SYLLABUS FOR PhD IN PHYSIOLOGY

1. **General Physiology-** Introduction to Physiology, External & Internal environment & Homeostasis, Cell Physiology at molecular level.

2. **Hematology -** Plasma Proteins, Erythrocytes & Hemopoiesis, Leucocytes, Hemoglobin, Fate, anemia, polycythemia, Immunity, Blood Groups & Blood Transfusion, Platelets & Hemostatsis, Coagulation, Anticoagulants & hemophilia, Body fluid compartments, Blood volume.

3. **Nerve –** RMP, Action Potential, Classification of Nerve Fibers

4. **Muscle - Classification of Muscle, ,** Structure of Ske. Muscle, Neuromuscular transmission, Molecular basis of MS Contraction, Energetic & oxygen Debt, EMG

5. **Respiratory Physiology -** Mechanics of Respiration, Lung volumes & capacities, Diffusion of Gases, Gas Transport, Nervous control of respiration, Chemical control of respiration, Respiratory adjustment in exercise, Hypoxia types II high attitude hypoxia

6. **Cardiovascular Physiology -** Properties of Cardiac Muscle, Generation, Conduction, of cardiac impulse & ECG, Cardiac cycle, Heart Rate, Hemodynamic, Cardiac Output, Blood Pressure, Regional circulation, Exercise Adaptation, Shock.

7. **Renal Physiology -** GFR& renal Blood Flow, Concentration & Dilution of Urine, Formation of Urine, Physiology of micturition, Acid Base Balance.

8. **Body Temperature Regulation –** Homothermous, Regulation of Body Temperature.

9. **Alimentary System -** Salivary Secretion, Mastication & Deglutition, Gastric Secretion, Gastric Motility, Pancreatic Secretion, Liver & Gallbladder, Motility, GI hormones.

10. **Nutrition -** Concept of balanced Diet, Nutrition under special conditions.

11. **Endocrine System -** Endocri ne Functions of Hypothalamus, Anterior Pituitary Hormones, Posterior Pituitary Hormones, Thyroid, Parathyroid, Adrenal Cortex & Medulla, Pancreatic hormones.

12. **Reproductive Physiology -** Sex Chromosomes; Functional Anatomy, Puberty, Spermatogenesis, Menstrual Cycle, Ovulation, Fertilization Implantation, Contraception.

13. **Special Senses –** EYE, Photochemistry of vision, Visual Pathway, Ear, Middle & Internal Ear Impedance matching, Auditory Pathway, Taste, Smell.

14. **Central Nervous System -** General Outline, Synapse, Neurotransmitters, Receptors, Sensations, Polysynaptic reflexes, Ascending Tracts, Descending Tracts, Spinal Transactions, Posture & equilibrium, Vestibular apparatus, Thalamus, Hypothalamus, Limbic System, Reticular Formation, EEG, Sleep & Wakefulness, Cerebellum, Basal Ganglia, Cerebral Cortex, Speech, Memory, Learning & Conditioned reflexes, Autonomic Nervous System , CSF