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The study guide considers principles, methods and means to ensure life safety of the population, gives systemic knowledge on life safety culture. For the purpose of mastering the studied material and self-control, situational tasks, theoretical questions, test tasks with elements of Russian are also included. The educational material can be used both in class and for independent work in lecture and seminar classes.

This educational edition can be used by foreign students of the 1st year mastering educational programs for specialists in General Medicine, in the course of studying Life Safety as an academic discipline.

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**INTRODUCTION**

**Life safety** is an area of scientific knowledge which covers the theory and practice of protection from dangerous and harmful factors in all areas of human activities, maintaining health and safety in the environment. This problem occurred with the appearance of our distant ancestors. At the dawn of humanity people were threatened by natural hazards and representatives of the biological world. Lately the man himself has become the danger for his survival. Statistics shows that he currently suffers mostly from man-made dangers. Only in road traffic accidents more than 30,000 people die yearly in Russia. Tens thousands people yearly become victims of alcohol. Thousands people perish at the workplace.

The integral indicator of life safety is life expectancy. The development of civilization, by which we mean progress in science, technology, economics, industrialization of agriculture, the use of different types of energy, including nuclear, creation of machines, mechanisms, the use of different types of fertilizers and chemicals for pest control, has greatly increased the amount of harmful factors which influence a person negatively. An important element in human life is protection from these factors. Throughout its existence, the human population, while developing the system of economics, has been creating the system of social economic security. Therefore, despite the increase in the number of harmful effects, the level of human security has increased, too. At the moment, the average life expectancy in most developed countries is about 77 years.

The study of Life safety as a discipline involves the process of understanding the complex relations of the human organism and the environment. The human impact on the environment, according to the laws of physics, causes counteraction of all its components. The human organism painlessly overcomes certain effects as long as they do not exceed the limits of adaptation.

Life safety is considering:

– safety in the everyday environment;
– safety in the production environment;
– safety in the urban environment (residential area);
– safety in the natural environment;
– emergency situations in peace- and wartime.

The everyday environment is the total combination of the factors influencing a person in everyday life. The organism’s reaction to domestic factors is studied in such branches of science as communal hygiene, nutrition hygiene, and pediatric hygiene (also called in Russia hygiene of children and teenagers).

The production environment is the total combination of the factors influencing a person in the course of his professional life.

Safety in the natural environment is a branch of ecology. Ecology studies the laws of organisms’ interaction with the environment.

Thus, the purpose of studying Life safety as a discipline is formation of safety culture, which is understood as readiness and an ability of the man to use an acquired set of knowledge and skills to ensure life safety in any activity, formation of the way of thinking and the values, when safety problems are viewed as a priority.

After studying this guidance, the student should know the principles, methods and means aimed at ensuring life safety of a person, a labor collective, and a society as a whole; be able to analyze and evaluate the state of the population health and the impact of everyday life factors and the natural environment on it; perceive knowledge on life safety culture as a system of social values existing in different countries; handle the skills of life safety culture analysis and evaluation methods of impact of environmental factors on public health.
1. BASIC REGULATIONS AND OBJECTIVES OF LIFE SAFETY
AS AN ACADEMIC DISCIPLINE

Key words: life safety, academic discipline, educational problem, regulations of life safety, danger (hazard, risk), potential danger, probabilistic danger, absolute safety, residual risk, acceptable risk, identification of dangers, prevention of dangers, protection against dangers, personal protection, society, state, information, safe thinking, actions in emergency situations.

Ключевые слова: безопасность жизнедеятельности, учебная дисциплина, проблема образования, правила безопасности жизнедеятельности, опасность (риск), потенциальная опасность, вероятностная опасность, абсолютная безопасность, остаточный риск, приемлемый риск, определение опасностей, предотвращение опасностей, защита от опасностей, личная защита, общество, государство, информация, безопасное мышление, действия в чрезвычайных ситуациях.

Scientists have been studying life safety under various conditions of life and activities since ancient times. Efforts of many scientists have created the scientific backgrounds for development of tools and methods to protect people against hazards. A comprehensive scientific discipline that studies risks and means of protection is called Life safety.

The main regulations of Life safety are as follows.

1) Since being introduced in this world, the man has been living and working among ever changing potential dangers. Due to this, any human activity is potentially dangerous.

2) Being realized in space and time, dangers to human health reveal themselves in such physical conditions and states as nervous shock, injuries, diseases, disablements and death. That is why a danger (hazard, risk) is something that
threatens not only a single person, but also the society and state as a whole. Therefore, prevention of hazards and protection against them are urgent humanitarian and socio-economic problems. The state can’t simply ignore them.

3) Activities which ensure life safety are a priority for the individual, society and state. Absolute safety does not exist. There is always some residual risk. By safety we mean a level of danger that can be put up with at the current stage of scientific and economic development.

4) Safety is an acceptable risk. The first and foremost method to realize it reflects the educational level of people. By their nature dangers are inherently probabilistic (occasional), potential (hidden), permanent (constant, continuous) and total. As a result, there is no man on earth who is not in danger. But there are many people who do not suspect about it. Their consciousness is operating in alienation from real life as it does not give the priority to information that is probabilistic by nature.

5) To develop the ideology of life safety, safe thinking and behavior, the academic discipline, which is called Life safety, is included in the curricula of any profile specialist training in Russia. This discipline studies common dangers that threaten every person and develops appropriate ways to protect them in any environment. Life safety does not address specific safety issues. It provides overall competence in the field of safety as well as scientific and methodological foundations for any specific safety disciplines. The person who has mastered Life safety as a discipline is protected from dangers, will not do harm to others, is able to operate under dangerous conditions competently. Life safety is not a means of personal protection, as some people can believe. Life safety is protection of the individual, society and state.

Life safety solves three groups of educational problems:

a) identification (recognition) of dangers: a hazard type, spatial and time indices, magnitude, potential loss, probability, etc.;

b) prevention of identified hazards, based on comparison of costs and benefits;
c) according to the concept of the residual risk, identified hazards can be realized with a certain probability. Therefore, the third group of problems is connected with *actions* in emergency situations.

To sum it up, Life safety as an academic discipline is an objective need of the modern society and an integral part of the general educational component in training of the harmoniously developed personality.
2. BASIC CONCEPTS, TERMS AND DEFINITIONS OF LIFE SAFETY

*Key words*: activity, activity forms, vital activity, habitat, environment, interaction, biosphere, technosphere, human impact, evolutionary processes, “man – habitat” system, intensity of exposure, duration of exposure, external factors, destruction of the organism, death of the organism, tolerance zone, habitat conditions, comfortable conditions, permissible conditions, dangerous conditions, extremely dangerous conditions, elimination of danger sources, protection against dangers, purpose of Life safety, object of Life safety, reasons for studying Life safety as a discipline.

*Kлючевые слова*: деятельность, формы деятельности, жизнедеятельность, среда обитания, окружающая среда, взаимодействие, биосфера, техносфера, влияние человека, эволюционный процесс, система «человек – среда обитания», интенсивность воздействия, длительность воздействия, внешние факторы, разрушение организма, смерть организма, зона толерантности, условия среды обитания, комфортные условия, допустимые условия, опасные условия, крайне
опасные условия, ограничение источников опасности, защита от опасностей, цель безопасности жизнедеятельности, объект безопасности жизнедеятельности, причины изучения безопасности жизнедеятельности как дисциплины.

2.1 Correlation of the terms “activity” and “vital activity”, “habitat” and “environment”. Types of environment

The whole human existence is the vital activity, based on constant interaction of a person with the environment in order to meet his needs.

**Vital activity** includes both everyday activity and the time for recreation. It takes place under conditions that make a threat to human life and health. Vital activity is characterized with the quality of life and safety.

**Activity** is active conscious interaction of the man with the environment.

There are various forms of activity. The result of any activity should be its usefulness for human existence. But at the same time, any activity is potentially dangerous. It can be a source of negative effects or damage and lead to diseases, injuries, usually ending in disablement or death.

**Habitat** is the environment surrounding the man, having a direct or indirect impact on human vital activity, health, his ability to work and have an offspring, through a combination of factors (physical, biological, chemical and social).

In the life cycle the man and the environment continuously interact and form a permanent “man – habitat” system, where the man implements his physiological and social needs.

The environment includes natural, technological (technogenic), production and domestic components (also called environments). Each environment can be dangerous for humans.

Among them, the most important ones are the natural and technological (technogenic) environments.

**Natural environment** (biosphere) is the distribution area of life on earth which has not experienced the technogenic impact (e.g. the atmosphere, the hydrosphere,
the upper part of the lithosphere). It has both protective properties (e.g. human protection from adverse effects, temperature difference, precipitation) and a number of negative factors. Therefore, to protect himself from them, the man had to create the technosphere.

*Technogenic environment* (technosphere) is the habitat, created with the help of human and technical resources to influence the biosphere in order to meet his social and economic needs.

In the 20th century appeared areas of a high human and technogenic impact on the natural environment. This resulted in partial or complete degradation of the latter. These changes contributed to the following evolutionary processes:

a) population growth and urbanization,
b) growth in energy consumption,
c) a massive use of transport,
d) an increase in expenses for military purposes.

2.2 *Classification of conditions in the “man – habitat” system*

Flows of masses, energy and information, being distributed in the terrestrial space, form a habitat for wildlife, people, fauna and flora. In general, the impact of the flow on the object (person, etc.) in each point of space is determined by its intensity and the duration of exposure.

Life of all organisms (including humans) requires a particular combination of habitat conditions. If all habitat conditions are favorable, except one, then this very condition becomes critical for life of the organism under consideration. It limits development of the organism. Endurance of the organism is determined by the weakest link in the chain of its environmental needs.

Destruction of the organism is possible under the influence of the total combination of external factors, i.e. it is determined by their combined impact. The effect of the negative impact factor of the flow on the organism depends on properties and parameters of the flow, as well as on properties of the organism.
Death of the organism occurs when the values of the impact factors lie outside the tolerance zone. Death can be viewed as a process of the organism’s disintegration into simple subsystems.

Thus, by changing the flows in the habitat, it is possible to obtain a number of typical interaction situations in the «man – habitat» system:

1) *Comfortable* (optimal) conditions for activity and rest. The man is accustomed to such conditions to a greater extent. It reveals itself in the highest working capacity, guarantees preservation of health and integrity of the environmental components.

2) *Permissible* conditions. They are characterized with deviation of substance, energy and information flows from the nominal values within acceptable limits. These conditions do not have a negative impact on health, but lead to discomfort and a decrease in labor efficiency and productivity. They do not cause irreversible processes in humans and the environment. Permissible exposure norms are fixed in the sanitary norms and regulations within certain countries.

3) *Dangerous* conditions. Substance, energy and information flows exceed the permissible exposure. These conditions have a negative impact on human health. At long-term exposure they can cause diseases and lead to environmental degradation.

4) *Extremely dangerous* conditions. Substance, energy and information flows can cause an injury or death for a short period of time. These conditions bring about irreversible destruction of the natural environment.

Human interaction with the environment can be positive (under comfortable and permissible conditions) and negative (under dangerous and extremely dangerous conditions). Many factors, constantly influencing the man are unfavorable to his health and activity.

Life safety can be ensured in two ways:

- elimination of danger sources;
- an increase in the level of protection from dangers, an ability to resist them.

*Life safety* is a science about ways and means of comfortable and safe human interaction with the environment. It is an area of scientific knowledge studying
dangers threatening a person, and developing ways to protect people against them under any conditions of human habitat.

The main **purpose** of the life safety doctrine is protection of people in the technosphere from negative impacts of the anthropogenic and natural origins, and achievement of comfortable living conditions.

For any harm the man pays with his health and life, which can be considered strategic factors in the «man – habitat» system, the final result of its functioning and a criterion of the quality of the environment.

**The object** of Life safety as a discipline is a complex of adverse phenomena and processes in the «man – habitat» system.

### 2.3 Reasons for studying Life safety as a discipline

There are several reasons for studying Life safety as a discipline in Russia. They include the following:

- a high mortality rate (especially among men of the reproductive age);
- low indicators of life expectancy (especially for the male population);
- the average annual decline in the total population.

These problems and their solutions are very important for this country. According to population forecasts, Russia is going to face extinction in the foreseeable future. The most important task for the government is stabilization of the population quantity.

### 3. PRINCIPLES, METHODS AND MEANS OF ENSURING LIFE SAFETY

**Key words:** ensure life safety, life safety principles, direction of activity, field of implementation, manner of implementation, directing principles, managerial principles, organizational principles, technical principles, protection by quantity, protection by distance, fencing, screening, locking, life safety methods, adaptation,
3.1 Life safety principles

Principles of life safety are the main directions of activity, elementary components of life safety ensuring process.

Life safety principles allow us to find optimal solutions for protection from dangers on the basis of comparative analysis of competing options. They reflect a variety of ways and methods to ensure safety of the “man – habitat” system, including both organizational arrangements, specific technical solutions, and ensuring adequate management, providing for stability of the system, as well as some methodological regulations, indicating the direction of solution search. Life safety principles can be applied in various fields: engineering, medicine, work and rest management, etc.

By field of implementation, depending on where they are applied, life safety principles can be divided into engineering, teaching, medical and biological.

By manner of implementation, depending on how they are carried out, life safety principles are divided into the following groups:

- directing principles, which include giving a general direction of solution search in the field of life safety. Among directing principles are: systemic approach, professional selection, normalization of negative impacts, etc.;
- **managerial principles**, which include monitoring and stimulating of the activity aimed at improving life safety, principles of responsibility, feedback, etc.;

- **organizational principles**, which include the so-called “time defense” (time regulations according to which a person can endure the impact of negative factors), the principle of rational work organization, rational modes of work, organization of sanitary-hygienic zones, etc.;

- **technical principles**, which include specific technical solutions increasing life safety.

The latter group of principles is the most numerous and diverse. Technical principles of life safety include:

- **protection by quantity** – a reduction of negative impacts of the source due to designing of more advanced, environmentally friendly technical devices (car engines with a low content of harmful substances in exhaust fumes, computer monitors with minor levels of electromagnetic radiation, etc.);

- **protection by distance (distant protection)**, based on the fact that intensity of some negative impacts decreases with distance;

- **protection by fencing**;

- **protection by screening**;

- **protection by locking**.

Life safety principles should be considered together, in interconnection, since they supplement each other.

### 3.2 Life safety methods

The *method* is a way to achieve the aim. The aim of life safety is to ensure safety. Life safety methods are based on application of life safety principles. Using special methods to ensure life safety, we can agree on interaction of the person’s characteristics with the environment (the systems of «man – production environment», «man – everyday environment», or «man – natural environment») in order to achieve a certain level of life safety.

There are **four methods of ensuring life safety** (*life safety methods*), including:
**A-method** is spatial or temporal separation of the *homosphere* (zones of human activity) and *noxosphere* (zones of danger formation) (e.g. remote control, mechanization, automation).

**B-method** is normalization of the noxosphere, i.e. improvement of the environment (more often, the production environment), bringing the noxosphere characteristics to conformity with the person’s characteristics. B-method is implemented in creating safe technologies.

**C-method** is used when the A- and B-methods do not give the desired result and the required level of safety. It involves human adaptation to the noxosphere (e.g. via education, coaching, professional selection).

**D-method** combines the above-mentioned methods. In practice it is the one which is used more often.

**Adaptation** is an act or a process of adapting (fitting) a person to conditions and circumstances of the environment. The purpose of any adaptation is achievement the state of harmony in interaction with other people and the environment. This concept is used throughout the whole person’s life, since any change in a habitual environment leads to a necessity to get adapted to it.

The process of adaptation involves physiological, personal, genetic, and behavioral factors. The necessity for adaptation in human beings is mainly connected with social, rather than with natural factors. Changes in the environment, personal contacts, as well as in political, economical and living conditions, make people search for new ways of keeping harmony on the physiological and psychological levels. The more a person is ready for hardships and changes in his life, the better life prognosis for him could be made.

### 3.3 Life safety means

**Life safety means** are certain means of human protection against various dangers. By character of application they can be divided into means of collective and individual protection.
Means of individual protection are used by a worker in order to prevent or reduce the exposure of harmful and dangerous production factors, as well as to protect themselves against pollution. Means of individual protection can be divided into:

1) means of hand protection (mittens, gloves, etc.);
2) means of foot protection (high boots, shoe covers, slippers, etc.);
3) means of eye and face protection (safety glasses, face shields, etc.);
4) means of head protection (hard hats, helmets, hats, berets, etc.);
5) means of respiratory protection (gas masks);
6) means of skin protection.

Fig. 4 Inuits (Eskimos) design their clothes for protection from harsh cold climate. Traditional clothes are made of caribou or seal skin and include parka, pants, mittens, and boots.

Fig. 5 In dry desert climates, builders make windows small to keep the sunlight out.

Means of collective protection are designed for protection of the population, emergency response teams, technical equipment, and property from exposure of mass destruction weapons and from highly toxic chemical substances at operating troubles at dangerous chemical sites. Means of collective protection can be divided into:

- specially designed protective facilities;
- facilities which could be used as shelters (basements of residential buildings, transport tunnels);
- natural shelters (trenches, ravines).

4. LIFE SAFETY CULTURE

**Key words:** consumption, consumerism, anthropogenic, biosphere, civilization, culture, life safety culture, personality, labor collective, production sphere, corporate culture, natural environment, social values, social priorities, social consciousness, safe-type personality, safe behavior, personality traits, ensure life safety, well-being, reduce risks for vital activity, universal human values, state values, individual values, professional values.

Ключевые слова: потребление, потребительство (потребительский интерес), антропогенный, биосфера, цивилизация, культура, культура безопасности жизнедеятельности, личность, трудовой коллектив, производственная среда, корпоративная культура, природная среда, социальные ценностии, социальные приоритеты, социальное сознание, личность безопасного типа, безопасное поведение, личностные черты, обеспечивать безопасность жизнедеятельности, благополучие, снизить риск для жизнедеятельности, универсальные человеческие ценности, государственные ценности, индивидуальные ценности, профессиональные ценности.

4.1 Phenomenon of life safety culture

The modern lifestyle of the population of our planet leads to an unacceptable level of consumption of natural resources and emission of pollutants in the environment. Its top imperative is consumerism: things instantly become outdated, mass production of semi-finished products (products of convenience), immediate-action medicines, a significant change in the rate of whims and fashion on commodities, etc. The result of it is exhaustion of non-renewable natural resources
(reserves of the Earth in the near future) and multiple excess of maximum permissible anthropogenic load on the biosphere.

Currently, it becomes more and more obvious that efforts to prevent the coming planetary crisis cannot be limited only to legal, organizational, technical and educational normative events. It is necessary to ensure safety of the natural environment as a priority and inner need of the human, society, and civilization. In order to do this, people have to develop a new worldview, the system of ideals and values, to shape a safe-type personality, to create a society, state, and, finally, the global community, of the safe type. One of the most effective (if not the only possible) way to achieve this is to shape an appropriate culture as the foundation of existence and the most important identifying feature of any civilization.

The definition analysis shows that culture is probably one of the most ambiguous concepts. According to the famous American culture expert and social psychologist Harry C. Triandis, “culture is one of those definitions, which are always present in the work of a social researcher, but are defined in so many different ways, that a consensus is unlikely to be reached”. In scientific literature, there are many definitions of the concept depending on goals and objectives of the research, characteristics of scientific branches, specificity of scientific schools, etc.

Fig. 6 Harry C. Triandis (1926 – )

At present, there is an understanding that the considered category (life safety culture) should be applied not only to the staff of potentially dangerous objects, but also to every individual, and the society as a whole. Cultural values, motivations,
personal and professional qualities and abilities to a certain extent define effectiveness of measures which ensure life safety, and reduce individual, collective and global risks.

Thus, **life safety culture** is the state of human social organization, which provides a certain level of life safety.

![Image](image.png)

*Fig. 7 Academic works on cultural studies (by Harry C. Triandis)*

**4.2 Objects, levels and factors of life safety culture**

For working out methodological foundations of life safety culture it is necessary to determine the objects (people) that are going to have life safety culture shaped and function as its media. Methods of influence on these objects are also necessary to be considered in order to achieve the desired qualities and properties.

Obviously, at the initial level it is advisable to consider a personality the object of formation of life safety culture, since a *personality* is a set of fairly stable and significant human qualities, acquired in the process of development in the society and manifested in the course of vital activity. Without any doubt, personality traits are revealed in everyday life. When exposed to dangers, they are the determining factors in terms of preventing the development of hazardous and emergency situations and
minimizing their adverse effects. In addition, it goes without saying that the dominant of safe behavior in groups of people, social groups, and the society as a whole, will greatly depend on qualities and properties of their constituent individuals.

At the same time, systematic analysis states that properties of the system are not determined only with properties of its constituents. Therefore, such social systems as corporations (groups) of people, the society as a whole, will have properties of a higher level, the so-called “systemic” properties.

The place where a person most completely realizes his qualities and abilities, his professional potential, where he enters a certain relationship with a collective, is called the production sphere (environment). Statistics shows that the production environment is a source of a huge amount of large-scale threats and hazards. Methods and rules of solving problems of external adaptation and internal integration of employees are formed and worked out there. They justified themselves in the past and confirmed their relevance for the present. They build up the so-called corporate culture. Along with the production technology and the management system, corporate culture is a key factor influencing efficiency of enterprises, institutions, organizations, and their labor collectives. Due to the fact that life safety is one of the necessary components of their efficiency, it is obvious that the most important element of the corporate culture system should be life safety culture. Therefore, the objects of formation of life safety culture at a higher level should be labor collectives (corporations).

There is no doubt that the system of social and public values and priorities (i.e. concepts which are socially the most significant, in the viewpoint of the majority, in terms of personal and social well-being, a stable existence, long-term development and improvement of social relations, the state domestic and foreign policy, etc.) is a system-forming factor of life safety. Therefore, it is necessary to consider life safety culture at the social-state level as well.

Another significant factor is human readiness, the level of knowledge and skills. The depth and strength of assimilation of methods and means of protection from dangerous situations and emergencies, development of abilities and skills of
safe behavior in various conditions are the basis for reducing the risks for vital activity.

An important role in formation of life safety culture belongs to people’s characteristics. By them we mean individual psychological features of the personality, which are a condition for success in a particular productive activity. They include temperament, temper (character traits), will, emotional sphere, a person’s abilities, etc. Some of them are genetically predetermined and change insignificantly under the influence of the social environment (e.g. temperament, the type of higher nervous activity, characteristics of perception, memorization, etc.). Others are formed by the social environment and depend on the degree of social and civilization historical development, individual and collective social experience. They are character traits, will, emotional mindset, moral and psychological stability, physical health, social and individual stereotypes of safe behavior.

Besides, from the course of psychology we know that success in any activity depends on motivation, aspiration, and a desire to carry out some activity and achieve good progress in it. Motivation to lead a safe life is to understand a vital necessity and usefulness of proper actions to ensure personal safety, safety of the environment, society and state.

Development of life safety culture at the individual level should include formation of the ideal and values in the field of life safety, development of innate and formation of acquired personal characteristics, providing a possibility of effective prevention of threats and hazards, as well as protection against them, cultivation of knowledge and skills which ensure safety in all spheres of life, motivation of safe life.

At the social-state level the development of life safety culture should be carried out by:

- shaping the system of social values, priorities, and social consciousness in the field of life safety;
- elaboration of the legal framework and policies which will ensure safety of both the human and the society, natural and technogenic environments;
- development of science and arts in the fields of ecology, risk reduction, protection against emergency situations;
- involvement of religious institutions in formation of life safety culture;
- improvement of the systems of spiritual, moral, and patriotic education, propaganda, social advertising, public and state motivation in the field of life safety, insurance mechanisms, etc.

4.3 Classification of life safety social values

The most important social values that are generated by public and state levels can be organized within four groups. They are the following:

*Group 1* includes universal human values. They are concerned with:

a) scientific-philosophical knowledge and understanding of Russian (or some other) citizens about controversial, but a holistic and interconnected world,

b) the need to ensure survival of the human civilization facing the threat of humanitarian, ecological, technogenic and other catastrophes.

The most important universal human values are the following:
- recognition of the man, his life, rights and freedoms as the supreme values,
- rejection of war as a means of resolving interstate conflicts,
- widespread introduction in international practice, including political and legal spheres, relationships, confidence, cooperation, international humanitarian law,
- resolute condemnation of all forms of xenophobia and racism, nationalism, religious and ideological fanaticism,
- active joint actions for protection and improvement of the biosphere, security of the environment,
- recognition of non-violence as the basis of life in the human society.

*Group 2* consists of state values. The main ones are:

- protection of political, socio-economic, geopolitical and spiritual interests of Russians (or some other nation) in the field of ecology,
- conservation of resources for future generations,
- sovereignty and integrity of the country,
- allegiance to the Constitution of the Russian Federation (or some other country),
- observance of regulatory legal acts in the field of health and safety.

*Group 3* includes *individual values*, or values of the individual as a citizen of his country. The main components of this group should be:
- patriotism,
- allegiance to the Constitution of the Russian Federation (or some other country),
- power and willingness to serve one’s Motherland, including in the field of security,
- respect for the federal laws, legal norms and public morality,
- recognition of the national identity, pride in belonging to Russia (or some other country) as a country with a unique blend of heroic history, geographical location, wealth, resources, etc.,
- respect for the national feelings, language and culture of the peoples inhabiting Russia (or some other multi-national country),
- religious and confessional tolerance,
- high culture of behavior, ethics, communication,
- an aesthetic attitude to reality,
- a concern for the environment.

*Group 4* is composed of *professional values*. They are primarily those that determine the meaning and significance of the relationship of the citizen of Russia (or some other country) to carry out his constitutional duty – to ensure the safety of his Motherland. These values include:
- high professional skills,
- professional culture,
- service competence,
- a desire to implement professional activities at a high safety level,
- a good discipline and organization,
- a sense of professional honor and dignity,
- respect for the history and best traditions of the Russian people (or some other nation), etc.

Thus, comprehensive and systematic development of life safety culture and its values at all these social levels:

a) will improve people’s level of education not only in the field of life safety, but in other related fields of knowledge,

b) will strengthen the unity of the society in the face of natural (including ecological), technogenic, and other dangers,

c) will raise the level of spiritual, moral, and patriotic education of the youth, the image of the state and public services, ensuring life safety of the population.

In addition, the effect of development of life safety culture will be associated with the development of science, advanced science-intensive information technologies, industry, communication systems and telecommunications, creation of new workplaces for production of some equipment, working out new informational content, etc.
CONCLUSION

Throughout its development, humanity has been facing the problem how to ensure life safety. Thanks to the progress, the world has changed, well-being of people has increased, the quality of life and working conditions have improved, and industrial and agricultural production have reached unprecedented dimensions, especially in economically developed countries.

However, in the second half of the 20\textsuperscript{th} century appeared extremely negative tendencies for human life: the negative impact of anthropogenic hazards on humans and the environment increased; there has been an increase in the amount of natural, technogenic and environmental disasters. Simultaneously, their destructive effect has increased: huge human losses and economic damage are being registered.

Safety of any activity for any person and the natural environment, as well as for the society as a whole, should be considered, taking into account all economic, social and environmental impacts.

Development of the technosphere leads to an increase not only in the quality of life, but also in the level of danger for human life safety. Anthropogenic changes of the natural environment have reached such proportions that the man has become a victim of his own technogenic activities. The decrease in the quality of the natural environment negatively affects efficiency of work and rest, life expectancy, the health status. In the modern technosphere are shaped such factors of working and living conditions that begin to exceed adaptation, physiological, and psychological abilities of a person.

Studying Life safety as an academic discipline can help improve the situation at all levels of social interaction. Formation of safe behavior and safe-type personality can give us all a chance to survive in this ever changing world and give it over to our descendants.
QUESTIONS

1. What does Life safety study as a discipline? What is the purpose of its study? What are the reasons for its study in Russia?

2. What is the integral indicator of life safety? What factors does it depend on?

3. What is safety in general? What is safety in everyday environment? What is safety in production environment? What is safety in natural environment?

4. What is vital activity? How does it differ from just an activity?

5. What is a habitat? How can you classify the conditions for a person in the “man – habitat” system? What conditions can be considered comfortable? What conditions can be considered dangerous?

6. What principles ensure life safety? What are organizational principles? What are technical principles?


8. What is adaptation? How is this concept connected with life safety?

9. What is the main principle of life safety means division into groups?

10. What are the subgroups of means of individual protection?

11. What are the subgroups of means of collective protection?

12. What is the relation between the concepts of culture and life safety culture?

13. What are the main objects and sources of life safety culture? At what levels and by what means is it formed?

14. What groups of social values form life safety culture in any country?

15. What social values of Group 1 form life safety culture in your country?

16. What social values of Group 2 form life safety culture in your country?

17. What social values of Group 3 form life safety culture in your country?

18. What social values of Group 4 form life safety culture in your country?
SAMPLE TASKS

Sample task 1
Imagine that you are a doctor. You examine a patient who definitely has an infection. Tell about the measures and means you will use to protect yourself from being infected.

Sample task 2
Find some information on life expectancy in your native country. Consider both the current data and the data for some period in the past. Compare the obtained results. Try to explain the difference, if there is any. Prepare a brief report (2 or 3 minutes) on what you have learnt.

Sample task 3
Compare the obtained information on social values existing in different countries (see Questions 11-14). Fill in the table of social values (see Appendix). Share the information with your groupmates. Why do you think some values are universal or resemble each other? What contributes to differences in social values of different countries?

Sample task 4
Study the photos on page 17. Say what life safety principles, methods and means are used by people living in those places? What factors contribute to it?
TEST

Select the correct answer. More than one correct answer is possible.

1. LIFE SAFETY IS …
   1) a quiet and comfortable existence of the modern man;
   2) a science about comfortable and safe human interaction with the technosphere;
   3) all factors, influencing a person in everyday life;
   4) factors, influencing a person during working hours.

2. LIFE SAFETY IS…
   1) a field of scientific knowledge studying dangers and ways of protection against them under any conditions of human habitat;
   2) a state of protection of national interests;
   3) the stages of human evolution;
   4) expansion of the technosphere.

3. LIFE SAFETY AS A SCIENCE IS BASED ON…
   1) human everyday skills and knowledge;
   2) human intuition;
   3) federal laws and state regulations;
   4) achievements in preventive medicine;
   5) formation of social consciousness.

4. THE PURPOSE OF LIFE SAFETY IS…
   1) safety;
   2) danger;
   3) risk;
   4) taxonomy.
5. THE COMPLEX TASK OF LIFE SAFETY IS…
   1) identification of hazards, realization of preventive measures and protection against residual risks;
   2) identification of hazards in the technosphere, ergonomics and information;
   3) classification of natural, technogenic and biospheric hazards;
   4) classification of lithospheric, hydrospheric and atmospheric hazards.

6. LIFE SAFETY AS AN ACADEMIC DISCIPLINE IS …
   1) a field of knowledge which covers the theory and practice of everyday life;
   2) a field of practical knowledge on quiet and comfortable existence of the modern man;
   3) a field of scientific knowledge, covering the theory and practice of protection from dangerous and harmful factors in all areas of human activities, maintaining health and safety in the environment;
   4) a field of theoretical knowledge about human health;
   5) a field of theoretical knowledge about activities of security services and insurance companies.

7. THE MAIN TASK OF LIFE SAFETY AS A DISCIPLINE INCLUDES…
   1) formation of a conscious and responsible attitude to the problem of personal safety and safety of others, transfer of fundamental knowledge and skills of risk recognition and assessment, definition of protection methods against them, provision of self- and mutual help, and elimination of consequences of emergency situations;
   2) theoretical analysis and development of identification methods (detection and quantification) of dangerous and harmful factors generated by elements of the environment;
   3) description of the habitat in terms of safety, through hazard mapping (maps of concentrations of toxic substances, energy effect fields, exposure fields);
4) optimization of the life safety management system at the regional and state levels;
5) hazard identification, i.e. pattern recognition, quantitative characteristics and risk coordinates.

8. PROBLEMS STUDIED BY LIFE SAFETY AS A DISCIPLINE INCLUDE…
   1) safety in the everyday and production environment;
   2) safety in the urban environment;
   3) safety in the natural environment;
   4) emergency situations in peace- and wartime;
   5) financial crises.

9. THE ENVIRONMENT ASSOCIATED WITH THE CONCEPT OF LIFE SAFETY IS…
   1) everyday environment;
   2) production environment;
   3) natural environment;
   4) virtual reality.

10. THE GROUPS OF LIFE SAFETY PRINCIPLES INCLUDE…
    1) directing, technical, organizational, managerial principles;
    2) adequacy and consistency of separation;
    3) destruction, sealing;
    4) classification, duplication, and information control.

11. AN ACTIVITY IS…
    1) a specific form of human active attitude to the world;
    2) a passive form of danger;
    3) protection of human health;
    4) the pinnacle of life progress on earth.
12. VITAL ACTIVITY IS…
   1) a total combination of all forms of human activity;
   2) a total combination of injuries at the workplace;
   3) protection of the natural environment;
   4) the highest form of activity.

13. THE SCIENCE THAT STUDIES MAN IN THE PROCESS OF WORKING ACTIVITY IS CALLED…
   1) economy;
   2) psychology;
   3) ergonomics;
   4) physiology.

   1) work intensity;
   2) labor load;
   3) labor degree;
   4) physiology of labor.

15. MICROCLIMATIC CONDITIONS ARE…
   1) the temperature at the working area;
   2) relative humidity;
   3) lighting;
   4) a combination of the temperature, relative humidity and air velocity.

16. NEGATIVE FACTORS CAUSED BY HUMAN ACTIVITIES AND THE PRODUCTS OF HIS LABOR ARE CALLED…
   1) organic;
2) natural; 
3) anthropogenic;  
4) environmental.

17. THE TERM “ELECTROMAGNETIC FIELD” REFERS TO…  
1) the chemical type of pollution; 
2) the biological type of pollution;  
3) the physical type of pollution;  
4) the mechanical type of pollution.

18. ABSOLUTE INDEX OF NEGATIVITY OF THE TECHNOSPHERE IS…  
1) injury frequency index; 
2) material damage;  
3) reduced lifetime;  
4) disability rate.

19. THE PHYSICAL GROUP OF NEGATIVE FACTORS OF THE PRODUCTION ENVIRONMENT INCLUDES…  
1) bacteria and viruses;  
2) vibration and noise;  
3) tense psychological atmosphere at the workplace; 
4) fungal flora and viruses.

20. PROLONGUED EXPOSURE OF HARMFUL SUBSTANCES IN SMALL CONCENTRATIONS LEADS TO DEVELOPMENT OF … POISONINGS.  
1) acute;  
2) chronic;  
3) sub-acute;  
4) delayed.
21. TO REDUCE INDIVIDUAL, COLLECTIVE AND GLOBAL RISKS PEOPLE USE…

1) means of personal protection equipment;
2) life safety culture;
3) means of collective protection;
4) adaptation to environmental factors.

22. THE MOST DANGEROUS WAY OF PENETRATION OF HARMFUL SUBSTANCES IN THE HUMAN BODY IS…

1) through the intact skin;
2) through the mucous membranes;
3) through the respiratory system;
4) through the mouth.

23. THE MAIN SOURCE OF ANTHROPOGENIC POLLUTION OF THE ATMOSPHERE IS…

1) transport;
2) chemical industry;
3) production of construction materials;
4) forest fires.

24. THE LARGEST CONTRIBUTION TO THE OVERALL BACKGROUND NOISE IS MADE BY…

1) electrical appliances;
2) construction machinery;
3) traffic;
4) air transport.

25. RADIO WAVES BELONG TO…

1) ionizing radiation;
2) non-ionizing radiation.

26. THE RISK ASSOCIATED WITH A SOURCE OF IONIZING RADIATION IS CALLED…
   1) chemical;
   2) radiative;
   3) biological;
   4) physical.

27. THE GREATEST PENETRATING POWER HAS…
   1) $\alpha$ – radiation;
   2) $\gamma$ – radiation;
   3) $\beta$ – radiation;
   4) a stream of helium nuclei.
SOLUTION PATTERNS

Solution pattern to Sample task 1

Depending on the situation (the infection type, procedure type, available means of protection, time limits, etc.), a doctor can use such means of individual protection as a mask, gloves, a screen (for X-ray procedures), a quartz lamp, antiseptic solutions, etc.

KEYS

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**RECOMMENDED LITERATURE**

**Main literature**


**Additional literature**


**GLOSSARY**

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## Social values in different countries

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Educational edition

German Oxana Yurievna,
Antipina Olga Vladimirovna

METHODOLOGICAL FOUNDATIONS
OF LIFE SAFETY

Study guide