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RECRUITMENT FOR THE POST OF JUNIOR TECHNICIAN (Biology) SYLLABUS FOR TEST

Biochemistry

Water and polarity; Hydrogen bonds; Acids, bases, and pH; Buffers; Biomolecules: Carbohydrates, lipids, proteins, nucleic acids; Enzyme kinetics; Metabolism: Glycolysis, Krebs's cycle; Electron transport and oxidative phosphorylation

Cell biology

Prokaryotic cells; Eukaryotic cells: Cell wall, cell membrane, cytoskeleton, nucleus, chloroplast, mitochondria, endoplasmic reticulum, Golgi bodies, ribosomes, lysosomes, vacuoles. Cell cycle and division: mitosis and meiosis

Molecular biology

Genetic material; DNA and RNA; Biosynthesis: replication, transcription, translation, splicing; Polymerase chain reaction; Plasmid vectors; cloning and expression of proteins in prokaryotic and eukaryotic systems, promoters and enhancers

Microbiology

Bacteria; Archaea; Microbial eukarya; Bacterial Classification – Five kingdom concepts, The Bergey's Manual of bacterial classification, modern concepts of 16S RNA based classification; Bacterial genetics – outlines of transduction, transformation, conjugation, gene regulation and cloning; Bacterial growth – cell division, population growth, effect of temperature and pH; Classification and importance of other microbial groups – viruses, protozoa, fungi, algae, nematodes

Genetics

Mendelian laws of segregation and independent assortment, heredity and environment, Modified Mendelian ratios; Gene mapping; Chromosomal aberrations and gene mutations, Sex determination