

DIGITAL SHIKSHA AND ROJGAR VIKAS SANSTHAN

SYLLABUS FOR SCREENING TEST FOR THE POST OF LAB ASSISTANT

Paper	Questions	Marks	Total Mark	Duration
Part (1) 1. General Awareness & G.K. of India 2. General Intelligence & Reasoning ability. 3. Arithmetical & Numerical Ability. 4. Test of Hindi Language & Comprehension. 5. Test of English Language & Comprehension.	100	100	200 Marks	2 Hours
Part (2) Subjective (Biology, Chemistry, Physics) (10+2 Level)	100	100		

1. Negative Marking will be applicable and deduction of 1/3 marks will be made for each wrong MCQ answer.
2. The Board reserves its right to prescribe a minimum cut off mark for any post as per availability of candidates.
3. Skill test / Endurance test will be taken as per requirement of job

BIOLOGY [PART-A]

- General characters of :Algae. Fungi. Lichens. Bryophyta. Pterido-phyta, Gymnosperms. and Angiosperms.
- Morphology of Angiosperms: – Structure and Modification of Root. Stem and Leaf. Structure of flower and seed
- Plant Anatomy: Tissue and Tissue System Secondary growth
- Plant Physiology: Osmosis, Water Absorption Ascent of sap, Transpiration, Photosynthesis, Respiration, Plant growth and movement
- Environmental Studies: Structure and type of Ecosystem, Energy flow, Biogeo- Chemical Cycle,
- Ecological Adaptations, Environmental Pollution, Population Ecology, Biodiversity.
- Biotechnology: General Account, Recombinant m~A technology, Transgenic Plants and Animal,
- Ethical Issues, Application of Biotechnology in Agriculture and Medical field Economic Importance of Plants
- Cell: Structure (Prokaryotic and Eukaryotic) cell theory and cell Division

BIOLOGY [PART-B]

- Genetics. Mendel's law, General Terminology, Structure of DNA and RNA, Molecular basic of Heredity Structure of chromosome, sex determination and genetic disorders in man.
- Classification of Animal Kingdom: up to Phyla in Non chordates and up to class in chordates.
- Digestion, Respiration and Excretion in human. Protein, carbohydrate, Fat. Vitamin and digestive enzyme, Exchange of gases, Aerobic and Anaerobic respiration, Krebs cycle, Glycolysis Cytory substance. Structure and Physiology of Kidney
- Circulatory and Endocrine System of Human: Structure of Heart, Composition of blood, blood groups, Blood clotting, Lymph glands, Antigen and Antibodies. Endocrine glands and their hormones.
- Nervous System of Human: Structure of Brain, Eye and Ear, Structure of Neuron, nerve impulse.
- Muscular System: Type of Muscles and Muscle contraction
- Reproductive System in Human and Human Diseases Structure and Reproductive health.
- Disease in man caused by Bacteria, Virus, Protozoa, Fungi and Helminths
- Biological Evolution, Economic Importance of Animals

PHYSICS

- Dynamics of Rigid Body: Torque, Conservation of angular momentum, moment of inertia of simple geometrical objects,
- Thermodynamics: First & Second law of thermodynamics, heat engines and refrigerators.
- Oscillations: Simple harmonic motion & its example. resonance
- Waves: Principle of super -position of waves, Doppler effect.
- Electrostatics: Coulomb's law, electric field Gauss's theorem & its applications.
- Electric Current: Kirchhoff's law, Wheatstone-bridge, meter-bridge, potentiometer.
- Optics: microscope & telescope, interference, diffraction & polarisation, polarimeter.
- Atom: Bohr's model of H- atom.
- Nuclei: Mass defect, nuclear binding energy, nuclear fission & fusion.
- Semi-conductor Electronics: pn junction, transistor, logic gates, diode as a rectifier, zener diode.

CHEMISTRY

Periodic Table & Atomic Properties

- **Fundamental particles of an atom (electron, proton, neutron)**
- Rutherford's nuclear model
- Quantum Nos.
- Pauli's exclusion principle
- Aufbau principle
- Types of orbital (s, p, d, f), shape of orbital

- Hund's rule
- Modern periodic table
- Variation in atomic properties (Size, Ionisation potential, Electron affinity, Electronegativity)

s- Block & p-Block Elements

- General introduction
- Electronic configuration
- Occurrence
- Oxidation states
- Trends in Physical & Chemical properties
- Inert pair effect

Chemical Equilibrium

- Factors affecting Equilibrium
- Reversible and Irreversible reactions
- Laws of chemical Equilibrium
- Le Chatelier's principle

Ionic Equilibrium

- Acid base equilibrium
- pH Value
- Common ion effect
- Buffer solutions
- Acid Base titration

Gaseous State

- Properties
- Boyle's Law
- Charles Law
- Avogadro's Law
- Dalton's Law
- Ideal gas equation
- Graham's law of diffusion
- Kinetic theory of gases

liquid State

- Properties of liquids
- Vapour pressure
- Surface tension
- Viscosity

Solid State

- Properties of solids
- Classification of solids
- Unit cells & their types
- Packing of crystals
- Structure of simple ionic compounds
- Defects in crystals (Frenkel, Schottky)

Solutions

- Solute, Solvent, Solution
- Concentration of solutions (Molarity, Normality, Formality, Molality, Mole fraction, Weight percent)
- Types of solutions (Gas solutions, Liquid solutions, Solid solutions)
- Raoult's Law
- Ideal & Non-ideal solutions
- Colligative properties of solutions

Nomenclature & General Properties of Organic Compounds

- Rules of IUPAC nomenclature
- Types of reactions (Substitution, Addition, Elimination)
- Elec.trophiiies, Nucleophiles
- Inductive effect, Electromeric effect
- Resonance, Hyperconjugation, Steric effect
- Isomerism (structural & Stereo)

Hydrocarbons

- Definition & types of hydrocarbons (Alkane, Alkene, Alkyne, Arene)
- Preparation of hydrocarbons
- Physical properties
- Chemical properties