Questions on molecular biology of intermediate knowledge control module № 2

1. Alternative forms of DNA double helix. Characteristics of the z-form of DNA and its biological significance.
2. Amino acids are subunits of proteins.
3. Intracellular synthesis and transport of proteins.
4. Genetic code.
5. Gene therapy: methods and prospects.
6. Genomes of cell organelles: chloroplasts and mitochondria.
7. Degradation of proteins inside the cell.
8. DNA structure and localization in cells. DNA synthesis.
9. Research methods in molecular biology.
10. DNA repair mechanism, classification of reparative mechanisms.
11. Molecular organization of the cell.
12. Molecular mechanisms of intracellular transport.
13. Molecular mechanisms of splicing.
14. Nucleosomal structure of chromatin. Euchromatin and heterochromatin.
15. Molecular mechanisms of intercellular signaling and integration.
16. Post-transcription control.
17. Appearance and development of nucleic acid sequencing methods.
18. Direct repair of thymine dimers and alkylated bases.
19. Implementation of the genotype in the phenotype.
20. Recombination of DNA.
21. Repair of damaged DNA.
22. The role of RecA, Rec BCD and Ruv ABC proteins in recombination of coli.
23. Structure and physico-chemical properties of DNA. Characteristics In form of the DNA helix.
24. The structure of the replication fork. Characterization of proteins involved in replication in E. coli.
25. Superspiralizatiou DNA. Characteristics of DNA topoisomerases.
26. Telomerase, the mechanism of replication of the ends of linear chromosomes.
27. Gene transcription.
28. Functional analysis of the genome.
29. Characterization of DNA polymerases of E. coli.
30. Characteristics of eukaryotic DNA polymerases.
31. Cell cytoskeleton.
32. Stages of realization of genetic information in a cell and their control.