1. Patient with hypersecretion of the gastric juices was recomended to exclude from the diet concentrated bouillons and vegetable decoctions because of their stimulation of gastric secretion. What is dominating mechanism of stimulation of secretion in this case?

a. Stimulation of excretion of secretin in the duodenum
b. Stimulation of gastrin production by G-cells
c. Irritation of mechanoreceptors of the oral cavity
d. Irritation of taste receptors
e. Irritation of mechanoreceptors of the stomach

2. Person felt thirsty after staying in heat for a long time. Signals of what receptors caused it first of all?

a. Osmoreceptorsof the liver
b. Sodium receptors of hypothalamus
c. Osmoreceptors of hypothalamus
d. Glucoreceptors of hypothalamus
e. Baroreceptors of aortic arch

3. An individual is characterized by rounded face, broad forehead, a mongolian type of eyelid fold, flattened nasal bridge, permanently open mouth, projecting lower lip, protruding tongue, short neck, flat hands, and stubby fingers. What diagnosis can be put to the patient?

a. Klinefelters syndrome
b. Supermales
c. Turners syndrome
d. Downs syndrome
e. Alkaptonuria

4. Purulent endometritis developed in a woman after delivery. Treating with antibiotics inhibitors of murein synthesis was ineffective. Wide spectrum bactericidal antibiotic was administered to her. In 6 hours temperature rapidly increased up to 40°C with shiver. Muscle pains have appeared. BP dropped down to 70/40 mmHg. Oligura has developed. What is the main reason for the development of this condition?

a. Internal bleeding
b. Toxic effect of preparation
c. Endotoxic shock
d. Anaphylactic shock
e. Bacteremia

5. Secretion of which gastrointestinal hormones is primerily decreased in patient with removed duodenum?

a. Cholecystokinin and secretin
b. Histamine
c. Neurotensin
d. Gastrin and histamine
e. Gastrin

6. A 2-year-old child experienced convulsions because of lowering calcium ions concentration in the blood plasma. Function of what structure is decreased?

a. Hypophysis
b. Pineal gland
c. Thymus
d. Parathyroid glands
e. Adrenal cortex

7. While emotional excitement the heart rate in a 30-year-old person run up to 112 Bpm. What part of the conducting system of the heart caused it?

a. Synoatrial node
b. His bundle branches
c. His bundle

d. Intraventricular node
e. Purkinjes fibers

8. Usage of oral contraceptives with sex hormones inhibits secretion of the hypophysiae hormones. Secretion of which of the indicated hormones is inhibited while using oral contraceptives with sex hormones?
a. Oxytocin
b. Follicle-stimulating
c. Thyrotropic
d. Vasopressin
e. Somatotropic

9. During the breakout of acute respiratory infection in order to diagnose influenza the express-diagnosis, based on revealing of specific viral antigen in the examined material (nasopharyngial lavage), is carried out. Which reaction is used for this?
a. Precipitation
b. Opsonization
c. Complement binding
d. Agglutination
e. Immunofluorescence

10. A 38-year-old woman was admitted to the admission-diagnostic department with uterine bleeding. What are the most likely changes of blood?
a. Leucocytosis
b. Polycythemia
c. Increase of haematocrite rate
d. Leukopenia
e. Reduction of haematocrite rate

11. Due to action of electric current on the exitable cell there appeared depolarization of its membrane. Movement of what ions through the membrane caused depolarisation?
a.
b.
c.
d.
e. Na+

12. The high level of Lactate Dehydrogenase (LDH) isozymes concentration showed the increase of LDH-1 and LDH-2 in a patient
a. Skeletal muscle dystrophy
b. Viral hepatitis
c. Acute pancreatitis
d. Myocardial infarction
e. Diabetes mellitus

13. There is only one hormone among the neurohormones which refers to the derivatives of amino acids according to classification. Point it out:
a. Vasopressin
b. Thyroliberin
c. Melatonin
d. Oxytocin
e. Somatotropin

14. The sterile Petri dishes and pipettes are necessary to prepare for microbiological tests in bacteriological laboratory. What way of sterilization should be applied in this case?
a. Pasteurization
b. Tyndallization
c. Dry-heat sterilization

d. Steam sterilization in autoclave
e. Boiling

15. A patient after hypertension stroke does not have voluntary movements in his right arm and leg with the increased muscle tone in these extremites. What type of disfunction of nervous system is it?
a. Central paresis
b. Central paralysis
c. Peripheral paresis
d. Peripheral paralysis
e. Reflex paresis

16. Blood analysis of a patient showed signs of HIV infection (human immunodeficiency virus). Which cells does HIV-virus primarily affect?
a. Proliferating cells (stem hematoplastic cells)
b. Cells that contain receptor T4 (T-helpers)
c. Specialized nervous cells (neurons)
d. Cells that contain receptor IgM (B-lymphocytes)
e. Mast cells

17. The preventive radioprotector was given to a worker of a nuclear power station. What mechanism from the below mentioned is considered to be the main mechanism of radioprotection?
a. Increasing of respiration
b. Inhibition of free radicals formation
c. Activation of oxidation reactions
d. Prevention of tissue
e. Increasing of tissue blood supply

18. X-ray examination discovered lungs emphysema in the patient. What is the reason of short breath development in this case?
a. Excitation of respiratory center
b. Decreasing of alveoli receptors sensitivity
c. Increased lungs elasticity
d. Inhibition of respiratory center
e. Decreased lungs elasticity

19. On experiment on the dog the peripheral part of nervus vagus of the neck was irritated. What changes of the heart function would be observed?
a. Increased atrioventricular conduction
b. Increased contraction force
c. Decreased contraction rate
d. Increased contraction force and rate
e. Increased myocardial excitability

20. Power inputs of a boy increased from 500 to 2000 kJ pro hour. What can be the cause of it?
a. Food intake
b. Transition from sleep to wakefulness
c. Raise of outer temperatute
d. Mental activity
e. Physical exercise

21. A student is thoroughly summarising a lecture. When his groupmates begin talking the quality of the summarising worsens greatly. What type of inhibition in the cerebral cortex is the cause of it?
a. Dying
b. Protective
c. External
d. Differential
e. Delayed

22. In the experiment on the animal the part of the cerebral cortex hemispheres was removed. It

caused elimination of previously formed conditioned reflex to the light irritation. What part of the cortex was removed?

a. Postcentral convolution
b. Precentral convolution
c. Occipital cortex
d. Limbic cortex
e. Temporal lobe

23. Inhibition of alpha-motoneuron of the extensor muscles was noticed after stimulation of alpha-motoneuron of the flexor muscles during the experiment on the spinal column. What type of inhibition can this process cause?

a. Depolarizational
b. Presynaptic
c. Reciprocal
d. Recurrent
e. Lateral

24. Respiratory coefficient was studied in the patient who strictly kept certain diet for 10 days. It was determined that it is 1. What diet does the patient follow?

a. With domination of carbohydrates
b. With domination of fat and carbohydrates
c. With domination of proteins and carbohydrates
d. Mixed
e. With domination of proteins and fat

25. *a.

b.
c.
d.
e.

26. Punctata hemorrhage was found out in the patient after application of a tourniquet. With disfunction of what blood cells is it connected?

a. Platelets
b. Monocytes
c. Neutrophiles
d. Lymphocytes
e. Eosinophiles

27. Students who are taking examinations often have dry mouth. The mechanism that causes this state is the realization of the following reflexes:

a. Unconditioned sympathetic
b. Unconditioned peripheral
c. Unconditioned parasympathetic
d. Conditioned parasympathetic
e. Conditioned sympathetic

28. Middle part of cochlear of internal ear was destroyed in animal while experiment. It will cause abnormalities of the sound perception of the following frequencies:

a. Middle
b. High
c. No abnormalities
d. High and low
e. Low

29. The person has decreased diuresis, hypernatremia, hypokalemia. Hypersecretion of what hormon can cause such changes?

a. Parathormone

b. Aldosterone
c. Auricular sodiumuretic factor
d. Vasopressin
e. Adrenalin

30. The temperature of the ambient environment is 38 degrees and relative air humidity is 50%. What ways of heat emission provide maintaining a constant temperature of the human body?
a. Convection
b. Convection and conduction
c. Radiation
d. Heat conduction
e. Evaporation

31. The minute blood volume in a patient with transplanted heart has increased as a result of physical activity. What regulative mechanism is responsible for these changes?
a. Parasympathetic conditioned reflexes
b. Catecholamines
c. Parasympathetic unconditioned reflexes
d. Sympathetic unconditioned reflexes
e. Sympathetic conditioned reflexes

32. Isolated muscle of a frog is rhythmically irritated with electric impulses. Every next impulse is in a period of relaxation from the previus contraction. What contraction of the muscle appears?
a. Single
b. Continuous(smooth) tetanus
c. Tonic
d. Waved tetanus
e. Asynchronous

33. A man has normal sensitivity of his finger skin, however he doesn
a. Abnormality of the receptor structure
b. Receptor adaptation
c. Abnormality of the epidermis structure
d. Development of the fibrous tissue
e. Impaired circulation

34. An aged man had raise of arterial pressure under a stress. It was caused by activation of:
a. Functions of thyroid gland
b. Parasympathetic nucleus of vagus
c. Sympathoadrenal system
d. Functions of adrenal cortex
e. Hypophysis function

35. ECG study showed that the T-waves were positive in the standard extremity leads, their amplitude and duration were normal. The right conclusion would be that the following process runs normally in the heart ventricles:
a. Depolarization
b. Contraction
c. Relaxation
d. Repolarization
e. Excitement

36. Blood minute volume of a 30 year old woman at rest is 5 l/m. What blood volume is pumped through the pulmonary vessels per minute?
a. 5 l
b. 2,5 l
c. 1,5 l
d. 2,0 l

e. 3,75 l

37. As a result of long-term starvation the glomerular filtration of a man was accelerated by 20%. The most probable cause of filtration changes under such conditions is:

a. Growth of filtration coefficient
b. Increase of renal plasma flow
c. Rise of systemic arterial pressure
d. Increased permeability of renal filter
e. Fall of oncotic pressure of blood plasma

38. In course of an experiment a skeletal muscle is being stimulated by a series of electric impulses. What type of muscle contraction will arise, if every subsequent impulse comes in the period of shortening of the previous single muscle contraction?

a. Partial tetanus
b. A series of single contractions
c. Muscle contracture
d. Holotetanus
e. Asynchronous tetanus

39. Spasm of smooth muscle of bronchi developed in the patient. Usage of activators of what membrane cytoreceptors is fisiologically valid to decrease attack?

a.
b.
c. alpha-
d. alpha-
e. beta-adrenoreceptors

40. Intrapleural pressure is being measured in a person. In what phase has a person hold his breath if the pressure is - 25 cm H2O?

a. Calm inspiration
b. Calm expiration
c. Speed up inspiration
d. Speed up expiration
e. -

41. On examination of the person it was revealed that minute volume of heart is 3500mL, systolic volume is 50 mL. What is the frequency of cardiac contraction?

a. 90 bpm
b. 70 bpm
c. 50 bpm
d. 60 bpm
e. 80 bpm

42. Due to activation of ion channels of external membrane of excitable cell its rest potential has significantly increased. What channels were activated?

a. Slow calcium channels
b. Natrium and calcium channels
c. Natrium channels
d. Fast calcium channels
e. Potassium channels

43. The ventral roots of 5 frontal segment of spinal cord were cut during experiment in the animal. What changes will take place in the innervation region?

a. Loss of movements
b. Loss of temperature sensitivity
c. Hypersensitivity
d. Loss of proprioceptive sensitivity
e. Loss of touch sensitivity

44. Glomerular filtration rate (GFR) increased for 20% due to prolonged starvation of the person. The most likely cause of filtration changes under this conditions is:

a. Decrease of oncotic pressure of blood plasma
b. Increase of penetration of the renal filter
c. Increase of renal plasma stream
d. Increase of filtration coefficient
e. Increase of systemic blood pressure

45. A patient has a transverse disruption of spinal cord below the IV thoracic segment. What changes of respiration will it cause?

a. Respiration will become less frequent
b. Respiration will stop
c. Respiration will stay unchanged
d. Respiration will become deeper
e. Respiration will become more frequent

46. Due to cranial trauma the patient developed the symptoms: intention tremor, dysmetry, adiadochokinesis, dysarthria. What structure of the brain is injured?

a. Pale sphere
b. Black substance
c. Striatum
d. Motor cortex
e. Cerebellum

47. A lightly dressed man is standing in a room, air temperature is +14 degrees , windows and doors are closed. In what way does he emit heat the most actively?

a. Convection
b. Heat conduction
c. Heat radiation
d. Evaporation
e. Perspiration

48. ECG of a patient with hyperfunction of thyroid gland showed heart hurry. It is indicated by depression of the following ECG element:

a. P-Q interval
b. P-Q segment
c. R-R interval
d. P-T interval
e. QRS complex

49. A peripheral segment of vagus nerve on a dogs neck was being stimulated in course of an experiment. The following changes of cardiac activity could be meanwhile observed:

a. Increased excitability of myocardium
b. Heart rate fall
c. Enhancement of atrioventricular conduction
d. Heart hurry
e. Heart rate and heart force amplification

50. ECG of a patient shows prolongation of T-wave. This is caused by deceleration in ventricles of:

a. Contraction
b. Relaxation
c. Depolarization and repolarization
d. Depolarization
e. Repolarization

51. In a healthy adult speed of the excitement conduction through the atrioventricular node is 0,02-0,05 m/sec. Atrioventricular delay enables:

a. Simultaneity of both atria contractions

b. Sufficient force of atrial contractions
c. Sufficient force of ventricular contractions
d. Sequence of atrial and ventricular contractions
e. Simultaneity of both ventricles contractions

52. A 2 y.o. child has convulsions as a result of lowered concentration of calcium ions in blood plasma. It is caused by reduced function of:
a. Adrenal cortex
b. Hypophysis
c. Parathyroid glands
d. Pineal gland
e. Thymus

53. What heat transfer mechanism is the most effective while the man being at 80% of air moisture and the temperature +350
a. --
b. Evaporation
c. Heat conduction
d. Radiation
e. Convection

54. During preparation of a patient to a heart surgery it was necessary to measure pressure in heart chambers. In one of them pressure varied from 0 mm Hg up to 120 mm Hg within one cardiac cycle. What heart chamber is it?
a. Left ventricle
b. Right atrium
c. -
d. Left atrium
e. Right ventricle

55. Heart rate of a man permanently equals 40 beats pro minute. What is the pacemaker?
a. Atriventricular node
b. His bundle
c. Purkinjes fibers
d. His bundle branches
e. Sinoatrial node

56. Stimulation of an excitable cell by the electric current has led to the depolarization of its membrane. The depolarization has been caused mainly by the following ions penetrating into the cell through its membrane:
a. K+
b. Na+
c. Ca2+
d. HCO3-
e. Cl-

57. Parents of a 10 y.o. boy consulted a doctor about extension of hair-covering, growth of beard and moustache, low voice. Intensified secretion of which hormone must be assumed?
a. Of somatotropin
b. Of progesterone
c. Of cortisol
d. Of testosterone
e. Of oestrogen

58. Lung ventilation in a person is increased as a result of physical activity. Which of the following indices of the external respiration is much higher than in a state of rest?
a. Total lung capacity
b. Respiratory volume

c. Inspiratory reserve volume
d. Vital capacity of lungs
e. Expiratory reserve volume

59. A man took a quiet expiration. Name an air volume that is meanwhile contained in his lungs:
a. Vital lung capacity
b. Functional residual capacity
c. Expiratory reserve volume
d. Residual volume
e. Respiratory volume

60. Examination of an isolated cardiomyocyte revealed that it didnt generate excitation impulses automatically. This cardiomyocyte was obtained from:
a. Atrioventricular node
b. Sinoatrial node
c. Ventricles
d. His bundle
e. Purkinjes fibers

61. Examination of a man established that cardiac output equaled 3500 ml, systolic output - 50 ml. What is the mans heart rate pro minute?
a. 50
b. 60
c. 70
d. 80
e. 90

62. As a result of continuous starvation the glomerular filtration rate has increased by 20%. The most probable cause of the glomerular filtration alteration under the mentioned conditions is:
a. Increase in the systemic arterial pressure
b. Increase of the filtartion quotient
c. Increase of the renal blood flow
d. Decrease in the oncotic pressure of blood plasma
e. Increase in the permeability of the renal filter

63. A man who went for a ride on a roundabout had amplification of heart rate, sweating and nausea. What receptors stimulation is it primarily connected with?
a. Visual
b. Vestibular
c. Tactors
d. Proprioceptors
e. Auditory

64. A mans intrapleural pressure is being measured. In what phase did the man hold his breath, if his pressure is 7,5 cm Hg?
a. Quiet expiration
b. Forced expiration
c. -
d. Quiet inspiration
e. Forced inspiration

65. Atria of an experimental animal were superdistended by blood that resulted in decreased reabsorption of Na+ and water in renal tubules. This can be explained by the influence of the following factor upon kidneys:
a. Natriuretic hormone
b. Renin
c. Vasopressin
d. Angiotensin

e. Aldosterone

66. A middle-aged man went to a foreign country because he had been offered a job there. However he had been unemployed for quite a long time. What endocrine glands were exhausted most of all in this man?

a. Parathyroid glands
b. Substernal gland
c. Thyroid gland
d. Adrenal glands
e. Seminal glands

67. A 60-year-old man after cerebral hemorrhage felt asleep for a long time. Damage of what structure caused this state?

a. Reticular formation
b. Nuclears of the cerebral nerves
c. Black substances
d. Cortex of the large hemispheres
e. Hippocampus

68. A human body cools in water much faster that in the air. What way of heat emission in water is much more efficient?

a. Heat radiation
b. Convection
c. Heat conduction
d. Sweat evaporation
e. -

69. As a result of spinal-cord trauma a 33 y.o. man has a disturbed pain and temperature sensitivity that is caused by damage of the following tract:

a. Spinothalamic
b. Posterior spinocerebellar
c. Anterior spinocerebellar
d. Lateral spinocortical
e. Medial spinocortical

70. After a surgery a 36-year-old woman was given an intravenous injection of concentrated albumin solution. This has induced intensified water movement in the following direction:

a. No changes of water movement will be observed
b. From the intercellular fluid to the capillaries
c. From the cells to the intercellular fluid
d. From the intercellular fluid to the cells
e. From the capillaries to the intercellular fluid

71. A clinic observes a 49 year old patient with significant prolongation of coagulation time, gastrointestinal haemorrhages, subcutaneous hematomas. These symptoms might be explained by the deficiency of the following vitamin:

a. D6
b. D1
c. K
d. H
e. E

72. Examination of a patient revealed hyperkaliemia and hyponatremia. Low secretion of which hormone may cause such changes?

a. Natriuretic
b. Aldosteron
c. Cortisol
d. Vasopressin

e. Parathormone

73. Examination of a 43 y.o. anephric patient revealed anemia symptoms. What is the cause of these symptoms?

a. Iron deficit
b. Enhanced destruction of erythrocytes
c. Reduced synthesis of erythropoietins
d. Vitamin B12 deficit
e. Folic acid deficit

74. While determining power inputs of a patient

a. Carbohydrates and fats
b. Carbohydrates
c. Fats
d. Proteins
e. Proteins and carbohydrates

75. A patient has a disturbed absorbtion of fat hydrolysates. It might have been caused by a deficit in the small intestine cavity:

a. Of bile pigments
b. Of sodium ions
c. Of liposoluble vitamins
d. Of bile acids
e. Of lipolytic enzymes

76. Inhabitants of territories with cold climate have high content of an adaptive thermoregulatory hormone. What hormone is meant?

a. Thyroxin
b. Glucagon
c. Cortisol
d. Somatotropin
e. Insulin

77. A concentrated solution of sodium chloride was intravenously injected to an animal. This caused decreased reabsorption of sodium ions in the renal tubules. It is the result of the following changes of hormonal secretion:

a. Reduction of atrial natriuretic factor
b. Aldosterone reduction
c. Vasopressin reduction
d. Aldosterone increase
e. Vasopressin increase

78. Accelerated frequency of the heart rate and increased blood pressure were marked in the sportsman on the start before the competitions. Influence of what parts of the CNS can explain these changes?

a. Diencephalon
b. Hypothalamus
c. Medulla
d. Mesencephalon
e. Cortex of the large hemispheres

79. People adapted to high external temperatures have such pecularity: profuse sweating isnt accompanied by loss of large volumes of sodium chloride. This is caused by the effect of the following hormone upon the perspiratory glands:

a. Thyroxin
b. Natriuretic
c. Vasopressin
d. Cortisol

e. Aldosterone

80. During an experiment the dorsal roots of the spinal cord of an animal have been cut. What changes will be observed in the innervation zone?

a. Decrease in muscle tone
b. Loss of motor functions
c. Sensitivity loss
d. Increase in muscle tone
e. Sensitivity loss and loss of motor functions

81. As a result of destruction of certain brainstem structures an animal has lost its orientative reflexes in response to strong photic stimuli. What structures were destroyed?

a. Posterior tubercles of quadrigeminal plate
b. Vestibular nuclei
c. Black substance
d. Anterior tubercles of quadrigeminal plate
e. Red nuclei

82. As a result of damage to certain structures of brainstem an animal lost orientation reflexes. What structures were damaged?

a. Medial nuclei of reticular formation
b. Vestibular nuclei
c. Black substance
d. Quadritubercular bodies
e. Red nuclei

83. Osmotic pressure of a mans blood plasma is 350 mosmole/l (standard pressure is 300 mosmole/l). First of all it will result in high secretion of the following hormone:

a. Adrenocorticotropin
b. Natriuretic
c. Aldosteron
d. Cortisol
e. Vasopressin

84. A hypertensive glucose solution was introduced to a patient. It will intensify water movement:

a. From the cells to the intercellular liquid
b. From the intercellular liquid to the cells
c. There will be no changes of water movement
d. From the capillaries to the intercellular liquid
e. From the intercellular liquid to the capillaries

85. To prevent long-term effects of 4-day malaria a 42-year-old patient was prescribed primaquine. On the third day from the begin of treatment there appeared stomach and heart pains, dyspepsia, general cyanosis, hemoglobinuria. What caused side effects of the preparation?

a. Genetic insufficiency of glucose 6-phosphate dehydrogenase
b. Decreased activity of microsomal liver enzymes
c. Drug potentiation by other preparations
d. Delayed urinary excretion of the preparation
e. Cumulation of the preparation

86. According to audiometry data a patient has a disturbed perception of medium-frequency sounds. It might have been caused by a damage of:

a. Spiral ganglion
b. Cochlear nuclei
c. Middle part of helix
d. Quadritubercular structure
e. Lateral geniculate bodies

87. A 17-year-old boy fell seriously ill, body temperature rose up to 38,50

a. Suppurative inflammation
b. Hemorrhagic inflammation
c. Serous inflammation
d. Fibrinous inflammation
e. Catarrhal inflammation

88. A patient with disturbed cerebral circulation has problems with deglutition. What part of brain was damaged?
a. Forebrain
b. Cervical part of spinal cord
c. Brainstem
d. Interbrain
e. Midbrain

89. A patient who has been treated with diazepam on account of neurosis complains of toothache. Doctor administered him an analgetic, but its dose was lower than average therapeutic dose. What phenomenon did the doctor take into account while prescribing the patient an underdose?
a. Cumulation
b. Summation
c. Potentiation
d. Drug dependence
e. Tolerance

90. Long-term starvation cure of a patient resulted in diminished ratio of albumines and globulines in plasma. What of the following will be result of these changes?
a. Decrease of hematocrit
b. Hypercoagulation
c. Decrease of ESR
d. Increase of hematocrit
e. Increase of ESR

91. A patient has a decreased vasopressin synthesis that causes polyuria and as a result of it evident organism dehydratation. What is the mechanism of polyuria development?
a. Reduced tubular reabsorption of protein
b. Reduced tubular reabsorption of Na ions
c. Reduced tubular reabsorption of water
d. Reduced glucose reabsorption
e. Acceleration of glomerular filtration

92. To anaesthetize the manipulation related to burn surface treatment, a patient was intravenously injected a medication for short-acting narcosis. 1 minute later the patient being under anaesthesia had increased blood pressure, tachycardia, increased tone of sceletal muscles; reflexes remained. After awakening the patient had desorientation and visual hallucinations. What medication was the patient injected?
a. Diethyl ether
b. Sombrevin
c. Ketamine
d. Thiopental sodium
e. Nitrous oxide

93. A 35 year old man consulted a dentist about reduced density of dental tissue, high fragility of teeth during eating solid food. This patient suffers the most probably from the deficiency of the following mineral element:
a. Sodium
b. Potassium
c. Calcium
d. Magnesium
e. Iron

94. A patient is 44 years old. Laboratory examination of his blood revealed that content of proteins in plasma was 40 g/l. What influence will be exerted on the transcapillary water exchange?

a. Both filtration and reabsorption will be increased
b. Filtration will be decreased, reabsorption - increased
c. Exchange will stay unchanged
d. Filtration will be increased, reabsorption - decreased
e. Both filtration and reabsorption will be decreased

95. After destruction of CNS structures an animal lost orientative reflexes. What structure was destroyed?

a. Lateral vestibular nuclei
b. Red nucleus
c. Quadrigeminal plate
d. Black substance
e. Medial reticular nuclei

96. Examination of a patient revealed a strong, balanced, inert type of higher nervous activity according to Pavlov. What temperament type does the patient have (according to Hippocrates classification)?

a. Sanguine
b. Melancholic
c. -
d. Phlegmatic
e. Choleric

97. Examination of a patient revealed overgrowth of facial bones and soft tissues, tongue enlargement, wide interdental spaces in the enlarged dental arch. What changes of the hormonal secretion are the most likely?

a. Hypersecretion of insulin
b. Hyposecretion of the somatotropic hormone
c. Hypersecretion of the somatotropic hormone
d. Hyposecretion of thyroxin
e. Hyposecretion of insulin

98. A patient has a haemorrhage into the posterior central gyrus. What type of sensitivity on the opposite side will be disturbed?

a. Auditory and visual
b. Skin and proprioceptive
c. Auditory
d. Visual
e. Olfactory

99. Child asked you to puff up the balloon as much as possible for a one exhalation.What air volume will you use?

a. Inspiration volume
b. Total volume of the lungs
c. Backup volume of the inspiration
d. Vital volume of the lungs
e. Functional residual volume

100. A 32-year-old patient consulted a doctor about the absence of lactation after parturition. Such disorder might be explained by the deficit of the following hormone:

a. Thyrocalcitonin
b. Glucagon
c. Somatotropin
d. Vasopressin
e. Prolactin

101. During influenza epidemic 40% of pupils who didnt go in for sports were affected by the disease, and among the pupils who regularly did physical exercises this index was only 20%. What adaptative mechanisms determined such a low sickness rate of pupils participating in the sports?

a. Biochemical adaptation
b. Genetic adaptation
c. Specific adaptation
d. Physiological adaptation
e. Cross adaptation

102. A 30-year-old woman was diagnosed with insufficiency of exocrinous function of pancreas. Hydrolisis of what nutrients will be disturbed?

a. Proteins, fats
b. Fats, carbohydrates
c. Proteins
d. Proteins, fats, carbohydrates
e. Proteins, carbohydrates

103. Short-term physical activity resulted in reflex amplification of heart rate and raise of systemic arterial pressure. What receptors activation was the main cause of pressor reflex realization?

a. Hypothalamus thermoreceptors
b. Proprioreceptors of active muscles
c. Vascular volume receptors
d. Vascular chemoreceptors
e. Vascular baroreceptors

104. In course of an experiment a skeletal muscle is being stimulated by a series of electric impulses. What type of muscle contraction will arise, if every subsequent impulse comes in the period of relaxation of single muscle contraction?

a. Muscle contructure
b. Asynchronous tetanus
c. Holotetanus
d. A series of single contractions
e. Partial tetanus

105. Packed cell volume of a man was 40% before the trauma. What packed cell volume will be observed 24 hours after blood loss of 750 ml?

a. 45%
b. 50%
c. 40%
d. 55%
e. 30%

106. A patient staggers and walks astraddle. He has hypomyotonia of arm and leg muscles, staccato speech. In what brain section is this affection localized?

a. Motor cortex
b. Red nucleus
c. Putamen
d. Caudate nucleus
e. Cerebellum

107. a.

b.
c.
d.
e.

108. Blood group of a 30 year old man was specified before an operation. His blood is Rh-positive. Reaction of erythrocyte agglutination was absent with standard sera of 0alphabeta (I),

a. -
b. 0alphabeta (I)
c.
d.
e.

109. During an experiment the myotatic reflex has been studied in frogs. After extension in a skeletal muscle it is reflectory contraction was absent. The reason for it might be a dysfunction of the following receptors:
a. Articular
b. Nociceptors
c. Muscle spindles
d. Golgi tendon organs
e. Tactile

110. Vagus branches that innervate heart are being stimulated in course of an experiment. As a result of it the excitement conduction from atria to the ventricles was brought to a stop. It is caused by electrophysical changes in the following structures:
a. Sinoatrial node
b. His bundle
c. Atrioventricular node
d. Ventricles
e. Atria

111. If a man has an attack of bronchiospasm it is necessary to reduce the effect of vagus on smooth muscles of bronchi. What membrane cytoreceptors should be blocked for this purpose?
a. M-cholinoreceptors
b. alpha-adrenoreceptors
c. alpha- and beta-adrenoreceptors
d. beta-adrenoreceptors
e. N-cholinoreceptors

112. A man weighs 80 kg, after long physical activity his circulating blood volume is reduced down to 5,4 l, hematocrit makes up 50%, whole blood protein is 80 g/l. These blood characteristics are determined first of all by:
a. Increased diuresis
b. Water loss with sweat
c. Increased protein concentration in plasm
d. Increased number of erythrocytes
e. Increased circulating blood volume

113. A 16 year old boy after an illness has diminished function of protein synthesis in liver as a result of vitamin K deficiency. It will cause disturbance of:
a. Anticoagulant generation
b. Erythrocyte sedimentation rate
c. Blood coagulation
d. Erythropoietin secretion
e. Osmotic blood pressure

114. In response to a change in body position from horizontal to vertical blood circulation system develops reflectory pressor reaction. Which of the following is its compulsory component?
a. Weakening of the pumbing ability of heart
b. Systemic constriction of the venous vessels
c. Decrease in the circulating blood volume
d. Systemic dilatation of the arterial resistive vessels
e. Increase in the heart rate

115. Examination of a pregnant woman revealed twice as much concentration of fibrinogen in blood

plasm. What ESR can this woman have?

a. 0-5 mm/h

b. 40-50 mm/h

c. 2-12 mm/h

d. 10-15 mm/h

e. 5-10 mm/h

116. Introduction of a big dose of histamine to an experimental animal caused abrupt drop of arterial pressure as a result of:

a. Increase of heart rate

b. Constriction of resistance vessels

c. Dilatation of resistance vessels

d. Decrease of heart rate

e. Decrease of heart rate and force

117. Systemic arterial pressure of an adult dropped from 120/70 to 90/50 mm Hg that led to reflectory vasoconstriction. The vasoconstriction will be maximal in the following organ:

a. Kidneys

b. Adrenals

c. Heart

d. Brain

e. Bowels

118. Vagus branches that innervate heart are being stimulated during an experiment. This caused reduction of heart rate due to the intensification of the following process (through the cell membrane of cardiac pacemaker):

a. Calcium and potassium ion yield

b. Potassium ion yield

c. Calcium ion entry

d. Potassium ion entry

e. Calcium ion yield

119. Rest potential of a cell equals -80 mV. At what stage of action potential did the membrane potential equal +30 mV?

a. Reverse polarization

b. After depolarization

c. -

d. Depolarization

e. After hyperpolarization

120. A 35 year old man got an injury that caused complete disruption of spinal cord at the level of the first cervical segment. What respiration changes will be observed?

a. Thoracic respiration will be maintained, diaphragmal respiration will disappear

b. It will become infrequent and deep

c. No changes will be observed

d. Diaphragmal respiration will be maintained, thoracic respiration will disappear

e. It will come to a standstill

121. A man was intoxicated with mushrooms. They contain muscarine that stimulates muscarinic cholinoreceptors. What symptoms signalize intoxication with inedible mushrooms?

a. Bronchi dilatation

b. Mydriatic pupils

c. Myotic pupils

d. Increased heart rate

e. Rise of arterial pressure

122. A man presents with increased heart rate, mydriatic pupils, dry mouth. This condition results from the activation of the following system of function regulation:

a. Parasympathetic
b. Vago-insular
c. Hypothalamo-pituitary-adrenal
d. Sympathetic
e. Metasympathetic

123. In course of an experiment a peripheral section of vagus of an expiremental animal is being stimulated. What changes will be observed?
a. Heart rate fall
b. Pupil dilation
c. Bronchi dilation
d. Increase of respiration rate
e. Heart hurry

124. Voluntary breath-holding caused increase of respiration depth and frequency. The main factor stimulating these changes of external respiration is:
a. Increased tension of CO_2 in blood
b. Decreased tension of O_2 in blood
c. Decreased concentration of H^+ in blood
d. Decreased tension of CO_2 in blood
e. Increased tension of O_2 in blood

125. A patient has delayed conduction of excitement through the atrioventricular node. What changes of ECG will be observed?
a. Prolongation of P-Q interval
b. Negative T wave
c. Prolongation of Q-T interval
d. S-T-segment displacement
e. Prolongation of Q-S interval

126. Surface with an intact toad on it was inclined to the right. Tone of extensor muscles became reflectory higher due to the activation of the following receptors:
a. Proprioreceptors
b. Vestibuloreceptors of utricle and saccule
c. Mechanoreceptors of foot skin
d. Vestibuloreceptors of semicircular ducts
e. Photoreceptors of retina

127. In course of an experiment a toads right labyrinth was destroyed. It will cause amyotonia of the following muscles:
a. Left flexors
b. Right flexors
c. Right and left extensors
d. Right extensors
e. Left extensors

128. An animal has an increased tonus of extensor muscles. This the result of intensified information transmission to the motoneurons of the spinal cord through the following descending pathways:
a. Rubrospinal
b. Lateral corticospinal
c. Medial corticospinal
d. Reticulospinal
e. Vestibulospinal

129. Workers of a hothouse farm work under conditions of unfavourable microclimate: air temperature is +37oC, relative humidity is 90%, air speed is 0,2 m/s. The way of heat emission under these conditions will be:
a. Heat conduction

b. Radiation
c. All the ways
d. Evaporation
e. Convection

130. Lungs of a preterm infant have areas of atelectasis (pulmonary collapse). The main cause is:
a. Surfactant deficiency
b. Underdeveloped inspiration muscles
c. Surfactant excess
d. Diminished force of surface tension of lungs
e. Increased viscous resistance

131. Vagi of an experimental animal were cut on both sides. What respiration changes will be observed?
a. It will become shallow and frequent
b. It will become shallow and infrequent
c. No changes will be observed
d. It will become deep and infrequent
e. It will become deep and frequent

132. A cardiac electric stimulator was implanted to a 75 year old man with heart rate of 40 bpm. Thereafter the heart rate rose up to 70 bpm. The electric stimulator has undertaken the function of the following heart part:
a. Purkinjes fibers
b. Sinoatrial node
c. His bundle branches
d. Atrioventricular node
e. His bundle fibers

133. A patient came to the hospital complaining about quick fatigability and apparent muscle weakness. Examination revealed an autoimmune disease that causes disorder of functional receptor condition in neuromuscular synapses. What transmitter will be blocked?
a. Noradrenalin
b. Serotonin
c. Glycine
d. Acetylcholine
e. Dopamine

134. Which muscle contraction will be observed in the upper extremity during holding (not moving) a load in a certain position?
a. Isotonic
b. Concentric
c. Excentric
d. Isometric
e. Auxotonic

135. Examination of a 35 year old patient revealed high acidity of gastric juice. What receptors should be blocked in order to reduce it?
a. Beta1-adrenoreceptors
b. Beta2-adrenoreceptors
c. Alpha1-adrenoreceptors
d. Alpha2-adrenoreceptors
e. Histamine

136. A young woman who entered a production department where it strongly smelt of paints and varnishes had a bronchospasm. This reflex was caused by irritation of the following receptors:
a. Peripheral chemoreceptors
b. Irritant

c. Pleura receptors
d. Juxtaglomerular
e. Central chemoreceptors

137. A 60-year-old patient presents with weakened peristaltic activity of the bowels. Which of the following foodstuffs would stimulate peristalsis most of all?
a. Brown bread
b. Meat
c. Tea
d. Lard
e. White bread

138. An isolated muscle fiber is under examination. It was established that the threshold of stimulation force became significantly lower. What is the cause of this phenomenon?
a. Inactivation of sodium channels of membrane
b. Activation of potassium channels of membrane
c. Activation of sodium channels of membrane
d. Inactivation of potassium channels of membrane
e. Block of energy production in the cell

139. It was established that agglutination of the recipient
a. 0, alpha,beta, (I) Rh+
b. A, beta (II) Rh-
c. B, alpha (III) Rh-
d. AB (IV), Rh+
e. AB (IV), Rh-

140. Patient with hypersecretion of the gastric juices was recomended to exclude from the diet concentrated bouillons and vegetable decoctions because of their stimulation of gastric secretion. What is dominating mechanism of stimulation of secretion in this case?
a. Irritation of mechanoreceptors of the oral cavity
b. Irritation of taste receptors
c. Stimulation of gastrin production by G-cells
d. Irritation of mechanoreceptors of the stomach
e. Stimulation of excretion of secretin in the duodenum

141. Person felt thirsty after staying in heat for a long time. Signals of what receptors caused it first of all?
a. Osmoreceptors of hypothalamus
b. Osmoreceptorsof the liver
c. Baroreceptors of aortic arch
d. Glucoreceptors of hypothalamus
e. Sodium receptors of hypothalamus

142. An individual is characterized by rounded face, broad forehead, a mongolian type of eyelid fold, flattened nasal bridge, permanently open mouth, projecting lower lip, protruding tongue, short neck, flat hands, and stubby fingers. What diagnosis can be put to the patient?
a. Supermales
b. Turners syndrome
c. Klinefelters syndrome
d. Alkaptonuria
e. Downs syndrome

143. Purulent endometritis developed in a woman after delivery. Treating with antibiotics inhibitors of murein synthesis was ineffective. Wide spectrum bactericidal antibiotic was administered to her. In 6 hours temperature rapidly increased up to 40°C with shiver. Muscle pains have appeared. BP dropped down to 70/40 mmHg. Oligura has developed. What is the main reason for the development of this condition?

a. Endotoxic shock
b. Internal bleeding
c. Bacteremia
d. Anaphylactic shock
e. Toxic effect of preparation

144. Secretion of which gastrointestinal hormones is primerily decreased in patient with removed duodenum?
a. Gastrin and histamine
b. Neurotensin
c. Gastrin
d. Histamine
e. Cholecystokinin and secretin

145. A 2-year-old child experienced convulsions because of lowering calcium ions concentration in the blood plasma. Function of what structure is decreased?
a. Parathyroid glands
b. Adrenal cortex
c. Thymus
d. Pineal gland
e. Hypophysis

146. While emotional excitement the heart rate in a 30-year-old person run up to 112 Bpm. What part of the conducting system of the heart caused it?
a. His bundle branches
b. Purkinjes fibers
c. Synoatrial node
d. Intraventricular node
e. His bundle

147. Usage of oral contraceptives with sex hormones inhibits secretion of the hypophysiae hormones. Secretion of which of the indicated hormones is inhibited while using oral contraceptives with sex hormones?
a. Thyrotropic
b. Vasopressin
c. Follicle-stimulating
d. Somatotropic
e. Oxytocin

148. A 38-year-old woman was admitted to the admission-diagnostic department with uterine bleeding. What are the most likely changes of blood?
a. Polycythemia
b. Reduction of haematocrite rate
c. Leukopenia
d. Increase of haematocrite rate
e. Leucocytosis

149. Due to action of electric current on the exitable cell there appeared depolarization of its membrane. Movement of what ions through the membrane caused depolarisation?
a. Ca2+
b. HCO3-
c. Na+
d. Cl-
e. K+

150. The high level of Lactate Dehydrogenase (LDH) isozymes concentration showed the increase of LDH-1 and LDH-2 in a patient’s blood plasma. Point out the most probable diagnosis:
a. Myocardial infarction

b. Diabetes mellitus
c. Acute pancreatitis
d. Viral hepatitis
e. Skeletal muscle dystrophy

151. There is only one hormone among the neurohormones which refers to the derivatives of amino acids according to classification. Point it out:
a. Oxytocin
b. Somatotropin
c. Thyroliberin
d. Vasopressin
e. Melatonin

152. The sterile Petri dishes and pipettes are necessary to prepare for microbiological tests in bacteriological laboratory. What way of sterilization should be applied in this case?
a. Dry-heat sterilization
b. Pasteurization
c. Boiling
d. Steam sterilization in autoclave
e. Tyndallization

153. A patient after hypertension stroke does not have voluntary movements in his right arm and leg with the increased muscle tone in these extremites. What type of disfunction of nervous system is it?
a. Peripheral paresis
b. Peripheral paralysis
c. Central paralysis
d. Reflex paresis
e. Central paresis

154. Blood analysis of a patient showed signs of HIV infection (human immunodeficiency virus). Which cells does HIV-virus primarily affect?
a. Cells that contain receptor IgM (B-lymphocytes)
b. Mast cells
c. Proliferating cells (stem hematoplastic cells)
d. Cells that contain receptor T4 (T-helpers)
e. Specialized nervous cells (neurons)

155. The preventive radioprotector was given to a worker of a nuclear power station. What mechanism from the below mentioned is considered to be the main mechanism of radioprotection?
a. Activation of oxidation reactions
b. Prevention of tissue’s hypoxia
c. Inhibition of free radicals formation
d. Increasing of tissue blood supply
e. Increasing of respiration

156. X-ray examination discovered lungs emphysema in the patient. What is the reason of short breath development in this case?
a. Inhibition of respiratory center
b. Increased lungs elasticity
c. Decreased lungs elasticity
d. Excitation of respiratory center
e. Decreasing of alveoli receptors sensitivity

157. On experiment on the dog the peripheral part of nervus vagus of the neck was irritated. What changes of the heart function would be observed?
a. Increased myocardial excitability
b. Decreased contraction rate
c. Increased atrioventricular conduction

d. Increased contraction force
e. Increased contraction force and rate

158. A student is thoroughly summarising a lecture. When his groupmates begin talking the quality of the summarising worsens greatly. What type of inhibition in the cerebral cortex is the cause of it?
a. Protective
b. Differential
c. Delayed
d. External
e. Dying

159. In the experiment on the animal the part of the cerebral cortex hemispheres was removed. It caused elimination of previously formed conditioned reflex to the light irritation. What part ot the cortex was removed?
a. Temporal lobe
b. Occipital cortex
c. Postcentral convolution
d. Precentral convolution
e. Limbic cortex

160. Inhibition of alpha-motoneuron of the extensor muscles was noticed after stimulation of alpha-motoneuron of the flexor muscles during the experiment on the spinal column. What type of inhibition can this process cause?
a. Presynaptic
b. Recurrent
c. Lateral
d. Reciprocal
e. Depolarizational

161. Respiratory coefficient was studied in the patient who strictly kept certain diet for 10 days. It was determined that it is 1. What diet does the patient follow?
a. With domination of proteins and fat
b. Mixed
c. With domination of proteins and carbohydrates
d. With domination of carbohydrates
e. With domination of fat and carbohydrates

162. On blood grouping on the system ABO, standart serum of the I and II groups caused erythrocytes agglutination of the examined blood and serum group of the III didnt. What agglutinogens are in this erythrocytes?
a. C
b. D and C
c. A
d. A and B
e. B

163. Punctata hemorrhage was found out in the patient after application of a tourniquet. With disfunction of what blood cells is it connected?
a. Neutrophiles
b. Platelets
c. Monocytes
d. Eosinophiles
e. Lymphocytes

164. Middle part of cochlear of internal ear was destroyed in animal while experiment. It will cause abnormalities of the sound perception of the following frequencies:
a. High and low
b. No abnormalities

c. Low
d. High
e. Middle

165. The temperature of the ambient environment is 38oC and relative air humidity is 50%. What ways of heat emission provide maintaining a constant temperature of the human body?
a. Evaporation
b. Heat conduction
c. Convection and conduction
d. Convection
e. Radiation

166. The minute blood volume in a patient with transplanted heart has increased as a result of physical activity. What regulative mechanism is responsible for these changes?
a. Catecholamines
b. Parasympathetic unconditioned reflexes
c. Parasympathetic conditioned reflexes
d. Sympathetic conditioned reflexes
e. Sympathetic unconditioned reflexes

167. Isolated muscle of a frog is rhythmically irritated with electric impulses. Every next impulse is in a period of relaxation from the previus contraction. What contraction of the muscle appears?
a. Tonic
b. Waved tetanus
c. Asynchronous
d. Single
e. Continuous(smooth) tetanus

168. A man has normal sensitivity of his finger skin, however he doesn’t sense his wedding ring around the finger. What process induced by wearing of the ring has caused this phenomenon?
a. Abnormality of the epidermis structure
b. Development of the fibrous tissue
c. Receptor adaptation
d. Impaired circulation
e. Abnormality of the receptor structure

169. ECG study showed that the T-waves were positive in the standard extremity leads, their amplitude and duration were normal. The right conclusion would be that the following process runs normally in the heart ventricles:
a. Contraction
b. Relaxation
c. Depolarization
d. Excitement
e. Repolarization

170. Blood minute volume of a 30 year old woman at rest is 5 l/m. What blood volume is pumped through the pulmonary vessels per minute?
a. 1,5 l
b. 5 l
c. 2,5 l
d. 3,75 l
e. 2,0 l

171. As a result of long-term starvation the glomerular filtration of a man was accelerated by 20%. The most probable cause of filtration changes under such conditions is:
a. Increase of renal plasma flow
b. Fall of oncotic pressure of blood plasma
c. Increased permeability of renal filter

d. Rise of systemic arterial pressure
e. Growth of filtration coefficient

172. In course of an experiment a skeletal muscle is being stimulated by a series of electric impulses. What type of muscle contraction will arise, if every subsequent impulse comes in the period of shortening of the previous single muscle contraction?
a. Muscle contracture
b. Holotetanus
c. Asynchronous tetanus
d. Partial tetanus
e. A series of single contractions

173. While shifting the gaze to the closely situated object the refracting power of eyes optical mediums will increase by 10 diopters. It results from changing of such eye structure:
a. Muscle that dilatates pupil
b. Lens
c. Vitreous body
d. Cornea
e. Liquid of the anterior chamber of eye

174. Spasm of smooth muscle of bronchi developed in the patient. Usage of activators of what membrane cytoreceptors is fisiologically valid to decrease attack?
a. beta-adrenoreceptors
b. alpha-and-beta-adrenoreceptors
c. M-cholinoreceptors
d. H-cholinoreceptors
e. alpha-adrenoreceptors

175. Intrapleural pressure is being measured in a person. In what phase has a person hold his breath if the pressure is - 25 cm H2O?
a. Calm expiration
b. Speed up expiration
c. -
d. Speed up inspiration
e. Calm inspiration

176. On examination of the person it was revealed that minute volume of heart is 3500mL, systolic volume is 50 mL. What is the frequency of cardiac contraction?
a. 50 bpm
b. 60 bpm
c. 70 bpm
d. 80 bpm
e. 90 bpm

177. Due to activation of ion channels of external membrane of excitable cell its rest potential has significantly increased. What channels were activated?
a. Potassium channels
b. Fast calcium channels
c. Natrium and calcium channels
d. Slow calcium channels
e. Natrium channels

178. The ventral roots of 5 frontal segment of spinal cord were cut during experiment in the animal. What changes will take place in the innervation region?
a. Loss of proprioceptive sensitivity
b. Hypersensitivity
c. Loss of touch sensitivity
d. Loss of temperature sensitivity

e. Loss of movements

179. Glomerular filtration rate (GFR) increased for 20% due to prolonged starvation of the person. The most likely cause of filtration changes under this conditions is:

a. Increase of renal plasma stream

b. Decrease of oncotic pressure of blood plasma

c. Increase of penetration of the renal filter

d. Increase of systemic blood pressure

e. Increase of filtration coefficient

180. A patient has a transverse disruption of spinal cord below the IV thoracic segment. What changes of respiration will it cause?

a. Respiration will stay unchanged

b. Respiration will become less frequent

c. Respiration will become more frequent

d. Respiration will become deeper

e. Respiration will stop

181. Due to cranial trauma the patient developed the symptoms: intention tremor, dysmetry, adiadochokinesis, dysarthria. What structure of the brain is injured?

a. Motor cortex

b. Striatum

c. Cerebellum

d. Pale sphere

e. Black substance

182. A lightly dressed man is standing in a room, air temperature is +14oC, windows and doors are closed. In what way does he emit heat the most actively?

a. Heat radiation

b. Convection

c. Perspiration

d. Evaporation

e. Heat conduction

183. ECG of a patient with hyperfunction of thyroid gland showed heart hurry. It is indicated by depression of the following ECG element:

a. QRS complex

b. R-R interval

c. P-Q interval

d. P-Q segment

e. P-T interval

184. A peripheral segment of vagus nerve on a dogs neck was being stimulated in course of an experiment. The following changes of cardiac activity could be meanwhile observed:

a. Heart hurry

b. Heart rate and heart force amplification

c. Increased excitability of myocardium

d. Heart rate fall

e. Enhancement of atrioventricular conduction

185. ECG of a patient shows prolongation of T-wave. This is caused by deceleration in ventricles of:

a. Depolarization and repolarization

b. Contraction

c. Relaxation

d. Repolarization

e. Depolarization

186. In a healthy adult speed of the excitement conduction through the atrioventricular node is 0,02-0,05 m/sec. Atrioventricular delay enables:

a. Sufficient force of ventricular contractions
b. Sequence of atrial and ventricular contractions
c. Simultaneity of both ventricles contractions
d. Simultaneity of both atria contractions
e. Sufficient force of atrial contractions

187. A 2 y.o. child has convulsions as a result of lowered concentration of calcium ions in blood plasma. It is caused by reduced function of:
a. Thymus
b. Parathyroid glands
c. Adrenal cortex
d. Hypophysis
e. Pineal gland

188. What heat transfer mechanism is the most effective while the man being at 80% of air moisture and the temperature +350C?
a. Evaporation
b. Heat conduction
c. --
d. Convection
e. Radiation

189. During preparation of a patient to a heart surgery it was necessary to measure pressure in heart chambers. In one of them pressure varied from 0 mm Hg up to 120 mm Hg within one cardiac cycle. What heart chamber is it?
a. Left atrium
b. -
c. Right ventricle
d. Right atrium
e. Left ventricle

190. Heart rate of a man permanently equals 40 beats pro minute. What is the pacemaker?
a. Purkinjes fibers
b. Atriventricular node
c. His bundle
d. Sinoatrial node
e. His bundle branches

191. Stimulation of an excitable cell by the electric current has led to the depolarization of its membrane. The depolarization has been caused mainly by the following ions penetrating into the cell through its membrane:
a. HCO3-
b. Cl-
c. K+
d. Na+
e. Ca2+

192. Lung ventilation in a person is increased as a result of physical activity. Which of the following indices of the external respiration is much higher than in a state of rest?
a. Expiratory reserve volume
b. Total lung capacity
c. Vital capacity of lungs
d. Inspiratory reserve volume
e. Respiratory volume

193. A man took a quiet expiration. Name an air volume that is meanwhile contained in his lungs:
a. Residual volume
b. Respiratory volume

c. Vital lung capacity
d. Functional residual capacity
e. Expiratory reserve volume

194. Examination of an isolated cardiomyocyte revealed that it didnt generate excitation impulses automatically. This cardiomyocyte was obtained from:
a. Purkinjes fibers
b. Ventricles
c. Atrioventricular node
d. Sinoatrial node
e. His bundle

195. Examination of a man established that cardiac output equaled 3500 ml, systolic output - 50 ml. What is the mans heart rate pro minute?
a. 70
b. 50
c. 90
d. 80
e. 60

196. As a result of continuous starvation the glomerular filtration rate has increased by 20%. The most probable cause of the glomerular filtration alteration under the mentioned conditions is:
a. Increase in the permeability of the renal filter
b. Increase in the systemic arterial pressure
c. Decrease in the oncotic pressure of blood plasma
d. Increase of the filtartion quotient
e. Increase of the renal blood flow

197. Atria of an experimental animal were superdistended by blood that resulted in decreased reabsorption of Na+ and water in renal tubules. This can be explained by the influence of the following factor upon kidneys:
a. Renin
b. Aldosterone
c. Natriuretic hormone
d. Angiotensin
e. Vasopressin

198. A middle-aged man went to a foreign country because he had been offered a job there. However he had been unemployed for quite a long time. What endocrine glands were exhausted most of all in this man?
a. Seminal glands
b. Parathyroid glands
c. Adrenal glands
d. Substernal gland
e. Thyroid gland

199. A 60-year-old man after cerebral hemorrhage felt asleep for a long time. Damage of what structure caused this state?
a. Nuclears of the cerebral nerves
b. Hippocampus
c. Reticular formation
d. Cortex of the large hemispheres
e. Black substances

200. A human body cools in water much faster that in the air. What way of heat emission in water is much more efficient?
a. -
b. Heat conduction

c. Heat radiation
d. Convection
e. Sweat evaporation

201. As a result of spinal-cord trauma a 33 years old man has a disturbed pain and temperature sensitivity that is caused by damage of the following tract:
a. Lateral spinocortical
b. Anterior spinocerebellar
c. Medial spinocortical
d. Posterior spinocerebellar
e. Spinothalamic

202. A clinic observes a 49 year old patient with significant prolongation of coagulation time, gastrointestinal haemorrhages, subcutaneous hematomas. These symptoms might be explained by the deficiency of the following vitamin:
a. B6
b. B1
c. K
d. H
e. E

203. Examination of a patient revealed hyperkaliemia and hyponatremia. Low secretion of which hormone may cause such changes?
a. Parathormone
b. Natriuretic
c. Vasopressin
d. Cortisol
e. Aldosteron

204. Examination of a 43 years old anephric patient revealed anemia symptoms. What is the cause of these symptoms?
a. Reduced synthesis of erythropoietins
b. Iron deficit
c. Folic acid deficit
d. Vitamin B12 deficit
e. Enhanced destruction of erythrocytes

205. A man is being measured power inputs on an empty stomach, in the lying position, under conditions of physical and psychic rest at a comfortable temperature. Power inputs will reach the maximum at:
a. 5-6 p.m
b. 10-12 a.m
c. 3-4 a.m
d. 2-3 p.m
e. 7-8 a.m

206. When measuring power inputs of a man by the method of indirect calorimetry the following results were obtained: 1000 ml oxygen consumption and 800 ml carbon dioxide liberation per minute. The man under examination has the following respiratory coefficient:
a. 0,8
b. 0,9
c. 1,0
d. 0,84
e. 1,25

207. While determining power inputs of a patient’s organism it was established that the respiratory coefficient equaled 1,0. This means that in the cells of the patient the following substances are mainly oxidized:

a. Fats
b. Proteins
c. Carbohydrates
d. Proteins and carbohydrates
e. Carbohydrates and fats

208. Inhabitants of territories with cold climate have high content of an adaptive thermoregulatory hormone. What hormone is meant?
a. Glucagon
b. Insulin
c. Thyroxin
d. Somatotropin
e. Cortisol

209. A concentrated solution of sodium chloride was intravenously injected to an animal. This caused decreased reabsorption of sodium ions in the renal tubules. It is the result of the following changes of hormonal secretion:
a. Aldosterone increase
b. Vasopressin increase
c. Reduction of atrial natriuretic factor
d. Aldosterone reduction
e. Vasopressin reduction

210. Accelerated frequency of the heart rate and increased blood pressure were marked in the sportsman on the start before the competitions. Influence of what parts of the CNS can explain these changes?
a. Hypothalamus
b. Cortex of the large hemispheres
c. Mesencephalon
d. Medulla
e. Diencephalon

211. People adapted to high external temperatures have such pecularity: profuse sweating isnt accompanied by loss of large volumes of sodium chloride. This is caused by the effect of the following hormone upon the perspiratory glands:
a. Aldosterone
b. Cortisol
c. Natriuretic
d. Tgyroxin
e. Vasopressin

212. During an experiment the dorsal roots of the spinal cord of an animal have been cut. What changes will be observed in the innervation zone?
a. Increase in muscle tone
b. Sensitivity loss and loss of motor functions
c. Loss of motor functions
d. Decrease in muscle tone
e. Sensitivity loss

213. As a result of destruction of certain brainstem structures an animal has lost its orientative reflexes in response to strong photic stimuli. What structures were destroyed?
a. Anterior tubercles of quadrigeminal plate
b. Red nuclei
c. Black substance
d. Vestibular nuclei
e. Posterior tubercles of quadrigeminal plate

214. As a result of damage to certain structures of brainstem an animal lost orientation reflexes. What

structures were damaged?
a. Red nuclei
b. Medial nuclei of reticular formation
c. Quadritubercular bodies
d. Vestibular nuclei
e. Black substance

215. Osmotic pressure of a mans blood plasma is 350 mosmole/l (standard pressure is 300 mosmole/l). First of all it will result in high secretion of the following hormone:
a. Aldosteron
b. Adrenocorticotropin
c. Natriuretic
d. Vasopressin
e. Cortisol

216. A hypertensive glucose solution was introduced to a patient. It will intensify water movement:
a. There will be no changes of water movement
b. From the cells to the intercellular liquid
c. From the intercellular liquid to the cells
d. From the intercellular liquid to the capillaries
e. From the capillaries to the intercellular liquid

217. To prevent long-term effects of 4-day malaria a 42-year-old patient was prescribed primaquine. On the 3-rd day from the begin of treatment there appeared stomach and heart pains, dyspepsia, general cyanosis, hemoglobinuria. What caused side effects of the preparation?
a. Genetic insufficiency of glucose 6-phosphate dehydrogenase
b. Decreased activity of microsomal liver enzymes
c. Drug potentiation by other preparations
d. Delayed urinary excretion of the preparation
e. Cumulation of the preparation

218. According to audiometry data a patient has a disturbed perception of medium-frequency sounds. It might have been caused by a damage of:
a. Middle part of helix
b. Spiral ganglion
c. Lateral geniculate bodies
d. Quadritubercular structure
e. Cochlear nuclei

219. A 17-year-old boy fell seriously ill, body temperature rose up to 38,50C, there is cough, rhinitis, lacrimation, nasal discharges. What kind of inflammation is it?
a. Hemorrhagic inflammation
b. Catarrhal inflammation
c. Fibrinous inflammation
d. Serous inflammation
e. Suppurative inflammation

220. A patient with disturbed cerebral circulation has problems with deglutition. What part of brain was damaged?
a. Brainstem
b. Forebrain
c. Midbrain
d. Interbrain
e. Cervical part of spinal cord

221. A patient who has been treated with diazepam on account of neurosis complains of toothache. Doctor administered him an analgetic, but its dose was lower than average therapeutic dose. What phenomenon did the doctor take into account while prescribing the patient an underdose?

a. Potentiation
b. Cumulation
c. Tolerance
d. Drug dependence
e. Summation

222. Long-term starvation cure of a patient resulted in diminished ratio of albumines and globulines in plasma. What of the following will be result of these changes?
a. Increase of ESR
b. Increase of hematocrit
c. Hypercoagulation
d. Decrease of hematocrit
e. Decrease of ESR

223. To anaesthetize the manipulation related to burn surface treatment, a patient was intravenously injected a medication for short-acting narcosis. 1 minute later the patient being under anaesthesia had increased blood pressure, tachycardia, increased tone of sceletal muscles; reflexes remained. After awakening the patient had desorientation and visual hallucinations. What medication was the patient injected?
a. Ketamine
b. Diethyl ether
c. Nitrous oxide
d. Thiopental sodium
e. Sombrevin

224. A 35 year old man consulted a dentist about reduced density of dental tissue, high fragility of teeth during eating solid food. This patient suffers the most probably from the deficiency of the following mineral element:
a. Potassium
b. Magnesium
c. Iron
d. Calcium
e. Sodium

225. A patient is 44 years old. Laboratory examination of his blood revealed that content of proteins in plasma was 40 g/l. What influence will be exerted on the transcapillary water exchange?
a. Filtration will be increased, reabsorption - decreased
b. Both filtration and reabsorption will be decreased
c. Exchange will stay unchanged
d. Filtration will be decreased, reabsorption - increased
e. Both filtration and reabsorption will be increased

226. After destruction of CNS structures an animal lost orientative reflexes. What structure was destroyed?
a. Quadrigeminal plate
b. Lateral vestibular nuclei
c. Medial reticular nuclei
d. Black substance
e. Red nucleus

227. An isolated cell of human heart automatically generates excitation impulses with frequency 60 times pro minute. What structure does this cell belong to?
a. His bundle
b. Sinoatrial node
c. Ventricle
d. Atrium
e. Atrioventricular node

228. Examination of a patient revealed a strong, balanced, inert type of higher nervous activity according to Pavlov. What temperament type does the patient have (according to Hippocrates classification)?

a. Phlegmatic
b. Choleric
c. -
d. Melancholic
e. Sanguine

229. Examination of a patient revealed overgrowth of facial bones and soft tissues, tongue enlargement, wide interdental spaces in the enlarged dental arch. What changes of the hormonal secretion are the most likely?

a. Hyposecretion of thyroxin
b. Hyposecretion of insulin
c. Hyposecretion of the somatotropic hormone
d. Hypersecretion of insulin
e. Hypersecretion of the somatotropic hormone

230. A patient has a haemorrhage into the posterior central gyrus. What type of sensitivity on the opposite side will be disturbed?

a. Olfactory
b. Auditory and visual
c. Visual
d. Auditory
e. Skin and proprioceptive

231. A 32-year-old patient consulted a doctor about the absence of lactation after parturition. Such disorder might be explained by the deficit of the following hormone:

a. Vasopressin
b. Somatotropin
c. Prolactin
d. Thyrocalcitonin
e. Glucagon

232. During influenza epidemic 40% of pupils who didnt go in for sports were affected by the disease, and among the pupils who regularly did physical exercises this index was only 20%. What adaptative mechanisms determined such a low sickness rate of pupils participating in the sports?

a. Genetic adaptation
b. Cross adaptation
c. Physiological adaptation
d. Specific adaptation
e. Biochemical adaptation

233. A 30-year-old woman was diagnosed with insufficiency of exocrinous function of pancreas. Hydrolisis of what nutrients will be disturbed?

a. Proteins
b. Proteins, fats, carbohydrates
c. Proteins, carbohydrates
d. Proteins, fats
e. Fats, carbohydrates

234. Short-term physical activity resulted in reflex amplification of heart rate and raise of systemic arterial pressure. What receptors activation was the main cause of pressor reflex realization?

a. Vascular baroceptors
b. Hypothalamus thermoreceptors
c. Vascular chemoreceptors
d. Vascular volume receptors
e. Proprioreceptors of active muscles

235. In course of an experiment a skeletal muscle is being stimulated by a series of electric impulses. What type of muscle contraction will arise, if every subsequent impulse comes in the period of relaxation of single muscle contraction?

a. Asynchronous tetanus
b. Partial tetanus
c. A series of single contractions
d. Holotetanus
e. Muscle contructure

236. Packed cell volume of a man was 40% before the trauma. What packed cell volume will be observed 24 hours after blood loss of 750 ml?

a. 50%
b. 30%
c. 55%
d. 40%
e. 45%

237. A patient staggers and walks astraddle. He has hypomyotonia of arm and leg muscles, staccato speech. In what brain section is this affection localized?

a. Red nucleus
b. Cerebellum
c. Caudate nucleus
d. Putamen
e. Motor cortex

238. A pregnant woman had her blood group identified. Reaction of erythrocyte agglutination with standard serums of 0 alpha and beta(I), B and alpha(III) groups did not proceed with standard serum of A and beta(II) group. The blood group under examination is:

a. A and beta(II)
b. B and alpha(III)
c. -
d. AB (IV)
e. 0 alpha and beta(I)

239. Blood group of a 30 year old man was specified before an operation. His blood is Rh-positive. Reaction of erythrocyte agglutination was absent with standard sera of 0 alpha and beta (I), A and beta;(II) , B and alpha;(III) groups. The blood under examination is of the following group:

a. B and alpha;(III)
b. A and beta;(II)
c. 0 alpha and beta;(I)
d. AB (IV)
e. -

240. During an experiment the myotatic reflex has been studied in frogs. After extension in a skeletal muscle its reflectory contraction was absent. The reason for it might be a dysfunction of the following receptors:

a. Tactile
b. Muscle spindles
c. Articular
d. Nociceptors
e. Golgi tendon organs

241. Vagus branches that innervate heart are being stimulated in course of an experiment. As a result of it the excitement conduction from atria to the ventricles was brought to a stop. It is caused by electrophysical changes in the following structures:

a. Ventricles
b. Atria
c. His bundle

d. Sinoatrial node

e. Atrioventricular node

242. If a man has an attack of bronchiospasm it is necessary to reduce the effect of vagus on smooth muscles of bronchi. What membrane cytoreceptors should be blocked for this purpose?

a. N-cholinoreceptors

b. β-adrenoreceptors

c. α- and β-adrenoreceptors

d. M-cholinoreceptors

e. α-adrenoreceptors

243. A man weighs 80 kg, after long physical activity his circulating blood volume is reduced down to 5,4 l, hematocrit makes up 50%, whole blood protein is 80 g/l. These blood characteristics are determined first of all by:

a. Increased number of erythrocytes

b. Increased circulating blood volume

c. Increased diuresis

d. Water loss with sweat

e. Increased protein concentration in plasm

244. A 16 year old boy after an illness has diminished function of protein synthesis in liver as a result of vitamin K deficiency. It will cause disturbance of:

a. Erythropoietin secretion

b. Osmotic blood pressure

c. Erythrocyte sedimentation rate

d. Anticoagulant generation

e. Blood coagulation

245. Systemic arterial pressure of an adult dropped from 120/70 to 90/50 mm Hg that led to reflectory vasoconstriction. The vasoconstriction will be maximal in the following organ:

a. Bowels

b. Brain

c. Adrenals

d. Kidneys

e. Heart

246. Vagus branches that innervate heart are being stimulated during an experiment. This caused reduction of heart rate due to the intensification of the following process (through the cell membrane of cardiac pacemaker):

a. Calcium ion yield

b. Calcium and potassium ion yield

c. Potassium ion entry

d. Calcium ion entry

e. Potassium ion yield

247. Rest potential of a cell equals -80 mV. At what stage of action potential did the membrane potential equal +30 mV?

a. Depolarization

b. -

c. After hyperpolarization

d. After depolarization

e. Reverse polarization

248. A 35 year old man got an injury that caused complete disruption of spinal cord at the level of the first cervical segment. What respiration changes will be observed?

a. Diaphragmal respiration will be maintained, thoracic respiration will disappear

b. No changes will be observed

c. It will come to a standstill

d. Thoracic respiration will be maintained, diaphragmal respiration will disappear
e. It will become infrequent and deep

249. A doctor asked a patient to breath out fully after taking a normal breath. What muscles contract during such exhalation?
a. Diaphragm
b. External intercostal muscles
c. Abdominal muscles
d. Trapezius muscles
e. Pectoral muscles

250. A man presents with increased heart rate, mydriatic pupils, dry mouth. This condition results from the activation of the following system of function regulation:
a. Vago-insular
b. Hypothalamo-pituitary-adrenal
c. Parasympathetic
d. Metasympathetic
e. Sympathetic

251. In course of an experiment a peripheral section of vagus of an expiremental animal is being stimulated. What changes will be observed?
a. Bronchi dilation
b. Heart rate fall
c. Pupil dilation
d. Heart hurry
e. Increase of respiration rate

252. Voluntary breath-holding caused increase of respiration depth and frequency. The main factor stimulating these changes of external respiration is:
a. Decreased tension of CO2 in blood
b. Decreased concentration of H+ in blood
c. Increased tension of O2 in blood
d. Decreased tension of O2 in blood
e. Increased tension of CO2 in blood

253. A patient has delayed conduction of excitement through the atrioventricular node. What changes of ECG will be observed?
a. Prolongation of Q-T interval
b. Prolongation of P-Q interval
c. Negative T wave
d. Prolongation of Q-S interval
e. S-T-segment displacement

254. Surface with an intact toad on it was inclined to the right. Tone of extensor muscles became reflectory higher due to the activation of the following receptors:
a. Mechanoreceptors of foot skin
b. Vestibuloreceptors of semicircular ducts
c. Vestibuloreceptors of utricle and saccule
d. Photoreceptors of retina
e. Proprioreceptors

255. An animal has an increased tonus of extensor muscles. This the result of intensified information transmission to the motoneurons of the spinal cord through the following descending pathways:
a. Vestibulospinal
b. Reticulospinal
c. Lateral corticospinal
d. Rubrospinal
e. Medial corticospinal

256. Workers of a hothouse farm work under conditions of unfavourable microclimate: air temperature is +37oC, relative humidity is 90%, air speed is 0,2 m/s. The way of heat emission under these conditions will be:

a. All the ways
b. Evaporation
c. Convection
d. Heat conduction
e. Radiation

257. Lungs of a preterm infant have areas of atelectasis (pulmonary collapse). The main cause is:

a. Diminished force of surface tension of lungs
b. Surfactant excess
c. Increased viscous resistance
d. Underdeveloped inspiration muscles
e. Surfactant deficiency

258. Vagi of an experimental animal were cut on both sides. What respiration changes will be observed?

a. No changes will be observed
b. It will become deep and infrequent
c. It will become deep and frequent
d. It will become shallow and frequent
e. It will become shallow and infrequent

259. Which muscle contraction will be observed in the upper extremity during holding (not moving) a load in a certain position?

a. Concentric
b. Excentric
c. Isotonic
d. Auxotonic
e. Isometric

260. Examination of a 35 year old patient revealed high acidity of gastric juice. What receptors should be blocked in order to reduce it?

a. ?1-adrenoreceptors
b. ?2-adrenoreceptors
c. ?1-adrenoreceptors
d. ?2-adrenoreceptors
e. Histamine

261. A young woman who entered a production department where it strongly smelt of paints and varnishes had a bronchospasm. This reflex was caused by irritation of the following receptors:

a. Juxtaglomerular
b. Central chemoreceptors
c. Peripheral chemoreceptors
d. Irritant
e. Pleura receptors

262. A 60-year-old patient presents with weakened peristaltic activity of the bowels. Which of the following foodstuffs would stimulate peristalsis most of all?

a. Meat
b. White bread
c. Brown bread
d. Lard
e. Tea

263. An isolated muscle fiber is under examination. It was established that the threshold of stimulation force became significantly lower. What is the cause of this phenomenon?

a. Block of energy production in the cell
b. Activation of sodium channels of membrane
c. Inactivation of sodium channels of membrane
d. Activation of potassium channels of membrane
e. Inactivation of potassium channels of membrane

264. It was established that agglutination of the recipient's blood erythrocytes had been caused by the standard sera from the I and II groups. Serum from the III group as well as anti-Rh serum hadn't provoke any agglutination. Which blood group and rhesus is allowed to be transfused this recipient?
a. AB (IV), Rh+
b. AB (IV), Rh-
c. A, ? (II) Rh-
d. 0, ?,?(I) Rh+
e. B, ? (III) Rh-

265. A patient consumed a lot of reach in proteins food that caused increase of rate of proteolytic enzymes of pancreatic juice. It is also accompanied by increase of rate of the following enzyme:
a. Renin
b. Tripsin
c. Enterokinase
d. Pepsin
e. Gastricsin

266. In course of an experiment thalamocortical tracts of an animal were cut. What type of sensory perception remained intact?
a. Nociceptive
b. Olfactory
c. Exteroreceptive
d. Auditory
e. Visual