

**ACADEMIC YEAR 2020-2021**

**70% CONTENT IN VIEW OF COVID-19 PANDEMIC**

**INTERMEDIATE 2<sup>nd</sup> YEAR ZOOLOGY SYLLABUS**

**UNIT-I Human Anatomy and Physiology-I**

**UNIT I (A) – (DELETED 2020-2021)**

**Unit I B: Breathing and Respiration**

Respiratory organs in animals; Respiratory system in humans; Mechanism of breathing and its regulation in humans - Exchange of gases, transport of gases and regulation of respiration; Respiratory volumes; Respiratory disorders: Asthma, Emphysema, Occupational respiratory disorders - Asbestosis, Silicosis, Siderosis, Black Lung Disease in coalminers.

**UNIT II : Human Anatomy and Physiology-II**

**Unit II A: Body Fluids and Circulation**

Covered in I year composition of lymph and functions; Clotting of blood; Human circulatory system - structure of human heart and blood vessels; Cardiac cycle, cardiac output, double circulation; regulation of cardiac activity; Disorders of circulatory system: Hypertension, coronary artery disease, angina pectoris, heartfailure.

**Unit II B: Excretory products and their elimination**

Modes of excretion - Ammonotelism, Ureotelism, Uricotelism; Human excretory system - structure of kidney and nephron; Urine formation, osmoregulation; Regulation of kidney function -Renin-Angiotensin - Aldosterone system, Atrial Natriuretic Factor, ADH and diabetes insipidus; Role of other organs in excretion; Disorders: Uraemia, renal failure, renal calculi, nephritis, dialysis using artificial kidney.

**UNITIII:HumanAnatomyandPhysiology-III**

**Unit IIIA: Muscular and Skeletalsystem**

Types of movement, the muscle, mechanism of muscle contraction, muscle fatigue, cori cycle, types of muscle fibres.

**Unit III B: Neural control and co-ordination**

Nervous system in human beings - Central nervous system, Peripheral nervous system and Visceral nervous system; Generation and conduction of nerve impulse.

## **UNIT IV: Human Anatomy and Physiology-IV**

### **Unit IVA: Endocrine system and chemical co-ordination**

Endocrine glands and hormones; Human endocrine system-Hypothalamus, Pituitary, Pineal, Thyroid, Parathyroid, Adrenal, Pancreas, Gonads; Mechanism of hormone action (Elementary idea only); Role of hormones as messengers and regulators; Hypo and Hyper activity and related disorders: Common disorders -Dwarfism, acromegaly, cretinism, goiter, exophthalmic goiter, diabetes, Addison's disease, Cushing's syndrome. (Diseases & disorders to be dealt in brief).

### **Unit IVB: Immune system**

Basic concepts of Immunology - Types of Immunity - Innate Immunity, Acquired Immunity, Active and Passive Immunity, Cell mediated Immunity and Humoral Immunity, Interferon, HIV and AIDS.

## **UNIT V: Human Reproduction**

### **Unit VA: Human Reproductive System**

Male and female reproductive systems; Microscopic anatomy of testis & ovary; Gametogenesis " Spermatogenesis & Oogenesis; Menstrual cycle; Fertilization, Embryo development up to blastocyst formation, Implantation; Pregnancy, placenta formation, Parturition, Lactation (*elementary idea*).

### **Unit VB: Reproductive Health**

Need for reproductive health and prevention of sexually transmitted diseases (STD); Birth control - Need and methods, contraception and medical termination of pregnancy (MTP); Amniocentesis; infertility and assisted reproductive technologies - IVF-ET, ZIFT, GIFT (*elementary idea for general awareness*).

## **UNIT VI: Genetics**

Heredity and variation: Mendel's laws of inheritance with reference to *Drosophila melanogaster* Grey, Black body colour; Long, Vestigial wings), Pleiotropy; Multiple alleles: Inheritance of blood groups and Rh-factor; Co-dominance (Blood groups as example); Elementary idea of polygenic inheritance; Skin colour in humans (refer Sinnott, Dunn and Dobzhansky); Sex determination - in humans, birds, *Fumea* moth, genic balance theory of sex determination in *Drosophila melanogaster* and honey bees; Sex linked inheritance - Haemophilia, Colour blindness; Mendelian disorders in humans: Thalassaemia, Haemophilia, Sick cell anaemia, cystic fibrosis PKU, Alkaptonuria; Chromosomal disorders -Down's syndrome, Turner's syndrome and Klinefelter syndrome; Genome, Human Genome Project and DNA Fingerprinting,

## **UNIT VII: (DELETED (2020-2021))**

### **UNIT VIII: Applied Biology**

Apiculture; Animal Husbandry: Pisciculture, Poultry management, Dairy management; Animal breeding; Application of Biotechnology in health: Human insulin and vaccine production ; Gene Therapy; Transgenic animals; Vaccines, MABs, Cancer biology, stem cells.

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