

# Portal:Exam Topics in Biology and Medical Genetics (1. LF, D)

1. Exam Topic 1
  - Genotype and its variability, mutation, recombination
  - Genetic control of antibody production
  - Prevention and early diagnostics of inherited diseases
2. Exam Topic 2
  - Genotype and environment
  - Mitosis, its regulation and defects
  - The inheritance and biological importance of blood group systems
3. Exam Topic 3
  - Methods of genetic analysis in experimental and human genetics
  - Structure and reproduction of bacteria, importance for medicine
  - The inheritance and biological importance of Rh system
4. Exam Topic 4
  - Fundamental laws of genetics, Mendel's experiments
  - Cell cycle, its regulation and defects
  - Human major histocompatibility complex
5. Exam Topic 5
  - Genealogical method
  - DNA structure and function
  - Immunocompetent cells
6. Exam Topic 6
  - Autosomal dominant inheritance in experiment and pedigrees, examples of human traits
  - RNA types, structure and function
  - Genetic control of immune response
7. Exam Topic 7
  - Autosomal recessive inheritance in experiment and pedigrees, examples of human traits
  - Gene structure and function
  - Transplantation rules
8. Exam Topic 8
  - Gonosomal inheritance in experiment and pedigrees, examples of human traits
  - DNA replication
  - Detection and prevention of inherited chromosomal aberrations
9. Exam Topic 9
  - Multifactorial inheritance
  - Genetic code
  - Indication of chromosomal analysis
10. Exam Topic 10
  - Human traits with multifactorial inheritance
  - Protein-coding and non-coding DNA sequences
  - Genetics of transplantations, transplantation rules, histocompatibility systems
11. Exam Topic 11
  - Heritability and significance of its assessment in medicine
  - Translation, post-translational protein modifications
  - Syndromes of autosomal aneuploidies
12. Exam Topic 12
  - Dihybridism, interaction of non-allelic genes, polyhybridism
  - Transcription and post-transcriptional modifications of RNA in Eukaryotes
  - Environmental mutagenic and teratogenic factors
13. Exam Topic 13
  - Multiple alleles
  - Genetics of aging and death
  - Aims and mission of medical genetics
14. Exam topic 14
  - Genetic linkage
  - Regulation of gene function in Prokaryotes
  - Preconception prevention of heritable diseases
15. Exam Topic 15
  - Genetic methods of linkage analysis
  - Gene mutation, types and manifestation
  - Tumorigenesis, cancerogenesis, cancerogens
16. Exam Topic 16
  - Crossing-over, its mechanism and importance
  - Regulation of gene function in Eukaryotes
  - Screening of heritable diseases
17. Exam Topic 17
  - Molecular basis of heritable disease
  - Somatic and gametic (germline) chromosomal aberrations

- Genetic counseling and its importance
- 18. Exam Topic 18
  - Epigenetics, "thrifty" genotype and "thrifty" phenotype
  - Mutagens a mutagenesis, testing of mutagenicity
  - Characteristics of cancer development
- 19. Exam Topic 19
  - Extrachromosomal inheritance, non-Mendelian inheritance
  - Reparation mechanisms of nucleic acids
  - Ethical and legal aspects of medical genetics
- 20. Exam Topic 20
  - The importance and structure of Eukaryotic chromosomes
  - The Inborn Errors of Metabolism
  - Population genetics, C-H-W equilibrium
- 21. Exam Topic 21
  - Population polymorphisms and their causes
  - Methods of nucleic acids analysis
  - Chromosomal aberrations in etiology of neoplasia
- 22. Exam Topic 22
  - Inbreeding, consanguineous marriage and its risks
  - Chromosome number and structure, techniques of examination
  - Ontogenesis of sex in mammals and its defects
- 23. Exam Topic 23
  - Prenatal diagnostics of inherited disease
  - Transcription and post-transcriptional modifications of RNA in Prokaryotes
  - Teratogenesis, teratogens
- 24. Exam Topic 24
  - Small populations, genetic drift, importance for evolution
  - Hemoglobinopathies
  - Inherited diseases of development in man, examples, partition according to causes
- 25. Exam Topic 25
  - Meiosis, its regulation and defects
  - Conjugation, transformation, transduction
  - Reparation mechanisms of the organism and their genetic control
- 26. Exam Topic 26
  - Gametogenesis
  - Direct and indirect diagnostics of heritable diseases by nucleic acid analysis
  - Causes of chromosomal aberration
- 27. Exam Topic 27
  - Genealogical methods
  - The importance and structure of chromosomes of Prokaryotes
  - Prenatal diagnostics of inherited disease
- 28. Exam Topic 28
  - Human karyotype, methods of its examination
  - Structure and function of Eukaryotic cell
  - Characteristics of cancer cells
- 29. Exam Topic 29
  - Aberrations of chromosome number, their causes and clinical presentation
  - Cell signaling pathways
  - Familial tumors
- 30. Exam Topic 30
  - Syndromes of gonosome aneuploidies
  - Tumor-suppressor genes
  - Structure and function of Prokaryotes
- 31. Exam Topic 31
  - Aberrations affecting chromosome structure
  - Protooncogenes, oncogenes
  - Cultivation of cells and tissues in vitro, importance in medicine
- 32. Exam Topic 32
  - Chromosomal sex determination
  - Genetic regulation in multicellular organisms
  - Prenatal screening of inherited disease