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Federal State Budget Educational Institution
of Higher Education
Pacific State Medical University
of the Ministry of Health of the Russian Federation

APPROVED BY
Head of the Department of
Biology, Botany and Ecology
_____ / Zenkina V.G./
"11th" of April 2025

COLLECTION OF ASSESSMENT TOOLS
Б1.О.06 Biology
of the basic educational program of Higher Education

Specialty	**31.05.01 General Medicine for international students (in English)** (code, name)
Degree	Specialist's degree
Profile	02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system)
Mode of study	**Full-time**
Period of mastering the BEP	**6 years** (nominal length of study)
Department	of Biology, Botany and Ecology

Vladivostok, 2025

1. INTRODUCTION

1.1. Collection of Assessment Tools is a document that regulates the format, content, and types of assessment tools for continuous assessment, interim examination and final (state final) examination, and graded criteria for each type of assessment tools.

1.2. Assessment tools allows to evaluate the development of universal, general professional, and professional competencies (UCs, GPCs and PCs respectively) outlined in Federal State Educational Standard of Higher Education and defined in the basic educational program of higher education for the specialty 31.05.01 General Medicine for international students (in English), profile 02 "Healthcare" (in the field of providing primary health care to the population in medical organizations: polyclinics, outpatient clinics, inpatient/outpatient facilities of the municipal health care system).

(BEP HE for the 31.05.01 General Medicine for international students (in English) specialty, section 3 Learning Outcomes Requirements of the Basic Educational Program of Higher Education)

2. DOCUMENT BODY

2.1. Types of Assessment, Formats of Assessment Tools

No.	Types of assessment	Assessment Tools Format
1	**Continuous assessment**	**Tests**
		Mini-Case Studies
		Working with electron micrographs and microscope slides
		Checklists
2	**Interim assessment**	**Tests**

3. The contents of assessment tools for continuous and interim examination are prepared by the teacher of the course

Tests for continuous and interim assessment

	Code	Competence description / name of labor function / name of work activity / text
S	31.05.01	General Medicine for international students (in English)
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
F	A/05.7	Implementation of disease prevention measures for the adult population groups based on age and health status, as well as health and hygiene education of the population and monitoring their effectiveness
I		**ANSWER LEVEL 1 TEST QUESTIONS (ONE CORRECT ANSWER)**
		1. After meiosis, a cell has the following set of chromosomes 1) n2c 2) 2n2c 3) 2n4c +4) nc **2. Cleavage in the embryonic period ends with the**

		formation of 1) zygote 2) gastrula 3) neurula +4) blastula **3. The biological significance of mitosis is** 1) it provides genetic diversity of cells 2) it is the basis of gametogenesis 3) it provides reduction of the chromosomal set +4) it ensures the preservation of the diploid set **4. The process of cutting out non-informative sections of mRNA is called** 1) translation 2) replication 3) transcription +4) processing **5. Out of the following methods, the one based on microscopic examination of chromosomes is** 1) genealogical 2) dermatoglyphic 3) biochemical +4) cytogenetic **6. Temporary embryonic organ that performs trophic function is called** 1) allantois 2) chorion 3) amnion +4) vitelline (yolk) sac **7. Universal donors have the following ABO blood group (type)** 1) IV 2) II 3) III +4) I **8. The process of neural tube formation in a human embryo is called** 1) differentiation 2) segmentation 3) delamination +4) neurulation **9. A monomer molecule of a protein is called** 1) nucleotide 2) phosphate ion 3) nitrogenous base +4) amino acid **10. The type of inheritance, in which the trait manifests in**

each generation with the same frequency in men and women and while healthy parents may have a sick child, is called
1) X-linked, dominant
2) X-linked, recessive
+3) autosomal dominant
4) autosomal recessive

11. Set of chromosomes in a somatic cell of the human body is
1) haploid
2) tetraploid
3) polyploid
+4) diploid

12. The primary function of ribosomes is
1) digestive
2) providing energy
+3) synthetic
4) excretory

13. The structural and functional unit of the Golgi apparatus is
1) diplosome
+2) dictiosome
3) centrosome
4) centrosphere

14. Out of the following, an occluding junction is
1) nexus
2) anchoring junction
+3) tight junction
4) desmosome

15. During leptotene of prophase I of meiosis
1) chromosomes uncoil (despiralize)
2) chromosome conjugation occurs
3) crossover occurs
+4) on chromosomes, chromomeres are formed

16. During the process of ovogenesis 300 primary oocytes transform into
+1) 300 egg cells
2) 600 egg cells
3) 900 egg cells
4) 1200 egg cells

17. The following patient is monosomic
1) male patient with Klinefelter syndrome
+2) female patient with Shereshevsky-Turner syndrome
3) male patient with Patau syndrome
4) male patient with Down's syndrome

18. A systematized image of a karyotype where

chromosomes are numbered according to their size and shape is called
1) karyotype
2) genetic chart
+3) idiogram
4) pedigree / genealogic table

19. Modificational changes are characterized by
+1) large scale
2) heredital character
3) inadequacy relative to the causative factor
4) persistence

20. Holandric inheritance is characterized by
1) the trait being transmitted from an affected father through his phenotypically healthy daughters to half of the grandchildren
+2) the trait being passed from a father to all male children
3) the repeated risk of an affected child being born is 25%
4) affected women pass the mutant allele to half of their children regardless of their sex

21. Type of cleavage in human embryo
1) total (complete), equal
+2) holoblastic, unequal
3) incomplete, superficial
4) meroblastic, discoidal

22. As a result of complete equal cleavage, the following is formed
1) discoblastula;
+2) coeloblastula;
3) amphiblastula;
4) blastocyst

23. The fold of the hindgut that serves as a container for urea and uric acid is called
+1) allantois
2) chorion
3) blastopore
4) teloblast

24. Biological material used for laboratory diagnostics of trichocephalosis
1) blood
2) duodenal contents
3) urine
+4) feces

25. Ascarid larva migrates in the human body through the following organs
1) heart-liver-lungs-intestines
2) liver-lungs-intestines
+3) intestines-liver-heart-lungs-pharynx-intestines

4) heart-lungs-pharynx-liver-intestines

26. Specific vectors of pathogens of typhus and recurrent fever (typhus recurrens) are
1) ticks
+2) lice
3) fleas
4) mosquitoes

27. All of the following is characteristic of the larva of the taiga, except
1) has no spiracles
+2) has spiracles
3) does not have a genital pore
4) has three pairs of walking appendages (legs)

28. Mode of transmission of scabies is
1) alimentary
2) airborne (through droplets)
3) transplacental
+4) indirect contact

29. An intracellular parasite among protozoa (single-celled organisms) is
+1) Leishmania donovani
2) Entamoeba histolytica
3) Lamblia intestinalis;
4) Balantidium coli

30. Measures of public prevention of leishmaniasis
1) protection against insect bites
2) protection of soil and water from pollution
+3) destruction of vectors
4) boiling water

31. Mesonephric kidney consists of
+1) 6-12 nephrons
2) 100 nephrons
3) 1000 nephrons
4) 1 million nephrons

32. Renal agenesis is
1) reduction of kidney size
2) fusion of the lower poles of the kidneys
+3) absence of kidneys
4) increase of kidney size

33. Microgyria is
1) absence of gyri
2) absence of large hemispheres
+3) reduction in the number and volume of sulci
4) absence of brain

34. The roof of the oral cavity is formed by the base of the

		cerebral skull in 1) fish 2) reptiles +3) birds 4) mammals **35. The following develops from the prosencephalon** 1) forebrain and midbrain 2) cerebellum and medulla oblongata 3) midbrain and diencephalon +4) forebrain and diencephalon
		ANSWER LEVEL 2 TEST QUESTIONS (MULTIPLE CORRECT ANSWERS)
		1. Diseases associated with impaired repair processes include 1) color blindness 2) Down's syndrome +3) Bloom syndrome +4) xeroderma pigmentosum **2. Parasitic invasions of the Far East include** 1) malaria 2) schistosomiasis +3) paragonimosis +4) nanophyetosis **3. Prevention of vernal encephalitis (tick-borne encephalitis) includes** 1) boiling water 2) avoiding raw/undercooked food +3) wearing bright clothes that fully cover the body when hiking in a forest +4) using methods of protection against tick bites **4. Mode of transmission of intestinal trichomoniasis is** 1) airborne (droplets) 2) direct (sexual) contact +3) alimentary (through contaminated food) +4) water-borne (drinking unboiled water) **5. Hereditary diseases for which mass neonatal screening is carried out in Russia** 1) hemophilia 2) diabetes mellitus +3) cystic fibrosis +4) phenylketonuria **6. Insecta of Arthropoda phylum includes** 1) Ixodes persulcatus 2) Taenia solium +3) Phtirus pubis +4) Blatta orientalis **7. Holandric traits include**

1) hemophilia
2) ichthyosis
+3) hypertrichosis
+4) premature balding

8. The submembrane complex of the cell surface consists of
1) myofibrils
+2) microvilli
+3) microfilaments
4) microtubules

9. Microtubules are involved in the formation of
1) tonofibrils
+2) neurofibrils
+3) centrioles
+4) cilia

10. The cytoplasm includes
1) nucleolus
+2) inclusions
3) organelles
+4) hyaloplasm

11. Two-layered embryo forms as a result of
+1) delamination
2) cleavage
+3) invasion
4) epiboly

12. Derivatives of ectoderm include
1) cartilage tissue
+2) tooth enamel
+3) nervous system
4) skeletal muscles

13. Endoderm derivatives include
1) uterine epithelium
2) vessels
+3) gastric epithelium
+4) secretory liver cells

14. Holoblastic unequal cleavage is observed in
+1) amphibians
+2) mammals
3) birds
4) reptiles

15. In regards to the distribution of the yolk, the egg cell can be
1) polylecithal
+2) oligolecithal
3) telolecithal
+4) isolecithal

		16. Personal measures of trichocephalosis prevention include +1) washing hands +2) washing vegetables and fruit 3) wearing shoes 4) making sure meat is fully cooked **17. A person becomes infected with ascarides through** +1) dirty hands 2) raw water 3) not fully cooked meat +4) not thoroughly washed vegetables and fruit **18. Out of the following mites, the following are an infectious agent of diseases in humans** +1) itch mite 2) larvae of harvest mites +3) follicle mite +4) dermacentor **19. Aromorphoses in the Arthropoda phylum include** +1) heteronomous segmentation of the body +2) segmented appendages 3) striated muscles 4) hemocoel **20. Community preventive measures against metagonimosis include** 1) cooking crayfish and crabs +2) compliance with proper technology of salt-curing fish 3) thoroughly cooking animal livers +4) protection of water bodies from fecal waste **21. From medical significance standpoint, ticks are** +1) natural reservoir +2) vectors of pathogens 3) pathogens 4) intermediate hosts **22. Far Eastern types of trematodes include** +1) Metagonimus +2) Nanophyetus 3) Clonorchis sinensis 4) Opisthorchis felineus **23. Rudiments / vestigial structures include** 1) opening in the heart septum 2) supernumerary nipple(s) +3) coccyx (tailbone) +4) appendix **24. The brachymorphic somatotype is characterized by** +1) short trunk 2) long limbs

		3) above average height +4) large chest circumference **25. Atavisms include** 1) epicranial muscle 2) platysma muscle +3) Botallo's duct (arterial duct) +4) developed body hair coat
		ANSWER LEVEL 3 TEST QUESTIONS (MATCHING QUESTIONS)
		1. Match parasitic diseases and modes of infection A) scabies B) trypanosomiasis C) giardiasis D) urogenital schistosomiasis 1) vector-borne 2) indirect contact 3) ingestion 4) percutaneous A-2, B-1, C-3, D-4 **2. Match hereditary diseases and chromosomal formulas** A) Down's syndrome B) Turner syndrome C) Klinefelter syndrome D) Edwards syndrome 1) 47,XX(+21) 2) 45,X 3) 47,XXY 4) 47,XY(+18) A-1, B-2, C-3, D-4 **3. Match the abnormality to the mutation type** A) detachment of the end section of a chromosome B) doubling the genome of one kind C) nucleotide loss D) addition of an extra chromosome 1) intrachromosomal aberration 2) gene mutation 3) polyploidy 4) aneuploidy A-1, B-3, C-2, D-4 **4. Match the malformation and the organ system** A) Patent ductus arteriosus B) prosencephaly C) impaired reduction of the Wolffian (mesonephric) ducts D) esophagotracheal fistulas 1) urogenital system 2) circulatory system 3) nervous system 4) respiratory system

A-2, B-3, C-1, D-4

5. Match the characteristic and the organoid of the cell which it describes

A) produces lysosomes
B) participates in protein synthesis
C) participates in the construction of the cell membrane
D) divides the cell into compartments
1) rough endoplasmic reticulum
2) the Golgi apparatus

A-2, B-1, C-2, D-1

6. Match the characteristic and the organoid of the cell which it describes

A) digests matter
B) participates in protein synthesis
C) concentrates and dehydrates matter
D) neutralizes hydrogen peroxide
1) rough endoplasmic reticulum
2) the Golgi apparatus
3) lysosome
4) peroxisome

A-3, B-1, C-2, D-4

7. Match the parasite to the morphological characteristic

A) Ascaris
B) Trichuris
C) pinworm (Enterobius)
D) Ancylostoma
1) the length of the female is 3-5 cm, the anterior end of the body is filamentous (thread-like), the posterior is thickened
2) the length of the female is about 1 cm, the vesicle is at the anterior end of the body
3) the length of the female is 20-40 cm, there are cuticular lips
4) the length of the female is 1 cm, there is a bulbus and a protorhabdion with teeth

A-3, B-1, C-2, D-4

8. Match organelles and their functions

A) ribosome
B) lysosome
C) centrosome
D) mitochondria
1) energy production
2) digestive function
3) synthetic function
4) participation in cell proliferation

A-3, B-2, C-4, D-1

9. Match organelles and their structure

A) endoplasmic reticulum
B) the Golgi apparatus
C) mitochondria

D) lysosome
1) its structural and functional unit is a dictyosome
2) a vesicle containing enzymes
3) outer membrane is smooth, inner membrane has cristae
4) a system of membranes forming a network of tubules and cisternae

A-4, B-1, C-3, B-2

10. Match environmental factors to their attributes

A) precipitation
B) parasitism
C) competition
D) sea currents
1) biotic
2) abiotic

A-2, B-1, C-1, B-2

11. Match adaptive types to their attributes

A) reduced weight and elongated body shape
B) asthenoid type with flattened chest
C) widened chest and elongated long tubular bones
D) strong development of the musculoskeletal component of the body, reduction in the length of the limbs
1. arctic type
2. tropical type
3. arid type
4. mountain type

A-2, B-3, C-4, B-1

12. Match environmental regulations to their contents

A) body size increases with decreasing body temperature
B) enlargement of the protruding parts of the body with an increase in environmental temperature
C) in warm and humid climates, the coloration (coat color) is brighter
D) nose width depends on the temperature
1. Thompson-Buxton rule
2. Gloger's rule
3. Allen's rule
4. Bergmann's rule

A-4, B-3, C-2, D-1

13. Match the hereditary pathology and the type of mutation

1) Patau syndrome
1) Turner syndrome
3) Prader–Willi syndrome
4) phenylketonuria
5) Klinefelter syndrome
6) galactosemia
A) autosomal trisomy
B) Point mutation, impaired enzyme activity
C) Deletion of a chromosome part
D) sex chromosome trisomy

E) sex chromosomes monosomy

1 - A, 2 - E, 3 - C, 4 - B, 5 - D, 6 – B

14. Match alternate traits to the type of allelic gene interaction

1. A – brown eye gene

a – blue eye gene

P: ♀ AA x ♂ aa

G: A a

F: Aa – 100% brown eyes

2. A – brachydactyly gene

a – normal gene

1. P: ♀ Aa x ♂ Aa

G: A, a A, a

F: AA, Aa, Aa, aa

death 50% 25%

3. D – Rh+ gene

d – Rh- gene

P: ♀Dd x ♂ Dd

G: D, d D, d

F: DD, Dd, Dd, dd

75% - Rh+ 25% - Rh-

4. $I^A=I^B>I0$

P: ♀ $I^A I^A$ x ♂ $I^B I^B$

G: I^A I^B

F: $I^A I^B$ –100% IV blood group

5. A – large race gene

a – small race gene

P: ♀Aa x ♂Aa

G: A, a A, a

F: AA, Aa, Aa, aa

17 - average 39 - large 21 - small

6. $I^N=I^M$

P: ♀$I^N I^N$ x ♂$I^M I^M$

G: I^N I^M

F: $I^N I^M$ - 100% MN blood group

7. C – normal pigmentation gene

c – albinism gene

P: ♀Cc x ♂Cc

G: C, c C, c

F: CC, Cc, CC, cc

75% - normal pigmentation 25% - albinism

A) Co-dominance
B) Complete dominance
C) Incomplete dominance
D) Overdominance

1 - C; 2 - D; 3 - C; 4 - A; 5 – D; 6 – A; 7 – B

15. Match the disorder to the type of chromosomal aberration

1. Detachment of a section of a chromosome
2. Incorporation of an extra, duplicating region of the chromosome
3. Combining two non-homologous chromosomes into one
4. A portion of a chromosome detaches and rotates 180
5. Two damaged non-homologous chromosomes exchange detached sections
6. Detached segment attaches itself to the original chromosome, but at a new location
7. Transfer of a segment of one chromosome to another

A) Duplication
B) Inversion
C) Translocation
D) Transposition
E) Deletion

1 - E; 2 - A; 3 - C; 4 - B; 5 - C; 6 – D; 7 - C

16. Match the malformation and the organ system

A) Patent ductus arteriosus
B) prosencephaly
C) impaired reduction of the Wolffian (mesonephric) ducts
D) esophagotracheal fistulas

1) urogenital system
2) circulatory system
3) nervous system
4) respiratory system

A-2, B-3, C-1, D-4

17. Match the parasite species to the morphological characteristics

1. pork tapeworm
2. toxoplasma
3. alveococcus
4. human roundworm
5. balantidium
6. lamblia
7. whipworm

A) the body is spindle-shaped, internal organs are located in the true coelom of the body, the excretory system is represented by one or two overgrown cells
B) the body is dorsoventrally flattened, there is no coelom, the excretory system is protonephridial, the digestive system

		is divided into the anterior and middle sections C) the body is egg-shaped and covered with cilia, there is a cytostome at the anterior end, and an anal pore at the posterior end D) body is orange-wedge-shaped, the anterior end is narrow and has a conoid from which rhoptries sprout inside the body E) the body is pear-shaped, has bilateral symmetry and a double set of organelles 1 - B: 2 - D: 3 - C: 4 - A: 5 - C: 6 - E: 7 - A **18. Match the hereditary pathology and the type of inheritance** 1) Leber hereditary optic neuropathy 2) albinism 3) vitamin resistant rickets 4) ichthyosis 5) Marfan syndrome 6) phenylketonuria 7) hemophilia A) autosomal dominant B) autosomal recessive C) dominant X-linked D) recessive X-linked E) mitochondrial 1 - E; 2 - B; 3 - C; 4 - D; 5 - A; 6 - B; 7 - D **19. Match the parasite to the morphological characteristic** A) Ascaris B) Trichuris C) pinworm (Enterobius) D) Ancylostoma 1) the length of the female is 3-5 cm, the anterior end of the body is filamentous, the posterior is thickened 2) the length of the female is about 1 cm, the vesicle is at the anterior end of the body 3) the length of the female is 20-40 cm, there are cuticular lips 4) the length of the female is 1 cm, there is a bulbus and a protorhabdion with teeth A-3, B-1, C-2, D-4 **20. Match adaptive types to their attributes** A) reduced weight and elongated body shape B) asthenoid type with flattened chest C) widened chest and elongated long tubular bones D) strong development of the musculoskeletal component of the body, reduction in the length of the limbs 1) arctic type 2) tropical type

		3) arid type 4) mountain type A-4, B-1, C-3, B-2 **21. Match the organelle and its structure** 1. peroxisome 2) chloroplast 3) ribosome 4) microfilaments 5) mitochondria 6) microtubules 7) lysosome A) common single-membrane organelle that contains enzymes B) common non-membranous organelle which contains proteins and rRNA C) common non-membranous organelle formed by contractile proteins D) common non-membranous organelle formed by non-contractory proteins E) common double-membrane organelle containing a DNA molecule 1 - A; 2 - E; 3 - B; 4 - C; 5 - E; 6 - D; 7 – A **22. Match parasitic invasion and the method of infection** 1) demodicosis 2) teniosis 3) leishmaniasis 4) trypanosomiasis 5) schistosomiasis 6) taeniarhynchus infection 7) diphyllobotriosis A) active penetration of larvae through intact skin in water B) eating not thoroughly cooked meat C) through an insect bite D) eating uncooked fish E) using towels and bedding of an infected person 1 - E; 2 - B; 3 - C; 4 - C; 5 - A; 6 - B; 7 - D

Assessment criteria
"Very good" – over 91% correct answers of questions of every level
"Good" – 81-90% correct answers of questions of every level
"Satisfactory" – 71-80% correct answers of questions of every level
"Unsatisfactory" – less than 71% correct answers of questions of every level

Standardized case studies and checklists for the **Б1.О.06 Biology** course

Case Study No.1

	Code	Competence description / name of labor function / name of work activity / text
S	31.05.01	General Medicine for international students (in English)
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
F	A/05.7	Implementation of disease prevention measures for the adult population groups based on age and health status, as well as health and hygiene education of the population and monitoring their effectiveness
I		**READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS**
		In the feces of a patient admitted to the infectious department of the hospital with a diagnosis of acute dysentery, immobile round structures were found; when stained, 4 nuclei were found in them.
Q	1	Question: What form of parasite is detected? Give the species name of this protozoan and its position in the taxonomy.
Q	2	Question: Name methods of infection and the localization of this microorganism in the body.
Q	3	Question: List morphological characteristics of the life forms of this parasite.
Q	4	Question: Describe process of diagnosis of parasitic invasion and measures of personal and public prevention.

Case Study No.1 Checklist

	Code	Competence description / name of labor function / name of work activity / text
S	31.05.01	General Medicine for international students (in English)
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
F	A/05.7	Implementation of disease prevention measures for the adult population groups based on age and health status, as well as health and hygiene education of the population and monitoring their effectiveness
I		**READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS**
		In the feces of a patient admitted to the infectious department of the hospital with a diagnosis of acute dysentery, immobile round structures were found; when stained, 4 nuclei were found in them.
Q	1	Question: What form of parasite is detected? Give the species name of this protozoan and its position in the taxonomy.
A		Correct answer 1. Cyst 2. Entamoeba histolytica

		3. Protozoa Subkingdom 4. Sarcomastigophora Phylum 5. Sarcodina class
R2	Very good	Full answer given (point 1, 2, 3, 4, 5 are given)
R1	Good/Satisfactory	Incomplete answer given ("Good" grade – points 1, 2, 3 ,4 are given "Satisfactory" grade – points 1, 2 and one out of three left are given)
R0	Fail	Incorrect answer given (no answer given)
Q	2	Question: Name methods of infection and the localization of this microorganism in the body.
A		Correct answer 1. Not following the personal hygiene rules 2. Caecum, ascending, transverse colon 3. Liver, lungs, etc. (in case of complication)
R2	Very good	Full answer given (point 1, 2, 3are given)
R1	Good/Satisfactory	Incomplete answer given ("Good" grade – points 1 and 2 / 1 and 3 are given "Satisfactory" grade – one of 3 possible points are given)
R0	Fail	Incorrect answer given (no answer given)
Q	3	Question: List morphological characteristics of the life forms of this parasite.
A		Correct answer 1. Small vegetative form (15-20 μm), non-pathogenic, ectoplasm is weakly pronounced, movements are slow 2. Large vegetative form (up to 80 μm), erythrophage, active, fast movements 3. Tissue form (20-25 μm), pathogenic, pronounced ectoplasm, active movements 4. Cyst – round with 4 nuclei
R2	Very good	Full answer given (point 1, 2, 3, 4 are given)
R1	Good/Satisfactory	Incomplete answer given ("Good" grade – 3 out of possible 4 points are given "Satisfactory" grade – 1-2 of possible 4 points are given)
R0	Fail	Incorrect answer given (no answer given)
Q	4	Question: Describe process of diagnosis of parasitic invasion and measures of personal and public prevention.
A		Correct answer 1. Detection of tissue and large vegetative forms in a fresh feces smear. 2. Personal prevention. Following the rules of personal hygiene – washing hands, vegetables, fruit, and boiling water 3. Public prevention. Identification and treatment of the infected population and carriers of the pathogen
R2	Very good	Full answer given (point 1, 2, 3 are given)
R1	Good/Satisfactory	Incomplete answer given ("Good" grade – points 1 and 2 / 1 and 3 are given "Satisfactory" grade – 1out of possible 3 points are given)
R0	Fail	Incorrect answer given (no answer given)

Case Study No.2

	Code	Competence description / name of labor function / name of work activity / text
S	31.05.01	General Medicine for international students (in English)
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
F	A/05.7	Implementation of disease prevention measures for the adult population groups based on age and health status, as well as health and hygiene education of the population and monitoring their effectiveness
I		**READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS**
		A fisherman presents with a complaint of nausea, vomiting, diarrhea, abdominal pain two weeks after eating fresh pike caviar.
Q	1	Question: Infection with which tapeworm can be suspected? List its taxonomy position.
Q	2	Question: Medical significance. Method of infection, invasive stage.
Q	3	Question: Pathogenic effect.
Q	4	Question: Describe process of diagnosis of parasitic invasion and measures of personal and public prevention.

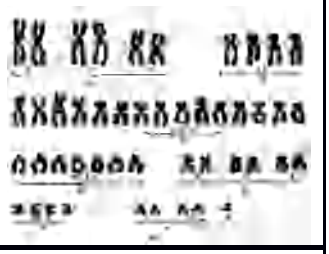
Case Study No.2 Checklist

	Code	Competence description / name of labor function / name of work activity / text
S	31.05.01	General Medicine General Medicine for international students (in English)
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
F	A/05.7	Implementation of disease prevention measures for the adult population groups based on age and health status, as well as health and hygiene education of the population and monitoring their effectiveness
I		**READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS**
Q	1	Question: Infection with which tapeworm can be suspected? List its taxonomy position.
A		Correct answer: 1. Fish tapeworm 2. Diphyllobothium latum 3. Flatworms (Plathelminthes) 4. Cestoda
R2	Very good	Full answer given (point 1, 2, 3, 4 are given)
R1	Good/Satisfactory	Incomplete answer given (“Good” grade – 3 out of possible 4 points are given “Satisfactory” grade – 1-2 of possible 4 points are given)

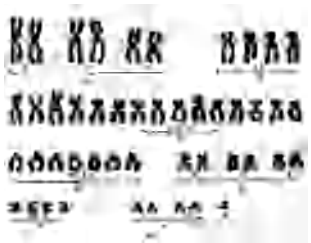
R0	Fail	Incorrect answer given (no answer given)
Q	2	Question: Medical significance. Method of infection, invasive stage.
A		Correct answer: 1. Causes diphyllobotriosis 2. Infection caused by ingesting not thoroughly cooked or raw fish or caviar 3. Plerocercoid larva
R2	Very good	Full answer given (point 1, 2, 3 are given)
R1	Good/Satisfactory	Incomplete answer given ("Good" grade – points 1 and 2 / 1 and 3 are given "Satisfactory" grade – 1out of possible 3 points are given)
R0	Fail	Incorrect answer given (no answer given)
Q	3	Question: Pathogenic effect.
A		Correct answer: 1. Cramping abdominal pains 2. Diarrhea or constipation 3. Intestinal obstruction 4. Anaemia
R2	Very good	Full answer given (point 1, 2, 3, 4 are given)
R1	Good/Satisfactory	Incomplete answer given ("Good" grade – 3 out of possible 4 points are given "Satisfactory" grade – 1-2 of possible 4 points are given)
R0	Fail	Incorrect answer given (no answer given)
Q	4	Question: Describe process of diagnosis of parasitic invasion and measures of personal and public prevention.
A		Correct answer: 1. Detection of eggs in feces. 2. Personal prevention. Thoroughly cooking fish and adhering to proper technique of salting caviar 3. Public prevention. Identification and deworming of infected population, protection of water and soil from fecal contamination
R2	Very good	Full answer given (point 1, 2, 3 are given)
R1	Good/Satisfactory	Incomplete answer given ("Good" grade – points 1 and 2 / 1 and 3 are given "Satisfactory" grade – 1out of possible 3 points are given)
R0	Fail	Incorrect answer given (no answer given)

Case Study No.3

	Code	**Competence description / name of labor function / name of work activity / text**
S	31.05.01	General Medicine for international students (in English)
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
F	A/05.7	Implementation of disease prevention measures for the adult

		population groups based on age and health status, as well as health and hygiene education of the population and monitoring their effectiveness
I		**READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS**
		A newborn has several defects of the facial skull, including cleft lip and cleft palate. After cytogenetic examination, a hereditary pathology was revealed. 
Q	1	Question: Describe the karyotype according to the following scheme: 1. Number of chromosomes; 2. Number of autosomes; 3. Number of sex chromosomes; 4. Number of sex chromatin particles/granules; 5. Sex
Q	2	Question: Determine the mutation from the provided idiogram and what hereditary pathology it corresponds to. Name the type of mutation.
Q	3	Question: Give a brief description of the syndrome.
Q	4	Question: What are the possible causes of this syndrome?

Case Study No.3 Checklist

	Code	**Competence description / name of labor function / name of work activity / text**
S	31.05.01	General Medicine for international students (in English)
C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity
F	A/05.7	Implementation of disease prevention measures for the adult population groups based on age and health status, as well as health and hygiene education of the population and monitoring their effectiveness
I		**READ THE PROVIDED CASE DESCRIPTION AND GIVE DETAILED ANSWERS TO THE QUESTIONS**
		A newborn has several defects of the facial skull, including cleft lip and cleft palate. After cytogenetic examination, a hereditary pathology was revealed. 
Q	1	Question: Question: Describe the karyotype according to the following scheme: 1. Number of chromosomes; 2. Number of autosomes; 3. Number of sex chromosomes; 4. Number of sex chromatin particles/granules; 5. Sex

A		Correct answer 1. Number of chromosomes - 47 2. Number of autosomes - 45 3. Number of sex chromosomes - 2 4. Number of sex chromatin particles/granules - 0 5. Sex - Male
R2	Very good	Full answer given (point 1, 2, 3, 4, 5 are given)
R1	Good/Satisfactory	Incomplete answer given ("Good" grade – 4 out of 5 points are given "Satisfactory" grade – 3 out of 5 points are given)
R0	Fail	Incorrect answer given (no answer given)
Q	2	Question: Determine the mutation from the provided idiogram and what hereditary pathology it corresponds to. Name the type of mutation.
A		Correct answer 1. trisomy 13 2. Patau syndrome 3. genome mutation, aneuploidy
R2	Very good	Full answer given (point 1, 2, 3 are given)
R1	Good/Satisfactory	Incomplete answer given ("Good" grade – points 1 and 2 are given "Satisfactory" grade – 1out of possible 3 points are given)
R0	Fail	Incorrect answer given (no answer given)
Q	3	Question: Give a brief description of the syndrome.
A		Correct answer 1. microphthalmia 2. cleft upper lip and palate 3. polydactyly 4. congenital malformations of the brain and face 5. malformations of internal organs
R2	Very good	Full answer given (point 1, 2, 3, 4, 5 are given)
R1	Good/Satisfactory	Incomplete answer given ("Good" grade – 3 or 4 out of 5 points are given "Satisfactory" grade – 2 out of 5 points are given)
R0	Fail	Incorrect answer given (no answer given)
Q	4	Question: What are the possible causes of this syndrome?
A		Correct answer 1. trisomy 13 (80-85% of patients) 2. trisomy 14 3. trisomy 15 4. mosaicism, isochromosome, non-Robertsonian translocations 5. frequency of occurrence 1:5000 – 1:7000 6. sex ratio 1:1
R2	Very good	Full answer given (point 1, 2, 3, 4, 5, 6 are given)
R1	Good/Satisfactory	Incomplete answer given ("Good" grade – 4 or 5 out of 6 points are given "Satisfactory" grade – 2 or 3 out of 6 points are given)
R0	Fail	Incorrect answer given (no answer given)

Practical Skills Assessment Checklist

Practical Skill Name "Identifying structural components of the cell on an electron micrograph"

C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity		
F	A/05.7	Implementation of disease prevention measures for the adult population groups based on age and health status, as well as health and hygiene education of the population and monitoring their effectiveness		
WA	Work activities as part of the function Formation of healthy lifestyle programs, including programs aimed at reducing alcohol and tobacco consumption, prevent and combat non-medical use of narcotic drugs and psychotropic substances			
	Action		Performed	Not Performed
1.	Identify components of the cell		1 point	-1 point
2.	Determine the period of the life cycle of the cell		1 point	-1 point
3.	Identify organelles		1 point	-1 point
4.	Give morphological characteristics of organelles: indicate the features of their structure		1 point	-1 point
5.	Describe the functions of all structures		1 point	-1 point
	Total		5 points	

Practical Skills Assessment Checklist

Practical Skill Name "Microscopy skills and description of a microscope slide"

C	GPC-5	Is able to assess morphofunctional status, physiological states, and pathological processes in the human body when working to achieve objectives of professional activity		
F	A/05.7	Implementation of disease prevention measures for the adult population groups based on age and health status, as well as health and hygiene education of the population and monitoring their effectiveness		
WA	Work activities as part of the function Formation of healthy lifestyle programs, including programs aimed at reducing alcohol and tobacco consumption, prevent and combat non-medical use of narcotic drugs and psychotropic substances			
	Action		Performed	Not Performed
1.	Turn on the microscope, set up the optical system, find the object of the microscope slide		1 point	-1 point
2.	Give morphological characteristics of organelles: indicate the features of their structure		1 point	-1 point
3.	Identify the object of the microscope slide		1 point	-1 point
4.	Describe its functional significance		2 points	-2 points
	Total		5 points	

Assessment criteria:

"Pass" –71% or more of actions performed correctly

"Fail" – 70% and less

4. Assessment criteria for learning outcomes

For graded test:

"Very good" grade is given to a student who possesses knowledge of the subject in full scope outlined in the curriculum, has a sufficiently deep insight into the subject; is able to answer all questions clearly, exhaustively, and with no outside help; structures their answers logically, with emphasis on the most important information; is able to analyze, compare, classify, summarize, refine, and structure the course content, giving particular attention to cause-and-effect relationships.

Test results: over 91% correct answers of questions of every level

"Good" is given to a student whose knowledge of the subject is almost in full scope outlined in the curriculum (gaps are only present in the knowledge of some especially complex aspects); is able to answer questions exhaustively with little to no outside help; does not always put emphasis on the most important information, but does not make significant mistakes.

Test results: 81-90% correct answers of questions of every level

"Satisfactory" is given to a student who possesses the bulk of knowledge on the subject; has difficulties answering questions with no outside help, uses imprecise wording; makes mistakes in substantial number of their answers.

Test results: 71-80% correct answers of questions of every level

"Unsatisfactory" is given to a student who does not have the mandatory minimum of knowledge on the subject, is not able to give an answer even with additional guiding questions.

Test results: less than 71% correct answers of questions of every level