

Документ подписан простой электронной подписью
 Информация о владельце:
 ФИО: Косенок Сергей Михайлович
 Должность: ректор
 Дата подписания: 24.06.2026 13:47:49
 Уникальный программный ключ:
 e3a68f3eaa1e62674b54f4998099d3d6bfdcf836

Оценочные материалы для промежуточной аттестации по дисциплине

Иностранный язык в профессиональной сфере

Код, направление подготовки	20.03.01 Техносферная безопасность
Направленность (профиль)	Охрана труда и промышленная безопасность
Форма обучения	Очная
Кафедра-разработчик	Кафедра лингвистики и переводоведения
Выпускающая кафедра	Кафедра безопасности жизнедеятельности

Типовые задания для контрольной работы

Типовые задания для контрольной работы

5 СЕМЕСТР

1. Choose the correct name of knowledge, skill or ability.

1. Design techniques, tools, and principles. ____ Design ____
2. Apply principles, techniques, procedures, and equipment to the design and production of various goods and services. ____
3. Prediction of physical principles, laws, their interrelationships. _____
4. Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. _____
5. Uses of chemicals and their interactions. _____
6. Considering the relative costs and benefits of potential actions to choose the most appropriate one. _____
7. Understanding written sentences and paragraphs in work related documents. _____
8. Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. _____
9. Communicating effectively in writing as appropriate for the needs of the audience. _____
10. The ability to apply general rules to specific problems to produce answers that make sense. _____
11. The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only recognizing there is a problem. _____

12. The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events)._____

2. Transform these sentences into passive or active voice

1. They make Rolls Royce cars in England.
2. Rice is grown in China.
3. The telephone was invented by Bell in 1876.
4. Thieves have stolen 2 pictures from the museum last night.
5. The factory will produce 10,000 cars next year.
6. She was given this watch by her aunt.
7. British policemen don't carry guns.
8. Periodic Table was devised by Mendeleev.
9. They will publish the news tomorrow.
10. They were doing this experiment yesterday at 9am.

3. Use the words from the box to complete the text.

**communication plan identify perform
knowledge facts education protection**

Scope of a Safety Engineer

The scope of a safety engineer is to (1)_____ their professional functions. Safety engineering professionals must have (2) _____, training and experience in a common body of knowledge. They need to have a fundamental (3)_____ of physics, chemistry, biology, physiology, statistics, mathematics, computer science, engineering mechanics, industrial processes, business, (4) _____ and psychology.

The major areas relating to the (5) _____ of people and the environment are:

1. Anticipate, (6)_____ and evaluate hazardous conditions and practices.
2. Develop hazard control designs, methods, procedures and programs.
3. Implement, administer and advise others on hazard control programs.
4. Draft a future safety (7) _____ and statement based on real time experiences and (8) _____.

6 CEMECTP

1. Read the text and then complete it with the words or expressions from the box.

- a) water b) 'bang' c) pollution problems d) skin burns e) miles f) threat

Fire: This is the most frequent of the hazards however the consequences are generally less. The effect of fire on people usually takes the form of (1)_____ and is usually dependent on the exposure time and the intensity of the heat.

Explosion: Explosions are usually heard from far away as a (2) _____. This is the result of a shock wave. This overpressure can kill people but usually the indirect effects of collapsing buildings, flying glass and debris causes far more loss of life and severe injuries. There are different types of explosions which include gas explosions and dust explosions.

Toxic/Chemical release: Sudden releases of toxic vapors have the potential to cause death and severe injuries several (3) _____ from the release point. They are carried by (4) _____ and air. Their release into public sewage systems, rivers, canals and other water courses, either directly or through contaminated water used in fire fighting can result in serious threat to public.

Environmental Damage: As well as having the potential for causing injury, loss of life and damage to property, the hazards of fire, explosion and toxic releases may pose a severe (5) _____ to the environment. Release of other substances, not directly toxic to humans can cause major (6) _____. It is becoming increasingly recognized that damage to natural resources such as plant and animal life can have serious long term consequences.

2. Write these statements in the Past.

1. They are to begin this work at once.
2. I am to visit our supervisor.
3. He is to come at 2 o'clock.
4. The letter must be sent at once.

7 CEMECTP

1. Put the verbs in brackets into the correct form.

Like many substances, water can (exist) in three phases. The phase (depend) on the surrounding temperature and pressure. A phase diagram can (illustrate) such conditions.

The solid form of water (call) ice. Freezing liquid water (form) ice. At sea level, the melting point of ice (be) 0°C. At this temperature, ice (go) through a phase transition and (become) liquid water.

Liquid water can (become) a gas by boiling or evaporation. The boiling point of water (be) 100°C at sea level. However, water (evaporate) into water vapor at lower temperatures. When water vapor (touch) a cool surface, it can (undergo) condensation. This (turn) it back in to a liquid.

Water sometimes (perform) other phase transitions. For instance, ice can (become) water vapor directly through sublimation. Similarly, water vapor going through deposition directly into ice (cause) frost. At 0.01 °C and 611.73Pa, water (achieve) its triple point. At its triple point, water (exist) as a solid, gas, and liquid at once.

2. Complete the sentences. Use superlative or comparative forms of the words in brackets.

1. We stayed at _____ hotel in town. (cheap)
2. Our hotel was _____ than the others in the town. (cheap)
3. The United States is very large but Canada is _____.(large)
4. What's _____ river in the world? (long)
5. He was a little depressed yesterday, but he looks _____ today. (happy)
6. What is _____ sport in your country? (popular)

3. Put the parts of the sentences in the right order.

1. (she won / easily / the game) _____
2. (slowly / the door / I closed) _____
3. (I / quite well / speak / Italian) _____
4. (tennis / does / play / he / every weekend?) _____
5. (so late / why / you come / home / did?) _____

4. Read the following article about environmental chemistry and fill the gaps with appropriate forms of the words in brackets. Use prefixes and suffixes.

Environmental chemistry is the _____(science) study of the _____(chemistry) and _____(biochemistry) phenomena that occur in _____ (nature) places. It can be defined as the study of the sources, reactions, transport, effects, and fates of _____ (chemistry) species in the air, soil, and water environments; and the effect of human activity on these. Environmental chemistry is an _____(discipline) science that includes _____(atmosphere), _____ (aqua) and soil chemistry, as well as _____ (heavy) relying on _____(analysis) chemistry and being related to _____(environment) and other areas of science. Environmental chemistry involves first _____(understand) how the uncontaminated environment works, which chemicals in what concentrations are present, and with what effects. Without this it would be _____(possible) to _____(accurate) study the effects humans have on the environment through the release of chemicals.

8 CEMECTP

1. Choose the correct form of the verb, singular or plural.

1. Physics was / were my best subject in school.
2. Can I borrow your scissors? Mine isn't / aren't sharp enough.
3. Do you think the people is / are happy with the government?
4. Gymnastics is / are my favourite sport.
5. The trousers you bought for me doesn't / don't fit me.

2. Underline the correct alternative.

- 1 She's the girl *which/who* has seven brothers.
- 2 They live in a house *that/who* has seven bedrooms.
- 3 It's in an area *which/where* there are lots of large houses.
- 4 She has a tiny room *which/who* is at the top of the house.
- 5 Her parents are the people *which/who* run the local supermarket.
- 6 It's the place *which/where* my parents like to shop.
- 7 Mum left her credit card there once *which/who* they brought back to our house.
- 8 That's how I met the girl *which/who* is now my best friend. Her name's Tania.

3 Fill in the gaps with the following words in their appropriate forms.

item, glassware, neck, laboratory, approximate, boiling tube, container, mass, weight, experiment, weigh

1. Laboratory _____ refers to a variety of equipment, traditionally made of glass, used for scientific _____ and other work in science, especially in chemistry and biology _____. There are many different kinds of laboratory glassware _____.
2. A _____ is essentially a scaled-up test tube, being about 50% larger in every aspect.
3. A bottle is a small _____ with a _____ that is narrower than the body and a "mouth."
4. Rounded numbers are only _____.
5. _____ is a measurement of how much matter is in an object; _____ is a measurement of how hard gravity is pulling on that object. Your _____ is the same wherever you are - on Earth, on the Moon, floating in space. But your _____ depends on how much gravity is acting on you at the moment. You would _____ less on the moon than on Earth,

Типовые вопросы к зачету

5 СЕМЕСТР

В соответствии с рабочей программой дисциплины промежуточная аттестация проводится в форме ЗАЧЕТА. Билет состоит из 2 вопросов:

1. чтение и перевод текста по специальности
2. реферирование научной статьи

1. Пример текста для оценки чтения и перевода

TECHNOSPHERE SAFETY

Introduction. Any human activity, including labor, contains various potential hazards that are the cause of occupational injuries and occupational diseases. The consequences may be accidents, emergencies, fires, etc.

Practical experience shows that absolutely zero values of risk to human life and health are unattainable in any kind of the activity. However, there are different levels of risk depending on the type of potential hazards. Thus, the main task of occupational injuries prevention is to determine the magnitude of the potential hazard of any type of work activity. We are talking about hazard as a potential threat of negative impact on human life, health and/or the environment. Currently, we distinguish potential (hidden) and real hazards, and certain conditions or reasons are necessary for the implementation of the former into the latter [1].

The number of man-made hazards, as well as the degree of their negative impact in the modern world is constantly growing. The Republic of Kazakhstan is

no exception, where more than 200 people die and more than 2,000 people are injured with various degrees of severity every year as a result of industrial injuries. About 15,000- 16,000 emergencies and accidents are registered annually, and the overwhelming number of them (more than 90 %) is man-made accidents. Out of 1.6 million employees of industrial enterprises of the country surveyed in 2019, 370 thousand employees or one in four (22 %) were employed in harmful and hazardous working conditions. One in two (45.9 %) worked in conditions of increased noise and vibration levels, one in three (32.6 %) worked under the influence of increased gas pollution and dustiness of the working area, 94 thousand people (5.6% of the number of employees of the surveyed enterprises) were engaged in physically demanding jobs [2–4].

2. Пример текста для реферирования TECHNOSPHERE SAFETY

Introduction. Any human activity, including labor, contains various potential hazards that are the cause of occupational injuries and occupational diseases. The consequences may be accidents, emergencies, fires, etc.

Practical experience shows that absolutely zero values of risk to human life and health are unattainable in any kind of the activity. However, there are different levels of risk depending on the type of potential hazards. Thus, the main task of occupational injuries prevention is to determine the magnitude of the potential hazard of any type of work activity. We are talking about hazard as a potential threat of negative impact on human life, health and/or the environment. Currently, we distinguish potential (hidden) and real hazards, and certain conditions or reasons are necessary for the implementation of the former into the latter [1].

The number of man-made hazards, as well as the degree of their negative impact in the modern world is constantly growing. The Republic of Kazakhstan is no exception, where more than 200 people die and more than 2,000 people are injured with various degrees of severity every year as a result of industrial injuries. About 15,000- 16,000 emergencies and accidents are registered annually, and the overwhelming number of them (more than 90 %) is man-made accidents. Out of 1.6 million employees of industrial enterprises of the country surveyed in 2019, 370 thousand employees or one in four (22 %) were employed in harmful and hazardous working conditions. One in two (45.9 %) worked in conditions of increased noise and vibration levels, one in three (32.6 %) worked under the influence of increased gas pollution and dustiness of the working area, 94 thousand

people (5.6% of the number of employees of the surveyed enterprises) were engaged in physically demanding jobs [2–4].

Problem Statement. One of the problems in the field of injuries, accidents and emergencies prevention is a timely, objective and complete assessment of the existing or emerging potential hazards. At the moment, there are a large number of methods of such assessment (numerical, point, etc.). The most common assessment of hazards is risk, i.e. the probability of an undesirable event occurring in the system, which can be identified with a certain and sufficient degree of accuracy from statistical data [5]. According to another definition, risk is an objective or subjective measurement of the probability and possibility of consequences of a dangerous event concerning human or the environment well-being [6]. Most scientists and researchers in the field of life safety use the following general definition: risk is a quantitative assessment of hazards [7, 8]. English scientist V. Marshall in his book "The main dangers of chemical production" gave the following definition to this concept: risk is the frequency of the implementation of hazards, in other words, risk in numerical terms is the ratio of any number of negative situations (n) to their possible number (N) for a certain period of time [8].

For the first time, the concept of "risk" became widely used after the First World Congress on Life Safety, held in September 1990 in Cologne under the motto "Life in Safety".

In the world practice, the maximum permissible (acceptable) level of individual risk of death of an employee at work is considered to be a level equal to 10^{-6} per year, i.e. if 1 person per 1 million dies, and negligibly small — 10^{-8} per year [5]. From these positions, for a comparative analysis, we will determine the risk of death or injury of workers in the conditions of the economy of the Republic of Kazakhstan. Table 1 presents statistical data on occupational injuries for the period from 2018 to 2020 in the whole country [2]. The number of victims of industrial accidents in 2020, in comparison with 2018, did not change significantly and amounted to 2,033 people (in 2018, the number of victims was 2,160 people). However, in 2020, most enterprises of the republic did not work most of the time due to quarantine measures caused by the COVID-19 pandemic. In 2020, 203 people died as a result of industrial accidents, in 2018 — 215 people. The mortality rate decreased by 5.6%. This is explained not by an increase in the level of safety and labor protection of workers, but by the downtime of enterprises due to the quarantine.

The data presented in Table 1 indicate that the risk of death of workers at work in the republic as a whole is more than 2 times higher than the generally

accepted world level of acceptable risk. Moreover, the calculation was carried out for the economy as a whole, both in more and less traumatic industries. If such a calculation is made for the most traumatic industries of the country, it will be: for the construction industry — 9.43×10^{-5} , for the mining industry — 11.1×10^{-5} , for the engineering industry — 5.48×10^{-5} . All this indicates an unacceptably low level of occupational safety and health (hereinafter referred to as OSH) of industrial enterprises workers of the Republic of Kazakhstan.

Although the above risk assessment according to the method of V. Marshall is elementary and simplified, it is quite effective and widely used.

The objective of the conducted research was a critical analysis of the existing state regulatory documents in the Republic of Kazakhstan, methods or approaches proposed by various authors to assess occupational risks, as well as the development of priority areas for their improvement.

Theoretical Part. Paragraph 2 of Article 182 of the Labor Code of the Republic of Kazakhstan obliges the employer to constantly monitor the level of occupational risks in order to prevent it, as well as to replace the used hazardous technologies and production equipment with safer ones [9]. In this regard, the relevant OSH services of enterprises should have fairly simple and effective methods for assessing the occupational risks of employees. The review of regulatory documents and scientific literature on the subject of the study allowed us to identify the main approaches and methods of assessing hazards and risks in the field of industrial safety (hereinafter referred to as IS) used in the republic

6 СЕМЕСТР

В соответствии с рабочей программой дисциплины промежуточная аттестация проводится в форме ЗАЧЕТА. Билет состоит из 2 вопросов:

1. чтение и перевод текста по специальности
2. реферирование научной статьи

1. Пример текста для оценки чтения и перевода

TECHNOSPHERE SAFETY

Introduction. Any human activity, including labor, contains various potential hazards that are the cause of occupational injuries and occupational diseases. The consequences may be accidents, emergencies, fires, etc.

Practical experience shows that absolutely zero values of risk to human life and health are unattainable in any kind of the activity. However, there are different levels of risk depending on the type of potential hazards. Thus, the main task of occupational injuries prevention is to determine the magnitude of the potential hazard of any type of work activity. We are talking about hazard as a potential threat of negative impact on human life, health and/or the environment. Currently, we distinguish potential (hidden) and real hazards, and certain conditions or reasons are necessary for the implementation of the former into the latter [1].

The number of man-made hazards, as well as the degree of their negative impact in the modern world is constantly growing. The Republic of Kazakhstan is no exception, where more than 200 people die and more than 2,000 people are injured with various degrees of severity every year as a result of industrial injuries. About 15,000- 16,000 emergencies and accidents are registered annually, and the overwhelming number of them (more than 90 %) is man-made accidents. Out of 1.6 million employees of industrial enterprises of the country surveyed in 2019, 370 thousand employees or one in four (22 %) were employed in harmful and hazardous working conditions. One in two (45.9 %) worked in conditions of increased noise and vibration levels, one in three (32.6 %) worked under the influence of increased gas pollution and dustiness of the working area, 94 thousand people (5.6% of the number of employees of the surveyed enterprises) were engaged in physically demanding jobs [2–4].

2. Пример текста для реферирования TECHNOSPHERE SAFETY

Introduction. Any human activity, including labor, contains various potential hazards that are the cause of occupational injuries and occupational diseases. The consequences may be accidents, emergencies, fires, etc.

Practical experience shows that absolutely zero values of risk to human life and health are unattainable in any kind of the activity. However, there are different levels of risk depending on the type of potential hazards. Thus, the main task of occupational injuries prevention is to determine the magnitude of the potential hazard of any type of work activity. We are talking about hazard as a potential threat of negative impact on human life, health and/or the environment. Currently, we distinguish potential (hidden) and real hazards, and certain conditions or reasons are necessary for the implementation of the former into the latter [1].

The number of man-made hazards, as well as the degree of their negative impact in the modern world is constantly growing. The Republic of Kazakhstan is no exception, where more than 200 people die and more than 2,000 people are injured with various degrees of severity every year as a result of industrial injuries. About 15,000- 16,000 emergencies and accidents are registered annually, and the overwhelming number of them (more than 90 %) is man-made accidents. Out of 1.6 million employees of industrial enterprises of the country surveyed in 2019, 370 thousand employees or one in four (22 %) were employed in harmful and hazardous working conditions. One in two (45.9 %) worked in conditions of increased noise and vibration levels, one in three (32.6 %) worked under the influence of increased gas pollution and dustiness of the working area, 94 thousand people (5.6% of the number of employees of the surveyed enterprises) were engaged in physically demanding jobs [2–4].

Problem Statement. One of the problems in the field of injuries, accidents and emergencies prevention is a timely, objective and complete assessment of the existing or emerging potential hazards. At the moment, there are a large number of methods of such assessment (numerical, point, etc.). The most common assessment of hazards is risk, i.e. the probability of an undesirable event occurring in the system, which can be identified with a certain and sufficient degree of accuracy from statistical data [5]. According to another definition, risk is an objective or subjective measurement of the probability and possibility of consequences of a dangerous event concerning human or the environment well-being [6]. Most scientists and researchers in the field of life safety use the following general definition: risk is a quantitative assessment of hazards [7, 8]. English scientist V. Marshall in his book "The main dangers of chemical production" gave the following definition to this concept: risk is the frequency of the implementation of hazards, in other words, risk in numerical terms is the ratio of any number of negative situations (n) to their possible number (N) for a certain period of time [8].

For the first time, the concept of "risk" became widely used after the First World Congress on Life Safety, held in September 1990 in Cologne under the motto "Life in Safety".

In the world practice, the maximum permissible (acceptable) level of individual risk of death of an employee at work is considered to be a level equal to 10^{-6} per year, i.e. if 1 person per 1 million dies, and negligibly small — 10^{-8} per year [5]. From these positions, for a comparative analysis, we will determine the risk of death or injury of workers in the conditions of the economy of the Republic of Kazakhstan. Table 1 presents statistical data on occupational injuries for the

period from 2018 to 2020 in the whole country [2]. The number of victims of industrial accidents in 2020, in comparison with 2018, did not change significantly and amounted to 2,033 people (in 2018, the number of victims was 2,160 people). However, in 2020, most enterprises of the republic did not work most of the time due to quarantine measures caused by the COVID-19 pandemic. In 2020, 203 people died as a result of industrial accidents, in 2018 — 215 people. The mortality rate decreased by 5.6%. This is explained not by an increase in the level of safety and labor protection of workers, but by the downtime of enterprises due to the quarantine.

The data presented in Table 1 indicate that the risk of death of workers at work in the republic as a whole is more than 2 times higher than the generally accepted world level of acceptable risk. Moreover, the calculation was carried out for the economy as a whole, both in more and less traumatic industries. If such a calculation is made for the most traumatic industries of the country, it will be: for the construction industry — 9.43×10^{-5} , for the mining industry — 11.1×10^{-5} , for the engineering industry — 5.48×10^{-5} . All this indicates an unacceptably low level of occupational safety and health (hereinafter referred to as OSH) of industrial enterprises workers of the Republic of Kazakhstan.

Although the above risk assessment according to the method of V. Marshall is elementary and simplified, it is quite effective and widely used.

The objective of the conducted research was a critical analysis of the existing state regulatory documents in the Republic of Kazakhstan, methods or approaches proposed by various authors to assess occupational risks, as well as the development of priority areas for their improvement.

Theoretical Part. Paragraph 2 of Article 182 of the Labor Code of the Republic of Kazakhstan obliges the employer to constantly monitor the level of occupational risks in order to prevent it, as well as to replace the used hazardous technologies and production equipment with safer ones [9]. In this regard, the relevant OSH services of enterprises should have fairly simple and effective methods for assessing the occupational risks of employees. The review of regulatory documents and scientific literature on the subject of the study allowed us to identify the main approaches and methods of assessing hazards and risks in the field of industrial safety (hereinafter referred to as IS) used in the republic

В соответствии с рабочей программой дисциплины промежуточная аттестация проводится в форме ЗАЧЕТА. Билет состоит из 2 вопросов:

1. чтение и перевод текста по специальности
2. реферирование научной статьи

1. Пример текста для оценки чтения и перевода

TECHNOSPHERE SAFETY

Introduction. Any human activity, including labor, contains various potential hazards that are the cause of occupational injuries and occupational diseases. The consequences may be accidents, emergencies, fires, etc.

Practical experience shows that absolutely zero values of risk to human life and health are unattainable in any kind of the activity. However, there are different levels of risk depending on the type of potential hazards. Thus, the main task of occupational injuries prevention is to determine the magnitude of the potential hazard of any type of work activity. We are talking about hazard as a potential threat of negative impact on human life, health and/or the environment. Currently, we distinguish potential (hidden) and real hazards, and certain conditions or reasons are necessary for the implementation of the former into the latter [1].

The number of man-made hazards, as well as the degree of their negative impact in the modern world is constantly growing. The Republic of Kazakhstan is no exception, where more than 200 people die and more than 2,000 people are injured with various degrees of severity every year as a result of industrial injuries. About 15,000- 16,000 emergencies and accidents are registered annually, and the overwhelming number of them (more than 90 %) is man-made accidents. Out of 1.6 million employees of industrial enterprises of the country surveyed in 2019, 370 thousand employees or one in four (22 %) were employed in harmful and hazardous working conditions. One in two (45.9 %) worked in conditions of increased noise and vibration levels, one in three (32.6 %) worked under the influence of increased gas pollution and dustiness of the working area, 94 thousand people (5.6% of the number of employees of the surveyed enterprises) were engaged in physically demanding jobs [2–4].

2. Пример текста для реферирования TECHNOSPHERE SAFETY

Introduction. Any human activity, including labor, contains various potential hazards that are the cause of occupational injuries and occupational diseases. The consequences may be accidents, emergencies, fires, etc.

Practical experience shows that absolutely zero values of risk to human life and health are unattainable in any kind of the activity. However, there are different levels of risk depending on the type of potential hazards. Thus, the main task of occupational injuries prevention is to determine the magnitude of the potential hazard of any type of work activity. We are talking about hazard as a potential threat of negative impact on human life, health and/or the environment. Currently, we distinguish potential (hidden) and real hazards, and certain conditions or reasons are necessary for the implementation of the former into the latter [1].

The number of man-made hazards, as well as the degree of their negative impact in the modern world is constantly growing. The Republic of Kazakhstan is no exception, where more than 200 people die and more than 2,000 people are injured with various degrees of severity every year as a result of industrial injuries. About 15,000- 16,000 emergencies and accidents are registered annually, and the overwhelming number of them (more than 90 %) is man-made accidents. Out of 1.6 million employees of industrial enterprises of the country surveyed in 2019, 370 thousand employees or one in four (22 %) were employed in harmful and hazardous working conditions. One in two (45.9 %) worked in conditions of increased noise and vibration levels, one in three (32.6 %) worked under the influence of increased gas pollution and dustiness of the working area, 94 thousand people (5.6% of the number of employees of the surveyed enterprises) were engaged in physically demanding jobs [2–4].

Problem Statement. One of the problems in the field of injuries, accidents and emergencies prevention is a timely, objective and complete assessment of the existing or emerging potential hazards. At the moment, there are a large number of methods of such assessment (numerical, point, etc.). The most common assessment of hazards is risk, i.e. the probability of an undesirable event occurring in the system, which can be identified with a certain and sufficient degree of accuracy from statistical data [5]. According to another definition, risk is an objective or subjective measurement of the probability and possibility of consequences of a dangerous event concerning human or the environment well-being [6]. Most scientists and researchers in the field of life safety use the following general definition: risk is a quantitative assessment of hazards [7, 8]. English scientist V. Marshall in his book "The main dangers of chemical production" gave the following definition to this concept: risk is the frequency of the implementation of

hazards, in other words, risk in numerical terms is the ratio of any number of negative situations (n) to their possible number (N) for a certain period of time [8].

For the first time, the concept of "risk" became widely used after the First World Congress on Life Safety, held in September 1990 in Cologne under the motto "Life in Safety".

In the world practice, the maximum permissible (acceptable) level of individual risk of death of an employee at work is considered to be a level equal to 10^{-6} per year, i.e. if 1 person per 1 million dies, and negligibly small — 10^{-8} per year [5]. From these positions, for a comparative analysis, we will determine the risk of death or injury of workers in the conditions of the economy of the Republic of Kazakhstan. Table 1 presents statistical data on occupational injuries for the period from 2018 to 2020 in the whole country [2]. The number of victims of industrial accidents in 2020, in comparison with 2018, did not change significantly and amounted to 2,033 people (in 2018, the number of victims was 2,160 people). However, in 2020, most enterprises of the republic did not work most of the time due to quarantine measures caused by the COVID-19 pandemic. In 2020, 203 people died as a result of industrial accidents, in 2018 — 215 people. The mortality rate decreased by 5.6%. This is explained not by an increase in the level of safety and labor protection of workers, but by the downtime of enterprises due to the quarantine.

The data presented in Table 1 indicate that the risk of death of workers at work in the republic as a whole is more than 2 times higher than the generally accepted world level of acceptable risk. Moreover, the calculation was carried out for the economy as a whole, both in more and less traumatic industries. If such a calculation is made for the most traumatic industries of the country, it will be: for the construction industry — 9.43×10^{-5} , for the mining industry — 11.1×10^{-5} , for the engineering industry — 5.48×10^{-5} . All this indicates an unacceptably low level of occupational safety and health (hereinafter referred to as OSH) of industrial enterprises workers of the Republic of Kazakhstan.

Although the above risk assessment according to the method of V. Marshall is elementary and simplified, it is quite effective and widely used.

The objective of the conducted research was a critical analysis of the existing state regulatory documents in the Republic of Kazakhstan, methods or approaches proposed by various authors to assess occupational risks, as well as the development of priority areas for their improvement.

Theoretical Part. Paragraph 2 of Article 182 of the Labor Code of the Republic of Kazakhstan obliges the employer to constantly monitor the level of occupational risks in order to prevent it, as well as to replace the used hazardous technologies and production equipment with safer ones [9]. In this regard, the relevant OSH services of enterprises should have fairly simple and effective methods for assessing the occupational risks of employees. The review of regulatory documents and scientific literature on the subject of the study allowed us to identify the main approaches and methods of assessing hazards and risks in the field of industrial safety (hereinafter referred to as IS) used in the republic

Типовые вопросы к зачету с оценкой

8 СЕМЕСТР

В соответствии с рабочей программой дисциплины промежуточная аттестация проводится в форме ЗАЧЕТА С ОЦЕНКОЙ. Билет состоит из 2 вопросов:

1. чтение и перевод текста по специальности
2. реферирование научной статьи

1. Пример текста для оценки чтения и перевода

TECHNOSPHERE SAFETY

Introduction. Any human activity, including labor, contains various potential hazards that are the cause of occupational injuries and occupational diseases. The consequences may be accidents, emergencies, fires, etc.

Practical experience shows that absolutely zero values of risk to human life and health are unattainable in any kind of the activity. However, there are different levels of risk depending on the type of potential hazards. Thus, the main task of occupational injuries prevention is to determine the magnitude of the potential hazard of any type of work activity. We are talking about hazard as a potential threat of negative impact on human life, health and/or the environment. Currently, we distinguish potential (hidden) and real hazards, and certain conditions or reasons are necessary for the implementation of the former into the latter [1].

The number of man-made hazards, as well as the degree of their negative

impact in the modern world is constantly growing. The Republic of Kazakhstan is no exception, where more than 200 people die and more than 2,000 people are injured with various degrees of severity every year as a result of industrial injuries. About 15,000- 16,000 emergencies and accidents are registered annually, and the overwhelming number of them (more than 90 %) is man-made accidents. Out of 1.6 million employees of industrial enterprises of the country surveyed in 2019, 370 thousand employees or one in four (22 %) were employed in harmful and hazardous working conditions. One in two (45.9 %) worked in conditions of increased noise and vibration levels, one in three (32.6 %) worked under the influence of increased gas pollution and dustiness of the working area, 94 thousand people (5.6% of the number of employees of the surveyed enterprises) were engaged in physically demanding jobs [2–4].

2. Пример текста для реферирования TECHNOSPHERE SAFETY

Introduction. Any human activity, including labor, contains various potential hazards that are the cause of occupational injuries and occupational diseases. The consequences may be accidents, emergencies, fires, etc.

Practical experience shows that absolutely zero values of risk to human life and health are unattainable in any kind of the activity. However, there are different levels of risk depending on the type of potential hazards. Thus, the main task of occupational injuries prevention is to determine the magnitude of the potential hazard of any type of work activity. We are talking about hazard as a potential threat of negative impact on human life, health and/or the environment. Currently, we distinguish potential (hidden) and real hazards, and certain conditions or reasons are necessary for the implementation of the former into the latter [1].

The number of man-made hazards, as well as the degree of their negative impact in the modern world is constantly growing. The Republic of Kazakhstan is no exception, where more than 200 people die and more than 2,000 people are injured with various degrees of severity every year as a result of industrial injuries. About 15,000- 16,000 emergencies and accidents are registered annually, and the overwhelming number of them (more than 90 %) is man-made accidents. Out of 1.6 million employees of industrial enterprises of the country surveyed in 2019, 370 thousand employees or one in four (22 %) were employed in harmful and hazardous working conditions. One in two (45.9 %) worked in conditions of increased noise and vibration levels, one in three (32.6 %) worked under the influence of increased gas pollution and dustiness of the working area, 94 thousand

people (5.6% of the number of employees of the surveyed enterprises) were engaged in physically demanding jobs [2–4].

Problem Statement. One of the problems in the field of injuries, accidents and emergencies prevention is a timely, objective and complete assessment of the existing or emerging potential hazards. At the moment, there are a large number of methods of such assessment (numerical, point, etc.). The most common assessment of hazards is risk, i.e. the probability of an undesirable event occurring in the system, which can be identified with a certain and sufficient degree of accuracy from statistical data [5]. According to another definition, risk is an objective or subjective measurement of the probability and possibility of consequences of a dangerous event concerning human or the environment well-being [6]. Most scientists and researchers in the field of life safety use the following general definition: risk is a quantitative assessment of hazards [7, 8]. English scientist V. Marshall in his book "The main dangers of chemical production" gave the following definition to this concept: risk is the frequency of the implementation of hazards, in other words, risk in numerical terms is the ratio of any number of negative situations (n) to their possible number (N) for a certain period of time [8].

For the first time, the concept of "risk" became widely used after the First World Congress on Life Safety, held in September 1990 in Cologne under the motto "Life in Safety".

In the world practice, the maximum permissible (acceptable) level of individual risk of death of an employee at work is considered to be a level equal to 10^{-6} per year, i.e. if 1 person per 1 million dies, and negligibly small — 10^{-8} per year [5]. From these positions, for a comparative analysis, we will determine the risk of death or injury of workers in the conditions of the economy of the Republic of Kazakhstan. Table 1 presents statistical data on occupational injuries for the period from 2018 to 2020 in the whole country [2]. The number of victims of industrial accidents in 2020, in comparison with 2018, did not change significantly and amounted to 2,033 people (in 2018, the number of victims was 2,160 people). However, in 2020, most enterprises of the republic did not work most of the time due to quarantine measures caused by the COVID-19 pandemic. In 2020, 203 people died as a result of industrial accidents, in 2018 — 215 people. The mortality rate decreased by 5.6%. This is explained not by an increase in the level of safety and labor protection of workers, but by the downtime of enterprises due to the quarantine.

The data presented in Table 1 indicate that the risk of death of workers at work in the republic as a whole is more than 2 times higher than the generally

accepted world level of acceptable risk. Moreover, the calculation was carried out for the economy as a whole, both in more and less traumatic industries. If such a calculation is made for the most traumatic industries of the country, it will be: for the construction industry — 9.43×10^{-5} , for the mining industry — 11.1×10^{-5} , for the engineering industry — 5.48×10^{-5} . All this indicates an unacceptably low level of occupational safety and health (hereinafter referred to as OSH) of industrial enterprises workers of the Republic of Kazakhstan.

Although the above risk assessment according to the method of V. Marshall is elementary and simplified, it is quite effective and widely used.

The objective of the conducted research was a critical analysis of the existing state regulatory documents in the Republic of Kazakhstan, methods or approaches proposed by various authors to assess occupational risks, as well as the development of priority areas for their improvement.

Theoretical Part. Paragraph 2 of Article 182 of the Labor Code of the Republic of Kazakhstan obliges the employer to constantly monitor the level of occupational risks in order to prevent it, as well as to replace the used hazardous technologies and production equipment with safer ones [9]. In this regard, the relevant OSH services of enterprises should have fairly simple and effective methods for assessing the occupational risks of employees. The review of regulatory documents and scientific literature on the subject of the study allowed us to identify the main approaches and methods of assessing hazards and risks in the field of industrial safety (hereinafter referred to as IS) used in the republic