CRIMEAN FEDERAL UNIVERSITY NAME V.I. Vernadsky
MEDICAL ACADEMY NAMED AFTER S.I. GEORGIEVSKY

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AN OPEN BANK OF TEST TASKS TO PREPARE FOR INTERMEDIATE CERTIFICATION IN "BIOLOGY"

for students of the specialty "General Medicine" of the English-language form of education.

Designed based on recommendations for
intermediate certification of students
training in higher education programs using electronic teaching aids
and distance learning technologies at the Crimean Federal University
named after V.I. Vernadsky

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General information

1. Interim certification is carried out in the form of testing.

2. An open bank of test items is 70% of the total number of tests. In each question there is only 1 correct answer out of 5 possible.

3. Tests are presented in the following sections:

1. CYTOLOGY. MOLECULAR BIOLOGY. GENETIC

The cell of the laboratory animal was overdosed with Roentgen rays. As a result albuminous fragments formed in the cytoplasm. What cell organoid will take part at their utilization?
1. Lysosomes
2. Endoplasmic reticulum
3. Cells centre
4. Golgi complex
5. Ribosome

Genetic structure of eukaryote is "exon-intron-exon". This structure-functional organization of gene caused transcription peculiarities. What will be pro-i-RNA according to the schema?
1. Exon-intron-exon
2. Intron-exon
3. Exon-intron
4. Exon-exon-intron
5. Exon-exon

Testosterone and it's analogs increase the mass of skeletal muscles that allows to use them for treatment of dystrophy. Due to interaction of the hormon with what cell substance is this action caused?
1. Ribosomes
2. Proteins- activators of transcription
3. Chromatin
4. Nuclear receptors
5. Membrane receptors

RNA-polymeraseB(II) is blocked due to amanitine poisoning (poison of death-cup). It disturbes:
1. Primers synthesis
2. Maturation of m-RNA
3. Reverse transcription
4. Synthesis of m-RNA
5. Synthesis of t-RNA

Moving of the daughter chromatids to the poles of the cell is observed in the mitotically dividing cell. On what stage of the mitotic cycle is this cell?
1. Anaphase
2. Interfase
3. Metaphase
4. Prophase
5. Telophase

Synthesis of phospholipids is disordered due to fat infiltration of liver. Indicate which of the presented substances can enhance the process of methylation during phospholipids synthesis?
1. Methionine
2. Glucose
3. Ascorbic acid
4. Citrate
5. Glycerin

The study of mitotic cycle phases of onion root revealed the cell, in which the chromosomes are situated in the equatorial plane, forming a star. What stage of the cell mitosis is it?
1. Telophase
2. Prophase
3. Anaphase
4. Metaphase
5. Interphase

Nowadays about 50 minor bases have been found in the t-RNA structure besides the main four nitrogenous bases. Choose the minor nitrogenous base:
1. Adenine
2. Cysteine
3. Uracil
4. Dihydrouracil
5. Cytosine

At the aboratory experiment the eukocyte culture was mixed with staphylococci. Neutrophile leukocytes engulfed and digested bacterial cells. This processes are termed:
1. Phagocytosis
2. Facilitated diffusion
3. Diffusion
4. Osmosis
5. Pinocytosis

Oval and round organelles with double wall are seen at the electron micrograph. The outer membrane is smooth, the inner membrane folded into cristae contain enzyme ATPase synthetase. These are:
1. Centrioles
2. Ribosomes
3. Mitochondria
4. Golgi complex
5. Lysosomes

An experiment proved that UV-radiated cells of patients with xeroderma pigmentosum restore the native DNA structure slower than cells of healthy individuals as a result of reparation enzyme defection. What enzyme helps this process?
1. DNA polymerase III
2. Primase
3. DNA gyirase
4. Endonuclease
5. RNA ligase

RNA that contains AIDS virus penetrated into a leukocyte and by means of reverse transcriptase forced a cell to synthetize a viral DNA. This process is based upon:
1. Convariant replication
2. Operon repression
3. Operon depression
4. Reverse transcription

5. Reverse translation

Labeled aminoacids alanine and tryptophane were introducted to a mouse in order to study localization of protein biosynthesis in its cells. Around what organellas will the accumulation of labelled aminoacids be observed?
1. Ribosomes
2. Golgi apparatus
3. Agranular endoplasmic reticulum
4. Cell centre
5. Lysosomes

Examination of a patient revealed reduced contents of magnesium ions that are necessary for attachment of ribosomes to the granular endoplasmatic reticulum. It is known that it causes disturbance of protein biosynthesis. What stage of protein biosynthesis will be disturbed?
1. Translation
2. Aminoacid activation
3. Termination
4. Replication
5. Transcription

It was proved that a molecule of immature mRNA (precursor mRNA) contained more triplets than amino acids found in the synthesized protein. The reason for that is that translation is normally preceded by:
1. Reparation
2. Initiation
3. Processing
4. Mutation
5. Replication

According to the model of double DNA helix that was suggested by Watson and Creek, it was established that one of chains would not be

lost during replication and the second chain would be synthesized complementary to the first one. What way of replication is it?
1. Dispersed
2. Analogous
3. Identical
4. Semiconservative
5. Conservative

It was revealed that T-lymphocytes were affected by HIV. Virus enzyme - reverse transcriptase (RNA-dependent DNA polymerase) - catalyzes the synthesis of:
1. Viral DNA on DNA matrix
2. Virus informational RNA on the matrix of DNA
3. DNA on virus ribosomal RNA
4. DNA on the matrix of virus mRNA
5. mRNA on the matrix of virus protein

While studying maximally spiralized chromosomes of human karyotype the process of cell division was stopped in the following phase:
1. Telophase
2. Prophase
3. Interphase
4. Anaphase
5. Metaphase

Golgi complex exports substances from a cell due to the fusion of the membrane saccule with the cell membrane. The saccule contents flows out. What process is it?
1. Exocytosis
2. Endocytosis
3. Active transport
4. Facilitated diffusion
5. All answers are false

Normal, actively dividing cells of human red bone marrow are analyzed. What number of cells' chromosomes is typical for G1 period?
1. 45
2. 48
3. 47
4. 46
5. 23

Life cycle of a cell includes the process of DNA autoreduplication. As a result of it monochromatid chromosomes turn into bichromatid ones. What period of cell cycle does this phenomenon fall into?
1. M
2. G_o
3. G_1
4. G_2
5. S

A patient suffering from stenocardia was taking nitroglycerine which caused restoration of blood supply of myocardium and relieved pain in the cardiac are A. What intracellular mechanism provides restoration of energy supply of insulted cells?
1. Intensification of ATP resynthesis
2. Intensification of RNA generation
3. Intensification of oxygen transporting into the cell
4. Increased permeability of membranes
5. Reduction of ATP resynthesis

Ultramicroscopical examination of "dark" hepatocyte population in the cell cytoplasm detected a developed granular endoplasmic reticulum. What function has this organella in these cells?
1. Bile production
2. Carbohydrate synthesis
3. Calcium ion depositing
4. Deintoxicative function
5. Synthesis of blood plasma proteins

It was found out that some compounds, for instance fungi toxins and some antibiotics can inhibit activity of RNA-polymerase. What process will be disturbed in a cell in case of inhibition of this enzyme?
1. Replication
2. Reparation
3. Processing
4. Transcription
5. Translation

The cell cycle is known to consist of several subsequent stages. At one of these stages, the synthesis of DNA happens. What do we call this period of cell cycle?
1. Premitotic period of interphase.
2. Presynthesis period (G1) of interfase.
3. Mitosis.
4. Synthesis period (S) of interphase.
5. Postsynthesis period (G2) of interphase.

In a cell the chromosomes are in condition of maximum spiralization are placed along the equatorial zone. Which period of mitosis is described?
1. Telophase.
2. Prophase.
3. Metaphase.
4. Anaphase.
5. Prometaphase.

An intensive aerobic process of energy formation and accumulaton in form of high-energy ATP bonds takes place in the cells of muscular tissue. In what organelle does this process occur?
1. In the endoplasmic reticulum.
2. In the peroxisome.
3. In the mitochondrion.
4. In the lysosome.

5. In the centriole.

Protein synthesis includes several subsequent stages. It is preceded by the synthesis of immature mRNA. What do we call this process?
1. Elongation.
2. Termination.
3. Replication.
4. Transcription.
5. Translation.

During mitotic cell division a scientist can see the phase when the nuclear envelope and nucleolus disappear, the centrioles are placed on the opposite poles of the cell and chromosomes are in the form of a thread ball freely placed in the cytoplasm. What stage of mitotic cycle is the cell at?
1. Interphase.
2. Metaphase.
3. Anaphase.
4. Prophase.
5. Telophase.

During the cell cycle regular changes in quantity of genetic material happen. What is the period, when the replication of DNA happens, called?
1. Interphase.
2. Anaphase.
3. Prophase.
4. Metaphase.
5. Telophase.

Polypeptide which has been synthesized on the ribosome includes 54 aminoacids. How many codons did mRNA, used as a matrix during the synthesis, have?
1. 27.
2. 44.
3. 54.

4. 108.
5. 162.

Microfilaments and microtubules are known to include tubuline proteins, which take part in the formation of the division spindle. In what period of the mitotic cycle are tubuline proteins synthesized?
1. Synthesis period (S) of interphase.
2. Postmitotic period of interphase.
3. Mitosis.
4. Postsynthesis period (G2) of interphase.
5. Presynthesis period (G^ of interphase.

During the whole life of a human in some adult cells mitosis is not observed, and the quantity of DNA stays permanent. What do we call these cells?
1. Germinal epithelium.
2. Hepatocytes.
3. Eye cornea epitheliocytes.
4. Red bone marrow cells.
5. Neurons.

During the examination of pancreatic gland cells under an electronic microscope there has been found an organelle which consists of cisterns, canals, closets and is connected with plasmolemma. What organelle is it?
1. Mitochondrion.
2. Centriole.
3. Endoplasmic reticulum.
4. Lysosome.
5. Peroxisome.

An influenza virus penetrated into a cell. The mechanism of protein biosynthesis was reorganised for the virus protein synthesis to occur:
1. In the lysosomes.
2. In the nucleus.
3. On the polyribosomes.

4. In the peroxisomes.
5. In the centriole.

During the examination of the cell structure a globular mono-membranous organelle, which contains hydrolytic enzymes, was found. This organelle is known to provide intracellular digestion and protective reactions of the cell. What organelle is it?
1. Lysosome.
2. Endoplasmic reticulum.
3. Centriole.
4. D.Ribosome.
5. Mitochondrion.

There is an organelle near the nucleus which consists of two cylinders built of microtubules. The cylinders are situated perpendicularly to each other. The organelle is a component of the mitotic spindle of division in animal cells. What organelle is this?
1. Centriole.
2. Mitochondrion.
3. Ribosome.
4. Endoplasmic reticulum.
5. Lysosome.

One of the main characteristics of a living being is an ability to reproduction. On what level of living organisms organization does this process happen?
1. Tissue.
2. Subcellular.
3. Cellular.
4. Organismical.
5. Molecular.

In the nucleus the molecule of immature mRNA transforms to the molecule of the mature mRNA, which is shorter than the immature mRNA. What do we call the combination of stages in this transformation?

1. Processing.
2. Replication.
3. Recognition.
4. Transmission.
5. Termination.

In the presynthesis period (Gt) of the cell cycle the synthesis of DNA doesn't occur, that's why the number of DNA molecules is equal to the number of chromosomes. How many DNA molecules does any human somatic cell in the presynthesis period (G1) have?
1. 46.
2. 23.
3. 92.
4. 69.
5. 48.

During anaphase the monochromatic chromosomes are placed on the poles of the cell. How many chromosomes does the cell have during the anaphase?
1. 96.
2. 92.
3. 46.
4. 23.
5. 69.

During an experiment the culture of the cells divided by mitosis was influenced by the substance which destroyed the spindle of division. Which substance was used in the experiment?
1. Histamine.
2. Penicillin.
3. Colchicine.
4. Methanol.
5. Iodine.

According to the rule of the permanent chromosomes number, each animal species can be characterized by a specific and permanent

number of chromosomes. What mechanism provides this feature during sexual reproduction?
1. Mitosis.
2. Reparation.
3. Translation.
4. Meiosis.
5. Cytokinesis.

In order to analyse the karyotype, a cell culture was influenced to colchicine, which destroys the spindle of division. At what stage was the mitosis stopped?
1. Prometaphase.
2. Prophase.
3. Anaphase.
4. Telophase.
5. Metaphase.

At a definite stage of embryogenesis the mother's and fetus's circulatory systems are becoming physiologically connected. What provisional organ fulfils this function?
1. Placenta.
2. Amnion.
3. Yolk sac.
4. Serosa.
4. Alantois.

At the stage of blastocyst beginning of a human embryo implantation into the womb wall was recorded. What term of embryogenesis does it occur at?
1. 24-26 days.
2. 10-12 days.
3. 3-4 days.
4. 6-7 days.
5. 30-35 days.

During the analysis of the mitotic stage in the onion root cells, a plate with spiralized chromosomes in the equatorial zone was revealed. What mitotic stage is the cell at?
1. Interphase.
2. Metaphase.
3. Prophase.
4. Anaphase.
5. Telophase.

According to the hypothesis of be operon (Jacob, Mono, 1961), in Esherichia coli the lactose, which is got by cell from the environment, acts as an inducer. In what way does the cell induce the synthesis of enzyme that decompose it, and is turn on operon?
1. It combines with the promoter.
2. It combines with the operator gene.
3. It combines with the regulator gene.
4. It combines with the repressor protein.
5. It combines with the structural gene.

During the synthetic period (S) of the cell cycle, the redouble of DNA quantity takes place. This process occurs because of:
1. Replication of DNA.
2. Denaturation of DNA.
3. Dissociation of DNA.
4. Reparation of DNA.
5. Coagulation of DNA.

During the observation of a baby boy a pediatrician noticed that the baby's crying was similar to a cat's cry. Besides, the baby had microcephaly and abnormality in heart development. By means of the cytogenetic method, it was found that the baby's karyotype was 46,XY, 5p’. At what mitotic stage was the karyotype of the baby examined?
1. Telophase.
2. Prometaphase.
3. Prophase.

4. Anaphase.
5. Metaphase.

The electronograms of the rat's liver cells demonstrate some bimembranous oval structures, the internal membrane of which forms cristae. What organelles are these?
1. Centrosomes.
2. Lysosomes.
3. Ribosomes.
4. Mitochondria.
5. Peroxisomes.

To diagnose human chromosomal disorders in order to analyse the karyotype, a cell culture is influenced by colchicine — a substance which destroys the spindle of division. At what mitotic stage is the karyotype studied?
1. Interphase.
2. Telophase.
3. Metaphase.
4. Prophase.
5. Anaphase.

DNA double spirals, which were formed as a result of replication, consist of one maternal chain and one daughter chain. What do we call this way of replication?
1. Semiconservative.
2. Conservative.
3. Analogous.
4. Identical.
5. Dispersical.

In a nucleus there are nonconstant structures that disappear at the beginning of cell division and appear again at the end of it. They include protein and RNA. They take part in the formation of ribosome subunits. What are these structures called?
1. Microfibriles.

2. Nucleosomes.
3. Polysomes.
4. Nucleoli.
5. Microtubules.

During the mitotic division in a cell, we can observe the separation of chromatids towards the opposite poles. What stage of the cell cycle takes place in the cell?
1. Metaphase.
2. Telophase.
3. Anaphase.
4. Prophase.
5. Interphase.

During the postembryonal development of a human two lordoses and two kyphoses are formed. It can be explained as the human ability to:
1. Lie.
2. Sit.
3. Swim.
4. Creep.
5. Walk vertically.

During the postembryonal development in a man's organism some age-related changes occur. They are skin elasticity loss, visual and hearing impairment. What do we call the period of individual development when such changes occur?
1. Adolescence.
2. Aging.
4. First mature.
5. D.Juvenile.
6. Youth.

There is an organelle in human cells. The functions of this organelle are formation of lysosomes, the secretion of glycoproteins,

carbohydrates, lipides, and the formation of yolk granules during the oocytes maturation. What is these organelle called?
1. Golgi apparatus.
2. Lysosome.
3. Endoplasmic reticulum.
4. Peroxisome.
5. Ribosome.

Under the influence of mutation of a gene, the composition of the triplets was changed but the gene continued the synthesis of the protein. What characteristics of genetic code can it be connected with?
1. Degeneracy.
2. Specificity.
3. Universality.
4. Triplet nature.
5. Collinearity.

A cell was affected by a substance which broke the integrity of lysosomal membranes. What can happen in the cell because of it?
1. Transformation.
2. Specialization.
3. Differentiation.
4. Reproduction.
5. Autolysis.

During the G2 phase (postsynthesis period) of the cell cycle the synthesis of tubulin proteins which take part in the production of the division spindle was impaired. What process can be disturbed?
1. Formation of nucleolus.
2. Chromosome despiralization.
3. Chromosome spiralization.
4. Formation of ribosome subunits.
5. Divergence of daughter chromosomes.

A patient has an acute pancreatitis which can develop into pancreas autolysis. The dysfunction of what organelles can cause this pathology?
1. Centrioles.
2. Mitochondria.
3. Ribosomes.
4. Lysosomes.
5. Microtubules.

Protein-repressor has been found in a cell. What gene codifies the aminoacid sequence of this protein?
1. Promotor.
2. Regulator.
3. Terminator.
4. Modificator.
5. Operator.

The gene which codifies the polypeptide chain consists of 4 exons and 3 introns. When processing is over, the mature mRNA consists of nucleotides, which are complementary to:
1. 4 exons.
2. 3 introns.
3. 2 exons and 1 intron.
4. 1 exon and 1 intron.
5. 4 exons and 3 introns.

Human karyotype is studied when a cell is at metaphase. What do we call the substance that can stop the cell division at this stage?
1. Methanol.
2. Colchicine.
3. Iodine.
4. Potassium chloride.
5. Ethanol.

During the cell division we can see the maximum amount of condensed chromosomes. At what stage of the cell cycle is the process of the cell division stopped?
1. Interphase.
2. Metaphase.
3. Prophase.
4. Telophase.
5. Anaphase.

The operator is known to be responsible for joining the RNA polymerase enzyme and initiating the transcription. At that site deletion of two nucleotide pairs has taken place. What consequences could it have?
1. Lack of protein synthesis.
2. Formation of abnormal proteins.
3. Synthesis of protein in unlimited quantities.
4. Formation of normal protein.
5. Short finish of protein synthesis.

In a transplantation canter a 40-year-old patient has been transplanted a kidney which was taken from a donor perished in a car accident. To avoid graft rejection, the patient's immunity is suppressed with the help of:
1. Vitamines.
2. Antibiotics.
3. Immunostimulants.
4. Immunodepressants.
5. Antiseptics.

In a transplantation centre a patient has been transplanted a heart. What cells of the immune system can hence the graft cells?
1. Lymphoblasts.
2. Plasma cells.
3. T-Lymphocytes.
4. B-Lymphocytes.
5. Macrophages.

It is known that the information about the amino acid sequence in the protein molecule is written in the form of nucleotide sequence. There are 4 types of nucleotides in the DNA molecule. Different amino acids are codified by a different number of triplets — from one to six. What do we call this property of the genetic code?
1. Triplet nature.
2. Degeneracy.
3. Universality.
4. Collinearity.
5. Specificity.

It was determined that the mRNA tripletic sequence totally corresponded to the amino acid sequence in the polypeptide chain. What do we call this characteristic of the genetic code?
1. Specificity.
2. Universality.
3. Triplet nature.
4. Collinearity.
5. Degeneracy.

Mitosis is the basic mechanism of a cell that provides the development of organisms, their regeneration and reproduction. It is possible because this mechanism is responsible for:
1. Equal divergency of chromosomes between daughter cells.
2. Formation of polyploid cells.
3. Crossing-over.
4. Irregular divergency of chromosomes between daughter cells.
5. Change of genetic information.

In a human organism some abnormalities, connected with the disorder of teeth differentiation and changes in their number (the homodent tooth system), were found. What type of evidence of human evolution can such abnormalities belong to?
1. Recapitulation.
2. Cytological.

3. Rudiments.
4. Atavisms.
5. Biochemical.

During translation a few ribosomes, placed along the mRNA molecule at a certain distance from one another, join each mRNA simultaneously. What do we call the translation complex that consists of one mRNA molecule and some ribosomes which are placed on it?
1. Phagosome.
2. Centrosome.
3. Lysosome.
4. Polysome.
5. Nucleosome.

Human cells were influenced by ultraviolet radiation, and as a consequence of this the DNA molecules had been destroyed. Nevertheless, by means of specific enzymes the DNA structure was renewed. What do we call this phenomenon?
1. Replication.
2. Reparation.
3. Duplication.
4. Initiation.
5. Termination.

During the ontogenesis there appear some changes in a human organism: the vital capacity of his lungs decreases, his arterial pressure increases, and the progress of atherosclerosis takes place. What do we call the period of individual development in which all these changes happen?
1. Juvenile
2. Youth.
3. Adolescence.
4. Elderly.
5. First mature.

While studing of the family tree with history of hypertrichosis (hyperhirsutism of the ear) this sign was founded only in the men and it was inherited from father to the son. Define the type of hypertrichosis inheritance?
1. Connected with X-chromosome recessive
2. Autosomal-dominant
3. Autosomal- recessive
4. Connected with X-chromosome dominant
5. Connected with Y-chromosome

White- haired, with blue eyes girl was born in healthy parents. Irritability, anxiety, troubled sleep and feeding developed in the first months of life of the infant. What method of genetic investigation should be used for the exact diagnosis?
1. Twin
2. Cytological
3. Biochemical
4. Genealogical
5. Population-statistical

46 chromosomes were revealed on karyotype examination of the 5-year-old girl. One of the 15th pair of chromosomes is longer than usual due to connected chromosome from the 21 pair. What type of mutation does this girl have?
1. Translocation
2. Deletion
3. Insufficiency
4. Inversion
5. Duplication

Part of the DNA chain turned about 180 degree due to gamma radiation. What type of mutation took place in the DNA chain?
1. Deletion
2. Replication
3. Translocation
4. Doubling

5. Inversion

On blood grouping on the system ABO, standard serum of the I and II groups caused erythrocytes agglutination of the examined blood and serum group of the III didn't. What agglutinogens are on these erythrocytes?
1. A
2. A and B
3. B
4. D and C
5. C

Woman applied to the medico-genetic consulting centre for information about the risk of haemophilia in her son. Her husband has been suffering from this disease since birth. Woman and her parents are healthy (don't have haemophilia). Is the boy likely to have the disease in this family?
1. 75% of the boys will be ill
2. All boys will be ill
3. 50% of the boys will be ill
4. All boys will be healthy
5. 25% of the boys will be ill

White-haired, with blue eyes girl was born in healthy parents. Irritability, anxiety, troubled sleep and feeding developed in the first months of life of the infant. What method of genetic investigation should be used for the exact diagnosis?
1. Biochemical
2. Twin
3. Cytological
4. Population-statistical
5. Genealogical

A 40-year-old pregnant woman underwent amniocentesis. The examination of fetus karyotype revealed 47ХУ+21. What pathology of the fetus was found out?

1. Patau's disease
2. Down's syndrome
3. Phenylketonuria
4. Schereschevsky-Terner's disease
5. Klinefelter's syndrome

The examination of an youth with mental retardation revealed eunuchoid body construction and genitals underdevelopment. The cells of the oral cavity contained chromatin. What method of genetic investigation should be performed to make more specified diagnosis?
1. Clinico-genealogical
2. Biochemical
3. Dermatoglyphics
4. Population-statistic
5. Cytological

An 18-year-old man with asthenic body constitution: tall, narrow shoulders, broad pelvis and with poor hair on his face came to the geneticist. There was marked mental retardation. The preliminary diagnosis was Klinefelter's syndrome. What method of medical genetics can confirm the diagnosis?
1. Dermatoglyphics
2. Population-statistic
3. Cytogenic
4. Gemellary
5. Genealogic

A healthy woman has three sons affected by color blindness who were born after her two marriages. Children both of her husbands are healthy. What is the most possible pattern of inheritance of this disease?
1. X-linked recessive
2. Autosomal recessive
3. Y-linked
4. Autosomal dominant

5. X-linked dominant

A couple came for medical genetic counseling. The man has hemophilia, the woman is healthy and there were no cases of hemophilia in her family. What is the risk of having a sick child in this family?
1. 0
2. 25%
3. 100%
4. 75%
5. 50%

A woman who was sick with rubella during the pregnancy gave birth to a deaf child with hare lip and cleft palate. This congenital defect is an example of:
1. Patau's syndrome
2. Genocopy
3. Down's syndrome
4. Edward's syndrome
5. Phenocopy

Donor skin transplantation was performed to a patient with extensive burns. On the 8-th day the graft became swollen and changed colour; on the 11-th day graft rejection started. What cells take part in this process?
1. Erythrocytes
2. B-lymphocytes
3. T-lymphocytes
4. Basophils
5. Eosinophils

Albinos can't stand sun impact - they don't aquire sun-tan but get sunburns. Disturbed metabolism of what aminoacid underlies this phenomenon?
1. Histidine
2. Tryptophan

3. Methionine
4. Glutamic acid
5. Phenilalanine

A genetics specialist analyzed the genealogy of a family and found that both males and females may have the illness, not across all the generations, and that healthy parents may have ill children. What is the type of illness inheritance?
1. Autosomal dominant
2. Y-linked
3. X-linked recessive
4. Autosomal recessive
5. X-linked dominant

Analysis of amniotic fluid that was obtained as a result of amniocentesis (puncture of amniotic sac) revealed cells the nuclei of which contain sex chromatin (Barr's body). What can it be evidence of?
1. Development of female fetus
2. Development of male fetus
3. Genetic disorders of fetus development
4. Trisomy
5. Polyploidy

A 32 y.o. man is tall, he has gynecomastia, adult woman pattern of hair distribution, high voice, mental deficiency, sterility. Provisional diagnosis is Klinefelter's syndrome. In order to specify diagnosis it is necessary to analyze:
1. Blood group
2. Leukogram
3. Genealogy
4. Caryotype
5. Spermatogenesis

Examination of cell culture got from a patient with lysosomal pathology revealed accumulation of great quantity of lipids in the

lysosomes. What of the following diseases is this disturbance typical for?
1. Galactosemia
2. Phenylketonuria
3. Tay-Sachs disease
4. Gout
5. Wilson disease

A woman with (B), Rh- blood group born a child with (A) blood group. The child is diagnosed with hemolytic disease of newborn as a result of rhesus incompatibility. What blood group is the child's father likely to have?
1. (A), Rh+*
2. (0), Rh+
3. (B), Rh+
4. (0), Rfr
5. (A), Rh~

Cells of red marrow were taken for laboratory researches. They belong to cellular complexes which are updated. Define a set of chromosomes and quantity of DNA (number of chromatids) which are characteristic for G1 period in these cells:
1. 2n, 4c
2. 2n, 1c
3. 1n, 1c
4. 1n, 2c
5. 2n, 2c

By means of the micromanipulator Golgi complex is removed from a cell. How it will affect further cell activity?
1. Process of mitosis will be broken
2. Formation of lysosomes, their maturing and exocytosis of cellular secretory products will be broken
3. Formation of ribosomes and synthesis of proteins will be broken
4. Autolysis will develop that can lead to the cell death
5. Processes of energy metabolism will be broken

The scraping of mucous of a mouth of the man was made by means of the spatula. The oval nuclei unequal in the size are well visible in non-destroyed epithelial cells of the painted smear. In what way division of these cells occurred?
1. Schizogony
2. Mitosis
3. Meiosis
4. Binary division
5. Amitosis

Tissue of testes was taken for laboratory investigations. According to one of classifications, cells of this tissue belong to the renewed cellular complexes. Analyse probable states of cells in this tissue:
1. cells increase in sizes only
2. cells divide only mitotically
3. cells divide by meiosis only
4. cells divide at first mitotically, and then meiotically
5. cells divide at first meiotically, and then mitotically

The strong linkage between two X chromosomes was formed in oocytes under the influence of a mutagen. Formation of what set of chromosomes in an ovum it can lead to?
1. 46 chromosomes
2. 47 chromosomes
3. 23 or 24 chromosomes
4. 24 or 25 chromosomes
5. 22 or 24 chromosomes

Microorganisms that belong to prokaryotes, have such structures:
1. nucleoid
2. mitochondria
3. chloroplasts
4. lysosomes
5. endoplasmic reticulum

During chromosome disjunction at a stage of maturing of spermatogenesis, the X chromosome did not separate from the Y chromosome. What can be a karyotype of future individual if the normal ovum will be fertilized by such spermatozoon?
1. 45, XO
2. 47, XXY
3. 46, XX
4. 46, XY
5. 47, XYY

The somatic cell of the man, which is in metaphase of mitotic division, is visible on the histologic preparation. How many chromosomes are a part of a metaphase plate, if we will consider that each chromosome contains two sister chromatids?
1. 23 chromosomes
2. 92 chromosomes
3. 48 chromosomes
4. 46 chromosomes
5. 24 chromosomes

Thymine with radioactive label was added to a nutrient medium with the cells capable to division by mitosis. About what large amount of thymine, which is determined in nuclei of cells at autoradiographic investigation, can indicate?
1. About high mitotic activity
2. About small number of cells that are in interphase
3. About large number of cells that are in the synthetic period of interphase
4. About small number of cells that are in the pre-synthetic period of interphase
5. About a large number of cells that are in interphase

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 serums of A (II), B (III) groups. The blood under examination is of the following group:

1. AB (IV) 2. A (II)
3. 0 (I)
4. B (III)
5. –

A female patient underwent liver transplantation. 1,5 month after it her condition became worse because of reaction of transplant rejection. What factor of immune system plays the leading part in this reaction?
1. B-lymphocytes
2. T-killers
3. T-helpers
4. Interleukin-1
5. T-supressors

Before a surgery a blood sample of a 30-year-old man has been typed. Blood is Rh-positive. Standard serums of such groups as A (II), B (III) didn't activate erythrocyte agglutination reaction. The group of the analyzed blood is:
1. 0 (I)
2. A (II)
3. -
4. B (III)
5. AB (IV)

Examination of a pregnant woman having Rh-negative blood revealed high level of antierythrocytic antibodies. For its reduction she was implanted with her husband's Rh-positive skin graft. The graft was rejected in two weeks. Its microscopic examination revealed circulatory disturbance, edema and cellular infiltration with lymphocytes, neutrophils and macrophages predominance. What is the most likely pathology?
1. Graft immunity
2. Interstitial inflammation
3. Delayed-type hypersensitivity
4. Immediate hypersensitivity

5. Granulomatous inflammation

A patient has been diagnosed with alkaptonuria. Choose an enzyme which deficiency can be the reason of this pathology:
1. Glutamate dehydrogenase
2. Dioxyphenylalanine decarboxylase
3. Phenylalanine hydroxylase
4. Homogentisic acid oxidase
5. Pyruvate dehydrogenase
Sex chromosomes of a woman didn't separate and move to the opposite poles of a cell during gametogenesis (meiosis). The ovum was impregnated with a normal spermatozoon. Which chromosomal disease can be found in her child?
1. Patau's syndrome
2. Cat cry syndrome
3. Edwards' syndrome
4. Down's syndrome
5. Turner's syndrome

Examination of a 12-year-old boy with developmental lag revealed achondroplasia: disproportional constitution with evident shortening of upper and lower limbs as a result of growth disorder of epiphyseal cartilages of long tubal bones. This disease is:
1. Congenital
2. Inherited, sex-linked
3. Inherited, recessive
4. Inherited, dominant
5. Acquired

An 18-year-old young man is tall, he has narrow shoulders, a large pelvis, an adult woman pattern of hair distribution, and oxyphonia. Mental retardation is also present. Based on these symptoms, the provisional diagnosis of Klinefelter's syndrome was made by a doctor. What genetic method can confirm the diagnosis?
1. Cytogenetic.
2. Pedigree analysis.

3. Study of twins
4. Biochemical
5. Population-statistical

Inclination to diabetes mellitus provoked by the autosomal-recessive gene. This gene becomes apparent only in 30 % of homozygous individuals, what genetic regularity is observed in this case?
1. Incomplete penetrance
2. Discontinuity
3. Complementarity
4. Gene expressiveness
5. Pleiotropy

During the examination of the woman's epithelium of the cheek mucosa, it was established that in most cells the nuclei had two Barr bodies. What diagnosis can we make in this case?
1. Trisomy on X-chromosome
2. Trisomy on the 13th chromosome
3. Trisomy on the 21st chromosome
4. D.Trisomy on the 18th chromosome
5. Monosomy on X-chromosome

During the examination of the man's epithelium of the cheek mucosa, it was established that in most cells the nuclei had Barr bodies. What syndrome is it?
1. Trisomy on X-chromosome
2. Turner's syndrome
3. Klinefelter's syndrome
4. Down's syndrome
5. Edward's syndrome

The same genotype in a human can cause the development of a feature with different degrees of manifestation that depends on the interaction of this gene with the others and on the influence of environmental conditions. What do we call the degree of

phenotypical manifestation of the character controlled by a definite gene?
1. Mutation
2. Penetrance
3. Inheritance
4. Gene expression
5. Polymery

A human has galactosemia — a disease of accumulation. Which genetic method can we use to diagnose the case?
1. Biochemical
2. Cytogenetic
3. Population-statistical
4. Study of twins
5. Pedigree analysis

Some people with good clinical health can feel anemia symptoms in the conditions of high mountains. During their blood test we can find sickle-shaped erythrocytes. What genotype can a person with occasional symptoms of sickle-cell anemia have?
1. Aa
2. X^CX^C
3. aa
4. AA
5. Y

One of the forms of rickets is inherited as autosomal dominant. This disease is a result of:
1. Aneuploidy
2. Gene mutations
3. Changes in the number of chromosomes
4. Chromosomal mutations
5. Polyploidy

Children with normal hearing have been born by deaf and dumb parents with the genotype DDee and ddEE. What is the form of gene interaction between the genes D and E?
1. Epistasis
2. Complete dominance
3. Complementary
4. Polymery
5. Codominance

Both a mother and a father are phenotypically healthy. They have a sick baby in whose blood and urine phenylpyruvic acid has been found, which indicates phenylketonuria. What is the type of the inheritance of this disease?
1. Autosomal-recessive
2. Autosomal-dominant
3. Recessive, X-linked
4. Y-linked
5. Dominant, X-linked

A baby was born with abnormalities of the external and internal organs development. During the check up the following abnormalities were found: epicanthus, shortened extremities, a small skull, impaired development of the cardiovascular system. The provisional diagnosis of Down's syndrome was made. What genetic method can confirm this pathology?
1. Population-statistical
2. Pedigree analysis
3. Cytogenetic
4. Study of twins
5. Biochemical

The first step in diagnosis diseases provoked by the disorder of metabolism is the application of express-methods which are based on a simple quality reaction of determining metabolites in blood or urine. The second step is to confirm the diagnosis, for which exact

chromatographical methods of enzymes and amino acids study are used. What genetic method can be applied?
1. Hibridization of somatic cell
2. Study of twins
3. Cytogenetic
4. Population-statistical
5. Biochemical

During the check-up of an 18-year-old boy some physical defects are found. They as following: eunuchoidism, female stature and an adult woman pattern of hair distribution, muscular hypoplasia, mental deficiency. Using the cytogenetic method, the karyotype of the patient was determined. Which karyotype was it?
1. 47, XXY
2. 47,XY,21+
3. 45, X0
4. 47, XY,18+
5. 47, XYY

Due to the results of the pedigree analysis a doctor found out that feature became apparent in each generation, a male and a female inherited feature with the same frequency, the parents transmitting of this feature to their children. What type of inheritance does this feature have?
1. Autosomal-dominant
2. Recessive, X-linked
3. Autosomal-recessive
4. Dominant, X-linked
5. Y-linked

A patient with a normal karyotype has some abnormalities of the finger structure (arachnodactyly), skeleton, cardio-vascular system, disorders in the development of connective tissue, a lens dislocation. What provisional diagnosis can you make?
1. Marfan's syndrome
2. Edward's syndrome
3. Down's syndrome

4. Turner's syndrome
5. Patau syndrome

A baby boy has deformations of cerebral and facial cranial parts, microphthalmia, an ear deformation, and cleft palate. The baby's karyotype is 47, XY,13+. What disease is it?
1. Patau syndrome
2. Edward's syndrome
3. Klinefelter's syndrome
4. Down's syndrome
5. Turner's syndrome

A 10-year-old girl has got shortened extremities, a small skull, a face anomaly, the mongolian type of eyelid folds, epicanthus, mental deficiency, disorders of the heart and vascular structure. In a genetic clinic the girl's karyotype was determined. What was the girl's karyotype?
1. 47,XX,21+
2. 45, XO
3. 47, XX,13+
4. 47, XX,18+
5. 47, XXX

An excessive ear pilosis (hypertrichosis) is determined by the gene, which is localized in Y-chromosome. A man has got this feature. What is the probability of his having a son with such a feature?
1. O %
2. 75 %
3. 100 %
4. 25 %
5. 35 %

A 28-year-old woman was seen by physician because of infertility. Underdevelopment of the ovary and the womb, disorder of the menstrual cycle were diagnosed. During the test of buccal epithelium cells it appeared that most of their nuclei had two Barr bodies. The

neutrophil nuclei had two "drumsticks" each. What provisional diagnosis can we make in this case?
1. Trisomy on X-chromosome
2. Klinefelter's syndrome
3. Down's syndrome
4. D.Turner's syndrome
5. Edward's syndrome

An 18-year-old girl has a body disproportion: wide shoulders, a narrow pelvis, shortened low extremities, swallowed skin folds on the neck, underdevelopment of the ovaries. During the laboratory analysis: neither "drumsticks" in the neutrophil nuclei, nor Barr bodies in the nuclei of the buccal epithelium cells were found. Using the dermatoglyphics method it was determined that the atd palmar angle was equal to 66°. What provisional diagnosis can we make?
1. Turner's syndrome
2. Down's syndrome
3. Klinefelter's syndrome
4. Patau syndrome
5. Edward's syndrome

The skin of a newborn boy is covered with a thick layer of keratinized scales (ichtyosis). It looks like reptile skin. After the investigation of the pedigree of his family it was revealed that this feature occurs in each generation only in males. Which of the below mentioned biological regularities becomes apparent in this case?
1. Sex-linked inheritance
2. The law of independent assortment
3. The law of unit characters
4. The law of segregation
5. Linkage of genes

Three forms of Down's syndrome — trisomy, translocation, and mosaic — are known. What genetic method do we have to use to distinguish these forms?
1. Pedigree analysis

2. Population-statistical
3. Study of twins
4. Cytogenetic
5. Biochemical

A husband is a homozygous by a dominant gene of polydactily. His wife is a homozygote by recessive allele of this gene. Which of the below mentioned genetic regularities can be apparent in their children as for their having polydactily?
1. The law of unit characters
2. The law of segregation
3. The law of independent assortment
4. Linkage of genes
5. Sex-linked inheritance

Sickle-cell anemia, when RBC are in the form of a sickle, if widespread among the population of some parts of tropic Africa. What biological phenomenon is this disease based on?
1. Gene mutation
2. Chromosomal aberration
3. Modification
4. Chromosomal mutation
5. Transduction

Parents with normal health have an ill with phenylketonuria son, but owing to a special diet he has normal development. What type of variability is his normal development connected with?
1. Modificative variability
2. Mutational variability
3. Combinative variability
4. Genotype variability
5. Inherited variability

The check-up of 18-year-old girl showed underdevelopment of the ovaries, wide shoulders, a narrow pelvis, shortened extremities, and a "neck of sphinx". The girl was mentally healthy. The case was

diagnosed as Turner's syndrome. What changes in the chromosomes' quantity is this disease connected with?
1. Trisomy of the 18th chromosome
2. Monosomy on X-chromosome
3. Trisomy of the X-chromosome
4. Trisomy of the 13th chromosome
5. Trisomy on the 21st chromosome

The analysis of the fetus's amniotic fluid cells for the presence of sexual chromatin shows that the majority of their nuclei have two Barr bodies each. Which hereditary disease does this baby have?
1. Down's syndrome
2. Trisomy on X-chromosome
3. Turner's syndrome
4. Patau syndrome
5. Edward's syndrome

A proband three sons, his brother and father have ichtyosis. His sisters and two daughters do not have this sign. What is the character of the inheritance of this sign?
1. Holandric
2. Autosomal-recessive
3. Autosomal-dominant
4. Dominant, X-linked
5. Recessive, X-linked

A man with sterility appealed to a genetic consultation. During the analysis of the cheek mucosa epithelium one Barr body was found in each nucleus of most cells. In neutrophil nuclei they found one "drumstick" in each. Which syndrome can cause such phenomenon?
1. Patau syndrome
2. Klinefelter's syndrome
3. Turner's syndrome
4. Trisomy of X-chromosome
5. Down's syndrome

A healthy woman who was infected viral rubella during pregnancy gave birth to a deaf baby with a normal karyotype and genotype. The baby's deafness is a manifestation of:
1. Combinative variation
2. Gene mutation
3. Genocopy
4. Phenocopy
5. Chromosomal aberration

During the examination of the buccal mucosa epithelium of a male patient two Barr bodies in each nucleus of most cells were found and in neutrophil nuclei two "drumsticks" in each were found. What syndrome is it?
1. Patau syndrome
2. Klinefelter's syndrome
3. Turner's syndrome
4. D.Down's syndrome
5. Edward's syndrome

A girl with the provisional diagnosis of Turner's syndrome came for genetic consultation. Which genetic method can confirm her diagnosis?
1. Hybridologic
2. Pedigree analysis
3. Cytogenetic
4. Biochemical
5. Study of twins

Parents with a normal phenotype gave birth to an ill with albinism child (autosomal-recessive type of inheritance). What genotype do the parents have?
1. Aa and Aa
2. AA and aa
3. AA and AA
4. AA and Aa
5. aa and aa

Pedigree analysis showed that the proband's disease occurred in each generation, affected a relatively big number of sibs, both men and women. What type of inheritance does it point out?
1. Y-linked
2. Autosomal-dominant
3. Autosomal-recessive
4. Dominant, X-linked
5. Recessive, X-linked

An 18-year-old girl complained to a doctor of the absence of menstruation. The patient had such features: 140 cm in height, a short neck with typical folds ("neck of sphinx"), wide shoulders, a narrow pelvis, absence of secondary sexual characters, underdeveloped ovaries. What was the provisional diagnosis of the girl?
1. Turner's syndrome
2. Patau syndrome
3. Morris's syndrome
4. Klinefelter's syndrome
5. Down's syndrome

The parents of an ill 5-year-old girl came for advice to a genetic consultation. In her karyotype 46 chromosomes were found. One of the chromo some of the 15th pair was longer than usual due to joining a part of chromosome of the 21th pair to it. What mutation took place in this case?
1. Deletion
2. Inversion
3. Translocation
4. Duplication
5. Aneuploidy

During the cytogenetic examination a patient was found cells with chromosome number 46, XY and 47, XXY in the same proportions. What is the diagnose?

1. Morris's syndrome
2. Down's syndrome
3. Klinefelter's syndrome
4. Patau syndrome
5. Turner's syndrome

A 14-year-old girl has some abnormalities: her height is lower than in girls of the same age, the signs of puberty are absent, her neck is very short, her shoulders are wide, during the cytogenetic analysis the one X-chromosome was found, the girl has normal intellectual development. What disease does the girl have?
1. Edward's syndrome
2. Down's syndrome
3. Turner's syndrome
4. Patau syndrome
5. Klinefelter's syndrome

Alkaptonuria is inherited as an autosomal-recessive disorder. Parents with a normal phenotype have a baby with alkaptonuria. What genotype do these parents have?
1. Aa and Aa
2. aa and aa
3. AA and AA
4. AA and Aa
5. Aa and aa

A teenager with the provisional diagnosis of Klinefelter's syndrome came for genetic consultation. What genetic method does the doctor have to apply to make a correct diagnosis?
1. Cytogenetic
2. Biochemical
3. Pedigree analysis
4. Study of twins
5. Population-statistical

During the analysis of the woman's buccal mucosa epithelium cells no sex chromatin was found. Which of the below mentioned diseases can it be?
1. Turner's syndrome
2. Edward's syndrome
3. Klinefelter's syndrome
4. Down's syndrome
5. Patau syndrome

A patient has mental deficiency, a short stature, and the Mongolian type of the eyelid folds. The microscopical examination of the patient's karyotype revealed the presence of trisomy on the 21st chromosome. What is the name of disorder which is caused by this chromosomal abnormality?
1. Patau syndrome
2. Klinefelter's syndrome
3. Turner's syndrome
4. Edward's syndrome
5. Down's syndrome

In a family pedigree hypertrichosis (excessive pilosis of the auricle) is observed. This feature appears in each generation and is typical only of men. What type of inheritance does this feature have?
1. Autosomal-dominant.
2. Y-linked
3. Autosomal-recessive
4. Dominant, X-linked
5. Recessive, X-linked

During the cytogenetic analysis in the cells of an abortive fetus only 44 chromosomes were found due to the absence of both chromosomes from the 3rd pair. What type of mutation occurred?
1. Gene mutation
2. Monosomy
3. Chromosomal aberration
4. Nulisomy

5. Polyploidy

By means of the cytogenetic analysis the karyotype 47, XX, 13+ of a child with plural defects of the skull, extremities, and internal organs was determined. What syndrome did the baby have?
1. Down's syndrome
2. Edward's syndrome
3. Klinefelter's syndrome
4. Patau syndrome
5. Turner's syndrome

In 1950s in Western Europe women who had taken thalidomide (soporific) bore a few thousands of babies with underdevelopment or absence of extremities and transgression of the skeleton. What nature did the pathology have?
1. Phenocopy
2. Genocopy
3. Chromosomal mutation
4. Chromosomal aberration
5. Gene mutation

A baby has such pathologies: anomaly of the lower jaw and the larynx development accompanied by voice changes resembling a cat's cry. Moreover, the baby has microcephaly, heart trouble, and four fingers. A likely cause of such anomaly is the deletion of:
1. Short arm of the 11th chromosome
2. Short arm of the 5th chromosome
3. Short arm of the 7th chromosome
4. Short arm of the 9th chromosome
5. Short arm of the 21st chromosome

During the examination of a newborn the diagnosis of Down's syndrome was made. What is the main cause of this pathology?
1. Monosomy on the 1st chromosome
2. Trisomy on the 13th chromosome
3. Trisomy on X-chromosome

4. Trisomy on the 21st chromosome
5. Undivergence of sex chromosomes

The male karyotype is 47, XXY He has endocrine hypotrophy development of testicles and absence of spermatogenesis. What disease do these symptoms suggest?
1. Klinefelter's syndrome
2. Edward's syndrome
3. Patau syndrome
4. Turner's syndrome
5. Down's syndrome

A child with haemophilia, has been born by healthy parents, but the mother's grandfather had haemophilia, too. What type of inheritance does this disorder have?
1. Recessive, X-linked
2. Y-linked
3. Autosomal-recessive
4. Dominant, X-linked
5. Autosomal-dominant

Under the influence of gamma-radiation a fragment of a chromosome was lost. What chromosomal mutation is it?
1. Inversion
2. Duplication
3. Deletion
4. Intrachromosomal translocation
5. Interchromosomal translocation

Under the influence of gamma-radiation a fragment of a chromosome is turned by 180°. What mutation has taken place?
1. Deletion
2. Duplication
3. Inversion
4. Intrachromosomal translocation
5. Interchromosomal translocation

During the inspection of a girl's karyotype a shortened arm of the 20th pair of chromosome was found. What do we call this mutation?
1. Deletion
2. Duplication
3. Inversion
4. Translocation
5. Monosomy on the 20th chromosome

A patient has phenylpyruvic acid in the blood and urine. Based on this the diagnosis of phenylketonuria is made. What genetic method was used?
1. Population-statistical
2. Pedigree analysis
3. Biochemical
4. Study of twins
5. Imunological

In a maternity hospital a child with numerous development anomalies of the internal organs, such as the heart, kidneys, digestive system, was born, doctor suspected Edward's syndrome. What genetic method can confirm these diagnosis?
1. Cytogenetic
2. Biochemical
3. Dermatoglyphic
4. Study of twins
5. Pedigree analysis

During the examination of an 18-year-old girl such features as underdeveloped ovaries, wide shoulders, a narrow pelvis, shortened low extremities, a "neck of sphinx" were determined. There was no mental deficiency. A doctor suspected Turner's syndrome. With what genetic method can this diagnosis be confirmed?
1 Study of twins.
2. Population-statistical
3. Cytogenetic

4. Pedigree analysis
5. Biochemical

In a cytogenetic laboratory the karyotype of a healthy man was studied. 46 chromosomes were seen in each somatic cell. How many autosomes does each cell contain?
1. 46
2. 23
3. 22
4. 44
5. 92

In a maternity hospital a child with numerous development anomalies was diagnosed with Patau syndrome. What genetic method can confirm this diagnosis?
1. Cytogenetic
2. Pedigree analysis
3. Biochemical
4. Population-statistical
5. Study of twins

In the genetic consultation a provisional diagnosis of Turner's syndrome of a 14-year-old girl was made. What karyotype does the girl have?
1. 45, X0
2. 47,XY,13+
3. 46, XX
4. 47, XXY
5. 46,XY

A healthy woman, who was infected by rubella during pregnancy, gave birth to a baby with a cleft lip and cleft palate. The baby has a normal karyotype and genotype. This anomaly can be the result of:
1. Gene mutation
2. Influence of teratogenic factor
3. Chromosomal aberration

4. Chromosomal mutation
5. Combinative variability

Galactosemia is an autosomal-recessive disorder. What genotypes may healthy parents have if their baby has galactosemia?
1. AA and AA
2. Aa and Aa
3. AA and Aa
4. AA and aa
5. aa and aa

The intensity of human skin pigmentation is controlled by a few pairs of nonallelic dominant genes. It was found that if the quantity of the genes increased, the pigmentation became more intensive. What is the name of this type of genes' interaction?
1. Epistasis
2. Polymery
3. Pleiotropy
4. Codominance
5. Complementary

There is ichtyosis in the family pedigree. This feature appears in each generation and is typical only for males. What type of inheritance does this feature have?
1. Y-linked
2. Recessive, X-linked
3. Autosomal-dominant
4. Autosomal-recessive
5. Dominant, X-linked

In a family of students from Africa a child with anemia was born. The child died within a short time. It was found that the child's erythrocytes were shaped like a sickle. What genotypes may the parents have if they have a light form of anemia?
1. AA and AA
2. Aa and AA

3. Aa and aa
4. Aa and Aa
5. aa and aa

A child is with phenylketonuria. The child's parents are healthy. What genotype may the parents have?
1. AA and Aa
2. AA and aa
3. aa and aa
4. Aa and Aa
5. Aa and AA

The study of the female karyogram shows that the centromere in X-chromosome is placed near, but not in the the centre. What do we call such chromosome?
1. Telocentric
2. Submetacentric
3. Subacrocentric
4. Acrocentric
5. Metacentric

During the pedigree analysis of a family with such an inherited pathology as transgression of enamel formation, it was found that the disease appeared in each generation. It is inherited by daughters from fathers. What type of inheritance can we observe in this case?
1. Dominant, X-linked
2. Autosomal-dominant
3. Autosomal-recessive
4. Y-linked
5. Recessive, X-linked

"Cat's cry" syndrome is characterized by the underdevelopment of laryngeal muscles, "miaowing" voice timbre, psychomotoric immaturation of a child. This disease is the result of:
1. Deletion of the short arm of the 5th chromosome
2. Duplication of a fragment of the 5th chromosome

3. Translocation of the 21st chromosome on the 15th
4. Deletion of the short arm of the 21st chromosome
5. Inversion of a fragment of the 21st chromosome

Endemic goiter is widespread among Carpathian population due to iodine deficiency in food. What form of variation is this case based on?
1. Genotypical
2. Mutation
3. Combinative
4. Hereditary
5. Modification

A sick child has disturbance of lipid exchange, which is accompanied by the increase of lipid concentration in the blood serum and the accumulation of the substance in the nerve cells. Some dysfunctions of the higher nervous system are also present. What hereditary disease can such symptoms be typical of?
1. Tay-Sachs disease
2. Edward's syndrome
3. Phenylketonuria
4. Marfan's syndrome
5. Hemophilia

The pathologoanatomic inspection of a newborn boy's dead body showed the following abnormalities: polydactily, microcephaly, a cleft lip and cleft palate, hypertrophy of the parenchymal organs. These symptoms are typical for Patau syndrome. What is the cause of this disease?
1. Trisomy on the 21tst chromosome
2. Trisomy on the 13th chromosome
3. Trisomy on the 18th chromosome
4. Trisomy on X-chromosome
5. Monosomy on X-chromosome

2. PARASITOLOGY

Parents with sick child came to the doctor. They worked in one of the Asian countries for a long time. Child has earthy colored skin, loss of appetite, laxity, enlarged liver, spleen, peripheral glands. What protozoan illness can this child have?
1. Balantidiasis
2. Amebiasis
3. Visceral leishmaniasis
4. Lambliasis
5. Toxoplasmosis

Patients with similar complaints applied to the doctor: weakness, pain in the intestines, disorder of GIT. Examination of the feces revealed that one patient with four nucleus cysts should be hospitalized immediately. For what protozoa are such cysts typical?
1. Dysenteric amoeba
2. Lamblia
3. Balantidium
4. Trichomonas
5. Intestinal amoeba

2 weeks since the blood transfusion a recepient has developed fever. What protozoal disease can it be?
1. Trypanosomiasis
2. Malaria
3. Amebiasis
4. Toxoplasmosis
5. Leishmaniasis

A patient died 3 days after the operation because of perforated colon with the manifestations of diffuse purulent peritonitis. The autopsy demonstrated: colon mucos membrane was thickened and covered with a fibrin film, isolated ulcers penetrated into different depth. Results of histology: mucous membrane necrosis, leukocytes infiltration with hemorrhages focuses. The complication of what disease caused the patient's death?

1. Dysentery
2. Nonspecific ulcerative colitis
3. Typhoid
4. Crohn's disease
5. Amebiasis

The examination of a foreigner revealed intestinal schistosomiasis. How could the patient be infected?
1. While eating fish
2. During river swimming
3. While eating meat
4. Through dirty hands
5. Through insects bites

A journalist's body temperature has sharply increased in the morning three weeks after his mission in India, it was accompanied with shivering and bad headache. A few hours later the temperature decreased. The attacks began to repeat in a day. He was diagnosed with tropical malaria. What stage of development of Plasmodium is infective for anopheles-female?
1. Gametocytes
2. Sporozoites
3. Shizontes
4. Merozoites
5. Microgamete

Slime, blood and protozoa 30-200 microns of length have been revealed in a man's feces. The body is covered with cilia's and has correct oval form with a little bit narrowed forward and wide round shaped back end. On the forward end a mouth is visible. In cytoplasm there are two nucleuses and two short vacuoles. For whom are the described attributes typical?
1. Intestinal amoeba
2. Lamblia
3. Balantidium
4. Trichomonas

5. Dysenteric amoeba

A businessman came to India from South America. The examination the physician found that the patient was suffering from Chagase disease. What was the way of infection?
1. Through dirty hands
2. As a result of bug's bites
3. With contaminated fruits and vegetables
4. As a result of mosquito's bites
5. After contact with a sick dogs

A patient has been brought to the hospital with the complaints of headache, pain in left hypochondrium. He has been ill for 1,5 weeks. The sudden illness began with the increase of body temperature up to 39,90C. In 3 hours the temperature decreased and sweating began. The attacks repeat rhythmically in 48 hours. The patient had visited one an African country. The doctors have suspected malaria. What method of laboratory diagnostics is necessary to use?
1. Urine examination
2. Blood examination
3. Examination of vaginal and urethral discharge
4. Stool examination
5. Immunological tests

A duodenal content smear of a patient with indigestion contains protosoa 10-18 mcm large. They have piriform bodies, 4 pairs of filaments, two symmetrically located nuclei in the broadened part of body. What kind of the paraste is it?
1. Trichomonas
2. Balantidium
3. Intestinal ameba
4. Dysentery ameba
5. Lamblia

A child complains of general weakness, loss of appetite, a troubled sleep, itching in the perianal area. The provisional diagnosis is

enterobiasis. In order to specify this diagnosis it is necessary to perform:
1. Scraping from perianal folds
2. Duodenal contents analysis
3. Roentgenoscopy
4. Immune diagnostics
5. Biopsy of muscle tissue

A lymph node punctate of a patient with suspected protozoal disease was examined. Examination of the stained specimen (Romanovsky's stain) revealed some crescent cells with pointed end, blue cytoplasm and red nucleus. What protozoan were revealed in the smears?
1. Trypanosomes
2. Viscerotropic leishmania
3. Toxoplasms
4. Malarial plasmodiums
5. Dermotropic leishmania

In the perianal folds of a 5-year-old girl her mother has found some white "worms" that caused itch and anxiety in the child. The "worms" were sent to the laboratory. During examination the physician saw white filiform helminthes 0,5-1 cm long, with pointed ends, some helminthes had twisted ends. What is the most likely diagnosis?
1. Enterobiasis
2. Diphyllobothriasis
3. Teniasis
4. Ascaridiasis
5. Opisthorchiasis
Ответ: 1

A patient has symptoms of inflammation of urogenital tracts. Examination of a vaginal smear revealed big unicellular, pear-shaped organisms with the pointed spike at the posterior end of body, big nucleus and undulating membrane. What protozoa were found in the smear?

1. Lamblia intestinalis
2. Trichomonas hominis
3. Trichomonas buccalis
4. Trypanosoma gambiense
5. Trichomonas vaginalis

A woman delivered a dead child with multiple developmental defects. What protozoan disease might have caused the intrauterine death?
1. Toxoplasmosis
2. Leishmaniasis
3. Malaria
4. Amebiasis
5. Lambliasis

A patient consulted an doctor about pain during urination. Analysis of his urine taken in the daytime revealed eggs with a characterized terminal spine. It is known from the anamnesis that the patient has recently returned from Australia. What is the most likely diagnosis?
1. Bilharziasis
2. Intestinal schistosomiasis
3. Japanese schistosomiasis
4. Opisthorchiasis
5. Dicroceliasis

A patient working at a pig farm complains about paroxysmal abdominal pain, liquid feces with admixtures of mucus and blood, headache, weakness, fever. Examination of large intestine revealed ulcers from 1 mm up to several cm large, feces contained oval unicellular organisms with cilia. What disease should be suspected?
1. Trichomoniasis
2. Amebiasis
3. Toxoplasmosis
4. Lambliasis
5. Balantidiasis

A gynaecologist was examining a patient and revealed symptoms of genital tract inflammation. A smear from vagina contains pyriform protozoa with a spine, flagella at their front; there is also an undulating membrane. What disease can be suspected?
1. Urogenital trichomoniasis
2. Lambliasis
3. Intestinal trichomoniasis
4. Toxoplasmosis
5. Balantidiasis

The examination of a patient showed that he had toxoplasmosis. Which material was used for diagnosing the disease?
1. Blood
2. Feces
3. Urine.
4. Duodenal contents
5. Phlegm

A woman gave birth to a dead baby with a lot of failures of development. What protozoan disease could cause the fetus's death?
1. Giardiasis
2. Malaria
3. Amebiasis
4. Leishmaniasis
5. Toxoplasmosis

A patient was taken to a hospital with complaints of general weakness, pain in bowels, indigestion. The feces examination revealed cysts with 4 nuclei. Which protozoan are these cysts most typical of?
1. Entamoeba histolytica
2. Giardia intestinalis
3. Entamoeba coli
4. Balantidium coli
5. Entamoeba gingivalis

Sand flies bites caused appearance of ulcers on the human skin; the ulcers smear was observed under microscope. The ulcer's contents analysis revealed nonflagelated protozoans. What disease is this?
1. Myiasis
2. Visceral leishmaniasis
3. Malaria
4. Scabies
5. Cutaneous leishmaniasis

A patient complained of general weakness, bad appetite, and nausea. After the examination in the duodenal aspirates pear-shaped protozoa with 4 pairs of flagella and two nuclei were found. Which disease could the patient be ill with?
1. Trichomoniasis
2. Giardiasis
3. Leishmaniasis
4. Toxoplasmosis
5. Malaria

In some regions of the world the cases of malaria became more frequent. What insect is a carrier of the agent of malaria?
1. Anopheles mosquito
2. Culex mosquito
3. Phlebotomus sandfly
4. Simulium black fly
5. Aedes mosquito

A patient consulted a doctor because of complaints of general weakness, pain in bowels, indigestion, frequent cases of bloody diarrhea (3 — 5 times a day). Laboratory analysis showed that the patient's feces contained vegetative forms of protozoa with an unstable body shape. Their cytoplasm contained food vacuoles with erythrocytes. What Protozoa was found in the patient's feces?
1. Entamoeba histolytica
2. Giardia intestinalis

3. Balantidium coli
4. Entamoeba coli
5. Trichomonas vaginalis

A patient with bile ducts inflammation was admitted to a gastrointestinal department. In the bile duct pear-shaped protozoans with 2 nuclei and 4 pairs of flagella were found. What protozoan disease did the patient have?
1. Giardiasis
2. Toxoplasmosis
3. Balantidiasis
4. Trichomoniasis
5. Amebiasis

A patient with attacks of wasting fever and the body temperature rising up to 40° C was admitted to an infectious department of a hospital. The attacks repeated rhythmically every 48 hours. It was known from anamnesis that the patient had recently returned from South Africa where he had been staying for 3 years. What was the causative organism of the disease?
1. Agent of Gambian trypanosomiasis
2. Agent of three-days' malaria
3. Agent of giardiasis
4. Agent of four-days' malaria
5. Agent of toxoplasmosis

Cysts with 8 nuclei were found in the feces examined through a microscope. Which protozoans did those cysts belong to?
1. Entamoeba coli
2. Balantidium coli
3. Entamoeba histolytica
4. Trichomonas hominis
5. Toxoplasma gondii

Some antelopes were brought to the Simferopol zoo from Africa. Trypanosoma gambiense were found in their blood. Are these antelopes epidemically dangerous?
1. Are not epidemically dangerous to all
2. Dangerous to domestic animals and human
3. Dangerous only to human
4. Dangerous to other antelopes
5. Dangerous only to predators

Returned from Turkmenia, a patient with ulcers on his face came to a doctor. The doctor diagnosed cutaneous leishmaniasis. How did the disease agent get into the patient's organism?
1. By food
2. By the respiratory way
3. By a direct contact
4. By a sexual contact
5. By the inoculation way

Cysts were found in the feces of a restaurant worker. They had 4 nuclei of the same size. Which of the protozoans did the cysts belong to?
1. Toxoplasma gondii
2. Entamoeba coli
3. Balantidium coli
4. Trichomonas vaginalis
5. Entamoeba histolytica

During the examination of duodenal aspirates of a patient with indigestion pear-shaped protozoans measuring 10 — 18 micrometers with 4 pairs of flagella were found. On a large scale there were 2 symmetrically placed nuclei. Which of the protozoans parasitized within the patient's body?
1. Entamoeba histolytica
2. Entamoeba coli
3. Giardia intestinalis
4. Trichomonas hominis

5. Balantidium coli

A patient has typical symptoms of malaria: wasting fever, exhaustion. These attacks repeat after certain intervals of time. What stage of Plasmodium is in the patient's blood?
1. Merozoites
2. Ookinete
3. Oocysts
4. Sporozoites
5. Sporocysts

A doctor is in one of Asian countries taking care of 10-year-old sick child. The symptoms of the disease are: exhaustion, fever, anemia, hepatomegaly, and splenomegaly, there are a lot of sand flies in this country, the children are likely to be sick with:
1. Giardiasis
2. Balantidiasis
3. Toxoplasmosis
4. Visceral leishmaniasis
5. Amebiasis

Sick men has addressed to the doctor with symptoms of an inflammation of urogenital ways. In smear from vagina mucous oval-pear-shaped protozoa with axostyle on the end of a body, large nucleus and undulating membrane are revealed. Put the laboratory diagnosis.
1. Trichomoniasis
2. Balantidiasis
3. Lambliasis
4. Enterobiasis
5. Ascariasis

In hospital have brought the patient with the complaints to a headache, pain in left hypochondrium. He is sick for 1,5 weeks. The illness began sharply from increase of temperature of a body up to

$39,9^0$ C. In 3 hours has decreased and hydropoiesis began. The attacks repeat rhythmically in every 48 hours. The patient was at excursion in one of the African countries. The doctors have suspected malaria. What method of laboratory diagnosticss is necessary for using?

1. Blood examination
2. Immunological tests
3. Stool examination
4. Examination of vaginal and urethral discharge
5. Urine examination

In hospital have brought the patient with the complaints to a headache, pain in left hypochondrium. He is sick for 4,5 weeks. The illness began sharply from increase of temperature of a body up to $39,9^0$ C. In 3 hours has decreased and hydropoiesis began. The attacks repeat rhythmically everyone 72 hours. The patient was at excursion in one of the African countries. The physician has suspected "malaria". What kind of Plasmodium can be assumed?

1. Plasmodium malariae
2. Plasmodium falciparum
3. Plasmodium vivax
4. Plasmodium ovale
5. Plasmodium minuta

In blood smear of the patient with malaria is revealed Plasmodium malaria, which borrows almost all red blood cells. The pigment is seen. A nucleus is large. What stage of erythrocytic schizogony is revealed in a specimen?

1. Merozoite
2. Trophozoite
3. Sporozoite
4. Ring-shaped trophozoite
5. Oocyst

At the woman the dead child with infringements of development was born. What protozoa disease can cause destruction of a fetus?

1. Trichomonas
2. Balantidium
3. Lamblia
4. Toxoplasma
5. Intestinal amoeba

At the three-year child temperature sharply has risen, have appeared pneumonia, diarrhea, increase of a liver and spleen. At the cat, which lived at the patient, some time ago the eyes are sick, and then she has lost sight. What disease can be assumed at the child?

1. Balantidium
2. Toxoplasma
3. Lamblia
4. Trichomonas
5. Intestinal amoeba

The working woman of pig farm has addressed to the doctor with the complaints to a pain in a stomach, often stool with an impurity of blood and slime, reduction of appetite, loss of weight. What protozoa disease can cause such symptoms?

1. Lamblia
2. Toxoplasma
3. Balantidium
4. Trichomonas
5. Intestinal amoeba

The man in feces has slime, blood, the protozoa 30-200 microns of length is revealed. The body is covered by cilias, has correct oval form with a little bit narrowed forward and wide round shaped back end. On the forward end mouth is visible. In cytoplasm are two nucleuses and two short vacuoles. For whom the described attributes are characteristic?

1. Balantidium
2. Lamblia
3. Dysenteric amoeba
4. Trichomonas

5. Intestinal amoeba

At the sanitary – protozoa control of waste water cysts of protozoa are revealed: round shaped cysts with a thick environment of the sizes 50-70 microns, cytoplasm is homogeneous, the large and small nuclei are well visible. What protozoa cysts are in waste water?

1. Intestinal amoeba
2. Lamblia
3. Balantidium
4. Dysenteric amoeba
5. Trichomonas

The patient has fever with double daily rise (39-40^0 C), the enlargement of the spleen and the liver. Blood analysis revealed bad anaemia. What disease can be suspected in the patient?

1. Trichomoniasis
2. Trypanosomiasis
3. Leishmaniasis
4. Giardiasis
5. Amoebiasis

In three weeks after mission in India the journalist's temperature of the body has sharply increased in the morning, being accompanied with shivering and bad headache. In some hours the temperature has decreased. The attacks began to repeat in a day. The diagnosis - tropical malaria was made. What stage of development of Plasmodium is infective for anopheles-female?

1. Microgamete
2. Gametocytes
3. Shizontes
4. Merozoites
5. Sporozoites

The child had vomiting, nausea and the pains in the right hypochondrium. In stool examination oval-shaped cysts (8-14 μm)

with 2-4 nuclei have been found out. What disease can be suspected in the patient?

1. Giardiasis
2. Amoebiasis
3. Trichomoniasis
4. Trypanosomiasis
5. Leishmaniasis

To the patient the preliminary diagnosis of genitourinary trichomoniasis was made. For specification of the diagnosis it is necessary to:

1. Find out cysts in feces
2. Find out vegetative form in urethral discharge
3. Find out vegetative form in feces
4. Find out vegetative form in blood
5. Make serological tests

A woman gave birth to a child with fatal disorders of development. What protozoa might have been the cause of fetus death?

1. Toxoplasma gondii
2. Plasmodium vivax
3. Lamblia intestinalis
4. Leishmania donovani
5. Trichomonas vaginalis

A patient consulted a doctor because of complaints of general weakness, pain in bowels, indigestion, frequent cases of bloody diarrhea (3 — 5 times a day). Laboratory analysis showed that the patient's feces contained vegetative forms of protozoans with an unstable body shape. Their cytoplasm contained food vacuoles with erythrocytes. What representative of Protozoa was found in the patient's feces?

1. Entamoeba coli.
2. Entamoeba histolytica.
3. Giardia intestinalis.
4. Balantidium coli.

5. Trichomonas vaginalis.

A patient with bile ducts inflammation was admitted to a gastrointestinal department. In the bile ducts the pear-shaped protozoans with 2 nuclei and 4 pairs of flagella were found. What protozoan disease did the patient have?

1. Amebiasis.
2. Toxoplasmosis.
3. Giardiasis.
4. Balantidiasis.
5. Trichomoniasis.

A patient with attacks of wasting fever and the body temperature rising up to 40° C was admitted to an infectious department of a hospital. The attacks repeated rhythmically every 48 hours. It was known from anamnesis that the patient had recently returned from South Africa where he had been staying for 3 years. What was the causative organism of the disease?

1. Agent of three-days' malaria.
2. Agent of Gambian trypanosomiasis.
3. Agent of giardiasis.
4. Agent of four-days' malaria.
5. Agent of toxoplasmosis.

Cysts with 8 nuclei were found in the feces examined through a microscope. Which protozoans did those cysts belong to?

1. Balantidium coli.
2. Entamoeba coli.
3. Giardia intestinalis.
4. Trichomonas hominis.
5. Toxoplasma gondii.

Some antelopes were brought to the Kyiv zoo from Africa. Trypanosoma gambiense were found in their blood. Are these antelopes epidemically dangerous?

1. Are not epidemically dangerous at all.

2. Dangerous only to human.
3. Dangerous to domestic animals and human.
4. Dangerous to other antelopes.
5. Dangerous only to predators.

Having returned from Turkmenia, a patient with ulcers on his face came to a doctor. The doctor diagnosed cutaneous leishmaniasis. How did the disease agent get into the patient's organism?

1. By food.
2. By the inoculable way.
3. By the respiratory way.
4. By a direct contact.
5. By a sexual contact.

Cysts were found in the feces of a restaurant worker. They had 4 nuclei of the same size. Which of the protozoans did the cysts belong to?

1. Trichomonas vaginalis.
2. Balantidium coli.
3. Entamoeba histolytica.
4. Entamoeba coli.
5. Toxoplasma gondii.

During the examination of duodenal aspirates of a patient with indigestion pear-shaped protozoans measuring 10 — 18 micrometers with 4 pairs of flagella were found. High power magnification shows 2 symmetrically placed nuclei. Which of the protozoan parasitized within the patient's body?

1. Giardia intestinalis
2. Entamoeba histolytica.
3. Trichomonas hominis.
4. Entamoeba coli.
5. Balantidium coli.

A patient has typical symptoms of malaria: wasting fever, exhaustion. These attacks repeat after certain intervals of time. What stage of Plasmodium is in the patient's blood?

1. Merozoites.
2. Ookinete.
3. Oocysts.
4. Sporozoites.
5. Sporocysts.

A doctor is staying in one of Asian countries taking care of 10-year-old sick children. The symptoms of the disease are: exhaustion, fever, anemia, hepatomegaly, and splenomegaly, there are a lot of mosquitoes in country; the children are likely sick with:

1. Visceral leishmaniasis.
2. Balantidiasis.
3. Toxoplasmosis.
4. Giardiasis.
5. Amebiasis.

In the feces of a person ill with chronic colitis round cysts with 4 nuclei, 10 micrometers in diameter were found. Which of the protozoans do they belong to?

1. Entamoeba histolytica.
2. Entamoeba gingivalis.
3. Entamoeba coli.
4. Giardia intestinalis.
5. Balantidium coli.

A patient with a provisional diagnosis of liver abscess was delivered to surgical department of a hospital. The patient was staying in Ukraine. He had stomach disorder, indigestion, and frequent bloody diarrhea. The patient hadn't consulted a doctor before. Which protozoan illness could the patient be ill with?

1. Toxoplasmosis.
2. Amebiasis.
3. Malaria.

4. Trypanosomiasis.
5. Leishmaniasis.

The parents of an ill boy have borne to consult an infectious disease doctor. The family has lived in an Asian country for a while, where there are a lot of mosquitoes. The boy's skin is of dark color. He has a bad appetite, malaise, splenomegaly and hepatomegaly, and peripheral lymph nodes enlargement. Which protozoan illness are these symptoms typical of?

1. Balantidiasis.
2. Amebiasis.
3. Visceral leishmaniasis.
4. Giardiasis.
5. Toxoplasmosis.

A female patient with symptoms of the inflammatory process of urogenital apparatus had large unicellular organisms observed in the vagina smear. The cell bodies of the organisms are pear-shaped with a pointed posterior part, a large nucleus, and an undulating membrane. What protozoans have been found in the smear?

1. Trichomonas vaginalis.
2. Trichomonas hominis.
3. Toxoplasma gondii.
4. Trypanosoma gambiense.
5. Giardia intestinalis.

A woman who had two miscarriages came to a women's consultating centre. Which protozoan illness could provoke the miscarriages?

1. Trichomoniasis
2. Balantidiasis.
3. Toxoplasmosis.
4. Giardiasis.
5. Amebiasis.

During the examination of a patient a doctor found small ulcers with rough edges on the patient's skin. The patient had just returned from

an Asian country where there were a lot of mosquitoes. What disease can be suspected?

1. Cutaneous leishmaniasis.
2. Trypanosomiasis.
3. Toxoplasmosis.
4. Malaria.
5. Scabies.

A patient was taken to a hospital with complaints of general weakness, pain in bowels, indigestion. The feces examination revealed cysts with 4 nuclei. Which protozoan are these cysts most typical of?

1. Entamoeba histolytica.
2. Giardia intestinalis.
3. Entamoeba coli.
4. Balantidium coli.
5. Entamoeba gingivalis.

A patient was taken to a hospital with complaints of general weakness, pain in bowels, indigestion. The feces examination revealed large cysts and vegetative forms of ciliated protozoa. Which protozoan are these features most typical of?

1. Balantidium coli.
2. Giardia intestinalis.
3. Entamoeba coli.
4. Entamoeba gingivalis.
5. Entamoeba histolytica.

The feces examination of a patient was taken to a hospital revealed cysts with 8 nuclei. Which protozoan are these cysts most typical of?

1. Entamoeba coli.
2. Giardia intestinalis.
3. Balantidium coli.
4. Entamoeba gingivalis.
5. Entamoeba histolytica.

Which host gives to parasite possibility of sexual maturation reaching?

1. Definitive host
2. The last one
3. Intermediate host
4. The first one
5. Additional host

Which form of Entamoeba histolytica is pathogenic in human being?

1. The first one
2. Cyst
3. Forma magna
4. The last one
5. Forma minuta

Which host carries larval parasitic stages?

1. The last one
2. Definitive host
3. The first one
4. Intermediate host
5. Additional host

Which stage of Balantidium coli is infective for humans?

1. The first one
2. The last one
3. Cyst
4. Forma minuta
5. Forma magna

Mosquitoes bites caused appearance of ulcers on the human skin; the ulcers were observed under microscope. The ulcer's contents analysis revealed nonflagelated protozoans. What disease is this?

1. Cutaneous leishmaniasis.
2. Visceral leishmaniasis.
3. Malaria.
4. Scabies.

5. Myiasis.

A patient complained of general weakness, bad appetite, and nausea. After the examination in the duodenal aspirates pear-shaped protozoans with 4 pairs of flagella and two nuclei were found. Which disease could the patient be ill with?
1. Giardiasis
2. Trichomoniasis.
3. Leishmaniasis.
4. Toxoplasmosis.
5. Malaria.

The examination of a patient showed that he had toxoplasmosis. Which material was used for diagnosing of the disease?
1. Urine.
2. Duodenal contents.
3. Phlegm.
4. Blood
5. Feces.

A woman gave birth to a dead baby with a lot of failures of development. What protozoan disease could cause the fetus's death?
1. Leishmaniasis.
2. Giardiasis.
3. Toxoplasmosis.
4. Malaria.
5. Amebiasis.

A woman who had two miscarriages came to a women's consulting centre. Which protozoan illness could provoke the miscarriages?
1. Trichomoniasis.
2. Balantidiasis.
3. Toxoplasmosis.
4. Giardiasis.
5. Amebiasis.

In the woman's anamnesis there were two miscarriages. The third pregnancy ended in a birth of a baby with a lot of malformations (upper extremities were absent and lower extremities were underdeveloped). The presence of what protozoans in the woman's body could cause such abnormalities?

1. Toxoplasma gondii.
2. Entamoeba histolytica.
3. Giardia intestinalis.
4. Balantidium coli.
5. Trichomonas hominis.

During the checkup of restaurant workers doctors often notice assymptomatic parasitosis: a totally healthy person is a carrier of cysts which infect other people. The parasitism of which parasites makes it possible?

1. Entamoeba histolytica.
2. Plasmodium vivax.
3. Trypanosoma gambiense.
4. Leishmania donovani.
5. Leishmania infantum.

A 10-year-old child complains of weakness, nausea, irritability. Helminthes of white color and 5-10 mm long were found on the underwear. On microscopy of the scrape from the perianal folds achromic ova of the unsymmetrical form were revealed. Indicate what helminth is parasiting on the child?

1. Enterobius vermicularis
2. Ancylostoma duodenalis
3. Trichuris
4. Ascaris lumbricoides
5. Trichina

Larvae were detected occasionally on the microscopic examination of the sputum of the patient with pneumonia. Eosinophiles were detected on the blood examination. What helminthiasis can be diagnosed?

1. Ascariasis

2. Enterobiosis
3. Opistorchis
4. Trichocephaliasis
5. Paragonimiasis

On autopsy of a still-born infant it is revealed heart development abnormalities: ventricles are not separated, originates from the right part single arterial trunk. For what class of vertebrate is such heart construction characteristic?
1. Amphibian
2. Birds
3. Reptiles
4. Mammals
5. Fishes

The guide of the scientific expedition in India was native who always was with his dog. What invasive diseases can be transmitted by the dog if it is the source of invasion?
1. Echinococcosis
2. Fascioliasis
3. Teniasis
4. Dicroceliasis
5. Paragonimiasis

During the examination of a patient with bleeding wounds the doctor found out that the tissue was damaged by maggots, there were local maturations. The diagnosis was obligate myiasis. The maggots of what insect caused the disease?
1. Blow fly (Musca Volfarti)
2. Triatomic bug
3. Stable fly
4. Filth (house) fly
5. Tsetse fly (Glossina)

A malarial plasmodium (haemamoeba) - the pathogene of vivax malaria - has two strains: southern and northern. They differ by the

duration of their incubation period: the southern has short and the northern - long one. What selection works in this case?
1. Artificial
2. Moving
3. Sexual
4. Cutting
5. Stabilizing

A group of men applied to the doctor complaining of rising temperature, headache, swelling of face and eyelids, myalgia. From the history it became known that they all were hunters and they often ate meat of wild animals. What is the most likely diagnosis?
1. Cysticercosis
2. Filariasis
3. Trichinosis
4. Teniarrhinchosis
5. Teniasis

A patient with suspicion on epidemic typhus was admitted to the hospital. Some arachnids and insects have been found in his flat. Which of them may be a carrier of the pathogen of epidemic typhus?
1. Spiders
2. Houseflies
3. Lice
4. Bed-bugs
5. Cockroaches

A sick man with high temperature and a lot of tiny wounds on the body has been admitted to the hospital. Lice have been found in the folds of his clothing. What disease can be suspected in the patient?
1. Epidemic typhus
2. Scabies
3. Malaria
4. Plague
5. Tularemia

Microscopic examination of the sputum of a patient with pneumonia occasionally revealed some larvae. Eosinophiles were detected on blood examination. What helminthiasis can be diagnosed?

1. Ascariasis
2. Enterobiosis
3. Trichocephaliasis
4. Paragonimiasis
5. Opisthorchosis

According to the data of WHO, for about 250 mln of Earth population fall ill with malaria. This disease is mostly spread in tropical and subtropical regions. Range of its spread falls into the areal of the following mosquitoes:

1. Aedes
2. Mansonia
3. Culex
4. Anopheles
5. Culiseta

A patient complains of pain in the area of his liver. Duodenal intubation revealed yellowish, oval, narrowed at the poles eggs with an operculum at the end. Size of these eggs is the smallest among all helminth eggs. What is the most probable diagnosis?

1. Opisthorchosis
2. Beef tapeworm infection
3. Diphyllobothriasis
4. Echinococcosis
5. Teniasis

Two days after consumption of smoked pork a patient got face and eyelid edemata, gastrointestinal disturbances, abrupt temperature rise, muscle pain. Blood analysis showed full-blown eosinophilia. What helminth could the patient be infected with?

1. Ascarid
2. Trichina
3. Hookworm

4. Whipworm
5. Pinworm

A female patient consulted a physician about digestive disorder, extended abdominal pain. Examination revealed drastic decrease in hemoglobin concentration. It is known from the anamnesis that while living in the Far East the patient used to eat freshly-salted caviar. Some relatives living with her had the similar condition. What is the most likely diagnosis?
1. Diphyllobothriasis
2. Echinococcosis
3. Teniasis
4. Trichiniasis
5. Ascaridiasis

During regular examination of schoolchildren it was revealed that a 10 year old girl had asymmetric oval eggs with a larva in the scrape from her perianal folds. What diagnosis should be made?
1. Enterobiasis
2. Ascariasis
3. Amebiasis
4. Trichocephalosis
5. Ankylostomiasis

Two days after consumption of smoked pork a patient got face and eye-lid edemata, gastrointestinal disturbances, abrupt temperature rise, muscle pain. Blood analysis showed full-blown eosinophilia. What helminth could the patient be infected with?
1. Pinworm
2. Ascarid
3. Trichina
4. Whipworm
5. Hookworm

A patient has acne on his face. Microspcopic examination of scrapings from the affected areas revealed living porrect vermiform

arthropoda 0,2-0,5 mm large with four pairs of short extremities in the front part of their bodies. What is the laboratory diagnosis?

1. Demodicosis
2. Scabies
3. Myiasis
4. Pediculosis
5. Phthiriasis

A boy found a spider with the following morphological characteristics: it is 2 cm long, has roundish black abdomen with two rows of red spots on its dorsal side; four pairs of jointed limbs are covered with small black hairs. What arthropod is it?

1. Karakurt spider
2. Scorpion
3. Solpuga
4. Mite
5. Tarantula

A man has worked in an African country for 3 years. A month after his return to Ukraine he consulted an ophthalmologist and complained about eye ache, eyelid edema, lacrimation and temporary visual impairment. Underneath the eye conjunctiva the doctor revealed helminths 30-50 mm long with elongated filiform body. What diagnosis might be suspected?

1. Filariasis
2. Diphyllobothriasis
3. Ascaridiasis
4. Enterobiasis
5. Trichocephaliasis

A worker of a live-stock farm was made a provisional diagnosis of echinococcosis. The diagnosis was confirmed during a surgery. From what animal could the patient get the disease?

1. A dog.
2. A sheep.
3. A pig.

4. A rabbit.
5. A caw.

A patient has severe indigestion. Ripe and immovable segments of a tapeworm are found in his feces; the uterus of each of them has 7—12 lateral branches. Which helminth does the patient have?
1. Taenia solium.
2. Diphyllobothrium latum.
3. Taenia saginata.
4. Hymenolepis nana.
5. Echinococcus granulosus.

After the dissection of a woman's pad body larvae of helminths — cysticercus were found in the tissue of the brain. Which helminth did the larvae belong to?
1. Echinococcus granulosus.
2. Hymenolepis nana.
3. Taenia solium.
4. Alveococcus multilocularis.
5. Taenia saginata.

A 35-year-old man came to a doctor complaining of epigastric pain. As it appeared, the patient was fond of fishing and often ate raw fish. Eggs of helminths were found in the patient's feces. The eggs were dark and oval-shaped with an operculum on one of the poles, 30x15 micrometers in size. Which helminthosis did the patient have?
1. Paragonimiasis.
2. Fascioliasis.
3. Schistosomiasis.
4. Ancylostomiasis.
5. Opisthorchiasis.

A woman came to a doctor complaining of general weakness, epigastic pain, indigestion. After the examination of the patient anemia connected with vitamin B_{12} deficiency was found. It was known from anamnesis that living in the Far East she used to eat

caviar. Laboratory analysis showed that the feces contained eggs of helminth which were oval-shaped, yellow, and had an operculum on one of the poles. What disease did the patient have?

1. Trichinosis.
2. Ascariasis.
3. Diphyllobothriasis.
4. Taeniasis.
5. Echinococcosis.

A child doesn't sleep well; sometimes he scratches the area around the anus. After the examination of the child's nightwear white filiform helminths 1 cm long were found. During the microscopic examination of a 1 specimen from perianal folds of the child small ovoid asymmetrical colourless eggs were observed. What is the helminth, which parasitizes in the child's organism, called?

1. Enterobius vermicularis
2. Ascaris lumhricoides.
3. Strongyloides stercoralis.
4. Trichinella spiralis.
5. Trichocephalus trichiurus.

Fragments of a helminth were found in the feces of a patient after drug treatment. These fragments had a tape-like segmented structure. The width of the segments exceeded their length. In the centre of the segment there was a rosette-shaped uterus. Which helminth did the patient have?

1. Diphyllobothrium latum.
2. Taenia solium.
3. Taenia saginata.
4. D.Alveococcus multilocularis.
5. Hymenolepis nana.

A sick child had recurrent diarrhea, epigastric pain, nausea, vomiting. Once after the child's vomiting his mother found a spindle-shaped helminth 20 cm long. Which disease could cause such a condition?

1. Ascariasis.
2. Trichuriasis.
3. Ancylostomiasis.
4. Dracunculiasis.
5. Trichinosis.

A microscopy revealed yellow-brown knobby-coated eggs of helminths with a thick wall in the feces of a schoolboy. Which helminth did the eggs belong to?

1. Ascaris lumhricoides.
2. Trichocephalus trichiurus.
3. Enterobius vermicularis.
4. Hymenolepis nana.
5. Diphyllobothrium latum.

A mother of a 5-year-old girl found filiform helminths 0.5 — 1 cm long with sharp tips on the child's nightwear. She brought them to a laboratory. Which disease did these parasites cause?

1. Ascariasis.
2. Diphyllobothriasis.
3. Taeniasis.
4. Opisthorchiasis.
5. Enterobiasis.

The treatment of a patient with pneumonia didn't relieve his condition. He began complaining of stomachache, vomiting, indigestion, worsening of his general state. The analysis of the feces revealed oval-shaped helminth's eggs covered with a thick tuberculate envelope. What diagnosis can be made basing on the above mentioned data?

1. Diphyllobothriasis.
2. Enterobiasis.
3. Ascariasis.
4. Fascioliasis.
5. Trichuriasis.

A patient with the preliminary diagnosis of trichinosis was admitted to a hospital. Consuming of what food could cause that disease?

1. Pork
2. Beef.
3. Fish.
4. Crayfish.
5. Crab.

A woman came to a doctor complaining of indigestion. In her feces flat white moving segments constantly appeared. Laboratory examination revealed that they were long, narrow proglottids with a longitudinal canal of the uterus which had 17 — 35 lateral branches on each side. Which of the helminths did the woman have in her intestines?

1. Taenia saginata.
2. Hymenolepis nana.
3. Taenia solium.
4. Diphyllobothrium latum.
5. Echinococcus granulosus.

Larvae of roundworms (Nematoda) have been found in the sputum of a patient with the provisional diagnosis of pneumonia. What species of the roundworm is this?

1. Ascaris lumbricoides.
2. Fasciola hepatica.
3. Paragonimus ringeri.
4. Taenia solium.
5. Echinococcus granulosus.

A patient came to a stomatological department complaining of pain in the chewing muscles. It was known from anamnesis that he was fond of hunting and often ate meat of wild animals. The encysted larva of what parasite was found in the result of muscle biopsy of the patient?

1. Trichinella spiralis.
2. Ancylostoma duodenale.

3. Taenia solium.
4. Dracunculus medinensis.
5. Wuchereria bancrofti.

Grey insects measuring 1 —1.2 mm with a short wide body covered with setae were observed on the pubis of some boys during the medical check up. What insects were these?
1. Phthirus pubis.
2. Sarcoptes scabiei.
3. Pulex irritans.
4. Pediculus humanus capitis.
5. Cimex lectularius.

Grey arthropods measuring 3 mm in length with three pairs of legs were found on a patient's head. The arthropods had deep incisures on each side of the body. What arthropods did the patient have?
1. Pulex irritans.
2. Cimex lectularius.
3. Phthirus pubis.
4. Pediculus humanus capitis.
5. Sarcoptes scabiei.

Patient with itched rash between fingers and on abdomen came to the doctor. After microscopic examination of his rash small roundish haired arthropods without eyes were found. What disease may be diagnosed?
1. Ichtiosis
2. Demodicosis
3. Pediculosis capitis
4. Pediculosis pubis
5. Scabies

A child complained of itching in the occipital and temporal parts of the head. After the examination of his head surface ulcers on the head skin and white nits on the hair were found. What arthropod was parasitizing on the child's head?

1. Head louse.
2. Crab louse.
3. Body louse.
4. Wohlfahrtia fly.
5. Human flea.

A patient came to a dermatologist complaining of rashes which appeared on his body and legs skin surface. After their flat' sanitary-hygienic control black roundish insects about 8 mm long were revealed which feeds on patient' blood and cause rashes. What animal infected the patient?
1. Bedbug.
2. Follicle mite.
3. Itch mite.
4. Human flea.
5. Wohlfahrtia fly.

A patient came to a dermatologist complaining of ulcers which appeared on his face and neck skin surface. After the laboratory examil1ation of the ulcers immobile parasitic arachnids were found. What animal infected the patient?
1. Follicle mite.
2. Itch mite.
3. Human flea.
4. Bedbug.
5. Wohlfahrtia fly.

A patient came to a doctor with complaints of itchy skin especially between the fingers and at the bottom of his abdomen. Sinuous passages with disseminations on their ends were found on the patient's skin. What disease did these symptoms point out?
1. Toxoplasmosis.
2. Malaria.
3. Myiasis
4. Scabies.
5. Pediculosis.

A patient came to a doctor complaining of itching between the fingers and on the abdomen, which intensified at night. After the examination of his skin rash and thin grey stripes were found. What pathogenic organism could produce such symptoms?

1. Ornithodoros papillipes.
2. Dermacentor pictus.
3. Ixodes persulcatus.
4. Sarcoptes scabiei.
5. Ixodes ricinus.

A 40-year-old man who in a pisewalled house came to a laboratory. He found dark-grey arthropods with a long oval body and a somewhat pointed front end in the wall chink. The mouth apparatus of the arthropod were placed in the notch of the abdomen surface. The arthropod had 4 pairs of ambulatory legs, the sexual opening was placed at the level of the first pair of legs. What arthropod is it?

1. Sarcoptes scabiei.
2. Dermacentor nuttalli
3. Ornithodoros papillipes.
4. Ixodes ricinus.
5. Ixodes persulcatus.

A man lives in the area of dermal leishmaniasis distribution. He hasn't been inoculated against this disease because of his having contraindication against it. What insects' bites should this man avoid?

1. Fleas.
2. Gadflies.
3. Stable flies.
4. Sandflies.
5. Mosquitoes.

Old patient came to a dermatologist complaining of subcutaneous furunculoid and boil-like lesions. In these lesions white undeveloped creatures were found. What animal infected the patient?

1. Itch mite.
2. Human flea.
3. Bedbug.
4. Wohlfahrtia fly.
5. Follicle mite.

Which of the animals enumerated are parasites?
1. Planaria alba
2. Domestic fly
3. Echlnococcus granulosus
4. Euglena viridis
5. Entamoeba coli

A 35-year-old man came to a doctor complaining of epigastric pain. As it appeared, the patient was fond of fishing and often ate raw fish. Eggs of helminths were found in the patient's feces. The eggs were dark and oval-shaped with an operculum on one of the poles, 30x15 micrometers in size. Which helminthosis did the patient have?
1. Opisthorchiasis.
2. Paragonimiasis.
3. Fascioliasis.
4. Schistosomiasis.
5. Ancylostomiasis.

A patient has severe indigestion. Ripe and immovable segments of a tapeworm are found in his feces; the uterus of each of them has 7—12 lateral branches. Which helminth does the patient have?
1. Taenia solium.
2. Diphyllobothrium latum.
3. Taenia saginata.
4. Hymenolepis nana.
5. Echinococcus granulosus.

A patient came to a doctor complaining of general weakness and indigestion. He brought segments of a tape worm found on his bedclothes. Which of the helminths did the patient have?

1. Taenia saginata.
2. Hymenolepis nana.
3. Taenia solium.
4. Diphyllobothrium latum.
5. Echinococcus granulosus.

What host for Himenolepis nana human is?
1. Intermediate
2. Reservoir
3. First
4. Both definitive and intermediate
5. Definitive

What is the first intermediate host for Difillobotrium latum?
1. Crustaceans
2. Fish
3. Snail
4. Human
5. Bear

What is the source of broad tapeworm ingestion for humans?
1. It passes with the contaminated hands
2. Pork
3. Beef
4. Fish
5. Water

What host are human beings for E. granulosus?
1. Intermediate
2. First
3. Last
4. Definitive
5. Reservoirs

Which of helminthes listed below can have both parasitic and free-living stages in the lifecycle?

1. Dracunculus medinensis.
2. Trichinella spiralis.
3. Wuchereria bancrofti.
4. Strongyloides stercoralis.
5. Ancylostoma duodenale.

How human mostly can be infected by guinea worm? Choose among answers a most qualified one:

1. By consuming a copepods infected by larvae with contaminated water
2. By drinking a contaminated water
3. By eating the fish with larvae
4. By consuming a copepods infected by larvae
5. By eggs in air passage

What vectors are responsible for the lymphatic filariasis?

1. Deerflies
2. Ticks
3. Midges
4. Mosquitoes
5. Blackflies

Which forms of Strongiloides are infective for human being? Among answers choose most qualified one:

1. Filarieform larva in the environment
2. Rhabditiform larva
3. Adult worm
4. Cysts
5. Eggs

It is well known that some of the helminths at the larval stage parasitize in the meat of fish. Which helminthosis may a person get if he eats raw fish?

1. Ascariasis
2. Diphyllobothriasis
3. Taeniasis

4. Enterobiasis
5. Trichinosis

A worker of a live-stock farm was made a provisional diagnosis of echinococcosis. The diagnosis was confirmed during a surgery. From what animal could the patient get this disease?
1. A cow
2. A sheep
3. A pig
4. A rabbit
5. A dog

A patient has severe indigestion. Mature and immovable segments of a tapeworm are found in his feces; the uterus of each of them has 7-12 lateral branches. Which helminth does the patient have?
1. Diphyllobothrium latum
2. Taenia saginata
3. Taenia solium
4. Hymenolepis nana
5. Echinococcus granulosus

After the dissection of a woman's pad body larvae of helminths — cysticerci were found in the tissue of the brain. Which helminth did the larvae belong to?
1. Taenia solium
2. Alveococcus multilocularis
3. Taenia saginata
4. Echinococcus granulosus
5. Hymenolepis nana

A woman came to a doctor complaining of general weakness, epigastic pain and indigestion. After the examination of the patient anemia concerned with vitamin B_{12} deficiency was found. It was known from anamnesis that living in the Far East she used to eat caviar (raw fish eggs). Laboratory analysis showed that the feces

contained eggs of helminth which were oval-shaped, yellow, and had an operculum on one of the poles. What disease did the patient have?
1. Trichinosis
2. Taeniasis
3. Echinococcosis
4. Diphyllobothriasis
5. Ascariasis

A child doesn't sleep well; sometimes he scratches the area around the anus. After the examination of the child's nightwear white filiform helminths 1 cm long were found. During the microscopic examination of a specimen from perianal folds of the child small ovoid asymmetrical colorless eggs were observed. What is the helminth in the child's organism called?
1. Trichinella spiralis
2. Ascaris lumbricoides
3. Enterobius vermicularis
4. Strongyloides stercoralis
5. Trichocephalus trichiurus

A sick child had recurrent diarrhea, epigastric pain, nausea, vomiting. Once after the child's vomiting his mother found a spindle-shaped helminth up to 20 cm long. Which disease could cause such a condition?
1. Trichuriasis
2. Ancylostomiasis
3. Dracunculiasis
4. Ascariasis
5. Trichinosis

A microscopy revealed yellow-brown knobby-coated eggs of helminths with a thick protein layers in the feces of a schoolboy. Which helminth did the eggs belong to?
1. Enterobius vermicularis
2. Ascaris lumbricoides
3. Trichocephalus trichiurus

4. Hymenolepis nana
5. Diphyllobothrium latum

A mother of a 5-year-old girl found filiform whitish helminths 0.5-1 cm long with sharp tips on the child's night underwear. She brought them to a laboratory. Which disease did these parasites cause?
1. Enterobiasis
2. Ascariasis
3. Diphyllobothriasis
4. Taeniasis
5. Opisthorchiasis

A patient with the preliminary diagnosis of trichinosis was admitted to a hospital. Consuming of which food could cause that disease?
1. Crab
2. Beef
3. Fish
4. Crayfish
5. Pork

During the checkup of school girls colorless asymmetric oval eggs with larvae inside were found in the scrape of perianal folds of a 10-year-old girl. What disease does it indicate?
1. Trichuriasis
2. Amebiasis
3. Ascariasis
4. Enterobiasis
5. Ancylostomiasis

A 35-year-old man was taken to the hospital. He failed to see with one of his eyes. It was known from anamnesis that he used to eat pork. After the radiologic examination and serologic findings he was diagnosed with cysticercosis. What helminth is an agent of cysticercosis?
1. Taenia saginata
2. Trichocephalus trichiurus

3. Taenia solium
4. Trichinella spiralis
5. Diphyllobothrium latum

A patient, who came to Russia from Africa, consulted a doctor complaining of sharp pain during urination. The analysis of his day urine specimens revealed large terminally spined eggs. What helminths did the patient have?
1. Opisthorchis felineus
2. Schistosoma mansoni
3. Schistosoma haematobium
4. Schistosoma japonicum
5. Dicrocoelium lanceatum

During the examination of a man who has recently come back from Africa schistosomiasis was diagnosed. How could the pathogenic organism penetrate into the organism of the patient?
1. While swimming in the river
2. While eating pork
3. While eating fish
4. Through dirty hands
5. By mosquitoes bites

A tourist who was staying in Eastern Asia had been hospitalized to a therapeutic department with suspected pneumonia. During the examination of the patient's sputum and feces the eggs of Paragonimus ringeri were found. With what food could the patient get the pathogenic organism?
1. Undercooked fish
2. Unboiled water
3. Undercooked crabs
4. Undercooked pork
5. Dirty fruit and vegetables

Larvae of roundworms (Nematoda) have been found in the sputum of a patient with the provisional diagnosis of pneumonia. What species of the roundworm is this?
1. Ascaris lumbricoides
2. Fasciola hepatica
3. Paragonimus ringeri
4. Taenia solium
5. Echinococcus granulosus

A patient came to a dentist complaining of severe pain in the chewing muscles. It was known from anamnesis that he was fond of hunting and often ate meat of wild animals. The encysted larva of what parasite was found in the result of muscle biopsy of the patient?
1. Trichinella spiralis
2. Ancylostoma duodenale
3. Taenia solium
4. Dracunculus medinensis
5. Wuchereria bancrofti

Grey insects measuring 1-1.2 mm with a short wide body covered with setae were observed on the pubic hair of some boys during the medical check up. What insects were these?
1. Sarcoptes scabiei
2. Pulex irritans
3. Pediculus humanus capitis
4. Phthirus pubis
5. Cimex lectularius

Grey arthropods measuring 3 mm in length with three pairs of legs were found on a patient's head. The arthropods bodies had deep incisures on each side of the body. What arthropods did the patient have?
1. Pediculus humanus capitis
2. Sarcoptes scabiei
3. Pulex irritans
4. Cimex lectularius

5. Phthirus pubis

Patient with brain inflammation was delivered to the hospital located in field-forest zone. It was known this patient went for hunting and sometimes eliminated from his body some ticks. Can you suppose which arthropods have transmitted disease to this patient?
1. Argasidae ticks
2. Demodex folliculorum
3. Ixodidae ticks
4. Demodex brevis
5. Sarcoptes scabiei

Living in the old cracked house in the village at the seaside students found after they waked up in the morning some ticks on the body of their friend. Can you suppose which arthropods they were?
1. Argasidae ticks
2. Ixodidae ticks
3. Demodex folliculorum
4. Demodex brevis
5. Sarcoptes scabiei

Patient with very itchy rash between fingers and on abdomen came to the doctor. After microscopic examination of his rash small roundish haired arthropods without eyes were found. What disease may be diagnosed?
1. Ichtiosis
2. Scabies
3. Demodicosis
4. Pediculosis capitis
5. Phtirus pubis

Single lady came to the doctor with her dog complaining of itching, inflammation of facial skin, constant roseola. After skin microscopic examination elongated mites without legs and eyes were revealed in lady skin. What disease may be diagnosed in this case?
1. Demodicosis

2. Ichtiosis
3. Scabies
4. Pediculosis capitis
5. Pediculosis pubis

Which disease is transmitted to humans by Anopheles mosquito?
1. Lymphatic filariasis
2. Trench fever
3. Dirofilariosis
4. Malaria
5. Subcutaneous filariasis

Which disease is transmitted to humans by Aedes and Culex mosquitoes?
1. Lymphatic filariasis
2. Trench fever
3. Malaria
4. Dirofilariosis
5. Subcutaneous filariasis

Which disease is transmitted to humans by deerfly (Chrysops)?
1. Elephantiasis
2. Onchocerciasis
3. Dirofilariosis
4. Loaosis
5. Lymphatic filariasis

What is endoparasite?
1. Organism living near the host
2. Organism living inside the host
3. Organism living on the host
4. Organism living with the host
5. Free-living individual

What is ectoparasite?
1. Organism living inside the host

2. Organism living on the host
3. Organism living with the host
4. Free-living individual
5. Organism living near the host

What is permanent parasite?
1. Organism linked with the host organism for the whole life
2. Organism parasitizing on the other organism
3. Organism living with the host
4. Free-living individual
5. Organism living near the host

A patient came to a dermatologist complaining of rashes which appeared on his body and legs skin surface. After their appartments' sanitary-hygienic check up the reddish roundish insects about 8 mm long were revealed which were feeding on patient' blood. Which insects did affect the patient?
1. Bedbug.
2. Follicle mite
3. Itch mite
4. Human flea
5. Wohlfahrtia fly

A patient came to a dermatologist complaining of ulcers which appeared on his face and neck skin surface. After the laboratory examination of the ulcers the mobile parasitic resembling the arachnids were found. Which animals did infect the patient?
1. Bed bug
2. Itch mite
3. Human flea
4. Demodex
5. Wohlfahrtia fly

A patient came to a doctor with complaints of itchy skin especially between the fingers and at the bottom of his abdomen. Sinuous

tunnels with disseminations on their ends were found on the patient's skin. What disease did these symptoms point out?
1. Dermatitis
2. Pediculosis
3. Toxoplasmosis
4. Scabies
5. Myiasis

After the examination a patient was diagnosed with tickborne relapsing fever. How was he infected?
1. By a soft tick's bite
2. By an itch mite's bite
3. By a hard tick's bite
4. By a housefly mite's bite
5. By a dog tick's bite

A patient came to a doctor complaining of itching between the fingers and on the abdomen, which intensified at night. After the examination of his skin rash and thin grey tunnels were found. What pathogenic organism could produce such symptoms?
1. Sarcoptes scabiei
2. Ixodes ricinus
3. Ornithodoros papillipes
4. Dermacentor pictus
5. Ixodes persulcatus

A 40-year-old man who in the old claywalled house came to a laboratory. He found the dark-grey soft arthropods with a long oval body and a somewhat pointed front end in the wall chink. The mouth apparatus of the arthropod were placed in the notch of the abdomen surface. The arthropod had 4 pairs of appendages, the sexual opening was placed at the level of the first pair of legs. What arthropod is it?
1. Ixodes Ricinus
2. Ornithodoros papillipes
3. Ixodes persulcatus
4. Sarcoptes scabiei

5. Dermacentor nuttalli

After the examination a Russian patient was diagnosed spring-summer encephalitis. How was the patient infected?
1. By means of a hard tick's bite
2. By means of an itch mite's bite
3. By means of a malaria mosquito's bite
4. By means of a soft tick's bite
5. By means of a sand fly's bite

A man lives in the area of dermal leishmaniasis distribution. He hasn't been inoculated against this disease because of his having contraindication against it. What insects' bites should this man avoid?
1. Botflies
2. Mosquitoes
3. Fleas
4. Sandflies
5. Stable flies

Old patient came to a dermatologist complaining of subcutaneous furunculoid and boil-like lesions. In these lesions white undeveloped worm-like creatures were found. What animal infected the patient?
1. Wohlfahrtia fly larvae
2. Follicle mite
3. Itch mite
4. Human flea
5. Bedbug

3. EVOLUTION. ECOLOGY. PHYLOGENY

Small people populations the quantity of which does not exceed 1500-4000 individuals are named:
1. Demes
2. Isolates
3. Ideal population
4. Open population
5. Closed population

What animals have left arch of aorta only?
1. Birds
2. Fishes
3. Amphibians
4. Reptiles
5. Mammals

The integral theory of biosphere developed is developed by:
1. V.I. Vernadskiy
2. K. Linnaeus
3. E. Zoos
4. J. B. Lamarck
5. Ch. Darwin

Constant process of nature historical development by means of transformation of one living species to others is named:
1. Waves of life
2. Artificial selection
3. Evolution
4. Natural selection
5. Struggle for existence

Ecology is the Science studying:
1. Relations among the living beings and their environment
2. Animals, plants and environment of their existence
3. Relations among living beings

4. Relations among the plants and mushrooms
5. Phenomena of parasitism, commensalism and predation

Elementary unit of evolution is:
1. Genus
2. Species
3. Family
4. Population
5. Class

How many gill arches does human embryo have?
1. 6
2. 10
3. 8
4. 12
5. 7

Term “Ecology” is developed by:
1. E. Haeckel
2. Aristoteles
3. Ch. Darwin
4. V.I. Vernadsky
5. I.I. Mechnikov

How many vessels go out from the ventricle of fish heart?
1. 1
2. 2
3. 3
4. 4
5. 5

The new evolutionary biosphere state, when reasonable human activity becomes the main (determining) factor of its development, is named:
1. Anthroposhere
2. Noosphere

3. Technosphere
4. Sociosphere
5. Ecosystem

Postulate of biogenetic law is following:
1. Monotony of the first filial generation
2. Embryos of one-type-individuals are resembling
3. Ontogeny recapitulates phylogeny
4. Phylogenetically related genera and species have variations of the inherited changeability
5. Independent assortment of signs

Which pair of arterial arches of embryo gives origin to the left arch of aorta?
1. IV
2. I
3. II
4. III
5. V

Abiotic factors are following:
1. Animals
2. Plants
3. Light, temperature, humidity
4. Mushrooms, microorganisms, viruses
5. Factors of human labor activity

Elementary evolutional material is:
1. Species
2. Modifications
3. Population
4. Mutations
5. Struggle for existence

What structure resemble teeth?
1. Placoid scale

2. Bone scale of fish
3. Cuticle
4. Chitin cuticle
5. Ganoid scale

Anthropogenic environmental factors are:
1. Factors of human labor activity
2. Light and temperature
3. Plants and mushrooms
4. Protista and fungi
5. Humidity and barometric pressure

Which germ layers do mainly give origin for the lungs of vertebrates?
1. Entoderm
2. Ectoderm
3. Mesoderm
4. Ectoderm and mesoderm
5. Entoderm and mesoderm

Which animals have a distinct diaphragm?
1. Reptiles
2. Fishes
3. Amphibians
4. Mammals
5. Birds

Beneficial form of symbiosis for all its members is called:
1. Parasitism
2. Antibiosis
3. Cooperation
4. Commensalism
5. Mutualism

In which animals did two vascular circles appear at first?
1. Amphibians

2. Worms
3. Fishes
4. Birds
5. Reptiles

Amnion is providing the embryo with:
1. 1, 2
2. Aquatic environment for its development
3. Protection
4. Oxygen
5. 2 + 3

Ecological system is integration of:
1. Animal and plant species
2. Organisms and their abiotic environment
3. Organisms of the one species
4. Plants species
5. Different species populations

Natural selection theory is developed by:
1. S. Rait
2. C. Linnaeus
3. J.B. Lamarck
4. Ch. Darwin
5. N.G. Dubinin

Indicate the forms of natural selection:
1. 1, 2, 3
2. Directional selection
3. Stabilizing selection
4. Disruptive selection
5. 1, 2

Ideal population is characterized by following features:
1. Absence of mutations
2. High evolution speed

3. Slow evolution speed
4. Pressure of mutagenesis
5. Rendering of harmless mutations by translation them into heterozygotic state

The complex of external appearance of individuals belongs to following criteria of species:
1. morphological
2. genetic
3. geographical
4. ecological
5. biological

Adaptation of species to the environment is a result of:
1. Organism training
2. Mutations
3. Natural selection of the inherited changes
4. High quantity of individuals in population
5. Internal instinct of individuals to perfection

Vertebrates which have the three-chambered heart, naked skin which produces mucous, belong to the class:
1. Birds
2. Fishes
3. Mammals
4. Reptiles
5. Amphibia

The main Ch. Darwin' merit in Biology is:
1. Study of fossil records
2. Developments of methods of selection
3. Creation of scientific bases for Systematic
4. Explanation of driving forces of evolution
5. Proofs of species' changeability

Example of intraspecific struggle for existence is following:

1. Struggle of predator and pray
2. «Fight against the drought» of desert plants
3. Competition of males for a female
4. Eating up garden-stuffs and seeds by the birds
5. Elimination of Anopheles mosquito by the human

Any component of external environment affecting ecosystem is:
1. abiotic factor
2. biotic factor
3. ecological factor
4. anthropogenic factor
5. demographic factor

A greenhouse effect is related to accumulation in the Earth atmosphere of:
1. carbon monoxide
2. nitrogen
3. oxygen
4. carbon dioxide
5. ammonia

A microevolution leads to origin of new:
1. Species
2. Families
3. Genera
4. Orders
5. Classes

Sebaceous glands initially appeared in the members of following class:
1. birds
2. fishes
3. reptiles
4. amphibians
5. mammals

Lungs of terrestrial mammals are analogous for:
1. air sack of ancient fishes
2. branchial gill petals of fishes
3. branchial gill arches of fishes
4. skin of fishes
5. 1 + 2

Salivary glands initially appeared in:
1. pisces
2. amphibians
3. reptiles
4. birds
5. mammals

Biological evolution is based on:
1. Exercise of organs
2. Modification variation
3. Internal aspiration to perfection
4. Natural selection
5. Ontogenetic variation

Process in which individuals with useful for this time adaptations survive and produce offspring is named:
1. Natural selection
2. Population waves
3. Macroevolution
4. Gradation
5. Coevolution

Genetic structure of human populations is determined by:
1. 2+3
2. By a birth-rate
3. By the system of marriages
4. By factors changing of genes frequencies
5. 1+3

In isolates and demes frequency of crossrelated marriages is:
1. 15-25%
2. 40-50%
3. 60-70%
4. 80-90%
5. 10-20%

The spontaneous mutations can be caused:
1. 1, 2
2. By degeneracy of the genetic code
3. By the errors of DNA replication
4. By influence of physical, chemical or biological factors
5. 2, 3

On what atmosphere maximum height spores of fungi and bacteria were determined?
1. 36 km
2. 12 km
3. 16 km
4. 28 km
5. 22 km

Population size leads to:
1. Weakening of natural selection
2. Changes of genes frequencies and genotypes in population
3. Migrations of individuals from one population to another
4. Stabilizing of genes frequencies and genotypes in population
5. Deceleration of evolutional process

Displaying in individuals some traits which were present in their ancestors is termed as:
1. Analogies
2. Atavisms
3. Homologies
4. Rudimentary organs
5. Phylembryogenesis

Ecosystem can not exist without:
1. biochemical circulation
2. putting of fertilizers
3. eliminations of pests
4. interventions of a human being
5. gene drift

The adaptive types of people can be defined as:
1. norm of biological adaptive reactions for the prevailing conditions of existence
2. national features of people
3. ethnic belonging of people
4. racial features of people
5. economic-cultural features of some people groups

The main reason of global ecological crisis development is:
1. unfavorable climatic changes on a planet under influencing of spaces forces
2. technical progress and exhaustion of natural resources
3. deforestation
4. speed-up disappearance of flora and fauna
5. low ecological culture of man and his desire to dominate above nature

Stabile complex of animals, plants, fungi and microorganisms are living in the homogeneous area of land or water reservoir is termed as:
1. community
2. biosphere
3. troposphere
4. ecosystem
5. biotope

The independent development of similar signs at the different groups of organisms, caused by adaptation to the similar environmental factors is named:
1. divergent evolution
2. coevolution
3. phyletic evolution
4. drift of genes
5. idioadaptation

A half of a human pregnancies do not result with a childbirth. It can be example of following selection type:
1. sexual
2. directional
3. disruptive
4. stabilizing
5. artificial

Group of individuals of the same specie which inhabit some territory within which these individuals are breeding freely and are relatively isolated from other members of the same species is termed as:
1. population
2. genus
3. phylum
4. deme
5. 2 + 3

Symbiotic relations in which the presence of each of two members becomes obligatory for survival of the other partner is named:
1. mutualism
2. commensalism
3. protocooperation
4. neutralism
5. predation

Science studying the complex questions of human and mankind interaction with a difficult multicomponent world changing constantly is named:
1. valeology
2. anthropology
3. general ecology
4. human ecology
5. human physiology

Macroevolution is a process:
1. 1+2
2. resulting in formation of large systematic taxa
3. of transformations above species
4. of evolutionary transformations inside a species
5. 1+3

Main directions of evolution are following:
1. aromorphosis and biological progress
2. idioadaptation and biological progress
3. aromorphosis
4. biological progress and biological regression
5. idioadaptation

Factors limiting life in a hydrosphere are following:
1. absence of light, high pressure
2. deficiency of oxygen, high temperature
3. low temperature, radiations
4. low temperature
5. 3+4

Studying the Crimean population, doctor-geneticists came to conclusion that the number of patients with phenylketonuria and heterozygotes on this gene increased in recent years. What law was used for determination of genetic structure of the population?
1. Ch. Darwin
2. G. Mendel

3. T. Morgan
4. Hardy-Weinberg
5. Haeckel-Muller

In the human population that is close to ideal population according to their characteristics, 84% of individuals are Rh- positive. Frequency of occurrence of this trait through three generations will make:
1. 16%
2. 94%
3. 6%
4. 24%
5. 84%

Hardy-Weinberg's law allows to determine genetic structure of population. It establishes that:
1. the ratio of genes in population changes 2. the ratio of genotypes in population changes
3. the ratio of genes in population remains constant
4. the ratio of alleles of alternative manifestations of a trait remains constant
5. the ratio of alleles of alternative manifestations of a trait changes

Human embryos with abnormal number of chromosomes are nonviable in most cases. What form of selection can explain this?
1. Stabilizing
2. Sexual
3. Directional
4. Disruptive
5. Artificial

The example of aromorphosis is:
1. competition between predators for prey
2. the appearance of a masking body shape in fish that live in algae thickets
3. the appearance of patronizing color in butterflies
4. emergence of resistance in insects to insecticides

5. the appearance of four-chambered heart

The possible result of natural selection is life diversity and:
1. adaptive radiation
2. struggle for survival
3. genetic drift
4. population size
5. isolation

The effect of the stabilizing form of natural selection is
1. emergence of pest populations resistant to pesticides
2. the narrow norm of reaction for size of the human heart
3. the appearance of two rattle races on hay meadows with early and late flowering periods
4. body size in the horse's phylogenetic series
5. industrial melanism

On autopsy of a still-born infant, heart abnormalities have been revealed: ventricles are not separated, a single arterial trunk originates from the right part. For what class of vertebrates is such heart structure typical?
1. Birds
2. Fishes
3. Amphibian
4. Mammals
5. Reptiles

Defect of the interventricular septum was established at the newborn. In a ventricle, the arterial and venous blood is mixed. At what representatives of a class of vertebrates' heart has such structure?
1. Reptiles
2. Fishes
3. Amphibians
4. Birds
5. Mammals

The newborn has a dry skin covering with a thick layer of horny scales - an ichthyosis. Representatives of what class of vertebrates have the skin of similar structure?
1. Birds
2. Reptiles
3. Mammals
4. Fishes
5. Amphibians

Pulmonary stagnation was revealed in the five-month girl. During examination, connection between ascending aorta and pulmonary artery, which in norm is observed in some amphibious and reptiles, was found. What is a congenital malformation?
1. Transposition of the main vessels
2. Defect of interatrial septum
3. Defect of interventricular septum
4. Development of the right arch of aorta
5. Nonclosure of the Botallo's duct

Rudimentary organs are organs that lost their function, but remain in embryonal state in adult organisms. What of the listed human organs are rudimentary?
1. Tail
2. Existence of more than two mammary glands
3. Tailbone
4. Cleft lip
5. Cervical fistula

The four-year-old girl has three bones in the hand thumb instead of two ones. The similar structure of a thumb is present in amphibians and reptiles. How this anomaly of development is called?
1. Polyphalangism
2. Polydactyly
3. Oligodactyly
4. Brachydactyly
5. Syndactyly

In human populations, some people have three generations of teeth during their life instead of two generations. This is manifestation of the law:
1. Hardy-Weinberg's
2. of independent inheritance
3. biogenetic
4. of homological rows of hereditary variation
5. of embryonic induction

In embryogenesis of a man, as well as of vast majority of vertebrata, six pairs of branchial arteries from which reach vessels of the fourth pair are the best developed. What human vessel is homologous to this pair of branchial arteries?
1. Left arch of an aorta
2. Right arch of an aorta
3. Carotid
4. Pulmonary artery
5. Superior vena cava

The circulatory system of reptiles is characterized by ALL of the given below EXCEPT:
1. Pulmonary arteries
2. Incomplete septum in the ventricle
3. Two circles of circulation
4. Aortal cone
5. Two arches of the aorta

Ontophylogenic congenital defects of the circulatory system are
1. Acardia
2. All of the above
3. Ventricle septal defect
4. Persistence of two arches of aorta—"aortal ring"
5. Persistence of Botallo's duct

Research of an organism of the inhabitant of Nepal revealed a high level of standard metabolism, extension of a thorax, increase of oxygen capacity of blood due to increase in erythrocytes, and high hemoglobin content. To what adaptive ecological type it is necessary to refer this person?
1. Mountain
2. Desert
3. Arctic
4. Tropical
5. Subtropical

Ability to adaptation varies in the wide range, which gives the possibility to distinguish some functional types of the constitutional reaction among people. Specify human type with potential tendency to strong physiological reactions, which provide high reliability at apparent, but short-term actions of environment.
1. Stayer
2. Mixed body
3. Asthenic
4. Normosthenic
5. Sprinter

Ability to adapt varies in the wide range, which gives the possibility to distinguish some functional types of the constitutional reaction among people. Specify type of human body, which is capable to maintain steadily long and monotonous physiological loadings.
1. Mixed
2. Asthenic
3. Stayer
4. Normosthenic
5. Sprinter

In a certain time of day, the increase in blood clotting is observed in man. What biological regularity can explain this phenomenon?
1. Adaptation
2. Physiological regeneration

3. Reparative regeneration
4. Biological rhythms
5. Regeneration and genotype

Development of the general adaptation syndrome and stress in an organism is followed by a complex of nonspecific reactions. What of stages of stress is critical and can lead to development of diseases of dysadaptation?
1. Exhaustion stage
2. Resistance stage
3. Tolerance stage
4. Anxiety stage
5. Alarm stage

Representatives of one of human populations have the extended body, wide variability of growth, reduced volume of muscles, extended extremities, reduced thorax in sizes and volume, increased perspiration, lowered indicators of basal metabolism and synthesis of fats. What adaptive type of people this population belongs to?
1. Adaptive type of a zone of temperate climate
2. Arctic adaptive type
3. Tropical adaptive type
4. Intermediate adaptive type
5. Mountain adaptive type

The man has strongly developed musculoskeletal system, the large sizes of a thorax, the raised content of mineral substances in bone tissue, high level of hemoglobin, proteins (albumine and globulins) and cholesterol in blood, ability of an organism to oxidize metabolism products is increased, the energy metabolism is strengthened, thermal control is stable. What is adaptive type?
1. Adaptive type of a zone of temperate climate
2. Mountain adaptive type
3. Arctic adaptive type
4. Intermediate adaptive type
5. Tropical adaptive type

The man lived a long time in highlands conditions. What changes will be present in his blood system?
1. Pulse becomes rarer
2. Increase in diameter of blood vessels
3. Decrease in number of leukocytes
4. Increase in amount of hemoglobin
5. Increase in number of leukocytes

The inspector of forest protection found the forest lake, which is completely filled up with garbage. What was destroyed?
1. Ecosystem
2. Biotope
3. Biome
4. Ecosphere
5. Ecological niche

Representatives of a certain human population are characterized by elongated limbs, small muscle mass, high sweating rate, low basal metabolic rate and fat synthesis. What climate is this population adapted to?
1. Moderate
2. Intermediate
3. Mountain
4. Tropical
5. Arctic

What is the adaptive type of most populations of European part of Russia?
1. Arctic adaptive type
2. Adaptive type of a zone of temperate climate
3. Mountain adaptive type
4. Tropical adaptive type
5. Intermediate adaptive type

How natural processes of change (succession) of ecosystem occur?

1. Owing to gradual change of natural factors of the environment
2. Owing to increase in number of individuals in population
3. Owing to decrease in number of individuals in population
4.Owing to expansion of an area of population
5. Owing to appearance of new ecological niches