

BOARD OF INTERMEDIATE EDUCATION, A.P, HYDERABAD

Intermediate II Year Syllabus

Subject: ZOOLOGY-II (W.E.F 2013-14)

Unit I : Human Anatomy and Physiology-I

22 Periods

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 Malnutrition (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

22 Periods

Unit IIA 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 IIB 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

20 Periods

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

15 Periods

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

22 Periods

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)**.

20 Periods

Unit VI: Genetics

20 Periods

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.

Skeletal
syllabus);
muscular

us system
lex action;
lementary

15 Periods

Unit VII: Organic Evolution

15 Periods

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.

Pituitary,
one action
and Hyper
cretinism,
Diseases &

Immunity,
Interferon,

Unit VIII: Applied Biology

15 Periods

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.

22 Periods

& ovary;
, Embryo
ormation,

TD); Birth
cy (MTP);
FT. GIFT