

# Portal:Questions for final examination in Histology (1. LF UK, GM)

## Cytology and Histological Technique

1. Structural organization of the cell - overview of cell components
2. Cell membrane - structure and function
3. Nucleus and nucleolus - structure and function
4. Membranous cell organelles - structure and function
5. Non-membranous cell organelles - structure and function
6. Cytoskeleton - structure, function and tissue specificity, principles of biological motors
7. Intercellular junctions
8. Cell inclusions, classification and functional significance
9. Cell cycle and its regulation
10. Cell division - mitosis and meiosis
11. Endocytosis and exocytosis, their morphological manifestations
12. Specialization of the cell surface, microvilli, stereocilia, cilia, basal and basolateral labyrinth
13. Uptake of material for histological evaluation
14. Collection and processing of material for histological evaluation
15. Histochemical methods, principles and application
16. Immunohistochemical methods, principles and application
17. Basic and special staining methods, principles and results
18. Structural organization of the cell, overview of cell components

## General histology

1. Epithelial tissue (classification according to the structure)
2. Epithelial tissue (classification according to the function))
3. Epithelial tissue (general characteristics, classification, polarity, function)
4. Secretory epithelium, synthesis and release of secretions, types of secretion
5. Absorptive epithelium
6. Sensory epithelium
7. Respiratory epithelium
8. Connective tissue - general structure and classification
9. Extracellular matrix - ground substance and fibrillar components
10. Connective tissue proper - general characteristics and classification
11. Collagen connective tissue - structure and function
12. Adipose tissue - structure and function
13. Cell types of connective tissue and their function
14. Cartilage - structure and function, description of the individual types
15. Microscopical structure of the bone tissue, description of the individual types
16. Endochondral ossification
17. Intramembranous ossification
18. Microscopical structure of the bone marrow
19. Composition of the peripheral blood
20. Peripheral blood elements (description and general features)
21. Erythrocytes (structure and function)
22. Leukocytes, classification, structure and function of individual forms, leukogram
23. Agranulocytes - mononuclears, structure and function
24. Granulocytes - polymorphonuclears, structure and function
25. Platelets - differentiation, structure and function
26. Preparation, staining and evaluation of the blood smear
27. Hematopoiesis, its periods, stem and progenitor cells, regulation of hematopoiesis
28. Development of erythrocytes
29. Leukopoiesis
30. Muscle tissue and its classification
31. Smooth muscle tissue
32. Cross-striated muscle tissue, common features structure and function
33. Structure of the skeletal muscle
34. Ultrastructure and function of the myofibril
35. Structure of the myocardium, structure and function of the heart impulse-conducting system
36. General structure of nervous tissue
37. Nerve cell - structure, types of neurons
38. Synapses - structure and function, types of synapses
39. Types of nerve fibers and their sheaths
40. Neuroglia - common features, classification and function
41. General structure of blood vessels, classification and function
42. Capillaries, classification, structure and function
43. Heart, structure of the wall, valves, impulse-conducting system

44. Lymphoid organs and defense of the organism
45. Thymus, structure and function
46. Lymph node, structure and function
47. Spleen, structure and function

## **General embryology**

1. Development of female gametes – oogenesis
2. Development of male gametes – spermatogenesis
3. Fertilization and early development of the human embryo
4. Development of the blastocyst
5. Implantation of the blastocyst
6. Development of the amniotic and yolk sacs, chorion
7. Embryonic disc and its differentiation
8. Formation of the germ layers
9. Notogenesis
10. Primitive blood circulation
11. Development of the umbilical cord and placenta and their developmental anomalies
12. Placenta and fetal membranes structures and development
13. Development of the facial region
14. Development of the tooth
15. Primitive cardiovascular system development
16. Growth of the embryo, signs of the full-term baby, childbirth (parturition)
17. Multiple pregnancies, twins and their fetal membranes
18. Differentiation of mesoderm and mesenchyme
19. Anomalies of the implantation, ectopic pregnancy
20. Causes and manifestations of abnormal development, teratogenesis
21. Development of the nasal and oral cavities
22. Development of the chorion and chorionic villi. Hematoplacental barrier