DEPARTMENT OF ZOOLOGY

		SEMESTER-I			
Month	No. of Teaching days available	Topic		Class teaching in hours of each core	Tutorial In hours
		ZOOACOR01T Marks:50+25=75 **NON-CHORDATE I**	ZOOACOR02T Marks:50+25=75 **ECOLOGY**		
July,18	14	**Unit 1: Protista, Parazoa & Metazoa** i)Characteristic and classification up to classes **Unit 2: Porifera** i)characteristic and classification upto classes **Unit 3: Cnidaria** i) characteristic and classification upto classes	**Unit -1 : Introduction to Ecology** i)History of ecology, Autecology and synecology, Laws of limiting factors **Unit -2: Population** i)Unitary and Modular populations, Demographic factors, life tables, fecundity tables. **Unit -3: Community** i)Species diversity, abundance, dominance	11	3
		PRACTICAL 1.Study of whole mount of *Euglena, Amoeba, Paramoecium*. 2. Binary fission and Conjugation in Paramoecium 3. Examination of freshwater pond water collected from different places for diversity of protists in it.	**PRACTICAL** 1.Study of life tables and plotting of survivorship curves of different types from the hypothetical/real data provided. 2.Determination of population density of a natural/hypothetical population.		
August,18	25	**Unit 1: Protista, Parazoa & Metazoa** ii) study of *Euglena*, *Amoeba* and *Paramoecium* iii)Locomotion and reproduction in protista **Unit- 2: Porifera** ii)Canal system and spicules in sponges **Unit 3: Cnidaria** ii) coral and coral reefs	**Unit -1 : Introduction to Ecology** ii) levels of organization, study of physical factors, the Biosphere. **Unit -2: Population** ii)survivorship curves, dispersal and dispersion, iii) Geometric, exponential and logistic growth: equation and patterns, r and k strategies. Density dependent and density independent factor **Unit -3: Community** ii)Richness, vertical stratification, Ecotone and edge effect.	20	5

		PRACTICAL 4.Study of *Sycon, Hyalonema, Euplectella, Spongilla.* 5. Study of *Obelia, Physalia, millepora, Aurelia, Tubipora, Corallium.* 6. Examination of freshwater pond water collected from different places for diversity of protists in it. 7. One specimen/slide of any Ctenophore	**PRACTICAL** 3. Study of life tables and plotting of survivorship curves of different types from the hypothetical/real data provided. 4. Sampling of Phytoplankton and zooplankton. 5.Study of species diversity. Shannon-Weiner index		
September,18	16	**Unit 1: Protista, Parazoa & Metazoa** iv) Evolution of symmetry and segmentation of Metazoa. v) Life cycle and pathogenicity of *Giardia*, *Leishmania*, **Unit 3: Cnidaria** iii) Polymorphism in Cnidaria **Unit 6: Nemathelminthes** i)General characteristics and Classification upto classes ii) Origin and evolution of parasitic helminthes.	**Unit -2: Population** iv)Population interactions, Gause,s Principle with laboratory and field example, Lotka-Volterra equation for competition. **Unit -3: Community** iii)Ecological succession and one example of it. **Unit -5: Applied Ecology** i)Wildlife Conservation (in situ and ex-situ conservation) .	13	3
		PRACTICAL viii) Study of *Alcyonium, Gorgonia, Metridium, Pennatula, Fungia, Meandrina, Madrepora* ix) study of adult *Fasciola hepatica, Taenia solium* and their life cycles.	**PRACTICAL** 6. Measurement of temperature, turbidity/penetration of light. 7. Determination of pH 8. Study of species diversity. Shannon-Weiner index		

October,18	10	**Unit-1: Protista, Parazoa & Metazoa** vi) Life cycle and pathogenicity of *Entamoeba* and *Plasmodium* **Unit 3: Cnidaria** iv) Metagenesis in Obelia. **Unit 6: Nemathelminthes** iii) Life cycle and pathogenicity of *Ascaris*	**Unit -4: Ecosystem** i)Types of ecosystem with an example in detail, Food chain, Detritus and grazing food chain. Linear and Y-shaped food chain. **Unit -5: Applied Ecology** ii)Management strategies for tiger conservation.	8	2
		PRACTICAL x) Study of adult *Ascaris lumbricoides* and its life stages xi) Field trip.	**PRACTICAL** 8. Determination of Dissolve oxygen content		
November,18	13	**Unit – 4: Ctenophora** i)General characteristic **Unit -5: Platyhelminthes** i)General characteristics and Classification upto classes. ii) Life cycle and pathogenicity of *Fasciola*. **Unit 6: Nemathelminthes** iv) Life cycle and pathogenicity of *Ancylostoma* and *Wuchereria*	**Unit 4: Ecosystem** ii) Food web, energy flow through ecosystem, Ecological pyramids. Ecological efficiencies **Unit -5: Applied Ecology** iii)Wildlife Protection act (1972)	10	
		PRACTICAL xii)Preparation of field report	**PRACTICAL** 9. COD 10. Field Trip and preparation of report.		3

December,18	12	**Unit – 4: Ctenophora** ii)General characteristic **Unit -5: Platyhelminthes** Life cycle and pathogenicity of *Taenia solium*	**Unit 4: Ecosystem** iii)Nutrient and biogeochemical cycle with an example of Nitrogen cycle. Human modified ecosystem.	10	2
		PRACTICAL xiii)Preparation and submission of field report	**PRACTICAL** 11. Determination of free CO_2 12. Preparation submission of report.		

		SEMESTER-II			
Month	No. of Teaching days available	Topic		Class teaching in hours of each core	Tutorial In hours
		ZOOACOR03T **Marks:50+25=75** **NON-CHORDATE-II**	**ZOOACOR04T** **Marks:50+25=75** **CELL BIOLOGY**		
January'19	4	**Unit 1: Introduction to Coelomates** i)Evolution of Coelom **Unit 3: Arthropoda** i)General characteristics and Classification up to classes.	**Unit 1: Overview of cells** i)Prokaryotic and Eukaryotic cells **Unit 2: Plasma membrane** i)Various models of plasma membrane structure	3	1
		PRACTICAL i)Study of specimens	**PRACTICAL** i)Preparation of temporary stained squash of onion root tip to study various stages of mitosis.		

February,19	21	**Unit 1: Introduction to Coelomates** ii)Evolution of metamerism **Unit 2: Annelida** i)General characteristics and Classification up to classes. ii)Excretion in Annelida. **Unit 3: Arthropoda** i)Vision in Arthropods ii)Respiration in Arthropods **Unit 5: Mollusca** i) General characteristics and Classification up to classes.	**Unit 1: Overview of cells** ii)Virus, Viroids, Mycoplasma, Prions. **Unit 2: Plasma membrane** ii)Transport across membranes: Active and Passive transport, Facilitated transport. iii)Cell junctions: Tight junctions, Desmosomes, Gap junctions iv)Extracellular Matrix-cell interaction. **Unit 6: Nucleus** i)Structure of nucleus: Nuclear envelope,Nuclear pore complex. **Unit 7: Cell division** i)Mitosis	17	4
		PRACTICAL Study of specimens	**PRACTICAL** ii) Preparation of temporary stained squash of onion root tip to study various stages of mitosis. iii)Study of various stages of meiosis. iv) Preparation of permanent slide to show the presence of Barr body in human female blood.		
March,19	13	**Unit 3: Arthropoda** iii)Metamorphosis in insect iv)Social life in bees. **Unit 4: Onychophora** i) General characteristics and Evolutionary significance **Unit 5: Mollusca** ii)Respiration inMollusca	**Unit 3: Endomembrane System** i)Structure and functions: Endoplasmic Reticulum,Golgi Apparatus, Lysosomes. **Unit 6: Nucleus** ii)Nucleolus Chromatin: Euchromatin and heterochromatin. **Unit 7: Cell division** ii) Meiosis	10	3
		PRACTICAL Study of specimens	**PRACTICAL** v) DNA by Feulgen reaction vi) Preparation of permanent slide to show the presence of Barr body in human female blood.		

April,19	13	**Unit 3: Arthropoda** v)Social life in termites **Unit 5: Mollusca** iii)Torsion and detorsion in Gastropoda **Unit 6: Echinodermata** i) General characteristics and Classification up to classes. **Unit 7:Hemichordata** i)General characteristics	**Unit 4: Mitochondria and Peroxisome** i)Mitochondria: Structure, semi-autonomous nature. ii)Endosymbiotic hypothesis iii)Peroxisome **Unit 6: Nucleus** iii)Packaging (Nucleosome) **Unit 7: Cell division** iii)Cell cycle and its regulation.	10	3
		PRACTICAL i)Study of specimens ii)Dissection of Digestive system of Periplaneta	**PRACTICAL** vii)Mucopolysaccharides by PAS reaction. viii)Cell viability by Trypan Blue staining.		
May,19	14	**Unit 5: Mollusca** iv)Pearl formation in bivalves. **Unit 6: Echinodermata** ii)Water-vascular system in Asteroidea **Unit 7:Hemichordata** ii)Phylogenetic relationship with non-chordates and chordates.	**Unit 4: Mitochondria and Peroxisome** iv)Mitochondrial Respiratory chain, Chemiosmotic hypothesis. **Unit 7: Cell division** iv)Cancer (Concept of oncogenes and tumour suppressor genes) **Unit 8: Cell signaling** i)Cell signaling pathways.	11	3
		PRACTICAL i)Digestive system, septal nephridia and pharyngeal nepridia of earthworm. ii)Nervous system of Periplaneta. iii)Prepare Project report	**PRACTICAL** ix)Proteins by Mercurobromophenol blue/Fast Green. x) Cell viability by Trypan Blue staining.		

June,19	25	**Unit 5: Mollusca** v)Evolutionary significance of trochophore larva. **Unit 6: Echinodermata** iii)Larval forms in Echinodermata. iv)Affinities with chordates.	**Unit 5: Cytoskeleton** i)Structure and functions: Microtubules, Microfilaments and Intermediate filaments. **Unit 7: Cell division** v)Mechanisms of cell death **Unit 8: Cell signaling** ii)Types of signaling molecules and receptors. iii)GPCR and role of second messenger (cAMP)	20	5
		PRACTICAL i)T.S. through pharynx, gizzard and typhlosolar intestine of earthworm. ii)Mount of mouth parts of Periplaneta. Preparation and submission of Project report.	**PRACTICAL** i)Proteins by Mercurobromophenol blue/Fast Green. ii)Mucopolysaccharides by PAS reaction. iii)Cell viability by Trypan Blue staining.		

HONOURS	NUMBER OF LECTURES	JULY-SEPTEMBER	OCTOBER -DECEMBER	JANUARY-MARCH	TEST EXAMIATION	APRIL-JUNE	UNIVERSITY FINAL EXAMINATION
PART II **PAPER-IV** **THEO.=100**	**THEORY= 117**	GROUP A Module 401 NO. OF CLASSES=25	GROUP A Module 404,Module 402 NO. OF CLASSES=7+30=37	GROUP A Module 402 NO. OF CLASSES=21			
PAPER-IV		GROUP B Module 404 NO. OF CLASSES=10	GROUP B Module 403 NO. OF CLASSES=10	GROUP B Module 403 NO. OF CLASSES=10		GROUP B Module 403 NO. OF CLASSES=4	

PAPER –V THEO.=100	**THEORY= 117**	GROUP A Module 50 NO. OF CLASSES=9	GROUP A Module 502 NO. OF CLASSES=18	GROUP A Module 503 NO. OF CLASSES=12			
PAPER –V			GROUP B Module 504 NO. OF CLASSES=15	GROUP B Module 506: 43 Module 505:15 NO. OF CLASSES=58		GROUP B Module 505 NO. OF CLASSES=5	
PAPER VI PRAC =100	**PRAC=62**	Group-A NO. OF CLASSES=20	Group-B NO. OF CLASSES=15	Group-A-15 GROUPB 10 NO. OF CLASSES=25		Group-B NO. OF CLASSES=2	

DEPARTMENT OF ZOOLOGY

HONOURS	NUMBER OF LECTURES	JULY-SEPTEMBER	OCTOBER -DECEMBER	JANUARY-MARCH	TEST EXAMIATION	APRIL-JUNE	UNIVERSITY FINAL EXAMINATION
PART III PAPER VII (100)	**THEORY=117**	Module 701 Module 702 NO. OF CLASSES=20+20=40	Module 701 Module 702 Module 703 NO. OF CLASSES=18+13+10=41	Module 702 Module 703 NO. OF CLASSES=10+26=36			
PAPER –VIII (100)	**THEORY=125**	Module 801 Module 802 NO. OF CLASSES=25+10=35	Module 801: 25 Module 802: 10 NO. OF CLASSES=25+10=35	Module 805: 20 Module 806: 35 NO. OF CLASSES=20+35=55			
PAPER IX (PRAC=100)	**PRACTICAL 52**	GROUP A NO. OF CLASSES=12	GROUP A NO. OF CLASSES=12	GROUP A NO. OF CLASSES=8			
PAPER IX (PRAC=100)		GROUP B NO. OF CLASSES=5	GROUP B NO. OF CLASSES=10	GROUP B NO. OF CLASSES=5			

DEPARTMENT OF ZOOLOGY

		SEMESTER-I		
Month	No. of Teaching days available	Topic	Class teaching in hours of each core	Tutorial In

		ZOOGCOR01T Marks:50+25=75 **Animal Diversity**		hours
July,18	14	**Unit-1 Kingdom Protista** i)General characters and classification of Subkingdom Protozoa. ii)Locomotory organelles and locomotion in Protozoa **Unit-4 Phylum Platihelminthes** i)General characters and classification up to classes. ii)Life history of *Taenia solium*. **PRACTICAL** i)Spot identification of the specimens	12	02
August,18	25	**Unit-2 Phylum Porifera** i)General characters and classification up to classes. ii)Canal system in *Sycon*. **Unit-3 Phylum Cnidaria** i)General characters and classification up to classes. ii)Polymorphism in Hydrozoa **Unit-7 Phylum Arthropoda** i) General characters and classification up to classes. **Unit-5 Phylum Nematoda** i) General characters and classification up to classes. ii)Life history of *Ascaris lumbricoides* and its parasitic adaptation. **Unit-6 Phylum Annelida** i) General characters and classification up to classes. **PRACTICAL** Spot identification of the specimens	20	05

September,18	16	**Unit-7 Phylum Arthropoda** i)Vision in insect. ii)Metamorphosis in insects. **Unit-6 Phylum Annelida** i)Nephridia in Annelida **Unit-12 Pisces** i) General characters and classification up to Subclasses. . **PRACTICAL** Spot identification of the specimens	13	03
October,18	10	**Unit-8 Phylum Mollusca** i)General characters and classification up to classes. ii)Respiration in *Pila* **Unit-12 Pisces** i)Osmoregulation in Fishes **Unit-13 Amphibia** i)General characters and classification up to classes. **PRACTICAL** i)Spot identification of the specimens ii)Study of the permanent slides	8	2
November,18	13	**Unit-9 Phylum Echinodermata** i)General characters and classification up to classes. ii)Water-vascular system in Asterias **Unit-10 Protochordates** i)General features **Unit-13 Amphibia** i)Metamorphosis in Toad **Unit-14 Reptiles** i)General features and classification up to living Subclasses. ii)Biting mechanism in snakes, Poisonous and nonpoisonous snakes	10	03

		PRACTICAL i)Identification of poisonous and non-poisonous snakes ii)Preparation of Animal album		
December,18	12	**Unit-10 Protochordates** i)Feeding in Branchiostoma **Unit-11 Agnatha** i) General characters and classification up to classes. **Unit-15 Aves** i)General characters and classification up to orders. ii)Flight adaptations in birds **Unit-16 Mammals** i)Classification up to Subclasses. ii)Origin and distribution of Cranial nerves in Cavia	10	02
		PRACTICAL i)Preparation and submission of Animal album		

		SEMESTER-II		
Month	No. of Teaching days available	Topic	Class teaching in hours of each core	Tutorial In hours
		ZOOGCOR02T Marks:50+25=75 Physiology and Biochemistry		
January,19	4	**Unit-1: Nerve and muscle** i)Structure of neuron **Unit-2:Digestion** i)Physiology of digestion in the alimentary canal.	3	1
		PRACTICAL i)Preparation of Haemin crystals ii)Identification of permanent histological slides iii)Qualitative tests to identify functional groups of carbohydrates. iv)Lowry`s method for quantitative test of protein		

February,19	21	**Unit-1: Nerve and muscle** ii)Resting membrane potential, Graded potential, Origin of action potential iii)Propagation of action potential through myelinated and unmyelinated nerve fibers. iv)Ultra-structure of skeletal muscle. **Unit-2:Digestion** ii)Absorption of carbohydrates, proteins and lipids. **Unit-5:Cardiovascular system** i)Composition of blood, Homeostasis. ii)Structure of heart. iii)Origin and conduction of the cardiac impulse. iv)Cardiac cycle. **PRACTICAL** i)Preparation of Haemin crystals ii)Identification of permanent histological slides iii)Qualitative tests to identify functional groups of carbohydrates. iv)Lowry`s method for quantitative test of protein	17	4
March,19	13	**Unit-1: Nerve and muscle** v)Molecular and chemical basis of muscle contraction. **Unit-3: Respiration** i)Pulmonary ventilation, Respiratory volumes and capacity. **Unit-6: Reproduction and Endocrine gland** i)Physiology of male reproduction: hormonal control of spermatogenesis. ii)Physiology of female reproduction: hormonal control of menstrual cycle. **Unit-7: Carbohydrate: Structure and Metabolism** i)Introduction to Carbohydrates, Structure and Types of Carbohydrates, Isomerism, ii) Glycolysis **PRACTICAL** i)Preparation of Haemin crystals	10	3

		ii)Identification of permanent histological slides iii)Qualitative tests to identify functional groups of carbohydrates. iv)Lowry`s method for quantitative test of protein		
April,19	13	**Unit-3: Respiration** ii)Transport of Oxygen. iii)Transport of Carbon-di-oxide. **Unit-6: Reproduction and Endocrine gland** iii)Structure and function of Pituitary. iv) Structure and function of Thyroid v) Structure and function of pancreas vi) Structure and function of adrenal **Unit-7: Carbohydrate: Structure and Metabolism** iii)Krebs cycle iv)Pentose phosphate pathway	10	3
		PRACTICAL i)Preparation of Haemin crystals ii)Identification of permanent histological slides iii)Qualitative tests to identify functional groups of carbohydrates. iv)Study of activity amylase under optimum conditions.		
May,19	14	**Unit-4: Excretion** i)Structure of nephron. **Unit-7: Carbohydrate: Structure and Metabolism** v) Gluconeogenesis vi)Electron Transport Systen **Unit-8: Lipid structure and Metabolism** i)Introduction to lipids: Definitions; fats and oils; classes of lipids. ii)Biosysthesis of palmitic acid iii) B-oxidation of palmitic acid.	11	3
		PRACTICAL i)Preparation of Haemin crystals ii)Identification of permanent histological slides iii)Qualitative tests to identify functional groups of carbohydrates. iv)Study of activity amylase under optimum conditions.		
June,19	25	**Unit-4: Excretion** ii)Mechanism of urine formation iii)Counter-current Mechanism **Unit-9: Protein: Structure and Metabolism** i)Proteins and their biological functions, functions of amino acids, ii)Physiochemical properties of amino acids, Peptides – structure and	20	5

		properties. iii)Primary, secondary, tertiary and quaternary structure of proteins. iv)Transamination, Deamination. v)Urea cycle. **Unit-10: Enzymes** i)Introduction, Classification of Enzymes ii)Mechanism of action iii)Enzyme kinetics iv)Inhibition and Regulation **PRACTICAL** i)Preparation of Haemin crystals ii)Identification of permanent histological slides iii)Qualitative tests to identify functional groups of carbohydrates. iv)Study of activity amylase under optimum conditions.		

GENERAL	NUMBER OF LECTURES	JULY-SEPTEMBER	OCTOBER -DECEMBER	JANUARY-MARCH	TEST EXAMIATION	APRIL-JUNE	UNIVERSITY FINAL EXAMINATION
PART II PAPER II THEO=100	**THEORY=115**	GROUP A NO. OF CLASSES=15	GROUP A NO. OF CLASSES=15	GROUP B NO. OF CLASSES=5			
		GROUP B NO. OF CLASSES=15	GROUP B NO. OF CLASSES=20	GROUP C GROUP D NO. OF CLASSES=20+20=40		GROUP D NO. OF CLASSES=5	
PAPER III PRAC=100	**PRACTICAL=65**	NO. OF PRAC. CLASSES =18	NO. OF PRAC. CLASSES =20	NO. OF PRAC. CLASSES =20		NO. OF PRAC. CLASSES = 7	
PART-III PAPER-IVA THEO=60	**THEORY=80**	NO. OF CLASSES=30	NO. OF CLASSES=25	NO. OF CLASSES=25			
PAPER-IVB THEO=40	**PRACTICAL=50**	NO. OF PRAC. CLASSES =20	NO. OF PRAC. CLASSES =20	NO. OF PRAC. CLASSES =10			