МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

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«ГОМЕЛЬСКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ»

Кафедра гистологии, цитологии и эмбриологии

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ТЕСТОВЫЕ ЗАДАНИЯ ПО ГИСТОЛОГИИ

Учебно-методическое пособие
для студентов 1–2 курсов факультета
иностранных студентов,
обучающихся по специальности «Лечебное дело»

HISTOLOGY TESTS

Teaching guide
for 1–2nd year students
of Faculty of foreign students, studying
on specialty of «General Medicine»

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В учебно-методическом пособии представлены три типа заданий тестового контроля полного курса цитологии, гистологии и эмбриологии на английском языке. К каждому разделу прилагаются варианты правильных ответов на тестовые вопросы.

Учебно-методическое пособие предназначено для студентов 1–2 курсов факультета иностранных студентов, обучающихся на английском языке в медицинских вузах.

Утверждено и рекомендовано к изданию научно-методическим советом учреждения образования «Гомельский государственный медицинский университет» 27 октября 2021 г., протокол № 2.

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INTRODUCE

The test form of control is currently widely used in the learning process, as it helps to unify the requirements for the volume and level of knowledge, eliminates a subjective approach to their assessment, and also allows to quickly control knowledge among a large number of students.

Test control materials are developed in English for all sections of the course of histology, cytology and embryology and are intended for teaching foreign students of medical universities.

Test control materials include three types of test tasks. The first type of test tasks is incomplete statements or choice questions from which to choose one correct one.

The second type of test tasks is a task for mapping the elements of one set with the elements of another set, which requires the selection of the correct answer to each position.

The third type of test tasks is incomplete statements or questions for which one answer or one of the presented combinations of several answers can be correct.

At the end of each type of test task, standards of correct answers are proposed.

The materials of the test control in histology can be used in practical classes, as well as an additional tool for self-control, as one of the elements of the learning process.

TYPE I test

Choose one correct answer

1. Plasma membrane consists of all components except for one:

Variants of answer:

A) phospholipid molecules;
B) carbohydrates;
C) glycosaminoglycans;
D) transport proteins;
E) proteins enzymes.

2. Golgi complex performs all enumerated functions, except for one:

Variants of answer:

A) accumulation, sorting, packaging and transport of synthesized products;
B) formation of glycoproteins and lipoproteins;
C) formation of lysosomes;
D) detoxification of peroxide;
E) formation of cellular membranes.

3. Biosynthesis of lipids takes place in:

Variants of answer:

A) smooth EPR;
B) rough EPR;
C) Golgi complex;
D) lysosomes;
E) mytochondria.

4. Calcium ions storage takes place in:

Variants of answer:

A) Golgi complex;
B) lysosomes;
C) mytochondria;
D) smooth EPR;
E) rough EPR.

5. In a cell, the subunits of ribosomes are formed in:

Variants of answer:

A) smooth EPR;

B) rough EPR;
C) nucleolus;
D) Golgi complex;
E) mytochondria.

6. Membranous organelles are all enumerated, except for one:

Variants of answer:
A) Golgi complex;
B) lysosomes;
C) mytochondria;
D) peroxisomes;
E) ribosomes.

7. Non-membranous organelles are all enumerated, except for one:

Variants of answer:
A) ribosomes;
B) centrioles;
C) mytochondria;
D) microtubules;
E) filaments.

8. Energy apparatus of a cell is represented with:

Variants of answer:
A) Golgi complex;
B) lysosomes;
C) mytochondria;
D) peroxisomes;
E) ribosomes.

9. In cells, the organelles taking part in degradation of hydrogen peroxide excess are:

Variants of answer:
A) Golgi complex;
B) lysosomes;
C) mytochondria;
D) peroxisomes;
E) ribosomes.

10. Synthetic apparatus of cell includes all organelles, except for one:

Variants of answer:
A) Golgi complex;

B) lysosomes;
C) smooth EPR;
D) rough EPR;
E) ribosomes.

11. Genetic apparatus of cell is represented with:
Variants of answer:
A) Golgi complex;
B) lysosomes;
C) mytochondria;
D) ribosomes;
E) nucleus.

12. In cells, the lysosomes providing an autophagy are called:
Variants of answer:
A) hydrolase vesicles;
B) endolysosomes;
C) phagolysosomes;
D) multivesicular bodies;
E) autophagolysosomes.

13. The type of lysosomes typical for long living and aging cells is called:
Variants of answer:
A) hydrolase vesicles;
B) endolysosomes;
C) phagolysosomes;
D) residual bodies;
E) autophagolysosomes.

14. In cells, the newly formed lysosomes with inactive enzymes are named:
Variants of answer:
A) hydrolase vesicles;
B) endolysosomes;
C) phagolysosomes;
D) residual bodies;
E) autophagolysosomes.

15. The basic structural unit of chromatin is called:
Variants of answer:
A) nucleosome;

B) chromatin fibril;
C) chromatin fiber;
D) chromatid;
E) chromosome.

16. The organelle of cells, providing formation of mitotic spindle during mitosis is called:

Variants of answer:
A) Golgi complex;
B) lysosomes;
C) EPR;
D) centrosome;
E) ribosomes.

17. What is the feature of a compound exocrine gland:

Variants of answer:
A) branched duct;
B) unbranched duct;
C) single secretory portion;
D) branched secretory portion;
E) tubularalveolar shape of secretory portion.

18. What is the feature of a simple exocrine gland:

Variants of answer:
A) branched duct;
B) unbranched duct;
C) single secretory portion;
D) branched secretory portion;
E) tubular shape of secretory portion.

19. During holocrine secretion takes place:

Variants of answer:
A) integrity of secretory cell's structure;
B) destruction of secretory cell's apical part;
C) destruction of secretory cell's basal part;
D) full destruction of secretory cell;
E) destruction of secretory cell's nucleus.

20. During apocrine secretion takes place:

Variants of answer:
A) integrity of secretory cell's structure;
B) destruction of secretory cell's apical part;

C) destruction of secretory cell's basal part;
D) full destruction of secretory cell;
E) destruction of secretory cell's nucleus.

21. During merocrine secretion takes place:
Variants of answer:
A) integrity of secretory cell's structure;
B) destruction of secretory cell's apical part;
C) destruction of secretory cell's basal part;
D) full destruction of secretory cell;
E) destruction of secretory cell's nucleus

22. Anchoring junctions of epithelial cells include all types, except for one:
Variants of answer:
A) desmosomes;
B) hemidesmosomes;
C) nexuses;
D) zonulae adherens;
E) focal adhesions.

23. What is the feature of an unbranched exocrine gland:
Variants of answer:
A) branched duct;
B) unbranched duct;
C) single secretory portion;
D) branched secretory portion;
E) tubularalveolar shape of secretory portion

24. What is the feature of a branched exocrine gland:
Variants of answer:
A) branched duct;
B) unbranched duct;
C) single secretory portion;
D) branched secretory portion;
E) tubularalveolar shape of secretory portion.

25. Epithelial tissues possess all general characteristics, except for one:
Variants of answer:
A) resting on a basement membrane;

B) polarity;
C) vascularization;
D) high ability to regeneration;
E) rich supplying with sensory nerve endings.

26. Epithelial tissues possess all general characteristics, except for one:

Variants of answer:
A) resting on a basement membrane;
B) polarity;
C) absence of vessels;
D) low ability to regeneration;
E) rich supplying with sensory nerve endings

27. Intercellular junctions providing attachment of epithelial cells to the basement membrane are called:

Variants of answer:
A) gap junctions;
B) hemidesmosomes;
C) desmosomes;
D) zonula adherens;
E) tight junctions.

28. Intercellular junctions presenting with a pair of connexons are called:

Variants of answer:
A) gap junctions;
B) hemidesmosomes;
C) desmosomes;
D) zonula adherens;
E) tight junctions

29. Intercellular junctions presenting with a series of focal fusions between the cells are called:

Variants of answer:
A) gap junctions;
B) hemidesmosomes;
C) desmosomes;
D) zonula adherens;
E) tight junctions.

30. Epithelium lining skin belongs to the type:

Variants of answer:

A) stratified non-keratinized squamous;
B) stratified keratinized squamous;
C) transitional;
D) pseudostratified;
E) simple columnar.

31. Epithelium lining respiratory tract belongs to the type:

Variants of answer:

A) stratified non-keratinized squamous;
B) stratified keratinized squamous;
C) transitional;
D) pseudostratified;
E) simple columnar.

32. Epithelium lining urinary passageways belongs to the type:

Variants of answer:

A) stratified non-keratinized squamous;
B) stratified keratinized squamous;
C) transitional;
D) pseudostratified;
E) simple columnar.

33. During granulopoiesis, the first specific granules are synthesised in cytoplasm of:

Variants of answer:

A) myeloblasts;
B) promyelocytes;
C) myelocytes;
D) metamyelocytes;
E) band granulocytes.

34. During granulopoiesis, the primary (azurophilic) granules are synthesised in cytoplasm of:

Variants of answer:

A) myeloblasts;
B) promyelocytes;
C) myelocytes;
D) metamyelocytes;
E) band granulocytes.

35. Life span of erythrocytes is:

Variants of answer:

A) 1 hour;
B) 8-12 hours;
C) 1 week;
D) 1 month;
E) 120 days.

36. Effector cells of humoral immunity are:

Variants of answer:

A) plasma cells;
B) T-killer lymphocytes;
C) T-helper lymphocytes;
D) B- lymphocytes;
E) NK- cells.

37. Platelets are small cytoplasmic fragments of bone marrow cells called:

Variants of answer:

A) proerythroblast;
B) megakaryoblast;
C) megakaryocyte;
D) promyelocyte;
E) promegakaryocyte.

38. Effector cells of cellular immunity are:

Variants of answer:

A) plasma cells;
B) T-killer lymphocytes;
C) T-helper lymphocytes;
D) B- lymphocytes;
E) NK- cells.

39. Long living lymphocytes are called:

Variants of answer:

A) T- and B- memory cells;
B) T-killer cells;
C) T-helper cells;
D) T-suppressor cells;
E) NK- cells.

40. In normal blood, the most numerous erythrocytes according to their shape are:

Variants of answer:

A) spherical;
B) flattened;
C) bell-like;
D) spiny configuration;
E) biconcave disks.

41. In women, the Barr body is condensed, single, inactive X chromosome in the nucleus of:

Variants of answer:

A) neutrophils;
B) eosinophils;
C) basophils;
D) lymphocytes;
E) monocytes.

42. The cells of blood named microphages are:

Variants of answer:

A) neutrophils;
B) eosinophils;
C) basophils;
D) lymphocytes;
E) monocytes.

43. Specific granules of eosinophils contain all components, except for one:

Variants of answer:

A) major basic protein;
B) eosinophil cationic protein:
C) arylsulfatase;
D) histamine;
E) histaminase.

44. The cells of blood, playing a key role in antiparasitic defence are:

Variants of answer:

A) neutrophils;
B) eosinophils;
C) basophils;
D) lymphocytes;
E) monocytes.

45. In organism, all macrophages are differentiated from:

Variants of answer:

A) neutrophils;
B) eosinophils;
C) basophils;
D) lymphocytes;
E) monocytes.

46. During fetal life, the first hemopoietic organ in embryo is:

Variants of answer:

A) yolk sac;
B) liver;
C) bone marrow;
D) spleen;
E) lymph nodes.

47. Stem cells possess some general characteristics, except for one:

Variants of answer:

A)ability to for self-renewal;
B)B) ability to rapid mitosis;
C)ability to rare mitosis;
D)ability to differentiate into all types of mature cells;
E)low level of metabolism.

48. During erythropoiesis, the cells lose their mitotic activity for stage of:

Variants of answer:

A) proerythroblasts;
B) basophilic erythroblasts;
C) polychromatophilic erythroblasts;
D) orthochromatophilic erythroblast;
E) reticulocytes.

49. Connective tissues are developed from:

Variants of answer:

A) ectoderm;
B) entoderm;
C) nervous tube;
D) mesenchyme;
E) allantois.

50. Loose connective tissue cells originating from neural crests are:

Variants of answer:

A) mast cells;
B) pigment cells;
C) adipose cells;
D) fibroblasts;
E) plasma cells.

51. Blood monocytes give rise to the:

Variants of answer:

A) plasma cells;
B) adipose cells;
C) fibroblasts;
D) histiocytes;
E) mast cells.

52. The main cells of loose connective tissue taking part in allergic reactions are:

Variants of answer:

A) plasma cells;
B) fat cells;
C) fibroblasts;
D) histiocytes;
E) mast cells.

53. In newborns, the process of thermoregulation is provided by:

Variants of answer:

A) white adipose tissue;
B) reticular tissue;
C) pigment tissue;
D) mucous connective tissue;
E) brown adipose tissue.

54. There is the mucous connective tissue in:

Variants of answer:

A) umbilical cord;
B) chorion;
C) amnion;
D) yolk sac;
E) allantois.

55. The main cells of loose connective tissue producing it's extracellular matrix are:

Variants of answer:

A) plasma cells;
B) fat cells;
C) fibroblasts;
D) histiocytes;
E) mast cells.

56. Plasma cells are differentiated from:

Variants of answer:

A) B- lymphocytes;
B) fat cells;
C) fibroblasts;
D) histiocytes;
E) mast cells.

57. To produce humoral immunity the plasma cells secrete:

Variants of answer:

A) lipids;
B) carbohydrates;
C) glycosaminoglycans;
D) enzymes;
E) immunoglobulins.

58. In loose connective tissue, a population of migratory or extrinsic cells includes all, except for one:

Variants of answer:

A) histiocytes;
B) plasma cells;
C) fibroblasts;
D) all types of leucocytes;
E) mast cells.

59. In loose connective tissue, a population of fixed or intrinsic cells includes all, except for one:

Variants of answer:

A) histiocytes;
B) fibroblasts;
C) adipose cells;
D) adventitial cells;
E) pigment cells.

60. The mediators of inflammation, presenting in granules of mast cells are all, except for one:

Variants of answer:

A) histamine;
B) heparin;
C) chemotactic factors;
D) slow-reacting substance of anaphylaxis;
E) immunoglobulins.

61. Papillary layer of skin dermis is represented with a tissue:

Variants of answer:

A) dense irregular connective tissue;
B) dense regular connective tissue;
C) loose connective tissue;
D) fat tissue;
E) mucous tissue.

62. Reticular layer of skin dermis is represented with a tissue:

Variants of answer:

A) dense irregular connective tissue;
B) dense regular connective tissue;
C) loose connective tissue;
D) fat tissue;
E) mucous tissue.

63. In repairing tissue, the cells taking part in retraction and shrinkage of scar tissue are called:

Variants of answer:

A) fibroblasts;
B) fibrocytes;
C) myofibroblasts;
D) adventitial cells;
E) pigment cells.

64. The principle tissue of tendons and ligaments is:

Variants of answer:

A) dense irregular connective tissue;
B) dense regular connective tissue;
C) loose connective tissue;
D) fat tissue;
E) mucous tissue.

65. The process of intramembranous ossification begins with the formation of:

Variants of answer:

A) extracellular bone matrix;
B) bone trabeculae;
C) aggregations of mesenchymal cells;
D) periosteum;
E) bone lamellae.

66. Mesenchymal stem cells give rise to all cells of supporting tissues except for one:

Variants of answer:

A) osteoprogenitor cells;
B) osteoblasts;
C) osteocytes;
D) osteoclasts;
E) chondroblasts.

67. Classification of cartilage tissue into three types depends on the:

Variants of answer:

A) structure of cartilage tissue cells;
B) differentiation of their extracellular matrix characteristics;
C) sources of development;
D) amount of cartilage tissue cells;
E) localization in the organism.

68. The structural unit of the mature compact bone is:

Variants of answer:

A) osteon;
B) collagen fiber;
C) osteoblast;
D) osteocyte;
E) osteoclast.

69. Bone growth in length is provided by:

Variants of answer:

A) periosteum;
B) endosteum;
C) epiphyseal growth plate;
D) epiphysis;
E) diaphysis.

70. The process of endochondral ossification begins with:

Variants of answer:

A) perichondrial bone collar formation;
B) endochondral bone formation;
C) resorption of a hyaline cartilage model;
D) ossification of epiphysis;
E) mineralization cartilaginous matrix.

71. In human organism, the elastic cartilage there is everywhere except for one:

Variants of answer:

A) pinna of external ear;
B) external acoustic meatus;
C) auditory tube,
D) larynx;
E) ends of ribs where they articulate with the sternum.

72. In human organism, the fibrocartilage there is everywhere except for one:

Variants of answer:

A) intervertebral discs;
B) symphysis pubis;
C) menisci of the knee joint;
D) walls of respiratory system organs;
E) places where tendons attach to bones.

73. In hyaline cartilage, the predominant type of fibers is:

Variants of answer:

A) type I collagen;
B) type II collagen;
C) type III collagen;
D) elastic;
E) reticular.

74. In fibrocartilage, the predominant type of fibers is:

Variants of answer:

A) type I collagen;
B) type II collagen;
C) type III collagen;
D) elastic;
E) reticular.

75. The cells of bone tissue laying within lacunae and bone canaliculi are called:

Variants of answer:

A) osteoprogenitor cells;
B) osteoblasts;
C) osteocytes;
D) osteoclasts;
E) bone-lining cells.

76. In bone tissue, the predominant type of fibers is:

Variants of answer:

A) type I collagen;
B) type II collagen;
C) type III collagen;
D) elastic;
E) reticular.

77. Endosteum lining bones inside is represented with a tissue:

Variants of answer:

A) dense irregular connective tissue;
B) dense regular connective tissue;
C) loose connective tissue;
D) fat tissue;
E) mucous tissue.

78. The newly deposited nonmineralized bone matrix producing by osteoblasts is called:

Variants of answer:

A) osteon;
B) collagen fiber;
C) osteocyte;
D) osteoid;
E) ruffled border.

79. Cells of bone tissue providing the bone resorption are:

Variants of answer:

A) osteoprogenitor cells;
B) osteoblasts;
C) osteocytes;
D) osteoclasts;
E) bone-lining cells.

80. An organic bone matrix is represented by all components except for one:

Variants of answer:

A) type I collagen fibers;
B) GAGs;
C) proteoglycans;
D) glycoproteins;
E) calcium phosphate in the form of hydroxyapatite crystals.

81. Smooth muscle tissue is characterized with all morphological features, except for one:

Variants of answer:

A) cellular structure;
B) presence of gap junctions between cells;
C) presence of dense bodies in cells cytoplasm;
D) presence of motor end plate on the surface of cells;
E) presence of actin and myosin filaments in cells cytoplasm.

82. Sarcomere is a segment of myofibril between:

Variants of answer:

A) M lines;
B) Z lines;
C) A bands;
D) I bands;
E) H bands.

83. Skeletal muscle fibers are characterized with all morphological features, except for one:

Variants of answer:

A) presence of numerous elongated nuclei;
B) presence of triads;
C) presence of dense bodies;
D) presence of motor end plate on the surface;
E) presence of myofibrils.

84. Cardiac muscle fibers are characterized with all morphological features, except for one:

Variants of answer:

A) presence of intercalated discs between cardiac muscle cells;
B) presence of triads;
C) presence of numerous mitochondria;
D) presence of glycogen granules;
E) presence of myofibrils.

85. The neurotransmitter of motor end plate is:

Variants of answer:

A) epinephrine;
B) norepinephrine;
C) serotonin;
D) ɣ-aminobutyric acid;
E) acetylcholine.

86. White skeletal muscle fibers are characterized with all morphological and functional features, except for one:

Variants of answer:

A) large diameter;
B) high content of myoglobin and mitochondria,
C) large amount of glycogen;
D) high anaerobic enzyme activity;
E) ability to the fast fatigue prone contraction.

87. Smooth muscle tissue of inner organs and vessels is developed from:

Variants of answer:

A) ectoderm;
B) neural tube;
C) mesenchyme;
D) entoderm;
E) mesoderm.

88. Skeletal muscle tissue is developed from:

Variants of answer:

A) ectoderm;
B) neural tube;
C) mesenchyme;
D) entoderm;
E) myotomes of mesodermal somites.

89. Cardiac muscle tissue is developed from:

Variants of answer:

A) ectoderm;
B) neural tube;
C) mesenchyme;
D) entoderm;
E) visceral layers of mesodermal splanchnotomes.

90. Sarcoplasmic reticulum of muscle tissues structures is:

Variants of answer:

A) smooth EPR;
B) rough EPR;
C) Golgi complex;
D) lysosomes;
E) mytochondria.

91. Smooth muscle tissue is found everywhere, except for one:

Variants of answer:

A) in the walls of internal organs;
B) in ducts of glands;
C) in heart myocardium;
D) in walls of arteries;
E) in walls of veins.

92. The principle role of sarcoplasmic reticulum in muscle tissues structures is:

Variants of answer:

A) biosynthesis of lipids;
B) calcium ions storage;
C) biosynthesis of steroid hormones;
D) detoxification of substances;
E) peroxisomes formation.

93. The structures called muscle triads are characteristic for:

Variants of answer:

A) smooth myocytes;
B) myoepithelial cells;
C) myofibroblasts;
D) symplasts;
E) cardiac myocytes.

94. The structures called muscle diads are characteristic for:

Variants of answer:

A) smooth myocytes;
B) myoepithelial cells;
C) myofibroblasts;
D) symplasts;
E) cardiac myocytes.

95. Purkinje cells of the heart are characterized with all morphological features, except for one:

Variants of answer:

A) large size;
B) 1 or 2 centrally placed nuclei;
C) abundance of glycogen;
D) cylindrical shape;
E) few peripherally disposed myofibrils.

96. Endomysium, separating muscle fibers is a tissue:

Variants of answer:

A) dense irregular connective tissue;
B) dense regular connective tissue;
C) loose connective tissue;
D) fat tissue;
E) mucous tissue.

97. Myelinated nervous fibers are characterized by presence of all morphological features, except for one:

Variants of answer:

A) one axon;
B) several axons;
C) nods of Ranvier;
D) myelin sheath;
E) sheath of Schwann.

98. Neuroglial cells lining the ventricles of the brain and the central canal of the spinal cord are called:

Variants of answer:

A) protoplasmic astrocytes;
B) ependymal cells;
C) fibrous astrocytes;
D) oligodendrocytes;
E) microglial cells.

99. The neurons whose axons form the motor endings on the surfaces of smooth muscle cells are found in:

Variants of answer:

A) anterior horns of spinal cord;
B) posterior horns of spinal cord;
C) dorsal horns of spinal cord;
D) autonomic ganglions;
E) spinal ganglions.

100. The organ that belongs to the central part of the nervous system is:

Variants of answer:

A) spinal ganglion;
B) peripheral nerve;
C) autonomic ganglion;
D) nerve ending;
E) spinal cord.

101. The pia mater of brain and spinal cord is represented with a tissue:

Variants of answer:

A) reticular tissue;
B) mucous tissue;
C) loose connective tissue;
D) dense regular connective tissue;
E) dense irregular connective tissue.

102.* C*ell bodies of spinal ganglion's pseudounipolar neurons are surrounded by:

Variants of answer:

A) protoplasmic astrocytes;
B) ependymal cells;
C) fibrous astrocytes;
D) satellite cells;
E) microglial cells.

103. The cells of nervous tissue that belong to the mononuclear phagocyte system are called:

Variants of answer:

A) protoplasmic astrocytes;
B) ependymal cells;
C) fibrous astrocytes;
D) satellite cells;
E) microglial cells.

104. Macrophages of the nervous tissue are named:

Variants of answer:

A) astrocytes;
B) ependymal cells;
C) oligodendrocytes;
D) satellite cells;
E) microglial cells.

105. In excitatory synapses, there are all enumerated types of neurotransmitters, except for one:

Variants of answer:

A) γ-aminobutyric acid;
B) acetylcholine;
C) epinephrine and norepinephrine;
D) dopamine;
E) serotonin.

106. In cytoplasm of neurons, the Nissl bodies correspond to a stack of:

Variants of answer:

A) smooth EPR;
B) rough EPR and ribosomes;
C) Golgi complex;
D) lysosomes;
E) mytochondria.

107. The cell bodies of sensory pseudounipolar neurons are represented in:

Variants of answer:

A) spinal and cranial ganglia;
B) posterior horns of the spinal cord;
C) anterior horns of the spinal cord;
D) cerebellar cortex;
E) cerebral cortex.

108. In peripheral nerve, the endoneurium, surrounding individual myelinated and nonmyelinated nerve fibers is represented with a tissue:

Variants of answer:

A) dense irregular connective tissue;
B) dense regular connective tissue;
C) loose connective tissue;
D) fat tissue;
E) mucous tissue.

109. In cerebral cortex, the largest neuronal cell bodies localize in the layer:

Variants of answer:

A) external granular;
B) pyramidal;

C) internal granular;
D)ganglionic;
E) multiform.

110. In cerebellar cortex, the mossy nerve fibers are terminated on:

Variants of answer:
A) dendrites of stellate cells;
B) dendrites of basket cells;
C) dendrites of Purkinje cells;
D) dendrites of Golgi cells;
E) dendrites of granule cells.

111. Autonomic or vegetative nervous system, supplies all tissues, except for one:

Variants of answer:
A) smooth muscles of viscera;
B) smooth muscles of vessels;
C) skeletal muscles;
D) cardiac muscle;
E) glandular epithelium.

112. Somatic nervous system supplies the tissue:

Variants of answer:
A) smooth muscles of viscera;
B) smooth muscles of vessels;
C) skeletal muscles;
D) cardiac muscle;
E) glandular epithelium.

113. The embryonic source of retina and optic disk is:

Variants of answer:
A) ectoderm;
B) entoderm;
C) nervous tube;
D) mesenchyme;
E) mesoderme.

114. In retina, the cells forming inner and outer limiting membranes are called:

Variants of answer:
A) photoreceptor cells;

B) bipolar cells;
C) horizontal cells;
D) Muller's cells;
E) ganglion cells.

115. The olfactory epithelium is composed of all cells, except for one:

Variants of answer:
A) supporting cells;
B) ganglion cells;
C) olfactory receptor cells;
D) basal cells;
E) brush cells.

116. In taste buds, the process of the afferent sensory neuron forms a synapse with:

Variants of answer:
A) sensoepithelial cells;
B) supporting cells;
C) basal cells;
D) basal membrane;
E) taste pore.

117. The cell bodies of sensory neurons whose axons form the cochlear nerve are found in:

Variants of answer:
A) spiral ganglions;
B) spiral organ of Corti;
C) hypothalamus;
D) spinal cord;
E) cerebrum.

118. The otolithic membrane containing calcium carbonates covers the epithelium of:

Variants of answer:
A) spiral organ of Corti;
B) papillae of the tongue;
C) vestibular membrane;
D) crista ampullaris;
E) maculae of utricle and succule.

119. The refractive apparatus of eye includes all components, except for one:

Variants of answer:

A) cornea;
B) ciliary body;
C) anterior and posterior chambers;
D) lens;
E) vitreous body.

120. Photosensitive apparatus of eye is represented by:

Variants of answer:

A) cornea;
B) ciliary body;
C) iris;
D) lens;
E) retina.

121. Dilator and sphincter pupillary muscles of eye are developed from:

Variants of answer:

A) ectoderm;
B) entoderm;
C) nervous tube;
D) mesenchyme;
E) mesoderme.

122. The anterior corneal epithelium is:

Variants of answer:

A) stratified non-keratinized squamous;
B) stratified keratinized squamous;
C) transitional;
D) pseudostratified;
E) simple columnar.

123. The posterior corneal epithelium is:

Variants of answer:

A) stratified non-keratinized squamous;
B) stratified keratinized squamous;
C) transitional;
D) simple squamous;
E) simple columnar.

124. Photoreceptor cells of retina are called:

Variants of answer:

A) rods and cones;
B) bipolar neurons;
C) ganglion cells;
D) horizontal neurons;
E) amacrine neurons.

125. Gelatinous protein-polysaccharide rich mass named cupula covers the epithelium of:

Variants of answer:

A) spiral organ of Corti;
B) papillae of the tongue;
C) vestibular membrane;
D) crista ampullaris;
E) maculae of utricle and succule.

126. Receptor cells for angular acceleration there are in:

Variants of answer:

A) spiral organ of Corti;
B) papillae of the tongue;
C) macule of utricle;
D) macule of succule;
E) crista ampullaris.

127. Receptor cells for linear acceleration there are in:

Variants of answer:

A) spiral organ of Corti;
B) papillae of the tongue;
C) macule of utricle;
D) macule of succule;
E) crista ampullaris.

128. Receptor cells for vertical acceleration (vibration) there are in:

Variants of answer:

A) spiral organ of Corti;
B) papillae of the tongue;
C) macule of utricle;
D) macule of succule;
E) crista ampullaris.

129. The endocardium consists of all layers, except for one:

Variants of answer:

A) endothelium;
B) subendothelial layer;
C) middle layer of connective tissue and smooth muscle cells;
D) subendocardial layer;
E) layer of cardiac conducting cells.

130. Microcirculatory bed includes all vessels, except for one:

Variants of answer:

A) arteries;
B) venules;
C) arterioles;
D) arteriovenous anastomosis;
E) capillaries.

131. Continuous capillaries are typically found in all organs, except for one:

Variants of answer:

A) muscle;
B) lung;
C) bone marrow;
D) spinal cord;
E) brain.

132. Vascular endothelium performs all functions except for one:

Variants of answer:

A) transportation of substances;
B) production of anticoagulants and antithrombogenic substances;
C) contraction;
D) secretion of vasoconstrictors and vasodilators;
E) modification of the lipoproteins.

133. The tunica intima of muscular arteries contains all layers, except for one:

Variants of answer:

A) endothelium;
B) basal lamina;

C) subendothelial layer of connective tissue;
D) external elastic membrane;
E) internal elastic membrane.

134. The wall of arterioles contains all components, except for one:

Variants of answer:
A) endothelium with its basal lamina;
B) subendothelial layer;
C) internal elastic membrane;
D) one or two layers of smooth muscle;
E) adventitial cells.

135. In organism, all vessels are developed from:

Variants of answer:
A) ectoderm;
B) entoderm;
C) nervous tube;
D) mesenchyme;
E) allantois.

136. In organism, the smallest blood vessels are:

Variants of answer:
A) arteries;
B) venules;
C) arterioles;
D) arteriovenous anastomosis;
E) capillaries.

137. Myoepicardial plates are differentiated in:

Variants of answer:
A) ectoderm;
B) entoderm;
C) visceral layer of mesodermal splanchnotome;
D) mesenchyme;
E) parietal layer of mesodermal splanchnotome.

138. Heart epicardium is represented by all components except for one:

Variants of answer:
A) mesothelium;
B) loose connective tissue;

C) adipose tissue;
D) cardiac muscle tissue;
E) blood vessels and nerves.

139. Endothelium lining heart chambers and all vessels inside belongs to the type of epithelium:

Variants of answer:
A) stratified non-keratinized squamous;
B) stratified keratinized squamous;
C) pseudostratified;
D) simple squamous;
E) simple columnar.

140. Conducting system of the heart is located in:

Variants of answer:
A) epicardium;
B) subendothelial layer of endocardium;
C) middle layer of endocardium;
D) subendocardial layer of endocardium;
E) myocardium.

141. The vessels whose walls have capacity to produce the valves are:

Variants of answer:
A) arteries;
B) veins;
C) venules;
D) arteriovenous anastomosis;
E) capillaries.

142. Diameter of muscular venules is:

Variants of answer:
A) 5-10 μm;
B) 10-30 μm;
C) 30-50 μm;
D) 50-100 μm;
E) 100-150 μm.

143. Diameter of postcapillary venules is:

Variants of answer:
A) 5-10 μm;
B) 10-30 μm;

C) 30-50 μm;
D) 50-100 μm;
E) 100-150 μm.

144. Diameter of collecting venules is:
Variants of answer:
A) 5-10 μm;
B) 10-30 μm;
C) 30-50 μm;
D) 50-100 μm;
E) 100-150 μm.

145. The epidermis contains all cells, except for one:
Variants of answer:
A) keratinocytes;
B) melanocytes;
C) Langerhans' cells;
D) fibroblasts;
E) Merkel's cells.

146. The hair growth is provided by proliferation of the cells of:
Variants of answer:
A) hair medulla;
B) hair cortex;
C) hair bulb;
D) dermal papilla;
E) hair follicle.

147. Papillary layer of dermis is composed of:
Variants of answer:
A) loose connective tissue;
B) dense irregular connective tissue;
C) dense regular connective tissue;
D) smooth muscle tissue;
E) skeletal muscle tissue.

148. Reticular layer of dermis is composed of:
Variants of answer:
A) loose connective tissue;
B) dense irregular connective tissue;
C) dense regular connective tissue;

D) smooth muscle tissue;
E) skeletal muscle tissue.

149. Structurally, the mammary gland belongs to the type:
Variants of answer:
A) simple unbranched tubular;
B) simple branched tubular;
C) simple branched alveolar;
D) compound branched tubular;
E) compound branched tubular-alveolar.

150. Proliferation of hair bulb cells leads to formation of all components except for one:
Variants of answer:
A) internal root sheath;
B) external root sheath;
C) hair cuticle;
D) hair medulla;
E) hair cortex.

151. The macrophages of epidermis are called:
Variants of answer:
A) keratinocytes;
B) melanocytes;
C) Langerhans' cells;
D) fibroblasts;
E) Merkel's cells.

152. Skin hypodermis is represented with:
Variants of answer:
A) brown adipose tissue;
B) white adipose tissue;
C) muscle tissue;
D) dense irregular connective tissue;
E) dense regular connective tissue.

153. Structurally, the sweat glands belong to the type:
Variants of answer:
A) simple unbranched tubular;
B) simple branched tubular;
C) simple branched alveolar;

D) compound branched tubular;
E) compound branched tubular-alveolar.

154. Structurally, the sebaceous glands belong to the type:
Variants of answer:
A) simple unbranched tubular;
B) simple branched tubular;
C) simple branched alveolar;
D) compound branched tubular;
E) compound branched tubular-alveolar.

155. In epidermis, the most distributing type of cells is:
Variants of answer:
A) keratinocytes;
B) melanocytes;
C) Langerhans' cells;
D) Merkel's cells;
E) lymphocytes.

156. In epidermis of thin skin, there are all layers, except for one:
Variants of answer:
A) stratum basale;
B) stratum spinosum;
C) stratum granulosum;
D) stratum lucidum;
E) stratum corneum.

157. The cells of epidermis, developing from the neural crest are:
Variants of answer:
A) keratinocytes;
B) melanocytes;
C) Langerhans' cells;
D) Merkel's cells;
E) lymphocytes.

158. In epidermis, the receptor cells, sensitive to continuous touch stimuli are named:
Variants of answer:
A) keratinocytes;
B) melanocytes;

C) Langerhans' cells;
D) Merkel's cells;
E) lymphocytes.

159. Terminal duct lobular unit of the mammary glands includes all components except for one:

Variants of answer:

A) alveoli;
B) terminal ductules;
C) loose connective tissue;
D) intralobular collecting duct;
E) lactiferous duct.

160. The hormone acting on the secretory activity of glandular epithelial cells of mammary glands is:

Variants of answer:

A) oxytocin;
B) prolactin;
C) adrenalin;
D) vasopressin;
E) thyroxin.

161. The blood-air barrier includes all components, except for one:

Variants of answer:

A) cytoplasm of the pneumocytes type I;
B) surfactant;
C) cytoplasm of the endothelial cell;
D) basal laminae of the alveolar epithelium and capillary endothelium;
E) cytoplasm of the pneumocytes type II.

162. The lungs are covered from outside with:

Variants of answer:

A) mesothelium;
B) pseudostratified epithelium;
C) connective tissue capsule;
D) stratified squamous epithelium;
E) elastic membrane.

163. Pseudostratified epithelium of the trachea and bronchi contains all the cells, except for one:

Variants of answer:

A) ciliary cells;
B) goblet cells;
C) basal cells;
D) endocrine cells;
E) Paneth cells.

164. There are all layers in the walls of trachea, except for one:

Variants of answer:

A) mucous membrane;
B) submucous membrane;
C) fibrous-cartilage membrane;
D) serosa;
E) adventitia.

165. In air-conducting ways, the mixed glands there are everywhere, except for one:

Variants of answer:

A) nose;
B) larynx;
C) trachea;
D) bronchi;
E) bronchioles.

166. The respiratory portion of lung is composed of all components, except for one:

Variants of answer:

A) terminal bronchioles;
B) respiratory bronchioles;
C) alveolar ducts;
D) alveolar sacs;
E) alveoli.

167. In respiratory epithelium, the mucous secreting cells are named:

Variants of answer:

A) ciliated cells;
B) goblet cells;
C) basal cells;

D) brush cells;
E) small granule cells.

168. In respiratory epithelium, the cells providing it's regeneration are named:

Variants of answer:
A) ciliated cells;
B) goblet cells;
C) basal cells;
D) brush cells;
E) small granule cells.

169. In respiratory epithelium, the receptor cells are named:

Variants of answer:
A) ciliated cells;
B) goblet cells;
C) basal cells;
D) brush cells;
E) small granule cells.

170. In respiratory epithelium, the endocrine cells are named:

Variants of answer:
A) ciliated cells;
B) goblet cells;
C) basal cells;
D) brush cells;
E) small granule cells.

171. There are all layers in walls of the bronchi, except for one:

Variants of answer:
A) mucous membrane;
B) submucous membrane;
C) fibrous-cartilage membrane;
D) serosa;
E) adventitia.

172. The respiratory epithelium belongs to the type:

Variants of answer:
A) stratified non-keratinized squamous;

B) stratified keratinized squamous;
C) pseudostratified;
D) simple squamous;
E) transitional.

173. The mucosa of bronchi and bronchioles consists of all components, except for one:

Variants of answer:
A) pseudostratified epithelium;
B) loose connective tissue;
C) vessels and nerves;
D) smooth muscle tissue;
E) cartilage tissue.

174. Clara cells perform all functions, except for one:

Variants of answer:
A) contraction;
B) secretion of bronchiolar fluid;
C) secretion of surfactant's components;
D) protective;
E) regeneration.

175. The respiratory epithelium of terminal bronchioles contains all types of the cells, except for one:

Variants of answer:
A) ciliated cells;
B) Clara cells;
C) goblet cells;
D) brush cells;
E) small granule cells.

176. The respiratory epithelium is developed from:

Variants of answer:
A) ectoderm;
B) entoderm;
C) prechordal plate;
D) mesenchyme;
E) mesoderm.

177. Chemically, hormones are all substances, except for one:

Variants of answer:
A) amino acid derivatives;

B) small peptides;
C) carbohydrates;
D) proteins;
E) steroids.

178. Rathke's pouch gives rise to the all parts of hypophysis, except for one:

Variants of answer:
A) pars distalis;
B) pars tuberalis;
C) pars intermedia;
D) residual cleft;
E) pars nervosa.

179. The synthesis of hormones is impaired in iodine deficiency in:

Variants of answer:
A) pineal gland;
B) adenohypophysis;
C) adrenal glands;
D) thyroid gland;
E) parathyroid glands.

180. In adenohypophysis, there are all types of the cells, except for one:

Variants of answer:
A) somatotropic cells;
B) thyrotropic cells;
C) lactotropic cells;
D) pinealocytes;
E) gonadotropic cells.

181. The cells of adrenal gland's medulla, are characterized by all features, except for one:

Variants of answer:
A) origin from the coelomic mesoderm;
B) chromaffin reaction;
C) presence of the electron-dense granules;
D) ability to secrete epinephrine;
E) ability to secrete norepinephrine.

182. Blood circulation of the hypothalamo-adenohypophyseal system includes all vessels, except for one:

Variants of answer:

A) superior hypophyseal artery;
B) primary capillary plexus;
C) portal vein;
D) secondary capillary plexus;
E) inferior hypophyseal artery.

183. Basophils of adenohypophysis produce all hormones, except for one:

Variants of answer:

A) somatotropin;
B) follicle-stimulating hormone;
C) luteinizing hormone;
D) thyroidstimulating hormone;
E) adrenocorticotropic hormone.

184. Luteinizing hormone stimulates all processes, except for one:

Variants of answer:

A) ovulation;
B) formation of corpus luteum;
C) secretion of progesterone;
D) spermatogenesis;
E) secretion of androgens.

185. Hormones ADH and oxytocin are released into capillary plexus in:

Variants of answer:

A) pars distalis;
B) pars intermedia;
C) pars tuberalis;
D) median eminence;
E) pars nervosa.

186. Hypothalamic regulating hormones, acting on the pituitary gland are released into capillary plexus in:

Variants of answer:

A) pars distalis;
B) pars intermedia;
C) pars tuberalis;

D) median eminence;
E) pars nervosa.

187. The hormone regulating the day and night cycles (circadian rhythms) of organism is called:

Variants of answer:
A) somatotropin;
B) prolactin;
C) aldosterone;
D) melatonin;
E) adrenocorticotropic hormone.

188. Hormones T4 and T3 of thyroid gland regulate all processes, except for one:

Variants of answer:
A) blood calcium level;
B) cell and tissue basal metabolism;
C) heat production;
D) body growth;
E) development of the brain for embryonic life.

189. The medulla of adrenal glands is developed from:

Variants of answer:
A) ectoderm;
B) entoderm;
C) nervous tube;
D) mesenchyme;
E) neural crest.

190. The principal mineralocorticoid hormone of human organism is called:

Variants of answer:
A) somatotropin;
B) prolactin;
C) aldosterone;
D) melatonin;
E) adrenocorticotropic hormone.

191. In organism, the glucocorticoids of adrenal glands demonstrate all effects, except for one:

Variants of answer:
A) increase carbohydrate, fat and protein metabolism;

B) stimulate resorption of sodium;
C) stimulate glycogen synthesis in the liver cells;
D) stimulate gluconeogenesis;
E) suppress inflammatory state.

192. In organism, the epinephrine and norepinephrine of adrenal glands demonstrate all effects, except for one:

Variants of answer:
A) increase heart rate and cardiac output;
B) constrict blood vessels;
C) stimulate conversion of glycogen to glucose;
D) increase resistance to stress;
E) increase sweating and rate of respiration.

193. In the cheek's mucosa there are all structural components, except for one:

Variants of answer:
A) epithelium;
B) lamina propria;
C) muscularis mucosa;
D) nerves;
E) blood vessels.

194. In peritoneal part of esophagus, there are all tunics, except for one:

Variants of answer:
A) mucous membrane;
B) submucous membrane;
C) muscularis externa;
D) serosa;
E) adventitia.

195. In the tooth's root, there are all structural components, except for one:

Variants of answer:
A)enamel;
B)B) dentin;
C)C) predentin;
D)layer of odontoblasts;
E)cementum.

196. Epithelium of the esophagus is:

Variants of answer:

A)simple squamous;
B)stratified squamous nonkeratinized;
C)simple columnar;
D)pseudostratified;
E)stratified squamous keratinizing.

197. There is a muscularis mucosa in:

Variants of answer:

A) lips;
B) cheeks;
C) gums;
D) esophagus;
E) tongue.

198. The movement of tongue's inferior surface is provided by:

Variants of answer:

A) epithelium of the mucous membrane;
B) lamina propria;
C) muscularis mucosa;
D) submucous membrane;
E) muscularis externa.

199. Epithelium lining the most, oral cavity organs is:

Variants of answer:

A)simple squamous;
B)stratified squamous nonkeratinized;
C)simple columnar;
D)pseudostratified;
E)stratified squamous keratinizing.

200. Epithelium of the oral cavity organs is developed from:

Variants of answer:

A) ectoderm;
B) entoderm;
C) prechordal plate;
D) mesenchyme;
E) mesoderm.

201.Epithelium lining the intermediate zone of lips is:

Variants of answer:

A) simple squamous;
B) stratified squamous nonkeratinized;
C) stratified parakeratinized squamous;
D) pseudostratified;
E) stratified squamous keratinizing.

202.Epithelium lining the external surface of lips is:

Variants of answer:

A) simple squamous;
B) stratified squamous nonkeratinized;
C) stratified parakeratinized squamous;
D) pseudostratified;
E) stratified squamous keratinizing.

203.Epithelium lining the internal surface of lips is:

Variants of answer:

A) simple squamous;
B) stratified squamous nonkeratinized;
C) stratified parakeratinized squamous;
D) pseudostratified;
E) stratified squamous keratinizing.

204.Filiform papillae of tongue, are characterized by all features, except for one:

Variants of answer:

A) small size;
B) great number;
C) conical shape;
D) lining with stratified squamous keratinizing epithelium;
E) presenting of taste buds.

205. The hardest tissue of teeth is:

Variants of answer:

A) enamel;
B) dentin;
C) predentin;
D) periodontal ligament;
E) cementum.

206. The organic matrix of dentin is secreted by the cells called:

Variants of answer:

A) ameloblasts;
B) odontoblasts;
C) fibroblasts;
D) cementocytes;
E) osteoblasts.

207. Enamel of tooth is produced from:

Variants of answer:

A) ectoderm;
B) entoderm;
C) prechordal plate;
D) mesenchyme;
E) mesoderm.

208. Enamel organ consists of all components, except for one:

Variants of answer:

A) outer enamel epithelium;
B) inner enamel epithelium;
C) stratum intermedium;
D) odontoblasts;
E) stellate reticulum.

209. There are glands in submucous membrane of the alimentary canal in:

Variants of answer:

A) fundic part of the stomach;
B) pyloric part of the stomach;
C) duodenum;
D) jejunum;
E) ileum.

210. In stomach glands, the pepsinogen is produced by the cells:

Variants of answer:

A) parietal (oxyntic) cells;
B) mucous neck cells,
C) chief (zymogenic) cells;
D) undifferentiated cells;
E) entero-endocrine cells.

211. Villi of the small intestine are:

Variants of answer:

A) projections of the mucosa;
B) projections of the epithelium;
C) aggregation of microvilli;
D) folds of mucosa and submucosa;
E) invaginations of epithelium into lamina propria.

212. The mucous membrane of large intestine is distinguished from the mucous membrane of small intestine by:

Variants of answer:

A) larger amount of the villi;
B) smaller amount of the villi;
C) absence of the villi;
D) absence of the crypts;
E) presence of the crypts.

213. The source for the small intestine epithelium regeneration is:

Variants of answer:

A) absorptive cells;
B) goblet cells;
C) Paneth cells;
D) undifferentiated cells;
E) entero-endocrine cells.

214. The appendix wall is characterized with a feature:

Variants of answer:

A) presence of the transitional epithelium;
B) great number of the crypts and villi;
C) absence of the muscularis externa;
D) presence of the glands in submucous membrane;
E) presence of the lymphoid tissue's large aggregations.

215. In stomach, the cells taking part in production of HCL are named:

Variants of answer:

A) parietal (oxyntic) cells;
B) mucous neck cells;
C) chief (zymogenic) cells;
D) undifferentiated cells;
E) entero-endocrine cells.

216. In stomach, the cells producing an intrinsic factor are named:

Variants of answer:

A) parietal (oxyntic) cells;
B) mucous neck cells;
C) chief (zymogenic) cells;
D) undifferentiated cells;
E) entero-endocrine cells.

217. In stomach, the gastric glands situate in:

Variants of answer:

A) mucosa;
B) lamina propria;
C) muscularis mucosae;
D) submucosa;
E) muscularis externa.

218. The epithelium covering the lumen of stomach is:

Variants of answer:

A) simple squamous;
B) simple cuboidal;
C) simple columnar;
D) pseudostratified;
E) stratified squamous keratinizing.

219. In stomach, the invaginations of epithelium into lamina propria are called:

Variants of answer:

A) rugae;
B) villi;
C) crypts;
D) folds;
E) pits.

220. The epithelium covering the lumen of small intestine is:

Variants of answer:

A) simple squamous;
B) simple cuboidal;
C) simple columnar;
D) pseudostratified;
E) stratified squamous keratinizing.

221. The epithelium covering the lumen of large intestine is:

Variants of answer:

A) simple squamous;
B) simple cuboidal;
C) simple columnar;
D) pseudostratified;
E) stratified squamous keratinizing.

222. In small and large intestine, the deepest tubular invaginations of their epithelium into lamina propria are called:

Variants of answer:

A) rugae;
B) villi;
C) crypts;
D) folds;
E) pits.

223. In small intestine, the finger-like projections of the mucosa into lumen are called:

Variants of answer:

A) rugae;
B) villi;
C) crypts;
D) folds;
E) pits.

224. The cells of intestinal epithelium, bearing the striated border on their apical parts are called:

Variants of answer:

A) enterocytes;
B) goblet cells;
C) enteroendocrine cells;
D) undifferentiated cells;
E) Paneth cells.

225. The parotid gland produces the secret:

Variants of answer:

A) seromucous;
B) serous;
C) mucoserous;

D) mucous;
E) sebaceous.

226. The interlobular ducts of the pancreas are covered with epithelium:

Variants of answer:
A) simple squamous;
B) stratified squamous nonkeratinized;
C) simple columnar;
D) pseudostratified;
E) stratified squamous keratinizing.

227. The macrophages of the liver are named:

Variants of answer:
A) fat-storing cells (Ito cells);
B) hepatocytes;
C) lymphocytes;
D) Kupffer cells;
E) endothelium.

228. In the liver lobules, the spaces of Disse are represented:

Variants of answer:
A) between plates of hepatocytes;
B) within plates of hepatocytes;
C) between hepatocytes;
D) between sinusoids and plates of hepatocytes;
E) around the central vein.

229. The mucous membrane of gallbladder is covered with epithelium:

Variants of answer:
A) simple squamous;
B) stratified squamous nonkeratinizing;
C) simple columnar with microvilli;
D) pseudostratified;
E) stratified squamous keratinizing.

230. The liver performs all functions, except for one:

Variants of answer:
A) detoxification and inactivation of substances;
B) synthesis of the plasma proteins;

C) bile secretion;
D) formation of glycogen;
E) synthesis of the digestive enzyme.

231. The epithelium, forming the parenchyma of salivary glands is developed from:

Variants of answer:
A) ectoderm;
B) entoderm;
C) prechordal plate;
D) mesenchyme;
E) mesoderm.

232. Structurally, the parotid gland is:

Variants of answer:
A) simple unbranched tubular;
B) simple branched tubular;
C) compound branched alveolar;
D) compound branched tubular;
E) compound branched tubular-alveolar.

233. Structurally, the submandibular gland is:

Variants of answer:
A) simple unbranched tubular;
B) simple branched tubular;
C) compound branched alveolar;
D) compound branched tubular;
E) compound branched tubular-alveolar.

234. Structurally, the sublingual gland is:

Variants of answer:
A) simple unbranched tubular;
B) simple branched tubular;
C) compound branched tubular alveolar;
D) compound branched tubular;
E) compound branched tubular-alveolar.

235. The epithelium, forming the parenchyma of pancreas is developed from:

Variants of answer:
A) ectoderm;
B) entoderm;

C) prechordal plate;
D) mesenchyme;
E) mesoderm.

236. The duct system of pancreas exocrine part includes all ducts, except for one:

Variants of answer:
A) intercalated ducts;
B) striated ducts;
C) intralobular ducts;
D) interlobular ducts;
E) main duct.

237. B-cells of islets of Langerhans produce a hormone named:

Variants of answer:
A) pancreatic polypeptide;
B) cholecystokinin;
C) somatostatin;
D) glucagon;
E) insulin.

238. A-cells of islets of Langerhans produce a hormone named:

Variants of answer:
A) pancreatic polypeptide;
B) cholecystokinin;
C) somatostatin;
D) glucagon;
E) insulin.

239. In liver, the cells storing vitamin A are called:

Variants of answer:
A) Ito cells;
B) hepatocytes;
C) lymphocytes;
D) Kupffer cells;
E) endothelium.

240. The first (initial) portion of the bile duct system of the liver is represented with:

Variants of answer:
A) right hepatic duct;

B) left hepatic duct;
C) interlobular bile ducts;
D) Hering's canals;
E) bile canaliculi.

241. In thymus, the thymic humoral factor, thymopoietin, and thymosin are produced by:

Variants of answer:
A) thymic macrophages;
B) T-lymphocytes;
C) Hassall's corpuscles;
D) epithelioreticular cells;
E) adipocytes.

242. Epithelioreticular cells are originated from:

Variants of answer:
A) entoderm;
B) prechordal plate;
C) mesoderm;
D) skin ectoderm;
E) mesenchyme.

243. The lymphoid tissue of lymph nodes is developed from:

Variants of answer:
A) entoderm;
B) somites;
C) mesenchyme;
D) ectoderm;
E) nephrotom.

244. The lymphoid tissue of spleen is developed from:

Variants of answer:
A) entoderm;
B) somites;
C) mesenchyme;
D) ectoderm;
E) nephrotom.

245. The stromal component of the bone marrow myeloid tissue is represented by:

Variants of answer:
A) loose connective tissue;

B) dense regular connective tissue;
C) epithelial tissue;
D) dense irregular connective tissue;
E) reticular tissue.

246. The stromal component of the tonsils lymphoid tissue is represented by:

Variants of answer:
A) loose connective tissue;
B) dense regular connective tissue;
C) epithelial tissue;
D) dense irregular connective tissue;
E) reticular tissue.

247. The stromal cells of bone marrow are all, except for one:

Variants of answer:
A) macrophages;
B) reticular cells;
C) fibroblasts;
D) megakaryocytes;
E) endothelial cells.

248. Epithelioreticular cells of the thymus perform all functions, except for one:

Variants of answer:
A) supporting;
B) production of immunoglobulins;
C) production of thymic hormones;
D) formation of blood–thymus barrier;
E) participation in thymic education of T-lymphocytes.

249. In thymus, the Hassall's corpuscles situate in:

Variants of answer:
A) capsule;
B) trabeculae;
C) cortex;
D) medulla;
E) subcortical zone.

250. The Hassall's corpuscles are represented by closely packed, concentrically arranged cells:

A) macrophages;
B) T-lymphocytes;
C) B-lymphocytes;
D) fibroblasts;
E) epithelioreticular cells.

251. The antigen-independent differentiation of T-lymphocytes takes place in organ:

Variants of answer:
A) bone marrow;
B) thymus;
C) lymph nodes;
D) spleen;
E) tonsils.

252. In lymph nodes, the T-lymphocytes usually activate trough a contact with:

Variants of answer:
A) dendritic cells;
B) follicular dendritic cells;
C) macrophages;
D) B-lymphocytes;
E) plasma cells.

253. In human organism, the spleen performs all functions, except for one:

Variants of answer:
A) filtration of lymph;
B) filtration of blood;
C) antigen-dependent differentiation of T- and B-lymphocytes;
D) production of antibodies;
E) destruction of aged and abnormal erythrocytes and platelets.

254. In spleen, the periarterial lymphatic sheaths (PALS) are cylindrical shaped accumulations of the cells:

Variants of answer:
A) macrophages;
B) T-lymphocytes;
C) B-lymphocytes;
D) fibroblasts;
E) epithelioreticular cells.

255. The lymphatic nodules of spleen have all parts, except for one:

Variants of answer:

A) germinal center;
B) periarterial lymphatic sheath;
C) paracortical zone;
D) mantle zone;
E) marginal zone.

256. In spleen, the periarterial lymphatic sheaths and the lymphatic nodules are associated with the vessels:

Variants of answer:

A) splenic artery;
B) trabecular arteries;
C) central arteries;
D) penicillar arterioles;
E) arterial capillaries.

257. The nephron of kidney includes all parts, except for one:

Variants of answer:

A) Bowman's capsule;
B) collecting duct;
C) the loop of Henle;
D) proximal convoluted tubule;
E) distal convoluted tubule.

258. In kidneys, the antidiuretic hormone acts on:

Variants of answer:

A) glomerulus;
B) interstitial cells;
C) collecting tubules and collecting ducts;
D) mesangial cells;
E) juxtaglomerular cells.

259. In kidneys, the macula densa there is in:

Variants of answer:

A) parietal layer of the Bowman's capsule;
B) wall of proximal convoluted tubule;
C) wall of distal convoluted tubule;
D) wall of collecting tubule;
E) renal interstitium.

260. In kidneys, the extraglomerular mesangial cells localize:

Variants of answer:

A) in visceral layer of the Bowman's capsule;
B) in macula densa;
C) between afferent, efferent arterioles and macula densa;
D) between capillaries of the glomerulus;
E) in walls of afferent and efferent arterioles.

261. The cells of kidneys sensitive to the concentration of Na+ ions in the ultrafiltrate are:

Variants of answer:

A) juxtaglomerular cells;
B) mesangial cells;
C) epithelial cells of the Bowman's capsule parietal layer;
D) podocytes;
E) epithelial cells of the macula densa.

262. The wall of the urinary bladder includes all components, except for one:

Variants of answer:

A) mucous membrane;
B) transitional epithelium;
C) submucous membrane;
D) smooth muscle in muscularis membrane;
E) striated muscle in muscularis membrane.

263. The renal interstitium is represented with a tissue:

Variants of answer:

A) loose connective tissue;
B) dense regular connective tissue;
C) epithelial tissue;
D) dense irregular connective tissue;
E) reticular tissue.

264. In nephrons, the visceral layer of the Bowman's capsule is covered with the cells named:

Variants of answer:

A) mesangial cells;
B) podocytes;
C) endothelium;
D) juxtaglomerular cells;
E) Lacis cells.

265. Thin limbs of the Henle's loops are lined with epithelium:

Variants of answer:

A) simple squamous;
B) simple cuboidal;
C) simple columnar;
D) transitional;
E) stratified squamous nonkeratinized.

266. The principal or light cells of the collecting tubules and ducts are responsible for:

Variants of answer:

A) secretion of H+;
B) reabsorbtion of K+;
C) secretion of HC03-;
D) reabsorbtion of Cl-;
E) reabsorbtion of water.

267. In kidneys, the hormone aldosterone mostly acts on:

Variants of answer:

A) epithelial cells of distal tubules;
B) interstitial cells;
C) collecting tubules and collecting ducts;
D) mesangial cells;
E) juxtaglomerular cells.

268. The embryonic sores of kidneys development is:

Variants of answer:

A) entoderm;
B) somites;
C) mesenchyme;
D) ectoderm;
E) nephrotom.

269. For embryogenesis, the metanephric diverticulum gives rise to the epithelium of all components, except for one:

Variants of answer:

A) collecting ducts;
B) calyces;
C) renal pelvis;
D) ureters;
E) nephrons.

270. The cavity of Bowman's capsule is continuous into:

Variants of answer:

A) proximal convoluted tubule;
B) proximal straight tubule;
C) thin segment of the loop of Henle;
D) distal straight tubule;
E) distal convoluted tubule.

271. In nephrons, the full resorption of glucose, amino-acids and proteins takes place in:

Variants of answer:

A) collecting tubules;
B) distal tubules;
C) ascending thin limb of of the Henle's loops;
D) descending thin limb of of the Henle's loops;
E) proximal tubules.

272. The capillaries of glomerulus are branches of the vessels:

Variants of answer:

A) interlobar arteries;
B) arcuate arteries;
C) interlobular arteries;
D) afferent arterioles;
E) efferent arterioles.

273. The process of spermatogenesis takes place in:

Variants of answer:

A) tubuli recti;
B) rete testis;
C) seminiferous tubules;
D) ductuli efferentes;
E) ductus epididymis.

274. Seminiferous epithelium includes all cells, except for one:

Variants of answer:

A) spermatogonia;
B) spermatids;
C) Sertoli cells;
D) Leydig cells;
E) spermatocytes.

275. The human primordial germ cells firstly appear in:

Variants of answer:

A) mesonephros gonadal ridge;
B) wall of the york sac;
C) wall of the primitive gut;
D) nephrotom;
E) somites.

276. The interstitial tissue of testis includes all components, except for one:

Variants of answer:

A) loose connective tissue;
B) vessels;
C) nerves;
D) Leydig cells;
E) Sertoli cells.

277. Sertoli cells perform all functions, except for one:

Variants of answer:

A) participation in the formation of the blood-testis barrier;
B) phagocytosis of degenerating spermatogenic cells and residual bodies;
C) secretion of androgen-binding protein;
D) secretion of testosterone;
E) mechanical support for the spermatogenic cells.

278. In embryogenesis, the mesonephric duct gives rise to the all structures, except for one:

Variants of answer:

A) ductuli efferentes;
B) ductus epididimis;
C) ductus deferens;
D) seminal vesicles;
E) ejaculatory duct.

279. Leydig cells of the testis are originated from:

Variants of answer:

A) entoderm;
B) somites;
C) mesenchyme;
D) ectoderm;
E) nephrotom.

280. In embryogenesis, the primordial germ cells of the sex cords give rise to the:

Variants of answer:

A) spermatogonia;
B) spermatids;
C) Sertoli cells;
D) Leydig cells;
E) spermatocytes.

281. In testis, the hormone secreting by Leydig cells is called:

Variants of answer:

A) aldosterone;
B) progesterone;
C) vasopressin;
D) testosterone;
E) androgen-binding protein.

282. The epithelium lining the ductus epididimis and ductus deferens inside belongs to the type:

Variants of answer:

A) simple squamous;
B) stratified squamous nonkeratinizing;
C) simple columnar with microvilli;
D) pseudostratified columnar;
E) stratified squamous keratinizing.

283. Principal cells of the epithelium lining the ductus epididimis and ductus deferens perform all functions, except for one:

Variants of answer:

A) absorbtion of the testicular fluid;
B) phagocytosis of residual bodies;
C) phagocytosis of degenerative spermatozoa;
D) maturation of spermatozoa;
E) regeneration.

284. Basal cells of the epithelium lining the ductuli efferentes, ductus epididimis and ductus deferens perform the function:

Variants of answer:

A) absorbtion of the testicular fluid;
B) phagocytosis;

C) movement of spermatozoa and testicular fluid;
D) maturation of spermatozoa;
E) regeneration.

285. Extratesticular genital ducts are all, except for one:
Variants of answer:
A) ductus epididymis;
B) ductus deferens,
C) ejaculatory duct;
D) rete testis;
E) ductuli efferentes.

286. The adluminal compartment of seminiferous epithelium contains all types of the cells, except for one:
Variants of answer:
A) spermatogonia;
B) primary spermatocytes;
C) secondary spermatocytes;
D) spermatids;
E) spermatozoa.

287. Spermatogenic cells presenting in the basal compartment of seminiferous epithelium are:
Variants of answer:
A) spermatogonia;
B) primary spermatocytes;
C) secondary spermatocytes;
D) spermatids;
E) spermatozoa.

288. The wall of seminiferous tubules consists of all components, except for one:
Variants of answer:
A) seminiferous epithelium;
B) Leydig cells;
C) basal lamina;
D) fibrous connective tissue tunic;
E) myoid cells.

289. In ovary, the structure forming at the place of the ruptured follicle after ovulation is called:
Variants of answer:
A) corpus albicans;

B) corpus luteum;
C) corpus atretica;
D) Graafian follicle;
E) growing follicle.

290. During menstrual cycle, the most significant changes of uterus take play in it's:

Variants of answer:
A) myometrium;
B) basal layer of endometrium;
C) functional layer of endometrium;
D) perimetrium;

291. In ovary, the Graafian follicles appear for the first time during:

Variants of answer:
A) embryogenesis;
B) menopause;
C) old age;
D) sexual maturity;
E) puberty.

292. The cells of follicles producing liquor folliculi with estrogens are named:

Variants of answer:
A) oogonia;
B) primary oocytes;
C) secondary oocytes;
D) granulosa cells;
E) theca interna cells.

293. The cells of follicles producing androgens are named:

Variants of answer:
A) oogonia;
B) primary oocytes;
C) secondary oocytes;
D) granulosa cells;
E) theca interna cells.

294. In what period of ontogenesis does the process named atresia prevail in the ovary:

Variants of answer:

A) embryogenesis;
B) puberty;
C) gestation;
D) menopause;
E) old age.

295. In embryogenesis, the Mullerian ducts give rise to the all organs, except for one:

Variants of answer:

A) Fallopian tubes;
B) ovaries;
C) uterus;
D) cervix;
E) vagina.

296. First follicles that appear in the ovaries, during fetal development are named:

Variants of answer:

A) Graafian follicles;
B) antral follicles;
C) primary multilaminar follicles;
D) primary unilaminar follicles;
E) primordial follicles.

297. For folliculogenesis, a zona pellucida starts to produce in:

Variants of answer:

A) Graafian follicles;
B) antral follicles;
C) primary multilaminar follicles;
D) primary unilaminar follicles;
E) primordial follicles.

298. In developing follicles, the stratum granulosum is represented with a tissue:

Variants of answer:

A) loose connective tissue;
B) dense regular connective tissue;

C) epithelial tissue;
D) dense irregular connective tissue;
E) muscle tissue.

299. In developing follicles, the theca interna is represented with a tissue:

Variants of answer:
A) loose connective tissue;
B) dense regular connective tissue;
C) epithelial tissue;
D) dense irregular connective tissue;
E) muscle tissue.

300. In developing follicles, the theca externa is represented with a tissue:

Variants of answer:
A) loose connective tissue;
B) dense connective tissue;
C) epithelial tissue;
D) fat tissue;
E) muscle tissue.

301. The corpus luteum of menstruation there is in ovary for:

Variants of answer:
A) 7 days;
B) 14 days;
C) 28 days;
D) 1 months;
E) 6 months.

302. In ovary, the corpus luteum of pregnancy is active for about:

Variants of answer:
A) 7 days;
B) 14 days;
C) 28 days;
D) 1 months;
E) 6 months.

303. Epithelium, lining the mucosa of oviducts belongs to the type:

Variants of answer:

A) simple squamous;
B) simple cuboidal;
C) simple columnar;
D) pseudostratified columnar;
E) stratified squamous nonkeratinizing.

304. Epithelium, lining the endometrium of uterus belongs to the type:

Variants of answer:

A) simple squamous;
B) simple cuboidal;
C) simple columnar;
D) pseudostratified columnar;
E) stratified squamous nonkeratinizing.

305. The fertilization of a human embryo takes place in:

Variants of answer:

A) uterus cavity;
B) abdominal cavity;
C) the ampullar part of the uterine tube;
D) uterus cervix;
E) vagina.

306. In embryo, the trophoblast appears for the first time during:

Variants of answer:

A) cleavage;
B) early gastrulation;
C) late gastrulation;
D) stage of histogenesis;
E) stage of organogenesis.

307. On what days of embryogenesis does implantation start in the uterus:

Variants of answer:

A) 1-st day;
B) 3-4th days;
C) 6-7-th days;

D) 10-14th days;
E) 12-21-st days.

308. Epiblast includes all germs, except for one:
Variants of answer:
A) neural plate;
B) mesoderm;
C) notochord;
D) skin ectoderm;
E) primitive gut.

309. The amnion, yolk sac and chorion appear in the embryo for the first time during:
Variants of answer:
A) cleavage;
B) early gastrulation;
C) late gastrulation;
D) stage of histogenesis;
E) stage of organogenesis.

310. Human placental barrier includes all components, except for one:
Variants of answer:
A) wall of the tertiary chorionic villus capillary;
B) mesenchime of the tertiary chorionic villus;
C) the basal lamina of the trophoblast;
D) the trophoblast;
E) lacunae with maternal blood.

311. The type of human cleavage is:
Variants of answer:
A) incomplete unequal synchronic;
B) incomplete equal synchronic;
C) complete equal synchronic;
D) complete unequal asynchronic;
E) complete unequal synchronic.

312. The wall of blastocyst is called:
Variants of answer:
A) embryoblast;
B) trophoblast;

C) morula;
D) blastocoele;
E) zona pellucida

313. The germ layer called mesoderm is produced from:
Variants of answer:
A) primitive pit;
B) primitive groove;
C) primitive streak;
D) primitive knot;
E) entoderm.

314. Primitive gut gives rise to the all tissues, except for one:
Variants of answer:
A) gastric epithelium;
B) intestinal epithelium;
C) liver and gall bladder epithelium;
D) pancreas epithelium;
E) skin epidermis.

315. What is the name of fertilized ovum, when it has both male and female pronuclei:
Variants of answer:
A) morula;
B) blastula;
C) synkaryon;
D) blastocyst;
E) blastocoele.

316. Primitive gut is produced from:
Variants of answer:
A) entoderm;
B) somites;
C) mesenchyme;
D) ectoderm;
E) nephrotom.

317. Fetal part of placenta is produced from:
Variants of answer:
A) decidua basalis;
B) decidua parietalis;

C) decidua capsularis;
D) villous chorion;
E) myometrium.

318. Maternal part of placenta is produced from:
Variants of answer:
A) decidua basalis;
B) decidua parietalis;
C) decidua capsularis;
D) villous chorion;
E) myometrium.

319. The principal mechanism of early gastrulation is:
Variants of answer:
A) invagination;
B) epiboly;
C) delamination;
D) migration;
E) mitosis.

320. The principal mechanism of late gastrulation is:
Variants of answer:
A) invagination;
B) epiboly;
C) delamination;
D) migration;
E) mitosis.

References standard of answers to type I tests

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
1	C	45	E	89	E	133	D
2	D	46	A	90	A	134	B
3	A	47	B	91	C	135	D
4	D	48	D	92	B	136	E
5	C	49	D	93	D	137	C
6	E	50	B	94	E	138	D
7	C	51	D	95	D	139	D
8	C	52	E	96	C	140	D
9	D	53	E	97	B	141	B
10	B	54	A	98	B	142	D
11	E	55	C	99	D	143	B
12	E	56	A	100	E	144	C
13	D	57	E	101	C	145	D
14	A	58	C	102	C	146	C
15	A	59	A	103	D	147	A
16	D	60	E	104	E	148	B
17	A	61	C	105	A	149	E
18	B	62	A	106	B	150	B
19	D	63	C	107	A	151	C
20	B	64	B	108	C	152	B
21	A	65	C	109	D	153	A
22	C	66	D	110	E	154	C
23	C	67	B	111	C	155	A
24	D	68	A	112	C	156	D
25	C	69	C	113	C	157	B
26	D	70	A	114	D	158	D
27	B	71	E	115	B	159	E
28	A	72	D	116	A	160	B
29	E	73	B	117	A	161	E
30	B	74	A	118	E	162	A
31	D	75	C	119	B	163	E
32	C	76	A	120	E	164	D
33	C	77	C	121	C	165	E
34	B	78	D	122	A	166	A
35	E	79	D	123	D	167	B
36	A	80	E	124	A	168	C
37	C	81	D	125	D	169	D
38	B	82	B	126	E	170	E
39	A	83	C	127	C	171	D
40	E	84	B	128	D	172	C
41	A	85	E	129	E	173	E
42	A	86	B	130	A	174	A
43	D	87	C	131	C	175	C
44	B	88	E	132	C	176	C

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
177	177. C	213	213. D	249	249. D	285	285. D
178	178. E	214	214. E	250	250. E	286	286. A
179	179. D	215	215. A	251	251. B	287	287. A
180	180. D	216	216. A	252	252. A	288	288. B
181	181. A	217	217. B	253	253. A	289	289. B
182	182. E	218	218. C	254	254. B	290	290. C
183	183. A	219	219. E	255	255. C	291	291. E
184	184. D	220	220. C	256	256. C	292	292. D
185	185. D	221	221. C	257	257. B	293	293. E
186	186. E	222	222. C	258	258. C	294	294. D
187	187. D	223	223. B	259	259. C	295	295. B
188	188. A	224	224. A	260	260. C	296	296. E
189	189. E	225	225. B	261	261. E	297	297. D
190	190. C	226	226. C	262	262. E	298	298. C
191	191. B	227	227. D	263	263. A	299	299. A
192	192. D	228	228. D	264	264. B	300	300. B
193	193. C	229	229. C	265	265. A	301	301. B
194	194. E	230	230. E	266	266. E	302	302. E
195	195. A	231	231. A	267	267. A	303	303. C
196	196. B	232	232. C	268	268. E	304	304. C
197	197. D	233	233. E	269	269. E	305	305. C
198	198. D	234	234. E	270	270. A	306	306. B
199	199. B	235	235. B	271	271. E	307	307. C
200	200. A	236	236. B	272	272. D	308	308. E
201	201. C	237	237. E	273	273. C	309	309. B
202	202. E	238	238. D	274	274. D	310	310. E
203	203. B	239	239. A	275	275. B	311	311. D
204	204. E	240	240. E	276	276. E	312	312. B
205	205. A	241	241. D	277	277. D	313	313. C
206	206. B	242	242. B	278	278. A	314	314. E
207	207. A	243	243. C	279	279. C	315	315. C
208	208. D	244	244. C	280	280. A	316	316. A
209	209. C	245	245. E	281	281. D	317	317. D
210	210. C	246	246. A	282	282. D	318	318. A
211	211. A	247	247. D	283	283. E	319	319. C
212	212. C	248	248. B	284	284. E	320	320. D

TYPE II TEST

Choose the appropriate answer (one answer may be used one or several times or not used at all) from the right column

In processes of ...	**takes part...**
1. Biosynthesis of lipids 2. Biosynthesis of polysaccharides 3. Formation of glycoproteins 4. Synthesis of extracellular proteins 5. Synthesis of lysosomal proteins	A) smooth endoplasmic reticulum B) rough endoplasmic reticulum C) free polysomes D) Golgi complex E) mitochondria
The processes of ...	**is provided by...**
6. Synthesis of hyaloplasm proteins 7. Protection of the cell against products of metabolism 8. Inactivation of bacterium, phagocytosis 9. Detoxification of toxins 10. Synthesis of membrane proteins	A) rough endoplasmic reticulum B) free polysomes C) lysosomes D) smooth endoplasmic reticulum E) Golgi complex
The processes of ...	**takes place during...**
11. Beginning of mitotic spindle formation 12. DNA dublication 13. Cytokinesis 14. Equatorial plate formation 15. Separation and of sister chromatids and chromosomes disjunction	A) interphase B) mitotic prophase C) mitotic metaphase D) mitotic anaphase E) mitotic telophase
The processes of ...	**takes place during...**
16. DNA dublication 17. Centrioles dublication 18. Active synthesis of tubulins	A) interphase B) mitotic prophase C) mitotic metaphase D) mitotic anaphase

19. Migration of centrioles to opposite poles of the cell 20. Decondensation of chromosomes	E) mitotic telophase
During phases of cell cycle... 21. G1 phase 22. S phase 23. G2 phase 24. G0 phase 25. M phase	**takes place the processes of...** A) terminal differentiation of cell B) mitosis C) DNA and centrioles dublication D) RNA and proteins synthesis E) ATP and tubulins synthesis
Structures of the cell... 26. Microtubules 27. Actin and myosin microfilaments 28. Actin microfilaments, intermediate filaments and microtubules 29. Nine microtubule's triplets 30. Biological membranes	**form...** A) centrioles B) EPR C) mitotic spindle D) cytoskeleton E) myofibril
Covering epithelium... 31. Simple cuboidal 32. Pseudostratified columnar 33. Stratified squamous non-keratinized 34. Transitional 35. Simple squamous	**is found in...** A) esophagus B) urinary bladder C) vessels D) tubules of the kidney E) bronchi
Covering epithelium... 36. Simple cuboidal 37. Pseudostratified columnar 38. Stratified squamous non-keratinized 39. Stratified squamous keratinized 40. Simple squamous	**is found in...** A) oral cavity organs B) serous coats and body cavities C) skin D) thyroid follicles E) trachea

Epilhelium...	**is developed from...**
41. Simple columnar of small intestine 42. Mesothelium of serous coats 43. Endothelium of blood vessels 44. Stratified squamous keratinized of skin 45. Ciliated pseudostratified columnar of respiratory organs	A) ectoderm B) mesenchyme C) splanchnotom of mesoderm D) prechordal plate E) entoderm
Intercellular junctions, looking like...	**is called...**
46. A series of focal fusions of the plasma membranes of adjoining cells 47. A complex of disk-shaped structure between the cells with intermediate filaments inserting in these structure 48. A channel containing six subunits of protein called connexin 49. A continuous beltlike configuration around the cell with transmembrane protein E cadherin 50. A half of desmosome	A) desmosome B) hemidesmosome C) gap junction D) tight junction E) zonula adherens
Glands are called...	**if they have...**
51. Simple 52. Compound 53. Branched 54. Unbranched 55. Compound, branched	A) branched secretory portion B) unbranched secretory portion C) branched secretory portion and duct D) branched duct E) unbranched duct

Developing cells of bone marrow... 56. Promyelocyte 57. Neutrophilic myelocyte 58. Neutrophilic metamyelocyte 59. Basophilic erythroblast 60. Orthochromatophilic erythroblast	**have morphological features...** A) large spherical nucleus, azurophilic granules B) small and densely stained nucleus, eosinophilic cytoplasm C) heterochromatic nucleus, strong basophilia of cytoplasm D) elliptical nucleus, neutrophilic granules E) bean-shaped nucleus, neutrophilic granules
According to leukocytic formula the percentage of... 61. Mature neutrophils 62. Band neutrophils 63. Basophils 64. Lymphocytes 65. Monocytes	**is ...** A) 3-5 B) 0-1 C) 3-7 D) 54-62 E) 25-33
According to hemogramm in peripheral blood the amount of... 66. Erythrocytes 67. Platelets 68. Leucocytes 69. Hemoglobin 70. Reticulocytes	**is ...** A) 1-2% B) 150-450 × 10^9 p/l C) 130-160 g/l D) 4,0-5,5 × 10^{12} p/l E) 4-9 × 10^9 p/l
Main function of... 71. Killer T- lymphocytes 72. Helper T- lymphocytes 73. Plasma cells 74. NK cells 75. Neutrophils	**is...** A) synthesis of antibodies B) lysis of foreign cells C) stimulation of B- lymphocytes division and differentiation D) phagocytosis of microorganisms E) lysis of virus-infected cells and some types of tumor cells

On surfaces of...	**there are receptors...**
76. Killer T- lymphocytes	A) CD 9,19,20
77. Helper T- lymphocytes	B) CD16,56,94
78. B - lymphocytes	C) CD8
79. NK cells	D) CD4
80. Neutrophils	E) Fc receptors and complement receptors
Blood leucocytes...	**contain...**
81. T- lymphocytes	A) granules with heparin, histamine and SRS-A
82. B- lymphocytes	B) antigen recognizing TCR
83. Basophils	C) antigen recognizing Ig M,D
84. Neutrophils	D) granules with major basic protein, peroxidase, histaminase, arylsulfatase
85. Eosinophils	E) granules with alkaline phosphatase, lactoferrin, lysozyme
Cells of loose connective tissue...	**synthesize...**
86. Mast cells	A) antibodies
87. Histiocytes	B) lymphokines and interleukins
88. Plasma cells	C) melanin
89.Fibroblasts	D) histamine, heparin, chemotactic factors, SRS-A
90.Pigment cells	E) collagen and elastin
Cells of loose connective tissue...	**perform the following functions ...**
91. Mast cells	A) regulation of the reactions of humoral immunity
92. Histiocytes	B) regulation of the homeostasis of loose connective tissue
93. Plasma cells	C) energy storage and source of metabolic water
94. Fibroblasts	D) antigen presenting
95.Adipose cells	E) synthesis of loose connective tissue extracellular substance

Connective tissue... 96. Dense regular 97. Reticular 98. Mucous 99. Dense irregular 100.Loose connective tissue	**is characterized by...** A) predomination of ground substance over the fibers B) gel like structure C) predomination of reticular fibers D) predomination of fibers lying parallel to each other E) predomination of fibers lying chaotically
Components of fibrous connective tissue extracellular matrix... 101. Collagen fibers 102. Elastic fibers 103. Reticular fibers 104. Proteoglycans 105. Multiadhesive glycoproteins	**consist of...** A) collagen III type B) bands of banding pattern fibrils C) complexes of GAGs and proteins D) proteins fibronectin and laminin E) amorphous central component and microfibriles
Fibrous connective tissue... 106. Dense regular 107. Reticular 108. Adipose brown 109. Dense irregular 110. Loose connective tissue	**localizes in...** A) hematopoietic organs B) papillar layer of dermisis C) reticular layer of dermisis D) ligaments, tendons E) neck, back and mediastinum
Cells of loose connective tissue... 111. Mast cells 112. Histiocytes 113. Plasma cells 114. Fibroblasts 115. Fibrocytes	**have the ultrastructural features...** A) abundant of lysosomes B) abundant of rEPR C) abundant of rEPR and light region near a nucleus D) large, intensely basophilic granules E) small amount of organelles

Supporting tissue...	**localizes in ...**
116. Hyaline cartilage	A) intervertebral discs, symphysis pubis
117. Elastic cartilage	B) alveolar sockets and places where tendons insert into bones
118. Fibrocartilage	C) ventral ends of ribs where they articulate with the sternum
119. Woven bone tissue	D) long bones
120. Lamellar bone tissue	E) pinna of external ear
Cells of supporting tissues...	**perform the function of...**
121. Osteoblasts	A) bones and cartilages resorption
122. Osteocytes	B) appositional growth of cartilage
123. Osteoclasts	C) interstitial growth of cartilage
124. Chondroblasts	D) maintaining the bone matrix
125. Chondrocytes	E) secretion of bone matrix
Cells of supporting tissues...	**localize in ...**
126. Osteoblasts	A) Howship's lacunae
127. Osteocytes	B) perichondrium
128. Osteoclasts	C) lacunae and canaliculi
129. Chondroblasts	D) periosteum and endosteum
130. Chondrocytes	E) isogenous groups
Supporting tissue...	**is characterized by ...**
131. Hyaline cartilage	A) abundant of elastic fibers
132. Elastic cartilage	B) mineralized collagen fibers forming lamellae
133. Fibrocartilage	C) collagen fibers, lying parallel
134. Woven bone tissue	D) mineralized collagen fibers lying randomly
135. Lamellar bone tissue	E) type II collagen fibers forming a network
Cells of bone tissue...	**perform the function of ...**
136. Osteoblasts	A) bones and cartilages resorption
137. Osteocytes	B) differentiation into an osteoblast
138. Osteoclasts	
139. Osteoprogenitor cells	

140. Bone-lining cells	C) maintenance and nutrition of the osteocytes D) maintenance of bone matrix E) secretion of bone matrix
Structures of a developing long bone ...	**are ...**
141. Periosteal bone	A) mixed bone spicules
142. Endochondral bone	B) hyaline cartilage
143. Zone of epiphyseal cartilage hypertrophy	C) columns of cartilage cells D) bony collar
144. Zone of epiphyseal cartilage proliferation	E) hypertrophic, metabolically active chondrocytes
145. Zone of reserve cartilage	
Muscle tissues and cells...	**are developed from ...**
146. Skeletal muscle tissue	A) neuroectoderm
147. Smooth muscle tissue	B) ectoderm
148. Cardiac muscle tissue	C) mesenchyme
149. Myoepithelial cells	D) myotoms of mesodermal somits
150. Dilator and sphincter pupillary muscles	E) visceral layers of mesodermal splanchnotom
Structures of muscle tissues...	**there are in...**
151. Cardiac muscle cells	A) walls of inner organs, ducts and vessels
152. Smooth myocytes	B) eyeball
153. Myocytes of neuroectodermal origin	C) muscles of the skeleton D) exocrine glands of ectodermal origin
154. Myoepithelial cells	
155. Muscle fibers	E) myocardium of the heart
Parts of a sarcomere...	**are represented by...**
156. A-band	A) actin filaments
157. H-band	B) myosin filaments
158. I-band	C) both actin and myosin filaments
159. M line	
160. Z line	D) α-actinin E) myomesin and C proteins

The components of muscle fiber… 161. T tubule 162. Sarcoplasmic reticulum 163. Triad 164. Sarcomere 165. Z line	**are …** A) transverse invagination of the sarcolemma located at the A–I bands junction B) α-actinin C) segment of the myofibril between two Z lines D) complex of T-tubule and two terminal cisterns E) smooth endoplasmic reticulum
The muscle cells … 166. Smooth myocytes 167. Typical cardiac muscle cells 168. Secretory cardiac muscle cells 169. P-cells 170. Purkinje cells	**are found in…** A) walls of inner organs, ducts and vessels B) myocardium of the heart C) sinoatrial and atrioventricular nodes D) bundle of His, it's branches and Purkinje fibers E) atriums of the heart
Movements… 171. Peristalsis of intestine 172. Vasoconstriction 173. Changing of bronchi diameter 174. Movement of the body 175.Pumping of the blood	**are provided by …** A) smooth myocytes B) cardiac muscle cells C) muscle fibers D) P-cells E) Purkinje cells
Structures… 176. Perivascular feet of blood brain barrier 177. Myelinated nerve fibers in the CNS 178. Myelinated and unmyelinated nerve fibers in the PNS 179. Central canal of the spinal cord and ventricles of the brain 180. Mononuclear phagocyte system of the nervous tissue	**are formed by…** A) ependymal cells B) astrocytes C) oligodendrocytes D) microglial cells E) Schwann cells

Nerve endings...	**are ...**
181. Free nerve ending 182. Pacinian corpuscle 183. Meissner's corpuscle 184. Muscle spindle 185. Motor end plate	A) ending of motor nerve axon on surface of muscle fiber B) receptor including intrafusal muscle fibers within the skeletal muscle C) terminal branches of the dendrite in the epithelium or connective tissue D) ovoid shaped receptor including inner and outer bulbs E) cylinder-like receptor within the dermal papillae
Parts of the reflex arc...	**are represented by..**
186. Somatic afferent 187. Somatic efferent 188. Autonomic afferent 189. Autonomic efferent 190. Autonomic associative	A) sensory neuron of spinal ganglion B) motor neuron of vegetative ganglion C) interneuron of the spinal cord's lateral horn D) motor neuron of the spinal cord's anterior horn E) sensory and motor neurons
Axons of...	**form the synapses with...**
191. Basket cells 192. Granule cells 193. Purkinje cells 194. Betz cells 195. Motor neurons of the spinal cord's anterior horns	A) neurons of cerebellum nuclei B) bodies of Purkinje cells C) dendrites of Purkinje cells D) motor neurons of the spinal cord E) muscle fibers
Cells of cerebrum and cerebellum...	**are found in...**
196. Granule cells 197. Purkinje cells 198. Betz cells 199. Basket cells 200. Medium pyramidal cells	A) ganglionic layer of cerebellum cortex B) inner pyramidal layer of cerebrum cortex C) molecular layer of cerebellum cortex

	D) outer pyramidal layer of cerebrum cortex E) granular layer of cerebellum cortex
In spinal cord, the nuclei of the gray matter... 201. Intermediate medial nucleus 202. Intermediate lateral nucleus 203. Proper nucleus 204. Klark's nucleus 205. Motor nuclei	**are found in...** A) posterior horns B) anterior horns C) lateral horns D) dorsal roots E) ventral roots
In retina, the bodies of the... 206. Rods and cones cells 207. Bipolar neurons 208. Ganglion neurons 209. Horizontal neurons 210. Amacrine neurons	**are found in...** A) layer of ganglion cells B) inner nuclear layer C) outer nuclear layer D) inner plexiform layer E) outer plexiform layer
Layers of retina... 211. Outer plexiform 212. Inner plexiform 213. Layer of optic nerve fibers 214. Outer and inner limiting membranes 215. Layer of rods and cones	**contain ...** A) processes of glial cells B) outer segments of rods and cones cells dendrites C) synapses of rods and cones cells axons with dendrites of bipolar neurons D) synapses of bipolar neurons axons with dendrites of ganglion cells E) axons of ganglion cells
Elements of the olfactory organ... 216. Olfactory cell 217. Bulbous head with cilia 218. Olfactory nerve 219. Supporting cell 220. Basal cell	**are ...** A) end of modified dendrite B) epithelial columnar cell with microvilli C) small, rounded cell providing regeneration D) axons of olfactory cells E) nerve-sensory receptor cell

Elements of the eye... 221. Sclera 222. Choroid 223. Cornea 224. Ciliary body and iris 225. Retina	**are represented by tissues...** A) pigmented epithelium, loose connective tissue, smooth muscle B) dense connective tissue C) stratified squamous epithelium, dense connective tissue, simple squamous epithelium D) nervous tissue, pigment epithelium E) loose connective tissue with numerous blood vessels
Cells... 226. Chemosensory receptor cells 227. Hair receptor cells 228. Receptor cells to angular acceleration of the head 229. Receptor cells to position of the head and its linear movement 230. Cells producing endolymph	**are found in...** A) cristae ampullaris of the semicircular ducts B) taste buds C) maculae of utricle and saccule D) spiral organ of Corti E) stria vascularis of cochlear duct
Cavities... 231. Cochlear duct 232. Scala vestibule 233. Scala tympani 234. Vestibular labyrinth 235. Tympanic cavity of middle ear	**are filled with ...** A) lymph B) endolymph C) perilymph D) air E) blood
Tunics of the vessels and the heart... 236. Tunica intima of muscular artery 237. Epicardium 238. Myocardium 239. Endocardium 240. Tunica intima of medium vein	**consist of...** A) mesothelium, connective and adipose tissues B) endothelium and subendothelial connective tissue with conducting system cells C) cardiac muscle tissue D) endothelium, subendothelial layer with occasional smooth muscle cells

	E) endothelium, subendothelial layer and a prominent internal elastic membrane
The wall of microcirculatory bed vessels... 241. Arteriole 242. Continuous capillary 243. Fenestrated capillary 244. Sinusoidal capillary 245. Muscular venule	**is characterized by the presence of ...** A) endothelium, 1 or 2 layers of smooth muscle in tunica media, thin tunica adventitia B) continuous endothelium and basal lamina C) discontinuous endothelium and basal lamina D) endothelial cells with small pores bridged by diaphragms and continuous basal lamina E) endothelium and thin subendothelial connective tissue, 1 or 2 layers of smooth muscle in tunica media, thin tunica adventitia
Layers and tissues of the heart... 246. Endothelium 247. Epicardium 248. Myocardium 249. Endocardium 250. Pericardium	**are developed from ...** A) ectoderm and extraembryonic mesoderm B) visceral layer of mesodermal splanchnotome C) parietal layer of mesodermal splanchnotome D) layers of splanchnotome E) mesenchyme
Cardiac muscle cells... 251. Pacemaker cells 252. Purkinje cells 253. Typical cardiac muscle cells 254. Secretory cardiac muscle cells	**have morphology features...** A) small, irregular cells containing fewer myofibrils laying chaotically B) cylindrical, branched cells binding with intercalated discs containing diads, numerous myofibrils

	C) stellate cells containing secretory granules and myofibrils E) large oval cells containing an abundance of glycogen, and few peripherally disposed myofibrils
In heart, the cardiac muscle cells… 255. Pacemaker cells 256. Purkinje cells 257. Typical cardiac muscle cells 258. Secretory cardiac muscle cells	**localize in…** A) myocardium of atria and ventricles B) myocardium of atria C) bundle of His it's branches, Purkinje fibers D) myocardium of ventricles E) sinoatrial and atrioventricular nodes
Derivatives of the skin… 259. Hair cortex 260. Hair follicle external root sheath 261. Nail plate 262. Hair follicle internal root sheath 263. Dermal papilla	**are formed by …** A) loose connective tissue B) stratum basale and the stratum spinosum C) multilayered cellular covering with soft keratin D) cornified cells with hard keratin E) cuboidal keratin-filled cells
Derivatives of the skin… 264. Hair medulla 265. Hair cuticle 266. Nail plate 267. Hair follicle external connective tissue sheath 268. Hair bulb	**are formed by …** A) squamous cells B) large vacuolated cells C) germinal layer of cells D) cornified cells with hard keratin E) dense irregular connective tissue
In the skin, the cells… 269. Merkel's cells 270. Langerhans' cells 271. Myoepithelial cells 272. Smooth myocytes	**are found in …** A) sweat glands B) epidermisis C) dermisis D) hypodermis

273. Melanocytes	E) arrector pili muscle
Stratums of epidermisis...	**contain the cells ...**
274. Stratum basale 275. Stratum spinosum 276. Stratum granulosum 277. Stratum lucidum 278. Stratum corneum	A) cornified unucleated cells filled with keratin filaments and coated by thick plasma membrane B) eosinophilic cells invisible in the light microscope C) flattened keratinocytes with keratohyalin granules D) polygonal keratinocytes with keratin tonofibrils E) columnar keratinocytes with keratin filaments
Structurally the glands of the skin...	**belong to the type...**
279. Eccrine sweat glands 280. Apocrine sweat glands 281. Sebaceous glands 282. Mammary glands	A) compound branched tubular-alveolar B) simple tubular unbranched C) simple tubular unbranched or branched D) simple branched alveolar E) compound branched alveolar
The morphological features of the air-conducting organs...	**are the following ...**
283. Trachea 284. Large intrapulmonary bronchi 285. Small intrapulmonary bronchi 286. Bronchioles 287. Terminal bronchioles	A) pseudostratified ciliated epithelium, C-shaped hyaline cartilages rings, absence of the muscularis mucosa, glands B) pseudostratified ciliated epithelium, well developed muscularis mucosa, absence of the cartilages and glands C) pseudostratified ciliated epithelium, large fragments of hyaline cartilage, muscularis mucosa, glands D) pseudostratified ciliated epithelium, islands of cartilages, muscularis mucosa, glands

	E) simple ciliated columnar or cuboidal epithelium, thin layer of the elastic fibers and smooth myocytes, absence of the cartilages and glands
Epithelium covering... 288. Bronchioles 289. Terminal bronchioles 290. Respiratory bronchioles 291. Alveolar ducts 292. Alveoli	**contains the cells ...** A) pneumonocytes I and II type B) ciliated, brush, endocrine, Clara cells C) ciliated, goblet, brush, endocrine, Clara cells D) ciliated, brush, Clara cells E) brush, Clara cells
The cells covering the bronchial tree... 293. Clara cells 294. Goblet cells 295. Endocrine cells 296. Brush cells 297. Basal cells	**perform the following functions...** A) production of the bronchial fluid, protective function B) receptive C) mucous secretion D) production of the peptide hormones E) regeneration
There are... 298. Mixed glands 399. Lymph nodules 300. Smooth muscle 301. Cells producing surfactant phospholipids, proteins, glycosaminoglycans 302. Cells producing bronchial fluid glycoproteins	**in the lungs in ...** A)alveoli B)epithelium of the terminal bronchioles C)epithelium of the trachea D)mucousa of the bronchi E)submucousa
In organism, the change of functions... 303. Hyperfunction of follicular cells 304. Hyperfunction of parathyroid glands cells	**leads to ...** A)decreasing of the calcium in blood B)excessive growth of the body or its parts

305. Hyperfunction of somatotrops 306. Hypofunction of the cells of adrenal gland cortex 307. Hyperfunction of parafollicular cells	C)increasing of the cells metabolism D)decreasing of the resistance to stress E) increasing of the calcium in blood
Hormones... 308. Aldosteron 309. Melatonin 310. Growth hormone 311. Parathormone 312. Follicle-stimulating	**are produced in...** A) adenohypophysis B) pineal gland C) parathyroid gland D) cortex of the adrenal gland E) ovary
Endocrine glands... 313. Adenohypophysis 314. Neurohypophysis 315. Cortex of the adrenal gland 316. Medulla of the adrenal gland 317. Parathyroid gland	**are developed from...** A)neuroectoderm B)oral cavity ectoderm C)coelomic epithelium D)neural crest E)entoderm
Target cells... 318. Myocytes of uterus 319. Myocytes of vessels 320. Myoepithelial cells of the mammary glands 321. Epithelium of the kidney collecting ducts 322. Adenocytes of the adenohypophysis	**have receptors to hormone...** A)vasopressin B)oxytocin C)both vasopressin and oxytocin D)neither vasopressin or oxytocin
Morphofunctional features... 323. Secretion of vasopressin and oxytocin 324. Ability to irritability and conductivity 325. Secretion of hypothalamic regulating hormones	**are typically for the hypothalamus neurosecretory cells presenting in..** A)supraoptic and paraventricular nuclei B)arcuate, ventromedial, dorsal nuclei

326. Axons forming the axovasal synapses in pars nervosa 327. Axons forming the axovasal synapses in median eminence	C)all supraoptic, paraventricular arcuate, ventromedial, dorsal nuclei D) neither supraoptic, paraventricular, arcuate, ventromedial, dorsal nuclei
Hormones… 328. Somatostatin 329. Glucocorticoids 330. Mineralocorticoids 331. Epinephrine 332. Norepinephrine	**cause the effects…** A) increasing of blood pressure B) stimulation of heart C) maintaining the water and electrolyte balance D) participation in the carbohydrates, proteins, lipids metabolism E) inhibition of the glands secretion
Parts of the tooth… 333. Enamel 334. Dentin 335. Predentin 336. Cementum 337. Pulp cavity	**consist of…** A)mineralized collagen fibrils B)loose connective tissue C)cartilage tissue D)enamel rods E)unmineralized collagen fibrils
The layers of esophagus wall… 338. Covering epithelium 339. Muscularis mucosa 340. Submucous membrane 341. Muscularis externa of the upper part 342. Adventitia	**consist of…** A)simple columnar B)stratified squamous non-keratinized C)loose connective tissue D)smooth muscle E)striated muscle
Parts of the tooth… 343. Enamel 344. Dentin 345. Predentin 346. Cementum 347.Periodontal ligament	**are developed from…** A)simple columnar epithelium B)stratified squamous epithelium of the oral cavity C)mesemchyme originating from the neural crest

	D)mesemchyme originating from the mesoderm E)somits
Structural components of the tongue... 348. Covering epithelium 349. Lamina propria 350. Glands 351. Muscle 352. Endomysium	**are represented by...** A)simple columnar B) stratified squamous C) glandular epithelium D) loose connective tissue E) striated muscle
The cells of the main gastric glands... 353. Chief cells 354. Parietal cells 355. Mucous neck cells 356. Undifferentiated cells 357. Enteroendocrine cells	**perform the following functions...** A)pepsinogen secretion B)mucus secretion C)gastrin and serotonin secretion D) chlorides production E) regeneration
Enteroendocrine cells of the gastrointestinal tract... 358. G-cells 359. EC-cells 360. D-cells 361. D1-cells 362. S-cells	**produce ...** A)serotonin B) somatostatin C) gastrin D) secretin E) vasoactive intestinal polypeptide
Structural features... 363. Villi, crypts, glands in submucosa 364. Stratified squamous epithelium, glands in submucosa 365. Pits, glands within the lamina propria 366. Crypts, absence of villi 367. Villi, crypts, absence of glands	**are characteristic of the...** A)esophagus B)stomach C)duodenum D)jejunum and ileum E)large intestine

The cells of the small intestine...	**perform the following functions...**
368. Enterocytes	A)antibacterial activity
369. Goblet cells	B) mucus secretion
370. Paneth cells	C) secretion of cholecystokinin and secretin
371. Undifferentiated cells	D) digestion and absorption
372. Enteroendocrine cells	E) regeneration
The cells of the small intestine...	**are situated in ...**
373. Enterocytes	A) only in crypts
374. Goblet cells	B) only in villi
375. Paneth cells	C) only in bases of the crypts
376. Undifferentiated cells	D) both in crypts and villi
377. Enteroendocrine cells	E) in serosa
Combinations of two epithelia ...	**are represented in ...**
378. Simple columnar with mucus secreting cells and mesothelium	A)small intestine B)esophageo-gastric junction C) gastric-intestinal junction D) stomach E) tongue
379. Simple columnar with great number of absorptive cells and mesothelium	
380. Stratified squamous and simple columnar with mucus secreting cells	
381. Simple columnar with mucus secreting cells and simple columnar with great number of absorptive cells	
382. Stratified squamous nonkeratinized and stratified squamous keratinized	
The secrets...	**are produced by...**
383. Digestive enzyme lipase	A) hepatocytes of the liver
384. Hormone insulin	B) fat-storing cells of the liver
385. Proteins of plasma	C) acinar cells of the pancreas

386. Digestive enzyme trypsin 387. Bile	D) cells of the Langerhans islets E) Kupffer cells of the liver
In pancreas, the cells of the islets of Langerhans 388. A-cells 389. B-cells 390. D-cells 391. D1-cells 392. PP-cells	**produce hormones…** A)pancreatic polypeptide B) somatostatin C) insulin D) glucagon E) vasoactive intestinal peptide
Functions of the liver… 393. Detoxification and inactivation 394. Bile secretion 395. Accumulation of vitamin A 396. Protection by phagocytosis 397. Formation of glycogen	**are provided by the cells…** A)hepatocytes B) Kupffer cells C) endothelial cells of capillaries D) Ito cells E) epithelium of bile ductules
The cells of the liver… 398. Hepatocytes 399. Kupffer cells 400. Ito cells 401. Endothelial cells of capillaries 402. Pit cells	**have ability to…** A)accumulate vitamin A B) take part in substances exchange between blood and hepatocytes C) inactivate toxins D) phagocytosis E) kill tumor cells
The vessels of the liver… 403. Interlobular veins 404. Sublobular veins 405. Central veins 406. Interlobular arteries 407. Sinusoids	**are situated …** A)between classic hepatic lobules within triads B)between classic hepatic lobules but not within triads C)between plates of hepatocytes within lobules D) in the center of classic hepatic lobules E) within plates of hepatocytes

The vessels of the liver… 408. Interlobular artery 409. Interlobular vein 410. Sinusoid 411. Central vein 412. Sublobular vein	**contain …** A) hormones-rich blood B) oxygen-rich blood C) mixed blood D) oxygen-poor, but nutrient-rich blood E) nutrient-poor, but metabolites-rich blood
The following cells… 413. Macrophages passing the iron to the developing erythrocytes 414. Follicular dendritic cells 415. Megakaryocytes 416. Epithelioreticular cells 417. Interdigitating (dendritic) cells	**localize in…** A) thymus B) lymph nodes C) appendix D) tonsils E) bone marrow
Zones of the spleen… 418. Periarterial lymphatic sheath 419. Mantle zone 420. Marginal zone 421. Germinal centers 422. Splenic cords	**mostly consist of …** A)all types of blood cells, reticular cells macrophages, dendritic cells, plasma cells B) T-lymphocytes C) inactive B-lymphocytes D) macrophages, dendritic cells, a few lymphocytes E)active B-lymphocytes and B-immunoblasts
In zones of lymph nodes… 423. Germinal centers of nodules 424. Medullary cords 425. Paracortical zone 426. Sinuses 427. Mantle zones of nodules	**the following processes take place…** A) releasing of antibodies by plasma cells B) proliferation of B-immunoblasts C) cooperative interactions of immunocompetent cells D) accumulation of B-memory cells E) filtration of lymph

The following structures... 428. Lymph nodules with a central artery 429. Lymph nodules, medullary cords, sinuses 430. Cortex and medulla without lymph nodules 431. Lymph nodules, stratified nonkeratinized epithelium 432. Lymph nodules, simple epithelium, crypts	**are typically for ...** A) thymus B) lymph nodes C) appendix D) tonsils E) spleen
The following structures... 433. Hassall's corpuscles 434. Iron accumulating cells surrounded by developing erythrocytes 435. “Nurse” cells 436. Follicular dendritic cells 437. Interdigitating (dendritic) cells	**are ...** A) antigen presenting cells in T-lymphocyte rich zones B) complexes of the epithelioreticular cells in the thymus medulla C) macrophages of the bone marrow D) epithelioreticular cells of the thymus cortex E) cells retaining antigens on their surfaces in B-lymphocyte rich zones
Immunoglobulines ... 438. Most abundant and principal in the secondary immune response 439. Principal in the primary immune response 440. Presenting in body secretions 441. Antigen receptor on the surface of mature B-lymphocytes 442. Principal in the allergic reactions	**belong to the...** A) class A B) class M C) class G D) class E E) class D

In kidneys, the cells ... 443. Intraglomerular mesangial cells 444. Interstitial cells 445. Podocytes 446. Juxtaglomerular cells 447. Macula densa cells	**localize...** A) in loose connective tissue of the medulla B) in the walls of afferent and efferent arterioles C) in the wall of distal convoluted tubule D) between capillaries of the glomerulus E) in the Bowman's capsule visceral layer
In kidneys, the structures ... 448. Bowman's capsule visceral layer 449. Proximal tubules 450. Henle's loop thin segment 451. Distal tubules 452. Collecting tubules	**are lined with epithelial cells...** A) cuboidal with brush border and basal striation B) cuboidal with basal striation C) with primary and secondary processes D) cuboidal with light and dark cells E) squamous
In kidneys, the following structures ... 453. Proximal tubules 454. Distal tubules 455. Henle's loop's thin segment 456. Collecting tubules and ducts 457. Papillary duct	**are covered with epithelium...** A) simple squamous B) simple cuboidal with basal striation C) simple cuboidal with brush border and basal striation D) simple cuboidal E) simple cuboidal and simple columnar
Cells of kidneys... 458. Podocytes 459. Juxtaglomerular cells 460. Cells of proximal tubules 461. Cells of distal tubules 462. Interstitial cells	**are characterized by...** A) brush border and basal striation B) granules containing renin C) basal striation D) primary and secondary processes

	E) bundles of actin filaments and lipid droplets
The structures of kidney 463. Malpighian corpuscle 464. Proximal tubules 465. Descending limb of Henle's loop 466. Distal tubules 467. Juxtaglomerular cells	**perform next functions...** A) primary urine components filtration B) pumping of sodium C) water reabsorption D) rennin secretion E) proteins, glucose, sodium, water reabsorption
Mucous membrane of the... 468. Renal pelvis 469. Urinary bladder 470. Urethra pars prostatic 471. Urethra pars membranacea 472. Urethra pars spongiosa	**is covered with epithelium ...** A) simple squamous B) simple colomnar C) pseudostratified columnar D) transitional E) pseudostratified columnar to stratified squamous
The following functions of ... 473. Testosterone secretion 474. Androgen-binding protein secretion 475. Phagocytosis 476. Peristalsis of seminiferous tubules 477. Testucilar fluid secretion	**are performed by...** A) Sertoli cells B) Leydig cells C) spermatids D) myoid cells E) spermatocytes
The following organs... 478.Testis 479. Epididymidis 480.Seminal vesicles 481. Prostate 482. Ductus defferens	**have features ...** A) mucousa forms the numerous folds B) ductule with well developed muscular membrane C) consists of the numerous glands surrrounding by smooth myocytes D) contains ductuli efferentes continued into coiled duct E) contains seminiferous tubules, tubuli recti and rete testis

The cells of testis...	**localize...**
483. Sertoli cells 484. Leydig cells 485. Myoid cells 486. Spermatogonia 487. Spermatids	A) in interstitial tissue B) in tunica of seminiferous tubules C) on basal lamina of seminiferous tubules D) in adluminal compartment of seminiferous epithelium E) in basal compartment of seminiferous epithelium
Hormones...	**have effects in the organism...**
488. Androgens 489. FSH 490. LH 491. Inhibin 492. Activin	A) stimulation of testosterone secretion by Leydig cells B) stimulation of androgen-binding protein secretion by Sertoli cells C) regulation of spermatogenesis D) stimulation of testosterone secretion by Leydig cells E) inhibition of FSH secretion in adenohypophysis
Organs...	**perform the functions...**
493.Testis 494. Epididymis 495.Seminal vesicles 496. Prostate 497. Ductus defferens	A) contraction for semen ejaculation B) maturation and storage of spermatozoa C) spermatogenesis D) liquefaction of the semen E) secretion of metabolic products for spermatozoa
The parts of male reproductive system...	**are covered with epithelium...**
498. Seminiferous tubules 499. Tubuli recti 500. Rete testis 501. Ductuli efferentes	A) pseudostratified columnar B) pseudostratified containing alternating groups of cells C) simple cuboidal D) seminiferous epithelium

502. Ductus epididymidis	E) simple containing only Sertoli cells
Hormones...	**are produced by...**
503. FSH	A) growing follicles
504. LH	B) corpus luteum
505. Estrogens	C) acidophils of adenohypophysis
506. Progesterone	D) basophils of adenohypophysis
507. Prolactin	E) hypothalamic neurons
Structures of the ovary...	**are developed from...**
508. Vessels	A) primordial germ cells
509. Oocytes	B) coelomic epithelium
510. Follicular cells	C) entodermal epithelium
511. Loose connective tissue	D) ectodermal epithelium
512. Theca interna cells	E) mesenchyme
Within periods of 28-day ovarian-menstrual cycle...	**takes place...**
513. 1-4 days	A) ovulation
514. 5-14 days	B) desquamation of stratum functionale
515. 14 day	C) reconstitution of endometrium
516. 15-28 days	D) development of corpus luteum
517. 28 day	E) ischemia of stratum functionale
Main components of the uterus wall ...	**are represented by ...**
518. Covering epithelium of endometrium	A) simple columnar epithelium
519. Lamina propria of endometrium	B) smooth muscle tissue
520. Glands of endometrium	C) loose connective tissue
521. Myometrium	D) loose connective tissue and mesothelium
522. Perimetrium	E) glandular epithelium
Hormones...	**act on ...**
523. FSH	A) folliculogenesis
524. LH	B) reconstitution of endometrium after menstrual bleeding
525. Estrogens	

526. Progesterone 527. Prolactin	C) secretion of uterus glands D) secretion of mammary glands E) development of corpus luteum
Features of the ovarian follicles ... 528. Primordial follicle 529. Early primary follicle 530. Late primary follicle 531. Secondary follicle 532. Graafian follicle	**are ...** A) oocyte surrounded by zona pellucida, granulosa layer and theca folliculi B) oocyte surrounded by a single layer of squamous follicular cells C) cumulus oophorus, one large antrum, granulosa layer, theca interna and theca externa D) oocyte surrounded by a single layer of cuboidal or columnar follicular cells E) oocyte surrounded by zona pellucida, granulosa layer with one or several antrums, theca interna and theca externa
Tissues... 533. Connective tissue of chorion 534. Microglia 535. Blood cells 536. Cortex of adrenal glands 537. Mesothelium	**are produced from...** A) mesenchyme B) splanchnotom C) nephrotom D) prechordal plate E) extraembryonic mesoderm
Tissues... 538. Epithelium of trachea 539. Adenocytes of adenohypophysis 540. Epithelium of the liver 541. Epithelium of the esophagus 542. Neurons of the retina	**are produced from...** A) skin ectoderm B) nervous tube C) nephrotom D) prechordal plate E) entoderm

The parts of mesoderm…	**give rise to …**
543. Dermatom of somits	A) cardiac muscle tissue
544. Myotom of somits	B) bone and cartilage tissues
545. Sclerotom of somits	C) derma of the skin
546. Nephrotom	D) skeletal muscle tissue
547. Splanchotom	E) epithelium of the uterus
Within what period of embryogenesis…	**do such processes take place …**
548. 1st day	A) implantation
549. 2-5th days	B) fertilization
550. 6-7th days	C) cleavage
551. 7-14th days	D) early gastrulation
552. 14-20th days	E) late gastrulation
Source for development of…	**is …**
553. Primitive gut	A) ventral mesoderm
554. Nervous tube	B) neuroectoderm
555. Somites	C) extraembryonic ectoderm and extraembryonic mesoderm
556. Splanchotom	D) entoderm
557. Amnion	E) dorsal mesoderm
Extraembryonic organs…	**consist of …**
558. Yolk sac	A) extraembryonic ectoderm and extraembryonic mesoderm
559. Amnion	B) extraembryonic entoderm and extraembryonic mesoderm
560. Umbilical cord	C) trophoblast and extraembryonic mesoderm
561. Allantois	D) ectoderm and parietal layer of mesoderm
562. Chorion	E) amniotic epithelium, mucous tissue and the largest vessels

References standard of answers to type II tests

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
1	A	45	D	89	E	133	C
2	D	46	D	90	C	134	D
3	D	47	A	91	B	135	B
4	B	48	C	92	D	136	E
5	B	49	E	93	A	137	D
6	B	50	B	94	E	138	A
7	C	51	E	95	C	139	B
8	C	52	D	96	D	140	C
9	D	53	A	97	C	141	D
10	A	54	B	98	B	142	A
11	B	55	C	99	E	143	E
12	A	56	A	100	A	144	C
13	E	57	D	101	B	145	B
14	C	58	E	102	E	146	D
15	D	59	C	103	A	147	C
16	A	60	B	104	C	148	E
17	A	61	D	105	D	149	B
18	A	62	A	106	D	150	A
19	B	63	B	107	A	151	E
20	E	64	E	108	E	152	A
21	D	65	C	109	C	153	B
22	C	66	D	110	B	154	D
23	E	67	B	111	D	155	C
24	A	68	E	112	A	156	C
25	B	69	C	113	C	157	B
26	C	70	A	114	B	158	A
27	E	71	B	115	E	159	E
28	D	72	C	116	C	160	D
29	A	73	A	117	E	161	A
30	B	74	E	118	A	162	E
31	D	75	D	119	B	163	D
32	E	76	C	120	D	164	C
33	A	77	D	121	E	165	B
34	B	78	A	122	D	166	A
35	C	79	B	123	A	167	B
36	D	80	E	124	B	168	E
37	E	81	B	125	C	169	C
38	A	82	C	126	D	170	D
39	C	83	A	127	C	171	A
40	B	84	E	128	A	172	A
41	E	85	D	129	B	173	A
42	C	86	D	130	E	174	C
43	B	87	B	131	E	175	B
44	A	88	A	132	A	176	B

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
177	C	226	B	275	D	324	C
178	E	227	D	276	C	325	B
179	A	228	A	277	B	326	A
180	D	229	C	278	A	327	B
181	C	230	E	279	B	328	E
182	D	231	B	280	B	329	D
183	E	232	C	281	D	330	C
184	B	233	C	282	A	331	B
185	A	234	B	283	A	332	A
186	A	235	D	284	C	333	D
187	D	236	E	285	D	334	A
188	A	237	A	286	B	335	E
189	B	238	C	287	E	336	A
190	C	239	B	288	C	337	B
191	B	240	D	289	B	338	B
192	C	241	E	290	D	339	D
193	A	242	B	291	E	340	C
194	D	243	D	292	A	341	E
195	E	244	C	293	A	342	C
196	E	245	A	294	C	343	B
197	A	246	E	295	D	344	C
198	B	247	B	296	B	345	C
199	C	248	B	297	E	346	D
200	D	249	E	298	E	347	D
201	C	250	D	299	D	348	B
202	C	251	A	300	D	349	D
203	A	252	E	301	A	350	C
204	A	253	B	302	B	351	E
205	B	254	C	303	C	352	D
206	C	255	E	304	E	353	A
207	B	256	C	305	B	354	D
208	A	257	A	306	D	355	B
209	B	258	B	307	A	356	E
210	B	259	E	308	D	357	C
211	C	260	B	309	B	358	C
212	D	261	D	310	A	359	A
213	E	262	C	311	C	360	B
214	A	263	A	312	A	361	E
215	B	264	B	313	B	362	A
216	E	265	A	314	A	363	C
217	A	266	D	315	C	364	A
218	D	267	E	316	D	365	B
219	B	268	C	317	E	366	E
220	C	269	B	318	B	367	D
221	B	270	B	319	A	368	D
222	E	271	A	320	B	369	B
223	C	272	E	321	A	370	A
224	A	273	B	322	D	371	E
225	D	274	E	323	A	372	C

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
373	D	421	E	469	D	517	E
374	D	422	A	470	D	518	A
375	C	423	B	471	C	519	C
376	A	424	A	472	E	520	E
377	D	425	C	473	B	521	B
378	D	426	E	474	A	522	D
379	A	427	D	475	A	523	A
380	B	428	E	476	D	524	E
381	C	429	B	477	A	525	B
382	E	430	A	478	E	526	C
383	C	431	D	479	D	527	D
384	D	432	C	480	A	528	B
385	A	433	B	481	C	529	D
386	C	434	C	482	B	530	A
387	A	435	D	483	C	531	E
388	D	436	E	484	A	532	C
389	C	437	A	485	B	533	E
390	B	438	C	486	E	534	A
391	E	439	B	487	D	535	A
392	A	440	A	488	C	536	B
393	A	441	E	489	B	537	B
394	A	442	D	490	A	538	D
395	D	443	D	791	E	539	A
396	B	444	A	492	D	540	E
397	A	445	E	493	C	541	D
398	C	446	B	494	B	542	B
399	D	447	C	495	E	543	C
400	A	448	C	496	D	544	D
401	B	449	A	497	A	545	B
402	E	450	E	498	D	546	E
403	A	451	B	499	C	547	A
404	B	452	D	500	C	548	B
405	D	453	C	501	B	549	C
406	A	454	B	502	A	550	A
407	C	455	A	503	D	551	D
408	B	456	D	504	D	552	E
409	D	457	E	505	A	553	D
410	C	458	D	506	B	554	B
411	E	459	B	507	C	555	E
412	E	460	A	508	E	556	A
413	E	461	C	509	A	557	C
414	B	462	E	510	B	558	B
415	E	463	A	511	E	559	A
416	A	464	E	512	E	560	E
417	B	465	C	513	B	561	B
418	B	466	B	514	C	562	C
419	C	467	D	515	A		
420	D	468	D	516	D		

TYPE III TEST

Choose in which condition the following statement is correct. If 1, 2, 3 is correct – answer A; correct 1, 3 – answer B; correct 2, 4 - answer C; correct only 4 – answer D; correct 1, 2, 3, 4 (all statements) – answer E.

1. In a cell, the non-membranous organelles are:

Variants of answer:
1) centrioles;
2) EPR;
3) ribosomes;
4) mitochondria.

2.In a cell, the rough EPR performs functions of:
Variants of answer:
1) synthesis of extracellular, lysosomal and membrane proteins;
2) modification of proteins;
3) storage of proteins;
4) transport of proteins to the Golgi complex.

3. Cytoskeleton of a cell is represented by:
Variants of answer:
1) microtubules;
2) actin microfilaments;
3) intermediate filaments;
4) microvilli.

4. Synthetic apparatus of a cell includes:
Variants of answer:
1) EPR;
2) Golgi complex;
3) ribosomes;
4) lysosomes.

5. In a cell, the smooth EPR performs functions of:
Variants of answer:
1) biosynthesis of lipids and carbohydrates;
2) detoxification;
3) biosynthesis of steroid hormones;
4) calcium ions storage.

6. In a cell, the hydrolase vesicles are:

Variants of answer:

1) endosomes;
2) autophagosomes;
3) residual bodies;
4) primary lysosomes.

7. In a cell, the membranous organelles are:

Variants of answer:

1) Golgi complex;
2) EPR;
3) mitochondria;
4) ribosomes.

8. Glycocalyx is presented by:

Variants of answer:

1) glycoproteins;
2) cholesterol;
3) glycolipids;
4) GAGs.

9. Chemically, the surface membrane receptors are:

Variants of answer:

1) phospholipids;
2) sphingolipids;
3) cholesterol;
4) integral glycoproteins.

10. Chromatin is a complex of:

Variants of answer:

1) DNA;
2) lipids;
3) proteins;
4) carbohydrates.

11. In S period of cell cycle interphase there takes place the processes of:

Variants of answer:

1) cell grows;
2) duplication of DNA;
3) mitosis;
4) duplication of centrioles.

12. In prophase of mitotic division, there takes place the processes of:

Variants of answer:

1) nucleoli destruction;
2) chromatin condensation;
3) spindle division formation;
4) reduction of EPR and ribosomes.

13. Epithelial tissues are characterized by features:

Variants of answer:

1) formation of continuous sheet-like cellular layers;
2) little extracellular substance;
3) resting on the basement membrane;
4) absence of blood vessels.

14. In organism, the endothelium is found in:

Variants of answer:

1) vessels;
2) serous body cavities;
3) endocardium of the heart;
4) serous coats of inner organs.

15. In organism, the mesothelium is found in:

Variants of answer:

1) vessels;
2) serous body cavities;
3) endocardium of the heart;
4) serous coats of inner organs.

16. In organism, the simple cuboidal epithelium is found in:

Variants of answer:

1) collecting ducts, proximal and distal tubules of the kidney;
2) thyroid follicles;
3) small excretory ducts of many glands;
4) trachea.

17. In organism, the simple columnar epithelium is found in:

Variants of answer:

1) gall bladder;
2) uterus;
3) intestine;
4) stomach.

18. In organism, the pseudostratified columnar epithelium is found in:

Variants of answer:

1) intestine;
2) respiratory system organs;
3) esophagus;
4) parts of the male and female reproductive system organs.

19. In organism, the stratified squamous epithelium is found in:

Variants of answer:

1) oral cavity;
2) esophagus;
3) cornea;
4) vagina.

20. In organism, the transitional epithelium is found in:

Variants of answer:

1) urinary bladder;
2) skin;
3) ureter;
4) tubules of the kidney.

21. Intercellular contacts between epithelial cells are:

Variants of answer:

1) desmosomes;
2) tight junctions;
3) gap junctions;
4) synapses.

22. In secretory cells, the secretory cycle includes:

Variants of answer:

1) transportation of substances from the blood into the cell;
2) synthesis of the secretory products and formation of secretory granules;
3) secretion of the secretory products from the cell;
4) cell restoration.

23. Myoepithelial contractile cells are found in the glands:

Variants of answer:

1) sweat;

2) mammary;
3) salivary;
4) thyroid.

24. Steroid producing epithelial cells are characterized by the presence of extensive:

Variants of answer:
1) smooth endoplasmatic reticulum;
2) mitochondria with flattened cristae;
3) mitochondria with vesicular cristae;
4) rough endoplasmatic reticulum.

25. The plasma proteins are:

Variants of answer:
1) fibrinogen;
2) globulins;
3) albumins;
4) hemoglobin.

26. Features of hemopoietic stem cells are:

Variants of answer:
1) capacity for self-renewal;
2) capacity to mitotic divisions;
3) capacity to differentiation after division;
4) capacity to synthesis of specific proteins.

27. Morphological and functional features of eosinophils are:

Variants of answer:
1) two segments in nucleus;
2) capacity to kill parasites;
3) large eosinophilic specific granules;
4) capacity to neutralize the activity of histamine and action of SRS-A.

28. Morphological features of monocytes are:

Variants of answer:
1) basophilic cytoplasm;
2) bean shaped nucleus;
3) azurophilic granules;
4) eosinophilic specific granules.

29. Mononuclear phagocyte system includes:
Variants of answer:
1) monocytes of blood;
2) lymphocytes;
3) macrophages;
4) eosinophils.

30. Granules of platelets contain:
Variants of answer:
1) fibrinogen;
2) plasminogen;
3) serotonin;
4) immunoglobulins.

31. Granulopoiesis is accompanied by:
Variants of answer:
1) decreasing of cells size;
2) changing of cells nuclei;
3) accumulation of specific granules;
4) loss of mitotic activity.

32. The reactions of humoral immunity is provided by:
Variants of answer:
1) killer T lymphocytes;
2) helper T lymphocytes;
3) NK cells;
4) plasma cells.

33. Antigen-independent differentiation of T-lymphocytes takes place in:
Variants of answer:
1) bone marrow;
2) spleen;
3) lymph nods;
4) thymus.

34. Antigen-independent differentiation of B-lymphocytes takes place in:
Variants of answer:
1) spleen;
2) lymph nods;
3) thymus;
4) bone marrow.

35. Antigen-dependent differentiation of T-lymphocytes and B-lymphocytes takes place in:

Variants of answer:

1) spleen;
2) bone marrow;
3) lymph nods;
4) thymus.

36. Large granular lymphocytes are:

Variants of answer:

1) killer T-lymphocytes;
2) helper T-lymphocytes;
3) B-lymphocytes;
4) NK cells.

37. Dense irregular connective tissue is found in:

Variants of answer:

1) ligaments;
2) papillar layer of dermis;
3) tendons;
4) reticular layer of dermis.

38. Dense regular connective tissue is found in:

Variants of answer:

1) ligaments;
2) papilla layer of dermis;
3) tendons;
4) reticular layer of dermis.

39. Loose connective tissue:

Variants of answer:

1) forms fascia and aponeurosis;
2) localizes under the epithelia;
3) forms stroma of bone marrow;
4) accompanies blood and lymphatic vessels.

40. Fixed or intrinsic cells of loose connective tissue are:

Variants of answer:

1) fibroblasts;
2) adipose cells;
3) adventitial cells;
4) histiocytes.

41. Migratory or extrinsic cells of loose connective tissue are:

Variants of answer:

1) plasma cells;
2) histiocytes;
3) mast cells;
4) all types of leukocytes.

42. Fibroblasts secrete:

Variants of answer:

1) collagen;
2) elastin;
3) GAGs;
4) immunoglobulins.

43. Ground substance of the fibrous connective tissue's extracellular matrix consists of:

Variants of answer:

1) GAGs;
2) proteoglycans;
3) multiadhesive glycoprotein;
4) collagen.

44. Granules of mast cells contain:

Variants of answer:

1) histamine;
2) heparin;
3) chemotactic factors;
4) slow-reacting substance of anaphylaxis (SRS-A).

45. In loose connective tissue, the permeability of small blood vessels is regulated by:

Variants of answer:

1) fibroblasts;
2) basophiles;
3) plasma cells;
4) mast cells.

46. White adipocyte differs from brown adipocyte by:

Variants of answer:

1) shape of nucleus;
2) localization of nucleus;

3) quantity and size of lipid droplets;
4) quantity of mitochondria.

47. Glycosaminoglycans of fibrous connective tissue's ground substance are:

Variants of answer:
1) hyaluronic acid;
2) fibronectin;
3) different sulfates;
4) laminin.

48. Main functions of white adipose tissue are:

Variants of answer:
1) energy storage and hormones production;
2) nutrition;
3) mechanical support;
4) thermogenesis.

49. Hyaline cartilage localizes in:

Variants of answer:
1) articular surfaces of joints;
2) walls of respiratory system organs;
3) ventral ends of ribs where they articulate with the sternum;
4) intervertebral discs.

50. Elastic cartilage localizes in:

Variants of answer:
1) pinna of external ear;
2) epiglottis;
3) auditory (Eustachian) tube;
4) corniculate and cuneiform cartilages of larynx.

51. Ground substance of the cartilage tissue's extracellular matrix consists of:

Variants of answer:
1) GAGs;
2) proteoglycans;
3) multiadhesive glycoprotein;
4) collagen.

52. Appositional growth of the cartilage includes:

Variants of answer:
1) differentiation of fibroblasts into chondroblasts;

2) division and differentiation of chondrocytes;
3) synthesis of extracellular matrix components by chondroblasts;
4) synthesis of extracellular matrix components by chondrocytes.

53. Interstitial growth of the cartilage includes:
Variants of answer:
1) differentiation of fibroblasts into chondroblasts;
2) division and differentiation of chondrocytes;
3) synthesis of extracellular matrix components by chondroblasts;
4) synthesis of extracellular matrix components by chondrocytes.

54. Perichondrium consists of:
Variants of answer:
1) dense connective tissue;
2) fibroblasts;
3) chondroblasts;
4) blood vessels.

55. In cartilage and bone tissue, the mitotic activity is characteristic of cells:
Variants of answer:
1) chondroblasts;
2) chondrocytes;
3) osteoblasts;
4) osteocytes.

56. In nutrition of bone tissue there take part vessels of:
Variants of answer:
1) periosteum;
2) Haversian canals;
3) perforating (Volkmann's) canals;
4) endosteum.

57. Compact bone consists of:
Variants of answer:
1) osteons;
2) outer circumferential lamellae;
3) inner circumferential lamellae;
4) interstitial lamellae.

58. The constant remodeling of bone tissue is the result of balanced activities of cells:

Variants of answer:

1) osteoblasts;
2) osteocytes;
3) osteoclasts;
4) bone-lining cells.

59. Granulocyte/monocyte progenitor cells give rise to the cells of bone tissue:

Variants of answer:

1) osteoblasts;
2) osteocytes;
3) bone-lining cells;
4) osteoclasts.

60. The osteoblasts perform functions of:

Variants of answer:

1) bone matrix secretion;
2) bone tissue resorption ;
3) initiation of the calcification of bone matrix;
4) bone matrix remodeling.

61. Skeletal muscle tissue consists of:

Variants of answer:

1) cells;
2) symplasts;
3) intercalated discs;
4) satellite cells.

62. Intercalated discs of cardiac muscle cells contain intercellular junctions:

Variants of answer:

1) fascia adherens;
2) desmosomes;
3) gap junctions;
4) interdigitations.

63. Red skeletal muscle fibers are characterized by:

Variants of answer:

1) a high content of myoglobin and cytochroms;

2) a great number of mitochondria;
3) ability to continuous and vigorous activity;
4) slow contractions.

64. White skeletal muscle fibers are characterized by:
Variants of answer:
1) a low content of myoglobin and cytochroms;
2) a few number of mitochondria;
3) rapid contractions;
4) ability to continuous and vigorous activity;

65. Untypical cardiac muscle tissue cells are:
Variants of answer:
1) pacemaker cells;
2) Purkinje cells;
3) secretory cardiomyocytes;
4) cardiac myocytes.

66. Cardiac muscle tissue is characterized by:
Variants of answer:
1) oxyphilically staining cytoplasm of cardiac myocytes;
2) presenting of 1 or 2 nuclei in central part of cardiac myocytes;
3) presenting of intercalated discs;
4) presenting of large amount of loose connective tissue between cells.

67. Histogenesis of skeletal muscles includes stages:
Variants of answer:
1) promyoblasts;
2) myoblasts;
3) myotubes;
4) symplast.

68. The actin filaments contain:
Variants of answer:
1) tropomyosin;
2) actin;
3) troponin;
4) myosin.

69. In structural components of muscle tissue, the sarcoplasmic reticulum performs the functions of:

Variants of answer:

1) transportation;
2) synthesis of lipids and glycogen;
3) accumulation and realization of calcium ions;
4) energy production.

70. Secretory cardiomyocytes produce hormones:

Variants of answer:

1) atrial natriuretic factor;
2) rennin;
3) brain natriuretic factor;
4) aldosterone.

71. Main intercellular junctions between smooth muscle cells are:

Variants of answer:

1) fascia adherens;
2) desmosomes;
3) synapses;
4) gap junctions.

72. In organism, the hormones produced by secretory cardiomyocytes perform the functions:

Variants of answer:

1) inhibit renin secretion in the kidney;
2) inhibit aldosterone secretion in the adrenal gland;
3) stimulate relaxation of vascular smooth muscle;
4) stimulate reabsorbtion of Na in the kidney tubules.

73. Main functions of nerve tissue are:

Variants of answer:

1) irritability;
2) transportation;
3) conductivity;
4) protection.

74. In cytoplasm of neuron, the Nissl bodies are clusters of:

Variants of answer:

1) s-EPR;
2) ribosomes;

3) mitochondria;
4) r-EPR.

75. In organism, the encapsulated nerve endings are:
Variants of answer:
1) tactile corpuscles of Meissner;
2) corpuscles of Fater-Pacini;
3) muscle spindles;
4) synapses.

76. Sensory nerve ending are found in:
Variants of answer:
1) epithelia;
2) connective tissue;
3) muscles;
4) tendons.

77. Peripheral neuroglia is represented by:
Variants of answer:
1) Schwann cells;
2) ependymal cells;
3) satellite cells;
4) oligodendrocytes.

78. Glial cells forming the nerve fibers are:
Variants of answer:
1) ependymal cells;
2) Schwann cells;
3) astrocytes;
4) oligodendrocytes.

79. Peripheral nervous system includes:
Variants of answer:
1) nerves;
2) ganglia;
3) nerve endings;
4) spinal cord.

80. Sensory spinal ganglia are represented by:
Variants of answer:
1) pseudounipolar neurons;
2) satellite cells;

3) myelinated nerve fibers;
4) connective tissue.

81. Sympathetic ganglia are:
Variants of answer:
1) vertebral ganglia;
2) ganglia lying close to the viscera;
3) paravertebral ganglia;
4) ganglia lying in the wall of viscera.

82. In the spinal cord, the intercalated neurons of ANS are neurons of:
Variants of answer:
1) Klark's nuclei of posterior horns;
2) medial nuclei of lateral horns;
3) proper nuclei of posterior horns;
4) lateral nuclei of lateral horns.

83. Mossy afferent nerve fibers entering the cerebellum are ended into:
Variants of answer:
1) white matter;
2) molecular layer of cortex;
3) ganglionic layer of cortex;
4) granular layer of cortex.

84. The sensory zones of cerebral cortex contain well-developed layers:
Variants of answer:
1) outer granular;
2) outer pyramidal;
3) inner granular;
4) inner pyramidal.

85. Nerve-sensory receptor cells are found in sensory organs:
Variants of answer:
1) visual;
2) taste;
3) olfactory;
4) vestibular.

86. Senso-epithelial receptor cells are found in sensory organs:

Variants of answer:

1) vestibular;
2) taste;
3) hearing;
4) visual.

87. The olfactory epithelium consists of cells:

Variants of answer:

1) supporting;
2) basal;
3) nerve-sensory;
4) senso-epithelial.

88. The taste buds consist of cells:

Variants of answer:

1) supporting;
2) basal;
3) senso-epithelial;
4) nerve-sensory.

89. An external layer of eyeball is represented by:

Variants of answer:

1) retina;
2) cornea;
3) choroid;
4) sclera.

90. An uvea of eyeball includes:

Variants of answer:

1) choroid;
2) ciliary body;
3) iris;
4) retina.

91. The cornea contains the epithelia:

Variants of answer:

1) stratified squamous nonkeratinaized;
2) stratified squamous keratinaized;
3) simple squamous;
4) simple columnar.

92. Receptor part of the eyeball is represented by:
Variants of answer:
1) vitreous body;
2) crystalline lens;
3) iris;
4) retina.

93. The eye is developed from:
Variants of answer:
1) nervous tube;
2) ectoderm;
3) mesenchyme;
4) entoderm.

94. The cochlear duct of cochlear canal is delimited by:
Variants of answer:
1) basilar membrane;
2) vestibular membrane;
3) stria vascularis;
4) spiral ligament.

95. In Corti organ, the cells forming a tunnel are:
Variants of answer:
1) basal;
2) phalangeal;
3) hair;
4) pillar.

96. Type I hair cells of utricle and succule maculae are characterized by:
Variants of answer:
1) cylindrical shaped;
2) presence of afferent nerve ending looking like chalice;
3) presence of afferent nerve ending looking like bouton;
4) flask shaped.

97. The capillary wall contains:
Variants of answer:
1) endothelial cells and their basal lamina;
2) pericytes;
3) adventitial cells;
4) internal elastic membrane.

98. Tissue content of different arteries types depends on:

Variants of answer:

1) blood pressure;
2) direction of blood running;
3) rate of blood running;
4) amount of layers.

99. Regulation of arterioles luminal diameter is provided by:

Variants of answer:

1) gap junctions between endothelial cells and pericytes;
2) gap junctions between endothelial cells and the smooth muscle cells;
3) afferent nerve fibers;
4) efferent nerve fibers.

100. Sinusoidal capillaries are typically found in:

Variants of answer:

1) liver;
2) spleen;
3) bone marrow;
4) kidney.

101. Continuous capillaries are typically found in:

Variants of answer:

1) CNS;
2) spleen;
3) lungs;
4) kidney.

102. Fenestrated capillaries are typically found in:

Variants of answer:

1) muscles;
2) endocrine glands;
3) spleen;
4) kidney.

103. The wall of an arteriole contains:

Variants of answer:

1) endothelial cells and their basal lamina;
2) discontinuous internal elastic membrane;
3) one or two layers of smooth muscle cells;
4) adventitial cells.

104. The wall of postcapillary venules contains:
Variants of answer:
1) endothelial cells and their basal lamina;
2) one or two layers of smooth muscle cells;
3) pericytes;
4) external elastic membrane.

105. The wall of muscular venules contains:
Variants of answer:
1) endothelial cells and their basal lamina;
2) one or two layers of smooth muscle cells;
3) adventitial cells;
4) pericytes.

106. The wall of lymphatic capillary contains:
Variants of answer:
1) endothelial cells;
2) basal lamina;
3) anchoring filaments;
4) pericytes.

107. Main features for differentiation between an artery and a vein in histological slides are:
Variants of answer:
1) shape of lumen;
2) presence of internal elastic membrane;
3) presence of formed blood elements;
4) relative thickness of the tunica media and tunica adventitia.

108. The epicardium consists of:
Variants of answer:
1) mesothelial cells;
2) endothelial cells;
3) loose connective and adipose tissues;
4) cardiac muscle cells.

109. The conducting system of the heart is located in:
Variants of answer:
1) epicardium;
2) myocardium;
3) subendothelial layer of the endocardium;
4) subendocardial layer of the endocardium.

110. Tissues forming the skin's dermis are:
Variants of answer:
1) loose connective tissue;
2) dense regular connective tissue;
3) dense irregular connective tissue;
4) adipose tissue.

111. The epidermis is composed of cells:
Variants of answer:
1) melanocytes;
2) Langerhans' cells;
3) Merkel's cells;
4) fibroblasts.

112. The secretory portions of eccrine sweat glands contain:
Variants of answer:
1) clear cells;
2) dark cells;
3) myoepithelial cells;
4) melanocytes.

113. The keratohyalin granules of keratinocytes contain proteins:
Variants of answer:
1) keratin;
2) filaggrin;
3) collagen;
4) trichohyalin.

114. The hair root of thick hairs is represented by:
Variants of answer:
1) medulla;
2) cortex;
3) cuticle;
4) external root sheath.

115. Hair follicle consists of:
Variants of answer:
1) external connective tissue sheath;
2) internal root sheath;
3) external root sheath;
4) cortex.

116. Antigen-presenting cells of the epidermis are:

Variants of answer:

1) melanocytes;
2) keratinocytes;
3) Merkel's cells;
4) Langerhans' cells.

117. The main characteristics of melanocytes are:

Variants of answer:

1) neural crest origination;
2) dendritic shape;
3) numerous melanosomes;
4) keratin filaments.

118. Glands associated with hair follicles are:

Variants of answer:

1) apocrine sweat glands;
2) eccrine sweat glands;
3) sebaceous glands;
4) mammary glands.

119. Terminal duct lobular unit (TDLU) of mammary gland includes:

Variants of answer:

1) secretory alveoli;
2) terminal ductules;
3) intralobular collecting duct;
4) intralobular stroma;

120. The alveoli of the mammary gland is represented by cells:

Variants of answer:

1) smooth myocytes;
2) glandular epithelial cells;
3) keratinocytes;
4) myoepithelial cells.

121. Hormones regulating the mammary gland during lactation are:

Variants of answer:

1) prolactin;
2) adrenalin;

3) oxytocin;
4) aldosterone.

122. The true vocal cords of the larynx contain:
Variants of answer:
1) stratified squamous epithelium;
2) pseudostratified ciliated epithelium;
3) striated muscle tissue;
4) smooth muscle tissue.

123. Different parts of the larynx mucousa are covered with epithelium:
Variants of answer:
1) pseudostratified ciliated;
2) simple columnar;
3) stratified squamous;
4) simple cuboidal.

124. Interalveolar septum of the lung contain:
Variants of answer:
1) collagenous fibers;
2) elastic fibers;
3) fibroblasts;
4) macrophages.

125. The secretion of the surfactant components is provided by:
Variants of answer:
1) capillary endothelium;
2) pneumocytes type II;
3) pneumocytes type I;
4) Clara cells.

126. The different parts of the nose are covered with epithelium:
Variants of answer:
1) stratified squamous keratinizing;
2) stratified squamous nonkeratinizing;
3) pseudostratified ciliated columnar;
4) olfactory;

127. The visceral membrane of the lung pleura consists of:
Variants of answer:
1) mesothelium;
2) collagenous fibers;
3) elastic fibers;
4) smooth myocytes.

128. The respiratory portions of lungs are:
Variants of answer:
1) intrapulmanary bronchi;
2) bronchioles;
3) terminal bronchioles;
4) acini.

129. The wall of trachea includes the following tunics:
Variants of answer:
1) mucous membrane;
2) submucous membrane;
3) fibro-cartilage membrane;
4) adventitia.

130. The false vocal cords of the larynx contain:
Variants of answer:
1) stratified squamous epithelium;
2) pseudostratified ciliated epithelium;
3) striated muscle tissue;
4) loose connective tissue of the lamina propria.

131. The wall of the bronchioles contains:
Variants of answer:
1) pseudostratified ciliated epithelium;
2) cartilages;
3) muscularis mucosa;
4) glands.

132. "Dust cells" of the lung are:
Variants of answer:
1) lymphocytes;
2) mast cells;
3) smooth myocytes;
4) alveolar macrophage.

133. Chemically, the pulmonary surfactant consists of:
Variants of answer:
1) phospholipids;
2) proteins;
3) glycosaminoglycans;
4) acids.

134. The pineal gland contains the following cells:
Variants of answer:
1) dark pinealocytes;
2) light pinealocytes;
3) glial cells;
4) chromaffine cells.

135. In the adrenal glands, the target cells to ACTH are cells of:
Variants of answer:
1) zona fasciculate;
2) zona glomerulosa;
3) zona reticularis;
4) adrenal medulla.

136. Steroid-secreting endocrine cells contain abundant of:
Variants of answer:
1) lipid droplets;
2) mitochondria with tubular cristae;
3) smooth endoplasmic reticulum;
4) dense secretory granules.

137. Chemically, the hormones may be:
Variants of answer:
1) amino acid derivatives;
2) small peptides;
3) proteins;
4) steroids.

138. The Herring bodies are:
Variants of answer:
1) terminations of glial cells processes;
2) accumulations of pituicytes;
3) capillaries;
4) dilated endings of the axons with neurosecretory granules.

139. The neurohemal organs of the endocrine system are:

Variants of answer:

1) pars nervosa;
2) pars distalis;
3) median eminence;
4) pars intermedia.

140. The endocrine cells of APUD system have the following origin:

Variants of answer:

1) ectodermal;
2) entodermal;
3) mesodermal;
4) neural.

141. The hormones regulating the level of calcium in blood are:

Variants of answer:

1) thyroxin;
2) parathyroid hormone;
3) thyrotropin;
4) calsitonin.

142. The thyrotropin regulates the secretion of such hormones as:

Variants of answer:

1) thyroxin;
2) calsitonin;
3) triiodothyronine;
4) parathyroid hormone.

143. The parafollicular cells localize in the thyroid gland in:

Variants of answer:

1) connective tissue capsule;
2) wall of follicules;
3) colloid;
4) loose connective tissue between follicules.

144. The basophils of adenohypophysis are:

Variants of answer:

1) gonadotropic cells;

2) thyrotropic cells;
3) adrenocorticofipotropic cells;
4) lactotropic cells.

145. The acidophils of adenohypophysis are:
Variants of answer:
1) gonadotropic cells;
2) somatotropic cells;
3) adrenocorticofipotropic cells;
4) lactotropic cells.

146. The wall of the gastrointestinal tract consists of:
Variants of answer:
1) mucosa;
2) submucosa;
3) muscularis externa;
4) serosa or adventitia.

147. In the tooth, the cells odontoblasts produce:
Variants of answer:
1) predentin;
2) enamel;
3) dentin;
4) pulp.

148. In the tooth, the cells ameloblasts produce:
Variants of answer:
1) predentin;
2) cementum;
3) dentin;
4) enamel.

149. The glands of the esophagus are situated in:
Variants of answer:
1) epithelium of mucous membrane;
2) lamina propria of mucous membrane;
3) muscularis externa;
4) submucous membrane.

150. The tongue papillae consist of:
Variants of answer:
1) stratified squamous partially keratinized epithelium;

2) stratified squamous nonkeratinized epithelium;
3) lamina propria of mucous membrane;
4) muscularis mucosa.

151. The roots of teeth are held in bony sockets by:
Variants of answer:
1) bone joining;
2) cartilage joining;
3) epithelial joining;
4) periodontal ligament;

152. The taste buds are situated in stratified squamous epithelium of papillae:
Variants of answer:
1) foliate;
2) fungiform;
3) circumvallate;
4) filiform.

153. Periodontal ligament is:
Variants of answer:
1) loose connective tissue;
2) muscle tissue;
3) epithelial tissue;
4) dense connective tissue.

154. The hard tissues of the tooth are:
Variants of answer:
1) enamel;
2) cementum;
3) dentin;
4) predentin.

155. Serosa consists of :
Variants of answer:
1) mesothelium;
2) dense connective tissue;
3) loose connective tissue;
4) muscle tissue.

156. Structurally, the submucosal esophageal glands of esophagus are:

Variants of answer:

1) branched;
2) compound;
3) tubular-alveolar;
4) unbranched.

157. Muscularis externa of the esophagus middle part consists of:

Variants of answer:

1) myoepithelial cells;
2) smooth myocytes;
3) myoid cells;
4) striated muscle fibers.

158. The components of the stomach gastric juice are produced by cells:

Variants of answer:

1) chief;
2) parietal;
3) mucus secreting;
4) enteroendocrine.

159. Distinguishing features of the jejunum are:

Variants of answer:

1) villi;
2) glands within the submucosa;
3) crypts;
4) pits.

160. Distinguishing features of the duodenum are:

Variants of answer:

1) villi;
2) glands within the submucosa;
3) crypts;
4) pits.

161. The peristalsis of intestine is provided by:

Variants of answer:

1) movements of villi;
2) contractions of muscularis externa;

3) plicae circulars;
4) Auerbach's nerve plexus.

162. Pyloric region of the stomach is distinguished from the fundus and the body by:

Variants of answer:
1) deeper pits;
2) shorter and more branched glands;
3) few parietal cells in the glands;
4) numerous mucus secreting cells in the glands.

163. At passage of the stomach into the duodenum:

Variants of answer:
1) glands disappear in mucosa;
2) great number of absorptive cells appear in the epithelium;
3) glands appear in the submucosa;
4) villi and crypts appear.

164. At passage of the esophagus into the stomach:

Variants of answer:
1) epithelium becomes simple;
2) glands appear in the mucosa;
3) glands disappear in the submucosa;
4) villi and crypts appear.

165. Morphological features of the stomach glands parietal cells are:

Variants of answer:
1) eosinophilic cytoplasm;
2) great number of mitochondria;
3) intracellular canaliculi with microvilli;
4) mucus granules.

166. In the large intestine wall, the nerve plexuses localize in:

Variants of answer:
1) mucosa;
2) submucosa;
3) serosa or adventitia;
4) muscularis externa.

167. Morphological features of the stomach glands chief cells are:

Variants of answer:

1) basophilic cytoplasm;
2) well developed rEPR;
3) secretory granules;
4) eosinophilic cytoplasm.

168. Peyer's patches are:

Variants of answer:

1) invaginations of epithelium into lamina propria;
2) projections of the mucosa;
3) folds of mucosa and submucosa;
4) groups of lymphatic nodules.

169. Stuctural features of the large intestine are:

Variants of answer:

1) folds of mucosa and submucosa;
2) crypts;
3) taeniae coli;
4) villi.

170. The ducts of the large salivary glands are:

Variants of answer:

1) intercalated;
2) striated;
3) interlobular;
4) main excretory duct.

171. Submandibular gland produces secret:

Variants of answer:

1) sebaceous;
2) mucous;
3) serous;
4) seromucous.

172. Sublingual gland produces secret:

Variants of answer:

1) sebaceous;
2) mucous;
3) serous;
4) seromucous.

173. The acini of the parotid gland contain cells:
Variants of answer:
1) serous;
2) mucous;
3) myoepithelial;
4) Paneth cells.

174. The exocrine pancreatic acinus consists of cells:
Variants of answer:
1) acinar;
2) myoepithelial;
3) centroacinar;
4) endocrine.

175. The pancreas epithelium develops from:
Variants of answer:
1) ectoderm;
2) mesoderm;
3) mesenchyme;
4) entoderm.

176. The blood passes into the liver lobule through:
Variants of answer:
1) sublobular vein;
2) interlobular vein;
3) central vein;
4) interlobular artery.

177. Sinusoids of the liver lobule lye between:
Variants of answer:
1) interlobular artery;
2) interlobular vein;
3) central vein;
4) sublobular vein.

178. The liver lobule consists of:
Variants of answer:
1) plates of hepatocytes;
2) sinusoids;
3) bile ductules;
4) central vein.

179. The hepatocytes of liver hepatocytes are developed from:

Variants of answer:

1) ectoderm;
2) mesoderm;
3) mesenchyme;
4) entoderm.

***180.* The wall of gallbladder consists of:**

Variants of answer:

1) mucosa;
2) muscularis layer;
3) serosa;
4) submucosa.

181. Hepatocytes produce proteins:

Variants of answer:

1) albumins;
2) prothrombin;
3) fibrinogen;
4) immunoglobulins.

182. In adults, there is active red bone marrow in:

Variants of answer:

1) flat bones;
2) diaphysis of long bones;
3) epiphysis of long bones;
4) metaphysis of long bones.

183. In adults, there is inactive yellow bone marrow in:

Variants of answer:

1) flat bones;
2) epiphysis of long bones;
3) metaphysis of long bones;
4) diaphysis of long bones.

184. There are the following components in section of the bone marrow:

Variants of answer:

1) sinusoids;
2) megacariocytes;
3) numerous fat cells;
4) cortex and medulla.

185. Erythroblastic islets of bone marrow include:
Variants of answer:
1) developing erythrocytes;
2) megacariocytes;
3) macrophages;
4) reticular cells.

186. In bone marrow, the reticular cells perform the following functions:
Variants of answer:
1) supporting for the developing blood cells;
2) production of reticular fibers;
3) stimulation of hematopoiesis;
4) formation of platelets.

187. Blood-thymus barrier includes:
Variants of answer:
1) endothelium of capillary with their basal lamina;
2) perivascular connective tissue;
3) epithelioreticular cells with their basal lamina;
4) T- lymphocytes.

188. Central lymphatic organs are...
Variants of answer:
1) bone marrow;
2) lymph nodes;
3) thymus;
4) spleen.

189. Peripheral lymphatic organs are...
Variants of answer:
1) bone marrow;
2) lymph nodes;
3) thymus;
4) spleen;

190. In germinal centers of the lymphatic nodules (follicles) take place...
Variants of answer:
1) activation of lymphocytes;
2) proliferation of B- immunoblasts;
3) differentiation of plasma cells;
4) antibodies production.

191. In lymph nodes, the thymus-depended part is:
Variants of answer:
1) sinuses;
2) medullary cords;
3) follicules;
4) paracortex.

192. The main functions of spleen are...
Variants of answer:
1) blood storage;
2) hematopoesis during early fetal life;
3) distruction of aged and abnormal erythrocytes and platelets;
4) antigen- depending differentiation of T- and B-lymphocytes.

193. Capillaries of the spleenic red pulp are:
Variants of answer:
1) ended by a sheath of phagocytic cells;
2) continued into venous sinuses;
3) bind with lymphatic vessels;
4) opened into reticular tissue of the splenic cords.

194. Malpighian corpuscle consists of:
Variants of answer:
1) glomerulus;
2) Bowman's capsule;
3) mesangium;
4) afferent and efferent arterioles.

195. Filtration barrier includes:
Variants of answer:
1) glomerular basal lamina;
2) pedicles of podocytes;
3) endothelium of the glomerular capillaries;
4) extraglomerular mesangial cells.

196. The processes of urine reabsorption are provided by:
Variants of answer:
1) peritubular capillary network;
2) capillaries of glomerulus;
3) epithelium of the nephrone's tubules;
4) podocytes of Bowman's capsule visceral layer.

197. The juxtaglomerular apparatus includes:

Variants of answer:

1) podocytes;
2) cells of macula densa;
3) interstitial cells;
4) juxtaglomerular cells.

198. The extraglomerular mesangial cells perform functions of:

Variants of answer:

1) phagocytosis of glomerular basal membrane and plasma proteins;
2) extracellular matrix production;
3) intraglomerular blood volume and filtration pressure increasing;
4) primary urine filtration.

199. There is a basal striation in the epithelial cells of:

Variants of answer:

1) collecting tubules;
2) distal tubules;
3) Bowman's capsule visceral layer;
4) proximal tubules.

200. The mucous membrane of the ureters, the urinary bladder and the urethra is covered with epithelium:

Variants of answer:

1) simple cuboidal;
2) simple squamous;
3) stratified squamous nonkeratinized;
4) transitional.

201. Epithelium of all nephron's parts is developed from:

Variants of answer:

1) ectoderm;
2) entoderm;
3) mesenchyme;
4) mesoderm.

202. Regulation of the urine formation is provided by hormones:

Variants of answer:

1) antidiuretic hormone;
2) adrenocorticotropic hormone;
3) aldosterone;
4) luteinizing hormone.

203. The term "uriniferous tubule" combines the following components:

Variants of answer:

1) Bowman's capsule;
2) tubular part of the nephron;
3) glomerulus;
4) collecting tubule.

204. The loop of Henle includes:

Variants of answer:

1) proximal straight tubule;
2) thin segment;
3) distal straight tubule;
4) distal convoluted tubule.

205. The processes of reabsorption take place in:

Variants of answer:

1) proximal tubules;
2) thin segment of Henle loop;
3) distal tubules;
4) collecting tubule.

206. The walls of genital duct organs consist of the following tunics:

Variants of answer:

1) adventitia;
2) mucous membrane;
3) muscular membrane;
4) submucous membrane.

207. Damage of blood-testis barrier integrity leads to:

Variants of answer:

1) increasing of the seminiferous tubules contraction;
2) decreasing of the Leydig cells function;

3) deceleration of spermatogenesis;
4) autoimmune damage of spermatogenic cells.

208. Cells of testis which are antigens for their own organism are:

Variants of answer:
1) spermatocytes;
2) spermatogonia;
3) spermatids;
4) Sertoli cells.

209. In prostate there are:

Variants of answer:
1) tubule-alveolar glands;
2) bundles of smooth myocytes;
3) loose connective tissue;
4) striated muscle.

210. Spermiogenesis phase of spermatogenesis is characterized by:

Variants of answer:
1) acrosome formation;
2) nucleus condensation;
3) flagella formation;
4) cytoplasm reduction.

211. In cytoplasm of Leydig cells, the predominant organelles are:

Variants of answer:
1) r-EPR;
2) s-EPRe;
3) lysosomes;
4) mitochondria with tubular shape cristae.

212. The wall of the seminal vesicles consists of the following tunics:

Variants of answer:
1) adventitia;
2) mucous membrane;
3) muscular membrane;
4) submucous membrane.

213. In cytoplasm of Sertoli cells, the predominant organelles are:

Variants of answer:

1) EPR;
2) Golgy complex;
3) lysosomes;
4) mitochondria.

214. The cells of seminiferous epithelium are developed from:

Variants of answer:

1) mesenchyme;
2) primordial germ cells;
3) ectoderm;
4) coelomic epithelium of the sex cords.

215. In developing testis, the mesonephros mesenchyme gives rise to:

Variants of answer:

1) tunica albuginea;
2) interstitial tissue;
3) Leydig cells;
4) Sertoli cells.

216. In embryogenesis, the mesonephric tubules give rise to:

Variants of answer:

1) ductus epididymidis;
2) ductus deferens;
3) seminal vesicles;
4) ductuli efferentes.

217. In embryogenesis, the mesonephric duct gives rise to:

Variants of answer:

1) ductus epididymidis;
2) ductus deferens;
3) seminal vesicles;
4) ejaculatory duct.

218. In ovary, the growth and maturation of follicles are regulated by:

Variants of answer:

1) LTH;

2) FSH;
3) STH;
4) LH.

219. There are in the ovarian cortex of maturity period:
Variants of answer:
1) corpus luteum;
2) growing follicles;
3) corpus atretica;
4) Graafian follicles.

220. Cumulus oophorus of Graafian follicle includes:
Variants of answer:
1) oocyte;
2) zona pellucid;
3) granulosa layer;
4) oogonia.

221. In the ovary, the development of corpus luteum is regulated by:
Variants of answer:
1) LTH;
2) FSH;
3) LH;
4) STH.

222. Functional layer of endometrium is represented by:
Variants of answer:
1) loose connective tissue;
2) vessels and nerves;
3) covering epithelium;
4) glands.

223. Vagina is covered by:
Variants of answer:
1) simple columnar epithelium;
2) pseudostratified columnar epithelium;
3) transitional epithelium;
4) stratified squamous non-keratinized epithelium.

224. Cervix of the uterus is covered by:
Variants of answer:
1) simple columnar epithelium;

2) pseudostratified columnar epithelium;
3) stratified squamous non-keratinized epithelium;
4) transitional epithelium.

225. Uterine tubes are covered by:
Variants of answer:
1) pseudostratified columnar epithelium;
2) stratified squamous non-keratinized epithelium;
3) transitional epithelium;
4) simple columnar epithelium;

226. Perimetrium consists of:
Variants of answer:
1) smooth muscle tissue;
2) loose connective tissue;
3) simple columnar epithelium;
4) mesothelium.

227. In embryogenesis, the paramesonephric duct gives rise to:
Variants of answer:
1) uterine tubes;
2) uterus;
3) vagina;
4) ovary.

228. In embryogenesis, the primordial follicle of the ovary are produced from:
Variants of answer:
1) mesenchyme;
2) primordial germ cells;
3) ectoderm;
4) coelomic epithelium of the sex cords.

229. Features of the ovarian late primary follicles are:
Variants of answer:
1) oocyte;
2) zona pellucida;
3) granulosa layer;
4) theca folliculi.

230. Mesodermal somites are subdivided into:
Variants of answer:
1) dermatom;
2) myotom;
3) sclerotom;
4) splanchotom.

231. Extraembryonic entoderm gives rise to:
Variants of answer:
1) epithelium of the stomach;
2) epithelium of the liver;
3) epithelium of the pancreas;
4) epithelium of the yolk sac.

232. Splanchnotom gives rise to:
Variants of answer:
1) mesothelium;
2) cortex of the adrenal glands;
3) cardiac muscle tissue;
4) vessels.

233. The human extraembryonic organs forming at the end of early gastrulation are:
Variants of answer:
1) yolk sac;
2) amnion;
3) chorion;
4) placenta.

234. The hormones producing in placenta are:
Variants of answer:
1) chorionic gonadotropin;
2) chorionic thyrotropin;
3) estrogens;
4) progesterone.

235. The maternal part of placenta is represented by:
Variants of answer:
1) chorionic plate;
2) basal plate;
3) chorionic villi;
4) lacunae.

236. The fetal part of placenta is represented by:

Variants of answer:

1) chorionic plate;
2) amniotic epithelium;
3) chorionic villi;
4) basal plate.

237. The functions of placenta are:

Variants of answer:

1) nutrition;
2) exchange of gases and metabolites;
3) protection;
4) production of hormones.

238. The main functions of amnion are:

Variants of answer:

1) secretion and absorption of amniotic fluid;
2) protection of the embryo against trauma;
3) control of embryonic body temperature;
4) hematopoiesis.

239. The main functions of yolk sac are:

Variants of answer:

1) protection of the embryo against trauma;
2) formation of primordial germ cells;
3) control of embryonic body temperature;
4) hematopoiesis.

240. The mucous tissue of umbilical cord is developed from:

Variants of answer:

1) ectoderm;
2) mesoderm;
3) entoderm;
4) extraembryonic mesoderm.

241. The extraembryonic ectoderm gives rise to the epithelium of:

Variants of answer:

1) amnion;
2) yolk sac;
3) umbilical cord;
4) allantois.

References standard of answers to type III tests

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
1	B	45	C	89	C	133	A
2	E	46	E	90	A	134	A
3	A	47	B	91	B	135	B
4	A	48	A	92	D	136	A
5	E	49	A	93	A	137	E
6	D	50	E	94	A	138	D
7	A	51	A	95	D	139	B
8	B	52	B	96	B	140	D
9	D	53	C	97	A	141	C
10	B	54	E	98	B	142	B
11	C	55	A	99	C	143	C
12	E	56	E	100	A	144	A
13	E	57	E	101	B	145	C
14	B	58	B	102	C	146	E
15	C	59	D	103	E	147	B
16	A	60	B	104	B	148	D
17	E	61	C	105	A	149	C
18	C	62	E	106	B	150	A
19	E	63	E	107	C	151	D
20	B	64	A	108	B	152	A
21	A	65	A	109	D	153	D
22	E	66	A	110	B	154	A
23	A	67	E	111	A	155	B
24	C	68	A	112	A	156	A
25	A	69	A	113	C	157	C
26	A	70	B	114	A	158	A
27	E	71	D	115	A	159	B
28	A	72	A	116	D	160	A
29	B	73	B	117	A	161	C
30	A	74	C	118	B	162	E
31	E	75	A	119	E	163	E
32	D	76	E	120	C	164	B
33	D	77	B	121	B	165	A
34	D	78	C	122	B	166	C
35	B	79	A	123	B	167	A
36	D	80	E	124	E	168	D
37	D	81	B	125	C	169	A
38	B	82	D	126	E	170	E
39	C	83	D	127	E	171	D
40	A	84	C	128	D	172	D
41	E	85	A	129	E	173	B
42	A	86	A	130	C	174	B
43	A	87	A	131	B	175	D
44	E	88	A	132	D	176	C

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
177	A	194	A	211	C	228	C
178	E	195	A	212	A	229	E
179	E	196	B	213	A	230	A
180	A	197	C	214	C	231	D
181	A	198	A	215	A	232	A
182	B	199	C	216	D	233	A
183	D	200	D	217	E	234	E
184	A	201	D	218	C	235	C
185	B	202	B	219	E	236	A
186	A	203	C	220	A	237	E
187	A	204	A	221	B	238	A
188	B	205	E	222	E	239	B
189	C	206	A	223	D	240	D
190	A	207	D	224	B	241	B
191	D	208	B	225	D		
192	E	209	A	226	C		
193	C	210	E	227	A		

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