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МИНОБРНАУКИ РОССИИ

УТВЕРЖДАЮ:

Заведующий кафедрой

иностранных языков

*(наименование кафедры полностью)*



Е.Г. Баянкина

*(подпись)*

« 01. » 07. 2021 г.

ОЦЕНОЧНЫЕ СРЕДСТВА  
для текущего контроля успеваемости  
и промежуточной успеваемости обучающихся  
по дисциплине

Профессиональный иностранный язык

*(наименование дисциплины)*

13.04.01 Энергетика теплотехнологий

*(код и наименование ОПОП ВО)*

Курск – 2021

# 1 ОЦЕНОЧНЫЕ СРЕДСТВА ДЛЯ ТЕКУЩЕГО КОНТРОЛЯ УСПЕВАЕМОСТИ

## 1.1 ВОПРОСЫ ДЛЯ ДИСКУССИЙ

*Модуль 4: Грамматические и лексические особенности перевода научной литературы*

1. Предпереводческий анализ текста.
2. Выбор переводческой стратегии для достижения эквивалентности при переводе.
3. Наиболее распространенные виды лексических и грамматических трансформаций при переводе.
4. Способы образования неологизмов и особенности их передачи при переводе.

**Шкала оценивания:** 3-балльная.

**Критерии оценивания:**

**3 балла** выставляется обучающемуся, если он принимает активное участие в беседе по большинству обсуждаемых вопросов (в том числе самых сложных); демонстрирует сформированную способность к диалогическому мышлению, проявляет уважение и интерес к иным мнениям; владеет глубокими (в том числе дополнительными) знаниями по существу обсуждаемых вопросов, ораторскими способностями и правилами ведения полемики; строит логичные, аргументированные, точные и лаконичные высказывания, сопровождаемые яркими примерами; легко и заинтересованно откликается на неожиданные ракурсы беседы; не нуждается в уточняющих и (или) дополнительных вопросах преподавателя.

**2 баллов** выставляется обучающемуся, если он принимает участие в обсуждении не менее 50% дискуссионных вопросов; проявляет уважение и интерес к иным мнениям, доказательно и корректно защищает свое мнение; владеет хорошими знаниями вопросов, в обсуждении которых принимает участие; умеет не столько вести полемику, сколько участвовать в ней; строит логичные, аргументированные высказывания, сопровождаемые подходящими примерами; не всегда откликается на неожиданные ракурсы беседы; не нуждается в уточняющих и (или) дополнительных вопросах преподавателя.

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**0 баллов** выставляется обучающемуся, если он не владеет содержанием обсуждаемых вопросов или допускает грубые ошибки; пассивен в обмене мнениями или вообще не участвует в дискуссии; затрудняется в построении монологического высказывания и (или) допускает ошибочные высказывания; постоянно нуждается в уточняющих и (или) дополнительных вопросах преподавателя.

## 1.2 РОЛЕВАЯ ИГРА

*Модуль 1: Академическое общение*  
“Study Plans”

Roles:

- a student;
- an English teacher.

Role play concept:

You are thinking of going on a study trip to Britain. Use the ideas below to have a conversation with your English teacher.

Would you recommend ..... ?  
Do you think it's worth .....?

Is it a good idea to .....?  
Do you think I should .....?

What do you think of .....

You are an English teacher. Your student is thinking of going on a study trip to Britain. Use the ideas below to have a conversation with him/her.

Do you want to ask me something?

That sound like a good idea.

It depends if you want .....

Outcome:

The players are to outline the key issues associated with choosing an appropriate University and course to take.

*Модуль 3: Обмен профессиональной информацией и профессиональное общение*  
“Designing a Residential Project”

Roles:

– architect;

– client.

Role play concept:

– As the architect, you are to provide a list of questions that for your client to answer so that you can plan your client’s house tailor-made to his/her tastes and preferences.

– As the client, you are to explain:

- what your current house looks like,
- what inconveniences you are currently facing in this house,
- what you particularly like or dislike about your current house,
- whether you feel like something is missing in your house.

Outcome:

The players are to decide on the best design of the house to be built, including the type of the building, the number of stores, specific accessibility requirements, indoor space, energy efficiency, etc.

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вания, сопровождаемые наиболее очевидными примерами; теряется при возникновении неожиданных ракурсов беседы и в этом случае нуждается в уточняющих и (или) дополнительных вопросах преподавателя.

**0 баллов** (или оценка «неудовлетворительно») выставляется обучающемуся, если он не владеет содержанием обсуждаемых вопросов или допускает грубые ошибки; пассивен в обмене мнениями или вообще не участвует в дискуссии; затрудняется в построении монологического высказывания и (или) допускает ошибочные высказывания; постоянно нуждается в уточняющих и (или) дополнительных вопросах преподавателя.

### **1.3 ПРЕЗЕНТАЦИЯ**

*Модуль 3: Обмен профессиональной информацией и профессиональное общение*

Темы презентаций:

1. Bio-Architecture (eco-material, eco- and sustainable design, eco-living).
2. Modern Building Material (steel, glass and metals, plastic, sustainable materials).

**Шкала оценивания:** 3-балльная.

**Критерии оценивания:**

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### **1.4 КОНТРОЛЬНЫЕ РАБОТЫ**

*Модуль 1: Академическое общение*

*Контрольная работа № 1*

*For each of the sentences here, choose the best word from a, b or c:*

1. In this first assignment, we will \_\_\_\_\_ your work and then give you detailed feedback on how to improve your writing.

a) assess	b) judge	c) measure
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2. In a seminar or tutorial, everyone should take part rather than allow one person to \_\_\_\_\_ the discussion.

a) overwhelm	b) dominate	c) oppress
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3. Although it is impossible to give a \_\_\_\_\_ age, we believe that the woman was between 25 and 30 when she died.

a) definite	b) certain	c) absolute
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4. Rather than try to treat it, the best \_\_\_\_\_ to the problem of poor public health may be to attempt to prevent it.

a) way	b) method	c) approach
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5. Surprisingly perhaps, the biggest \_\_\_\_\_ health risk for tourists travelling abroad is actually road traffic accidents.

a) potential	b) possible	c) theoretical
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6. Water is made up of two \_\_\_\_\_, namely oxygen and hydrogen.

a) sections	b) aspects	c) elements
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7. Computers can be difficult to repair because there may be hundreds of different \_\_\_\_\_ inside.

a) components	b) pieces	c) parts
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8. Because Paris is expensive, many organisations pay higher salaries to \_\_\_\_\_ for the high cost of living there.

a) compensate	b) adjust	c) redress
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9. Many people were killed instantly at Hiroshima and Nagasaki, but thousands more died from \_\_\_\_\_ radiation sickness.

a) succeeding	b) following	c) subsequent
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10. The clothing of men and women used to be quite \_\_\_\_\_, whereas today women often wear trousers as well as men.

a) distinct	b) diverse	c) distinguished
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*Модуль 2: Академическое письмо*

*Контрольная работа № 2*

*In each of the sentences below, decide which word in bold is more suitable.*

- During the 1970's and 1980's, it became increasingly **evident** / **visible** that companies in the West were uncompetitive.
- The United Kingdom **makes** / **publishes** more books than any other country.
- There has been a major road accident, **involving** / **including** 23 cars and 16 lorries.
- On the basis of the latest survey, we know that most people have a very **negative** / **bleak** view of politicians and their parties.
- In many parts of the world, people are becoming more worried about the danger of pollution and its effect on the **environment** / **ecology**.
- Education experts from France travelled to Japan to **evaluate** / **judge** the secondary school system there.
- Although it is not very big, the library has an excellent **range** / **variety** of books, journals and other resources for study.

8. Increasingly, the design of buildings is being **adjusted** / **modified** to allow easier access for disabled people.
9. The lack of extra student accommodation **restricted** / **narrowed** the expansion in student numbers which the university was planning.
10. Many students **acquire** / **derive** a great deal of enjoyment and satisfaction from their time at university.

*Модуль 4: Грамматические и лексические особенности перевода научной литературы*

*Контрольная работа № 3*

*Choose the Russian equivalents for the terms in bold. Only one variant is correct.*

1. If a company does not **observe** health and safety laws, it may be fined very heavily if any of its workers are injured.

a) следить	b) праздновать	c) соблюдать
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2. University regulations **state** that students must pass 18 modules to graduate.

a) помещать	b) констатировать	c) заявлять
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3. On the basis of their examination results, it was **clear** that most students had completely misunderstood the first part of the paper.

a) отчетливый	b) ясный	c) зеркальный
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4. Most electrical products have a one- or two-year **warranty** in case something should go wrong.

a) гарантия	b) оправдание	c) условие
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5. One problem facing overseas students is adapting to new teaching **techniques**.

a) методы	b) техника	c) оборудование
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6. The fact that crime increases when unemployment goes up seems to **suggest** a link between the two.

a) предлагать	b) внушать	c) означать
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7. It may cost an overseas student around .15,000 per year to live and study in Britain, which is a very large **amount** of money.

a) итог	b) сумма	c) количество
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8. The lecturer gave the students a 10 minute **break** before continuing with the rest of her lecture.

a) раскол	b) прорыв	c) перерыв
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9. At the end of her talk, the lecturer finished with a brief review of the main **points**.

a) точки	b) пункты	c) грани
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10. Many people think that **oil** will run out in the next 100 years, but they are assuming that we will continue to use oil at the same rate as today.

a) масло	b) нефть	c) масляная краска
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*Модуль 5: Обработка и компрессия научной информации*

*Контрольная работа № 4*

*Match the abstracts to the article titles.*

1. **Abstract.** Bamboo is a rapidly renewable material that has many applications in construction. Engineered bamboo products result from processing the raw bamboo culm into a laminated com-

posite, similar to glue-laminated timber products. These products allow the material to be used in standardised sections and have less inherent variability than the natural material. The present work investigates the mechanical properties of two types of commercially available products – bamboo scrimber and laminated bamboo sheets – and compares these to timber and engineered timber products. It is shown that engineered bamboo products have properties that are comparable to or surpass that of timber and timber-based products. Potential limitations to use in structural design are also discussed. The study contributes to a growing body of research on engineered bamboo and presents areas in which further investigation is needed.

- a) Winter greenhouse combined heating system
  - b) Heat recovery efficiency of local decentralized ventilation devices
  - c) Engineered bamboo for structural applications
2. **Abstract.** Nowadays, only a small percentage of waste tyres are being land-filled. The Recycled Tyre Rubber is being used in new tyres, in tyre-derived fuel, in civil engineering applications and products, in moulded rubber products, in agricultural uses, recreational and sports applications and in rubber modified asphalt applications. The benefits of using rubber modified asphalts are being more widely experienced and recognized, and the incorporation of tyres into asphalt is likely to increase. The technology with much different evidence of success demonstrated by roads built in the last 40 years is the rubberised asphalt mixture obtained through the so-called “wet process” which involves the utilisation of the Recycled Tyre Rubber Modified Bitumens (RTR-MBs).
- a) The effect of the air duct tightness on the stability of the indoor air parameters
  - b) Recycled Tyre Rubber Modified Bitumens for road asphalt mixtures: A literature review
  - c) Innovation in Road Construction Industry: An Analysis of Different Case Studies
3. **Abstract.** In recent decades, fibre-reinforced polymers (FRPs) have received extensive attention from the civil engineering field due to their light weight, high strength, corrosion resistance, fatigue resistance, and designability. The forms of FRP products used in civil engineering structures include FRP sheets/plates, FRP bars/cables, FRP profiles, FRP grids, and FRP tubes. Among them, FRP tubes can not only be used as formwork for concrete pouring but can also provide lateral confinement similar to steel tubes; moreover, they have the advantages of corrosion resistance and nonmagnetic properties. Therefore, it is particularly suitable for newly built structures under harsh service environments. In recent years, extensive research on traditional concrete-filled FRP tubes (CFFTs) has already been widely carried out in terms of experimental tests and theoretical analysis, and scholars have turned their attention to innovations in the types of internally filled concrete.
- a) A review of the research and application progress of new types of concrete-filled FRP tubular members
  - b) Heat recovery efficiency of local decentralized ventilation devices
  - c) The effect of the air duct tightness on the stability of the indoor air parameters
4. **Abstract.** The present study aimed to determine the impact of a gradual and lineal increase of the air duct leakage factor on various indoor air stability parameters in ventilation systems across the following scenarios: 1) air leakage effect on the air pressure and volume; 2) air leakage effect on the indoor air parameters when the ductwork passes through an uninsulated and unheated premise. A galvanized steel air duct was used for the air leakage measurement sessions, and orifices were cut in the duct before each subsequent measurement session, thus, consecutively decreasing the air tightness factor of the duct over the measurement sessions. The results indicated that the ductwork air tightness affects the stability of the air parameters such as air temperature,

relative humidity and CO<sub>2</sub> concentration, however, up until certain point, the impact was either non-detectable or negligible.

- a) The effect of the air duct tightness on the stability of the indoor air parameters
  - b) Innovation in Road Construction Industry: An Analysis of Different Case Studies
  - c) Evaluation of domestic architecture via the context of sustainability
5. **Abstract.** Energy preservation and reduction in greenhouse gas emissions into the atmosphere can be partially gained through decentralization of heat supply. In the case of cultivation facilities, a solution is a combined heating system which includes soil infrared heating and air heating in the winter greenhouse up to the required values by means of autonomous convective heaters. Upon analysing domestic and foreign scientific publications, there has not been found any comprehensive calculation method of the combined heating system. The target of research is normally one of the space heating ways: either radiant or convective. The calculation method considered in the article is based on the solution of the coupled equations set of the greenhouse heat and material balances, its walling and soil surface. It takes into consideration both the features of radiant heat transfer between distant bodies, and convective air heating from heaters.
- a) A review of the research and application progress of new types of concrete-filled FRP tubular members
  - b) Evaluation of domestic architecture via the context of sustainability
  - c) Winter greenhouse combined heating system
6. **Abstract.** Decentralized, room-based ventilation systems have become increasingly popular in the Baltic countries. Such systems are easy to install and, according to technical information, ensure high heat energy recovery potential for new and renovated buildings. The specified heat recovery efficiency is used for building energy simulations and to calculate the necessary heating energy that is needed to warm up the supply air. However, this value is stated at non-existent pressure difference between indoor of the building and the outside. In real-case situations, there is always some pressure difference due to wind and stack effect. In this study, a ventilation device is tested in a laboratory environment at different simulated outside air temperatures and pressure differences. The simulations are conducted in a climatic chamber where the air temperature and pressure differences can be set.
- a) Planning of road construction projects with a view to stimulating economic growth and development
  - b) Heat recovery efficiency of local decentralized ventilation devices
  - c) A review of the research and application progress of new types of concrete-filled FRP tubular members
7. **Abstract.** Process improvement and innovation in the field of road construction sector offers significant community and industry benefits, by making an important contribution in economic growth and enhancing the quality of life. However, achieving better innovative practices in order to improve existing construction processes and to heighten competitiveness have gradually become a challenge for the road industry. The use of innovation in this context refers to the use of suitable materials in the construction of road, material such as eco-friendly roads, solar roads and recycled materials. This paper examines 12 different case studies on the uses of new material in road construction and where case studies are from different countries in different context and explores the usefulness of the practices under numerous road situation and conditions. The case studies have been analyzed in the following context: location of the case study, which helps to identify the suitability of road construction material with the weather condition; driving factors, which indicates, how and what selected case studies contribute in the field of innovation; econ-



omy and environment feasibility; and barriers in the case studies, which indicates hurdles to implement selected case studies. The study findings indicate that in order to maintain competitiveness, construction industry needs to continuously focus on the improvement of their construction processes and innovative materials. Finding indicates that in most case studies both economic and environmental benefits were realized.

- a) Recycled Tyre Rubber Modified Bitumens for road asphalt mixtures: A literature review
  - b) Innovation in Road Construction Industry: An Analysis of Different Case Studies
  - c) Architecture in Everyday Life
8. **Abstract.** This paper provides an outline of how the economic evaluation and selection of road construction projects can be complemented by social evaluation with a view to achieving a more equitable welfare distribution within a developing country. The article commences by elaborating on the general economic benefits that can arise from investment in economically justified road infrastructure. The different classes of non-road-user beneficiaries are identified and discussed. The operational characteristics of road transport that are conducive to the stimulation of economic activity are identified and described. The present inequality of income distribution in South Africa is dealt with briefly, followed by a discussion and analysis on the use of equity weights in project evaluation to help bring about a more equitable welfare distribution.
- a) Planning of road construction projects with a view to stimulating economic growth and development
  - b) Architecture in Everyday Life
  - c) Recycled Tyre Rubber Modified Bitumens for road asphalt mixtures: A literature review
9. **Abstract.** For most architects, architecture is not only art, craft, passion and engagement; it is their ‘bread-and-butter’, too, and has been so since long. Architecture, consciously or unconsciously, is also the ‘bread-and-butter’ of communities across the world: successfully or unsuccessfully it is part of the daily lives of ordinary women and men. Yet practitioners, theoreticians and historians of architecture often disregard the more quotidian side of the discipline, a neglect that is inversely proportional to its importance in the production of the built environment. John Summerson’s writings – particularly his wartime ‘Bread & Butter and Architecture’ essay, a call to arms for effective salaried architects – are the motto and the guiding thread for our exploration of the position of everyday practices in twentieth-century architecture. In this introduction we look at the ‘bread-and-butter’ side of the architecture profession and at how it has modulated throughout time, highlighting the ways in which the exceptional set of articles that make up this issue of Footprint substantially extend the scope and reach of our ‘bread-and-butter’ activities.
- a) Architecture in Everyday Life
  - b) Winter greenhouse combined heating system
  - c) Engineered bamboo for structural applications
10. **Abstract.** Reusing pre-existing buildings for new functions and thereby ensuring the transfer of cultural knowledge and experiences to future generations contributes significantly to cultural sustainability by enhancing the city's cultural life and the value of certain city areas. When reusing buildings the social aspect of the functions that will be assigned to these buildings that no longer serve their original function need to be considered as well, since such aspects form the basis of socio-cultural sustainability. The aim of this study was to evaluate various examples of domestic architecture at the Konya city center that no longer serve their original functions, within the context of socio-cultural sustainability. The common characteristics of these build-

ings, which are currently being reused as cafés or as the offices of the Conservation Board and the Chamber of Architects in Konya, is that they are all examples of authentic domestic architecture that are registered for preservation and are located in the city center. The contribution of these examples of domestic architecture to socio-cultural sustainability was analyzed by administering a questionnaire to university students and then evaluating the questionnaire results with descriptive statistics.

- a) Evaluation of domestic architecture via the context of sustainability
- b) Engineered bamboo for structural applications
- c) Planning of road construction projects with a view to stimulating economic growth and development

**Шкала оценивания:** 3-балльная.

**Критерии оценивания:**

**3 балла** выставляется обучающемуся, если правильно выполнено 100-90% заданий.

**2 балла** выставляется обучающемуся, если правильно выполнено 89-70% заданий.

**1 балл** выставляется обучающемуся, если правильно выполнено 69-50% заданий.

**0 баллов** выставляется обучающемуся, если правильно решено 49% и менее % заданий.

## 2 ОЦЕНОЧНЫЕ СРЕДСТВА ДЛЯ ПРОМЕЖУТОЧНОЙ АТТЕСТАЦИИ ОБУЧАЮЩИХСЯ

### 2.2 БАНК ВОПРОСОВ И ЗАДАНИЙ В ТЕСТОВОЙ ФОРМЕ

1 Вопросы в закрытой форме.

**Choose the Russian equivalents for the underlined terms. Only one variant is correct**

1. In addition, some building codes also limit the size of openings in fire barriers.

- |                          |                             |
|--------------------------|-----------------------------|
| (a) огневой заслон       | (c) противопожарный заслон  |
| (b) заградительный огонь | (d) минерализованная полоса |

2. Each gas in a mixture occupies the same volume or space and also is at the same temperature as each other gas in the mixture.

- |              |                |
|--------------|----------------|
| (a) микстура | (c) комплекс   |
| (b) смесь    | (d) соединение |

3. The heating device should provide heat to the space at the same rate as the space is losing heat.

- |             |                  |
|-------------|------------------|
| (a) ёмкость | (c) помещение    |
| (b) отсек   | (d) пространство |

4. The direction of heat flow occurs by conduction, convection, or radiation and in any combination of these forms.

- |                             |                  |
|-----------------------------|------------------|
| (a) теплопроводность        | (c) проводимость |
| (b) кондуктивный теплообмен | (d) кондукция    |

5. The convector is mounted at floor level against an exterior wall.

- |                  |                  |
|------------------|------------------|
| (a) высота этажа | (c) уровень пола |
| (b) высота пола  | (d) этаж         |

6. For the detection of the heat load of a building according to standard, a physical model of the building is to be detected structurally.

- |                    |                       |
|--------------------|-----------------------|
| (a) тепловой поток | (c) теплоприемник     |
| (b) расход холода  | (d) тепловая нагрузка |

7. Convection is the movement of a fluid, such as air.

- |             |                              |
|-------------|------------------------------|
| (a) перенос | (c) конвективная теплоотдача |
|-------------|------------------------------|

(b) конвекция

(d) конвективная передача

8. Low/zero-carbon and energy-efficient heating and cooling technologies for buildings have the potential to reduce CO2 emissions.

(a) эмиссия

(c) распространение

(b) отдача

(d) выделение

9. Thermal storage can maximise the energy savings and energy efficiency potential of other technologies.

(a) тепловая емкость

(c) теплоаккумулятор

(b) теплосодержание

(d) теплоаккумуляция

10. They include a range of commercial technologies competitive for water heating in markets where low-cost systems are available.

(a) промышленный

(c) торговый

(b) серийный

(d) коммерческий

11. Current solar water-heating systems for single-family dwellings are relatively small.

(a) проточный

(c) циркулирующий

(b) современный

(d) общепринятый

12. Drivers contributing to significant increases in building energy use are population migration to cities, decreasing household size, increasing levels of wealth and lifestyle changes.

(a) драйверы

(c) определяющие факторы

(b) движущие механизмы

(d) приводные устройства

13. There was no data available on the thermal space heating and cooling and domestic hot water energy used in buildings for the past.

(a) факты

(c) величины

(b) данные

(d) координаты

14. Space cooling demand, which is treated separately from space heating demand in the report, is expected to continue to rise.

(a) спрос

(c) потребление

(b) требование

(d) потребность

15. The convector is mounted at floor level against an exterior wall.

(a) высота этажа

(c) уровень пола

(b) высота пола

(d) этаж

16. Drivers of energy consumption in buildings are many and from different nature.

(a) драйверы

(c) движущие механизмы

(b) определяющие факторы

(d) приводные устройства

17. The future trend in the total EU space heating load can be expected to be more or less stable.

(a) тепловой поток

(c) теплоприемник

(b) тепловая нагрузка

(d) расход холода

18. Improved insulation, optimised ventilation, increased urbanisation and global warming will lead to a decrease of the load.

(a) изоляция

(c) изоляционная обмотка

(b) изолирующий материал

(d) экранирование

19. According to the EIA projections space cooling demand is expected to rise to 305 TWh (+38%) in 2020 and 379 TWh in 2030.

- (a) спрос (c) потребление  
(b) требование (d) потребность

20. The types of buildings that benefit from the application of passive solar heating range from barracks to large maintenance facilities.

- (a) приносят пользу (c) несут выгоду  
(b) получают пользу (d) имеют преимущество

21. Passive solar buildings are designed to let the heat into the building during the winter months, and block out the sun during hot summer days.

- (a) предназначены (c) разработаны  
(b) спроектированы (d) синтезированы

22. Effective thermal mass materials, like concrete, or stone floor slabs, have high specific heat capacities, as well as high density.

- (a) интенсивность (c) компактность  
(b) численность (d) плотность

23. It is also important to consider local climate conditions, when creating climate-responsive, energy conserving structures that can be powered with renewable energy sources.

- (a) заменяемый (c) восстанавливаемый  
(b) возобновляемый (d) возобновимый

24. To achieve a high percentage of passive solar heating, it is necessary to incorporate adequate thermal mass in buildings.

- (a) адекватный (c) достаточный  
(b) точный (d) приемлемый

25. Table 1 shows the global residential heating and cooling energy consumption projections and its drivers from 2010 to 2050.

- (a) определяющие факторы (c) движущие механизмы  
(b) приводные устройства (d) драйверы

2 Вопросы в открытой форме.

***Give Russian equivalents for the following symbols***

1. 500  $\mu\text{A}$
2. 220 V
3. 1.7 nmol/L
4. 50 mN
5. 0.020 kHz
6. 5 mH
7. 4 GW
8. 400 ms
9. 20 M $\Omega$
10. 200 mA
11. 220 V
12. 2000  $\mu\text{F}$
13. 200 mA

- 14. 220 V
- 15. 2000  $\mu\text{F}$
- 16. 25.2 MJ/  $\text{m}^3$
- 17. 7.5 GJ/tonne
- 18. 0.8 mL/s
- 19. 1.7 nmol/L
- 20. 220 V
- 21. 400  $\mu\text{A}$
- 22. 1 mH
- 23. 50 mN
- 24. 0.020 kHz
- 25. 400 ms

3 Вопросы на установление последовательности.

***Put the sentences below into the correct order to make an article abstract***

**№1**

- \_\_\_\_\_ A A multilayer panel was developed, with two different decorative finishes.
- \_\_\_\_\_ B The performance assessment test allowed to verify that these covering panels are easy to apply and improve buildings' energy efficiency.
- \_\_\_\_\_ C The main objective of the current study was to develop a product for wall coverings that would allow an easy application, in particular for building rehabilitation, and the walls' protection improving buildings' energy efficiency.
- \_\_\_\_\_ D The panel is applied by bonding with a mortar fixative to the walls.

**№2**

- \_\_\_\_\_ A Laminated bamboo in structural applications has the potential to change the way buildings are constructed.
- \_\_\_\_\_ B The fibrous microstructure of bamboo can be modelled as a fibre-reinforced composite.
- \_\_\_\_\_ C The link between fibre volume fraction and bending stiffness shows that differences previously attributed to preservation treatment in fact arise due to strip thickness.
- \_\_\_\_\_ D This study compares the results of a fibre volume fraction analysis with previous experimental beam bending results.

**№3**

- \_\_\_\_\_ A Meanwhile gas heat pumps have the higher performances at high lift.
- \_\_\_\_\_ B The aim of this paper is to compare the seasonal performances of six system configurations that are obtained by combining the most commonly used heating technologies.
- \_\_\_\_\_ C The comparison is carried out in terms of primary energy consumption for three climatic conditions.
- \_\_\_\_\_ D Although the results are sensitive to the primary energy factor for electricity, electric heat pumps generally result the most promising technology for conditions with low thermal lift.

**№4**

- \_\_\_\_\_ A A model of a slinky-coil horizontal ground heat exchanger has been developed to simulate the performance of such systems.
- \_\_\_\_\_ B In this research, the feasibility of modelling and simulation of slinky-coil geothermal heat exchangers in the modelling language Modelica has been demonstrated.
- \_\_\_\_\_ C The ground heat exchanger has been modelled in two levels of detail.
- \_\_\_\_\_ D The model includes a ground heat exchanger and a soil cell

**№5**

- \_\_\_\_\_ A The panel is applied by bonding with a mortar fixative to the walls.
- \_\_\_\_\_ B The performance assessment test allowed to verify that these covering panels are easy to apply and improve buildings' energy efficiency.
- \_\_\_\_\_ C The main objective of the current study was to develop a product for wall coverings that would allow an easy application, in particular for building rehabilitation, and the walls' protection improving buildings' energy efficiency.

**№6**

- \_\_\_\_\_ A The link between fibre volume fraction and bending stiffness shows that differences previously attributed to preservation treatment in fact arise due to strip thickness.
- \_\_\_\_\_ B The fibrous microstructure of bamboo can be modelled as a fibre-reinforced composite.
- \_\_\_\_\_ C Laminated bamboo in structural applications has the potential to change the way buildings are constructed.
- \_\_\_\_\_ D This study compares the results of a fibre volume fraction analysis with previous experimental beam bending results.

**№7**

- \_\_\_\_\_ A The existing outdoor air treatment system is unpopular in developing countries due to its high initial cost.
- \_\_\_\_\_ B Yet it should be able to provide indoor thermal comfort by effective handling of the excessive humidity.
- \_\_\_\_\_ C The viable solution to the high latent load that naturally occurs in tropical regions requires an alternative system that runs at relatively low energy consumption.
- \_\_\_\_\_ D In this paper, a new system termed Dual Air Handling Unit system is proposed to be the answer.

**№8**

- \_\_\_\_\_ A In this paper, a new system termed Dual Air Handling Unit system is proposed to be the answer.
- \_\_\_\_\_ B The existing outdoor air treatment system is unpopular in developing countries due to its high initial cost.
- \_\_\_\_\_ C The viable solution to the high latent load that naturally occurs in tropical regions requires an alternative system that runs at relatively low energy consumption.
- \_\_\_\_\_ D Yet it should be able to provide indoor thermal comfort by effective handling of the excessive humidity.

**№9**

- \_\_\_\_\_ A The link between fibre volume fraction and bending stiffness shows that differences previously attributed to preservation treatment in fact arise due to strip thickness.
- \_\_\_\_\_ B The fibrous microstructure of bamboo can be modelled as a fibre-reinforced composite.
- \_\_\_\_\_ C Laminated bamboo in structural applications has the potential to change the way buildings are constructed.
- \_\_\_\_\_ D This study compares the results of a fibre volume fraction analysis with previous experimental beam bending results.

**№10**

- \_\_\_\_\_ A A multilayer panel was developed, with two different decorative finishes.
- \_\_\_\_\_ B The performance assessment test allowed to verify that these covering panels are easy to apply and improve buildings' energy efficiency.
- \_\_\_\_\_ C The main objective of the current study was to develop a product for wall coverings that would allow an easy application, in particular for building rehabilitation, and the walls' protection improving buildings' energy efficiency.

**D** The panel is applied by bonding with a mortar fixative to the walls.

4 Вопросы на установление соответствия.

**Match the article titles in the left column to the abstracts in the right column**

**№1**

Title	Abstract
<b>1.</b> Pore structure and chloride diffusivity of recycled aggregate concrete with nano-SiO <sub>2</sub> and nano-TiO <sub>2</sub>	<b>A.</b> Triaxial test was conducted on dry, saturated and dry samples followed by saturation. Effects of relative density, stress, previous loading and unloading and gradation curve were studied. The more stress applied on the samples, the more stress release was observed due to saturation.
<b>2.</b> Use of waste cooking oil, tire rubber powder and palm oil fuel ash in partial replacement of bitumen	<b>B.</b> Effect of nanoparticles on the pore structure of RAC is explored. Chloride diffusivity of RAC is found to be reduced by nanoparticles. A three-phase model considering the microstructures of RAC is verified.
<b>3.</b> Effect of stress state and particle-size distribution on the stress reduction of sandy soils during saturation	<b>C.</b> Modification of bitumen with waste cooking oil, tire rubber powder and palm oil fuel ash. Laboratory investigation of modified bitumen. Replacement of bitumen has been done up to 15%. Improved binder compositions have been proposed for flexible pavement construction.

**№2**

Title	Abstract
<b>1.</b> Pore structure and chloride diffusivity of recycled aggregate concrete with nano-SiO <sub>2</sub> and nano-TiO <sub>2</sub>	<b>A.</b> The aim of this paper is to compare, under conditions typical of the European region, the seasonal performances of six system configurations that are obtained by combining the most commonly used heating technologies. The comparison is carried out in terms of primary energy consumption for three climatic conditions. Although the results are sensitive to the primary energy factor for electricity, electric heat pumps generally result the most promising technology for conditions with low thermal lift. Meanwhile gas heat pumps have the higher performances at high lift.
<b>2.</b> Absorption and compression heat pump systems for space heating and DHW in European buildings: Energy, environmental and economic analysis	<b>B.</b> The viable solution to the high latent load that naturally occurs in tropical regions requires an alternative system that runs at relatively low energy consumption yet be able to provide indoor thermal comfort by effective handling of the excessive humidity. Although the existing outdoor air treatment system is a proven approach, it is unpopular in developing countries due to its high initial cost. In this paper, a new system termed Dual Air Handling Unit system is proposed to be the answer.
<b>3.</b> Low cost humidity controlled air-conditioning system for building energy savings in tropical climate	<b>C.</b> Effect of nanoparticles on the pore structure of RAC is explored. Chloride diffusivity of RAC is found to be reduced by nanoparticles. A three-phase model considering the microstructures of RAC is verified.

**№3**

Title	Abstract
<b>1.</b> Use of waste cooking oil, tire rubber powder and palm oil fuel ash in partial replacement of bitumen	<b>A.</b> The main objective of the current study was to develop a product for wall coverings that would allow an easy application, in particular for building rehabilitation, and the walls' protection improving buildings' energy efficiency. A multilayer panel was developed, with two different decorative finishes. The panel is applied by bonding with a mortar fixative to the walls. The performance assessment test allowed to verify that these covering panels are easy to apply and improve buildings' energy efficiency. Some fragilities were pointed out. Although, it was possible to

	conclude that this solution is viable in terms of production and application.
<b>2.</b> Exterior walls covering system to improve thermal performance and increase service life of walls in rehabilitation interventions	<b>B.</b> Triaxial test was conducted on dry, saturated and dry samples followed by saturation. Effects of relative density, stress, previous loading and unloading and gradation curve were studied. The more stress applied on the samples, the more stress release was observed due to saturation.
<b>3.</b> Effect of stress state and particle-size distribution on the stress reduction of sandy soils during saturation	<b>C.</b> Modification of bitumen with waste cooking oil, tire rubber powder and palm oil fuel ash. Laboratory investigation of modified bitumen. Replacement of bitumen has been done up to 15%. Improved binder compositions have been proposed for flexible pavement construction.

**№4**

Title	Abstract
<b>1.</b> Effect of stress state and particle-size distribution on the stress reduction of sandy soils during saturation	<b>A.</b> The viable solution to the high latent load that naturally occurs in tropical regions requires an alternative system that runs at relatively low energy consumption yet be able to provide indoor thermal comfort by effective handling of the excessive humidity. Although the existing outdoor air treatment system is a proven approach, it is unpopular in developing countries due to its high initial cost. In this paper, a new system termed Dual Air Handling Unit system is proposed to be the answer.
<b>2.</b> Low cost humidity controlled air-conditioning system for building energy savings in tropical climate	<b>B.</b> Modification of bitumen with waste cooking oil, tire rubber powder and palm oil fuel ash. Laboratory investigation of modified bitumen. Replacement of bitumen has been done up to 15%. Improved binder compositions have been proposed for flexible pavement construction.
<b>3.</b> Use of waste cooking oil, tire rubber powder and palm oil fuel ash in partial replacement of bitumen	<b>C.</b> Triaxial test was conducted on dry, saturated and dry samples followed by saturation. Effects of relative density, stress, previous loading and unloading and gradation curve were studied. The more stress applied on the samples, the more stress release was observed due to saturation.

**№5**

Title	Abstract
<b>1.</b> Relationship of structure and stiffness in laminated bamboo composites	<b>A.</b> Effect of nanoparticles on the pore structure of RAC is explored. Chloride diffusivity of RAC is found to be reduced by nanoparticles. A three-phase model considering the microstructures of RAC is verified.
<b>2.</b> Pore structure and chloride diffusivity of recycled aggregate concrete with nano-SiO <sub>2</sub> and nano-TiO <sub>2</sub>	<b>B.</b> The aim of this paper is to compare, under conditions typical of the European region, the seasonal performances of six system configurations that are obtained by combining the most commonly used heating technologies. The comparison is carried out in terms of primary energy consumption for three climatic conditions. Although the results are sensitive to the primary energy factor for electricity, electric heat pumps generally result the most promising technology for conditions with low thermal lift. Meanwhile gas heat pumps have the higher performances at high lift.
<b>3.</b> Absorption and compression heat pump systems for space heating and DHW in European buildings: Energy, environmental and economic analysis	<b>C.</b> The study compares the results of a fibre volume fraction analysis with previous experimental beam bending results. The link between fibre volume fraction and bending stiffness shows that differences previously attributed to preservation treatment in fact arise due to strip thickness. Composite theory provides a basis for the development of future guidance for laminated bamboo, as validated here

**№6**

Title	Abstract
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<p><b>1.</b> Exterior walls covering system to improve thermal performance and increase service life of walls in rehabilitation interventions</p>	<p><b>A.</b> Modification of bitumen with waste cooking oil, tire rubber powder and palm oil fuel ash. Laboratory investigation of modified bitumen. Replacement of bitumen has been done up to 15%. Improved binder compositions have been proposed for flexible pavement construction.</p>
<p><b>2.</b> Low cost humidity controlled air-conditioning system for building energy savings in tropical climate</p>	<p><b>B.</b> The main objective of the current study was to develop a product for wall coverings that would allow an easy application, in particular for building rehabilitation, and the walls' protection improving buildings' energy efficiency. A multilayer panel was developed, with two different decorative finishes. The panel is applied by bonding with a mortar fixative to the walls. The performance assessment test allowed to verify that these covering panels are easy to apply and improve buildings' energy efficiency. Some fragilities were pointed out. Although, it was possible to conclude that this solution is viable in terms of production and application.</p>
<p><b>3.</b> Use of waste cooking oil, tire rubber powder and palm oil fuel ash in partial replacement of bitumen</p>	<p><b>C.</b> The viable solution to the high latent load that naturally occurs in tropical regions requires an alternative system that runs at relatively low energy consumption yet be able to provide indoor thermal comfort by effective handling of the excessive humidity. Although the existing outdoor air treatment system is a proven approach, it is unpopular in developing countries due to its high initial cost. In this paper, a new system termed Dual Air Handling Unit system is proposed to be the answer.</p>

#### №7

Title	Abstract
<p><b>1.</b> Effect of stress state and particle-size distribution on the stress reduction of sandy soils during saturation</p>	<p><b>A.</b> The study compares the results of a fibre volume fraction analysis with previous experimental beam bending results. The link between fibre volume fraction and bending stiffness shows that differences previously attributed to preservation treatment in fact arise due to strip thickness. Composite theory provides a basis for the development of future guidance for laminated bamboo validated here</p>
<p><b>2.</b> Relationship of structure and stiffness in laminated bamboo composites</p>	<p><b>B.</b> The aim of this paper is to compare, under conditions typical of the European region, the seasonal performances of six system configurations that are obtained by combining the most commonly used heating technologies. The comparison is carried out in terms of primary energy consumption for three climatic conditions. Although the results are sensitive to the primary energy factor for electricity, electric heat pumps generally result the most promising technology for conditions with low thermal lift. Meanwhile gas heat pumps have the higher performances at high lift.</p>
<p><b>3.</b> Absorption and compression heat pump systems for space heating and DHW in European buildings: Energy, environmental and economic analysis</p>	<p><b>C.</b> Triaxial test was conducted on dry, saturated and dry samples followed by saturation. Effects of relative density, stress, previous loading and unloading and gradation curve were studied. The more stress applied on the samples, the more stress release was observed due to saturation.</p>

#### №8

Title	Abstract
<p><b>1.</b> Exterior walls covering system to improve thermal performance and increase service life of walls in rehabilitation interventions</p>	<p><b>A.</b> In this research, the feasibility of modelling and simulation of slinky-coil geothermal heat exchangers in the modelling language Modelica has been demonstrated. A model of a slinky-coil horizontal ground heat exchanger has been developed to simulate the performance of such systems. The model includes a ground heat exchanger and a soil cell. The</p>

	ground heat exchanger has been modelled in two levels of detail.
<b>2.</b> Dynamic modelling and simulation of a slinky-coil horizontal ground heat exchanger using Modelica	<b>B.</b> The study compares the results of a fibre volume fraction analysis with previous experimental beam bending results. The link between fibre volume fraction and bending stiffness shows that differences previously attributed to preservation treatment in fact arise due to strip thickness. Composite theory provides a basis for the development of future guidance for laminated bamboo, as validated here
<b>3.</b> Relationship of structure and stiffness in laminated bamboo composites	<b>C.</b> The main objective of the current study was to develop a product for wall coverings that would allow an easy application, in particular for building rehabilitation, and the walls' protection improving buildings' energy efficiency. A multilayer panel was developed, with two different decorative finishes. The panel is applied by bonding with a mortar fixative to the walls. The performance assessment test allowed to verify that these covering panels are easy to apply and improve buildings' energy efficiency. Some fragilities were pointed out. Although, it was possible to conclude that this solution is viable in terms of production and application.

**№9**

Title	Abstract
<b>1.</b> Exterior walls covering system to improve thermal performance and increase service life of walls in rehabilitation interventions	<b>A.</b> The findings show that shading, proper materials in exterior walls and natural ventilation in traditional dwellings are the primary factors in improving comfort conditions and reducing cooling loads. Better thermal comfort and less energy consumption in traditional dwellings show that the integrated climate-responsive solutions used in these dwellings have well-responded to the local climate characteristics. Today it is possible to reuse these buildings as residential spaces with satisfactory thermal comfort conditions and less energy consumption compared to the contemporary ones.
<b>2.</b> Absorption and compression heat pump systems for space heating and DHW in European buildings: Energy, environmental and economic analysis	<b>B.</b> The main objective of the current study was to develop a product for wall coverings that would allow an easy application, in particular for building rehabilitation, and the walls' protection improving buildings' energy efficiency. A multilayer panel was developed, with two different decorative finishes. The panel is applied by bonding with a mortar fixative to the walls. The performance assessment test allowed to verify that these covering panels are easy to apply and improve buildings' energy efficiency. Some fragilities were pointed out. Although, it was possible to conclude that this solution is viable in terms of production and application.
<b>3.</b> The study of climate-responsive solutions in traditional dwellings of Bushehr City in Southern Iran	<b>C.</b> The aim of this paper is to compare, under conditions typical of the European region, the seasonal performances of six system configurations that are obtained by combining the most commonly used heating technologies. The comparison is carried out in terms of primary energy consumption for three climatic conditions. Although the results are sensitive to the primary energy factor for electricity, electric heat pumps generally result the most promising technology for conditions with low thermal lift. Meanwhile gas heat pumps have the higher performances at high lift.

**№10**

Title	Abstract
<b>1.</b> Pore structure and chloride	<b>A.</b> The study compares the results of a fibre volume fraction analysis

diffusivity of recycled aggregate concrete with nano-SiO <sub>2</sub> and nano-TiO <sub>2</sub>	with previous experimental beam bending results. The link between fibre volume fraction and bending stiffness shows that differences previously attributed to preservation treatment in fact arise due to strip thickness. Composite theory provides a basis for the development of future guidance for laminated bamboo, as validated here.
2. Low cost humidity controlled air-conditioning system for building energy savings in tropical climate	B. Effect of nanoparticles on the pore structure of RAC is explored. Chloride diffusivity of RAC is found to be reduced by nanoparticles. A three-phase model considering the microstructures of RAC is verified.
3. Relationship of structure and stiffness in laminated bamboo composites	C. The viable solution to the high latent load that naturally occurs in tropical regions requires an alternative system that runs at relatively low energy consumption yet be able to provide indoor thermal comfort by effective handling of the excessive humidity. Although the existing outdoor air treatment system is a proven approach, it is unpopular in developing countries due to its high initial cost. In this paper, a new system termed Dual Air Handling Unit system is proposed to be the answer.

**Шкала оценивания результатов тестирования:** в соответствии с действующей в университете балльно-рейтинговой системой оценивание результатов промежуточной аттестации обучающихся осуществляется в рамках 100-балльной шкалы, при этом максимальный балл по промежуточной аттестации обучающихся по очной форме обучения составляет 36 баллов, по очно-заочной и заочной формам обучения – 60 баллов (установлено положением П 02.016).

Максимальный балл за тестирование представляет собой разность двух чисел: максимального балла по промежуточной аттестации для данной формы обучения (36 или 60) и максимального балла за решение компетентностно-ориентированной задачи (6).

Балл, полученный обучающимся за тестирование, суммируется с баллом, выставленным ему за решение компетентностно-ориентированной задачи.

Общий балл по промежуточной аттестации суммируется с баллами, полученными обучающимся по результатам текущего контроля успеваемости в течение семестра; сумма баллов переводится в оценку по дихотомической шкале:

Соответствие 100-балльной и 5-балльной шкал

<i>Сумма баллов по 100-балльной шкале</i>	<i>Оценка по 5-балльной шкале</i>
100-85	отлично
84-70	хорошо
69-50	удовлетворительно
49 и менее	неудовлетворительно