

2023/2024 – Interview for BSc Biotechnology programme

1. Structure and function of organelles in eukaryotic cells.
2. Comparison of prokaryotic and eukaryotic cells.
3. Comparison of animal and plant cells.
4. Structure and function of biological membranes.
5. Biochemical evidence for evolution.
6. Transport of biological compounds in plants and animals.
7. The role of blood components.
8. Human immune system.
9. Hormones and their functions in human body.
10. ATP – a molecule responsible for storing and transferring energy in cells.
11. Similarities and differences between aerobic respiration and fermentation.
12. Interconnection between respiration and photosynthesis.
13. Proteins, carbohydrates and lipids - structure and biological significance.
14. Enzymes - function, properties and examples.
15. Digestive enzymes - examples, mechanisms of activation and activity.
16. DNA and RNA – structure and function.
17. Replication, transcription and translation - localization, process and significance.
18. Features of genetic code.
19. Mutations – definition, classification and significance.
20. DNA damage, repair and recombination.
21. Gene, allele, chromosome, genome, phenotype, genotype - definitions and relationships between them.
22. Restriction enzymes, vectors, transgenic organisms.
23. Human genetic disorders - examples, diagnostics, current and future prospects of gene therapy.
24. Examples of biotechnology and genetic engineering applications in pharmaceutical industry, medicine and agriculture.
25. Definitions of basic chemical terms (Avogadro's constant, mole, molar mass, molarity, viscosity, density, osmosis, diffusion, dissociation, isotopes, isomerism, etc.).
26. Basic calculations: concentration (M and %), mass, volume, dilution; ion-product of water, pH of strong and weak acids and bases.