SINOPSIS
for the cytology, general histology and embryology examination – first year medical students

1. Subject, purpose and history of the cytology
2. Introduction in cytology. Methods of the cell study. Principles of cytological, histological, cytochemistry, immunohistochemistry investigations
3. Methods of the cell study - preparation of permanent histological material
4. Methods of the cell study - microscope and different types of microscopes
5. The cell – chemical composition. Hyaloplasm
6. The cell - external morphology
7. The cell - internal morphology and organization
8. The cell membrane – structure and functions. Glycocalyx (Cell coat)
9. The cell membrane - specialized structures of the cell membrane, intercellular junctions.
10. Membranous cell organelles - endoplasmic reticulum
11. Membranous cell organelles - mitochondria
12. Membranous cell organelles - Golgi apparatus. Secretory vesicles, coated vesicles.
13. Membranous cell organelles - lysosomes. Peroxisomes.
14. Cell nucleus – structure of interphase nucleus: chromatin, nucleolus, nuclear matrix.
15. Cell nucleus – ultrastructural organization: structure of the nuclear envelope - nuclear pores
16. Cell nucleus – chromosomes, structure and replication of DNA.
17. Nonmembranous cell organelles - ribosomes, polyribosomes
18. Nonmembranous cell organelles - microtubules and cytofilaments.
19. Nonmembranous cell organelles - cytocenter.
20. Specialized cell organelles. Cell inclusions.
21. Cytophysiology – vital and mitotic cycle of the cell. Amitosis, mitosis, meyosis.
22. Cytophysiology – cellular metabolism, transmembrane transport.
23. Cytophysiology – cellular signaling, cellular reactivity and motility.
24. Cytophysiology – cellular differentiation, growth, aging and death.
25. General histology – introduction. Tissues – definition, general features, classification.
26. Epithelial tissue – general features, types of epithelial tissue.
27. Epithelial tissue - surface epithelium.
28. Epithelial tissue - glandular epithelium.
29. Connective tissue - general features and classification.
30. Connective tissue – connective tissues with non-differentiated intercellular substance
31. Connective tissues - connective tissues with fibrous intercellular substance
32. Connective tissues - connective tissues with dense intercellular substance.
33. Blood and lymph – blood and lymph plasma: contents, antibodies
34. Morphology and function of erythrocytes, leucocytes, thrombocytes.
35. Erythropoesis – formation of erythrocytes.
36. Leucopoesis – formation of granulocytes and agranulocytes.
37. Thrombocytopoesis – formation of thrombocytes.
38. Muscle tissue – general features. Types of muscle tissue.
39. Muscle tissue – skeletal muscle tissue. Muscle contraction
40. Muscle tissue -. smooth and cardiac muscle tissue

41. Nerve tissue – general features. Neuroganglion cells: external and internal morphology. Neurosecretory cells.
42. Nerve fibers and their sheaths. Peripheral nerves.
43. Terminal section of nerve cells. Synapses - principle of organization, types.
44. Neuroglia - types and features.
45. Receptor and effector nerve endings – structure and functions.
46. Sex cells – female sex cells.
47. Sex cells – male sex cells.
48. Subject, tasks and methods of general embryology.
49. Spermato- and ovogenesis. Ovulation
50. Fertilization.
51. Segmentation, blastogenesis
52. Cyclic changes in uterine mucosa.
53. Implantation.
54. Formation of germ layers and axial organs.
55. Derivatives of germ layers. Disturbances in the development - mutations
56. Formation and development of embryonic envelopes.
57. Placentation. Structure of the placenta. Umbilical cord.
58. Embryonal blood circulation.
59. Teratology - teratogenic factors.

RECOMMENDED LITERATYRE

1. Junqueira, K., J. Carneiro and K. O. Kelly. Basic Histology, Appleton and Lange, 1995
2. Larsen, William J. Embryology, Churchill Livingstone Inc. 1993.
3. Sadler, T.W. Langman's Medical Embryology, Baltimor, The Williams & Wilkins Co., 1990.
4. Bloom, William & Don W. Fawcett. A Textbook of Histology, Saunders Comp., Philadelphia,1996.
5. Gray's Anatomy, Churchill Livingstone
6. Snell, R. Clinical Anatomy .Little, Brown and Co. Boston, 1995.
7. Sadler, T.W. Langman's Medical Embryology, Baltimor, The Williams & Wilkins Co., 1990.