1. Electron microscopic study of a cell revealed roundish bubbles confined by a membrane and containing a lot of various hydrolytic enzymes. It is known that these organellas provide intracellular digestion and protective functions. These elements are:
   A. *Lysosomes
   B. Centrosomes
   C. Endoplasmic reticulum
   D. Ribosomes
   E. Mitochondria

2. A 50 year old woman had her tooth extracted. The tissue regenerated. Which of the following organella are the most active during tissue regeneration?
   A. *Ribosomes
   B. Centrosomes
   C. Postlysosomes
   D. Agranular endoplasmic reticulum
   E. Lysosomes

3. Analysis of an electron diffraction pattern of a cell revealed mitochondrion destruction. This might result in abnormal course of the following cell process:
   A. *Oxidation of organic substances
   B. Nuclear division
   C. Crossingover
   D. Cleavage
   E. -

4. Formation of ribosome subunits in a cell was disturbed in course of an experiment (by means of activated mutagenic factors). This will have an effect on the following metabolic process:
   A. *Protein biosynthesis
   B. Carbohydrate biosynthesis
   C. ATP synthesis
   D. Photosynthesis
   E. Biological oxidation

5. What are the folds on the inner mitochondrial membrane called?
   A. Plasmalemma
   B. *Glycocalyx
   C. Protoplasm
   D. *Cristae
   E. Ground substance

6. Which organelle is involved in lipid metabolism?
   A. Rough endoplasmic reticulum
   B. *Smooth endoplasmic reticulum
   C. Lysosome
   D. Golgi apparatus
   E. Mitochondria

7. Which organelle contains detoxifying enzymes?
   A. Ribosomes
   B. *Peroxisome
   C. Microfilaments
   D. Centrioles
   E. Nucleoli

8. Which of the following is NOT a membranous organelle?
   A. *Microtubules
   B. Lysosomes
   C. Peroxisomes
   D. Mitochondria
   E. Endoplasmic reticulum

9. What is the limiting membrane of a cell?
   A. *Plasmalemma
   B. Glycocalyx
   C. Protoplasm
   D. Cristae
   E. Ground substance

10. What is also called a low resistance junction?
    A. Tight junction
    B. *Gap junction
    C. Junctional epithelium
    D. Junctional complex
    E. None of the above

11. Which of the following is an organelle?
    A. Pigment
    B. Glycogen
    C. Lipid
    D. Secretory granules
    E. *Mitochondria

12. What is the term for the general process that cells use to bring things into the cell?
    A. *Endocytosis
    B. Exocytosis
C. Pinocytosis
D. Phagocytosis
E. Active transport

13. Which organelle produces protein for export?
A. *Rough endoplasmic reticulum
B. Smooth endoplasmic reticulum
C. Lysosome
D. Golgi apparatus
E. Mitochondria

14. An animal had been intensively fed with carbohydrates. Histological examination of its liver revealed a significant number of glycogen granules. Glycogen relates to the following group of cell structures:
A. Trophic granules
B. Secretory granules
C. Excretory granules
D. Pigment granules
E. Special-purpose organelles

15. Low level of albumins and fibrinogen was detected in the patient's blood. Decreased activity of what organelle of the liver hepatocytes can cause it?
A. *Granular endoplasmatic net
B. Agranular endoplasmatic net
C. Mitochondrions
D. Golgi complex
E. Lysosomes

16. Ultramicroscopical examination of "dark" hepatocyte population in the cell cytoplasm detected a developed granular endoplasmic reticulum. What function has this organella in these cells?
A. *Synthesis of blood plasma proteins
B. Carbohydrate synthesis
C. Deintoxicative function
D. Bile production
E. Calcium ion depositing

17. The synthesis of histone proteins was artificially blocked in a cell. What structure of the cell will be damaged?
A. *Nuclear chromatin
B. Nucleolus
C. Golgi Complex
D. Cellular envelope
E. Nuclear envelope

18. The prolonged influence of toxic substances on an organism resulted in considerable reduction of the synthesis of proteins in hepatocytes. What organelle did suffer from the intoxication more than others?
A. *Granular endoplasmic reticulum
B. Mitochondria
C. Microtubules
D. Lysosomes
E. Golgi Complex

19. During histochemical research of an hepatocyte in the cytoplasm of cell it was found vesicles in diameter of 0.05-1.5µm filled with enzymes of peroxide oxidation - catalase, peroxidase. What is the name of organelle?
A. *Peroxisome
B. Lysosome
C. Melanosome
D. Liposome
E. Phagosome

20. On the electronic photomicrograph of nervous cells of spinal ganglion it was found organelles, with cisterns, flattened in the central part and extended on periphery. Also, small vesicles were seen. How are these organelles called?
A. *Golgi Complex
B. Centriole
C. Lysosomes
D. Peroxisome
E. Mitochondria

21. Which one of the following transport processes requires energy?
A. *Active transport
B. Passive transport
C. Facilitated diffusion
D. Simple diffusion
E. Filtration

22. Symport refers to the process of transporting
A. *two different molecules in the same direction
B. a molecule out of the cell
C. two different molecules in the opposite direction
D. a molecule into the cell
E. a molecule between the cytoplasm and the nucleus

23. Glycoalex of cell plasmolemma is damaged as a result of microbe toxins action. Which membrane function of the cells is broken in the first place?
A. Trophic
B. Transporting
C. Respiratory
D. *Receptor
E. Protective
24. The photomicrography shows joining the epithelial cells with basal membrane. Name this type of the epithelial attachment.
   A. Simple junction
   B. Nexus
   C. Hemidesmosome
   D. *Desmosome
   E. Macula adherens

25. The electronic photomicrography shows the round structure by size 15-20 nm consisting of big and small subunits. It is known that this organella provides the protein synthesis. Indicate it.
   A. Microtubule.
   B. Centrosome.
   C. Peroxisome.
   D. *Ribosome.
   E. Mitochondrium.

26. The electronic photomicrography shows the round vesicles by size 0.2 - 0.5 μm covered by membrane and filled by matrix. The histochemical study of matrix has found the enzyme catalase. Name it.
   A. Ribosomes.
   B. Lysosomes.
   C. *Peroxisomes.
   D. Centrosomes.
   E. Mitochondrion.

27. The system of the limited by biomembrane cavities was researched in cells which function is defined by lipid and carbohydrate metabolism, detoxication and deposition of ion calcium. Name this organella.
   A. Granular ER.
   B. Golgi apparatus.
   C. *Agranular ER.
   D. Centrosome.
   E. Mitochondrion.

28. Ultramicroscopic study of the cell has shown well developed granular ER and Golgi apparatus. Indicate specialization of this cell.
   A. Phagocytosis.
   B. The synthesis and secretion of lipids.
   C. Absorption.
   D. *The synthesis and secretion of proteins.
   E. Accumulation and storage of the nutrients.

29. The Analysis ultrastructural constitution of the cells has shown it specialization to lipids and cholesterol synthesis. The development which organelles most typifying for such cells?
   A. Granular ER.
   B. Golgi apparatus.
   C. *Agranular ER.
   D. Centrosome.
   E. Mitochondrion.

30. Which of the following has a rigid wall composed of 13 protofilament strands?
   A. Microfilament.
   B. Intermediate filament.
   C. *Microtubule.
   D. Myofilament.
   E. Neurofilament.

31. Histological examination of a tissue sample revealed that the tissue had no blood vessels, and the cells were packed tightly together making layers. Specify this tissue:
   A. Epithelial
   B. Cartilaginous
   C. Osseous
   D. Nervous
   E. Muscular

32. Histological examination of a tissue sample revealed that the tissue had no blood vessels, and the cells were packed tightly together making layers. Specify this tissue:
   A. *Epithelial
   B. Cartilaginous
   C. Osseous
   D. Nervous
   E. Muscular

There is a specimen of soft palate where both oral and nasal surfaces can be seen. It was revealed that oral cavity had damaged epithelium. What epithelium is damaged?
   A. Multistratal squamous nonkeratinizing
   B. Multistratal cubical nonkeratinizing
   C. Multistratal prismatic nonkeratinizing
   D. Multistratal squamous keratinizing
   E. Multirowed ciliated epithelium

33. What type of epithelium forms the epidermis?
A. Simple squamous epithelium
B. Simple cuboidal epithelium
C. Simple columnar epithelium
D. *Stratified squamous epithelium
E. Pseudostratified epithelium

34. What type of tissue lines most of the gastrointestinal tract?
A. Simple squamous epithelium
B. Simple cuboidal epithelium
C. *Simple columnar epithelium
D. Stratified squamous epithelium
E. Transitional epithelium

35. What type of tissue forms the alveoli in the lung?
A. *Simple squamous epithelium
B. Simple cuboidal epithelium
C. Simple columnar epithelium
D. Stratified squamous epithelium
E. Pseudostratified epithelium

36. What type of epithelium is composed of flat cells?
A. Simple
B. Stratified
C. *Squamous
D. Cuboidal
E. Columnar

37. What do you call the simple squamous epithelium that lines the abdominal cavity?
A. Epithelioid tissue
B. *Mesothelium
C. Endothelium
D. Transitional
E. Pseudostratified

38. What type of epithelium is composed of cells which all touch the basement membrane and is only one cell layer thick?
A. Stratified squamous epithelium
B. Transitional epithelium
C. Stratified cuboidal epithelium
D. *Pseudostratified epithelium
E. None of the above

39. Which of the following is NOT lined by a mucosa?
A. Genitourinary tract
B. *Pericardial cavity
C. Respiratory tract
D. Alimentary canal
E. All of the above are lined by a mucosa

40. What is a gland called if it has a branched duct?
A. Simple gland
B. *Compound gland

C. Tubular
D. Alveolar
E. Tubuloalveolar

41. What are finger-like projections on the surface of some cells called?
A. *Microvilli
B. Stereocilia
C. Cilia
D. Keratinization
E. Both a and b

42. What cell surface modification is made of microtubules?
A. Microvilli
B. Stereocilia
C. *Cilia
D. Keratinization
E. Both a and b

43. A histological specimen of a mandibular gland shows an excretory duct. Mucous membrane of the duct is lined with cubic epithelium whose cells have weakly developed organelles. What excretory duct is it?
A. Intercalated
B. Striated
C. Interlobular
D. Common excretory
E. -

44. Epithelial cells are connected with each other by various contacts. What type of intercellular contacts provides transport of ions and low-molecular substances from one cell to another?
A. Zonula occludens
B. Desmosome
C. Hemidesmosome
D. *Nexus
E. All set forth above

45. In polar-differentiated columnar epithelium, which develops from intermediate mesoderm, the part of cells in apical department carries structures containing axonema. Specify epithelium.
A. Intestine with a border
B. Glandular of stomach
C. *Ciliated of trachea
D. Ciliated of uterine tube
E. Bordered of a kidney tubules

46. On cross section of a kidney tubules epithelial cells are visible, which lay on basement membrane. Epithelium participates in reabsorption of
substances from primary urine in blood. Specify epithelium.
A. Simple cuboidal 
B. *Simple columnar bordered  
C. Mesothelium 
D. Endothelium  
E. Simple columnar glandular

47. On histological specimen of a wall of small intestine columnar epithelial cells with microvilli on apical surface are visible. Epithelium carries out absorptive function. Specify epithelium.
A. Simple cuboidal 
B. *Simple columnar with border 
C. Mesothelium 
D. Endothelium 
E. Simple columnar glandular

48. On histological specimen of trachea epithelium is seen, the most part of which cells has the columnar form with cilia in apical of a part. Between them goblet cells, basal and intercalated are situated. The nuclei of the listed cells are arranged in few rows. Specify epithelium.
A. Simple cuboidal  
B. *Pseudostratified columnar ciliated 
C. Mesothelium 
D. Endothelium  
E. Simple columnar glandular

49. Epithelial tissue borders with connective tissue. What structure is located between them?
A. Amorphous substance 
B. Collagen fibers 
C. Elastic membrane 
D. Plasma membrane 
E. *Basement membrane

50. Epithelial tissues the various functions carry out. What from the listed functions is not characteristic for them?
A. Secretory  
B. Protective 
C. *Trophic 
D. Covering 
E. Contractile

51. The mucous layer of a stomach protects its wall from rough influence of food clods and digesting action of gastric juice. To what morphological type of epithelial tissue does epithelium of a stomach mucosa concern?
A. Simple squamous  
B. Simple cuboidal 
C. Simple columnar bordered 
D. Pseudostratified ciliated 
E. *Simple columnar glandular

52. There is an ontophylogenetic classification of epithelial tissue created by N.G.Chlopin, in which basis of the epitheliums origin is necessary. To what type epithelium, according to this classification, does stratified squamous keratinized concern?
A. *Epidermal  
B. Endodermal 
C. Coelonephrodermal 
D. Ependimoglyal 
E. Angiodermal

53. There is an ontophylogenetic classification of epithelial tissue created by N.G.Chlopin, in which basis of the epitheliums origin is necessary. To what type epithelium, according to this classification, does stratified transitional concern?
A. Epidermal 
B. Endodermal 
C. *Coelonephrodermal 
D. Ependimoglyal 
E. Angiodermal

54. Easy trauma of a skin (scratch) at the child has disappeared in 10 day. Cambial elements of which epidermis layer provided it reparative regeneration?
A. *Basal layer 
B. Covering layer  
C. Granular layer 
D. Keratinous layer 
E. Lucidum layer

55. Endocrine glands produce highly active substance - hormones. What from the listed attributes are characteristic for endocrine glands?
A. *Secretion in blood 
B. Secretion on a surface of a body 
C. Secretion on a surface of organ 
D. Secretion in a cavity of a body 
E. All is incorrect
56. Because of place of secretion glands are divided on endocrine and exocrine. Some morphological features distinguish them also. What from the listed attributes is characteristic for endocrine glands?
A. Presence of ducts
B. *Absence of ducts
C. Lobular structure
D. Trabecular structure
E. All is incorrect

57. Because of place of secretion glands are divided on endocrine and exocrine. Some morphological features distinguish them also. What from the listed attributes is characteristic for exocrine glands?
A. *Presence of ducts
B. Absence of ducts
C. Lobular structure
D. Trabecular structure
E. All is incorrect

58. The chemical composition of products secreting by exocrine glands can be various. How differ exocrine glands depending on character of a secretion?
A. Serous
B. Mucous
C. Mixed
D. Sebaceous
E. *All listed

59. Secretion is the process of formation and deliverance of the substances, synthesized by a cell. It consists of several stages. What stages does secretory cycle consist of?
A. Absorption of initial substances
B. Synthesis and accumulation of a secret
C. Secretion
D. Restoration
E. *All listed

60. The process of epithelium keratinization constitutes conversion of its alive epithelial cells to cornified flakes - mechanically strong and chemically steady postcellular structures. Name the basic processes occurring in cells during keratinization:
A. Change cell shape
B. Keratin formation
C. Organelles and nucleus destruction
D. Cytoplasm dehydration
E. *All listed

61. The patient has hyperkeratosis - condition of a skin, at which the process of cornified flakes of epidermis removal is broken. Name the physiological mechanism of cells of a superficial layer of stratified epithelium removal:
A. *Desquamation
B. Maceration
C. Migration
D. Autolysis
E. Apoptosis

62. On a scheme there is an exocrine gland which has unbranched excretory duct in which one terminal portion is opened as one sac. What is the name of such gland according to morphological classification of exocrine glands?
A. *The simple alveolar unbranched
B. The compound branched alveolar
C. The simple branched tubular
D. The compound unbranched alveolar
E. The compound unbranched alveolar-tubular

63. In a patient with dry pleuritis during auscultation it was notices the noise of pleural friction rub. What epithelium is damaged?
A. *Simple squamous epithelium
B. Simple squamous epithelium
C. Simple cylindrical epithelium
D. Transitional epithelium
E. Stratified epithelium

64. After the prolonged inflammation of mucous membrane of nasal cavity in a patient changes of epithelium had taken place. What epithelium did suffer?
A. *Simple pseudostratified
B. Simple squamous epithelium
C. Stratified squamous epithelium
D. Stratified cuboidal epithelium
E. Stratified cylindrical epithelium

65. The internal envelope of vessels (intima) is lined by epithelium. Name it.
A. *Endothelium
B. Mesotheilium
C. Epidermis
D. Transitional epithelium
E. Pseudostratified epithelium
66. At the mechanical trauma of scrotum of a patient it was observed damage of epithelial lining of testis. What epithelium was damaged?
A * Simple cuboidal  
B Ciliated  
C Simple prismatic  
D Two-layered  
E Transitional  

67. Patient addressed to the ophthalmologist with complaints about griping in eyes, which happened after prolonged staying of patient in the field during a dustborne storm. A doctor revealed superficial damages of external epithelium of cornea. What cells will provide regeneration of the damaged epithelium?
A *Basal cells  
B Cells of horny layer  
C Cells of granular layer  
D Cells of transparent layer  
E Cells of superficial layer  

**Blood.**  

68. In course of an operation on account of a granuloma in the area of the right upper incisor a patient began to bleed. The hemorrhage was stopped just only 3 hours later. The patient’s anamnesis contains information about chronic lymphatic leukemia. What is the most probable cause of hemorrhage?
A *Thrombocytopenia  
B Thrombocytopathia  
C Lymphocytosis  
D Leukopenia  
E Eosinophilia  

69. A 30 y.o. man was irradiated with approximately 3 Gy. What blood changes will be revealed 8 hours after exposure to radiation?
A *Lymphopenia  
B Leukopenia  
C Granulocytopenia  
D Thrombocytopenia  
E Anemia  

70. An employee was working with radioactive substances and as a result of an incident he was irradiated with 4 Gy. He complains about headache, nausea, dizziness. What changes of blood formula can be expected 10 hours after irradiation?
A *Neutrophilic leukocytosis  
B Lymphocytosis  
C Leukopenia  
D Agranulocytosis  
E Neutropenia  

71. Blood analysis of a 16-year-old girl suffering from the autoimmune inflammation of thyroid gland revealed multiple plasmatic cells. Such increase in plasmocyte number is caused by proliferation and differentiation of the following blood cells:
A *B-lymphocytes  
B T helpers  
C Tissue basophils  
D T killers  
E T suppressors  

72. Examination of a patient who was exposed to the ionizing radiation revealed damage of wight pulp. What cells of white pulp undergo pathological changes?
A *Lymphocytes  
B Neutrophilic leukocytes  
C Basophilic leukocytes  
D Monocytes  
E Tissue basophils  

73. An electronic microphotograph shows a macrophagic cell with erythrocytes at different stages of differentiation located along its processes. This is the cell of the following organ:
A *Red bone marrow  
B Thymus  
C Spleen  
D Tonsil  
E Lymph node  

74. Which leukocyte is the second most abundant in a peripheral smear of blood?
A. *Lymphocytes  
B. Basophils  
C. Neutrophil  
D. Monocytes  
E. Eosinophils  

75. Which of the following is a granulocyte?
A. Lymphocyte  
B. *Neutrophil  
C. Monocyte  
D. Erythrocyte  
E. Thrombocyte  

76. Which leukocyte has orange-pink granules?
A. Neutrophil  
B. Lymphocytes  
C. Monocytes  
D. *Eosinophil  
E. Basophils  

77. What is another term for a red blood cell?
A. Thrombocyte
B. Monocyte
C. Lymphocyte
D. Basophil
E. *Erythrocyte

78. Which of the following is described as a "biconcave disc"?
A. Platelets
B. *Erythrocytes
C. Leukocytes
D. Monocytes
E. Eosinophils

79. Which is the largest leukocyte?
A. Neutrophil
B. Lymphocytes
C. *Monocytes
D. Eosinophil
E. Basophils

80. As a result of a road accident a 26-year-old man is in the torpid phase of shock. Blood count: leukocytes 3,210 9/l. What is the leading mechanism of leukopenia development?
A. *Leukocyte redistribution in the bloodstream
B. Leukopoiesis inhibition
C. Faulty release of mature leukocytes from the bone marrow into the blood
D. Leukocyte destruction in the hematopoietic organs
E. Increased excretion of the leukocytes from the organism

81. Blood includes formed elements and plasma - liquid intercellular substance. Name parameter estimating ratio of formed elements volume to volume of blood:
A. Hemogram
B. Leukogram
C. Myelogram
D. *Hematocrit
E. ESR

82. Blood plasma contains important for vital functions components. In particular in its composition more 200 kinds of proteins are present. Which of listed proteins is lacking in plasma?
A. Albumin
B. Globulin
C. Fibrinogen
D. *Hemoglobin
E. Components of complement

83. The analysis of blood is widely used in practical medicine. Name the results of the analysis indicating the contents of separate formed elements.
A. *Hemogram
B. Leukogram
C. Myelogram
D. Hematocrit
E. ESR

84. In blood of the man 26 years old 18 % erythrocytes of spherical, flat, domelike and spinous shape are revealed. Other erythrocytes have the shape of biconcave disks. How such phenomenon refers to as?
A. *Physiological poikilocytosis
B. Pathological poikilocytosis
C. Physiological anisocytosis
D. Pathological anisocytosis
E. Erythrocytosis

85. In blood of the patient 14,5 % erythrocytes by a diameter more 8 µ m are revealed, 15,5 % erythrocytes are less than 6 µ m, others erythrocytes had a diameter 7,1 - 7,9 µ m. How such phenomenon refers to as?
A. Physiological anisocytosis
B. *Pathological anisocytosis
C. Physiological poikilocytosis
D. Pathological poikilocytosis
E. Erythrocytosis

86. At the patient blood for the analysis is taken. Its data show, that 35 % erythrocytes have the irregular form. How such condition refers to as?
A. *Pathological poikilocytosis
B. Anisocytosis
C. Physiological poikilocytosis
D. Macrocytosis
E. Microcytosis

87. The analysis of blood of the patient has shown acute decrease of the hemoglobin contents. Which function of blood thus is broken?
A. *Respiratory.
B. Transport.
C. Homeostatic.
D. Protective.
E. Trophic.
88. At damage of blood vessels there is a spontaneous stop of a bleeding. Name formed element of blood, which first of all takes part in blood clotting?
A. *Platelets
B. Leukocytes
C. Erythrocytes
D. Lymphocytes
E. Neutrophils

89. At the analysis of blood of the patient the microcytic anemia was revealed - significant prevalence of microcytes above normocytes. Which is average diameter of normocytes?
A. 5,1-5,5 µm
B. 6,9-8,1 µm
C. *7,1-7,9 µm
D. 8,0-8,9 µm
E. 4,5-5,5 µm

90. The analysis of blood has shown the lowered platelets content. What is it in norm?
A. 4-9×10⁹/l
B. 3,9-4×10¹²/l
C. 4-5×10¹²/l
D. 1-3×10¹²/l
E. *2,0-4,0×10⁹/l

91. In the blood of a 26-year-old man it was revealed 18% of erythrocytes of the spherical, ball-shaped, flat and thorn-like shape. Other erythrocytes were in the form of the concavo-concave disks. How is such phenomenon called?
A. *Physiological poikilocytosis
B. Pathological poikilocytosis
C. Physiological anisocytosis
D. Pathological anisocytosis
E. Erythrocytosis

92. Blood sampling for bulk analysis is recommended to be performed on an empty stomach and in the morning. What changes in blood composition can occur if to perform blood sampling after food intake?
A. *Increased contents of leukocytes
B. Increased contents of erythrocytes
C. Increased plasma proteins
D. Reduced contents of thrombocytes
E. Reduced contents of erythrocytes

93. During the heterotransplantation of organ it was observed a rejection of graft. What cells of blood do provide this process?
A. *T-lymphocytes-killers
B. T- lymphocytes -helpers
C. T- lymphocytes -suppressor
D. T- lymphocytes-O
E. T-lymphocytes-memory

94. Blood taken from a patient for analysis reveals that 30% of red blood cells have irregular shape. Indicate the name of this phenomenon?
A. *Pathological poikilocytosis
B. Anisocytosis
C. Physiological poikilocytosis
D. Macrocytosis
E. Microcytosis

95. In a blood smear a large cell with pale basophilic cytoplasm and bean-shaped nucleus was found. This cell is the biggest among all others in the visible area. What cell is it?
A. *Monocyte
B. Macrophage
C. Plasmocytes
D. Middle lymphocyte
E. Small lymphocyte

96. In a blood smear, among leucocytes rounded cells with segmented nuclei predominate. A small granules in their cytoplasm are stained with basophilic due. How are these cells named?
A. *Neutrophil
B. Basophil
C. Eosinophil
D. Young neutrophil
E. Monocyte

97. In an experiment a population of blood cells were selectively stimulated. As a result the permeability of blood vessels increased, and perivascular edema and deceleration of blood coagulation was observed. What cells of blood were stimulated?
A. *Basophils
B. Red blood cells
C. Platelets
D. Eosinophils
E. Lymphocytes

98. During investigation of blood smear of a patient some cells were found, which comprise 0,5% of total number of leucocytes; they have S-shaped nuclei and metachromatically stained granules in their cytoplasm. Name these cells.
A. *Basophils
B. Neutrophil
99. During histochemical investigation of leucocytes of blood smear, cells with heparin and histamine in their granules were found. What cells are these?
A * Basophils
B Neutrophils
C Eosinophils
D Monocytes
E Red blood cells

100. During the heterotransplantation of organs it was revealed the rejection of graft. What cells mainly take part in this process?
A * T-killers
B Macrophages
C B-lymphocytes
D T-helpers
E T-suppressors

101. In a child, around a scratch on the skin the signs of inflammation were noticed: pain, redness (rubor), edema as signs of immediate hypersensitivity. What blood cells are caused these changes?
A * Basophils
B Eosinophils
C Neutrophils
D Lymphocytes
E Monocytes

102. On specimen of blood smear a cell with segmented nucleus was found. The cytoplasm contains small granules which are stained with basic as well as with acidic dyes. What is the name of this cell?
A * Neutrophil
B Eosinophil
C Basophil
D Lymphocytes
E Monocytes

103. In a child (10 years) it was found a helminthosis. What population of leukocytes is expected to change?
A * Increasing of the number of eosinophils
B Increasing of the number of platelets
C Increasing of the number of red blood cells
D Increasing of the number of neutrophils
E Increasing of the number of basophils

104. During an inspection of patient in a clinic it was revealed acute decrease of haemoglobin. What function of blood is violated?
A * Respiratory
B Humoral
C Homoeostatic
D Protective
E Trophic

105. The patient addressed to a doctor with complaints on a “running nose”, which increases in spring, in a period flowering of plants. The diagnosis of alergynogo Ringo was set. Changes in leucocyte of which population could be expected?
A * Eosinophilia
B Shifting of formula to the left
C Lymphopenia
D Eosinopenia
E Lymphocytosis

106. During investigating of a blood smear the doctor made a conclusion that blood belongs to a woman. Features of structure of what blood elements enable to do such conclusion?
A * Neutrophil leucocytes
B Red blood cells
C Lymphocytes
D Monocytes
E Basophils

107. Specimens of two smears were given to the student. On the first - all area of vision is covered by red blood cells, on the second - blood cells on different stages of development are determined. What was on specimens?
A * Blood and red bone marrow
B Blood and lymph
C Blood of frog and human blood
D Blood and smear of yellow bone marrow
E Smear of yellow and red bone marrow

108. As a result of investigating of blood spot in place were the crime took place, medico-legal expert defined that it was blood of a woman. After what signs?
A * Presence of nuclear satellites in neutrophils
B Presence of microcytes and macrocytes
C Phenomena of poykilocytosis
D Presence of specific granules is in eosinophils
E After the amount of red blood cells.

109. In blood of girl of 16 years, who suffers autoimmune inflammation of thyroid, it was found numerous plasmocytes. With proliferation and differentiation of which cells of blood?
A * B-lymphocytes
B T-helpers
C Tissue basophils
D T-killers
E T-suppressor
110. An ambulzial wound was closed by the skin of pig (heterotrasplantation). Indicate effector cells which will reject the graft (skin of pig).
A *T-killers
B T-helpers
C T-suppressor
D B-lymphocytes
E Natural killers

111. At the second contact of antigen with macroorganism, antibodies are produced by the latter. To the function of what immunocompetent cells is this phenomenon related?
A * Memory B-lymphocytes
B T-killers
C T-suppressors
D Macrophages
E Natural killers

112. A specimen of connective tissue of derma was stained with Sudan III and hematoxylin. There are clusters of big polygonal cells that turned orange. Their nuclei are flattened and located on periphery. What tissue is it?
A *White adipose
B Brown adipose
C Reticular connective
D Hyaline cartilaginous
E Lamellar osseous

113. Which of the following is NOT primarily composed of connective tissue?
A Bone marrow
B Articular cartilage
C *Heart
D Mesenchyme
E Fat

114. Which one of these cells is not a cell type routinely found in loose connective tissue?
A Fibroblast
B *Microglia
C Histiocyte
D Plasma cell
E Mast cell

115. Which connective tissue cell is a tissue macrophage?
A Fibroblast
B Myofibroblast
C *Histiocyte
D Plasma cell

116. Which of the following can be classified as "specialized connective tissue"?
A Cartilage
B Loose connective tissue
C Mesenchyme
D Dense connective tissue
E *Mucous connective tissue

117. Which of the following can be classified as "connective tissue proper"?
A Adipose tissue
B *dense irregular connective tissue
C Bone
D Blood
E Cartilage

118. What type of tissue is Wharton's jelly?
A *mucous connective tissue
B Mesenchyme
C Loose irregular connective tissue
D Dense irregular connective tissue
E Dense regular connective tissue

119. What type of tissue is a tendon composed of?
A Mucous connective tissue
B Mesenchyme
C Loose irregular connective tissue
D Dense irregular connective tissue
E *Dense regular connective tissue

120. What does connective tissue develop from?
A Mesothelium
B *Mesenchyme
C Mesangial cells
D Mesentery
E Wharton's jelly

121. Which of the following is a component of the ground substance?
A Hyaluronic acid
B Proteoglycans
C Glycosaminoglycans
D Chondroitin sulfate
E *All of the above

122. Decreased blood supply to the organs causes hypoxia that activates fibroblasts function. Volume of what elements is increased in this case?
A *Intercellular substance
B Vessels of microcircular stream
C Nerve elements
D Parenchymatous elements of the organ
E Lymphatic vessels
123. Live vaccine is injected into the human body. Increasing activity of what cells of connective tissue can be expected?
A * Plasmocytes and lymphocytes
B Macrophages and fibroblasts
C Adipocytes and adventitious cells
D Fibroblasts and labrocytes
E Plasmocytes and labrocytes

124. In course of an experiment a big number of stem cells of red bone marrow was in some way destructed. Regeneration of which cell populations in the loose connective tissue will be inhibited?
A * Of macrophages
B Of fibroblasts
C Of pigment cells
D Of lipocytes
E Of pericytes

125. In course of indirect histogenesis of tubular bone tissue a plate is formed between epiphyseal and diaphyseal ossification centres that provides further lengthwise growth of bones. What structure is it?
A * Metaphyseal plate
B Osseous cuff
C Osseous plate
D Osteon
E Layer of interior general plates

126. During development of clinical displays of allergy a leading role is played by histamin. What cells do produce this substance?
A * Mast cells
B T-lymphocytes
C Macrophages
D B-lymphocytes
E Plasmocytes

127. In an experiment B-lymphocytes of the blood were labeled by marker. The foreign protein was injected under a skin of experimental animal. What cells of connective tissue will include this marker?
A * Plasmocytes
B T-lymphocytes
C Macrophages
D Tissue basophils
E Fibroblasts

128. During wound healing the connective tissue scar develops in the area of tissue defect. What cells provide this process?
A * Fibroblasts
B Macrophages

129. During training a sportsman’s lower extremity was traumatized. Traumatologist set a diagnosis: tendon rupture. To which type of connective tissue does a tendon belong?
A * Dense regular connective tissue
B Dense irregular connective tissue
C Loose connective tissue
D Reticular tissue
E Cartilaginous tissue

130. With age there are skin changes which results in decreasing of it’s elasticity. What elements of connective tissue do provide this property?
A * Collagen and elastic fibers
B Ground substance
C Cells of epidermis
D Cells of connective tissue
E Reticular fibers

131. Elderly people have an excessive loss of bone tissue mass, which reflects osteoporosis. Activating of what cells of bone tissue does cause development of this disease?
A * Osteoclasts
B Osteoblasts
C Macrophages
D Tissue basophils
E Osteocytes

132. In specimen there is a tissue, which contains cells, devoid of processes with several dozens of nuclei. One of the surfaces of these cells has ruffled border area, through which secretion of hydrolases occurs. What tissue is presented in this specimen?
A * Bone tissue
B Cartilaginous tissue
C Epithelial tissue
D Nervous tissue
E Muscular tissue

133. After chemical burn of esophagus, local narrowing of its lumen developed as a result of scar formation. What cells of loose connective tissue do take part in formation of scars?
A * Mature specialized fibroblasts
B Young non-specialized fibroblasts
C Fibrocytes
D Myofibroblasts
E Fibroblasts

134. As a result of thrombosis of left coronary artery
death of group of cardiomyocytes occurred (infarction of myocardium). What cells will provide reparative regeneration in the area of damage?
A *Fibroblasts
B Neighboring cardiomyocytes
C Myosimplast
D Myosatellites
E Smooth muscle cells

135. In an histological specimen the isogenous groups of cells are observed. What cells are initial (precursors) in formation of these groups?
A *Chondrocytes of I type
B Chondroblasts
C Prechondroblasts
D Chondrocytes of II type
E Chondrocytes of III type

136. It is known, that cartilages of joints do not have perichondrium. What type of growth do take place during processes of their regeneration?
A *Interstitial
B Appositional
C By imposition
D Appositional and interstitial
E -

137. During the observation of histological specimen of lymph node from an experimental animal after antigen stimulation in the medullary cords a lot of cells were found of following morphology: intensively basophilic cytoplasm, eccentrically placed nucleus with a chromatin, located as "cart-wheel" and light area of cytoplasm around nucleus. What cells is it?
A *Plasmocytes
B Macrophages
C Fibroblasts
D Adipocytes
E Tissue basophils (mast cells)

138. During the analysis of X-ray of a patient of 57 years a doctor paid attention to local resorbtion of different bones. With the hyperactivity of what cells are these changes connected?
A *Osteocytes
B Chondroblasts
C Osteocytes
D Osteoblasts
E Chondrocytes

139. During histological specimen observation of connective tissue it was found large cells, filled with basophilic metachromatic granules; with the help of histochemistry it was revealed, that granules contain heparin and histamin. What cells were most probably found in specimen?
A *Mast cells
B Fibroblasts
C Macrophages
D Plasmocytes
E Adipocytes

140. During an experiment a lot of stem cells of red bone marrow were destroyed. A renewal of what populations of cells of connective tissue will be violated?
A * Macrophages
B Fibroblasts
C Pigment cells
D Lipocytes
E Pericytes

141. During the endochondral ossification of bone tissue of tubular bones a plate appears between the epiphyseal and diaphyseal centers of ossification, which provides growth of bones in length. Indicate the name of this structure.
A *Metaepiphyseal plate
B Bone cuff
C Bone plate
D Osteon
E Layer of internal general plates

142. To the experimental animal it was injected a media, which violates formation of collagen fibers. How will it affect properties of tendon?
A * Tensile strength will decrease
B Will not change
C Elasticity will decrease
D Elasticity and tensile strength will decrease
E Strength will increase, elasticity will decrease

143. During experiment a myotome of rabbit embryo was destroyed. Violation of development of what structure will be caused by this manipulation?
A *Skeletal musculature
B Axial skeleton
C Connective tissue of skin
D Smooth musculature
E Serosa

Skeletal tissue

144. Calcification of the intercellular substance of bone tissue is accompanied by the deposition of hydroxyapatite crystals along the collagen fibers. This process requires the presence of alkaline phosphatase in the intercellular substance. What cell produces this enzyme?
A Osteoblast
B Osteocyte
C Osteoclast
D Chondroblast
E Chondrocyte

145. Calcification of the intercellular substance of bone tissue is accompanied by the deposition of hydroxyapatite crystals along the collagen fibers. This process requires the presence of alkaline phosphatase in the intercellular substance. What cell produces this enzyme?
A *Osteoblast
B Osteocyte
C Osteoclast
D Chondroblast
E Chondrocyte

146. A histological specimen presents the tissue that contains cells having no processes and a few tens of nuclei each. One of cell surfaces has a corrugated zone that provides secretion of hydrolytic elements. What tissue is it?
A *Osseous tissue
B Cartilaginous tissue
C Epithelial tissue
D Nerve tissue
E Muscular tissue

147. Examination of a histological specimen of tubular bone revealed signs of regeneration process (callus). What tissue is this structured formed of?
A *Rough fibrous osseous
B Loose connective
C Reticular
D Epithelial
E Lamellar osseous

148. The symptoms of regeneration process (callus) on the place of fracture were revealed in the histologic specimen of tubular bone. What tissue forms this structure?
A *Fibrous bone tissue
B Loose connective tissue
C Reticular tissue
D Epithelial tissue
E Lamellar bone tissue

149. What cell produces the cartilaginous matrix?
A Chondrocyte
B *Chondroblast
C Osteocyte

D Osteoclast
E Bone lining cell

150. Which type of cartilage is found in the larynx?
A Hyaline cartilage
B Elastic cartilage
C Fibrocartilage
D *Both a and b
E All of the above

151. Which of the following is NOT a glycosaminoglycan in cartilage?
A Chondroitin sulfate
B *Proteoglycans
C Keratan sulfate
D Hyaluronic acid
E All of the above are glycosaminoglycans in cartilage

152. Which type of cartilage is characterized by a glassy matrix?
A *Hyaline cartilage
B Elastic cartilage
C Fibrocartilage
D All of the above
E None of the above

153. Which type of cartilage is characterized by the presence of chondrocytes sitting in lacunae?
A Hyaline cartilage
B Elastic cartilage
C Fibrocartilage
D *All of the above
E None of the above

154. Which type of cartilage is the most abundant?
A *Hyaline cartilage
B Elastic cartilage
C Fibrocartilage
D Hyaline cartilage and elastic cartilage equally
E Elastic cartilage and fibrocartilage equally

155. Which type of cartilage forms the articular surface on bones?
A *Hyaline cartilage
B Elastic cartilage
C Fibrocartilage
D All of the above
E None of the above

156. Which type of cartilage is found in the external ear?
A Hyaline cartilage
B *Elastic cartilage
C Fibrocartilage
D All of the above
157. Costal cartilage is composed of what type of cartilage?
A. *Hyaline cartilage
B. Elastic cartilage
C. Fibrocartilage
D. All of the above
E. None of the above

158. Which type of cartilage forms the symphysis pubis?
A. Hyaline cartilage
B. Elastic cartilage
C. *Fibrocartilage
D. All of the above
E. None of the above

159. What is dense bone?
A. Immature bone
B. Cancellous bone
C. *Compact bone
D. Woven bone
E. Spongy bone

160. Which cell is a resting osteoblast?
A. Chondrocyte
B. Chondroblast
C. Osteocyte
D. Osteoclast
E. *Bone lining cell

161. What are the mineral crystals in bone called?
A. *Hydroxyapatite
B. Calcite
C. Tourmaline
D. Rubellite
E. Indicolite

162. What is the cylindrical structure in compact bone?
A. Osteoclast
B. *Osteon
C. Osteocyte
D. Osteoblast
E. Osteoid

163. What are Sharpey's fibers?
A. Elastic fibers
B. *Collagen fibers
C. Reticular fibers
D. Trabeculae
E. Dense regular connective tissue

164. What is the space that an osteocyte rests in?
A. Canaliculi

165. What is bone formation called when the bone is formed from a cartilage template?
A. Intraosseous
B. En bloc
C. Intramembranous
D. *Endochondral
E. Endosteum

166. What is the primary component of red marrow?
A. *Hematopoietic tissue
B. Fat
C. Cartilage
D. Fibrous tissue
E. Bone

167. What cell is an immature bone cell?
A. Osteoclast
B. Osteon
C. Osteocyte
D. *Osteoblast
E. Osteoid

168. What is bundle bone?
A. Cancellous bone
B. Compact bone
C. Dense bone
D. Spongy bone
E. *Immature bone

169. As a result of a chest trauma the costal cartilage was damaged. The cartilage regenerates due to the following layer of perichondrium:
A. *Chondrogenic
B. Fibrous
C. Elastic
D. Collagen
E. Sharpey's fibers

**Muscular tissues.**

170. The destruction of the thick myofilaments in striated muscle occurs after mechanical trauma. What structure bounded with myosin filaments is damaged also?
A. *Mesophragma.
B. Mesophragma and telophragma.
C. Telophragma.
D. Cytolemma.
E. Cytolemma and telophragma.
171. The destruction of the thin myofilaments in striated muscle occurs after action of hydrolytic enzymes. What structures are damaged?
A. *Actin myofilaments.
B. Myosin myofilaments.
C. Tonomembrane.
D. Tropocollagen complexes.
E. Nucleoprotein complexes.

172. The structural unit of tissue is a fiber which consists of symplast and satellitocytes covered by general basal membrane. Indicate tissue what has such construction.
A. *Skeletal striated muscle.
B. Smooth muscle.
C. Cardiac muscle.
D. Loose connective tissue.
E. Reticular tissue.

173. The atrophy of the muscles what appeared as a result of dysbolism of the proteins is discovered at patient. Name the protein what participates in formation of the thin myofilaments?
A. *Actin
B. Tubulin
C. Dinein
D. Desmin
E. Keratin

174. The skeletal myofibers are damaged at child 14-years old after trauma. Name the source of reparative regeneration of the skeleton myofibers?
A. *Myosatellitecytes.
B. Myofibrils.
C. Myofilaments.
D. Sarcolema.
E. Endomysium.

175. Mesenchyme cells are damaged experimental. The development which tissue will broke?
A. Skeletal muscle.
B. Cardiac muscle.
C. *Smooth muscle.
D. Myoepithelial cells.
E. Muscle of the iris.

176. The fibers containing numerous nucleuses are seen in preparation of muscle tissue. The nucleuses are situated peripheral. What type of tissue is presented in preparation?
A. *Skeletal muscle.
B. Cardiac muscle.
C. Smooth muscle.
D. Myoepithelial cells.

E. Muscle of the iris.

177. A microspecimen of the submandibular salivary gland shows some basket-shaped cells concentrated around the acines and excretory ducts. These cells surround bases of the serous cells and are called myoepitheliocytes. These cells relate to the following tissue:
A. *Muscular tissue
B. Epithelial tissue
C. Neural tissue
D. Special connective tissue
E. Loose fibrous connective tissue

178. What is the connective tissue covering of a muscle fascicle?
A. Sarcolema
B. Endomysium
C. Epimysium
D. Sarcoplasm
E. *Perimysium

179. What is actin?
A. *Myofilament
B. Myosin
C. Muscle fibers
D. Myofibrils
E. Myocardium

180. Which of the following is composed of smooth muscle?
A. Upper esophagus
B. Heart
C. Tongue
D. Biceps muscle
E. *Walls of the visceral organs

181. What is a receptor in muscle?
A. Motor unit
B. Motor neuron
C. Motor end plate
D. *Neuromuscular spindle
E. Neurotransmitter

182. Which fiber type is larger in diameter?
A. Red fibers
B. *White fibers
C. Intermediate fibers
D. All of the above
E. None of the above

183. Which fiber type is make up fast-twitch muscle?
A. Red fibers
B. *White fibers
C. Intermediate fibers
184. Which fiber type has more myoglobin?
A. Red fibers  
B. White fibers  
C. Intermediate fibers  
D. All of the above  
E. None of the above

185. Which fiber type gets its energy primarily from glycogen?
A. Red fibers  
B. *White fibers  
C. Intermediate fibers  
D. All of the above  
E. None of the above

186. Which fiber type is seen in skeletal muscle?
A. Red fibers  
B. White fibers  
C. Intermediate fibers  
D. *All of the above  
E. None of the above

187. What is line that bisects the dark band in muscle?
A. A band  
B. I band  
C. Z line  
D. *H band  
E. M line

188. Alveolar space of the acinus was invaded by some bacteria which interacted with the surfactant. This led to the activation of the cells that are localized in the alveolar walls and on the surface. What cells are these?
A. *Alveolar macrophages  
B. Alveolocytes type I  
C. Endothelial cells  
D. Clara cells  
E. Alveolocytes type II

189. Patient with injured muscles of the lower extremities was admitted to the traumatological department. Due to what cells is reparative regeneration of the muscle fibers and restoration of the muscle function possible?
A. *Satellite-cells  
B. Myoblasts  
C. Myofibroblasts  
D. Fibroblasts  
E. Myoepithelial cells

190. In course of a conditional experiment the development of mesenchyma cells was completely inhibited. Development of the following muscular tissue will be disturbed:
A. *Smooth muscular tissue  
B. Neural muscular tissue  
C. Epidermal muscular tissue  
D. Cardiac muscular tissue  
E. Skeletal muscular tissue

191. A microspecimen of the submandibular salivary gland shows some basket-shaped cells concentrated around the acines and excretory ducts. These cells surround bases of the serous cells and are called myoepithelialocytes. These cells relate to the following tissue:
A. *Muscular tissue  
B. Epithelial tissue  
C. Neural tissue  
D. Special connective tissue  
E. Loose fibrous connective tissue

192. On a histological specimen presented the tissue the main element of which is fiber, which is composed of myosymplast and satellitocytes, covered by common basal membrane. What tissue is it?
A. *Skeletal striated muscular tissue  
B. Smooth muscular tissue  
C. Cardiac muscular tissue  
D. Loose connective tissue  
E. Reticular tissue

193. In the phase of myocardium contraction (systole) the concentration of calcium ions is sharply increased in the sarcoplasm of cardiomyocytes. What structures take part in deposition of calcium ions?
A. *L - system  
B. Lysosomes  
C. Ribosomes  
D. T - system  
E. Nucleolus

194. On the histological specimen of the heart, it was distinguished cells of rectangular form by sizes ranging from 50 to 120 µm, with centrally located nuclei, well-developed myofibrils, coupled together with the help of intercalated disks. Choose the function which is coupled with these cells:
A. *Contraction of heart  
B. Conducting of impulses  
C. Endocrine  
D. Protective  
E. Regenerative
195. On the electronic photomicrograph of a cell which has a stick-like nucleus and fusiform shape, there are plenty of intermediate filaments of desmin in the cytoplasm. What tissue is it?
A *Muscular
B Nervous
C Epithelial
D Connective
E -

196. In a conditional experiment, the development of mesenchymal cells was fully inhibited. Violation of development of what muscular tissue will be observed?
A *Smooth muscular tissue
B Muscular tissue of neural origin
C Muscular tissue of epidermal origin
D Cardiac muscular tissue
E Skeletal muscular tissue

197. At an investigation of striated muscle fiber after the action of hydrolytic enzymes, there is destruction of thin myofilaments. Which structures were damaged?
A *Actin myofilaments
B Tonofibrils
C T-system
D Sarcoplasmic reticulum
E Myosin filaments

198. On a drawing of the structural unit of myofibril of striated muscles, a sarcomere was schematically represented. The sarcomere is situated between two nearby Z-lines. How will the H-area change at maximal contraction of sarcomere?
A *Disappears.
B Does not change
C Increased in two times
D Diminishes in two times
E Occupies all sarcomere

Hemopoiesis. Hematopoietic organs.

199. The aim of the morphological study was to investigate an endocrine gland with parenchyma consisting of epithelium and neural tissue. In the epithelial trabeculae the study revealed two types of cells: chromophile and chromophobe. Identify this organ:
A *Pituitary gland
B Adrenal gland
C Hypothalamus
D Thyroid gland
E Parathyroid gland

200. A histological specimen presents an organ that has both cortical and medullary substance. Cortical substance consists of an external zone that contains lymph nodules as well as of a paracortical zone. Medullary substance contains medullary cords, sinuses and trabecules. What organ possesses these morphological signs?
A *Lymph node
B Spleen
C Kidney
D Thymus
E Adrenal glands

201. In a histological specimen parenchyma of an organ is represented by lymphoid tissue that forms lymph nodes; the latter are arranged in a diffuse manner and enclose a central artery. What anatomic formation has such morphological structure?
A *Spleen
B Tonsil
C Lymph node
D Thymus
E Red bone marrow

202. Medullary substance of a hemopoietic organ’s lobule in a histological specimen is lighter coloured and contains epithelial bodies. What organ are these morphological properties typical for?
A *Thymus
B Lymph node
C Spleen
D Liver
E Kidney

203. A patient was admitted to a hospital because of a penetrating wound of mouth floor. Which muscle is injured?
A *Mylohyoid
B Thyrohyoid
C Stylohyoid
D Omohyoid
E Sternohyoid

204. A specimen shows an organ covered with the connective tissue capsule with trabeculae radiating inward the organ. There is also cortex containing some lymph nodules, and medullary cords made of lymphoid cells. What organ is under study?
A *Lymph node
B Thymus
C Spleen
D Red bone marrow
E Tonsils
205. An electronic microphotograph shows a macrophagic cell with erythrocytes at different stages of differentiation located along its processes. This is the cell of the following organ:
A *Red bone marrow
B Thymus
C Spleen
D Tonsil
E Lymph node

206. During postembryonal haemopoiesis in the red bone marrow the cells of one of the cellular differons demonstrate a gradual decrease in cytoplasmic basophilia as well as an increase in oxyphilia, the nucleus is being forced out. Such morphological changes are typical for the following haemopoiesis type:
A *Erythropoiesis
B Lymphopoiesis
C Neutrophil cytopoiesis
D Eosinophil cytopoiesis
E Basophil cytopoiesis

207. On a histological specimen parenchyma of an organ is represented by lymphoid tissue that forms lymph nodes; the latter are arranged in a diffuse manner and enclose a central artery. What anatomic formation has such morphological structure?
A *Spleen
B Tonsil
C Lymph node
D Thymus
E Red bone marrow

208. The specimens present sections of haemopoetic and immunogenetic organs. Organ has lymph tissue forming different structures (lymph nodes, lobules, bars). In what organ does antigen-independent proliferation and differentiation take place?
A *Thymus
B Lymphatic nodes
C Spleen
D Hemolymph nodes
E Tonsil

209. On histological specimen, the parenchyma of an organ is represented by lymphoid tissue which forms lymphatic nodules, which are located diffusely and contain a central artery. What anatomic formation does have this morphological structure?
A *Spleen
B Red bone marrow
C Thymus
D Tonsil
E Lymphatic node

210. On specimen, there is an organ covered by connective tissue capsule, which send trabecules to the parenchyma. In this organ, it is possible to distinguish a cortex where lymphatic nodules are located and medulla, represented by medullary cords made up of lymphoid cells. What organ is presented on specimen?
A *Lymphatic node
B Thymus
C Spleen
D Red bone marrow
E Tonsil

211. On histological specimen presented the organ of hematopoiesis and immune defence, which is built from lobules which are surrounded by the layers of connective tissue, on periphery of lobules the amount of cells is considerably more high than in a center, lymphatic nodules are absent. What organ is it?
A *Thymus
B Red bone marrow
C Lymphatic node
D Spleen
E Tonsil

212. At histological investigation of thymus of man by age 40 years, it was revealed that there was a decrease in the number of parenchymal elements of thymus, increasing of adipose and connective tissue, high quantity of thymic corpuscles (Hassall's corpuscles), at normal total mass of organ. How is such phenomenon called?
A *Age involution of thymus
B Accidental involution of thymus
C Hypotrophy of thymus
D Dystrophy of thymus
E Atrophy of thymus

213. On histological specimen the parenchyma of organ is presented by lymphoid tissue which forms lymphatic nodules; the last are situated diffusely and contain a central artery. What anatomic structure has such morphological structure?
A *Spleen
B Thymus
C Lymphatic node
D Tonsil
E Red bone marrow

214. Child has immunodeficiency. Cellular immunity suffers and it results in frequent viral infections. By violation in function of what organ is it caused?
A *Thymus
B Red bone marrow
215. Two histological specimens are given to a student. On both specimens there are organs which have lymphatic nodules. On first specimen - only follicles, and on the second - follicles with eccentrically located artery. Define what organs are these? 
A *First – lymphatic node, second – spleen 
B First – red bone marrow, second - spleen 
C First - thymus, second – spleen 
D First – liver, second - lymphatic node 
E First – liver, second - spleen

216. On a specimen, a spherical elements made up of lymphocytes can be seen. In a middle of this elements there is a central artery. What organ is this? 
A* Spleen 
B Kidney 
C Thymus 
D Bone marrow 
E Lymphatic node

217. On a specimen with the contours of bean-shape organ there is a cortex and medulla. A cortex is represented by separate spherical nodes 0.5 .1 mm in diameter, and medulla – by medullary cords. What organ is it? 
A * Lymphatic node 
B Kidney 
C Thymus 
D Bone marrow 
E Lymphatic node

218. On the specimen of small intestine, in the lamina propria of mucosa it was revealed an accumulation of cells of spherical shape with large basophilic nuclei, which were surrounded by narrow rim of cytoplasm. In majority of such accumulations central part was lighter and contained fewer cells, than peripheral. What morphological structure do such accumulations belong to? A * Lymphatic node 
B Nervous ganglion 
C Adipose cells 
D Blood vessels 
E Lymphatic vessels

219. Medulla of lobule of hematopoietic organ on histological specimen has more light color and contains little epithelial corpuscles. What organ do these morphological signs belong to? 
A *Thymus 
B Lymphatic node 
C Spleen

220. On histological specimen presented an organ in which lymphocytes form three kinds of lymphoid structures: lymphatic nodules, medullary cords and sinuses. What organ is it? 
A *Lymphatic node 
B Spleen 
C Thymus 
D Tonsil 
E Red bone marrow

221. On histological specimen presented the organ of lobular structure, stroma of which is made up of epitheliocytes with processes. What organ is it? 
A *Red bone marrow 
C Spleen 
D Tonsil 
E Lymphatic node

222. On specimen presented the organ, in it’s reticular stroma there were located mature blood elements and lymphoid elements. What organ is presented on specimen? 
A *Spleen 
B Lymphatic node 
C Tonsil 
D Thymus 
E Red bone marrow

223. On an electronic photomicrograph presented the cell, with protrusions and deep invaginations in cytolemma, in which lymphocytes are differentiated. What organ is it? 
A *Thymus 
B Red bone marrow 
C Spleen 
D Tonsil 
E Liver

224. A microsection is done through a lymphatic node. On a slice there is an extension of it’s paracortical area. Proliferation of what type of cells of lymphatic node did causes this process? 
A * T-cell 
B Dendritic cells 
C Plasmocytes 
D Macrophages 
E Reticulocytes

225. At a child with the broken immune reactivity it was performed a study of antigen-independent proliferation and differentiation of T-cells. Punctate of what organ was taken for research?
A *Thymus  
B Spleen  
C Lymphatic node  
D Red bone marrow  
E Palatal tonsil

226. A new-born child has an excalation of thymus. What type of hemopoiesis will be broken?
A *Lymphopoiesis  
B Monocytopoiesis  
C Erythropoiesis  
D Granulocytopoiesis  
E Megakaryocytopoiesis

227. At the patient it is observed enlargement of spleen and decreasing of amount of erythrocytes in peripheral blood. Due to hyper function of what type of cells in the spleen this phenomenon could be explained?
A *Macrophages  
B Lymphocytes  
C Dendritic cells  
D Plasmocytes  
E Reticulocytes

228. In punctate of myeloid tissue of child it was revealed cells, during development of which there is a picnosis and expulsion of nuclei. Indicate the name of hematopoiesis with such morphological features.  
A *Erythropoiesis  
B Trombocytopoiesis  
C Granulocytopoiesis  
D Lymphocytopoiesis  
E Monocytopoiesis

229. It is known that in peripheral blood of man megalocytes could appear. At what time or age could these cells be seen in bloodstream?  
A *Embryonic period  
B Under 1 year  
C In age from 1 to 30 years  
D In old age  
E During pregnancy

230. On an electronic photomicrograph presented the cell of macrophage nature along the processes of which red blood cells on the different stages of differentiation are located. Which organ does this cell belongs to?  
A *Red bone marrow  
B Thymus  
C Spleen  
D Tonsil  
E Lymphatic node

231. During histological research of biopsy material of red bone marrow it was revealed granulocytes. Indicate, what changes do occur with the nuclei during differentiation of these cells.  
A*Segmentation  
B Polyploidisation  
C Picnosis  
D Enucleation  
E Enlargement

232. On the electronic photomicrograph of red bone marrow it were determined megakaryocytes in peripheral part of cytoplasm of which demarcation ducts were situated. What is the role of these structures?  
A *Formation of platelets  
B Increase of surface area of the cell  
C Increase of amount of the ionic channels  
D Reproduction of the cell  
E Destruction of cell

233. At the inspection of patient of 35 years the histological investigation of red bone marrow punctate was done. A considerable increase in quantity of megakaryocytes was revealed. What changes of peripheral blood is it accompanied with?  
A * Augmentation of quantity of platelets  
B Augmentation of quantity of leucocytes  
C Diminishing of quantity of platelets  
D Diminishing of quantity of granulocytes  
E Diminishing of quantity of leucocytes

234. At the inspection of a patient of 26 years, the histological investigation of red bone marrow punctate was done. A considerable increase in quantity of megakaryocytes was revealed. What changes of peripheral blood is it accompanied with?  
A * Diminishing of quantity of platelets  
B Diminishing of quantity of red blood cells  
C Diminishing of quantity of eosinophils  
D Diminishing of quantity of neutrophils  
E Diminishing of quantity of B-lymphocytes

Nerve system.

235. One of sections of central nervous system has layerwise arrangement of neurocytes. Among them there are cells of the following forms: stellate, fusiform, horizontal, pyramidal. What section of central nervous system is this structure typical for?  
A *Cortex of cerebrum  
B Spinal cord  
C Cerebellum  
D Medulla oblongata  
E Hypothalamus

236. A sensory nerve ganglion consists of roundish
neurocytes with one process that divides into axon and dendrite at a certain distance from perikaryon. What are such cells called?
A *Pseudounipolar
B Unipolar
C Bipolar
D Multipolar
E Apolar

237. Microscopic examination of a CNS body revealed the gray matter with three layers of neurons, namely molecular, ganglionic and granular layer. What are the neurons constituting the second layer?
A Piriform
B Basket
C Small stellate
D Large stellate
E Granule cells

238. Microscopic analysis of a specimen revealed an organ of nervous system that consists of pseudounipolar neurons covered with glial and connective tissue membranes. Determine this organ:
A *Spinal ganglion
B Vegetative ganglion
C Spinal cord
D Cerebellum
E Cortex of cerebrum

239. A patient had a trauma that led to the injury of front spinal roots. Denote the damaged structures:
A *Axons of motoneurons and axons of neurons of lateral horns
B Central processes of sensitive neurons of spinal ganglions
C Peripheral processes of sensitive spinal ganglions
D Axons of neurons of lateral horns
E Axons of motoneurons

240. As a result of a trauma a patient has damaged front spinal roots. What structures are likely to be affected?
A *Axons of the motoneurons and axons of the lateral horn neurons
B Central processes of the sensory neurons of the spinal ganglions
C Peripheral processes of the sensory neurons of the spinal ganglions
D Axons of the lateral horn neurons
E Dendrites of the spinal ganglion neurons

241. A ventral root of spinal cord was damaged as a result of a trauma. The following processes of the following neurons were damaged:
A *Axons of motor neurons
B Dendrites of motor neurons
C Axons of sensory neurons

D Dendrites of sensory neurons
E Dendrites of internuncial neurons

242. A sensitive neural ganglion consists of roundish neurocytes with one extension that divides into axon and dendrite at some distance from the perikaryon. What are these cells called?
A *Pseudounipolar
B Unipolar
C Bipolar
D Multipolar
E Apolar

243. As a result of a trauma a patient has damaged anterior roots of spinal cord. What structures have been affected?
A *Axons of motoneurons and axons of neurons of lateral horns
B Central processes of sensitive neurons of spinal ganglions
C Peripheral processes of sensitive spinal ganglions
D Axons of neurons of lateral horns
E Dendrites of neurons of spinal ganglions

244. One of sections of central nervous system has layerwise arrangement of neurocytes. Among them there are cells of the following forms: stellate, fusiform, horizontal, pyramidal. What section of central nervous system is this structure typical for?
A *Cortex of cerebrum
B Spinal cord
C Cerebellum
D Medulla oblongata
E Hypothalamus

245. One of departments of CNS has a layer with location of neurocytes, among which one can distinguish cells of different shapes: star-shape, fusiform, horizontal, pyramidal. What department of the nervous system corresponds to such structure?
A *Cortex of large hemispheres of cerebrum
B Cortex of cerebellum
C To the spinal cord
D To the medulla oblongata
E To the hypothalamus

246. In a histological specimen of the department of the nervous system, a layer with location of neurocytes, among which one can distinguish cells of different shapes: star-shape, fusiform, horizontal, pyramidal. What department of the nervous system is it?
A *Cortex of large hemispheres of cerebrum
B Cortex of cerebellum
C Spinal ganglion
247. As a result of trauma of a man of 47 years, the anterior roots of spinal cord were damaged. The processes of what neurons are damaged?
A * Axons of motor neurons of somatic and vegetative nuclei
B Axons of sensitive pseudounipolar neurons
C Dendrites of sensitive pseudounipolar neurons
D Dendrites of motor and axons of nuclei of lateral columns
E Dendrites and axons of sensitive pseudounipolar neurons

248. A sensitive nervous ganglion consists of neurocytes of spherical shape with one process which on certain distance from perikarion is divided into axon and dendrite. How is such cell named?
A * Pseudounipolar
B Unipolar
C Bipolar
D Multipolar
E Non-polar

249. An infectious disease caused contractive activity of muscles that contract and dilate eye pupil (paralytic state). What functional eye system was damaged?
A * Accomodative
B Dioptric
C Ancillary
D Photosensory
E Lacrimal apparatus

250. During an experiment the median part of an animal’s cochlea was damaged. This resulted in impaired perception of acoustic vibrations of the following frequency:
A * Medium
B Low
C High
D High and medium
E Low and medium

251. A patient has applied eye drops containing atropine which resulted in persistent mydriasis. Which muscle was blocked?
A * Pupil-contracting
B Pupil-dilating
C Ciliare
D Rectus
E Oblique

252. A histological specimen presents a receptor zone of a sensoepithelial sense organ. Cells of this zone are placed upon the basal membrane and include the following types: external and internal receptor cells, external and internal phalangeal cell, stem cells, external limiting cells and external supporting cell. The described receptor zone belongs to the following sense organ:
A * Acoustic organ
B Visual organ
C Gustatory organ
D Equilibrium organ
E Olfactory organ

253. A histological specimen of an eyeball shows a structure in form of a convexoconvex formation connected with the ciliary body by the fibers of ciliary zonule and covered with a transparent capsule. Specify this structure:
A * Crystalline lens
B Vitreous body
C Ciliare body
D Cornea
E Sclera

254. As a result of punctate retinal hemorrhage a patient lost ability to see objects in the centre of visual field. In what part of retina did the hemorrhage take place?
A * Yellow spot
B Ciliare part of retina
C Iris
D Blind spot
E Vascular membrane

255. A histological specimen of the eyeball shows a biconvex structure connected to the ciliary body by the fibers of the Zinn's zonule and covered with a transparent capsule. Name this structure:
A * Crystalline lens
B Vitreous body
C Ciliare body
D Cornea
E Sclera

256. A histological specimen presents a receptor zone of a sensoepithelial sense organ. Cells of this zone are placed upon the basal membrane and include the following types: external and internal receptor cells, external and internal phalangeal cell, stem cells, external limiting cells and external supporting cell. The described receptor zone belongs to the following sense organ:
A * Acoustic organ
B Visual organ
C Gustatory organ
D Equilibrium organ
E Olfactory organ

257. The increased intraocular tension is observed in the patient with glaucoma. Secretion of aqueous humor by the ciliary body is normal. Injury of what structure of the eyeball wall caused the disorder of flow-out from the anterior chamber?
A * Venous sinus
B Ciliar body
C Choroid
D Ciliary muscle
E Back epithelium of cornea

258. Vitamin A deficit results in the impairment of twilight vision. Name the cells that have the above-mentioned photoreceptor function:
A * Rod receptor cell
B Horizontal neurocytes
C Cone receptor cells
D Bipolar neurons
E Ganglion neurocytes

259. An infectious disease caused contractive activity of muscles that contract and dilate eye pupil (paralytic state). What functional eye system was damaged?
A * Accommodative
B Dioptric
C Supporting
D Photosensory
E Lacrimal apparatus

260. After an infectious disease, the contractile ability of muscles which narrows and extends the pupil of eye was broken (paralytic state). What functional system of eye did suffer?
A * Accommodation
B Dioptric
C Supporting
D Photosensor
E Lacrimal apparatus

261. On an electronic photomicrograph, a cell of neural origin which has an epithelium of mucous aeriferous ways was present. Distal part of peripheral process of the cell has a club-shaped bulge with 10-12 cilia. What kind of cell is it?
A * Olfactory receptor cells
B Bipolar neuron of spinal ganglion
C Sensory epitheliocyte of organ of taste
D Rod visual cell
E Cone visual cell

262. After a boxer had trauma of the nose, violation of sense of smell is marked. Indicate which cell’s damage can result in anosmia?
A * Neurosensory cells
B Supporting epitheliocytes
C Basal epitheliocytes
D Ciliary epitheliocytes
E Microvillous epitheliocytes

263. On histological specimen the receptor zone of sensory-epithelial sense organ is determined. The cells of this area lie on a basal membrane and include followings kinds: external and internal sensory, external and internal phalange, pillar cells, external boundary and external supporting. Indicate, what sense-organ this receptor zone belongs to:
A * To the organ of hearing
B To the organ of vision
C To the organ of taste
D To the organ of equilibrium
E To the olfactory organ

264. As a result of trauma of head of a man of 32 years, damage of crista ampullaris occurred. Perception of what irritations will be violated?
A * Angular accelerations
B Vibrations
C Gravitation
D Linear accelerations
E Vibration and gravitation

265. The ciliary body of a patient was damaged. The function of what apparatus of eye will suffer?
A * Accommodation
B Light-conducting
C Light-accepting
D Protective
E Trophic

266. On an electronic photomicrograph, a cell of neural origin is presented. Terminal part of dendrite of this cell has a shape of cylinder and consists of 1000 closed membranous disks. What kind of cell is it?
A * Rod visual cell
B Neuron of anterior horns of spinal cord
C Neuron of spinal ganglion
D Neuron of cortex of large hemispheres
E Cone visual cell

267. In a patient of 14 years, there is a violation of dusk vision. What vitamin is insufficiently presented in this patient?
A* A
B B1
C B6
268. As a result of trauma of nose of a man of 30 years, a mucosal layer that covers the overhead part of superior shell was damaged. What consequences did it result in?

A * Imperception of odorous matters  
B Violation of moistening of air  
C Violation of secretory activity of goblet cells  
D Violation of warming of air  
E Violation of warming and moistening of air

269. At an inspection, oculist revealed that a patient does not distinguish a dark blue and green color, at normal perception of other color gamut. With a disturbance of what structures of retina it connected with?

A * Cone visual cell  
B Rod visual cell  
C bipolar neurons  
D Amacrine neurons  
E Horizontal neurons

270. At the lack of vitamin of A a man has violation of dusk vision. Indicate cells which the noted photoreceptor function belongs to. A * Rod visual cell  
B Horizontal neurons  
C Cone visual cell  
D Bipolar neurons  
E Ganglion nervous cells

271. Intralobular capillaries of a liver specimen have wide irregular lumen. Basal membrane is absent in the major part of the capillary. What type of capillaries is it?

A * Sinusoid  
B Visceral  
C Somatic  
D Precapillaries  
E Postcapillaries

272. A histological specimen shows a blood vessel. Its inner coat is composed by endothelium, subendothelium and internal elastic membrane. The middle coat is enriched with smooth myocytes. Such morphological characteristics are typical for the following vessel:

A * Muscular-type artery  
B Elastic-type artery

273. Obliterating atherosclerosis causes changes in the vessels of the lower extremities. A histological specimen of such a vessel evidently presents both internal and external elastic membranes, middle membrane contains a lot of myocytes. What vessel is affected in case of this disease?

A * Artery of muscular type  
B Artery of elastic type  
C Artery of mixed type  
D Vein with strongly developed muscles  
E Lymph node

274. A specimen of the pia mater shows a vessel with no middle membrane in its wall, its outer membrane adheres to the surrounding tissues, the inner membrane is made up of the basal membrane and endothelium. Specify this vessel:

A * Fibrous vein  
B Muscular vein with weakly developed muscular elements  
C Muscular artery  
D Arteriola  
E Mixed artery

275. Morphological examination revealed in histological specimen of biopsy material an irregular-shaped vessel. Its middle membrane is formed by bundles of smooth myocytes and layers of connective tissue. What type of vessel is it?

A * Vein of muscular type  
B Artery of muscular type  
C Lymphatic vessel  
D Venule  
E Arteriole

276. Morphological examination revealed in histological specimen of biopsy material an irregular-shaped vessel. Its middle membrane is formed by bundles of smooth myocytes and layers of connective tissue. What type of vessel is it?

A * Vein of muscular type  
B Artery of muscular type  
C Lymphatic vessel  
D Venule  
E Arteriole

277. A specimen of pia mater includes a vessel whose wall doesn’t have the tunica media, the tunica externa is adherent to the surrounding tissues, the intima is composed of a basement membrane and endothelium.
What vessel is it?
A *Nonmuscular vein
B Muscular vein with underdeveloped muscular elements
C Muscular artery
D Arteriole
E Artery of mixed type

278. In the microspecimen of red bone marrow there were revealed multiple capillaries through the walls of which mature blood cells penetrated. What type of capillaries is it?
A *Sinusoidal
B Fenestrational
C Somatical
D Visceral
E Lymphatic

279. A histological specimen shows a blood vessel. Its inner coat is composed by endothelium, subendothelium and internal elastic membrane. The middle coat is enriched with smooth myocytes. Such morphological characteristics are typical for the following vessel:
A *Muscular-type artery
B Elastic-type artery
C Capillary
D Non-muscular vein
E Muscular-type vein

280. A histological specimen of spleen shows a vessel with a wall consisting of endothelium and subendothelial layer, median membrane is absent, exterior membrane inosculates with the layers of spleen connective tissue. What vessel is it?
A *Vein of non-muscular type
B Vein of muscular type
C Artery of muscular type
D Arteriole
E Capillary

281. A histological specimen presents an artery. One of the membranes of its wall has flat cells lying on the basal membrane. What type of cells is it?
A *Endothelium
B Mesothelium
C Smooth myocytes
D Fibroblasts
E Macrophages

282. In specimen of a tubular organ, stained with orcein, it is discovered about 50 thick membranes which have a wave form and makes the base of the middle layer of this organ. Which organ is this?
A *Aorta
B Artery of muscular type
C Esophagus
D Trachea
E Wall of heart

283. In the maternity department, doctors were not able to notice the first breathing in a newborn. By performing medical analysis it was stated that the reason of death is that aeriferous ways are free, but lungs did not recoil. What is the most reliable reason of unviolence of lungs in this case?
A *Absence of surfactant
B Spasm of bronchi
C Rupture of bronchi
D Bulge of pleura
E Enlargement of alveoles.

284. On microscopic specimen is presented an organ of the circulatory system. One of its envelopes is built from fibers which anastomose one with another. These fibers are made up of cells which are united one with another with the intercalated disks. What it is an organ?
A *Heart
B Vein of muscular type
C Artery of muscular type
D Artery of elastic type
E Arteriole

285. On a histological specimen, stained with orcein, on the middle envelope of vessel it was discovered 40 to 60 elastic membranes. Name this vessel.
A *Artery of elastic type
B Artery of muscular type
C Artery of the mixed type
D Vein of muscular type
E Vein of non-muscular type

286. On a histological specimen, it is observed a vessel, the wall of which consists of endothelium, basal membrane and loose connective tissue. Name the type of vessel?
A *Artery of elastic type
B Artery of muscular type
C Artery of the mixed type
D Vein of muscular type
E Vein of non-muscular type

287. On histological specimen a blood vessel is observed. An internal envelope consists of endothelium, subendothelia and internal elastic membrane. The middle envelope enriched by smooth muscle cells. Indicate the vessel
A *Arteries of muscular type
B Arteries of elastic type
C Capillary
D Veins of non-muscular type
E Veins of muscular type

288. Vessels, which begin blindly, have been observed in histological specimen. They have the appearance of flattened endothelial tubes, which does not contain a basal membrane and pericytes, the endothelia of these vessels is fixed by strop filaments to the collagen fibers of connective tissue. What is it vessels?
A *Lymphoid capillares
B Hemocapillary
C Arterioles
D Venules
E Arterio-venous anastomoses

289. On histological specimen a blood vessel is presented. An internal envelope consists of endothelia, subendothelia and internal elastic membrane. Smooth muscle cells predominate in a middle envelope. An external envelope consists of loose connective tissue. Indicate the vessel.
A *Artery of muscular type
B Arteries of elastic type
C Arteries of mixed type
D Veins of muscular type
E Veins of non-muscular type

290. On specimen a blood vessel is presented. An internal envelope is presented by endothelium and subendothelium, middle envelope - by the bundles of smooth muscle cells, layers loose connective tissue. An external envelope is strongly developed and formed by envelope and separate smooth muscle cells. What vessel does have this morphological description?
A *Veins of muscular type
B Artery of muscular type
C Vein of non-muscular of type
D Artery of the mixed type
E Veins of non-muscular type

291. On specimen in one of vessels of the microcirculatory bed, the middle envelope is formed by 1-2 layers of smooth muscle cells, which are located alone and have a spiral direction. An external envelope is represented by a thin layer of loose connective tissue. Indicate the type of vessel.
A *Arteriole
B Venule
C Capillary
D Postcapillary venule
E Arterio-venous anastomoses

292. On a histological specimen of the spleen was found a vessel the wall of which consists of endothelium and a subendothelial layer, a middle envelope is absent and the external envelope is tightly adjacent to the connective tissue layers of the spleen. What vessel is it?
A *A vein of non-muscular type
B A vein of muscular type
C An artery of muscular type
D Arteriole
E Capillary

293. There are a lot of morphological differences in the middle envelope of the walls of blood vessels. What is the reason for these differences?
A.*Hemodynamic conditions.
B. Influence of organs of the endocrine system.
C. Regulation by central nervous system.
D. Inductive influence of neurons of vegetative ganglion.
E. High concentration of catecholamines in blood.

294. On a histologic specimen an artery is observed. In one of the envelopes of its wall, flat cells which lie on a basal membrane are seen. Name this type of cells.
A *Endothelium
B Mesothelium
C Smooth muscle cells
D Fibroblasts
E Macrophages

295. An artery of large caliber expands during a systolic stretch and returns to the original state during diastole, provides stability of blood stream. By the presence of what elements of wall of vessel can it be explained?
A *Elastic fibers
B Muscular fibers
C Reticular fibers
D Collagen fibers
E By plenty of fibroblasts

296. A patient suffered myocardial infarction for some time, after which the morphological integrity of the heart wall was restored. What tissue is necessary for the regeneration?
A*Connective
B Smooth muscle
C Striated muscular
D Epithelial
E Nervous

297. A patient with Itsenko-Cushing syndrome has persistent hyperglycemia and glycosuria, hypertension, osteoporosis, obesity. Increased synthesis and hypersecretion of the following hormone will be

Endocrine system.
observed in this case:
A  *Cortisol*
B  Adrenaline
C  Glucagon
D  Thyroxin
E  Aldosterone

298. A 5-month-old boy was hospitalized for tonic convulsions. He has a life-time history of this disease. Examination revealed coarse hair, thinned and fragile nails, pale and dry skin. In blood: calcium - 1,5 millimole/l, phosphor - 1,9 millimole/l. These changes are associated with:
A  *Hypoparathyroidism*
B  Hyperparathyroidism
C  Hyperaldosteronism
D  Hypoaldosteronism
E  Hypothyroidism

299. Examination of a microspecimen made of an unknown organ revealed some acini that contained 10-15 cone cells with basophilic cytoplasm, round nucleus and well developed granular endoplasmic reticulum. An acinus is surrounded by a basal membrane with myoepithelial cells localized in its splitting. What organ is the slice made of?
A  *Parotid gland*
B  Pancreas
C  Lungs
D  Sublingual gland
E  Liver

300. Microscopic examination of a parenchymatous organ revealed that its epithelial cords formed glomerular, fascicular and reticular zones. The central part of the organ was presented by accumulations of chromaffin cells. Specify this organ:
A  *Adrenal gland*
B  Thyroid gland
C  Epiphysis
D  Liver
E  Hypophysis

301. A 40 year old female patient has enlarged thyroid gland. On palpation the gland is dense, its surface is slightly tuberous. Histological examination of gland sample revealed diffuse infiltration of tissue by the cells, formation of lymphoid follicles. What disease is it?
A  *Autoimmune thyroiditis*
B  Endemic goiter
C  Sporadic goiter
D  Diffuse toxic goiter
E  Riedel's disease

302. After a surgical procedure an experimental animal died from intense convulsions. What endocrinal glands were extracted?
A  *Parathyroid*
B  Thyroid
C  Adrenal
D  Ovaries
E  Testicles

303. Clinical examination of a female patient revealed reduction of basal metabolism by 40%, gain in body mass, drop of body temperature, face puffiness, sexual dysfunctions, inertness and apathy, lowered intelligence. These symptoms are caused by dysfunction of the following endocrine gland:
A  *Hypofunction of thyroid gland*
B  Hypofunction of parathyroid glands
C  Hypophys hyperfunction
D  Epiphysis hypofunction
E  Hyperfunction of thyroid gland

304. A 37 year old patient complains about permanent thirst, poor appetite. He drinks 9 l water per day. Daily diuresis is increased, urine is colourless, its relative density is 1,005. The most probable cause of this pathology development is damage of:
A  *Hypothalamic nuclei*
B  Epithelium of renal tubuli
C  Adenohypophysis
D  Epiphysis
E  Basal membrane of glomerular capillaries

305. A patient ill with adenoma of glomerular zone of adrenal cortex (Conn's disease) has arterial hypertension, convulsions, polyuria. What is the main factor in the pathogenesis of these disturbances?
A  *Aldosterone hypersecretion*
B  Aldosterone hyposecretion
C  Catecholamines hypersecretion
D  Glycocorticoids hypersecretion
E  Glycocorticoids hyposecretion

306. A patient has been given high doses of hydrocortisone for a long time. This caused atrophy of one of the adrenal cortex zones. Which zone is it?
A  *Fascial*
B  Glomerular
C  Reticular
D  Glomerular and reticular
E  

307. Parodontitis is treated with calcium preparations and a hormone that stimulates tooth mineralization and inhibits tissue resorption. What hormone is it?
A *Calcitonin  
B Parathormone  
C Adrenalin  
D Aldosterone  
E Thyroxine  

308. A 9 y.o. boy was admitted to the endocrinological department. This boy has already had several fractures of his extremities due to bone brittleness. The function of the following endocrinal glands (gland) is disturbed:  
A *Parathyroid  
B Thyroid  
C Thymus  
D Adrenal  
E Epiphysis  

309. Kidneys of a man under examination show increased resorption of calcium ions and decreased resorption of phosphate ions. What hormone causes this phenomenon?  
A *Parathormone  
B Thyrocalcitonin  
C Hormonal form D₃  
D Aldosterone  
E Vasopressin  

310. Roentgenological examination of skull base bones revealed enlargement of sellar cavity, thinning of anterior clinoid processes, destruction of different parts, destruction of different parts of sella turcica. Such bone destruction might be caused by a tumour of the following endocrinous gland:  
A *Hypophysis  
B Epiphysis  
C Thymus gland  
D Adrenal glands  
E Thyroid gland  

311. An endocrine gland with parenchyma consisting of epithelium and neural tissue is under morphological examination. Epithelial trabecules have two types of cells: chromophilic and chromophobic. Identify this organ:  
A *Hypophysis  
B Adrenal glands  
C Hypothalamus  
D Thyroid gland  
E Parathyroid gland  

312. For morphological research an endocrine gland is presented. The parenchyma of this gland consists of epithelium and nervous tissue. In epithelial trabecules it appears 2 types of cells: chromophilic and chromophobic. Define this organ.  
A *Hypophysis  
B Adrenal gland  
C Hypothalamus  
D Thyroid  
E Parathyroid gland  

313. During births a woman had weak contraction of myocytes of uterus. To insufficiency of what hormone of hypothalamus is it possible to explain this state?  
A *Oxytocin  
B Foliliberin  
C Prolaktoliberin  
D Somatoliberin  
E Vasopressin  

314. On a histological specimen of the parenchymal organ. It has a structural and functional unit of which is a follicle. The wall of follicle is formed by the cells of cuboidal shape; the cavity of follicle is filled with colloid. What organ is presented on specimen?  
A *Thyroid gland  
B Salivary gland  
C Hypophysis  
D Ovary  
E Testis  

315. A woman during births had a weak contractile activity of uterus. What hormone of hypothalamus can increase contractile activity of uterus in this situation?  
A *Oxytocin  
B Vasopressin  
C Liberin  
D Statin  
E Antidiuretic hormone  

316. At an experiment the axons of neurosecretory cells of supraoptic nuclei of hypothalamus were cut. The accumulation of what hormone in a hypophysis will be broken?  
A *Vasopressin  
B Somatotropic  
C Prolactotropic  
D Adrenocorticotropic  
E Lipotropic  

317. The high doses of hydrocortisone were used for a long time by the patient, as a result of this, atrophy of one of areas of adrenal glands cortex occurred. What area is it?  
A *Fasiculata  
B Glomerulosa  
C Reticularis  
D Glomerulosa and reticularis
318. At a patient of 30 years the hyperfunction of thyroid gland was revealed. What shape does thyrocytes of follicles have?
A * Prismatic
B Poligonal
C Flat
D Fusiform
E Cuboidal

319. At a patient of 42 after the operation of resection of thyroid gland, cramps appeared. A facilitation came at infusion of calcium. Dysfunction of what glands does cause this state?
A *Parathyroid glands
B Adrenal glands
C Ovaries
D Hypophysis
E Epiphysis

320. On the specimen of one of endocrine glands the rounded structures of different sizes are seen, the wall of which is formed by one layer of epithelial cells on basal membrane. Inwardly these structures contain homogeneous noncellular mass. What gland is it?
A * Thyroid gland
B Adrenal gland
C Parathyroid gland
D Anterior hypophysis
E Posterior hypophysis

321. It is known that aldosteron regulates maintenance of sodium in an organism. What cells of adrenal gland does produce this hormone?
A *Cells of glomerular zona
B Epinephrocytes
C Cells of the reticular zone
D Cells of fascicular zone
E Norepinephrocytes

322. Patient of 40 years was investigated by endocrinologist. Patient suffers from insufficiency of adrenal gland, which realizes in decrease of aldosteron in blood. The function of what cells of adrenal gland cortex is broken?
A * Cells of glomerular zona
B Cells of fascicular zone
C Cells of the reticular zone
D Cells of sudanophobic area
E Cells of X-zone

323. Parenchymal organ is presented in histological specimen; superficial layer of cortex is presented by glomeruli, which are composed of endocrinocytes. To what organ does this morphological specimen belong?
A * Adrenal gland
B Lymphatic node
C Spleen
D Thyroid
E Ovary

324. The parenchyma of adenohypophysis is presented by trabecules, formed by glandular cells. Among adenocyes there are cells with granules, which are stained with basic dyes and contain glycoproteins. What cells is it?
A *Gonadotropocytes, thyrotropocytes
B Somatotropocytes
C Melanotropocytes
D Mamotropocytes
E Chromophobic

325. In the wall of follicles and in the interfollicle layers of connective tissue on territory of thyroid gland large endocrinocytes are situated, secretory granules of which are osmio- and argyrophilic. Name these cells. A *Calcitoninocytes
B Thyrocytes
C Parathyrocytes
D Pinealocytes
E Pituicytes

326. At X-ray examination of bones of the base of skull it was revealed enlargement of cavity of Sella turcica ("Turkish saddle"), thinning of anterior inclined projection, destruction of different parts of Sella turcica. Tumor of what endocrine gland could lead to such destruction of bones?
A * Hypophysis
B Epiphysis
C Thymus
D Adrenal gland
E Thyroid gland

327. A patient has an elevated excretion of urine during the day. Due to the lack of secretion of what hormone of hypothalamus is it possible to explain this phenomenon?
A * Vasopressin
B Oxytocin
C Liberin
D Statin
E Thyroid

328. From the ectodermal epithelium of lining of overhead part of mouth fossula of embryo of man the pocket of Rathke is formed, which is directed to the
basis of future cerebrum. What does develop from this embryonic bud?
A *Adenohypophysis
B Neurohypophysis
C Eminentia medialis
D Hypophyseal stalk
E Anterior hypothalamus

Skin.

329. Histological study of a microslide of human skin found only dense irregular connective tissue. Which layer of this organ was analysed?
A *Reticular dermis
B Papillary dermis
C Subcutaneous adipose tissue
D Epidermis
E Basal layer of epidermis

330. A patient complains of dryness of head skin, itching, fragility and loss of hair. After examination he was diagnosed with seborrhea. Disturbed activity of which cells caused this condition?
A *Cells of sebaceous glands
B Cells of sudoriferous glands
C Epithelial cells
D Adipocytes
E Melanocytes

331. A scheme presents an exocrine gland that has unbranched excretory duct with a terminal part in form of a saccule opening into the duct. How is this gland called according to the morphological classification of exocrine glands?
A *Simple unbranched alveolar
B Compound branched alveolar
C Simple branched tubular
D Compound unbranched alveolar
E Compound unbranched alveolar tubular

332. Study of fingerprints (dactylography) is used by criminalists for personal identification as well as for diagnostics of genetic abnormalities, particularly Dawn's disease. What layer of skin determines individuality of fingerprints?
A *Papillary
B Horny
C Reticular
D Translucent
E Basal

333. The study of imprints of epidermis of fingers of hands (dactylography) is used by criminal lawyers for identification of a person, and also for diagnostics of genetic anomalies, in particular Down syndrome. What layer of skin determines the individuality of imprints?
A *Papillary
B Horny
C Reticular
D Translucent
E Basal

334. At an embryo the processes of segmentation of dorsal mesoderm and formation of somites were broken. In what part of skin violations of development are possible?
A *Derma
B Hair
C Sebaceous
D Epidermis
E Sweat glands

335. In a biopsy material of the skin, in the epidermis were revealed cells with sprouts with granules of brown color in cytoplasm. What kind of cell is it?
A *Melanocytes
B Intraepidermal macrophages
C Keratinocytes
D Merkel cells
E Lymphocytes

336. The cells of basal layer of epidermis suffered under influence of radiation. What function of epidermis will attenuate or upset foremost?
A *Regenerative
B Protective
C Barrier
D Absorption
E Dielectric

337. The terminal portions of apocrine sweat-glands are contained by myoepithelial cells. What is the function of these cells?
A *Contractile
B Secretory
C Protective
D Regeneration
E Supporting

338. A patient complains of a dryness of skin of head, itch, fragility and fall of hair. At an inspection the set diagnosis: Seborrheic dermatitis. With violation of activity of what cells is it connected?
A *Cells of sebaceous gland
B Cells of sweat glands
C Epitheliocytes
D Adipocytes
E Melanocytes

339. At the patient of 30 years the malignant tumor of skin was found out. What cells of epidermis do take part in an immune response?
A * T-lymphocytes
B Keratinocytes
C Keratinocytes and Merkel cells
D Merkel cells
E Cells of spinous layer

340. The trauma of skin happened with the damage of layer of derma. Due to activity of what cells will the regeneration of this layer happen?
A * Fibroblasts
B Macrophages
C Lymphoblasts
D Tissue basophils (mast cells)
E Plasmocytes

341. The method of dactylography, which is widely used in medico-legal examination based on that the nipple layer of derma determines strictly an individual picture of the surface of skin. What tissue does form this layer of derma?
A * Loose connective tissue
B Dense regular connective tissue
C Dense irregular connective tissue
D Reticular tissue
E Adipose tissue

342. On a histological specimen an organ of the stratified type structure, covered by a multi-layered flattened keratinized epithelium is presented. Under the basal membrane of the epithelium there is loose connective tissue which forms papillae. Located below is the dense irregular connective tissue which forms the reticular layer. What organ has this morphological signs?
A * Skin
B Neck of uterus
C Tonsils
D Tong
E Esophagus

343. At the man of 53 it was revealed a malignant tumor of the pericardium. Which type of epithelium is the source of this tumor?
A * Simple squamous
B Simple pseudostratified ciliary
C Transitional
D Stratified keratinized
E Stratified non-keratinized

344. On a histological specimen is a biopsy material of the epidermis of the skin. The skin is that of a healthy adult man. In a basal layer it was evidenced cells which were dividing. What process do these cells provide?
A * Physiological regeneration
B Differentiation
C Adaptation
D Reparative regeneration
E Apoptosis

345. On a limited area of epidermis as a result of trauma all layers up to a growth are absent. What is the name of cells which will provide the regeneration?
A * Basal cells
B Spinous cells
C Granular cells
D Spinous and granular cells of the neighboring region
E Cells of transparent layer of the neighboring region

346. During an experiment, the tight junctions between epitheliocytes were destroyed. What function of epithelium will suffer?
A * Mechanical
B Absorptive
C Vitamin D-producing
D Secretory
E Excretory

347. With age, skin wrinkles and folds appear. Changes in what structures of the skin mainly cause this state?
A * Elastic fibers
B Collagen fibers
C Epidermis
D Ground substance
E Hypoderm

348. At an experiment on the embryo of a frog, the external embryonic layer—ectoderm was destroyed. What morphological structure of this embryo will not develop in future?
A * Epidermis.
B Somites
C Nephrotome
D Splanchnotome
E Bone tissue

349. A microspecimen of parotid gland presents secretory acines with serous cells that synthesize mostly enzymes. According to the chemical composition classification, the parotid gland relates to the following glands:

**Digestive system.**
A *Serous
B Mucous
C Seromucous
D Enzymatic
E -

350. A patient was delivered to a hospital after having been exposed to ionizing radiation. He presents with vomiting, anorexia, pain in different region of abdomen, bloody feces, elevation of body temperature, inertness. Such clinical presentations are typical for the following form of acute radiation disease:
A *Intestinal
B Bone-marrow
C Cerebral
D Combined
E Toxemic

351. Examination of a patient, suffering from atrophic gastritis, revealed megaloblastic anemia. The anemia is likely to be caused by the deficiency of the following substance:
A *Gastromucoproteid
B Vitamin B₆
C Vitamin B₁
D Iron
E Erythropoietins

352. It was revealed that a patient with coagulation failure has thrombosis of a branch of inferior mesenteric artery. What bowel segment is affected?
A *Colon sigmoideum
B Ileum
C Caecum
D Colon transversum
E Colon ascendens

353. A child damaged the lateral surface of his tongue. What lingual papillas are most likely to be damaged?
A *Foliate
B Conic
C Vallate
D Filiform
E Fungiform

354. A histological specimen of an oral cavity organ demonstrates that the organ's anterior surface is lined with multilayer squamous nonkeratinous epithelium, and its posterior surface - with multiserial ciliated epithelium. What organ is it?
A *Soft palate
B Gingiva
C Hard palate
D Lip
E Cheek

355. The effect of some harmful factors caused focal damage to the gastric epithelium. What cells are responsible for its regeneration?
A Cervical mucocytes of glands
B Parietal exocrinocytes of glands
C Principal exocrinocytes of glands
D Endocrinocytes
E Mucocytes of the gland body

356. A patient underwent gastroscopy that revealed insufficient amount of mucus covering the mucous membrane. This phenomenon is caused by the dysfunction of the following cells of stomach wall:
A *Cells of prismatic glandular epithelium
B Parietal cells of gastric glands
C Principal exocrinocytes of gastric glands
D Cervical cells of gastric glands
E Endocrinocytes

357. Proliferation of connective tissue in the parenchyma of liver (fibrosis) caused by chronic diseases is typically accompanied by an impairment of blood circulation in the classic lobules. What is the direction of blood flow in these lobules?
A From the periphery to the center
B From the center to the periphery
C Around the lobule
D From the top to the base
E From the base to the top

358. A histological specimen represents a structure of the oral cavity, which is formed by bone tissue. It is covered by mucous membrane consisting of keratinizing stratified squamous epithelium. The structure has fatty, glandular and marginal zone. In all parts of the lamina propria the collagen fibers form thick bundles that penetrate deep into the periosteum. What kind of structure is it?
A Hard palate
B Gingiva
C Lip
D Cheek
E Tongue

359. A histological specimen presents a developed tooth that has a coating resistant to acids, but it can be found only on the lateral surfaces of the tooth. What coating is meant?
A *Cuticle
B Dentine
C Enamel pellicle
D Enamel
E Cement
360. Histological study of an extirpated pulp revealed some cylindrical cells in its peripheral layer. What are these cells called?
A *Odontoblasts
B Fibroblasts
C Monocytes
D Ameloblasts
E Myofibroblasts

361. Study of the histological specimen of a baby's primary tooth revealed hypoplasia (underdevelopment) of enamel. This abnormality is caused by the disruptions in the activity of the following cells:
A Inner enamel epithelium
B Pulp cells of the enamel organ
C Outer enamel epithelium
D Cells of the stratum intermedium of the enamel organ
E Odontoblasts

362. In the histological specimen of a tooth germ the outer surface of the enamel organ is uneven, the cells of the inner layer show the reversal of polarity (inversion). These changes precede the beginning of the following process:
A Amelogenesis
B Dentinogenesis
C Pulp genesis
D Cementogenesis
E Periodont development

363. A histological specimen presenting a tooth slice shows that the intercellular dentin substance contains collagen fibers being tangential to the dentinoenamel junction and perpendicular to the dentinal tubules (Ebner's fibers). This dentin layer is called:
A *Parapulpar dentin
B Mantle dentin
C Granular layer
D Interglobular dentin
E Secondary dentin

364. Histological examination of trasverse enamel slice revealed linear banding in form of concentric circles that is pointing at an angle to the dentinoenamel junction. Name these structures:
A *Retsius' lines
B Hunter-Schreger's lines
C Enamel plates
D Enamel fascicles
E Enamel spindles

365. During the embryogenesis of oral cavity the development of dental enamel was disturbed. What source of dental development was damaged?
A *Epithelium
B Mesenchyma
C Mesoderma
D Dental sacculae
E Dental papilla

366. A histological specimen of an oral cavity organ demonstrates that the organ's anterior surface is lined with multilayer squamous nonkeratinous epithelium, and its posterior surface with multiserial ciliated epithelium. What organ is it?
A *Soft palate
B Gingiva
C Hard palate
D Lip
E Cheek

367. In course of embryogenesis maxillary and mandibular processes grew together with a delay. What development anomalies should be expected in this case?
A *Macrostomia
B Microstomia
C Cleft palate
D Gothic palate
E Cleft of superior lip

368. It was revealed that a 42 y.o. patient suffering from paradontosis had roundish calcified formations 2-3 mm in diameter in the coronal pulp. Name these structures:
A *Denticles
B Interglobular spaces
C Sclerotic dentin
D Dead dentin
E Intertubular dentin

369. Examination of a tooth slice of a 42 y.o. man revealed on the dentinal-enamel border some solid linear fusiform structures as long as 1/3 of enamel depth. What structures were revealed?
A *Enamel spindles
B Denticles
C Enamel fascicles
D "Dead" tracts
E Carious damage

370. Examination of a 42-year-old patient suffering from paradontosis revealed some roundish calcified formations 2-3 mm in diameter in the coronal pulp. Name these structures:
A *Denticles
B Interglobular dentin
C Interglobular spaces
D Sclerotic dentin
E Dead dentin

371. A 35-year-old patient consulted a dentist about low
density of dental tissues, increased fragility of teeth on eating solid food. In order to determine Ca/P relation a scrape of enamel was sent to the laboratory. What value of this index is suggestive of intensified demineralization?
A *0.9  
B 1.67  
C 1.85  
D 2.5  
E 1.5

372. During histological examination of the stomach it was found out that glands contain very small amount of pariental cells or they are totally absent. Mucose membrane of what part of the stomach was studied?
A *Pyloric part  
B Fundus of stomach  
C Cardiak part  
D Body of stomach  
E -

373. When the pH level of the stomach lumen decreases to less than 3, the antrum of the stomach releases peptide that acts in paracrine fashion to inhibit gastrin release. This peptide is:
A *GIF  
B Acetylcholine  
C Gastrin-releasing peptide (GRP)  
D Somatostatin  
E Vasooactive intestinal peptide (VIP)

374. Examination of a 43 y.o. patient revealed that his stomach has difficulties with digestion of protein food. Gastric juice analysis revealed low acidity. Function of which gastric cells is disturbed in this case?
A *Parietal exocrinocytes  
B Chief exocrinocytes  
C Endocrinocytes  
D Cervical cells  
E Accessory cells

375. A 2-year-old child has got intestinal dysbacteriosis, which results in hemorrhagic syndrome. What is the most likely cause of hemorrhage of the child?
A *Vitamin K insufficiency  
B Activation of tissue thromboplastin  
C PP hypovitaminosis  
D Fibrinogen deficiency  
E Hypocalcemia

376. A viral infection has damaged cells that form walls of bile capillaries. This stimulated conditions for inflow of bile into the blood of sinusoidal capillaries. What cells are damaged?
A *Hepatocytes  
B Kupffer's cells  
C Ito cells  
D Pit-cells  
E Endotheliocytes

377. A patient ill with chronic gastritis went for endogastric pH-metry that allowed to reveal decreased acidity of gastric juice. It is indicative of diminished function of the following cells:
A *Parietal exocrinocytes  
B Chief exocrinocytes  
C Endocrinocytes  
D Cervical cells  
E Accessory cells

378. On an histological specimen, a transverse section through the wall of hollow organ, the mucus envelope of which is covered by stratified squamous non-keratinized epithelium is seen. What organ is it?
A *Esophagus  
B Duodenum  
C Colon  
D Uterus  
E Appendix

379. After a gastrectomy, malignant anemia had developed at a patient. Absence of what cells of stomach glands does cause this pathology?
A *Parietal  
B Chief  
C Neck mucocytes  
D Endocrinocytes  
E Goblet cells

380. On histological specimen the submucosa of small intestine is filled with terminal secretory portion of glands. What part of intestine is presented on specimen?
A *Duodenum  
B Colon  
C Jejunum  
D Ileum  
E Appendix

381. On histological specimen of wall of small intestine on the bottom of crypt it was found groups of cells in apical part of which there are large acidophilic secretory granules; a cytoplasm is stained basophilic. What cells is it?
A *Paneth cells  
B Cells without microvilli  
C Endocrine cells  
D Goblet cells
382. In a 1 year old child, a violation of curdling of maternal milk is observed. What cells of stomach glands has its activity violated?
A *Chief exocrinocytes
B Parietal exocrinocytes
C Neck mucocytes
D Additional mucocytes
E Exocrinocytes

383. Under influence of harmful factors, there was local damage of the stomach’s epithelium. Due to activity of what cells did the regeneration occur?
A * Neck mucocytes
B Parietal exocrinocytes
C Chief exocrinocytes
D Endocrinocytes
E Mucocytes of glands body

384. At endoscopic research of stomach it was observed damage of epithelial lining of mucus layer. Due to activity of what cells is reparative regeneration possible…or what do you think would cause the repairs of this damaged layer?
A *Undifferentiated neck mucocytes
B Additional mucocytes
C Chief exocrinocytes
D Parietal exocrinocytes
E Covering glandular epithelium

385. To the patient with chronic gastritis, the pH measurement was done. A decreased acidity of gastric juice was revealed. Function of which cells was diminished?
A * Parietal exocrinocytes
B Chief exocrinocytes
C Endocrinocytes
D Neck mucocytes
E Additional cells

386. On an electronic photomicrograph of the fragment of stomach gland the large cell of irregular spherical shape was observed. In it’s cytoplasm there is a high amount of intracellular channels and mitochondria. Define this cell.
A * Parietal
B Chief
C Undifferentiated
D Mucous
E Endocrine

387. At histological investigation of biopsy material of the stomach of a patient, a substantial diminishing or complete absence of parietal cells in glands was seen. The mucus envelope of what part of stomach was investigated?
A * Pyloric
B Fundus
C Cardiac
D Body
E -

388. At an inspection of the patient of 43 it was revealed that in his stomach proteins are badly digested. The analysis of gastric juice found out low acidity. The function of what cells of stomach is broken in this case?
A * Parietal exocrinocytes
B Chief exocrinocytes
C Mucocytes
D Endocrine cells
E Neck mucocytes

389. On the histological specimen of submandibular salivary gland around terminal portions and excretory ducts myoepitheliocytes are observed. What tissue do these cells belong to?
A * Muscular
B Epithelial
C Nervous
D Connective with the special properties
E Loose connective

390. On the histological specimen of fundus of stomach, comparatively large cells with an acidophilic cytoplasm were noticed in its composition. Electron microscopy of these cells shows the presence of complicated system of intracellular channels. What component of gastric juice is produced by these cells?
A * Hydrochloric acid
B Pepsinogen
C Mucus
D Serotonin
E Gastrin

391. Since 14 years the patient has been suffering from diabetes mellitus. What cells of pancreas do not function?
A * B-cells
B A-cells
C D-cells
D D1-cell
E PP-cells

392. At a patient of 39 years after radiotherapy of liver tumor, as a result of decreasing mitotic activity of cells of covering epithelium, an ulcer of small intestine appeared. Name these cells:
A * Columnar cells without microvilli
B Columnar cells with microvilli
393. In histological specimen of organ of oral cavity it was evident, that anterior surface is covered by stratified squamous non-keratinized epithelium, and posterior surface – by a ciliary epithelium. What organ is it?  
A Soft palate  
B Gums  
C Hard palate  
D Lip  
E Cheek

394. At a patient who had acute pancreatitis, analyses were done and it was seen that the excretory acinocytes were damaged. What cells will provide the renewal?  
A Cells of the intercalated ducts  
B Cells of Langerhans islets  
C Cells of intralobular ducts  
D Cells of stroma of gland  
E Endothelium of vessels

395. As a result of viral infection cells of the walls of bilious capillaries were damaged. It created conditions for entering of bile to the blood of sinusoidal capillaries. What cells were damaged?  
A Hepatocytes  
B Kupffer cells  
C Ito cells  
D Pit-cells  
E Endotheliocytes

396. At ultramicroscopical investigation of population of "dark" hepatocytes in the cytoplasm of cells it was noticed the well-developed granular endoplasmic reticulum. What function does this organelle perform in this cells?  
A Synthesis of albumens of blood plasma  
B Synthesis of carbohydrates  
C Desintoxication  
D Production of bile  
E Depositing of calcium ions

397. At histological specimen the parenchyma of organ is presented by lobules, which have a hexagonal prisms and consist of anastomosing plates with sinusoidal capillaries between them. These capillaries radially diverge from central vein. What anatomic organ has such morphological structure?  
A Liver  
B Pancreas  
C Thymus  
D Spleen  
E Lymphatic node

398. In blood of patient, a low level of albumins and fibrinogen was observed. Decline activity of what organelles of hepatocytes did cause this phenomenon?  
A Granular endoplasmic reticulum  
B Agranular endoplasmic reticulum  
C Mitochondria  
D Complex Golgi  
E Lysosomes

399. In the ration of man there is a plenty of carbohydrates. What structures will appear in the cytoplasm of hepatocytes?  
A Glycogen granules  
B Drops of lipid  
C One large fatty droplet  
D Increase of amount of free ribosomes  
E Inclusions of lipofuscin

400. A patient of 55 years, is observed by endocrinologist concerning violation of endocrine functions of pancreas which results in a decrease of the level of hormone glucagon in blood. The function of what cells of this gland is broken in this case?  
A A-cells of Langerhans islets  
B B-cells of Langerhans islets  
C D-cells of Langerhans islets  
D D1-cells of Langerhans islets  
E PP-cells of Langerhans islets

401. During secretory cycle of pancreatic cell in the apical part of it’s cytoplasm granules of secretion appear and disappear. To what structural elements is it possible to include these granules?  
A Inclusions  
B Microphilaments  
C Lysosomes  
D Excretory vacules  
E Granular endoplasmic reticulum

**Respiratory system.**

402. Study of a tubular organ revealed that its median membrane consists of solid hyaline rings. What epithelium lines mucous membrane of this organ?  
A Multinuclear prismatic ciliated  
B Monostral prismatic glandular  
C Monostral prismatic with a border  
D Multistratal squamous nonkeratinizing  
E Monostral cubical

403. A patient was admitted to the hospital with an asphyxia attack provoked by a spasm of smooth muscles of the respiratory tracts. This attack was mainly
caused by alterations in the following parts of the airways:
A *Small bronchi
B Median bronchi
C Large bronchi
D Terminal bronchioles
E Respiratory part

404. A patient with an acute rhinitis has hyperemia and excessive mucus formation in nasal cavity. What epithelial cells of mucous membrane have the intensified activity?
A *Goblet cells
B Ciliated cells
C Microvillous cells
D Basal cells
E Endocrine cells

405. Premature infants have syndrome of respiratory failure. Failure of what aerohematic barrier component underlies this pathology?
A *Surfactant
B Capillary endothelium
C Basal membrane of endothelium
D Basal membrane of alveolocytes
E Alveolocytes

406. Alveolar space of the acinus was invaded by some bacteria which interacted with the surfactant. This led to the activation of the cells that are localized in the alveolar walls and on the surface. What cells are these?
A *Alveolar macrophages
B Alveolocytes type I
C Endothelial cells
D Clara cells
E Alveolocytes type II

407. Lung of premature infant is presented on electronic photomicrography of biopsy material. Collapse of the alveolar wall caused by the deficiency of surfactant was revealed. Disfunction of what cells of the alveolar wall caused it?
A *Alveocytes type II
B Alveocytes type I
C Alveolar macrophages
D Secretory cells
E Fibroblasts

408. A patient was admitted to the hospital with an asphyxia attack provoked by a spasm of smooth muscles of the respiratory tracts. This attack was mainly caused by alterations in the following parts of the airways:
A *Small bronchi
B Median bronchi
C Large bronchi
D Terminal bronchioles
E Respiratory part

409. A patient with thrombophlebitis of lower extremities had got chest pains, blood spitting, growing respiratory failure that caused his death. Autopsy revealed multiple pulmonary infarctions. What is the most probable reason of their development?
A *Pulmonary artery embolism
B Pulmonary artery thrombosis
C Bronchial artery thrombosis
D Bronchial artery embolism
E Pulmonary venous thrombosis

410. Electronic microphotography of pulmonary alveole’s wall presents a big cell. Its cytoplasm has a lot of mitochondria, developed Golgi apparatus, osmiophil lamellated corpuscles. What is the main function of this cell?
A *It produces surfactant
B It is a component of blood-air barrier
C It warms the air
D It purifies the air
E It absorbs microorganisms

411. A pathological process in bronchi resulted in epithelium desquamation. What cells will regenerate bronchial epithelium?
A *Basal
B Intercalary
C Ciliate
D Endocrinal
E Goblet

412. On the electronic photomicrograph of the wall of lung’s alveoli, a large cell is present, in the cytoplasm of this cell there are much mitochondria, well-developed complex Golgi, osmiophil lamellated bodies. What is the basic function of this cell?
A *Production of surfactant
B It is the component of aero-hematic barrier
C Warming the air
D Clearing the air
E Capturing microorganisms

413. On a histological specimen of the lungs, it was noticed that the structure of the wall consists of Simple cuboidal ciliary epithelium. The muscular plate consists of smooth muscle cells and fold mucus is absent. What structure is it?
A *Terminal bronchus
B Small bronchus
C Middle bronchus
D Large bronchus
E Main bronchus

414. On a specimen of one of departments of the respiratory system it was found a tubular organ, in which a low epithelium is determined, a well-developed muscular envelope, glands and cartilage is absent. Name this organ.
A * Small bronchus.
B Trachea
C Larynx
D Large bronchus
E Middle bronchus

415. On a microscopic specimen of the lungs of man ill with the pneumonia (inflammation of lungs tissue), it is noticed that there are damaged cells, which are responsible for a respiratory function. What cells of the alveolar wall are they?
A * Type I alveolocytes
B Type II alveolocytes
C Macrophages
D Clara cells
E Lymphocytes

416. On a specimen a hollow organ is presented. A mucous membrane is covered by two-layered ciliary epithelium which shifts to one-layered. The muscular plate of mucus envelope is well developed in relation to the thickness of all other parts of entire wall, also cartilage and glands are absent. What organ is presented in specimen?
A * Small bronchus
B Middle bronchus
C Trachea
D Larynx
E Urinary bladder

417. A patient was hospitalized with the attack of suffocation (difficulty in breathing), caused by spasm of smooth muscles of the respiratory tract. Name the departments of auriferous ways, which this attack is connected with?
A * Small-caliber bronchi
B Middle-caliber bronchi
C Large-caliber bronchi
D Terminal bronchioles
E Respiratory department

418. At the autopsy of a dead man of 65 years, who suffered the disease of lungs, a pathological process was seen, mainly localized in the bronchi. The glands, cartilaginous islands and pseudostratified ciliary epithelium were expressly visible at histological research. Name these bronchi? A * Middle bronchus
B Main bronchial tubes
C Large bronchus
D Small bronchus
E Terminal bronchioles

419. On an electronic photomicrograph of the cells of alveoli, cells that take part in the formation of aerohematonic barrier are seen. Which cells are these?
A * Type I alveolocyte
B Type II alveolocyte
C Alveolar macrophages
D Clara cells
E Epitheliocytes with microvilli

420. At the worker of chemical manufacture after inspiration of a caustic pair death of part of ciliary epitheliocytes of bronchi was observed. What cells will take place in regeneration of this epithelium?
A *Basal cells
B Goblet cells
C Endocrine cells
D Ciliary cells
E Cells without cilia

421. On an electronic photomicrograph, it is observed structures, presented as opened sacs, lined from the internal surface with simple epithelium, which consists of respiratory and secretory cells. Which structures are these?
A *Alveoli
B Bronchioles
C Acini
D Small bronchus
E Terminal bronchioles

422. In the epithelium of auriferous ways there are cells with a dome-shaped apical part on their surface of which microvilli are situated. In this cell it is also observed well developed synthetic apparatus, and in the apical part secretory granules. Name this cell.
A * Clara cells
B Goblet cells
C Endocrine
D A cell is without microvilli
E Cambial cell

423. The syndrome of respiratory insufficiency develops at prematurely born children. Insufficiency of which component of the aero-hematic barrier causes this pathology? A * Surfactant
B Endothelium of capillaries
C Basal membrane of endothelium
D Basal membrane of alveolocytes
E Alveolocytes

424. On a histological specimen of trachea a pseudostratified ciliary epithelium is observed with comparatively low cells of oval or three-cornered form. They do not have the apical surface of epithelium. In several cells the process of mitosis is visible. What is the function of these cells? A *Regeneration
B Represent a part of mucociliary complex C Secrete mucus
D Secrete a surfactant
E Secrete biologically active substances

425. As a result of pathological process there is a desquamation in the bronchial epithelium. What cells could cause regeneration?
A *Basal
B Inserted
C Ciliary
D Endocrine
E Goblet

426. In a child of two years the evacuation of mucus from bronchi is disturbed. With violation of functions of which organelles of the cells of the bronchial epithelium can it be connected with?
A *Cilia
B Mitochondria
C Cytoplasmic reticulum
D Microvilli
E Lysosomes

427. As a result of trauma of a man’s nose of 32 years of age. The mucus layer of superior nasal concha was damaged. What consequences did it result in?
A *Violation of smell sensation
B Insufficient warming of air
C Insufficient moistening of air
D Insufficient warming and moistening of air
E Violation of cleaning of air

**Urinary system.**

428. Examination of mountain climbers who have spent a long time in a high-altitude region revealed increase of erythrocyte number (over 610^12/l) and haemoglobin concentration (over 170 g/l). What mechanism caused this phenomenon?
A *Intensified production of erythropoietin by the kidneys
B Weakening of erythrocyte haemolysis in bloodstream
C Improved ability of tissue for oxygen utilization
D Intensified processes of anoxic energy production
E Weakening of intracellular erythrocyte haemolysis

429. Electron-microscope investigation of cortical substance of a kidney reveals some structures lined with prismatic epithelium that normally has brush border and deep plicae of plasmolemma in its basal part. There is a big number of mitochondrial mitochondria between these plicae. These structures belong to the following part of a nephron:
A *Proximal tubule
B Distal convoluted tubule
C Henle's loop
D Renal corpuscle
E Distal straight tubule

230. A microphotography represents a fragment of cortical substance of a kidney. This fragment contains thick spot cells and juxtaglomerular cells with big secretory granules. What kidney structure is represented?
A *Juxtaglomerular apparatus
B Renal corpuscle
C Filtering barrier
D Prostaglandin apparatus
E Choroid glomus

431. A histological specimen of a kidney shows a part of the distal tubule going between the afferent and efferent arteriole. The cells building the tubule wall have dense nuclei; basal membrane is absent. Such structural formation is called:
A *Macula densa
B Juxtaglomerular cells
C Mesangial cells
D Juxtavascular cells
E -

432. A patient suffering from chronic renal insufficiency has got osteoporosis. Osteoporosis was caused by abnormal synthesis of the following regulator of mineral metabolism in kidneys:
A *1,25(OH)_2D_3 formation
B Proline hydroxylation
C Lysine hydroxylation
D Glutamate carboxylation
E Cortisol hydroxylation

433. In a histological specimen of adrenal cortex there are petite polygonal cells that form roundish clusters and contain some lipidic inclusions. What part of adrenal is presented in this histological specimen?
A *Glomerular zone
B Intermedial zone
C Fasciolar zone
D Reticular zone
E -
434. Electron micrograph of a kidney fragment presents an afferent arteriole with big cells under endothelium. These cells contain secretory granules. Name this type of cells:
A *Juxtaglomerular
B Mesangial
C Smooth muscular
D Juxtavascular
E Interstitial

435. The low specific gravity of the secondary urine (1002) was found out in the sick person. What is the most distant part of nephron where concentration of secondary urine takes place?
A *In the collecting duct
B In the nephron’s glomerulus
C In proximal tubule of nephron
D In ascending part of loop of Henle
E In distal tubule of nephron

436. A patient has been given high doses of hydrocortisone for a long time. This caused atrophy of one of the adrenal cortex zones. Which zone is it?
A *Fascial
B Glomerular
C Reticular
D Glomerular and reticular
E –

437. A histological specimen of a kidney shows a part of the distal tubule going between the afferent and efferent arteriole. The cells building the tubule wall have dense nuclei; basal membrane is absent. Such structural formation is called:
A *Macula densa
B Juxtaglomerular cells
C Mesangial cells
D Juxtavascular cells
E –

438. A histological specimen of kidney shows a structure consisting of a glomerulus of fenestrated capillaries and a bilayer epithelial capsule. Specify this structure:
A *Renal corpuscle
B Proximal tubule
C Distal tubule
D Henle’s loop
E Receiving tube

439. At the electronic microscopy of kidney tubules which were covered by cuboidal epithelium were observed. In an epithelium it could be distinguished light and dark cells. There are little organelles in light cells. A cytoplasmic membrane forms folds. These cells provide the reabsorption of water from primary urine into the blood. Dark cells structurally and functionally resemble parietal cells of the stomach. What tubules are presented on electronogram?
A *Collecting duct
B Proximal convolutes tubules
C Distal convoluted tubules
D Ascending part of loop of Henle
E Descending part of loop of Henle

440. During a clinical inspection at 35-years-old woman with the disease of kidneys in her urine was found blood cells, fibrinogen, that it is certainly related to violation of kidney filter. What structures does this filter consist of?
A *Endothelium of glomerular capillaries, three-layered basal membrane, podocytes
B Three-layered basal membrane
C Endothelium of glomerular capillaries, basal membrane
D Podocytes, basal membrane
E Endothelium, podocytes

441. In an experimental model using a rat it morphological damage of epithelial cells of distal parts of nephron was performed. What functional processes in kidney will suffer?
A *Reabsorption of ions and water
B Reabsorption of glucose
C Reabsorption of sodium and glucose
D Reabsorption of proteins
E Filtration

442. In a patient with suspicion of glomerulonephritis, in the secondary urine it was found the presence of proteins Albumin /albuminuria/ and glucose /glucosuria during two weeks. The function of what part of kidney was broken?
A *Proximal convolutes tubules
B Distal convoluted tubules
C Loop of Henle
D Collecting ducts
E Juxtaglomerular apparatus

443. An important component of kidney filtration barrier is the three-layered basal membrane which has the special reticulated structure of it’s middle electron-dense layer. Where is this basal membrane located?
A *In kidney glomeruli
B In the capillaries of peritubular capillary network
C In the proximal convolutes tubules
D In the loop of Henle
444. During experiment in an animal with the help of narrowing of kidney artery permanent increase of blood pressure was obtained. The function of what cells of kidney does cause this effect?
A * Juxtaglomerular cells
B Podocytes
C Endotheliocytes
D Interstitial cells
E Cells of macula densa (dense spot)

445. In a patient (27 years) at urine analysis it was found remnants of proteins and glucose. What part of nephron is damaged?
A * Proximal convolutes tubules
B Ascending part of loop of Henle
C Descending part of loop of Henle
D Distal convolutes tubules
E Kidney glomerus

446. On histological specimen of kidney cells of distal convoluted tubules which densely adjoin to the kidney glomerus were observed. Their basal membrane is very thin and does not form folds. These cells perceive the changes of sodium concentration in urine and influence on the secretion of rennin by juxtaglomerular cells. What cells are these?
A * Cells of macula densa (dense spot)
B Juxtaglomerular cells
C Mesangial cells
D Podocytes
E Endothelium of glomerular capillaries

447. A patient after exogenous intoxication had a threat of development of ascending infection of urinary tract because of the loss of acidic reaction of urine. What cells were damaged in kidney?
A * Dark cells of collective ducts
B Light cells of collective ducts
C Epitheliocytes of proximal convolutes tubules
D Flat cells of loop of Henle
E Epitheliocytes of distal convoluted tubules

448. On an electron photomicrograph the fragment of kidney afferent arteriole is presented, under the endothelium of this vessel, there are seen large cells with secretory granules. Indicate the name of this cells.
A * Juxtaglomerular cells
B Mesangial cells
C Smooth muscle cells
D Juxtaglomerular cells
E Interstitial

449. As a norm at laboratory investigation of urine blood cells does not appear in it. What structure of nephron prevents passage of formed blood elements into the primary urine?
A *Basal membrane of glomerular capillaries
B Juxtaglomerular cells
C Mesangial cells
D Epithelium of external wall of the capsule of glomerus
E Epithelium of loop of Henle

450. On electron photomicrograph one of the reions of nephron cells of cuboidal shape are determined, the apical surface of this cells contains microvilli, and basal – basal striations with mitochondria, located between invaginations of cytolemma. Indicate the part of the nephron.
A * Proximal convolutes tubules
B Collecting ducts
C Distal convolutes tubules
D Flat cells of loop of Henle
E Capsule of glomerus

451. At histological investigation of kidney in its cortex a tubule, which is lined by simple squamous epithelium with microvilli was observed. Its cytoplasm was stained basophilic. Indicate, what segment of nephron was observed on the specimen.
A * Proximal convolutes tubules
B Collecting ducts
C Distal convolutes tubules
D Distal straight tubules
E Loop of Henle

452. On the electronic photomicrograph of fragment of kidney glomerus a large epithelial cell with large and small processes. These processes anchor to the basal membrane of capillaries. Indicate this cell:
A *Podocyte
B Juxtavascular cell
C Smooth muscle cell
D Endotheliocyte
E Mesangial cells

453. In histological specimen of kidney the part of distal convoluted tubule, which is situated between afferent and efferent arteriole is seen. In the cells which represent the wall a tubule, the nucleus are dark, a basal membrane is absent. What is the name of such structural composition?
A *Dense spot
B Endotheliocytes
C Mesangial cells
D Juxtaglomerular cells
E Juxtaglomerular cells
Male reproductive system.

454. A male patient underwent an operation on account of inguinal hernia. During the operation a surgeon damaged content of the inguinal canal. What structure was damaged?
A *Funiculus spermaticus  
B Urarchus  
C Lig. teres uteri  
D Lig. inguinale  
E -

455. The structure of seminiferous tubules was damaged as a result of mechanical trauma of the testis. Define the result of this pathology.
A *Aspermatogenesis.  
B Polyspermy.  
C Spermatogenesis will not change.  
D Monospermy.  
E Synthesis of testosterone will decrease.

456. Large columnar epithelial cells of seminiferous tubule are seen in histologic specimen of testis. Their basis rest upon basal membrane and apical pole extend in lumen of the tubule. Name these cells.
A *Sustentocytes.  
B Leydig cells.  
C Spermatogonium.  
D Spermatidys  
E Spermatozoa.

457. Numerous seminiferous tubules are seen in histologic specimen. The aggregation of the polygonal shape cells with big amount of lipid inclusions are situated between tubules in loose connective tissue. Name these cells.
A Sustentocytes.  
B *Glandulocytes.  
C Decidual cells.  
D Follicular cells.  
E Sertoli cells.

458. The transverse section of tubules of the male reproductive system are seen in histologic specimen. The groups of high ciliated cells and low cuboidal cells are situated in tubular epithelium. Define the part of the male reproductive system.
A Seminiferous tubules.  
B Straight tubules.  
C Ductus deferens.  
D Ejaculatory duct.  
E *Ductus epididymis.

459. Endocrine examination has shown that level of testosterone in blood plasma of men increased. Name the cells which produce this hormone.
A Sustentocytes.  
B Cells of anterior hypothalamus nucleuses.  
C Sertoli cells.  
D *Glandulocytes.  
E Spermatogenic cells.

460. Muscular-glandular organ having lobulated construction is seen in histologic specimen. The lobules have a separate glands with excretory ducts which are opened in channel located in the centre of the organ. The wall of the channel is covered by transitional epithelium. Name this organ.
A Testis.  
B *Postate gland.  
C Seminal vesicle.  
D Epididymis.  
E Mammary gland.

461. Glandular cells of testis were ruined experimentally. What changes possible in blood?
A *Reduction level of testosterone.  
B Reduction amount of androgen-binding protein.  
C Reduction level of lutropin.  
D Absence of the changes.  
E Reduction of the gonadoliberin synthesis.

462. During pubescence the cells of male sexual glands begin to produce male sex hormone testosterone that calls forth secondary sexual characters. What cells of male sexual glands produce this hormone?
A *Leidig cells  
B Sustentocytes  
C Sertoli's cells  
D Supporting cells  
E Spermatozoa.

463. In one of the phases of spermatogenesis, there are changes of nuclei and cytoplasm of spermatids, which results in the formation of mature gametes. Name the phase of gametogenesis.
A *Formation  
B Maturating  
C Growth  
D Multiplication  
E Proliferation.

464. A couple complains about difficulty in conceiving a child. After an inspection, it was discovered – the spermatogenous epithelium of the testicle had been damaged, which resulted in absence of spermatozoa in
the seminal fluid and as a result – infertility. What part of the testicles had suffered?
A * Convoluted seminiferous tubules  
B. Straight seminiferous tubules  
C. Rete testis (testicular network)  
D. Epididymis  
E. Collecting tubules

465. During the maturation of the cells of the male sexual glands, the glands begin to produce the male sex hormone testosterone, which causes the appearance of the secondary sexual signs. What cells of male sexual glands do produce this hormone?
A * Leydig cells  
B Sustentocytes  
C Sertoli cells  
D Supporting cells  
E Spermatozoa

466. As a result of orchitis (inflammation of testicles) in a man of 43, the production of spermatozoa has been violated. In what part of testicles does this pathological change take place?
A * Convoluted seminiferous tubules  
B Rete testis  
C Straight seminiferous tubules  
D Collecting tubules of testicles  
E Ductus of epididymis

467. On a histological specimen it is seen the transverse cut of tubules, whose wall of which consists of mucus, muscle and adventitial envelopes. The epithelium of the mucus is presented with high prismatic cells with stereocilia and low cambial cells. What organ of the male sexual system was investigated?
A * Ductus epididymis.  
B Testicle.  
C Prostatic gland.  
D Ejaculatory duct.  
E Urethra.

468. On a histological specimen we can see an organ which is covered from the outside by serosal and fibrous (albugenous) envelopes. The stroma of this organ is made up of loose connective tissue with Leydig cells on the inside. Also, the parenchyma is presented by tubules and the internal surface of tubules lined with spermatogenous epithelium. What organ is it?
A * Testicle  
B Epididymis  
C Prostatic gland  
D Mammary gland  
E Ovary

**Female reproductive system. Human embryogenesis**

469. A histological specimen of mandible of an embryo shows a tooth germ with the dental papilla made up of small stellate basophilic cells. What tissue forms this part of the tooth germ?
A * Mesenchyme  
B Epithelial  
C Reticular  
D Cartilaginous  
E Osseous

470. The impact of oxytocine on uterus wall helps to stop uterine bleeding after labor. What membrane of this organ reacts on the effect of this hormone?
A * Myometrium  
B Endometrium  
C Perimetrium  
D Parametrium  
E Submucous membrane

471. Implantation process has two stages: adhesion and invasion. Morphological manifestation of blastocyte adhesion is:
A * Attachment of blastocyte to the endometrium  
B Destruction of endometrium epithelium  
C Destruction of connective tissue of endometrium  
D Destruction of endometrium vessels  
E Formation of lacunes

472. For an unknown reason the fertilization membrane of an embryo dissolved in the fallopian tube in the first critical period. What complication of pregnancy is possible in this case?
A * Embryo implantation into the Fallopian tube  
B Embryonic death  
C Invagination of the blastocyst wall  
D Return of blastocyst back to the ampullary portion of the tube  
E Formation of two blastocysts

473. By producing a number of hormones placenta plays a part of temporary endocrine gland. What hormone may be detected in woman's blood on the third or the forth day after begin of implantation, that is used in medicine for early pregnancy detection?
A * Chorionic gonadotropin  
B Somatostatin  
C Progesterone  
D Vasopressin  
E Oxytocin
474. At a certain stage of development of a human embryo one can observe formation of a cavity in its structure, small light blastomeres on the periphery and large dark blastomeres at one of the poles. The embryo at this stage of development is called:
A *Blastocyst
B Morula
C Zygote
D Gastrula
E Blastodisk

475. Microspecimen of a child's finger skin reveals subnormal development of epidermis. What embryonic leaf was damaged in course of development?
A *Ectoderm
B Mesoderm
C Entoderm
D Mesenchyma
E Ectomesenchyma

476. During the embryogenesis of oral cavity the development of dental enamel was disturbed. What source of dental development was damaged?
A *Epithelium
B Mesenchyma
C Mesoderma
D Dental saccule
E Dental papilla

477. During gastrulation the Hensen's node remained underdeveloped in the embryo. Which axial organ will slow down its development?
A *Chord
B Neural crests
C Neural groove
D Neural tube
E Mantle layer of the neural tube

478. In sick women as a result of inflammation, the endocrine function of follicle cells of the ovary is broken. Synthesis of which hormones would be affected?
A *Estrogens
B Progesterone
C Lutropin
D Follicle stimulating hormone
E Folistatin

479. A woman 25 years, a month after giving birth complained to the doctor about the decline in formation of milk. The lack of what hormone resulted in such state?
A *Prolactin
B Somatostatin

480. On a specimen of the ovary, stained with hematoxylin-eosin stain, it was observed a follicle in which the cells of the follicular epithelium are arranged in 1-2 layers having a cuboidal shape and around the oocyte a bright red envelope is prominent. Name this follicle.
A *Primary
B Primordial
C Secondary
D Mature
E Athretic

481. A patient of 35 years, is diagnosed of infertility. In the gynecological department, a diagnostic biopsy of the endometrium is done. After the microscopic investigation, it was determined that a mucus envelope is edematous, uterine glands are convoluted and filled with a thick secretion. What hormone causes such changes in endometrium?
A. *Progesterone
B. Estrogen
C. Testosterone
D. Somatotropine
E. Adrenocorticotropic hormone

482. Stopping of bleeding after births is connected with the influence of hormones on the structures of uterus. What component of the uterine wall plays the main role in this process?
A *Middle layer of the myometrium
B Endometrium
C Internal layer of the myometrium
D Superficial layer of the myometrium
E Perimetrium

483. Stopping of bleeding after births is connected with the influence of oxytocin on the wall of uterus. What envelope of this organ reacts as a result of the action of this hormone?
A *Myometrium
B Endometrium
C Perimetrium
D Parametrium
E Submucous

484. A woman has hyperemia of ovary, increase of permeability of hemato-follicle barrier with the progressive development of edema, infiltration of the follicle wall by leucocytes. The volume of follicle is enlarged and the wall of the follicle is thinned. What period of ovarian cycle is described?
485. A woman of 25 years, a month after giving birth complained to a doctor about a decline in the formation of milk. The lack of what hormone resulted in such state?
A *Prolactin
B Somatostatin
C Adrenocorticotropic hormone
D Insulin
E Glucagon

486. At the microscopic research on a biopsy material of the endometrium of a woman, who suffers infertility, it was found out that there were changes in its structure, caused by the action of hormone progesterone. Where is this hormone produced?
A *Yellow body of ovary
B In the follicles of the ovary
C In the anterior hypophysis
D In the posterior hypophysis
E In the hypothalamus

487. A histological picture of the endometrium has the following characteristic signs: edema, presence of convoluted glands with widened lumen (which secrete plenty of mucus), no mitotic cells, and decidual cells in the stroma. What stage of ovarian cycle is described?
A*Secretory (premenstrual).
B Menstrual
C Regeneration
D Proliferation
E Rest

488. In a woman of 40 years a weak childbirth occurs, as a result of the weakness of contractile ability of the myometrium. To help this situation, what hormone needs to be injected?
A *Oxytocin
B Hydrocortizone
C Dexametazone
D Aklosterone
E Prednisolon

489. A patient with adenoma of the hypophysis (tumor of anterior hypophysis), there is an increase of the duration in the phase of growth of follicles. What is the duration of growth period of oocytes during normal oogenesis?
A *12-14 days
B A few tens of years (from 10-13 to 40-50) after birth.

490. A cesarean section operation was performed on a patient, in which a considerable length of the wall of the uterus was cut and the fetus was taken out. What is the mechanism of healing of the sewn myometrium?
A *Formation of connective tissue scar
B Formation of new smooth muscle tissue
C Formation of striated muscle fibers
D Proliferation of myosatellitocytes
E Hypertrophy of smooth muscle cells

491. It was found out that the human embryo is built up from two blastomeres. Name the place of its localization under normal conditions of development?
A *Uterine tube
B Cavity of uterus
C Abdominal region
D Mucus envelope of uterus
E Ovary

492. During a research on amniotic fluid, gotten by amniocentesis (puncture of amniotic cavity), it was discovered cells with sexual chromatin in their nuclei (Barr body). What can be said about this?
A *Female sex of fetus
B Male sex of fetus
C Genetic violations in development of fetus
D Trisomy
E Polyploidy

493. On a scheme it is presented, the human embryo on one of the earliest stages of development. What is it the stage?
A *Blastocyst
B Zigota
C Morula
D Gastrula
E Neurula

494. During gastrulation, the primary Hensen’s node was insufficiently developed. Development of what axial organ will be broken?
A *Chorda
B Neural crest
C Neural groove
D Neural tube
E Manty layer of neural tube

495. One of critical periods of human embryogenesis is implantation of embryo in the wall of uterus during the 7th day. Which of the processes of gastrulation take place during this period?
496. In the cavity of uterus it was found out that the human embryo is not attached to the endometrium. To what stage of development does this embryo corresponds?
A *Blastocyst
B Zigota
C Morula
D Gastrula
E Neurula

497. At the ultrasound inspection of a pregnant woman, hydramnios (increase of amniotic fluid) was diagnosed. The violation of the activity of which extraembryonic organ is connected with this condition?
A *Amniotic envelope
B Chorion
C Placenta
D Vitelline sack
E Allantois

498. At the microscopic investigation of a female’s internal reproductive organs which were removed during operation, it was found an embryo which is built from two blastomeres. Name the place of its localization under normal conditions of development?
A *Uterine tube, close to the ampulla
B Uterine tube, close to the uterine part
C Cavity of uterus
D Abdominal region
E Ovary

499. Study of the biopsy material of an embryo revealed a zone of developmental abnormality in a somite. The zone was located close to the endoderm and the notochord. What formations may have abnormal development in case of pregnancy continuation?
A *Skeletal tissues
B Genito-urinary system
C Skeletal striated muscle tissue
D Cardiac striated muscle tissue
E Fibrous connective tissue of skin

500. A histological specimen shows a transverse section of an organ, whose basis is formed of mucous connective tissue, two arteries, and one vein. What organ is it?
A. Yolk sac.
B. Allantois.