylum Annelida up to classes with examples of following classes (names of examples only).  Class Polychaeta ( e.g: Nereis pelagica (neries/ sand worm, Aphrodita aculeata (=Aphrodite/ seamouse)  Class Oligochaeta (e.g.: Pheritima posthuma (earthworm),  Class Hirudinea (e.g: Hirudinaria granulosa common cattle leech)  2.4 Economic importance of Annelida with reference to earthworms as friends of farmers and in their role in vermicomposting. | 06 |
|  | April 2023 | **3.Phylum Arthropoda**  3.1 Introduction to Phylum Arthropoda  3.2 Salient features of Phylum Arthropoda  3.3 Classification of Phylum Arthropoda with specific classes and mentioned examples (names only)  Class:Crustacea:Palaemon palaemon (Prawn) Brachyura spp. crabs)  Class: Chilopoda: Scolopendra sp. (centipede)  Class: Diplopoda: Julus sp. (millipede)  Class Insecta*: Periplaneta americana* (American Cockroach), *Anopheles stephensii* (mosquito).  Class: Arachnida- Spiders, *Buthus sp (*scorpion)  3.4 mouth parts in insects: Mandibulate (cockroach), Piercing and sucking (female Anopheles mosquito), chewing and lapping type (honey bee)  3.5 Economic importance of Arthropoda  Useful Insects: Honey bee, Lac insect, Silkworm.  Harmful insects: Female Anopheles mosquito, Red cotton bug, Rice weevil  **4. Phylum Mollusca**  4.1 Introduction to Phylum Mollusca  4.2 Salient features of Phylum Mollusca  4.3 Classification of Phylum Mollusca with specific classes and mentioned examples (names only)  Class Gastropoda e.g Pila globosa (apple snail)  Class Pelecypoda e.g Lamellidens marginalis(Bivalve)  Class Polyplacophora e.g Chiton  Class: Cephalopodae.g: Octopus vulgaris (common octopus), Sepia  officinalis (common Cuttle fish)  4.4 Economic importance of Mollusca. | 12 |
|  | May 2023 | **5.Study of Phylum Echinodermata**  5.1 Introduction to Phylum Echinodermata  5.2 Salient features of Phylum Echinodermata.  5.3 Classification of Phylum Echinodermata with specific classes and mentioned examples (names only)  Class Asteroidea (Asterias rubens sea stars or starfish)  Class: Holothuroidea. Holothuria sp. sea cucumbers)  Class: Echinoidea (Echinus esculentis common sea urchins)  Class: Crinoidea (sea lilies or feather stars)  5.4 **Type study: *Asteriasrubens* (Sea Star):** Classification, Habit Habitat, External Morphology, Digestive system, Water vascular System and autotomy and regeneration  5.5 Pedicillaria in Echinodermata: straight, crossed, valvate, tridactylous, globigerous.  5.6 Economic importance of Echinidermata. | 08 |
| **Total** | | | **30** |

Satyaniketan’s

**Adv. M. N. Deshmukh Arts, Science and Commerce College, Rajur**

**Annual Teaching Planning 2022-2023**

**S.Y. B.Sc. Zoology** Semester IV

**Subject Name -: ZO-241 Animal Diversity IV**

**Teacher’s Name- Dr. B. K. Tapale**

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| **Sr. No.** | **Month** | **Topic** | **No. of Periods** |
|  | February 2023 | **1. Introduction to class –Reptilia (04)**  1.1 Salient features of class Reptilia with one example (name only) – *Chelone*, *Calotes*.  1.2 Venomous and Non-venomous snakes – Cobra, Russell’s viper, Rat snake, Grass snake.  1.3 Snake venom, symptoms, effect and cure of snake bite, first aid treatment of snakebite.  1.4 Desert adaptations in reptiles in brief. | 04 |
|  | March 2023 | **2**. **Introduction to class –Aves (05)**  2.1 Salient features of class Aves with two examples (names only) – Sparrow, Parrot.  2.2 Flight adaptations in birds.  2.3 Types of Beaks and feet in birds.  2.4 Migration in birds – Altitudinal, Latitudinal. | 05 |
|  | April 2023 | **3**. **Introduction to class - Mammalia**. **(04)**  3.1 Salient features of class Mammalia with two examples (names only) – Rat, Rabbit.  3.2 Egg laying mammals.  3.3 Aquatic adaptations in mammals.  3.4 Flying adaptations in mammals.  3.5 Cursorial and fossorial adaptation in mammals  **4. Study of Rat (17)**  4.1 Systematic position, habit and habitat. 01  4.2 External characters. 01  4.3 Digestive system, food and feeding. 02  4.4 Respiratory system. 02 | 11 |
|  | May 2023 | 4.5 Blood vascular system – Structure of Heart. 02  4.6 Nervous system – Central Nervous system only. 03  4.7 Sense organs – Structure and functions of Eye & Ear. 03  4.8 Reproductive system. 03 | 10 |
| **Total** | | | **30** |

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**Adv. M. N. Deshmukh Arts, Science and Commerce College, Rajur**

**Annual Teaching Planning 2022-2023**

**T.Y. B.Sc. Zoology** Semester VI

**Subject Name -: ZO-361 Medical & Forensic Zoology**

**Teacher’s Name- Dr. B. K. Tapale**

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| **Sr. No.** | **Month** | **Topic** | **No. of Periods** |
|  | February 2023 | 1. Introduction to medical zoology and its importance :  2 L  2. Medico-legal Autopsy:  2.1 Death and its Causes- External examination of deceased body – Internal  Examination - Determination of time since death and cause of death.  2.2 Injuries – Classification - Medico-legal aspects of injuries.  2.3 Post-mortem changes - collection of post-mortem samples and  Preservation. | 08 |
|  | March 2023 | 3. Urine Analysis:  3.1 Physical characteristics, abnormal constituents, renal failure, renal  calculi, dialysis.  4. Non infectious Diseases:  4.1 Causes, Types, Symptoms, Complications, Diagnosis and Prevention of  Diabetes (Type I and II), Hypertension, Hypotension, Obesity,  Atherosclerosis, Myocardial Infraction. | 05 |
|  | April 2023 | 5. Infectious Diseases:  5.1 Causes, Types, Symptoms, Complications, Diagnosis and Prevention of  Tuberculosis and Hepatitis.  2 L  6. Introduction to Forensic Zoology:  6.1 Definition, Scope and Application of Forensic Zoology.  6.2 Forensic Laboratories in India.  6.3 Basic Principles of Forensic Science with Examples.  7. Forensic Medicine:  7.1 Introduction to Forensic Medicine: Definitions of Forensic Medicine.  7.2 Medical Jurisprudence.  7.3 Medical evidence documentations.  3 L   |  | | --- | |  | | 08 |
|  | May 2023 | 8. Forensic Analysis:  8.1 Examination of Biological Materials: Examination of Hair, Fibres,  Diatoms, plants materials, human tissues.  8.2 Examination of Body Fluid: Blood, Semen and Saliva.  8.3 Forensic Importance of Insects: Insects of forensic importance -  indicators of time of death stages of insect development & comparative  decomposition of human body - colonization - Evidence collection of  insects – Territorial & Aquatic Insects.  8.4 DNA Fingerprint Technique and Examination of Biological Traces:  Liquid blood, blood stains, & swabs, semen, Seminal stains, tissues,  Bones, Hairs, Teeth, Saliva, Skeletal remains.  8.5 Toxicological Investigations: Poisons – Definition, Forms of Poison –  Physical, Chemical & Mechanical state. Introduction with examples of –  Neurotoxic Poisons – Cerebral & Spinal, Cardiovascular Poisons,  Asphyxiants, Miscellaneous poisons – Pesticides, Pharmaceutical drugs, | 09 |
| **Total** | | | **30** |