S. No.	Topics	Page No.
UNIT-I	**Human Anatomy and Physiology-I** **Unit I A: Digestion and absorption** Alimentary canal and digestive glands; Role of digestive enzymes and gastrointestinal hormones; Peristalsis, digestion, absorption and assimilation of proteins, carbohydrates and fats, egestion, Calorific value of proteins, carbohydrates and fats (for box item- not to be evaluated); Nutritional disorders: Protein Energy Malnutrion (PEM), indigestion, constipation, vomiting, jaundice, diarrhea, Kwashiorkor. **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 coal miners.	
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, heart failure. **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.	
UNIT III	**Human Anatomy and Physiology-III** **Unit IIIA: Muscular and Skeletal system** Skeletal muscle – ultra structure; Contractile proteins & muscle contraction; Skeletal system and its functions; Joints. (to be dealt with relevance to practical syllabus); Disorders of the muscular and	

	skeletal system: myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout, regormortis. **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; Reflex action; Sensory perception; Sense organs; Brief description of other receptors; Elementary structure and functioning of eye and ear.	
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 ReproductiveSystem** 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: ReproductiveHealth** 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. (*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: Thalassemia, Haemophilia, Sickle celled anaemia, cystiefibrosis PKU, Alkaptonuria; Chromosomal disorders – Down's syndrome, Turner's syndrome and Klinefelter syndrome; Genome, Human Genome Project and DNA Finger Printing,	
UNIT VII	**Organic Evolution** Origin of Life, Biological evolution and Evidences for biological evolution (palaeontological, comparative anatomical, embryological and molecular evidences); Theories of evolution: Lamarckism (in brief), Darwin's theory of Evolution -Natural Selection with example (Kettlewell's experiments on *Biston bitularia*), Mutation Theory of Hugo De Vries; Modern synthetic theory of Evolution - Hardy-Weinberg law ; Types of Natural Selection; Gene flow and genetic drift; Variations (mutations and genetic recombination); Adaptive radiation – viz., Darwin's finches and adaptive radiation in marsupials; Human evolution; Speciation – Allopatric, sympatric; Reproductive isolation.	
Unit-VIII	**AppliedBiology** Apiculture; Animal Husbandry: Pisciculture, Poultry management, Dairy management; Animal breeding; Bio-medical Technology : Diagnostic Imaging (X-ray, CTscan, MRI), ECG, EEG; Application of Biotechnology in health: Human insulin and vaccine production ; Gene Therapy; Transgenic animals; ELISA; Vaccines, MABs, Cancer biology, stem cells.	
Topics deleted under 30% reduction of Syllabus due to COVID-19		
Unit –I	Human Anatomy and Physiology-I **I A** – Digestion and Absorption – Total chapter	2 - 20
Unit –III	**III. Human Anatomy and Physiology**	75 - 120
	III-A- Musculo Skeletal System 3.2- The Skeleton 3.3- Joints 3.4- Disoreders of Muscullar and Skeletal system	84 - 90

	III-B- Neural control & Co- ordination 3.7- Reflex action and Reflex Arc. 3.8- Sensory Reception and Processing 3.8.1- The Eye 3.8.2- Mechanism of vision 3.8.3- The Ear (The stato- Aconstic Receptor) 3.8.4- Mechanism of Hearing only (Except disorders of Human Neural system)	110 - 117
Unit-VII	**Evolution- Entire chapter deleted**	235 - 262
Unit-VIII	8.1. Animal Husbandry 8.2. Poultry Farm management 8.3. Bee Keeping 8.4. Fishery management	264 – 274