ANNEXURE-III

SCHEME AND SYLLABUS TO THE POST OF HEALTH ASSISTANT IN MA&UD DEPARTMENT

SCHEME OF EXAMINATION

PAPER	Subject	No.of Questions	Duration (Minutes)	Maximum Marks
1.	General Knowledge and Biological Sciences (Intermediate Level)	150 (General Knowledge 75 + Biological Sciences 75 (Intermediate Level))	150	150

Name of the Papers	Language of Examination
Paper: General Knowledge and Biological Sciences (Intermediate Level)	Bilingual i.e., English and Telugu

SYLLABUS

Paper: General Knowledge and Biological Sciences (Intermediate Level)

I. General Knowledge:

1. Current affairs.
2. International Relations and Events.
3. General Science in everyday life.
4. Environmental Issues and Disaster Management.
5. Geography and Economy of India and Telangana.
6. Indian Constitution: Salient Features.
7. Indian Political System and Government.
8. Modern Indian History with a focus on Indian National Movement.
9. History of Telangana and Telangana Movement.
10. Society, Culture, Heritage, Arts and Literature of Telangana.
11. Policies of Telangana State.

II. Biological Sciences (Intermediate Level)

Botany

Diversity of Plant World

Branches of Botany-**Plant Kingdom-** Salient features, classification and alternation of generations of the plants of the following groups-Algae, Fungi, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms.

Morphology - Morphology of flowering plants: Vegetative: Parts of a typical Angiospermic plant; Vegetative morphology and modifications-Root, stem and Leaf –types; Venation, Phyllotaxy.**Reproductive**: Inflorescence-Racemose, Cymose and Special types (in brief)-**Flower:** Parts of a flower and their detailed description; Aestivation, Placentation-**Fruits:** Types – True, False and parthenocarpic fruits.

Plant Systematics - Taxonomy of angiosperms: Introduction, Types of Systems of classification (In brief), Description of Families: Fabaceae, Solanaceae and Liliaceae.

Cell Structure And Function – The Unit of Life- Cell-Cell theory and cell as the basic unit of life- overview of the cell., Prokaryotic cells, Ultra structure of Plant cell (structure in detail and functions in brief), Cell membrane, Cell wall, Cell

organelles; Endoplasmic reticulum, Mitochondria, Plastids, Ribosomes, Golgi bodies, Vacuoles, Lysosomes, Microbodies and Nucleus, Chromosomes: Number, structural organization; Nucleosome,**Cell cycle and Cell Division-** Cell cycle, Mitosis, Meiosis- significance.

Plant Physiology – **Transport in Plants**: Diffusion, Active Transport, Plant-Water Relations, Translocation of Mineral Ions. **Mineral Nutrition**: Role of Macro & Micro Nutrients, Deficiency symptoms of essential elements. **Enzymes**: Chemical Reactions, nature of enzyme action, Classification and Nomenclature of Enzymes. **Photosynthesis**: Cyclic and Non-cyclic Photo-phosphorylation, Calvin cycle. **Respiration of Plants**: Glycolysis, Tricarboxylic Acid Cycle, Electron Transport. **Plant Growth and Development**: Auxins, Gibberellins, Cytokinins, Ethylene and Abscisic Acid.

Microbiology - Bacteria: Morphology of Bacteria, Bacterial cell structure-Nutrition, Reproduction – Sexual Reproduction, Conjugation, Transformation, Transduction. **The importance of Bacteria to Humans.**

Viruses: Discovery, Classification of viruses, Structure of Viruses, Multiplication of Bacteriophages- The Lysogenic cycle, Viriods, Prions, Viral diseases in Plants, Viral diseases in Humans**.**

Ecology & Environment: Ecosystem: Biotic and Abiotic factors, types and components of ecosystem, food chains, food Web, Energy flow and Ecological pyramids. Carbon, Nitrogen & Phosphorous cycles. Population attributes: Growth, Natality and Mortality, Age distribution, Population regulation.Flora and Fauna of Telangana.

Zoology

Zoology – Diversity of Living World

1. Branches of Zoology; Basic principles of Classification: Biological system of classification
2. Species concept
3. Biodiversity – Meaning and distribution (Genetic and Species Diversity, Ecosystem diversity), other attributes of biodiversity, role of biodiversity, threats to biodiversity, methods of conservation, IUCN Red data books, Conservation of wild life in India.

Structural Organization In Animals

1. Levels of organisation, Multicellularity: Diploblastic & Triploblastic: types of Summetry
2. Tissues: Ephithelial, Connective, Muscular and Nervous tissues.

Animal Diversity

General characteristics and classification up to classes – Porifera, Cnidaria, Ctenophora, Platyhelminthes, Nematoda, Annelida , Arthropoda, Mollusca, Echinodermata, Hemichordata and Chordata – Protochordates, Pisces, Amphibia, Reptiles, Aves and Mammalia.

Biology & Human Welfare

1. Parasitism and parasitic adaptation
2. Health and disease: Life cycle, Pathogenecity, Treatment & Prevention: Entamoeba, Plasmodium, Ascaris, Wuchereria
3. Drugs and Alcohol abuse.

Human Anatomy and Physiology

1. Digestion and absorption : Nutrional disorders: Protein Energy Malnutrition (PEM), Kwashiorkor.
2. Breathing and Respiration: Respiratory disorders: Asthma, Emphysema, Occupational respiratory disorders.
3. Body Fluids and Circulation: Disorders of circulatory system: Hypertension, coronary artery disease, angina pectoris, heart failure.
4. Excretory products, their elimination and Disorders.
5. Muscular and Skeletal system: Generation and conduction of nerve impulse; Reflex action; Sensory perception; Sensory receptors.

6. Endocrine system: Hypo and Hyper activity and related disorders: Dwarfism, acromegaly, cretinism, gioter, diabetes.
7. Immune system: Basic concepts of Immunology – Innate Immunity, Acquired Immunity, Active and passive Immunity, cell medicated Immunity and Humoral Immunity, HIV and AIDS.
8. Reproductive Health: Reproductive health and STD; Birth control, contraception and medical termination of pregnancy; Amniocenteses; IVF-EF, ZIFT, GIFT.

Genetics and Evolution

1. Principles of Mendelian inheritance, Multiple alleles, Sex Determination, Sex linked inheritance, Metabolic and Chromosomal disorders.
2. Origin of Life, Evidences for biological evolution, Theories of evolution: Lamarckism, Darwin's theory of Evolution – Natural Selection with example; Modern synthetic theory of Evolution; Gene flow and genetic drift; Adaptive radiation; Speciation – Allopatric, sympatric; reproductive isolation.

Applied Biology

Bio-medical Technology: Diagnostic Imaging (X-ray, CTscan, MRI), ECG, EEG, Application of Biotechnology in health: Human insulin and vaccine production; Gene Therapy; ELISA; Vaccines, MABs, Cancer biology, stem cells. Single cell protein (SCP), Tissue culture - **Microbes in Human Welfare-**Microbes in Household products, Microbes in Industrial products- Fermented Beverages, Antibiotics, Chemicals, Enzymes and other Bioactive Molecules, Microbes in production of Biogas, Microbes as Biocontrol Agents, Biological control of pests and diseases, Microbes as Bio fertilisers.