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## Assessment tools for midterm assessment

### “Physiological basis of human adaptation in the North”

<b>Curriculum</b>	31.05.01
<b>Specialty</b>	General Medicine
<b>Form of education</b>	Full
<b>Designer Department</b>	Morphology and Physiology
<b>Graduate Department</b>	Internal Diseases

## Sample tasks and tests

### Term 5

Writing an abstract involves a deep study of the designated problem.

**Abstract** (from Lat. refero-report, report) is a special essay that defines goals, objectives and conclusions that set out the main provisions of the topic or problem.

The subject of research papers is presented in the Funds of assessment tools and in teaching aids for independent work of the resident of the corresponding work program.

Abstracts are presented at the lesson according to the chosen topic and calendar-thematic plan, and are submitted to the teacher strictly within the specified time.

The summary of the selected information should be embedded in the text in accordance with a certain logic. The abstract consists of three parts: introduction, main part, conclusion.

a) in the introduction, it will be logical to justify the relevance of the topic (why this topic was chosen, how it is related to modernity and science);

goal (must correspond to the topic of the abstract);

tasks (ways to achieve a given goal) are displayed in the title of the work paragraphs.

b) the main part describes and analyzes the topic of the abstract as a whole, and then – a concise presentation of the selected information in accordance with the tasks set. At the end of the chapter, a conclusion (sub-conclusion) should be made, which begins with the words: "So...", "Eventually...", "At last...", "Finally...", "In conclusion...", "Summing up..." etc.

c) the conclusion contains outputs on chapters (1-1. 5 sheets). It is appropriate to express your point of view on the problem under consideration.

The abstract can be presented in the form of a presentation, and it is mandatory to meet the basic requirements for the abstract, including the correctness of the list of references!

Disclosure of the topic of the abstract assumes the presence of several specialized sources (at least 8-10 publications, monographs, reference books, textbooks) as a source of information. Preference is given to publications in specialized journals and monographs of recognized experts in the relevant field of knowledge. It is mandatory to use foreign literature.

## List:

### *Section 1. Physiological basis of adaptation*

1. Human gene pool and aggressive environmental factors.
2. Features of extra-biological adaptation of a person.
3. Diseases caused by anthropogenic environmental pollution.
4. Ecological features of the Far North territories.
5. The concept of adaptation and acclimatization of a person.
6. Mechanisms of human adaptation to environmental conditions.

### *Section 2. Individual features of adaptation to extreme environmental factors*

1. Specific and physiological features of human adaptation reactions in the conditions of the North.
2. "Stress syndrome", and its role in adaptation and in the formation of pathologies.
3. Climate impact on human health.
4. Maladjustment. Biological expediency of maladaptation. Maladjustment as a prerequisite for human diseases.
5. Urgent and long-term stages of adaptation. General and physiological differences and the transition between them.
6. Adaptive human types. Chronology of the appearance of adaptive human types and their comparative characteristics.
7. Circadian features of adaptive reactions of the human body in the North.

### *Section 3. Adaptation of regulatory systems.*

1. Features of the psychological state and adaptive capabilities of the human body in the conditions of the North.
2. Psychophysiological features of adaptive reactions of the human body in the urbanized North.
3. Features of adaptation of motor-visceral reactions of the human body in the North.
4. Compensatory and adaptive reactions of the body in the conditions of the North.
5. Features and state of non-specific resistance of the organism of the inhabitants of the North

### *Section 4. Adaptation of vegetative systems*

1. Features of the functional state and adaptive capabilities of the human body in the conditions of the North.
2. Problems of thermoregulation in the conditions of cold climate and cold influences.
3. Ecological and physiological mechanisms of thermoregulation in the northern climate and features of human lifestyle.
4. Features of the functioning of the cardio-respiratory system of the human body in the conditions of the Priobsky North, adaptation and disadaptation of the respiratory and circulatory system.
5. Metabolic and endocrine disorders, the state of the gastrointestinal tract of the human body in the North.

## Sample questions

### Term 5

**The midterm assessment is carried out in the form of a test. Assignments on the test include an assessment of the quality of practical work performed and contain a theoretical question**

<b>Tasks for competence assessment «Knowledge»</b>	<b>Task type</b>
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<p><i>Answer the following theoretical questions:</i></p> <ol style="list-style-type: none"> <li>1. Natural and climatic features of the Far North regions.</li> <li>2. Basic mechanisms of maintaining homeostasis of the human body.</li> <li>3. The concept of adaptation and mechanisms.</li> <li>4. The degree of adaptability. Criteria for the degree of adaptation.</li> <li>5. Urgent and long-term stages of adaptation.</li> <li>6. The process of adaptation of newcomers to the conditions of the North. Functional abnormalities caused by climate change in humans.</li> <li>7. The concept of maladjustment. Physiological and pathological maladaptation.</li> <li>8. Correction of disadaptation of the population of the Northern regions</li> <li>9. Biological rhythms. Circadian features of adaptive responses of the human body in the North</li> <li>10. Internal environment. The blood system under various environmental conditions.</li> <li>11. Environmental impacts and immunobiological surveillance.</li> <li>12. Characteristics of adaptive types of people.</li> <li>13. Adaptations of the metabolic system in the Far North.</li> <li>14. Negative consequences of adaptation of the metabolic system for the foreign population.</li> <li>15. Adaptations of the cardiovascular system.</li> <li>16. Negative consequences of adaptation of the cardiovascular system for the foreign population.</li> <li>17. Adaptations of the respiratory system.</li> <li>18. Psychophysiological characteristics of a person when the external environment changes.</li> <li>19. Changes in biorhythms in the Far North, their conditionality and consequences for the population.</li> <li>20. Desynchronoses and methods of their prevention.</li> <li>21. Adaptation and acclimatization. Acclimatization of arrivals to the North.</li> <li>22. Adaptive features of the indigenous inhabitants of the North and their characteristic manifestations of pathologies.</li> <li>23. Features of metabolism. Metabolic status of the body. Endoecology</li> </ol>	Theoretical
<b>Tasks for competence assessment «Abilities»</b>	<b>Task type</b>
<p><i>Practical work submitted for classes</i></p> <ul style="list-style-type: none"> <li>• Characteristics of metabolism</li> <li>• Determination of the level of physical health according to the Apanasenko method</li> <li>• Calculation of biological age according to Voitenko</li> <li>• Determination of biological age according to anthropometric tests</li> <li>• Adaptation of the body to various environmental conditions</li> <li>• Characteristics of natural and climatic conditions of the Far North regions</li> <li>• Determination of physical development by various methods.</li> <li>• Determination of the type of GNI by indicators of strength, balance and mobility of nervous processes.</li> <li>• Assessment of the main properties of nervous processes by Strelau</li> <li>• Determination of the level of intro-extraversion and neuroticism</li> <li>• Determination of the leading hemisphere by various methods</li> <li>• Dominant factor and its definition</li> <li>• Assessment of thinking styles by Katherine Benziger</li> <li>• Observation of the daily rhythm of human physiological parameters</li> </ul>	Practical

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| <ul style="list-style-type: none"><li>• Assessment of the daily rhythm of human physiological parameters</li><li>• Determination of visceral signs of the human circadian chronotype.</li><li>• Identification of the chronotype of human performance</li><li>• Determination of stress resistance and its components by questionnaire.</li><li>• Assessment of learning stress and its impact on the psychosomatic state of the body.</li><li>• Assessment of human vegetative tone by cardiointervalometry</li><li>• Assessment of vegetative support of the body's activity.</li><li>• Influence of various external environmental conditions on the state of blood components and its functional parameters (blood clotting time, hematocrit, red blood cell differences)</li><li>• Study of changes in the human heart rate under functional load</li><li>• Determination of functional reserves and types of response to physical activity</li><li>• Assessment of the reactivity of the human cardiovascular system</li><li>• Characteristics of external respiration indicators in various conditions</li><li>• Functional characteristics of the human cardio-respiratory system.</li><li>• Determination of the maximum oxygen consumption</li><li>• Study of skin temperature sensitivity</li><li>• Reaction of the human body to low-intensity cold load</li><li>• Adaptation of skin thermoreceptors to the action of high and low temperatures</li><li>• The role of skin vessels in thermoregulation</li></ul> |  |
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