

Syllabus for Lateral Entry Examinations-2020

Bio –Technology

1. Physics

Optics: Interference, Diffraction, Polarization

Relativity: Lorentz transformations, Length contraction, Time dilation, Mass-energy relation

Lasers: Spontaneous and stimulated emission, Laser action, Ruby laser, He-Ne laser.

Spectroscopy: Microwave, Infrared, Raman, UV-Visible spectroscopy, X-ray diffraction, Nuclear magnetic resonance

Books:

1. Optics by A. K. Ghatak

2. Concepts of modern physics by Arthur Beiser

3. Fundamentals of Molecular Spectroscopy by C. N. Banwell

2. Mathematics

Differential and Integral Calculus

Differential equation

Matrices and Determinants

Books: 10+2 books (CBSE)

3. Computer science

Computer and programming:

Introduction to computers, Structured programming in C, Data types, Control flow, Selection, Looping, Array, String, Pointer, Function, Structure, Union, Iteration, File I/O, Linked list. Number system and representation, Fixed and Floating point numbers, Binary arithmetic, Character representation,

4. Foundation course in Biology

Structure of cell organelles, Bacteria and viruses

Cell division, Structure of DNA, RNA, Protein, Biomolecules

Animal and Plant Physiology, Photosynthesis

Books: Biological Science, D.J.Taylor, N.P.O .Green and G.W.Stout (Ed), R.Soper

5. Biochemistry

Chemistry of Biomolecules

Basic concepts of biochemistry (Concepts of thermodynamics, general information about carbohydrates, protein and lipids), Enzymes,

Membranes structure and composition, Metabolic pathways, (anabolism and catabolism) metabolism of carbohydrates, protein and lipid, Oxidative phosphorylation Protein structure

Books: Biochemistry by Stryer

Principles of Biochemistry: Albert L. Lehninger, David L. Nelson, Michael M. Cox

6. Genetics

Introduction to Genetics,

Basic principles of Mendelian experiments and exceptions,

Chromosome theory of inheritance,

Linkage, crossing over and mutation,

Extra Chromosomal Inheritance,

Population Genetics

Books:

1. An Introduction to Genetic Analysis. Griffiths et al.

2. Genetics by Strickberger

3. Principles of Genetics. E J Gardner, M J Simmons and D P Snustad