**GOVT. C.L.C COLLEGE PATAN, DIST. – DURG**
**2022-23**
**DEPARTMENT OF ZOOLOGY**

Name of Department: Zoology

CLASS: B.Sc. 1st YEAR

Name of Teacher: Shri. D.K. Bhardwaj
& Dr. Shubhi Mishra

Course Title: PAPER –I
(CELL BIOLOGY AND NON CHORDATA )

Course Type: Theory/Practical (Both)

| MONTH | TITLE OF UNIT | TOPIC OF LECTURE | NO. OF LECTURES | METHODS OF DELIVERY |
|---|---|---|---|---|
| **SEPTEMBER** | Unit – 1 | • The cell (Prokaryotic and Eukaryotic) Organization of Cell: Extra-nuclear and nuclear<br>• Plasma membrane, Mitochondria, Endoplasmic reticulum, Golgi body, Ribosome and Lysosome, Nucleus, Chromosomes, DNA and RNA | 10 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **OCTOBER** | Unit – 2 | • Cell division (Mitosis and Meiosis).<br>• An elementary idea of Cancer cells and Cell transformation.<br>• An elementary idea of Immunity: Innate & Acquired Immunity, Lymphoid organs, Cells of Immune System, Antigen, antibody and their interactions | 10 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **NOVEMBER** | Unit – 3 | General characters and classification of Phylum Protozoa, Porifera, and Coelenterata up to order. Protozoa: Type study - Paramecium, 2. Porifera: Type study - Sycon. Coelenterata: Type study – Obelia | 12 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |

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| **DECEMBER** | Unit – 4 | • **General characters and classification of Phylum** Platyhelminthes and Nemathelminthes:<br>• Annelida and Arthropoda up to order.<br>• Platyhelminthes and Nemathelminthes: Type Study – Fasciola, Ascaris<br>• Annelida: Type Study - Pheretima.<br>• Arthropoda: Type Study - Palaemone. | 20 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **JANUARY** | Unit –5 | • General characters and classification of Phylum Mollusca and Echinodermata up to order.<br>• Mollusca: Type Study - Pila.<br>• Echinodermata-Type Study- Asterias (Starfish) | 12 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **FEBRUARY** | | Till 11 February model test examination 2022-23/ Practical Examination/ Remedial classes | 05 remedial classes | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving |
| **MARCH** | | Preparation leave /<br>Annual Examination 2022-2023 | - | |

SIGNATURE OF TEACHER

SIGNATURE OF H.O.D

SIGNATURE OF PRINCIPAL

**GOVT. C.L.C COLLEGE PATAN, DIST. – DURG**
**2022-23**
**DEPARTMENT OF ZOOLOGY**

Name of Department: Zoology

CLASS: B.Sc. 1st YEAR

Name of Teacher: Mr. D. K. Bhardwaj &
Ms. Preeti Deshmukh
Ms. Savita Paikra

Course Title: PAPER –II
(CHORDATA AND EMBRYOLOGY )

Course Type: Theory/Practical (Both)

| MONTH | TITLE OF UNIT | TOPIC OF LECTURE | NO. OF LECTURES | METHODS OF DELIVERY |
|---|---|---|---|---|
| **SEPTEMBER** | Unit – 1 | • Classification of Hemichordata<br>• Hemichordata- Type study-Balanoglossus<br>• Classification of Chordates upto orders..<br>• Protochordata-Type study - Amphioxus.A comparative account of Petromyzon and Myxine | 08 | |
| **OCTOBER** | Unit – 2 | • Fishes-Skin & Scales, migration in fishes, Parental care in fish.<br>• Amphibia-Parental care and Neoteny.<br><br>Reptilia- Poisonous & Non-poisonous Snakes, Poison apparatus, snake venom and Extinct Reptiles | 10 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **NOVEMBER** | Unit – 3 | • Birds- Flight Adaptation, Migration, and Perching mechanism, Discuss- Birds are glorified reptiles.<br>• Mammals-Comparative account of Prototheria, Metatheria, Eutheria and Affinities. | 08 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |

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| | | • Aquatic Mammals and their adaptations. | | |
| **DECEMBER** | Unit –4 | **Fertilization**<br>• Gametogenesis, Structure of gamete and Types of eggs<br>• Cleavage<br>• Development of Frog up to formation of three germ layers.<br>• Parthenogenesis | 12 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **JANUARY** | Unit –5 | • Embryonic induction, Differentiation and Regeneration.<br>• Development of Chick (a) up to formation of three germ layers, (2) Extra-embryonic membranes<br>• Placenta in mammals. | 10 | ▪ Use of ICT =<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **FEBRUARY** | | Till 11 February model test examination 2022-23/ Practical Examination/ Remedial classes | 05 remedial classes | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving |
| **MARCH** | | Preparation leave /<br><br>Annual Examination 2022-2023 | | |

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**GOVT. C.L.C COLLEGE PATAN, DIST. – DURG**
**2022-23**
**DEPARTMENT OF ZOOLOGY**

Name of Department: Zoology

CLASS: B.Sc. 2nd YEAR

Name of Teacher: Ms. Preeti Deshmukh
& Mrs. Savita Paikra
Mr. Gokul Ram Verma

Course Title: PAPER –I
(ANATOMY AND PHYSIOLOGY )

Course Type: Theory/Practical (Both)

| MONTH | TITLE OF UNIT | TOPIC OF LECTURE | NO. OF LECTURES | METHODS OF DELIVERY |
|---|---|---|---|---|
| **JULY** | Unit – 1 | Integument and its derivatives: structure of scales, hair and feathers | 05 | ▪ Use of ICT<br>▪ Chalk and talk method |
| **AUGUST** | Unit – 1 | Alimentary canal and digestive glands in vertebrates Respiratory organs : Gills and lung , air-sac in birds | 07 | ▪ Use of ICT<br>▪ Chalk and talk method |
| **SEPTEMBER** | Unit-2 | • Endoskeleton: (a) Axial Skeleton- Skull and Vertebrae, (b) Appendicular Skeleton Limbs and girdles<br>• Circulatory System: Evolution of heart and aortic arches | 08 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **OCTOBER** | Unit – 2 & Unit-3 | Urinogenital System: Kidney and excretory ducts<br>Unit-3<br>Nervous System: General plan of brain and spinal cord | 09 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **NOVEMBER** | Unit – 3 & Unit-4 | • Ear and Eye: structure and function<br>Gonads and genital ducts<br>Unit-4<br><br>Digestion and absorption of dietary components | 10 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |

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| | | Physiology of heart, cardiac cycle and ECG | | |
| **DECEMBER** | Unit –4<br>Unit-5 | • Blood Coagulation<br>• Respiration: mechanism and control of breathing<br>Unit –5<br>• Excretion: Physiology of excretion, osmoregulation | 12 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **JANUARY** | Unit –5 | • Physiology of muscle contraction<br>• Physiology of nerve impulse, Synaptic transmission | 12 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **FEBRUARY** | - | Till 11 February model test examination 2022-23/ Practical Examination/ Remedial classes | 10 remedial classes | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving |
| **MARCH** | - | Preparation leave /<br>Annual Examination 2022-2023 | - | - |

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**GOVT. C.L.C COLLEGE PATAN, DIST. – DURG**
**2022-23**
**DEPARTMENT OF ZOOLOGY**

Name of Department: Zoology

CLASS: B.Sc. 2nd YEAR

Name of Teacher: Ms. Monika Verma,
Ms. Savita Paikra & Mr. Gogul Ram Verma
Course Type: Theory/Practical (Both)

Course Title: PAPER –II (VERTEBRATE ENDOCRINOLOGY, REPRODUCTIVE BIOLOGY BEHAVIOUR, EVOLOTION AND APPLIED ZOOLOGY)

| MONTH | TITLE OF UNIT | TOPIC OF LECTURE | NO. OF LECTURES | METHODS OF DELIVERY |
|---|---|---|---|---|
| **JULY** | Unit – 1 | • Structure and function of Endocrine glands<br>• Hormone receptor | 04 | ▪ Use of ICT<br>▪ Chalk and talk method |
| **AUGUST** | Unit – 1 | • Biosynthesis and secretion of thyroid, adrenal, ovarian and testicular hormones<br>• Endocrine disorder of pituitary, thyroid, adrenal and pancreas | 07 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **SEPTEMBER** | Unit – 2 | • Reproductive cycle in vertebrates<br>• Menstruation, lactation and pregnancy<br>• Mechanism of parturition | 10 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **OCTOBER** | Unit-2 &<br>Unit – 3 | • Hormonal regulation of gametogenesis<br><br>Unit-3<br>• Evidences of organic evolution.<br>• Theories of organic evolution. Variation, Mutation, Isolation and Natural selection. | 10 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |

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| **NOVEMBER** | Unit – 3<br>&<br>Unit-4 | Evolution of Horse<br>Unit-4<br><br>Introduction to Ethology: Branches and concept of ethology.<br><br>Patterns of Behaviour, Taxes, Reflexes, Drives and Stereotyped behaviour. | 10 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **DECEMBER** | Unit-4<br>&<br>Unit-5 | Reproductive behavioural patterns.<br>Drugs and behaviour, Hormones and behaviour<br>Unit-5<br>• Prawn Culture<br>• Sericulture<br>• Apiculture<br>• Pisciculture | 12 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **JANUARY** | Unit –5 | • Poultry keeping<br>• Elements of Pest Control: Chemical & Biological Control | 12 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **FEBRUARY** | | Till 11 February model test examination 2022-23/ Practical Examination/ Remedial classes | 05 remedial classes | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving |
| **MARCH** | | Preparation leave /<br><br>Annual Examination 2022-2023 | | |

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**GOVT. C.L.C COLLEGE PATAN, DIST. – DURG**
**2022-23**
**DEPARTMENT OF ZOOLOGY**

Name of Department: Zoology

CLASS: B.Sc. 3rd YEAR

Name of Teacher: Mr. D. K. Bhardwaj
Ms. Monika Verma
Dr. Shubhi Mishra

Course Title: PAPER –I (ECOLOGY, ENVIRONMENTAL BIOLOGY: TOXICOLOGY, MICROBIOLOGY AND MEDICAL ZOOLOGY)

Course Type: Theory/Practical (Both)

| MONTH | TITLE OF UNIT | TOPIC OF LECTURE | NO. OF LECTURES | METHODS OF DELIVERY |
|---|---|---|---|---|
| **JULY** | Unit – 1 | **Ecology**<br>• Aims and scopes of ecology<br>• Major ecosystems of the world- Brief introduction | 05 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **AUGUST** | Unit – 1 | Population- Characteristics and regulation of densities<br>• Communities and ecosystem<br>• Bio-geo chemical cycles<br>• Air & water pollution<br><br>Ecological succession | 07 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **SEPTEMBER** | Unit – 2 | **Environmental Biology**<br>Laws of limiting factor<br>Food chain in fresh water ecosystem<br>Energy flow in ecosystem-Trophic levels | 08 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **OCTOBER** | Unit – 2<br>&<br>Unit-3 | Conservation of natural resources<br>Environmental impact assessment<br>**Unit-3**<br>**Toxicology**<br>Definition and classification of Toxicants<br>Basic Concept of toxicology<br>Principal of systematic toxicology | 08 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |

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| **NOVEMBER** | Unit – 3 | • Heavy metal Toxicity (Arsenic, Mercury, Lead, Cadmium)<br>• Animal poisons- snake venom, scorpion & bee poisoning<br>• Food poisoning<br><br>**(Microbiology)** General and applied microbiology<br>• Microbiology of domestic water and sewage<br>• Microbiology of milk & milk products | 12 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **DECEMBER** | Unit –4 | Industrial microbiology: fermentation process, production of penicillin, alcoholic beverages, bioleaching.<br>**Unit-4**<br>**Medical Zoology**<br>Brief introduction to pathogenic microorganisms, Ricketssia, Spirochaetes, AIDS and Typhoid<br>Brief account of life history & pathogenicity of the following pathogens with reference to man: prophylaxis & treatment . | 12 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **JANUARY** | Unit –5 | • Pathogenic protozoan's- Entamoeba, Trypanosome & Plasmodium.<br>• Pathogenic helminthes- Schistosoma, Nematode pathogenic parasites of man<br>• Vector insects | 12+ 03Extra classes | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **FEBRUARY** | | 01-11 February, 2023, Model test examination 2022-23/<br>Practical Examination/<br>Remedial classes | 5 remedial classes | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving |
| **MARCH** | | Preparation leave /<br><br>Annual Examination 2022-2023 | | |

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**GOVT. C.L.C COLLEGE PATAN, DIST. – DURG**
**2022-23**
**DEPARTMENT OF ZOOLOGY**

Name of Department: Zoology

CLASS: B.Sc. 3rd YEAR

Name of Teacher: Mr. D. K. Bhardwaj
Dr. Shubhi Mishra
Mr. Gokul Ram Verma

Course Type: Theory/Practical (Both)

Course Title: PAPER –II (**GENETICS, CELL PHYSIOLOGY, BIOCHEMISTRY, BIOTECHNOLOGY AND BIOTECHNIQUES**

| MONTH | TITLE OF UNIT | TOPIC OF LECTURE | NO. OF LECTURES | METHODS OF DELIVERY |
|---|---|---|---|---|
| **JULY** | Unit – 1 | **(Genetics)**<br>• Linkage & linkage maps, Sex Determination and Sex Linkage<br>• Gene interaction- Incomplete dominance & Codominance, Supplementary gene,<br>Complementary gene, Epistasis Lethal gene, Pleiotropic gene and multiple alleles. | 05 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>Notes |
| **AUGUST** | Unit – 1 | • Mutation: Gene and chromosomal mutation<br>• Human genetics: chromosomal alteration: Down, Edward, Patau, Turner and Klinefelter<br>Syndrome Single gene disorders: Alkaptonuria, Phenylketonuria, Sickle cell anaemia, albinism and colour blindness | 08 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>Notes |
| **SEPTEMBER** | Unit – 2 | **Cell Physiology**<br>• General idea about pH & buffer<br>• Transport across membrane: Diffusion and Osmosis<br>• Active transport in mitochondria & endoplasmic reticulum<br>• Enzymes-classification and Action | 08 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |

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| **OCTOBER** | Unit – 2<br>&<br>Unit – 3 | • Environmental impact assessment<br>**Unit-3**<br>**Biochemistry**<br>• Amino acids & peptides- Basic structure & biological function<br>Carbohydrates & its metabolism- Glycogenesis; Gluconeogenesis; Glycolysis; Glycogenolysis; Cosi-cycle | 08 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **NOVEMBER** | Unit – 3<br>&<br>Unit-4 | • Lipid metabolism- Oxidation of glycerol; Oxidation of fatty acids<br>Protein Catabolism- Deamination, transamination, transmethylation<br>Unit-4<br>• Recombinant DNA & Gene cloning | 12 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **DECEMBER** | Unit –4<br>&<br>Unit-5 | Cloned genes & other tools of biotechnology (Tissue culture, Hybridoma, Transgenic Animals and Gene library)<br>**Unit-5**<br>**(Biotechniques)**<br>1. Principles & techniques about the following: (i) pH meter<br>(ii) Colorimeter<br>(iii) Microscopy- Light microscopes: Compound, Phase contrast | 13 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **JANUARY** | Unit –5 | Electron microscopes (iv) Centrifuge<br>(v) Separation of biomolecules by chromatography & electrophoresis | 12 | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving<br>▪ Group discussion<br>▪ Test<br>▪ Notes |
| **FEBRUARY** | | 01-11 February, 2023, Model test examination 2022-23/ Practical Examination/ Remedial classes | 05 remedial classes | ▪ Use of ICT<br>▪ Chalk and talk method<br>▪ Problem solving |

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| **MARCH** | | Preparation leave /<br><br>Annual Examination 2022-2023 | - |

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