

Sample test questions

INTEGRATED TEST EXAM “Krok 1” *Stomatology*



1. According to the law of constancy of chromosome numbers, most animal species have definite and constant chromosome number. The mechanism that maintains this constancy during sexual reproduction of organisms is called:

- A. Meiosis
- B. Schizogony
- C. Amitosis
- D. Regeneration
- E. -

2. In human population some people throughout their life develop not two but three dentitions. It is the manifestation of the following law:

- A. Biogenetic law (recapitulation theory)
- B. Independent assortment
- C. Hardy-Weinberg principle
- D. Homologous series of genetic variation
- E. Embryonic induction

3. Microscopy of a sputum sample obtained from a patient who has been suffering from pneumonia for a week detected helminth larvae. Eosinophilia is observed in the patient's blood. What diagnosis can be suspected in this case?

- A. Ascariasis
- B. Paragonimiasis
- C. Fascioliasis
- D. Taeniasis
- E. Echinococcosis

4. During their expedition to the Middle East, the students found a 7-centimeter-long arthropod. Its body consists of cephalothorax with 4 pairs of ambulatory legs and segmented abdomen with two venom glands in its last segment. The gland openings are located on the tip of the hook-shaped sting. The animal was identified as a nocturnal predator, its venom is dangerous for humans. It belongs to the following order:

- A. *Scorpiones*
- B. *Aranei*
- C. *Acarina*
- D. *Solpugae*
- E. *Aphaniptera*

5. Mother with a 12-year-old child came to the gastroenterologist. She complains of loss of appetite and meteorism in her child. Endoscopically the child was diagnosed with biliary dyskinesia, in the duodenal contents there were pear-shaped protozoa with two nuclei and multiple flagella. What disease is the most likely in this child?

- A. Lambliasis
- B. Balantidiasis
- C. Amebiasis
- D. Trichomoniasis
- E. Toxoplasmosis

6. Biochemical analysis of amino acid contents of freshly synthesized polypeptides shows that in the process of their translation the first amino acid in each of these proteins will be the same. Name this amino acid:

- A. Methionine
- B. Serine
- C. Histidine
- D. Phenylalanine
- E. Isoleucine

7. The height of a person is controlled by several non-allelic dominant genes. If the number of this genes is increased, the height of a person increases as well. What type of interaction occurs between these genes?

- A. Polymery
- B. Pleiotropy
- C. Epistasis
- D. Codominance
- E. Complementarity

8. Mother of a 2-year-old child with delayed physical and mental development has made an appointment with the genetic consultation. What method allows the doctor to rule out chromosomal abnormalities?

- A. Cytogenetic
- B. Biochemical
- C. Genealogical
- D. Cytological
- E. Population statistics

9. During a class in molecular biology, the mutations resulting in production of abnormal hemoglobin are being studied. What amino acid substitution occurs when S-hemoglobin is being produced, resulting in the development of sickle-cell anemia?

- A. Glutamic acid is substituted with valine
- B. Threonine is substituted with lysine
- C. Lysine is substituted with glutamine
- D. Histidine is substituted with arginine
- E. Glycine is substituted with asparagine

10. People of various nationalities, who live in the Arctic climate, develop a number of features to adapt to their environment. Representatives of the Arctic adaptive type compared to the natives of the Central Africa have the following characteristic feature:

- A. Increased layer of subcutaneous fat
- B. Hyperhidrosis
- C. Lower need for fat intake
- D. Lean stature
- E. Elongated legs and shorter arms

11. Fetal malformations can be caused by such maternal diseases as rubella, syphilis, toxoplasmosis, cytomegaly, herpes, and chlamydiosis. These malformations belong to the following type of variability:

- A.** Modification
- B.** Mutational
- C.** Combinative
- D.** Genomic imprinting
- E.** Epimutational

12. A tourist, who had been to one of

the Far East countries, was hospitalized into the therapeutics unit with suspected pneumonia. Examination of his sputum and feces detected there lung fluke eggs. What food products are the most likely cause of lung fluke infestation?

- A.** Insufficiently thermally processed freshwater crabs
- B.** Insufficiently thermally processed beef
- C.** Insufficiently thermally processed eggs
- D.** Insufficiently thermally processed pork
- E.** Raw fruits and vegetables

1. A man complains of varicose veins on his left leg. Venous nodes are located on the posterior surface of the shin and on the posterior and anterior surfaces of the thigh. What superficial leg veins are damaged in this patient?

- A. Great saphenous vein, small saphenous vein
- B. Small saphenous vein, deep femoral vein
- C. Popliteal vein, superficial saphenous vein
- D. Femoral vein, great saphenous vein, small saphenous vein
- E. Posterior tibial vein, great saphenous vein

2. A patient presents with aspermia. What organ is functionally disturbed?

- A. Testicle
- B. Seminal vesicles
- C. Epididymis
- D. Prostate
- E. -

3. A 10-day-old child has undergone a surgery to repair cleft upper lip ("hare-lip"). Cleft upper lip has resulted from the following in this case:

- A. Nonclosure of frontal and maxillary processes of the first pharyngeal arch
- B. Nonclosure of palatine tori of maxillary processes of the first pharyngeal arch
- C. Nonclosure of the second pharyngeal arch
- D. Nonclosure of the third pharyngeal arch
- E. Nonclosure of maxillary and mandibular processes of the first pharyngeal arch

4. After facial trauma the patient developed a buccal hematoma. What salivatory gland has its outflow blocked by the hematoma?

- A. Parotid
- B. Sublingual
- C. Submandibular
- D. Lingual
- E. Buccal

5. A patient complains of painful chewing, especially when his lower jaw moves forward and to the side. It indicates functional disorder of the following muscles:

- A. Lateral pterygoid muscles
- B. Medial pterygoid muscles
- C. Masseter muscles
- D. Mylohyoid muscles
- E. Temporal muscles

6. After a cold the patient developed impaired perception of pain and thermal stimuli in the front 2/3 of the tongue. What nerve was damaged in this case?

- A. Trigeminal
- B. Hypoglossal
- C. Phrenic
- D. Vagus
- E. Chorda tympani

7. A 42-year-old man with an incised wound on the lower anterior surface of his shoulder came to the medical station. Objectively he presents with impaired forearm flexion. What muscles are likely to be damaged in this patient?

- A. *M. brachialis, m. biceps brachii*
- B. *M. biceps brachii, m. anconeus*
- C. *M. coracobrachialis, m. supraspinatus*
- D. *M. deltoideus, m. infraspinatus*
- E. *M. deltoideus, m. biceps brachii*

8. During surgery on the stomach, the surgeon has cut the left gastric artery and ligated it. However the opposite end of the cut artery continued to bleed. What artery anastomoses with the left gastric artery?

- A. Right gastric artery
- B. Splenic artery
- C. Right gastroepiploic artery
- D. Left gastroepiploic artery
- E. Superior pancreaticoduodenal artery

9. A woman has undergone a surgery for femoral hernia. In this case the hernial protrusion is projected into the:

- A. Femoral triangle
- B. Inguinal region
- C. Pubic region
- D. Gluteal region
- E. -

10. A patient of tall stature with drooping lower lip, big nose, and large extremities has made an appointment with the doctor. What gland is likely to present with excessive secretion in this patient?

- A. Anterior lobe of the pituitary gland
- B. Parathyroid glands
- C. Pineal gland
- D. Thyroid gland
- E. -

11. During a surgery on the right side of the neck, excursion of the right diaphragmatic dome was disturbed. This disturbance occurred because of the damage to the following nerve:

- A. Right phrenic nerve
- B. Left phrenic nerve
- C. Right transverse cervical nerve
- D. Left transverse cervical nerve
- E. Supraclavicular nerve

12. A trauma patient has a wound in the temporal region, with trickle of bright red blood streaming from it. What blood vessel

is damaged?

- A. *A. temporalis superficialis*
- B. *A. facialis*
- C. *A. occipitalis*
- D. *A. auricularis posterior*
- E. *A. maxillaris*

13. On examination a woman was diagnosed with a retropharyngeal abscess. What cervical space should be accessed by the surgeon lancing this abscess?

- A. Retrovisceral space
- B. Interscalene space
- C. Prescalene space
- D. Suprasternal space
- E. Previsceral space

14. Brain investigation by means of nuclear magnetic resonance revealed the patient to have a hematoma in the genu of the internal capsule. What pathway is damaged in this case?

- A. *Tr. cortico-nuclearis*
- B. *Tr. cortico-spinalis*
- C. *Tr. cortico-fronto-pontinus*
- D. *Tr. cortico-thalamicus*
- E. *Tr. thalamo-corticalis*

15. A patient was diagnosed with a damaged intervertebral disk in the lumbar spine. What type of joint is it?

- A. Synchondrosis
- B. Syndesmosis
- C. Symphysis
- D. Synostosis
- E. Diarthrosis

16. A patient complains of severe rhinitis and total loss of olfactory perception. Receptors of the olfactory analyzer are damaged in this patient. Where in the nasal cavity are these receptors located?

- A. Superior nasal meatus
- B. Middle nasal meatus
- C. Inferior nasal meatus
- D. Common nasal meatus
- E. Choanae

17. A student uses percussion to determine the cardiac border that projects on the anterior thoracic wall at the level of the third costal cartilage. What cardiac border is being determined?

- A. Upper
- B. Lower
- C. Left
- D. Right
- E. Apex

18. A trauma patient has a fracture in the

petrous part of the temporal bone. The fracture line passes behind the internal auditory foramen. What canal of the temporal bone was damaged?

- A. Facial canal
- B. Tympanic canal
- C. Carotid canal
- D. Musculotubal canal
- E. Canaliculus of the chorda tympani

19. A patient suffers from disturbed blood supply of the superior lateral surface of the cerebral hemispheres. What blood vessel is damaged?

- A. Medial cerebral artery
- B. Anterior cerebral artery
- C. Posterior cerebral artery
- D. Anterior communicating artery
- E. Posterior communicating artery

20. Examination of a patient with disturbed process of saliva production in the parotid gland shows that the otic ganglion is likely to be damaged. This ganglion is formed by the following nerve:

- A. *N. petrosus minor*
- B. *N. petrosus major*
- C. *N. auricularis magnus*
- D. *N. vagus*
- E. *N. hypoglossus*

21. During oral cavity examination a dentist noticed eruption of the permanent canines in a child. The child grows and develops normally. Determine the child's age:

- A. 11-13 years
- B. 13-16 years
- C. 6-7 years
- D. 8-9 years
- E. 9-10 years

22. A tooth has been extracted. Its crown is chisel-shaped, wide, with narrow edge. The root is cone-shaped and flattened from the sides. What tooth was extracted?

- A. Upper incisor
- B. Upper premolar
- C. Lower incisor
- D. Lower canine
- E. Lower premolar

23. A man cannot lift his drooping lower jaw. What muscles of the head **DO NOT** function properly in this case?

- A. Masseters
- B. Zygomaticus major
- C. Zygomaticus minor
- D. Buccinators
- E. Superior auricular

1. In the skin biopsy material in the epidermis there are cells with processes and dark brown granules in their cytoplasm. Name these cells:

- A. Melanocytes
- B. Intraepidermal macrophages
- C. Keratinocytes
- D. Merkel cells
- E. Lymphocytes

2. A smear specimen of human red bone marrow shows, among myeloid cells and adipocytes, certain stellate cells with oxyphilic cytoplasm that are connected with their cellular processes. Name these cells:

- A. Reticular cells
- B. Fibroblasts
- C. Macrophages
- D. Dendritic cells
- E. Osteocytes

3. A microslide shows a section of a bean-shaped organ with cortical and medullary substances. Its cortical substance contains separate spheric nodules 0.5-1 mm in diameter; its medullary substance consists of medullary cords. This histological section demonstrates the following organ:

- A. Lymph node
- B. Kidney
- C. Thymus
- D. Adrenal gland
- E. Spleen

4. Microslide of a cardiac tissue shows rectangular cells with central location of the nucleus and well-developed myofibrils connected with Z-disks. These cells perform the following cardiac function:

- A. Contraction
- B. Impulse conduction
- C. Endocrine
- D. Protective
- E. Regenerative

5. A woman presents with edemas. In her urine there is a large amount of protein excreted. What nephron segment is functionally disturbed in this case?

- A. Renal corpuscle
- B. Proximal convoluted tubule
- C. Distal convoluted tubule
- D. Descending limb of loop of Henle
- E. Ascending limb of loop of Henle

6. A urine sample was taken via a catheter from the urinary bladder of a 17-year-old young man. Microscopy of the urine precipitate in this case can detect cells of the epithelium that lines the urinary bladder. What epithelium is it?

- A. Transitional epithelium
- B. Non-keratinized stratified epithelium
- C. Non-stratified columnar epithelium
- D. Non-stratified cuboidal epithelium
- E. Keratinized stratified epithelium

7. A connective tissue specimen stained with hematoxylin-eosin shows isogenous cell groups surrounded with basophilic intercellular substance. No fibrous structures are detected. What type of connective tissue is it?

- A. Hyaline cartilage tissue
- B. Elastic cartilage tissue
- C. Dense fibrous tissue
- D. Loose fibrous tissue
- E. Splenic bone tissue

8. A sample obtained from the patient's thyroid gland was processed with silver salts, which revealed large argyrophilic cells in the follicular walls. What hormone is being secreted by these cells?

- A. Calcitonin
- B. Thyroxine
- C. Parathyrin
- D. Aldosterone
- E. Adrenaline

9. A histological specimen shows three neurons: pseudounipolar, bipolar, and multipolar. How many axons will each of these cell have?

- A. One
- B. Two
- C. None
- D. Many
- E. Three

10. A certain embryonic organ is being studied. In this organ the first blood corpuscles that make up blood as a tissue are being formed. Name this organ:

- A. Yolk sac
- B. Liver
- C. Thymus
- D. Spleen
- E. Red bone marrow

11. Fibrocartilaginous layer of trachea consists of C-shaped hyaline cartilage rings, with their open ends facing posteriorly. What tissue connects these open ends?

- A. Smooth muscular tissue
- B. Striated muscular tissue
- C. Loose fibrous connective tissue
- D. Adipose connective tissue
- E. Dense unformed connective tissue

12. A histological specimen shows cells that form isogenous groups. There are glycoproteins, proteoglycans, and collagen fibers in the intercellular substance. What

tissue is it?

- A.** Cartilaginous tissue
- B.** Bone tissue
- C.** Mucous tissue
- D.** White adipose tissue
- E.** Brown adipose tissue

13. A patient with chronic hepatitis undergoes blood test for serum protein fractions. Total protein levels are low, which indicates that in the hepatic cells the following organelles are functionally disturbed:

- A.** Granular endoplasmic reticulum
- B.** Golgi apparatus
- C.** Mitochondria
- D.** Lysosomes
- E.** Cytoskeleton

14. A histological specimen of mucous tunic of a certain organ shows stratified

epithelium consisting of 20-25 cellular layers with squamous superficial cells. Name the organ from which this sample was obtained:

- A.** Esophagus
- B.** Gastric fundus
- C.** Large intestine
- D.** Small intestine
- E.** Duodenum

15. Histologic specimen of a tooth slice shows a tissue consisting of intercellular substance permeated with tubules, in which cellular processes of odontoblasts are situated. What tissue is presented in this histologic specimen?

- A.** Dentin
- B.** Enamel
- C.** Pulp
- D.** Cement
- E.** Periodontium

1. An experimental animal, a dog, received a weak solution of hydrochloric acid through a tube inserted into the duodenum. Primarily it will result in increased secretion of the following hormone:

- A. Secretin
- B. Gastrin
- C. Histamine
- D. Cholecystokinin
- E. Neurotensin

2. An athlete before a sports contest presents with elevated blood pressure and heart rate. What part of the CNS induces these changes?

- A. Cerebral cortex
- B. Diencephalon
- C. Medulla oblongata
- D. Mesencephalon
- E. Hypothalamus

3. A patient complains that even small traumas lead to persistent hemorrhages. Laboratory analysis shows disturbed blood composition, namely a low count of the following blood corpuscles:

- A. Platelets
- B. Erythrocytes
- C. Neutrophils
- D. Lymphocytes
- E. Monocytes

4. A 19-year-old young man has been examined in a nephrological hospital. Increased potassium content was detected in secondary urine of the patient. Such changes are the most likely to be caused by increased secretion of the following hormone:

- A. Aldosterone
- B. Oxytocin
- C. Adrenaline
- D. Glucagon
- E. Testosterone

5. In an experiment a peripheral segment of the sympathetic nerve that innervates the sublingual gland is being stimulated. In this case this gland will produce:

- A. A small amount of viscous saliva
- B. No saliva
- C. A small amount of non-viscous saliva
- D. A large amount of non-viscous saliva
- E. A large amount of viscous saliva

6. An athlete overexerted himself during a training and developed a muscle contracture. In such cases the muscle loses its flexibility and gradually becomes rigid due to its inability to relax. What is the likely cause of the contracture in this case?

- A. ATP deficiency
- B. Decreased blood levels of Ca^{++}
- C. Increased blood levels of lactic acid
- D. Tropomyosin structural changes
- E. Increased blood levels of K^+

7. Condition of a patient with thoracic trauma deteriorates quickly: he develops increasing asphyxiation, facial pallor, tachycardia. What is the likely cause of these developments?

- A. Pneumothorax
- B. Thoracic contusion
- C. Rib fracture
- D. Response to pain stimulus
- E. Fright

8. A man was submerged into the ice-cold water and soon died of abrupt exposure to cold. In such cases an organism loses heat most intensively by the way of:

- A. Heat conduction
- B. Radiation
- C. Convection
- D. Heat conduction and radiation
- E. -

9. In hot weather the bus passengers asked to open the roof hatches. What way of heat transfer is activated in this situation?

- A. Convection
- B. Conduction
- C. Radiation
- D. Conduction and radiation
- E. Sweat evaporation

10. People with diseases of internal organs often assume forced positions (e.g. with lower limbs flexed and pressed to the abdomen) due to the following reflex response:

- A. Visceromotor
- B. Motor-visceral
- C. Dermatovisceral
- D. Viscerodermal
- E. Viscero-visceral

11. A 30-year-old woman has developed signs of virilism (body hair growth, balding temples, disturbed menstrual cycle). This condition can be caused by hyperproduction of the following hormone:

- A. Testosterone
- B. Estriol
- C. Relaxin
- D. Oxytocin
- E. Prolactin

12. A dentist has to spend much of his time on his feet when working, which can result in a venous congestion in the legs and varicose veins. Leading mechanism of congestion in this case is the decrease of:

- A.** Skeletal muscle contraction in the lower limbs
- B.** Blood pressure gradient in the veins
- C.** Thoracic pump effect
- D.** Cardiac residual pumping force
- E.** Diaphragmatic piston effect on the abdominal organs

13. A car accident victim presents with a spinal hematoma accompanied by retrosternal pain, tachycardia, and elevated blood pressure. The patient's condition results from the damage to the following segments of the spinal cord:

- A.** Th1-Th5
- B.** C6-C8
- C.** L1- L3
- D.** S1-S3
- E.** -

14. In an experiment the vagus is being stimulated, which results in increased acetylcholine entry to the synaptic cleft, and that in turn results in the decreased heart rate due to the following mechanism:

- A.** Hyperpolarization of cardiomyocyte membrane
- B.** Depolarization of cardiomyocyte membrane
- C.** Increase in AV nodal conduction velocity
- D.** Increase of action potential duration
- E.** Decrease of action potential duration

15. A person in a hot weather for a long

time had no water, which resulted in a severe thirst. What indicator of blood homeostasis was affected, leading to the development of this sensation?

- A.** Plasma osmotic pressure
- B.** Plasma oncotic pressure
- C.** Hematocrit
- D.** Glucose level
- E.** pH

16. During a brain surgery stimulation of the cerebral cortex resulted in tactile and thermal sensations in the patient. What gyrus was stimulated?

- A.** Postcentral gyrus
- B.** Cingulate convolution
- C.** Parahippocampal gyrus
- D.** Superior temporal gyrus
- E.** Precentral gyrus

17. Curariform drugs are used to immobilize the patient during a surgery. Their mechanism of action is based on the blockade of:

- A.** Nicotinic acetylcholine receptors of skeletal muscles
- B.** Acetylcholine release into the synaptic cleft
- C.** Noradrenaline release into the synaptic cleft
- D.** Conduction of excitation in the nerve fibers
- E.** Muscarinic acetylcholine receptors of smooth muscles

1. An ophthalmologist has detected increased time of darkness adaptation in the patient's eye. What vitamin deficiency can cause this sign?

- A. A
- B. E
- C. C
- D. K
- E. D

2. The patient exhausted by starvation presents with intensification of the following process in the liver and kidneys:

- A. Gluconeogenesis
- B. Urea synthesis
- C. Bilirubin synthesis
- D. Hippuric acid synthesis
- E. Uric acid synthesis

3. Various substances can be used as anticoagulants. Among them there is a certain naturally derived polysaccharide. Name this polysaccharide:

- A. Heparin
- B. Hyaluronic acid
- C. Dermatan sulfate
- D. Chondroitin sulfate
- E. Dextran

4. A patient presents with osteoporosis. Hypercalcemia and hypophosphatemia are observed in the patient's blood. What is the cause of this condition?

- A. Increased parathormone secretion
- B. Increased thyroxin secretion
- C. Inhibited parathormone secretion
- D. Increased corticosteroid secretion
- E. Inhibited corticosteroid secretion

5. A patient with pulmonary tuberculosis is prescribed rifampicin that inhibits RNA-polymerase enzyme at the stage of initiation of the following process:

- A. Transcription
- B. Translation
- C. Replication
- D. Termination
- E. Elongation

6. The patient's saliva has been tested for antibacterial activity. What saliva component has antibacterial properties?

- A. Lysozyme
- B. Amylase
- C. Ceruloplasmin
- D. Parotin
- E. Cholesterol

7. A 35-year-old man has come to a dentist with complaints of decreased density of dental tissue and increased brittleness of his teeth during consumption

of solid food. Laboratory analysis measured Ca/P correlation in the enamel sample. What value of Ca/P indicates increased demineralization?

- A. 0.9
- B. 1.67
- C. 1.85
- D. 2.5
- E. 1.5

8. Lab rats were used to study the effect of a certain vitamin on the body. Deficiency of this vitamin has resulted in a disturbed reproductive function and skeletal muscle dystrophy. What vitamin is it?

- A. E
- B. B_2
- C. A
- D. K
- E. D

9. In the patient's blood there is a C-reactive protein that chemically can be classified as a glycoprotein. It indicates the following pathology:

- A. Rheumatism
- B. Leucopenia
- C. Thrombocytopenia
- D. Anemia
- E. Porphyrin

10. An 8-year-old child presents with frequent severe subcutaneous hemorrhages. Prescription of Vicasol, synthetic analogue of vitamin K, had a positive effect. This vitamin participates in gamma-carboxylation of glutamic acid in a certain blood-clotting protein. Name this protein:

- A. Prothrombin
- B. Fibrinogen
- C. Hageman factor
- D. Rosenthal factor
- E. Proconvertin

11. A child presents with hepatomegaly, hypoglycemia, and convulsions that occur predominantly during fasting or in stress-inducing situations. The child is diagnosed with von Gierke disease (glycogen storage disease type I). What enzyme is affected by the genetic defect that is the cause of this disease?

- A. Glucose 6-phosphatase
- B. Amylo-1,6-glycosidase
- C. Phosphoglucomutase
- D. Glycogen phosphorylase
- E. Glucokinase

12. Formation of a large amount of immunoglobulins with various antigen specificity from a small number of genes occurs due to:

- A.** Recombination
- B.** Translocation
- C.** Transcription
- D.** Deletion
- E.** Replication

13. Glucose synthesis from non-carbohydrate components is an important biochemical process. Gluconeogenesis from amino acids occurs most actively if a diet is rich in proteins. Which amino acid of those listed below is the most glucogenic?

- A.** Alanine
- B.** Leucine
- C.** Isoleucine
- D.** Valine
- E.** Lysine

14. A 6-year-old girl exhibits marked signs of hemolytic anemia. Biochemical analysis of her erythrocytes shows deficiency of glucose 6-phosphate dehydrogenase enzyme. What metabolic process is disturbed in this patient and has leading role in the development of this pathology?

- A.** Pentose-phosphate pathway
- B.** Oxidative phosphorylation
- C.** Tissue respiration
- D.** Anaerobic glycolysis
- E.** Gluconeogenesis

15. A patient was diagnosed with a genetic disorder leading to lipoprotein lipase deficiency. What finding will be characteristic of biochemical blood analysis in this case?

- A.** Hypertriacylglycerolemia
- B.** Hypoglycemia
- C.** Hyperglycemia
- D.** Hypotriacylglycerolemia
- E.** Hypochylomicronemia

16. A patient with Cushing syndrome presents with persistent hyperglycemia and glucosuria. This patient is likely to have increased production and secretion of the following hormone:

- A.** Cortisol
- B.** Adrenaline
- C.** Glucagon
- D.** Thyroxine
- E.** Aldosterone

17. A 25-year-old young man complains of general weakness, rapid fatigability, irritability, reduced working ability, and bleeding gums. What vitamin deficiency is the most likely cause of this condition?

- A.** Ascorbic acid
- B.** Riboflavin
- C.** Thiamine
- D.** Retinol
- E.** Folic acid

18. A 37-year-old woman presents with fructosemia and fructosuria. Her blood glucose is 2.1 mmol/L. She is diagnosed with fructose intolerance. What congenital enzyme deficiency is the molecular basis of this disease?

- A.** Fructose 1-phosphate aldolase
- B.** Hexokinase
- C.** Phosphofructokinase
- D.** Triose-phosphate isomerase
- E.** Phosphoglucomutase

1. A pregnant woman developed severe toxemia with exhausting recurrent vomiting throughout a day. By the end of the day she developed tetanic convulsions and dehydration. The described changes were caused by the following type of acid-base imbalance:

- A. Nongaseous excretory alkalosis
- B. Gaseous alkalosis
- C. Gaseous acidosis
- D. Nongaseous metabolic acidosis
- E. Nongaseous excretory acidosis

2. A 50-year-old man has been undergoing treatment for peptic ulcer disease of the stomach. His digestion normalized, pain disappeared, and general mood improved. However, several weeks later he again developed epigastric pain, heartburn, and sour eructation. How can this clinical course be characterized?

- A. Relapse
- B. Remission
- C. Terminal state
- D. Prodromal stage
- E. Latent period

3. After a total gastric resection the patient developed severe B12-deficient anemia with disturbed hematopoiesis. Changed erythrocytes appeared in the patient's blood. One of the signs of this anemia is the presence of the following in blood:

- A. Megalocytes
- B. Microcytes
- C. Elliptocytes
- D. Normocytes
- E. Anulocytes

4. A patient with essential hypertension presents with circadian fluctuations in total peripheral vascular resistance to blood flow. What vessels will be the most affected in this case?

- A. Arterioles
- B. Aorta
- C. Capillaries
- D. Arterioloventricular anastomoses
- E. Veins

5. On clinical examination a woman presents with excessive sweating, tachycardia, loss of weight, and tremor. What endocrine pathology can cause these signs?

- A. Hyperthyroidism
- B. Hypothyroidism
- C. Hypergonadism
- D. Hypogonadism
- E. Hypoadosteronism

6. A 49-year-old man presents with facial edema, significant proteinuria, hypoproteinemia, dysproteinemia, and

hyperlipidemia. What provisional diagnosis can be made?

- A. Nephrotic syndrome
- B. Urolithiasis
- C. Prostatitis
- D. Pyelonephritis
- E. Cystitis

7. A patient on the 2nd day after a cardiac infarction presents with acute decrease of systolic blood pressure down to 60 mm Hg with tachycardia 140/min., dyspnea, loss of consciousness. What mechanism is essential in the pathogenesis of shock developed in this case?

- A. Decreased cardiac output
- B. Increased myocardial excitability caused by products of necrotic disintegration
- C. Decreased circulating blood volume
- D. Development of paroxysmal tachycardia
- E. Development of anaphylactic reaction to myocardial proteins

8. Lower limbs of a patient with varicose veins were examined. The patient's legs are cyanotic and pastose, skin temperature is low, single petechiae are observed. What disturbance of hemodynamics is it?

- A. Venous hyperemia
- B. Compression ischemia
- C. Obstruction ischemia
- D. Thromboembolism
- E. Arterial hyperemia

9. After a mechanical injury a tourniquet was applied to the patient's arm to stop the bleeding. Below the tourniquet the arm became pale and numb. This condition is caused by:

- A. Compression ischemia
- B. Venous congestion
- C. Obstruction ischemia
- D. Angiospastic ischemia
- E. Thrombosis

10. A 36-year-old man traveled to the mountains for a vacation (altitude of 2000 meters above the sea level). He developed increased respiration rate, tachycardia, and slight dizziness. Two days later these signs disappeared. This process is called:

- A. Adaptation
- B. Compensation
- C. Regeneration
- D. Inhibition
- E. Proliferation

11. 30 minutes after the dental treatment the patient developed red itching spots on the face and oral mucosa. The patient was diagnosed with urticaria. What bioactive substance with vasodilating and pruriginous

effect is produced during this type of allergic reaction?

- A. Histamine
- B. Prostaglandin E2
- C. Leukotriene B4
- D. Interleukin-1
- E. Bradykinin

12. A 16-year-old girl, who has been starving herself for a long time to lose weight, developed an edema. This phenomenon is mainly caused by:

- A. Hypoproteinemia due to protein synthesis disturbance
- B. Hypoglycemia due to glycogen synthesis disturbance
- C. Venous congestion and increased venous pressure
- D. Deceleration of glomerular filtration rate
- E. Decreased production of vasopressin in the hypothalamus

13. The doctor stated the absence of respiration and cardiac activity in a traffic accident victim. This condition lasts for 1 minute already. This clinical presentation corresponds with the following terminal state:

- A. Clinical death
- B. Traumatic shock, erectile phase
- C. Traumatic shock, torpid phase
- D. Preagony
- E. Agony

14. A 50-year-old man, who has been suffering from chronic hepatic failure for years, developed ascites. What is the main mechanism of development of this new disorder in the patient?

- A. Increased pressure in the portal venous system
- B. Decreased hepatic synthesis of albumins and globulins
- C. Increased blood levels of low density and very low density lipoproteins
- D. Appearance of neurotoxic substances in blood
- E. Increased oncotic blood pressure

15. A 56-year-old man with a valvular defect complains of lower limb edemas that lately increased in frequency. Name the local pathogenetic factor of edema development in this case:

- A. Increase of hydrodynamic blood pressure
- B. Increase of oncotic blood pressure
- C. Decrease of vessel wall permeability
- D. Decrease of hydrodynamic blood pressure
- E. Increase of interstitial pressure

16. A woman was diagnosed with peptic ulcer of the stomach. She has a long history of rheumatoid arthritis. What drugs are the likely cause of this disease in the patient?

- A. Glucocorticoids
- B. Antibiotics
- C. H2 blockers
- D. Antihistamines
- E. Antihypertensive drugs

17. Due to an accident on board a nuclear submarine, a soldier received a radiation dose of 5 Gy. He complains of headache, nausea, and vertigo. What changes in leukocyte number can be observed in this soldier after the irradiation?

- A. Neutrophilic leukocytosis
- B. Agranulocytosis
- C. Eosinophilia
- D. Lymphocytosis
- E. Leukopenia

18. A patient was brought to the hospital with a lacerated wound of the maxillofacial area. Profuse bleeding from the wound could not be stopped for a long time. What disturbance of total blood volume will be observed within the first hour after the blood loss occurred?

- A. Normocythemic hypovolemia
- B. Oligocythemic hypovolemia
- C. Polycythemic hypovolemia
- D. Hypervolemia
- E. No disturbances in blood volume

1. After a collision of two cars, one of the drivers presents with a deformity in the middle third of the left shin. The driver feels extreme pain that exacerbates on attempts to move it. The ends of a broken bone protrude from the open wound, the bone is triangular on section, movements cause the bleeding to intensify. What bone was damaged?

- A. Tibia
- B. Fibula
- C. Femur
- D. Patella
- E. Talus

2. A certain disease of infection-allergic or unknown origin leads to bilateral diffuse or focal non-suppurative inflammation of renal glomerular apparatus with characteristic renal and extrarenal signs. Name this disease:

- A. Glomerulonephritis
- B. Pyelonephritis
- C. Nephrolithiasis
- D. Polycystic renal disease
- E. Nephrosclerosis

3. A patient presents with acute onset of the disease: high fever and enlarged painful spleen. On the 10th day since the onset the patient developed a maculopapular rash on the abdomen. On the 21st day the patient died of peritonitis. Postmortem study of the body shows deep ulcers in the area of necrotic aggregate lymphoid follicles (Peyer's patches) in the ileum of the deceased. One of the ulcers is perforated and diffuse fibrinopurulent peritonitis is observed. What disease can be suspected in this case?

- A. Typhoid fever
- B. Dysentery
- C. Intestinal amebiasis
- D. Cholera
- E. Salmonellosis

4. Autopsy of an 86-year-old woman, who suffered from cerebral atherosclerosis, shows atrophy of her cerebral cortex. Name this type of atrophy based on its cause:

- A. Insufficient blood supply
- B. Pressure-induced
- C. Caused by physico-chemical factors
- D. Neurogenic
- E. Dysfunctional

5. An autopsy of a 42-year-old man, who suffered from chronic diffuse bronchitis and died of cardiopulmonary failure, shows large hyperinflated lungs that cover mediastinum with their edges. The lungs do not deflate, are colored pale gray, crunch on section; lung surface does not straighten out when pressed with a finger, resulting in a permanent depression. Mucopurulent

exudate is produced from the bronchial lumen. What is the most likely diagnosis?

- A. Chronic diffuse obstructive emphysema
- B. Chronic focal emphysema
- C. Interstitial emphysema
- D. Primary idiopathic emphysema
- E. Vicarious compensatory emphysema

6. Autopsy of a man with tuberculosis has revealed a 3x2 cm large cavity in the superior lobe of the right lung. The cavity was communicating with a bronchus, its wall was dense and consisted of three layers: the internal layer was pyogenic, the middle layer was made of tuberculous granulation tissue, and the external one was made of connective tissue. What is the most likely diagnosis?

- A. Fibrous cavernous tuberculosis
- B. Fibrous focal tuberculosis
- C. Tuberculoma
- D. Acute focal tuberculosis
- E. Acute cavernous tuberculosis

7. The dentist examines a pregnant woman. There are 3 round lesions up to 1 cm in diameter on her oral mucosa. The lesions appeared 3 days ago, they have white-gray surface and red margin. The dentist can make the following diagnosis:

- A. Aphthous stomatitis
- B. Leukoplakia
- C. Catarrhal stomatitis
- D. Necrotizing ulcerative stomatitis
- E. Gangrenous stomatitis

8. A 28-year-old patient presented with elevated blood pressure, hematuria, and facial edemas. Despite the treatment, the signs of renal failure were exacerbating. 6 months later the patient died of uremia. Microscopy of the kidneys shows proliferation of nephrothelium in the glomerular capsules and proliferation of podocytes that contributes to crescent formation. Sclerosis and hyalinosis of the glomeruli is observed. Make the diagnosis:

- A. Subacute glomerulonephritis
- B. Acute pyelonephritis
- C. Nephrotic syndrome
- D. Chronic glomerulonephritis
- E. Acute glomerulonephritis

9. Autopsy of a man, who died suddenly with signs of acutely disturbed cerebral circulation, revealed aneurysm rupture of the medial cerebral artery and a round cavity 4 cm in diameter filled with blood in his frontal lobe. Name this type of hemorrhage:

- A. Hematoma
- B. Petechiae
- C. Hemorrhagic infiltration
- D. Contusion
- E. -

10. During teeth examination on the lateral surface of the first upper molar there was detected a cone-shaped carious cavity with the base oriented toward the tooth surface and the apex - toward the tooth center. Softened dentin is visible in the floor of the carious cavity. Make the diagnosis:

- A. Dentin caries
- B. Enamel caries
- C. Cement caries
- D. Tooth erosion
- E. -

11. A 23-year-old man developed a perforation in his hard palate, a dense formation with clear margins was detected in this area. After a surgery, microscopy of the excised formation shows there a large focus of caseous necrosis surrounded with a granulation tissue with endovasculitis and a cellular infiltration consisting of lymphocytes and epithelioid cells with predominance of plasma cells. What is the most likely disease in this case?

- A. Syphilis
- B. Tuberculosis
- C. Leprosy
- D. Scleroma
- E. Sarcoma

12. A 53-year-old woman complains of painful swelling in her left parotid area. The swelling appeared 5 days ago. Objectively the skin in this area is slightly hyperemic and tender. Excretory duct of the salivary gland produces a small amount of viscous turbid yellow-green liquid. Microscopy detects a diffuse infiltration of the gland with segmented neutrophils. Make the diagnosis:

- A. Acute suppurative parotitis
- B. Epidemic parotitis
- C. Sjogren syndrome
- D. Glandular adenoma
- E. Acute serous parotitis

13. A 65-year-old man presents with acute mandibular osteomyelitis. 3 days after the disease onset he developed marked edema of skin and soft submandibular cervical tissues. Microscopically there is a diffuse infiltration with neutrophils. What complication of the main disease occurred in the patient's skin tissues?

- A. Phlegmon
- B. Abscess
- C. Carbuncle
- D. Furuncle
- E. Actinomycosis

14. Oral examination revealed dark yellow and brown spots and stripes on the labial and lingual surfaces of the patient's teeth; more than the half of the dental surface is affected; enamel and dentin are destroyed. What diagnosis is the most likely?

- A. Fluorosis
- B. Metastatic calcification
- C. Dental calculus
- D. Cuneiform defect
- E. Dystrophic calcification

15. Mother of a 4-year-old child complains that the child developed elevated body temperature, tenesmus, diarrhea, and abdominal pain attacks. The child attends a preschool facility. Laboratory analysis detected mucus and blood admixtures in the child's feces. Name the changes that occur in the gastrointestinal tract during dysentery:

- A. Colitis
- B. Gastritis
- C. Enterocolitis
- D. Enteritis
- E. Gastroenteritis

16. During autopsy of the patient, who died of cardiovascular failure, the patient's right foot is darkly colored. The vessels of the patient's thigh are partially obstructed by grayish-red clots. On the vessel walls there are yellowish-gray spots and fibrous plaques, some of which are of stony density. What clinicopathological type of atherosclerosis was complicated in the patient?

- A. Atherosclerosis of lower extremities
- B. Cerebral atherosclerosis
- C. Atherosclerosis of aorta
- D. Vascular intestinal atherosclerosis
- E. Renal atherosclerosis

17. A 35-year-old man had been suffering from bronchial asthma for a long time. Eventually he developed a status asthmaticus that became lethal. Examination of section materials shows a bronchiolar spasm in the lungs. The bronchiolar walls show signs of cellular infiltration with predominance of eosinophilic leukocytes and lymphocytes, labrocytes with signs of degranulation are observed. What mechanism of hypersensitivity is the cause of these changes?

- A.** Reaginic reaction
- B.** Antibody-dependent
- C.** Immune complex
- D.** Cell-mediated cytotoxicity
- E.** -

18. Examination of a tooth shows that there is a large cavity in its crown. The floor of

the cavity consists of thin layer of softened dentin that separates the cavity from the pulp. What is the most likely diagnosis?

- A.** Deep caries
- B.** Median caries
- C.** Superficial caries
- D.** Pulpitis
- E.** Periodontitis

1. According to the data collected by WHO researchers, every year approximately 250 million malaria cases occur in the world. This disease can be encountered predominantly in tropical and subtropical areas. The spread of this disease matches the natural habitat of the following genus of mosquitoes:

- A. *Anopheles*
- B. *Culex*
- C. *Aedes*
- D. *Mansonia*
- E. *Culiseta*

2. A child was hospitalized with diagnosis of diphtheria. What should be given to this child for specific therapy?

- A. Diphtheria antitoxin serum, antibiotics
- B. Diphtheria anatoxin, antibiotics
- C. Codivac vaccine, sulfanilamides
- D. Diphtheria vaccines: DPT, DT, diphtheria vaccine
- E. Diphtheria bacteriophage

3. A man complaining of nausea, liquid stool with mucus and blood streaks, high temperature, and weakness was hospitalized into the infectious diseases department. The doctor suspects dysentery. What method of laboratory diagnostics would be the most effective for confirmation of this diagnosis?

- A. Bacteriological analysis
- B. Serological analysis
- C. Mycological analysis
- D. Microscopy
- E. Protozoan analysis

4. A person bitten by a stray dog came to the surgeon's office. Wide lacerated wounds are localized on the patient's face. What rabies-prevention aid should be provided to this person?

- A. Begin immunization with antirabic vaccine
- B. Prescribe combined vitamin therapy
- C. Immediately administer DPT vaccine
- D. Hospitalize the patient and continue to monitor his condition
- E. Immediately administer normal gamma globulin

5. A bacteriological laboratory conducts the analysis of potable water quality. Microbial number of the water sample is approximately 100. What microorganisms were accounted for in this case?

- A. All bacteria that have grown on a nutrient medium
- B. Colibacilli
- C. Human and animal pathogenic bacteria
- D. Opportunistic pathogenic bacteria
- E. Enteropathogenic bacteria and viruses

6. Often the cause of secondary immunodeficiency is organism exposure to an

infection, agents of which reproduce directly in the cells of immune system and destroy them. Specify the diseases, during which the described above occurs:

- A. Infectious mononucleosis, AIDS
- B. Tuberculosis, mycobacteriosis
- C. Poliomyelitis, viral hepatitis type A
- D. Dysentery, cholera
- E. Q fever, typhus

7. A sick child is suspected to have tuberculosis and is referred for Mantoux test. 24 hours later the place of allergen injection became swollen, hyperemic, and tender. What main components determine the development of this reaction?

- A. Mononuclear cells, T-lymphocytes, and lymphokines
- B. Granulocytes, T-lymphocytes, and IgG
- C. Plasma cells, T-lymphocytes, and lymphokines
- D. B-lymphocytes and IgM
- E. Macrophages, B lymphocytes, and monocytes

8. A 3-year-old girl has rubella. Her 10-year-old sister was not infected, despite both girls constantly remaining in contact. The pediatrician determined that the elder girl had rubella 5 years ago. What type of immunity does the elder sister have?

- A. Natural active
- B. Natural passive
- C. Artificial active
- D. Artificial passive
- E. Innate

9. During identification of pure culture of microorganisms the most important part is a serological identification that is conducted by means of agglutination reaction. What components are necessary to conduct this reaction?

- A. Unknown bacterial culture, specific antibodies
- B. Specific antigen, known antibody, bacteria
- C. Specific antigen, serum sample obtained from the patient
- D. Unknown antibodies, nonspecific antigen
- E. Thermoextract, specific serum

10. During laboratory diagnostics of hepatitis C, it is necessary to detect the presence of antibodies to hepatitis C virus in the patient's blood serum. What test should be conducted in this case?

- A. Enzyme-linked immuno sorbent assay (ELISA)
- B. Nucleic acid hybridization
- C. Nucleic acid hybridization with signal amplification
- D. Ligase chain reaction
- E. DNA probe method

1. After a tooth extraction, the patient developed acute heart failure. What drug should be prescribed in this case?

- A. Strophanthin
- B. Digitoxin
- C. Cordigitum
- D. Convallaria majalis tincture
- E. Adonisid

2. To treat ischemic heart disease, a patient was prescribed a beta-adrenergic blocking agent. After a time he developed a cough and bronchospasm. What drug can cause these side effects?

- A. Anaprilin (Propranolol)
- B. Talinolol
- C. Atenolol
- D. Phenihidine (Nifedipine)
- E. Metoprolol

3. A child with signs of rickets has been prescribed a certain liposoluble vitamin drug by the pediatrician and dentist. This drug affects the metabolism of phosphorus and calcium in the body and facilitates calcium accumulation in bone tissue and dentin. If its content in the body is insufficient, a person develops disorders of ossification process, dental structure, and occlusion. Name this drug:

- A. Ergocalciferol
- B. Retinol acetate
- C. Tocopherol acetate
- D. Menadione (Vicasolum)
- E. Thyroidin

4. A patient with signs of anxiety, fear, uncertainty, and mental strain was prescribed diazepam. What mechanism of tranquilizing action can be observed in this case?

- A. Interaction with benzodiazepine receptors
- B. Interaction with adrenergic receptors
- C. Interaction with cholinergic receptors
- D. Interaction with serotonin receptors
- E. Interaction with dopamine receptors

5. A patient with hypochromic anemia was prescribed an iron-containing drug for intravenous administration only. Name this drug:

- A. Fercoven
- B. Mannitol
- C. Furosemide
- D. Etacrynic acid
- E. Dichlothiazide (Hydrochlorothiazide)

6. A child presents with dry cough. What non-narcotic antitussive drug can relieve the patient's condition?

- A. Glaucine hydrochloride
- B. Codeine phosphate
- C. Morphine hydrochloride
- D. Potassium iodide
- E. *Althaea officinalis* roots

7. A patient with peptic ulcer disease of the stomach is prescribed a drug that blocks histamine H₂ receptors. Select this drug from the list:

- A. Famotidine
- B. Bisacodyl
- C. Omeprazole
- D. Atropine sulfate
- E. Dithylin (Suxamethonium)

8. The patient is in the state of cardiogenic shock, he needs to be given a non-glycoside cardiogenic drug. What will be the drug of choice in this case?

- A. Dobutamine
- B. Amrinone
- C. Cordiamin (Nikethamide)
- D. Ethimizol
- E. Caffeine

9. A certain drug with potent natriuretic action is usually prescribed for dehydration therapy of cerebral and pulmonary edemas. Name this drug:

- A. Furosemide
- B. Spironolactone
- C. Etacrynic acid
- D. Mannitol
- E. Theophylline

10. A patient with malignant tumor was prescribed a narcotic analgesic to relieve the unbearable pain. What is the mechanism of analgesic action of such drugs?

- A. Activation of opiate receptors
- B. Inhibition of cholinergic receptors
- C. Activation of D₂ dopamine receptors
- D. Inhibition of serotonin receptors
- E. Inhibition of histamine receptors

11. A patient with streptococcal pneumonia was prescribed an antimicrobial agent that disrupts microbial membranes. Name this drug:

- A. Benzylpenicillin sodium salt
- B. Erythromycin
- C. Azithromycin
- D. Doxycycline hydrochloride
- E. Gentamicin sulfate

12. A 26-year-old woman presents with skin rashes and itching after eating citrus fruits. Prescribe her a drug that is an H₁-histamine receptor antagonist:

- A.** Dimedrol (Diphenhydramine)
- B.** Acetylsalicylic acid
- C.** Menadione (Vicasolum)
- D.** Analgin (Metamizole)
- E.** Paracetamol

13. A 30-year-old patient after a case of viral hepatitis type B has developed complaints of continuous nasal hemorrhages. What drug would be the most advisable for treatment of this condition?

- A.** Menadione (Vicasolum)
- B.** Nadroparin calcium (Fraxiparine)
- C.** Folic acid
- D.** Dipyridamol
- E.** Asparcam

14. A patient with megaloblastic anemia was taking a water-soluble vitamin. Name this substance:

- A.** Cyanocobalamin
- B.** Thiamine chloride
- C.** Tocopherol acetate
- D.** Ascorbic acid
- E.** Pyridoxine

15. Complex therapy of a patient with bronchopneumonia accompanied by exhausting dry cough includes a certain mucolytic agent that depolymerizes mucoproteins. Name this drug:

- A.** Acetylcysteine
- B.** Codeine
- C.** Strophanthin
- D.** Neodicoumarin
- E.** Atenolol

16. Prior to tooth extraction under a local anesthesia, the patient was tested for novocaine allergy. The test result was positive. What substance can be used to administer anesthesia in this case?

- A.** Lidocaine
- B.** Procainamide
- C.** Acetylsalicylic acid
- D.** Analgin (Metamizole)
- E.** Sodium valproate

17. To terminate a bronchial asthma attack that developed in the patient during the tooth extraction, the patient was given salbutamol. This drug belongs to the following pharmacological group:

- A.** Beta-2-adrenergic agonists
- B.** Muscarinic agonists
- C.** Narcotic analgesics
- D.** Adaptogens
- E.** Analeptics

18. A doctor has made a diagnosis of gingivitis and recommended the patient to rinse the oral cavity with an oxidizing agent. Specify this agent:

- A.** Hydrogen peroxide
- B.** Boric acid
- C.** Salicylic acid
- D.** Phenol
- E.** Brilliant green