

SARDAR PATEL UNIVERSITY
Programme: BSC (ZOOLOGY)
Semester: VI
Syllabus with effect from: November 2020

Paper Code: US06CZOO21	Total Credit: 4
Title Of Paper: Vertebrata	

Unit	Description in detail	Weighting (%)
1	Introduction and significance of protochordates. Comparison of prochordate sub phyla. Type: Amphioxus Type: Lamprey	25%
2	Origin of class: Pisces Swim bladder and accessory respiratory organs of Fishes Types of fins in Fishes Type: Labeo rohita Adaptive radiation and origin of class Amphibia Adaptive radiation, origin and Evolution of class Reptile Merozoic Reptiles	25%
3	Birds as glorified reptiles Origin of Birds Archeopteryx and its significance Affinities of Birds Flight less birds Type: Pigeon	25%
4	Aquatic Mammals and their adaptations Flying Mammals and their adaptations Economic importance of Mammals Type: Rabbit	25%

Basic Text & Reference Books:

Vertebrate zoology by R L Kotpal
 Chordate zoology by Dhama and Dhama Chordate Zoology
 E. L .Jhorden and verma

Learning Outcome:

- Classical Zoology, History of Classification and Taxonomy of Vertebrate
- Detail study of Animal types
- Detail study of topics related to Different phyla

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Paper Code: US06CZOO22	Total Credit: 4
Title Of Paper: Developmental Biology and Evolution	

Unit	Description in detail	Weighting (%)
1	Development of frog Ovulation and spawning cleavage and blastula the fate-map gastrulation neurulation metamorphosis	25%
2	Development of chick Gametes and fertilization Cleavage and blastulation Gastrulation Differentiation of mesoderm and coelom Neurulation Development of chick according to incubation Extra embryonic membranes of Chick	25%
3	Concept of organic evolution Origin of earth Origin of life Evidences of organic evolution Theories of organic evolution [Darwinism, Lamarkism, de vries]	25%
4	Isolation, Colouration Speciation Tempo of evolution. Artificial selection Sexual selection	25%

Basic Text & Reference Books:

Introduction to embryology: A K Berry
 Chordate embryology: Verma and Agrawal
 Developmental biology: Sastry and Shukul
 Organic evolution: M P Arora

Learning Outcome:

- Detail Study of Developmental Biology of Frog and Chick
- Concept of Evolution and Organic Evolution

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Paper Code: US06CZOO23	Total Credit: 4
Title Of Paper: Metabolism and Nutrition	

Unit	Description in detail	Weighting (%)
1	Metabolic Reactions, Energy Transfer, The Fate of carbohydrate Classification of Carbohydrate Carbohydrate Metabolism: Glycolysis Acetyle Co-A formation Kreb's cycle Electron Transport Chain Reactions	25%
2	Classification of Lipids Lipid Metabolism: Transport of Lipids by Lipoproteins Sources and Significance of Blood Cholesterol The Fate of Lipids, Triglyceride Storage Lipid Catabolism: Lipolysis, Lipid Anabolism: Lipogenesis	25%
3	Classification of Protein Protein Metabolism: The Fate of Proteins, Protein Catabolism, Protein Anabolism Classification of Nucleic acids <u>Nucleic acids metabolism:</u> <u>Biosynthesis of Purine nucleotide, Biosynthesis of Pyrimidine nucleotides</u> <u>Catabolism of Purine Nucleotide, Catabolism of Pyrimidine Nucleotide</u>	25%
4	Metabolic Adaptations Nutrition heat and energy balance Hypothermia Guidelines for Healthy Eating, Minerals, Vitamins Disorders: Fever and Obesity	25%

Basic Text & Reference Books:

Principal of Anatomy and Physiology by Gerard J Tortora and Braya Derrickson

Biochemistry-U.Satyanarayan

Lehninger Principles of Biochemistry Book by Albert L. Lehninger, David L. Nelson, and Michael M. Cox

Learning Outcome:

- Metabolism of Major Molecules
- Nutritional Importance and Disorders

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Paper Code: US06CZOO24	Total Credit: 4
Title of Paper: Comparative Anatomy of Chordates	

Unit	Description in detail	Weighting (%)
1	Integumentary System Integument proper Integumentary glands Scales, Feathers Hair, Beaks Claws, Nail and hoofs, Horns and antlers	25%
2	Digestive system Mouth and associated structure, Lips, Vestibule, Oral cavity and oral glands Teeth Tongue Esophagus Stomach Intestine Liver Pancreas	25%
3	Reproductive System Ovaries Oviducts Testes Maleduct Copulatory organs	25%
4	Circulatory System Blood & blood vessels Evolution of Heart Arterial system Venous system Lymph & lymphatic system	25%

Basic Text & Reference Books:

Elements of Chordate anatomy- Charles Weichert
 Vertebrate body – Romar
 Modern text book of Vertebrate Zoology- R .L .Kotpal
 Biology of Chordate – H.C. Nigam

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Syllabus with effect from: June 2020

Paper Code: US06CZOO25		Total Credit: 6
Title Of Paper: Practical Based on papers US05CZOO21-22-23-24		
Part -1	Protochordata :Oikopluera, Botryllus, Amphioxus, T.S. of amphioxus through, Oral hood, Pharynx, Intestine, Testes, Ovary. Cyclostomata: Ammocete larva, Myxine Pisces: Hammer headed shark, Eagle ray, Pristis, Chimaera, Catla, Belone, Hemiramphus, Pterois, Syngnathus, Diodon, Amphibian: Ambystoma, Amphiuma, Triton, Proteus, Necturus, Siren, Pipa, Hyla, Toad[Bufo], Rhacophorus. Reptilia: Gecko, Mabuia, Eryx, Rattle snake, Aves: Flamingo, Vulture, Peacock, Saras crane, Owl, Mammalia:, Duckbill Platypus, Kangaroo, Flying fox, Ant eater, Squirrel, Mongoose, Pigion- Digestive, Urinogenital, Brain Mountings- Section of Feather, LS of Syrinx, LS of Crop of Pigion, Pectin Rabbit-Digestive ,Urino genital System, Brain, Mountings- Muscle, Nerve,	2 credits
Part-2	Colour and Precipitation Reactions on Food Stuffs Carbohydrates Proteins Lipids Test of Trypsin Enzymes on Protein Evolutionary Study of Skull Chromatography	2 credits
Part-3	Development of frog By Permanent Slides Development of chick By Permanent Slides Temporary preparation of chick embryo. Bull's Sperm Counting Bull's Sperm Motility and Mortality Observation of migratory birds [Field Study] To Study The knee jerk Reflex in Human Visit to national park and sanctuary	2 credits

Basic Text & Reference Books:

Practical zoology invertebrate: P S Verma.

Practical zoology invertebrate: S SLal.

Practical physiology anatomy and biochemistry: Patel and goel

Practical biochemistry: Plumer

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Paper Code: US06DZOO26	Total Credit: 2
Title Of Paper: Applied Zoology	

Unit	Description in detail	Weighting (%)
1	Bio Statistics: Data Collection: Random –Non random sampling Data Tabulation: Graph, Histogram, Scattered Diagram Mean, Mode, Median, Standard Deviation and Error Statistical Significance	25%
2	Insect Pest Management: Natural Control Applied control Integrated Pest Management	25%
3	Fresh water Fishes of India Fresh water fishery and by products Marine water fishery and by products	25%
4	Poultry Dairy industry Pharmaceuticals from animals.	25%

Basic Text & Reference Books:

Economic Zoology : Shukla and Upadhyay
Economic and applied – entomology: Ashok kumar
Fishery science and Indian fisheries : Srivastava
Poultry science: Dr N T Mehta and Dr Dhasura

Learning Outcome:

- Detail Learning of Biostatistics and applied zoology like, Fisheries, Poultry, Dairy.

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Paper Code: US06DZOO27	Total Credit: 2
Title Of Paper: ECONOMIC ENTOMOLOGY	

Unit	Description in detail	Weighting (%)
1	Morphology of medically important insects and other arthropods Head: antenna - mouth parts, Thorax: wings - wing venation - legs - general structure, Abdomen: Appendages - cerci - external genitalia.	25%
2	Harmful insects of dipterans – Mosquitos, Sand flies and other flies,	25%
3	Arboviral pathogens Classification of Arboviruses - Dengue, Chikungunya, Japanese encephalitis, Kyasanur Forest Disease (KFD), West Nile, and Yellow fever viruses - Geographic distribution - Viral structure and replication - Transmission and maintenance cycle.	25%
4	Management of Public Health Pesticides Elements of management of public health pesticides: Product registration - Procurement - Label - Storage and transport - Distribution - Application - Disposal - surveillance of pesticide poisoning - Quality control; Safe use of pesticides: general principles of safety measures - medical surveillance; Operative procedures: Preparation of spray materials - House treatment with residual spraying - Larvicidal - Rodenticidal - Herbicidal treatments - Diagnosis and treatment of poisoning.	25%

Basic Text & Reference Books:

A handbook of Economic Entomology: Dr. Abhishek Shukla
Economic Zoology : Shukla and Upadhyay
Economic and applied – entomology: Ashok kumar
WHO literature

Learning Outcome:

- Detail Learning of harmful insect and their management