

QUESTIONNAIRE OF CYTOLOGY, HISTOLOGY AND EMBRIOLOGY

Academic Year 2011 – 2012

For 1st year dental medicine students of the English Language Programme

Medical University “Prof. Dr. Paraskev Stoyanov” – VARNA

I. CYTOLOGY

1. Living matter – characteristics. Cell – definition and general concepts. Main principles of the cell theory.
2. Cytological and histological methods of study.
3. Chemical composition and cell organization hierarchy.
4. External morphology of the cell.
5. Classification and general characteristics of the cellular structures. Biological membranes – characteristic, relationships, importance and functions.
6. Plasmalemma. Glycocalyx.
7. Cell matrix. Endoplasmic reticulum.
8. Golgi apparatus (complex).
9. Lysosomes.
10. Peroxisomes.
11. Mitochondria.
12. Interphase nucleus.
13. Chromosomes. Human karyotype.
14. Ribosomes. Polysomes.
15. Cytoskeleton – microfilaments, intermediate filaments, microtubules.
16. Microtubule derivatives – centrioles.
17. Cell surface specializations of the apical, lateral, and basal surface of plasma membrane.
18. Microtubule derivatives – basal bodies, cilia and flagella.
19. Nonobligatory cell organelles. Cell inclusions.

20. Transmembrane, intracellular and transcellular transport.
21. Endocytosis and exocytosis.
22. Cell metabolism. Assimilation and dissimilation. Biosynthesis and secretion.
23. Cell signaling.
24. Cell cycle. Cell growth and differentiation.
25. Cell replication. Mitosis (incl. endomitosis) and amitosis.
26. Cellular and intracellular movements.
27. Excitability and cell reactivity. Cell aging and death. Apoptosis.

II. GENERAL HISTOLOGY

28. Tissues – definition, classification, origin and general properties. Epithelial tissue - definition, classification, origin, characteristics and functions.
29. Covering epithelia - definition, classification, distribution, and histophysiology.
30. Enamel and enameloblasts.
31. Exocrine glandular epithelium - definition, classification, distribution, and histophysiology.
32. Endocrine glandular epithelium - definition, organization forms, distribution and histophysiology.
33. Connective tissue - definition, classification, origin, characteristics and functions.
34. Connective tissue cells (incl. odontoblasts, cementoblasts and cementocytes)
35. Connective tissue extracellular matrix.
36. Mesenchyme, mucous connective tissue, loose connective tissue.
37. Collagenous, elastic, reticular and adipose tissue.
38. Cartilaginous tissue. Chondrogenesis.
39. Osseous tissue. Osteogenesis.
40. Cementum. Dentin.
41. Blood. Lymph.

42. Hemopoiesis – embryonic, fetal and postnatal.
43. Erythrocytes. Erythropoiesis.
44. Granulocytes. Granulopoiesis.
45. Monocytes. Monocytopoiesis.
46. Lymphocytes. Lymphocytopoiesis.
47. Platelets (formation).
48. Muscle tissue - definition, classification, origin, characteristic and functions.
49. Skeletal muscle tissue.
50. Cardiac muscle tissue.
51. Smooth muscle tissue.
52. Nerve tissue - definition, classification, origin, characteristic and functions.
53. Neurons – classification, structure, distribution and functions.
54. Synapse. Interneuronal synapses.
55. Neurosecretory cells. Paraneurons.
56. Neuroglia – types, structure, distribution and functions
57. Nerve fibers.
58. Receptor nerve endings.
59. Effector nerve endings.

III. GENERAL EMBRYOLOGY

60. Subject, aim, tasks, methods and relations of the general embryology to other medical sciences.
61. Meiosis and gametogenesis. Deviations from the normal course of meiosis. Differences between male and female meiosis.
62. Spermatogenesis. Spermatozoa - structure and function.
63. Oogenesis. Ovulation - structure and function of the mature oocyte.
64. Cyclic changes of the endometrium during the menstrual cycle.
65. Semen – formation, ingredients and characterization.

66. Insemination. Sperm migration in the femal reproductive tract. Transport of the secondary oocyte after ovulation.
67. Fertilization.
68. Ist week of hunian development – cleavage. Blastocyst formation.
69. Implantation.
70. IInd week of hunian development – differentiation of the trophoblast, embryoblast and development of the extraembryonic mesoderm.
71. Abnormal blastocysts. Abnormal implantatlon sites. Assisted reproductive technologies.
72. IIIrd week of human development – gastrulation (formation of embryonic mesoderm and endoderm).
73. IIIrd week of human development – formation of the notochord. Growth of the embryonic disc, further development of the trophoblast.
74. IIIrd – VIIIth week of human development – derivatives of the ectodermal germ layer.
75. IIIrd – VIIIth week of human development – development of the mesodermal germ layer.
76. IIIrd – VIIIth week of human development – differentiation of the paraxial mesoderm.
77. IIIrd – VIIIth week of human development – differentiatlon of the intermediate mesoderm and lateral plate mesoderm.
78. Embryonic blood ciculation.
79. IIIrd – VIIIth week of human development - derivates of the endodermal germ layer.
80. External appearance of the human embryo during the second month.
81. Embriomic and fetal membranes: yolk sac, amnion, allantois. Amniocantesis.
82. Placentation and placenta. Umbilical cord.
83. Twins and multiple births.
84. Congenital malformations. Prenatal diagnosis.