

**FEDERAL STATE BUDGET EDUCATIONAL
HIGHER EDUCATION INSTITUTION
"ROSTOV STATE MEDICAL UNIVERSITY"
MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION**

FACULTY OF TREATMENT AND PREVENTION

Appraisal Fund
in the discipline "Biology"

Specialty 05/31/01 General Medicine

1. Interim certification form

semester 1 – test semester 2 – exam

2. Type of intermediate certification

2.1. Pass.

It is awarded based on the provisions of the point-rating system. The scoring system is presented in the work program of the discipline "Biology" (Appendix No. 1. Checklist).

Evaluation criteria

Mark	Description
passed	the student scored 60 or more points based on the provisions of the BRS and the checklist
not accepted	the student scored less than 59 points

2.2. Exam.

In the 2nd semester, studying the discipline "Biology" ends with passing an exam on all the material studied (for semesters 1 and 2).

The exam in the discipline "Biology" includes the following stages:

- final testing (computer)
- definition and description of drugs
- interview on theoretical issues
- solving situational problems

The result of the exam is the summation of the points scored in all of the above stages (see Checklist of the examination procedure)

3. List of competencies formed by the discipline or in formation which discipline is involved

Code competencies	Content of competencies (results of mastering OOP)	Contents of competency elements, in the implementation of which he participates discipline
OK-1	Capable To abstract thinking, analysis, synthesis	Capable of analysis and synthesis
OPK-7	Ready use basic physico-chemical, mathematical And others natural sciences concepts And methods at decision professional tasks	Ready use basic natural sciences concepts and methods at decision professional tasks

4. Stages of developing competencies in the process of mastering educational programs

Competence	Disciplines	Semester
OK-1	Philosophy	2, 3
	Psychology and pedagogy	3, 4
	Physics mathematics	1
	Medical informatics	2
	Chemistry	1
	Biochemistry	2,3,4
	Biology	1.2
	Forensic genetics	11 (B)

	Dentistry	7
	Jurisprudence	4
OPK-7	Physics mathematics	1
	Medical informatics	2
	Chemistry	1
	Biochemistry	2, 3, 4
	Biology	12
	Topographical anatomy And operative surgery	5, 6
	Histology, embryology, cytology	2, 3
	Normal physiology	3, 4
	Fundamental medicine	7

5. Stages of developing competencies in process of mastering the discipline

Sections of the discipline	Codes generated competencies	
	OK-1	OPK-7
Semester 1		
Section 1	+	+
Section 2	+	+
Section 3	+	+
Semester 2		
Section 3	+	+
Section 4	+	+
Section 5	+	+

6. Forms of assessment tools in accordance with the generated competencies

Code competencies	Forms of assessment tools	
	Current certification	Interim certification
OK - 1	Tests Situational tasks Practical skills Oral survey, written survey	Tests Situational tasks Practical skills Interview
OPK-7	Tests Situational tasks Practical skills Oral survey, written survey	Tests Situational tasks Practical skills Interview

7. Current control

Oral/written survey Sample

list of questions

Section 1 "Cytology with basics of molecular biology"

1. Microscope. Types of microscopy.
2. Characterize the mechanical, optical and lighting parts of the light microscope
3. Define the resolution of a microscope.
4. Outline the rules for working with a microscope.
5. Define temporary and permanent drugs.
6. Define a cell.
7. List the main provisions of the cell theory.
8. Characterize the types of cellular organization.
9. List the main components of a cell.
10. Define organelles and cell inclusions.
11. Name the main differences between plant and animal cells.
12. List the main differences between eukaryotic and prokaryotic cells.

Section 2 "General and medical genetics"

1. Allelic genes, types of interaction of allelic genes. Hybridological analysis of allelic gene interactions.
2. Formation of characters and phenotypic effect in 1st and 2nd generations cases: dominance, incomplete dominance, overdominance, recessive inheritance. Give examples of inheritance of traits in humans.
3. Multiple allelism. Inheritance of blood groups according to the ABO system.
4. The phenomenon of co-dominance. Inheritance of blood group IV according to the ABO system and blood types $I^M I^N$ by alleles M and N.
5. Allelic exclusions and interallelic complementation. Formation of a new trait in heterozygotes. Phenotypic effect in F_1 and F_2 .
6. Features of pleiotropic action, give examples of inheritance pleiotropic traits in humans.
7. Penetrance and expressiveness in the manifestation of signs.
8. The concept of linked inheritance.
9. Clutch group. The number of linkage groups in organisms of different species.
10. Cellular basis of incomplete linkage, crossing over mechanism.
11. Basic provisions of T. Morgan's chromosomal theory of heredity.
12. The concept of cis- and trans-linkage of genes.
13. Chromosome mapping.
14. Gender determination.
15. The concept of primary and secondary sexual characteristics.
16. Types of sex determination (progamous, epigamous, syngamous).
17. Chromosomal mechanism for determining gender.
18. The role of hereditary and environmental factors in determining gender accessories.
19. Sex-linked inheritance, its features.
20. X-linked inheritance.
21. Holandic inheritance.
22. The concept of an ideal population.
23. Definition and characteristics of the gene pool (allele pool) of the population.
24. The concept of deme, isolate.
25. Specificity of the action of elementary evolutionary factors (mutations, population waves, natural selection, isolation) in human populations.

26. Genetic polymorphism and genetic load of human populations.
27. The importance of the population statistical method in the study of human genetics.
28. Definition and derivation of the Hardy-Weinberg law.
29. Characteristics of the twin method. Application of Holzinger's formula for assessing the role of heredity and environment in the development of a trait.
30. Characteristic features of the biochemical method. Possibilities using it to diagnose genetic diseases; detection of heterozygous carriage of pathological genes.

Section 3 "Onto and phylogeny"

1. The concept of ontogenesis, its types, periods, characteristic features in animals and person.
 2. The structure of germ cells.
 3. Types of eggs.
 4. Fertilization and its biological essence.
 5. Progenesis. Features of hereditary information in germ cells.
- Gene amplification. Chromosomes of the "lampbrush" type.
6. Characteristics of the embryonic period of ontogenesis.
 7. Zygote, biological entity.
 8. Cleavage, its types. The difference between embryo cleavage and mitotic division somatic cells.
 9. Structure and types of blastulas.
 10. Structure of the gastrula. Methods of gastrula formation. Neurula.
 11. Methods of formation of mesoderm.
 12. Histo and organogenesis.
 13. Provisional organs of vertebrate embryos.
 14. The influence of environment and genotype on the development of organs in the embryonic period.
 15. Postembryonic development and its types.
 16. Differences between direct development and development with metamorphosis. Distinctive features of complete metamorphosis. Give examples of organisms with different types of development.
 17. Periods of postnatal human development, its determining factors.
 18. Stages of human ontogenesis in pre-reproductive, reproductive, post-reproductive periods.
 19. Name the critical periods of postnatal human development and explain what causes them.
 20. The concept of theories and mechanisms of aging.

Section 4 "General and medical parasitology"

1. Systematics of sporozoans.
2. General characteristics of sporozoans.
3. The development cycle of malarial plasmodium using the example of *Pl. vivax*.
4. Development of schizogony, gametogony and sporogony in the body of intermediate and final owner.
5. Diagnostics of the species of the malaria pathogen.
6. Methods of malaria prevention.
7. Malaria clinic.
8. Distinctive features of the development cycle of toxoplasma from the development cycle malarial plasmodium.
9. Systematics of ciliates.
10. Progressive structural features of ciliates in the phylum Protozoa.
11. Development cycle, pathogenic action and diagnosis of balantidiasis.

12. Measures to prevent balantidiasis.
13. Characteristics of the class tapeworms:
14. Systematic position (type, class, representative)
15. Epidemiology. Geographical distribution. Attitude to natural focality.
16. Morphological features of bovine and pork tapeworms (teniids), tapeworms wide - body shape, body parts: scolex with organs of attachment (suckers, hooks, bothria), neck, strobila, proglottids - hermaphroditic, their mature structure.
17. Diagnostic morphological features.
18. Growth and nutrition of cestodes.
19. Larval stages (oncosphere, coracidium, proceroid, Finns: cysticercus, plerocercoid), their structure.
20. Life cycle: definitive and intermediate hosts in the life cycle helminths. Conditions for development.
21. Diseases caused by tapeworms (taeniasis, teniarhynchosis, diphyllbothriasis, cysticercosis).
22. Autoinvasion. What helminthiasis is it typical for?
23. Methods and routes of invasion: taeniasis, taeniarinhoz, diphyllbothriasis, cysticercosis.
24. Where do band forms localize?
25. What organs are affected by cysticercosis? What is the danger of cysticercosis?
26. Laboratory diagnostic methods
27. Public prevention of taeniosis, teniarynchosis, diphyllbothriasis, cysticercosis.
28. Personal prevention of taeniosis, teniarynchosis, diphyllbothriasis, cysticercosis.

Section 5 "General and medical ecology"

1. The concept of "habitat" and its components. Features of the living environment of modern man. Impact of abiotic factors on the human body. Forms of biotic connections between humans and other organisms.
2. Climatographic adaptive ecotypes of humans: tropical,
3. arctic, continental, desert, alpine and temperate zones.
4. Adaptive types of people, differing in the time it takes to complete work and adaptation resistance: sprinter, stayer, mixed.
5. Medical significance of abiotic environmental factors.
6. Chronobiological ecotypes of people.
7. Give the concept of adaptogens. Specific and nonspecific adaptogens, give examples.
8. Etc.

Testing

Sample list of test tasks

1. A small lens is characterized by:
 - a) designation with the number 40, larger diameter of the front lens
 - b) designation with the number 8, smaller diameter of the front lens
 - c) designation with the number 90, smaller diameter of the front lens
 - d) designation with the number 8, larger diameter of the front lens

2. Complete and accurate definition of life:
a) life is a way of existence of protein bodies (F. Engels) b) life is an organization in action (Beklar)
c) life is a set of processes of nutrition, growth, destruction (Aristotle) d) life is a way of existence of a complex of biopolymers (proteins, nucleic acids), which are based on metabolism and the transmission of hereditary characteristics (M.V. Volkenshtein)

3. Phagocytosis is:

- a) absorption of liquid by the cell b) capture of solid particles
- c) transport of substances through the membrane
- d) acceleration of biochemical reactions

4. Chromosomes that have identical arms are called: a)

- acrocentric
- b) submetacentric
- c) telocentric
- d) metacentric

5. According to the type of epistasis, the following are inherited:

- a) unusual inheritance of blood groups according to the ABO system
- b) skin pigmentation
- c) phenylketonuria
- d) absence of small molars, fusion of the lower primary incisors

6. Conditions limiting the manifestation of Mendel's laws: a)

- complete dominance
- b) inheritance of three characteristics located on different non-homologous chromosomes
- c) the presence of lethal genes
- d) mechanism of equal probability of formation of gametes and zygotes of different types

7. Two homologous chromosomes form the number of linkage groups: a)

- one
- b) two
- at four
- d) equal to the diploid set of chromosomes

8. Crossing over is:

- a) pairwise connection of homologous chromosomes b) pairwise connection of non-homologous chromosomes
- c) divergence of homologous chromosomes to the poles of the cell
- d) exchange of sections of homologous chromosomes

9. The main parts of chromosomes are a) centromere, chromatids, arms, telomeres b) centrioles, sphere radiate, microtubules c) outer membrane, cristae, matrix d) outer membrane, dictyosomes, matrix

10. Chromatin providing compensation for gene dosage:

- a) facultative heterochromatin
- b) structural heterochromatin
- c) nucleolar
- d) euchromatin

Sample answers

1	2	3	4	5	6	7	8	9	10
G	G	b	G	A	V	A	G	A	A

Situational tasks

Approximate list of situational tasks

1. Cases of sleeping sickness have become more frequent among residents of an African village. a) Who is the causative agent of this disease?
b) Path of transmission of the pathogen?
c) Name the carrier of the disease?

Answer: a) Trypanosoma brucei gambiense, Trypanosoma brucei rhodesiense
b) vector-borne, inoculation
c) Tsetse fly

2. In the field, in the mobile laboratory of the research institute, microscopically A small, laterally flattened insect taken from the fur of a gopher was studied. The insect was found to have a bacterial formation blocking the entrance to the stomach.

- a) What insect was studied?
b) What vector-borne diseases is this insect a carrier of? c) What anti-epidemic measures should be taken?

Answer: a) gopher flea b) plague
c) vaccination, identification and treatment of patients, extermination of rodents, keeping residential premises and outbuildings clean, extermination of fleas with insecticides.

3. The patient consulted a doctor complaining of a headache, rapid fatigue, muscle pain, eye pain. The examination revealed: swelling of the eyelids, elevated temperature, skin rashes on the body, and eosinophilia in the blood. It was established that the patient had been eating ham prepared at home for two weeks.

- a) What nematodosis can be assumed?
b) What laboratory diagnostic methods need to be carried out?
Answer: a) trichinosis
b) muscle biopsy

Practical skills

1. Microscope structure and rules for working with it
2. Dermatoglyphic method of human genetics
3. Genealogical method of human genetics
4. Cytogenetic method of human genetics
5. Helminthoovoscopy

8. Interim certification

Final testing

An approximate list of test tasks for intermediate certification with standard answers.

1. The implementation of a genotype into a phenotype is carried out at the

level: a) cellular

b) ontogenetic

c) tissue

d) population-species

2. Euchromatic regions of chromosomes: a)

are not transcribed and not replicated b) are

replicated but not transcribed c) are not

transcribed

d) transcribed

3. The prokaryotic operon lacks: a)

structural genes

b) promoter

c) operator

d) introns

4. The synthesis of mRNA begins from the DNA section:

a) promoter

b) leader

c) terminator

d) operator

5. The occurrence of acid rain is associated with the entry into the atmosphere of:

a) carbon dioxide

b) freons

c) sulfur dioxide

d) benzopyrene

6. Number of autosomal linkage groups in humans: a)2

b)22

c)23

d)44

7. Stage of formation of a two-layer embryo: a)

organogenesis

b) neurulation

c) gastrulation

d) crushing

8. Type of disturbances in prenatal ontogenesis in Patau syndrome a)

gametopathies

b) blastopathies

V) embryopathies

G) fetopathy

9. Structural features of *Taenia solium*

- a) only suckers on the scolex
- b) the hermaphrodite segment has 3 ovarian lobules
- c) the mature segment has 17-35 lateral branches of the uterus
- d) the hermaphrodite segment has 2 ovarian lobules

10. A three-host development cycle is characteristic of the family of mites

- a) Argasidae
- b) thyroglyphoid
- c) ixodidae
- d) acariformes

Sample answers

1	2	3	4	5	6	7	8	9	10
b	G	G	A	V	b	V	A	b	V

Definition and description of drugs

Approximate list of preparations: a) damaged sunflower cells b) intact sunflower cells c) poultry sperm

- d) human blood
- d) onion skin
- f) polytene chromosomes
- g) frog blood smear h) frog egg
- i) *Drosophila* - mutations curved bristles j) crushing of roundworm eggs
- l) whipworm eggs
- m) roundworm eggs
- m) liver fluke eggs o) whipworm
- n) pinworm
- p) liver fluke

Interview

List of questions for intermediate certification - test

1. Definition of biology as a science. Subject and methods of biology. Man like object of biology. Biosocial nature of man.
2. Definition of life. Fundamental properties of living things. Evolutionary conditioned levels of organization of living things. Modern theories and the main stages of the origin and development of life on Earth
3. Cell theory, its main provisions, current state. Types cellular organization.
4. The cell as an open system. Flow of information, energy and matter in the cell. The role of intracellular structures in energy and plastic metabolism.
5. Cell cycle, its periodization. Apoptosis and necrosis, their significance in medicine. Mitotic cycle, its mechanisms. Regulation of mitosis. The problem of cell proliferation in medicine.
6. Chemical organization of genetic material. Structure of DNA and RNA. Types of RNA. Levels of compaction of genetic material.

7. Functions of nucleic acids in the process of implementation of hereditary information. Coding of hereditary information in the cell. Genetic code and its properties. Stages of implementation of genetic information: transcription and post-transcriptional processes, translation and post-translational processes.

8. Reactions of matrix synthesis. Principles and stages of DNA replication. Replicon. Consequences of disruption of the normal course of DNA replication.

9. Features of the organization of the genome of eukaryotes and prokaryotes. Classification nucleotide sequences: unique, medium repeating, highly repeating. Regulation of gene expression in eukaryotes. Opera model of gene expression regulation in prokaryotes by F. Jacob and J. Monod.

10. Classification of genes: structural, functional (modulator genes, inhibitors, intensifiers, modifiers); genes regulating the work of structural genes (regulators and operators), their role in the implementation of hereditary information.

11. Gene allele. Multiple alleles as a result of changes in nucleotide gene sequences. Gene polymorphism as a variant of normality and pathology. Examples.

12. Gene, its properties (discreteness, stability, lability, polyallellicity, specificity, pleiotropy). Examples.

13. Independent and linked inheritance of traits. Chromosome theory heredity.

14. Phenotype as a result of the implementation of a genotype in specific environmental conditions. First and second order environment. Expressiveness and penetrance of the trait.

15. History of the discovery of the basic laws of inheritance of characteristics. Mendelism. The concept of gene, allelic genes, allele, multiple alleles, homo- and heterozygous organisms, genotype and phenotype. Mechanisms underlying G. Mendel's laws.

16. Monogenic inheritance (elementary traits). Conditions for dominance and law segregation in monohybrid crosses. Cytogenetic rationale.

17. The "gamete purity" hypothesis. Mechanisms for implementing the law of gamete purity. Cytogenetic rationale. Statistical patterns of character splitting in mono-di- and polyhybrid crossings.

18. Multiple alleles as a result of changes in nucleotide gene sequences. Inheritance of blood groups according to the ABO system. Gene polymorphism as a variant of normality and pathology. Examples.

19. Pleiotropic action of genes. Primary, secondary pleiotropy. Penetrance and expressivity are indicators that characterize the manifestation of a genotype into a phenotype.

20. Independent inheritance. Conditions for implementing the law of independent inheritance. Cytogenetic justification.

21. Interaction of genes in a genotype: allelic (dominance, incomplete dominance, codominance, interallelic complementation, allelic exclusion). Examples.

22. Interaction of non-allelic (epistasis, polymerization, complementarity, position effect, modifying effect). Examples.

23. Determination of gender. Primary sexual characteristics. Secondary sex Characteristics Sexual dimorphism. Types of sex determination: progamous, epigamous, syngamous. Chromosomal mechanism of sex determination in different organisms. Homogametic and heterogametic sex. The role of genotype and environment in the development of sex characteristics.

24. Peculiarities of inheritance of sex-linked traits X – recessive, X-dominant, holandric inheritance). Cytogenetic basis for sex-linked inheritance. The concept of hemizygoty.

25. T. Morgan's chromosomal theory of heredity. Basic provisions chromosomal theory of heredity. Clutch groups. Linkage groups in homo and

heterogametic sex in humans. "Cis", "Trans" position of genes in linkage groups. Crossing over as a mechanism that disrupts gene linkage.

26. Cytoplasmic inheritance. Plasmids; their role in the transmission of hereditary information in prokaryotes. Inheritance

27. Reparation of genetic material. Photoreactivation. Dark reparation. Stages. Mutations associated with impaired repair. Examples.

28. Variability, its forms. Modification variability; adaptive nature of modifications. Norm of reaction of genetically determined traits. Morphoses and phenocopies. Examples.

29. Combinative variability, causes of occurrence. Meaning combinative variability in ensuring the genetic diversity of people. Marriage system. The problem of consanguineous marriages. Medical and genetic aspects of the family.

30. Mutational variability. Classification of mutations (general principles). Somatic and generative mutations. The concept of chromosomal and gene diseases.

31. Chromosomal mutations, their classification: deletions, duplications, inversions, translocations. Causes and mechanisms of occurrence. Significance in the development of human pathological conditions.

32. Genomic mutations, causes and mechanisms of their occurrence. Classification and meaning. Antimutation mechanisms.

33. Man as an object of genetic research. Cytogenetic method; his significance for the diagnosis of chromosomal syndromes. Rules for compiling idiograms of healthy people. Idiograms for chromosomal syndromes (autosomal and gonosomal). Examples.

34. Biochemical method for studying human genetics; its significance for diagnosis of hereditary metabolic diseases. The role of transcriptional, posttranscriptional and posttranslational modifications in the regulation of cellular metabolism. Examples.

35. Genealogical method of human genetics. Basic rules for drawing up and subsequent analysis of pedigree diagrams (using the example of one's own family pedigree diagram). The significance of the method in the study of patterns of inheritance of traits.

36. Population statistical method of genetics; its importance in the study genetic structure of populations. Hardy-Weinberg law and formulas.

37. Methods of human genetics: dermatoglyphic (using the example of analysis own dermatoglyph), genetics of somatic cells, DNA studies; their role in the study of human hereditary pathology.

38. Monogenic, chromosomal and multifactorial human diseases, mechanisms of their occurrence and manifestation. Examples.

39. The concept of diseases with non-traditional inheritance (mitochondrial, imprinting diseases, trinucleotide repeat expansion diseases). Examples. General approaches to the treatment of hereditary diseases.

40. Medical genetic counseling, its medical significance. Types and stages of consultation. Prenatal diagnostic methods (invasive, non-invasive) and their capabilities.

41. Gametogenesis as the process of formation of germ cells. Meiosis: cytogenetic characteristics. Features of ovo- and spermatogenesis in humans.

42. Forms and methods of reproduction of organisms. Biological aspect human reproduction. In vitro fertilization; moral and ethical aspects.

43. Ontogenesis as the process of realizing hereditary information in certain environmental conditions. Periodization of ontogeny. Types of ontogenesis as options for adaptation to living conditions. Examples.

44. Progenesis and its role in ontogenesis. Mechanisms of progenesis disorders and their consequences. Mutations of genes with a "maternal effect" using the example of the *Drosophila* fly.

45. Fertilization is the initial stage of development of a new organism. Phases fertilization. Biological entity.

46. Characteristics and significance of the main stages of embryonic development. Dependence of the types of zygote fragmentation on the structure of the egg. Methods of gastrulation.

47. The main stages of embryogenesis. Primary organogenesis (neurulation) as the process of formation of the complex of axial organs of chordates. Secondary organogenesis. Formation of organs and tissues.

48. The concept of provisional organs of chordates. Features of the development of these organs in group Anamnia and Amniota. Types of placentas. Disruption of the processes of development and reduction of embryonic membranes in humans.

49. Features of embryonic development of placental mammals and person.

50. Postembryonic period of ontogenesis, its periodization in humans. Basic processes: growth, formation of definitive structures, puberty, reproduction. The role of endocrine regulation in the postnatal period.

List of questions for intermediate certification - exam

1. Definition of biology as a science. Subject and methods of biology. Meaning achievements of fundamental biology (genomics, proteomics, metabolomics) for medicine at the present stage.

2. Definition of life. Fundamental properties of living things. Evolutionary conditioned levels of organization of living things. Modern theories and the main stages of the origin and development of life on Earth.

3. The cell as an open system. Flow of information, energy and matter in the cell. The role of intracellular structures in energy and plastic metabolism.

4. Cell cycle, its periodization. Mitotic cycle, its mechanisms. Regulation of mitosis. Apoptosis and necrosis, their significance in medicine. The problem of cell proliferation in medicine.

5. Chemical organization of genetic material. Structure of DNA and RNA. Types of RNA. Levels of compaction of genetic material and their role in performing chromosome functions in the cell cycle.

6. Functions of nucleic acids in the process of implementation of hereditary information. Coding of hereditary information in the cell. Genetic code and its properties. Stages of implementation of genetic information: transcription and post-transcriptional processes, translation and post-translational processes.

7. Reactions of matrix synthesis. Principles and stages of DNA replication. Replicon. Consequences of disruption of the normal course of DNA replication.

8. Features of the organization of the eukaryotic genome. Classification of nucleotide sequences: unique, moderately repetitive, highly repetitive. Regulation of gene expression in eukaryotes.

9. Classification of genes: structural, functional (modulator genes, inhibitors, intensifiers, modifiers); genes regulating the work of structural genes (regulators and operators), their role in the implementation of hereditary information. Examples.

10. Multiple alleles as a result of changes in nucleotide gene sequences. Gene polymorphism as a variant of normality and pathology. Examples.

11. Gene, its properties (discreteness, stability, lability, polyallellicity, specificity, pleiotropy). Examples.

12. Phenotype as a result of the implementation of a genotype in specific environmental conditions. Environment of the first, second (a and b) and third order. Expressivity and penetrance of the gene.

13. Determination of gender. Primary and secondary sexual characteristics. Sexual dimorphism. Types of sex determination: progamous, epigamous, syngamous. Chromosomal mechanism of sex determination in different organisms. Homogametic and heterogametic sex. The role of genotype and environment in the development of sex characteristics.

14. T. Morgan's chromosomal theory of heredity. Basic provisions chromosomal theory of heredity. Clutch groups. Linkage groups in homo- and heterogametic sexes in humans. "Cis", "Trans" position of genes in linkage groups. Crossing over as a mechanism that disrupts gene linkage. Construction of chromosome maps.

15. Cytoplasmic inheritance. Plasmogens. Inheritance extranuclear genes. Patterns of inheritance of extranuclear genes. Plasmids; their role in the transmission of hereditary information in prokaryotes. Horizontal gene transfer.

16. Reparation of genetic material. Photoreactivation. Dark reparation. Stages. Mutations associated with impaired repair. Examples.

17. Variability, its forms. Modification variability; adaptive nature of modifications. Norm of reaction of genetically determined traits. Morphoses and phenocopies. Examples.

18. Combinative variability, causes of occurrence. Meaning combinative variability in ensuring the genetic diversity of people. Marriage system. The problem of consanguineous marriages. Medical and genetic aspects of the family.

19. Mutational variability. Classification of mutations (general principles). Somatic and generative mutations. The concept of monogenic diseases.

20. Gene mutations, their classification: deletions, duplications, inversions, translocations. Causes and mechanisms of occurrence. Significance in the development of human pathological conditions.

21. Chromosomal mutations, their classification: deletions, duplications, inversions, translocations. Causes and mechanisms of occurrence. Significance in the development of human pathological conditions.

22. Genomic mutations: classification, causes, mechanisms; role in the occurrence of chromosomal syndromes. Antimutation mechanisms.

23. Man as an object of genetic research. Cytogenetic method; its significance for the diagnosis of chromosomal syndromes. Rules for compiling idiograms of healthy people. Idiograms for chromosomal syndromes (autosomal and gonosomal). Examples.

24. Biochemical method for studying human genetics; its significance for diagnosis of hereditary metabolic diseases. The role of transcriptional, posttranscriptional and posttranslational modifications in the regulation of cellular metabolism. Examples.

25. Genealogical method of human genetics. Basic rules for drawing up and subsequent analysis of pedigree diagrams (using the example of one's own family pedigree diagram). The significance of the method in the study of patterns of inheritance of traits.

26. Methods genetics person: population-statistical; dermatoglyphic (using the example of analysis of one's own dermatoglyph), genetics of somatic cells, DNA studies; their role in the study of human hereditary pathology.

27. Concept hereditary diseases: monogenic, chromosomal and multifactorial human diseases, mechanisms of their occurrence and manifestations. Examples.

28. The concept of diseases with non-traditional inheritance (mitochondrial, imprinting diseases, trinucleotide repeat expansion diseases). Examples. General approaches to the treatment of hereditary diseases.

29. Medical genetic counseling, its medical significance. Types and stages of consultation. Prenatal diagnostic methods (invasive, non-invasive) and their capabilities.

30. Forms and methods of reproduction of organisms. Biological aspect human reproduction. In vitro fertilization; moral and ethical aspects.

31. Ontogenesis as the process of realizing hereditary information in certain environmental conditions. Periodization of ontogeny. Types of ontogenesis as options for adaptation to living conditions. Examples.

32. Progenesis and its role in ontogenesis. Fertilization - the initial stage development of a new organism. Fertilization phases. Biological entity.

33. Characteristics and significance of the main stages of embryonic development. Dependence of the types of zygote fragmentation on the structure of the egg. Methods of gastrulation. Primary (neurula) and secondary organogenesis.

34. The concept of provisional organs of chordates. Features of the development of these organs in the group Anamnia and Amniota. Types of placentas. Disruption of the processes of development and reduction of embryonic membranes in humans.

35. Postembryonic period of ontogenesis, its periodization in humans. Basic processes: growth, formation of definitive structures, puberty, reproduction. The role of endocrine regulation in the postnatal period. Biological and social aspects of aging.

36. Modern representation O essence ontogenetic transformations. Characteristics of cellular processes in ontogenesis: proliferation, migration, cell condensation, selective cell sorting. Congenital malformations as a consequence of disruption of these processes. Examples.

37. Cellular differentiation; genetic and non-genetic mechanisms; stages. Experiments by D. Gurdon to prove equal genetic potencies of somatic cell nuclei.

38. Cell proliferation, programmed cell death, adhesion cells, closure of anlagen as mechanisms of morphogenetic transformations in ontogenesis. Congenital malformations as a consequence of disruption of these processes. Examples.

39. Regulation of human and animal development at different stages of ontogenesis. Genetic regulation of development (genetic determination of development, differential gene activity, influence of ooplasmic segregation, T-locus; homeotic and disruptive mutations).

40. Nervous regulation of ontogenesis. Interaction of nerve centers with innervated organs. Mechanisms and levels of humoral regulation. Consequences of disruption of nervous and hormonal regulation. Examples.

41. Intercellular interactions at different stages of ontogenesis. Embryonic induction, its types. G. Spemann's experiments in studying the phenomenon of embryonic induction.

42. Integrity of ontogeny. Embryonic regulation. Determination of parts developing embryo; sewerage development. Concepts of morphogenesis (physiological gradients, positional information, morphogenetic fields).

43. The influence of environmental factors on ontogeny. Critical periods in ontogenesis person. Teratogenesis and carcinogenesis. The concept of anomalies and developmental defects. The significance of violations of private and integrative mechanisms of ontogenesis in the formation of congenital malformations.

44. Congenital anomalies and developmental defects. Definition, classification, mechanisms of occurrence: gametopathies, blastopathies, embryopathies and fetopathy, mechanisms and causes of their occurrence. Examples.

45. The concept of homeostasis. General patterns of homeostasis in living systems. Genetic, cellular and systemic basis of homeostatic reactions of the body. The role of the endocrine and nervous systems in ensuring homeostasis and adaptive reactions.

46. Regeneration as a process of maintaining the integrity of biological systems. Physiological regeneration, its significance. Phases, mechanisms of regulation. The importance of regeneration for biology and medicine.

47. Reparative regeneration. Methods; mechanisms (molecular genetic, cellular and systemic). Regulation of regeneration. Features of recovery processes in humans.

48. Population gene pool; genetic heterogeneity; genetic unity dynamic balance. Allele and genotype frequencies. Hardy-Weinberg law.

49. Elementary evolutionary factors: mutations, population waves, genetic-automatic processes (gene drift); their significance in changing the genotypic structure of populations. Genetic polymorphism of natural populations and its forms.

50. Population structure of humanity. Demographic characteristics. Features of the action of elementary evolutionary factors (mutations, migrations) in human populations. Danger of induced mutagenesis.

51. Specificity of the action of natural selection and isolation in genetic populations. Doms. Isolates. Genetic drift. Features of the gene pools of the isolates.

52. Genetic polymorphism is the basis of intra- and interpopulation human variability. The significance of polymorphism in predisposition to diseases, reactions to allergens, drugs, and foods. The importance of genetic diversity in the future of humanity.

53. The relationship between onto- and phylogeny. Biogenetic law of F. Muller and E. Haeckel. Recapitulations and their genetic basis. Cenogenesis and phylembryogenesis. Heterotopies, heterochronies and their role in phylogenesis.

54. General patterns in the evolution of organs and systems. Basic principles evolutionary transformation of organs and functions: differentiation and integration; modes of transformation of organs and functions. Examples.

55. Correlative transformations of organs. Ontogenetic correlations and phylogenetic coordinations, their types. Interrelation of coordinations and correlations in development. The significance of violations of these relationships in the occurrence of combined congenital malformations.

56. Phylogeny of body integument and musculoskeletal system of chordates animals. Ontophylogenetic defects. Examples.

57. Phylogeny of the digestive and respiratory systems of chordates. Ontophylogenetic defects. Examples.

58. Phylogeny circulatory systems chordates animals. Ontophylogenetic defects of the heart and blood vessels. Examples.

59. Phylogeny of the genitourinary system of vertebrates. Evolution of the nephron and urogenital ducts. Ontophylogenetic defects. Examples.

60. Phylogeny of the endocrine and nervous systems of chordates. Ontophylogenetic defects. Examples.

61. Ontophylogenetic congenital malformations of human organ systems. Classification; their place and significance in the development of pathology in humans. Examples.

62. The place of man in the system of the animal world. Qualitative features man as a biosocial being. The relationship between the biological and the social in humans at different stages of anthropogenesis. The main stages of anthropogenesis.

63. Intraspecific differentiation of humanity. Races as expression genetic polymorphism of humanity. Adaptive ecological types of humans; their origin and connection with races.

64. Subject, structure and methods of ecology. Endoecology, autecology. Autecological concepts and laws: body reaction, adaptation

65. Demecology, ecological characteristics of populations, gene pool populations, applied significance of demecology. Synecology. Ecological characteristics and structure of ecosystems and biogeocenoses. Succession.

66. Definition and structure of the biosphere. Teachings of V.I. Vernadsky about the biosphere. Biological diversity as the basis for the stability of the biosphere. Legal basis for nature conservation and rational use of natural resources.

67. Subject and content of human ecology, its connection with health sciences human, main stages of development. Anthropoecosystem, its structure and main characteristics.

68. Human health as an indicator of his interaction with the environment environment, individual and public health. Development of society and types of public health, their characteristics and determining factors. Neolithic revolution, its causes and consequences for humanity.

69. Ecological aspects of human diseases. Main directions and tasks ecological medicine. The influence of climatic and meteorological factors on human health. Meteosensitivity and meteotropic disorders of human health. Types of meteopathic reactions

70. Abiotic environmental factors. Effect of solar radiation on the human body. Comfort of climatic and geographic living conditions of people, Geographic subtypes and local variations of population health. Adaptation and acclimatization.

71. Anthropogenic load on the environment. Medical and demographic signs of environmental disaster and environmental catastrophe. . The role of environmental factors in the occurrence of diseases.

72. The influence of lithosphere factors on the human body. Biogenic migration atoms. The doctrine of biogeochemical provinces and endemic diseases. The main sources of anthropogenic soil pollution. Soil as a source of foreign components in food products.

73. The influence of hydrosphere factors on human health. Water factors, causing human diseases. The main sources of anthropogenic pollution of water bodies.

74. Anthropogenic air pollution and its impact on human health. Main sources of air pollution. Environmental consequences of the accumulation of trace gases in the atmosphere: the greenhouse effect, acid rain and the causes of their occurrence.

75. Biological rhythms in nature, their characteristics and role in the formation human adaptive reactions. Chronobiological foundations of human health. Fundamentals of chronodiagnostics and chronomedicine.

76. Environmental aspects of the health of rural residents. Chemical and biological pollution of the environment caused by human agricultural activities. Nutrition as an environmental factor of human health. Foreign components in food products, their sources and effects on humans

77. Environmental health problems of city residents. Features of anthropogenic environmental pollution (water, soil, air) in cities, concept

information pollution and its role in the morbidity of city residents. Ecological problems of the Rostov region.

78. Forms of biotic connections in nature. Parasitism as an ecological phenomenon. Classification of parasitism and parasites. The role of Russian scientists in the development of general and medical parasitology (V.A. Dogel, V.I. Beklemishev, E.N. Pavlovsky, K.I. Skryabin).

79. Distribution of parasites in nature. Pathways of origin of ecto- and endoparasitism. Parasitocenosis. Development cycles of parasites, alternation of generations in the development cycles of parasites. Primary, reservoir and intermediate hosts.

80. Relationships in the parasite-host system at the level of individual individuals and at the population level. Adaptations to a parasitic lifestyle. The effect of the parasite on the host. Host defense reactions against parasitic invasion.

81. Parasitic natural focal vector-borne and non-transmissible diseases, their criteria. Teachings of E.N. Pavlovsky about the natural focality of diseases. The structure of a natural hearth.

82. Subject and tasks of medical parasitology. Ways and methods of invasion parasitic diseases: nutritional, georal, inoculative, contaminative, contact, aspiration, hemic. Examples.

83. Ecological principles of combating parasitic diseases. Teaching K.I. Scriabin about devastation. Evolution of parasites and parasitism under the influence of anthropogenic factors.

84. Protozoa are causative agents of protozoan diseases. Classification. Characteristic features of the organization. Dysenteric amoeba, lamblia. Systematic position, morphology, development cycles, rationale for laboratory diagnostics, prevention.

85. Systematics, morphology and biology of leishmaniasis pathogens, trypanosomiasis, trichomoniasis. Rationale for laboratory diagnostics and prevention.

86. Malarial plasmodia. Systematic position, morphology, cycles development, species differences. The fight against malaria, the tasks of the anti-malaria service at the present stage.

87. Toxoplasma, balantidium. Systematic position, morphology, cycles development, routes of invasion, justification of laboratory diagnostic methods.

88. Type Flatworms. Classification. Characteristic features of the organization. Flukes. Characteristics of flukes, the development cycle of which is associated with the aquatic environment

89. Features of the development and distribution of flukes with one intermediate host of the liver fluke. Schistosomes. Systematic position, morphology, development cycle, routes of invasion, justification of laboratory diagnostic methods, prevention.

90. Characteristics of flukes developing with two intermediate hosts: feline, lanceolate, pulmonary flukes. . Systematic position, morphology, development cycle, routes of invasion, justification of laboratory diagnostic methods, prevention.

91. General characteristics of tapeworms. Cestodes, life cycle

which are associated with the aquatic environment.

92. Characteristics of tapeworms that use humans as definitive host: bovine and pork tapeworm. Systematic position, morphology, development cycle, routes of invasion, justification of laboratory diagnostic methods, prevention.

93. Dwarf tapeworm; wide tape. Systematic position morphology, development cycles, routes of invasion, rationale for laboratory diagnostic methods, prevention.

94. Echinococcus and alveococcus. Systematic position, morphology, cycle development, routes of infection, larval helminthiasis. Justification of laboratory diagnostic methods, prevention.

95. Type Roundworms. Characteristic features of the organization. Geohelminths, developing with migration: roundworm, crooked head, intestinal eel. morphology, development cycle, routes of invasion, rationale for laboratory diagnostic methods, prevention.

96. Characteristics of geohelminths that develop without migration: whipworm, pinworm. Systematic position, morphology, development cycle, routes of invasion, rationale for laboratory diagnostic and prevention methods. Rationale for drug-free treatment.

97. Biohelminths: trichinella, guinea worm. Systematic position morphology, development cycle, routes of invasion, rationale for laboratory diagnostic methods, prevention. Isaev's work to eradicate dracunculiasis in Central Asia.

98. Characteristics of biohelminths transmitted transmissibly. Filariasis. Systematic position, morphology, development cycle, routes of invasion, rationale for laboratory diagnostic and prevention methods.

99. Features of modern methods for diagnosing helminthiasis. Methods ovohelminthoscopy.

100. Phylum Arthropods. Classification. Characteristic features of the organization. Ticks. Systematic position. Morphology, development, medical significance.

101. Class Arachnids. Classification. Characteristic features of the organization. Ticks, pathogens of human diseases. Ticks, reservoir hosts and vectors of human diseases.

102. Class Insects. Classification. Characteristic features of the organization. Synanthropic flies; tsetse fly; Wohlfarth fly, systematic position, morphology, epidemiological significance, control methods.

103. Lice, fleas. Systematic position, morphology, development, epidemiological significance, control measures.

104. Mosquitoes; mosquitoes Systematic position, structure, development cycle, medical significance, control measures.

Situational tasks

Task 1. A binuclear cell with diploid nuclei ($2n=46$) has entered mitosis.

What amount of hereditary material will a cell have in metaphase during the formation of a single division spindle, as well as daughter nuclei at the end of mitosis?

Sample answer:

In each of the two nuclei that have entered mitosis, the chromosomes of the diploid set already contain twice the amount of genetic material. The volume of genetic information in each nucleus is $2n4c$. In metaphase, during the formation of a single division spindle, these sets will unite, and the volume of genetic information will therefore be $4n8c$ (tetraploid set of self-duplicated or replicated chromosomes).

In anaphase of mitosis of this cell, the chromatids will separate to the poles of the daughter cells. At the end of mitosis, the nuclei of daughter cells will contain a volume of genetic information = $4n4c$.

Problem 2. The nine-banded armadillo always gives birth to an even number of identical babies.

What do you think happens in this animal during fertilization? Sample answer:

In this animal, several eggs are fertilized and, normally, monozygotic twins develop at the totipotent blastomere stage.

Problem 3. A child was born with skin covered with a horny carapace, consisting of thick (up to 1 cm) horny scutes of gray-black color. The scutes are serrated and separated by grooves. The lips are inactive, the mouth opening is sharply narrowed. The nose and ears are deformed, the eyelids are everted. The limbs are ugly. Hair and nails are missing. The child died 2 hours after birth.

What pathology should we think about in this case?

Sample answer:

Ichthyosis, resulting from a violation of the embryogenesis of the skin and its derivatives in the early stages of embryonic induction, proliferation and differentiation of epidermal cells. Death occurred as a result of respiratory failure, heart and kidney failure, caused by inferior structure and function of other organ systems, and the addition of a secondary infection.

Task 4. A patient came to the city clinic with ulcers on his face and right arm. From the patient's medical history: several months ago, after returning from Turkmenistan, I discovered a primary papule (a tubercle 1-3 mm in size) on the arm. Gradually, the tubercle grew, acquired a reddish-brown color, then a scaly crust appeared on its surface, under which a crater-shaped ulcer was discovered.

1. What preliminary diagnosis can be made?
2. How to make a parasitological diagnosis?
3. What life forms of the parasite can be detected by microbiological research?

Sample answer:

1. Preliminary diagnosis: cutaneous leishmaniasis.
2. To confirm the diagnosis, it is necessary to take a smear from the ulcers.
3. Microbiological studies reveal flagellated forms
Leishmania (*Leishmania tropica*).

Task 5. When examining 5th grade schoolchildren, a nurse found scratches on the hands and elbows and sent them for examination.

1. What did the nurse suspect about the children?
2. Did she do the right thing?
3. Who is the causative agent of this disease?

Sample answer:

1. The nurse might suspect scabies.
2. Yes, since the parasite is transmitted through contact and household contact and in the absence of treatment and isolation from the patient community is spreading quickly.
3. The causative agent is scabies (*Sarcoptes scabiei*).

9. Description of indicators and criteria for assessing competencies at the stages of their formation, description of assessment scales

Criteria	Levels of competency development		
	<i>Threshold</i>	<i>Sufficient</i>	<i>High</i>
	Competence formed. Demonstrated threshold, satisfactory sustainable level practical skill	Competence formed. Demonstrated enough level independence, sustainable practical skill	Competence formed. Demonstrated high level independence, high adaptability practical skill

Competency assessment indicators and rating scales

Grade "unsatisfactory" or lack formation competencies	Grade "satisfactorily" or satisfactory (threshold) level development competencies	Rated "good" or sufficient level of development competencies	Excellent rating Or high level development competencies
failure to student on one's own demonstrate knowledge when solving assignments, lack independence in application of skills. Absence confirmation availability formation competencies indicates negative development results academic discipline	student demonstrates independence in application of knowledge skills and abilities to solve educational tasks in full According to sample given teacher, by tasks, solution of which there were shown teacher, it should be considered that competence formed on satisfactory level.	student demonstrates independent application knowledge, skills and skills at solving tasks, similar samples that confirms Availability formed competencies for higher level. Availability such competence on sufficient level indicates sustainable fixed practical skill	student demonstrates ability to full independence in choosing a method solutions non-standard assignments within disciplines with using knowledge, skills and skills, received as in development progress given disciplines and adjacent disciplines should be considered competence formed at a high level.

Evaluation criteria for the test

Mark	Descriptors		
	strength of knowledge	ability to explain the essence of phenomena, processes, do conclusions	logic and subsequence answer
passed	solid knowledge of the basic processes of the studied subject area, the answer differs in depth and completeness of the topic; possession terminological apparatus	ability to explain essence, phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples	logic and subsequence answer
not accepted	insufficient knowledge subject matter being studied areas, unsatisfactory disclosure of the topic; weak knowledge of basic issues of theory, Allowed serious mistakes in content of the answer	weak analysis skills phenomena, processes, events, inability give reasoned answers given the examples are wrong	lack of logic and consistency answer

Criteria for evaluating forms of control:

Interviews:

Mark	Descriptors		
	strength of knowledge	ability to explain the essence of phenomena, processes, do conclusions	logic and subsequence answer
Great	strength of knowledge, knowledge of basic processes subject matter being studied areas, the answer differs in depth and completeness disclosure of the topic; possession terminological apparatus; logic and consistency answer	high skill explain the essence phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples	high logic and subsequence answer
Fine	solid knowledge of the basic processes of the studied subject area, differs in depth and completeness of the topic; possession terminological apparatus; free mastery of monologue speech, but one or two inaccuracies are allowed	ability to explain essence, phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples; however one or two inaccuracies in the answer are allowed	logic and subsequence answer

	answer		
satisfactory really	satisfactory process knowledge subject matter being studied areas, answer, different insufficient depth and completeness of the topic; knowledge of basic theoretical issues. Several are allowed errors in content answer	satisfactory ability to give reasoned answers and provide examples; satisfactorily formed analysis skills phenomena, processes. Several are allowed errors in content answer	satisfactory logic and subsequence answer
will not satisfy really	poor knowledge of the subject area being studied, shallow opening Topics; poor knowledge basic theoretical issues, poor analysis skills phenomena, processes. Serious errors in content answer	inability to give reasoned answers	lack of logic and consistency answer

Test control grading scale:

percentage of correct answers	Marks
91-100	Great
81-90	Fine
71-80	satisfactorily
Less than 71	unsatisfactory

Situational tasks:

Mark	Descriptors			
	understanding Problems	analysis situations	skills solutions situations	professional thinking
Great	complete implication problems. All requirements, submitted to adania, completed	high benefit analyze situation, draw conclusions	high benefit select method solutions problems faithful solution skills situation	high level professional thoughts
Fine	complete implication problems. All requirements, submitted to adania, completed	benefit analyze situation, draw conclusions	benefit select method solutions problems faithful solution skills situation	residual level professional thoughts. drops one or two precision in the answer
satisfactory	astatic	satisfactory	satisfactory	residual level

really	implication problems. majority requirements declared to adania, completed	Naya benefit analyze situation, draw conclusions	skills solutions situation	professional thoughts. falls more a bunch of inaccuracies in reply
will not satisfy really	misunderstanding problems. legs requirements, submitted to I hope not completed. No Tveta. Did not have experiments to solve hello	izkaya benefit analyze situation	insufficient solution skills situation	missing

Skills:

Mark	Descriptors		
	consistency theoretical knowledge	knowledge of the methodology execution practical skills	performance practical skills
Great	system stable theoretical knowledge about services and contraindications, possible complications, regulations, etc.	stable knowledge implementation methods practical skills	independence and correctness fulfillment practical skills skills
Fine	system stable theoretical knowledge about services and contraindications, possible complications, regulations, etc., some are omitted preciseness that independently are detected quickly cope	stable knowledge implementation methods practical skills; some are omitted preciseness that independently are detected quickly cope	independence and correctness fulfillment practical skills skills
satisfy flax	satisfactory theoretical knowledge about services and contraindications, possible complications, regulations, etc.	knowledge of the basic principles of implementation methodology practical skills	independence fulfillment practical skills skills, but go down some mistakes, which are being corrected with help tutor
dissatisfy strictly	low level of knowledge services contraindications, possible complications, regulations, etc. and/or can't do it on its own	izky level knowledge execution practical skills	eopossibility independent performing the skill whether skills

	demonstrate tactical skills or fulfills them, allowing common mistakes		
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Drugs:

Mark	Description
Great	the answer is assessed, which demonstrates excellent mastery of practical skills in working with a microscope, solid knowledge of drugs, and their characteristics; mastery of terminology; the ability to explain and systematize, give reasoned answers, give examples; fluency in monologue speech, logic and consistency of response.
Fine	the answer is assessed, which demonstrates practical skills in working with a microscope, solid knowledge of drugs, and their characteristics; mastery of terminology; the ability to explain and systematize, give reasoned answers, give examples; fluency in monologue speech, logic and consistency of response. However, one or two inaccuracies in the answer are allowed.
satisfactorily	the answer is assessed, which demonstrates practical skills in working with a microscope, solid knowledge of drugs, and their characteristics; mastery of terminology; ability to explain and systematize, give reasoned answers, give examples. There may be several errors in the content of the answer.
unsatisfactory	the answer is assessed in which there is no practical skill in working with a microscope, lack of knowledge of drugs and their characteristics is revealed; inability to give reasoned answers, poor command of monologue speech, lack of logic and consistency. Serious errors in the content of the answer are allowed.

CHECKLIST FOR THE TESTING PROCEDURE

(checklist for commission retake of the test)

No.	Test event*	Points
1	Oral interview (2 theoretical questions)	100
Total maximum number of points for the test procedure:		100

CHECKLIST FOR EXAMINATION PROCEDURE

No.	Examination event	Points
1	Final testing	25
2	Definition and description of drugs (5 pcs., each drug - 3 points)	15
3	Oral interview (3 theoretical questions and 1 situational task, each task - 15 points)	60
Total maximum number of points for the examination procedure:		100

CHECKLIST FOR EXAMINATION PROCEDURE

(checklist for the second (commission) retake)

No.	Examination event*	Points
1	Oral interview (3 theoretical questions and 1 situational task, each task - 25 points)	100
Total maximum number of points for the examination procedure:		100