

**BOARD OF INTERMEDIATE EDUCATION, A.P., HYDERABAD**

**REVISION OF SYLLABUS**

**Subject – ZOOLOGY-II (w.e.f 2013-14)**

| <b>UNIT-I Human Anatomy and Physiology-I</b>   | <b>PERIODS</b>   |
|--|------------------|
| <p><b>Unit I A: Digestion and absorption</b></p> <p>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.</p> <p><b>Unit I B: Breathing and Respiration</b></p> <p>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.</p> | <p><b>22</b></p> |

| <b>UNIT II : Human Anatomy and Physiology-II</b>   | <b>PERIODS</b>   |
|--|------------------|
| <p><b>Unit II A: Body Fluids and Circulation</b></p> <p>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.</p> <p><b>Unit II B: Excretory products and their elimination</b></p> <p>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.</p> | <p><b>22</b></p> |

| <b>UNIT III: Human Anatomy and Physiology-III</b>  | <b>PERIODS</b> |
|--|----------------|
| <p><b>Unit IIIA: Muscular and Skeletal system</b></p> <p>Skeletal muscle – ultra structure; Contractile proteins &amp; muscle contraction; Skeletal system and its functions; Joints. <b>(to be dealt with relevance to practical syllabus)</b>; Disorders of the muscular and skeletal system: myasthenia gravis, tetany, muscular dystrophy, arthritis, osteoporosis, gout, regormortis.</p> <p><b>Unit III B: Neural control and co-ordination</b></p> <p>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.</p> | <b>20</b>      |

| <b>UNIT IV: Human Anatomy and Physiology-IV</b>   | <b>PERIODS</b> |
|---|----------------|
| <p><b>Unit IVA: Endocrine system and chemical co-ordination</b></p> <p>Endocrine glands and hormones; Human endocrine system – Hypothalamus, Pituitary, Pineal, Thyroid, Parathyroid, Adrenal, Pancreas, Gonads; Mechanism of hormone action <b>(Elementary idea only)</b>; Role of hormones as messengers and regulators; <b>Hypo and Hyper activity and related disorders:</b> Common disorders –Dwarfism, acromegaly, cretinism, goiter, exophthalmic goiter, diabetes, Addison’s disease, Cushing’s syndrome.(Diseases &amp; disorders to be dealt in brief).</p> <p><b>Unit IVB: Immune system</b></p> <p>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.</p> | <b>15</b>      |

| <b>UNIT V: Human Reproduction</b>   | <b>PERIODS</b> |
|---|----------------|
| <p><b>Unit VA: Human Reproductive System</b></p> <p>Male and female reproductive systems; Microscopic anatomy of testis &amp; ovary; Gametogenesis “ Spermatogenesis &amp; Oogenesis; Menstrual cycle; Fertilization, Embryo development up to blastocyst formation, Implantation; Pregnancy, placenta formation, Parturition, Lactation <b>(elementary idea)</b>.</p> <p><b>Unit VB: Reproductive Health</b></p> <p>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 <b>(elementary idea for general awareness)</b>.</p> | <b>22</b>      |

| <b>UNIT VI: Genetics</b>  | <b>PERIODS</b> |
|---|----------------|
| <p>Heredity and variation: Mendel's laws of inheritance with reference to <i>Drosophila</i>. (<i>Drosophila melanogaster</i> 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, <i>Fumea</i> moth, genic balance theory of sex determination in <i>Drosophila melanogaster</i> 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,</p> | <b>20</b>      |

| <b>UNIT VII: Organic Evolution</b>  | <b>PERIODS</b> |
|---|----------------|
| <p>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 <i>Biston bitularia</i>), 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.</p> | <b>15</b>      |

| <b>UNIT VIII: Applied Biology</b>   | <b>PERIODS</b> |
|---|----------------|
| <p>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.</p> | <b>15</b>      |