



Entrance Examination Topics

Parts of the Exam:

1. Written exam

(20 questions in Biology, 20 questions in Chemistry, 30 questions in General and Medical English)

2. Oral exam (15-20 minutes interview with University professors)

I. Chemistry

1. Matter, atomic theory of matter
2. Electronic structure of atoms
3. Periodic table
4. Chemical bonds and Intermolecular forces
5. Stoichiometry and chemical equations
6. Gaseous state, gas laws
7. Solutions, concentrations
8. Reaction kinetics and chemical equilibria
9. Electrolytic equilibria, acid-base theories
10. Redox reactions
11. Basics of inorganic chemistry
12. Introduction to organic chemistry, alkanes
13. Cycloalkanes, alkenes, dienes and alkynes
14. Aromatic hydrocarbons and alkyl halides
15. Alcohols, phenols and ether
16. Aldehydes and ketones
17. Carboxylic acids
18. Carboxylic acid derivatives (esters, amides) soaps
19. Amines, heterocyclic compounds (pyrrol and pyridine)
20. Carbohydrates

II. Biology

1. The life signs, basic life processes and micro life (virus-bacteria-protist and fungi)
2. Chemical basis of life: Biogene elements, solutions (polar-apolar), diffusion/osmosis, pH, lipids
3. Macromolecules: monomers-polimers Carbohydrates, Proteins, Nucleotides-nucleic acids
4. Molecular basis of inheritance: DNA synthesis, Protein synthesis
5. Inheritance at cellular level: cell cycle, cell divisions (mitosis, meiosis) and their connection to genetic diversity
6. Inheritance: Mendelian genetics, population genetics, family trees
7. Cell biology: Structure of the cell
8. Cell biology: metabolism at cellular level: enzymes, biological oxidation, fermentation, macromolecules in the metabolism
9. Tissues: basic mammalian tissue types
10. Skin and the musculo-skeletal system (of mammals)
11. Respirational system (of mammals)
12. Excretory system (of mammals)
13. Circulation system (of mammals)
14. Immune system (of mammals)
15. Digestive system (of mammals)
16. Reproductive system (of mammals)
17. Regulation at cellular level, the endocrine system
18. Nerve system: cell types, resting potential, action potential, synapses, and anatomy of a mammal nerve system
19. Nerve system: functional units: CNS, PNS, somatic (pyramid and extrapyramid system), Cerebrum, cerebellum, brainstem
20. Sensory (vision, hearing, motion and equilibrium, taste, smell and touch) and motor functions (sympathic, parasympathic system)