МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

УЧРЕЖДЕНИЕ ОБРАЗОВАНИЯ
«ГОМЕЛЬСКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ»

Кафедра гистологии, цитологии и эмбриологии

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ТЕСТОВЫЕ ЗАДАНИЯ ПО ГИСТОЛОГИИ

Учебно-методическое пособие
для студентов 1 курса факультета по подготовке специалистов
для зарубежных стран медицинских вузов

В двух частях

Часть I

HISTOLOGY TESTS

Teaching workbook for 1st year students
of Faculty on preparation of experts for foreign countries
of medical higher educational institutions

In two parts

Part I

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

Предназначено для студентов 1 курса факультета по подготовке специалистов для зарубежных стран медицинских вузов.

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I. Choose one correct answer

1. Plasma membrane consists of all components except for:
A) phospholipid molecules;
B) carbohydrates;
C) glycosaminoglycans;
D) transport proteins;
E) proteins enzymes.

2. Golgi complex performs all enumerated functions except for:
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:
A) smooth EPR;
B) rough EPR;
C) Golgi complex;
D) lysosomes;
E) mytochondria.

4. Calcium ions storage takes place in:
A) Golgi complex;
B) lysosomes;
C) mytochondria;
D) smooth EPR;
E) rough EPR.

5. In a cell subunits of ribosomes are formed in:
A) smooth EPR;
B) rough EPR;
C) nucleolus;
D) Golgi complex;
E) mytochondria.

6. Membranous organelles are all enumerated except for:
A) Golgi complex;
B) lysosomes;
C) mytochondria;
D) peroxisomes;
E) ribosomes.

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

8. What is the feature of a simple exocrine gland:
A) branched duct;
B) unbranched duct;
C) single secretory portion;
D) branched secretory portion;
E) tubular shape of secretory portion.

9. During holocrine secretion takes place:
A) integrity of secretory cell structure;
B) destruction of secretory cell apical part;
C) destruction of secretory cell basal part;
D) full destruction of secretory cell;
E) destruction of secretory cell nucleus.

10. During apocrine secretion takes place:
A) integrity of secretory cell structure;
B) destruction of secretory cell apical part;
C) destruction of secretory cell basal part;
D) full destruction of secretory cell;
E) destruction of secretory cell nucleus.

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

12. Anchoring junctions of epithelial cells include everything except for one:
A) desmosomes;
B) hemidesmosomes;
C) nexuses;
D) zonulae adherens;
E) focal adhesions.

13. During granulopoiesis the first specific granules are synthesised in cytoplasm of:
A) myeloblasts;

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

14. During granulopoiesis the primary (azurophilic) granules are synthesised in cytoplasm of:
A) myeloblasts;
B) promyelocytes;
C) myelocytes;
D) metamyelocytes;
E) band granulocytes.

15. Live span of erythrocytes is:
A) 1 hour;
B) 8–12 hours;
C) 1 week;
D) 1 month;
E) 120 days.

16. Effector cell of humoral immunity is:
A) plasma cells;
B) T-killer lymphocyte;
C) T-helper lymphocyte;
D) B-lymphocyte;
E) NK-cells.

17. Platelets are small cytoplasmic fragments of bone marrow cells called:
A) proerythroblast;
B) megakaryoblast;
C) megakaryocyte;
D) promyelocyte;
E) promegakaryocyte.

18. Connective tissues are developed from:
A) ectoderm;
B) entoderm;
C) nervous tube;
D) mesenchyme;
E) alantois.

20. Loose connective tissue cells originating from neural crests are:
A) mast cells;
B) melanocytes;
C) adipose cells;

D) fibroblasts;
E) plasma cells.

21. Blood monocytes give rise to:
A) plasma cells;
B) adipose cells;
C) fibroblasts;
D) histiocytes;
E) mast cells.

22. The main cells of loose connective tissue for allergic reaction development are:
A) plasma cells;
B) fat cells;
C) fibroblasts;
D) histiocytes;
E) mast cells.

23. In newborns the process of thermoregulation is provided by:
A) white adipose tissue;
B) reticular tissue;
C) pigment tissue;
D) mucous connective tissue;
E) brown connective tissue.

24. There is mucous connective tissue in:
A) umbilical cord;
B) chorion;
C) amnion;
D) yolk sac;
E) alantois.

25. The process of intramembranous ossification begins with the formation of:
A) extracellular bone matrix;
B) bone trabeculae;
C) aggregations of mesenchymal cells;
D) periosteum;
E) bone lamellae.

26. Mesenchymal stem cells give rise to all cells of skeletal tissues except for one:
A) osteoprogenitor cells;
B) osteoblasts;
C) osteocytes;

D) osteoclasts;
E) chondroblasts.

27. Classification of cartilage tissue into three types depends on:
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.

28. The structural unit of the mature compact bone is:
A) osteon;
B) collagen fiber;
C) osteoblast;
D) osteocyte;
E) osteoclast.

29. Bone growth in length is provided by:
A) periosteum;
B) endosteum;
C) epiphyseal growth plate;
D) epiphysis;
E) diaphysis.

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

31. Smooth muscle tissue is characterized by all morphological features except for one:
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.

32. Sarcomere is a segment of myofibril between:
A) M lines;
B) Z lines;
C) A bands;
D) I bands;
E) H bands.

33. Skeletal muscle fiber is characterized by all morphological features except for one:

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.

34. Cardiac muscle fiber is characterized by all morphological features, except for one:

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.

35. Neurotransmitter of motor end plate is:

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

36. White skeletal muscle fibers are characterized by all morphological and functional features except for one:

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.

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

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

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

A) protoplasmic astrocytes;
B) ependymal cells;
C) fibrous astrocytes;

D) oligodendrocytes;
E) microglial cells.

39. Neurons whose axons form the motor endings on the surfaces of smooth muscle tissue are found in:
A) anterior horns of spinal cord;
B) posterior horns of spinal cord;
C) dorsal horns of spinal cord;
D) autonomic ganglions;
E) spinal ganglions.

40. The organ belonging to the organs of central nervous system is:
A) spinal ganglion;
B) peripheral nerve;
C) autonomic ganglion;
D) nerve ending;
E) spinal cord.

41. Pia mater of the brain and spinal cord is represented by:
A) reticular tissue;
B) mucous tissue;
C) loose connective tissue;
D) dense regular connective tissue;
E) dense irregular connective tissue.

42. The bodies of spinal ganglion pseudounipolar neurons are surrounded by:
A) protoplasmic astrocytes;
B) ependymal cells;
C) fibrous astrocytes;
D) satellite cells;
E) microglial cells.

43. The source of the retina and optic disk development is:
A) ectoderm;
B) entoderm;
C) nervous tube;
D) mesenchyme;
E) mesoderme.

44. In retina the cells forming inner and outer limiting membranes are called:
A) photoreceptor cells;
B) bipolar cells;
C) horizontal cells;
D) Muller's cells;
E) ganglion cells.

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

A) supporting cells;
B) ganglion cells;
C) olfactory receptor cells;
D) basal cells;
E) brush cells.

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

A) neuroepithelial cells;
B) supporting cells;
C) basal cells;
D) basal membrane;
E) taste pore

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

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

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

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

49. The endocardium consists of all layers except for one:

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

50. Microcirculatory bed includes all vessels except for one:

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

51. Continuous capillaries are typically found in all organs except for one:
A) muscle;
B) lung;
C) bone marrow;
D) spinal cord;
E) brain.

52. Vascular endothelium performs all functions except for one:
A) transportation of substances;
B) production of anticoagulants and antithrombogenic substances;
C) contraction;
D) secretion of vasoconstrictors and vasodilators;
E) modification of the lipoproteins.

53. The tunica intima of muscular arteries contains all sublayers except for one:
A) endothelium;
B) basal lamina;
C) subendothelial layer of connective tissue;
D) external elastic membrane;
E) internal elastic membrane.

54. The wall of arterioles contains all components except for one:
A) endothelial lining with its basal lamina;
B) thin subendothelial layer;
C) internal elastic membrane;
D) one or two layers of smooth muscle;
E) adventitial cells.

55. The epidermisis contains all cells except for one:
A) keratinocytes;
B) melanocytes;
C) Langerhans' cells;
D) fibroblasts;
E) Merkel's cells.

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

57. Papillary layer of dermisis is composed of:

A) loose connective tissue;
B) dense irregular connective tissue;
C) dense regular connective tissue;
D) smooth muscle tissue;
E) skeletal muscle tissue.

58. Reticular layer of dermisis is composed of:

A) loose connective tissue;
B) dense irregular connective tissue;
C) dense regular connective tissue;
D) smooth muscle tissue;
E) skeletal muscle tissue.

59. Structurally the mammary gland belongs to the type:

A) simple unbranched tubule;
B) simple branched tubule;
C) simple branched alveolar;
D) compound branched tubule;
E) compound branched tubule-alveolar.

60. Proliferation of hair bulb cells leads to formation of all components except for one:

A) internal root sheath;
B) external root sheath;
C) hair cuticle;
D) hair medulla;
E) hair cortex.

References standard of answers to type I tests

1. C	21. D	41. C
2. D	22. E	42. D
3. A	23. E	43. C
4. D	24. A	44. D
5. C	25. C	45. B
6. E	26. D	46. A
7. A	27. B	47. A
8. B	28. A	48. E
9. D	29. C	49. E
10. B	30. A	50. A
11. A	31. D	51. C
12. C	32. B	52. C
13. C	33. C	53. D
14. B	34. B	54. C
15. E	35. E	55. D
16. A	36. B	56. C
17. C	37. B	57. A
18. D	38. B	58. B
19. B	39. A	59. E
20. D	40. E	60. B

II. 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	A) smooth endoplasmic reticuium
2. Biosynthesis of carbohydrates	B) rough endoplasmic reticuium
3. Formation of glycoproteins	C) free polysomes
4. Synthesis of extracellular proteins	D) Golgi complex
5. Synthesis of lysosomal proteins	E) mitochondria
The processes of …	**is provided by…**
6. Synthesis of hyaloplasm proteins	A) rough endoplasmic reticulum
7. Protection of the cell against products of metabolism	B) free polysomes
	C) lysosoms
8. Inactivation of bacterium, phagocytosis	D) smooth endoplasmic reticulum
9. Detoxification of toxins	E) Golgi complex
10. Synthesis of membrane proteins	
The processes of …	**takes place during…**
11. Beginning of mitotic spindle formation	A) interphase
12. DNA dublication	B) mitotic prophase
13. Cytokinesis	C) mitotic metaphase
14. Equatorial plate formation	D) mitotic anaphase
15. Separation and pull of sister chromatids	E) mitotic telophase
The processes of …	**takes place during…**
16. DNA dublication	A) interphase
17. Centrioles dublication	B) mitotic prophase
18. Active synthesis of tubulins	C) mitotic metaphase
19. Beginning of pull centrioles	D) mitotic anaphase
20. Decondensation of chromosomes	E) mitotic telophase
During phases of cell cycle…	**takes place the processes of…**
21. G1phase	A) terminal differentiation of cell
22. S phase	B) mitosis
23. G2phase	C) DNA and centrioles dublication
24. G0phase	D) RNA and proteins synthesis
25. M phase	E) ATP and tubulins synthesis
Structures of the cell…	**form…**
26. Microtubules	A) centrioles
27. Actin and myosin microfilaments	B) EPR

28. Actin microfilaments, intermediate filaments and microtubules 29. Nine microtubule triplets 30. Biological membranes	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… 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	**is developed from…** A) ectoderm B) mesenchyme C) splanchnotom of mesoderm D) prechordal plate E) entoderm
Intercellular junction looking like… 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	**is called…** A) desmosome B) hemidesmosome C) gap junction D) tight junction E) zonula adherens

Glands are called… 51. Simple 52. Compound 53. Branched 54. Unbranched (single) 55. Compound, branched	**if they have…** 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) 2–5 B) 0,5–1 C) 6–8 D) 60–65 E) 20–35
According to hemogramm in peripheral blood the amount of… 66. Erythrocytes 67. Platelets 68. Leucocytes 69. Hemoglobin 70. Reticulocytes	**is …** A) 0,2–1 % 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. Plasmocytes 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… 76. Killer T- lymphocytes 77. Helper T- lymphocytes 78. B-lymphocytes 79. NK cells 80. Neutrophils	**there are receptors…** A) CD 9,19,20 B) CD16,56,94 C) CD8 D) CD4 E) Fc receptors and complement receptors
Blood leucocytes… 81. T-lymphocytes 82. B-lymphocytes 83. Basophils 84. Neutrophils 85. Eosinophils	**contain…** A) granules with heparin, histamine and SRS-A B) antigen recognizing TCR C) antigen recognizing Ig M, D D) granules with major basic protein, peroxidase, histaminase, arylsulfatase E) granules with alkaline phosphatase, lactoferrin, lysozyme
Cells of loose connective tissue… 86. Mast cells 87. Histiocytes 88. Plasma cells 89. Fibroblasts 90. Pigment cells	**synthesize…** A) antibodies B) lymphokines and interleukins C) melanin D) histamine, heparin, chemotactic factors, SRS-A E) collagen and elastin
Cells of loose connective tissue… 91. Mast cells 92. Histiocytes 93. Plasma cells 94. Fibroblasts 95. Adipose cells	**perform the following functions…** A) regulation of the reactions of humoral immunity B) regulation of the homeostasis of loose connective tissue C) energy storage and source of metabolic water D) antigen presenting 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 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…	**consist of…**
101. Collagen fibers	A) collagen III type
102. Elastic fibers	B) bands of banding pattern fibrils
103. Reticular fibers	C) complexes of GAGs and proteins
104. Proteoglycans	D) proteins fibronectin and laminin
105. Multiadhesive glycoproteins	E) amorphous central component and microfibriles
Fibrous connective tissue…	**localizes in…**
106. Dense regular	A) hematopoietic organs
107. Reticular	B) papillar layer of dermisis
108. Adipose brown	C) reticular layer of dermisis
109. Dense irregular	D) ligaments, tendons
110. Loose connective tissue	E) neck, back and mediastinum
Cells of loose connective tissue…	**have ultrastructural features…**
111. Mast cells	A) abundant of lysosomes
112. Histiocytes	B) abundant of rEPR
113. Plasma cells	C) abundant of rEPR and light region near a nucleus
114. Fibroblasts	D) large, intensely basophilic granules
115. Fibrocytes	E) small amount of organelles
Skeletal 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 skeletal 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 skeletal tissues…	**localize in …**
126. Osteoblasts	A) accumulations of mesenchymal cells
	B) perichondrium

127. Osteocytes 128. Osteoclasts 129. Chondroblasts 130. Chondrocytes	C) lacunae and canaliculi D) perivascular spaces of Haversian canals E) isogenous groups
Skeletal tissue… 131. Hyaline cartilage 132. Elastic cartilage 133. Fibrocartilage 134. Woven bone tissue 135. Lamellar bone tissue	**is characterized by …** A) abundant of elastic fibers B) mineralized collagen fibers forming lamellae C) collagen fibers, lying parallel D) mineralized collagen fibers lying randomly E) type II collagen fibers forming a network
Cells of bone tissue… 136. Osteoblasts 137. Osteocytes 138. Osteoclasts 139. Osteoprogenitor cells 140. Bone-lining cells	**perform the function of …** A) bones and cartilages resorption B) differentiation into an osteoblast C) maintenance and nutrition of the osteocytes D) maintenance of bone matrix E) secretion of bone matrix
Structures of a developing long bone… 141. Periosteal bone 142. Endochondral bone 143. Zone of epiphyseal cartilage hypertrophy 144. Zone of epiphyseal cartilage proliferation 145. Zone of reserve cartilage	**are …** A) mixed bone spicules B) hyaline cartilage C) columns of cartilage cells D) bony collar E) hypertrophic, metabolically active chondrocytes
Muscle tissues and cells… 146. Skeletal muscle tissue 147. Smooth muscle tissue 148. Cardiac muscle tissue 149. Myoepithelial cells 150. Dilator and sphincter pupillary muscles	**are developed from …** A) neuroectoderm B) ectoderm C) mesenchyme D) myotoms of mesoderm somits E) visceral layer of mesoderm splanchnotom
Structures of muscle tissues… 151. Cardiomyocytes 152. Smooth myocytes	**there are in…** A) walls of inner organs, ducts and vessels

153. Myocytes of neuroectodermal origin 154. Myoepithelial cells 155. Muscle fibers	B) eyeball C) muscles of the skeleton D) exocrine glands of ectodermal origin E) myocardium of the heart
Parts of a sarcomere… 156. A-band 157. H-band 158. I-band 159. M line 160. Z line	**are represented by…** A) actin filaments B) myosin filaments C) both actin and myosin filaments 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 cardiomyocytes 168. Secretory cardiomyocytes 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, bundle 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) cardiomyocytes C) muscle fibers D) P-cells E) Purkinje cells
Structures… 176. Perivascular feet of blood brain barrier 177. Myelinated nerve fibers in the CNS	**are formed by…** A) ependymal cells B) astrocytes

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 in nervous tissue	C) oligodendrocytes D) microglial cells E) Schwann cells
Nerve endings… 181. Free nerve ending 182. Pacinian corpuscle 183. Meissner's corpuscle 184. Muscle spindle 185. Motor end plate	**are …** 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 reflex arc… 186. Somatic afferent 187. Somatic efferent 188. Autonomic afferent 189. Autonomic efferent 190. Autonomic associative	**are represented by..** A) neuron of spinal ganglion B) neuron of vegetative ganglion C) neuron of the spinal cord lateral horn D) motor neuron of the spinal cord E) sensory and motor neurons
Axons of… 191. Basket cells 192. Granule cells 193. Purkinje cells 194. Betz cells 195. Motor neurons of the spinal cord anterior horns	**form synapses with…** 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… 196. Granule cells 197. Purkinje cells 198. Betz cells 199. Basket cells 200. Medium pyramidal cells	**are found in…** 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

Nuclei of the spinal cord gray matter…	**are found in…**
201. Intermediate medial nucleus	A) posterior horns
202. Intermediate lateral nucleus	B) anterior horns
203. Proper nucleus	C) lateral horns
204. Klark's nucleus	D) dorsal roots
205. Motor nuclei	E) ventral roots
In retina bodies of the…	**are found in…**
206. Rods and cones cells	A) layer of ganglion cells
207. Bipolar neurons	B) inner nuclear layer
208. Ganglion neurons	C) outer nuclear layer
209. Horizontal neurons	D) inner plexiform layer
210. Amacrine neurons	E) outer plexiform layer
Layers of retina…	**contain …**
211. Outer plexiform	A) processes of glial cells
212. Inner plexiform	B) outer segments of rods and cones cells dendrites
213. Layer of optic nerve fibers	C) synapses of rods and cones cells axons with dendrites of bipolar neurons
214. Outer and inner limiting membranes	D) synapses of bipolar neurons axons with dendrites of ganglion cells
215. Layer of rods and cones	E) axons of ganglion cells
Elements of the olfactory organ…	**are …**
216. Olfactory cell	A) modified dendrite
217. Olfactory vesicle	B) epithelium columnar cell with microvilli
218. Olfactory nerve	C) small, rounded cell providing regeneration
219. Supporting cell	D) axons of olfactory cells
220. Basal cell	E) nerve-sensory receptor cell
Elements of the eye…	**are represented by tissues…**
221. Sclera	A) pigmented epithelium, loose connective tissue, smooth muscle
222. Choroid	B) dense connective tissue
223. Cornea	C) stratified squamous epithelium, dense connective tissue, simple squamous epithelium
224. Ciliary body and iris	D) nervous tissue, pigment epithelium
225. Retina	E) loose connective tissue with numerous blood vessels

Cells…	**are found in…**
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	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…	**are filled with …**
231. Cochlear duct 232. Scala vestibule 233. Scala tympani 234. Vestibular labyrinth 235. Tympanic cavity of middle ear	A) lymph B) endolymph C) perilymph D) air E) blood
Layers of vessels and the heart…	**consist of…**
236. Tunica intima of muscular artery 237. Epicardium 238. Myocardium 239. Endocardium 240. Tunica intima of medium vein	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…	**is characterized by the presence of…**
241. Arteriol 242. Continuous capillary 243. Fenestrated capillary 244. Sinusoidal capillary 245. Muscular venule	A) endothelium, 1 or 2 layers of smooth muscle in tunica media, thin tunica adventitia B) endothelial cells and their basal lamina, pericytes C) discontinuous endothelial cells and their basal lamina D) endothelium with thinnings 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 mesoderm C) parietal layer of mesoderm D) entoderm 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, polygonal cells containing fewer myofibrils and lack of typical intercalated discs B) cylindrical, branched cells binding with intercalated discs containing diads, numerous myofibrils C) stallite cells containing secretory granules and myofibrils E) large oval cells containing thin myofibrils lying peripherally
In the 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, bundle 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	**are formed by …** A) squamous cells B) large vacuolated cells

266. Nail plate 267. Hair follicle external connective tissue sheath 268. Hair bulb	C) germinative 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 273. Melanocytes	**are found in …** A) sweat glands B) epidermisis C) dermisis D) hypodermis E) arrector pili muscle
Stratums of epidermisis… 274. Stratum basale 275. Stratum spinosum 276. Stratum granulosum 277. Stratum lucidum 278. Stratum corneum	**contain the cells …** 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… 279. Eccrine sweat glands 280. Apocrine sweat glands 281. Sebaceous glands 282. Mammary glands	**belong to the type…** A) compound branched tubular-alveolar B) simple tubular unbranched C) simple tubular unbranched or branched D) simple branched alveolar E) compound branched alveolar

References standard of answers to type II tests

1. A	37. E	73. A	109. C	145. B	181. C	217. A	253. B
2. A	38. A	74. E	110. B	146. D	182. D	218. D	254. C
3. D	39. C	75. D	111. D	147. C	183. E	219. B	255. E
4. B	40. B	76. C	112. A	148. E	184. B	220. C	256. C
5. B	41. E	77. D	113. C	149. B	185. A	221. B	257. A
6. B	42. C	78. A	114. B	150. A	186. A	222. E	258. B
7. C	43. B	79. B	115. E	151. E	187. D	223. C	259. E
8. C	44. A	80. E	116. C	152. A	188. A	224. A	260. B
9. D	45. D	81. B	117. E	153. B	189. B	225. D	261. D
10. A	46. D	82. C	118. A	154. D	190. C	226. B	262. C
11. B	47. A	83. A	119. B	155. C	191. B	227. D	263. A
12. A	48. C	84. E	120. D	156. C	192. C	228. A	264. B
13. E	49. E	85. D	121. E	157. B	193. A	229. C	265. A
14. C	50. B	86. D	122. D	158. A	194. D	230. E	266. D
15. D	51. E	87. B	123. A	159. E	195. E	231. B	267. E
16. A	52. D	88. A	124. B	160. D	196. E	232. C	268. C
17. A	53. A	89. E	125. C	161. A	197. A	233. C	269. B
18. A	54. B	90. C	126. D	162. E	198. D	234. B	270. B
19. B	55. C	91. B	127. C	163. D	199. C	235. D	271. A
20. E	56. A	92. D	128. A	164. C	200. B	236. E	272. E
21. D	57. D	93. A	129. B	165. B	201. C	237. A	273. B
22. C	58. E	94. E	130. E	166. A	202. C	238. C	274. E
23. E	59. C	95. C	131. E	167. B	203. A	239. B	275. D
24. A	60. B	96. D	132. A	168. E	204. A	240. D	276. C
25. B	61. D	97. C	133. C	169. C	205. B	241. A	277. B
26. C	62. A	98. B	134. D	170. D	206. C	242. B	278. A
27. E	63. B	99. E	135. B	171. A	207. B	243. D	279. B
28. D	64. E	100. A	136. E	172. A	208. A	244. C	280. C
29. A	65. C	101. B	137. D	173. A	209. B	245. E	281. D
30. B	66. D	102. E	138. A	174.C	210. B	246. E	282. A
31. D	67. B	103. A	139. B	175. B	211. C	247. B	
32. E	68. E	104. C	140. C	176. B	212. D	248. B	
33. A	69. C	105. D	141. D	177. C	213. E	249. E	
34. B	70. A	106. D	142. A	178. E	214. A	250. C	
35. C	71. B	107. A	143. E	179. A	215. B	251. A	
36. D	72. C	108. E	144. C	180. D	216. E	252. E	

III. 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:
1) centrioles;
2) EPR;
3) ribosomes;
4) mitochondria.

2. In a cell the rough EPR performs functions of:
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:
1) microtubules;
2) actin microfilaments;
3) intermediate filaments;
4) microvilli.

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

5. In a cell the smooth EPR performs functions of:
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:
1) endosomes;
2) autophagosomes;
3) residual bodies;
4) primary lysosomes.

7. In a cell the membranous organelles are:
1) Golgi complex;
2) EPR;
3) mitochondria;
4) ribosomes.

8. Glycocalyx is presented by:
1) glycoproteins;
2) cholesterol;
3) glycolipids;
4) GAGs.

9. Chemically the surface membrane receptors are:
1) phospholipids;
2) sphingolipids;
3) cholesterol;
4) integral glycoproteins.

10. Chromatin is a complex of:
1) DNA;
2) lipids;
3) proteins;
4) carbohydrates.

11. In S period of cell cycle interphase there takes place the processes of:
1) cell grows;
2) duplication of DNA;
3) mitosis;
4) duplication of centrioles.

12. In phase of mitotic division prophase there takes place the processes of:
1) nucleoli destruction;
2) chromatin condensation;
3) spindle division formation;
4) reduction of EPR and ribosomes.

13. Epithelial tissues are characterized by features:
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 the organism the endothelium is found in:
1) vessels;
2) serous body cavities;
3) endocardium of the heart;
4) serous coats of inner organs.

15. In the organism the mesothelium is found in:
1) vessels;
2) serous body cavities;
3) endocardium of the heart;
4) serous coats of inner organs.

16. In the organism the simple cuboidal epithelium is found in:
1) collecting ducts, proximal and distal tubules of the kidney;
2) thyroid follicles;
3) small excretory ducts of many glands;
4) trachea.

17. In the organism the simple columnar epithelium is found in:
1) gall bladder;
2) uterus;
3) intestine;
4) stomach.

18. In the organism the pseudostratified columnar epithelium is found in:
1) intestine;
2) respiratory system organs;
3) esophagus;
4) parts of the male and female reproductive system organs.

19. In the organism the stratified squamous epithelium is found in:
1) oral cavity;
2) esophagus;
3) cornea;
4) vagina.

20. In the organism the transitional epithelium is found in:
1) urinary bladder;
2) skin;
3) ureter;
4) tubules of the kidney.

21. Intercellular contacts between epithelial cells are:
1) desmosomes;
2) tight junctions;
3) gap junctions;
4) synapses.

22. Secretory cycle of secretory cells includes:
1) transport of substances from the blood to cell cytoplasm;
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:
1) sweat;
2) mammary;
3) salivary;
4) thyroid.

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

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

25. The plasma proteins are:

1) fibrinogen;
2) globulins;
3) albumins;
4) hemoglobin.

26. Features of hemopoietic stem cells are:

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

27. Determine morphological and functional features of eosinophils:

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. Determine morphological features of monocytes:

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

29. Mononuclear phagocyte system includes:

1) monocytes of blood;
2) lymphocytes;
3) different tissues and organs macrophages;
4) eosinophils.

30. Granules of platelets contain:

1) fibrinogen;
2) plasminogen;
3) serotonin;
4) immunoglobulins.

31. Granulopoiesis is accompanied by:

1) decreasing of cells size;
2) changing of cells nuclei;

3) accumulation of specific granules;
4) stopping of cells divisions.

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

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

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

35. Antigen-dependent differentiation of T-lymphocytes and B-lymphocytes takes place in:
1) spleen;
2) bone marrow;
3) lymph nods;
4) thymus.

36. Large granular lymphocytes are:
1) killer T-lymphocytes;
2) helper T-lymphocytes;
3) B-lymphocytes;
4) NK cells.

37. Dense irregular connective tissue is found in:
1) ligaments;
2) papilla layer of dermis;
3) tendons;
4) reticular layer of dermis.

38. Dense regular connective tissue is found in:
1) ligaments;
2) papilla layer of dermis;
3) tendons;
4) reticular layer of dermis.

39. Loose connective tissue:
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:
1) fibroblasts;
2) adipose cells;
3) adventitial cells;
4) histiocytes.

41. Mobile or extrinsic cells of loose connective tissue are:
1) plasma cells;
2) histiocytes;
3) mast cells;
4) all types of leukocytes.

42. Fibroblasts secrete:
1) collagen;
2) elastin;
3) GAGs;
4) immunoglobulins.

43. Ground substance of the fibrous connective tissue extracellular matrix consists of:
1) GAGs;
2) proteoglycans;
3) multiadhesive glycoprotein;
4) collagen.

44. Granules of mast cells contain:
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:
1) fibroblasts;
2) basophiles;
3) plasma cells;
4) mast cells.

46. White adipocyte differs from brown adipocyte by:
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 ground substance are:
1) hyaluronic acid;
2) fibronectin;
3) different sulfates;
4) laminin.

48. Main functions of white adipose tissue are:
1) energy storage and hormones production;
2) nutritive function;
3) mechanical support;
4) thermogenesis.

49. Hyaline cartilage localizes in:
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:
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 extracellular matrix consists of:
1) GAGs;
2) proteoglycans;
3) multiadhesive glycoprotein;
4) collagen.

52. Appositional growth of the cartilage includes:
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:
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:
1) dense connective tissue;
2) fibroblasts;
3) chondroblasts;
4) blood vessels.

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

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

57. Compact bone consists of:
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 work activities of cells:
1) osteoblasts;
2) osteocytes;
3) osteoclasts;
4) bone-lining cells.

59. Granulocyte/monocyte progenitor cells give rise to the cells of bone tissue:
1) osteoblasts;
2) osteocytes;
3) bone-lining cells;
4) osteoclasts.

60. The osteoblasts perform functions of:
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:

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

62. Intercalated discs of cardiac muscles tissue contain intercellular junctions:

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

63. Red skeletal muscle fibers are characterized by:

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:

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:

1) pacemaker cells;
2) Purkinje cells;
3) secretory cardiomyocytes;
4) cardiac myocytes.

66. Cardiac muscle tissue is characterized by:

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:

1) promyoblasts;
2) myoblasts;
3) myotubes;
4) symplast.

68. The actin filaments contain:

1) tropomyosin;
2) actin;
3) troponin;
4) myosin.

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

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

70. Secretory cardiomyocytes produce hormones:

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

71. Main intercellular junctions between smooth muscle cells are:

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

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

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:

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

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

1) s-EPR;
2) ribosomes;
3) mitochondria;
4) r-EPR.

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

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

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

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

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

80. Sensory spinal ganglia are represented by:
1) pseudounipolar neurons;
2) satellite cells;
3) myelinated nerve fibers;
4) connective tissue.

81. Sympathetic ganglia are:
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:
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 cerebellum are finished into:
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:
1) the outer granular;
2) the outer pyramidal;
3) the inner granular;
4) the inner pyramidal.

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

86. Senso-epithelial receptor cells are found in sensory organs:
1) vestibular;
2) taste;
3) hearing;
4) visual.

87. The olfactory epithelium consists of cells:
1) supporting;
2) basal;
3) nerve-sensory;
4) senso-epithelial.

88. The taste buds consist of cells:
1) supporting;
2) basal;
3) senso-epithelial;
4) nerve-sensory.

89. An external layer of eyeball is represented by:
1) retina;
2) cornea;
3) choroid;
4) sclera.

90. An uvea of eyeball includes:
1) choroid;
2) ciliary body;
3) iris;
4) retina.

91. The cornea contains the epithelia:
1) stratified squamous nonkeratinaized;
2) stratified squamous keratinaized;
3) simple squamous;
4) simple columnar.

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

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

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

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

96. Type I hair cells of utricle and succule maculae are characterized by:
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:
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:
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:
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:
1) liver;
2) spleen;
3) bone marrow;
4) kidney.

101. Continuous capillaries are typically found in:
1) CNS;
2) spleen;
3) lungs;
4) kidney.

102. Fenestrated capillaries are typically found in:
1) muscles;
2) endocrine glands;
3) spleen;
4) kidney.

103. The wall of an arteriole contains:
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:
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:

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:

1) endothelial cells
2) basal lamina
3) anchoring filaments
4) pericytes

107. Main features for differentiation between an artery and a vein in histological preparations are:

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:

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:

1) epicardium;
2) myocardium;
3) subendothelial layer of the endocardium;
4) subendocardial layer of the endocardium.

110. Tissues forming the dermisis are:

1) loose connective tissue;
2) dense regular connective tissue;
3) dense irregular connective tissue;
4) adipose tissue.

111. The epidermis is composed of cells:

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

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

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

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

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

116. Antigen-presenting cells of the epidermis are:
1) melanocytes;
2) keratinocytes;
3) Merkel's cells;
4) Langerhans' cells.

118. The main characteristics of melanocytes are:
1) neural crest origination;
2) dendritic shape;
3) numerous melanosomes;
4) keratin filaments.

119. Glands associated with hair follicles are:
1) apocrine sweat glands;
2) eccrine sweat glands;
3) sebaceous glands;
4) mammary glands.

120. Terminal duct lobular unit (TDLU) of mammary gland includes:
1) secretory alveoli;
2) terminal ductules;
3) intralobular collecting duct;
4) intralobular stroma.

121. Epithelium of the mammary gland alveoli is represented by cells:
1) smooth myocytes;
2) glandular epithelial cells;
3) keratinocytes;
4) myoepithelial cells.

122. Hormones regulating the mammary gland during lactation are:
1) prolactin;
2) adrenalin;
3) oxytocin;
4) aldosteron.

References standard of answers to type III tests

1. B	22. E	43. A	64. A	85. B	106. B
2. E	23. A	44. E	65. A	86. A	107. C
3. A	24. B	45. C	66. A	87. A	108. B
4. A	25. A	46. E	67. E	88. A	109. D
5. E	26. A	47. B	68. A	89. C	110. B
6. D	27. E	48. A	69. A	90. A	111. A
7. A	28. A	49. A	70. B	91. B	112. A
8. B	29. B	50. E	71. D	92. D	113. C
9. D	30. A	51. A	72. A	93. A	114. A
10. B	31. E	52. B	73. B	94. A	115. A
11. C	32. D	53. C	74. D	95. D	116. D
12. E	33. D	54. E	75. A	96. C	117. A
13. E	34. B	55. B	76. E	97. A	118. B
14. B	35. D	56. E	77. B	98. B	119. E
15. C	36. D	57. E	78. C	99. C	120. C
16. A	37. D	58. B	79. A	100. A	121. B
17. E	38. B	59. D	80. E	101. B	
18. C	39. C	60. B	81. B	102. C	
19. E	40. A	61. C	82. D	103. E	
20. B	41. D	62. E	83. D	104. B	
21. A	42. A	63. A	84. B	105. A	

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для зарубежных стран медицинских вузов
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