Автономная некоммерческая организация

**«Научно-исследовательский «Центр развития энергетического права и современной правовой науки имени В.А. Мусина»**

**Методические рекомендации по подготовке к экзамену и выполнению рефератов для аспирантов по дисциплине «Иностранный язык»**

|  |  |
| --- | --- |
| Направление подготовки/научная специальность | 5.1.2. Публично-правовые (государственно-правовые) науки  5.1.3. Частно-правовые (цивилистические) науки  5.1.5. Международно-правовые науки |
| Направленность (профиль) программы | Энергетическое право. Публично-правовые отношения  Энергетическое право. Частно-правовые отношения.  Энергетическое право. Международно-правовые отношения. |
| Уровень высшего образования  Форма обучения | Подготовка кадров высшей квалификации  очная |

2025 г.

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«Центр развития энергетического права и

современной правовой науки

имени В.А. Мусина», оформление, 2025.

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# ВВЕДЕНИЕ

Методические указания включают требования к кандидатскому экзамену, образцы выполнения заданий экзаменационного билета: чтение и реферирование на английском языке оригинального текста по специальности аспиранта, чтение и передача информации на русском языке оригинального текста по специальности и беседа об исследовательской деятельности и научных интересах аспиранта на иностранном языке.

Предложен перечень наиболее типичных вопросов о сфере научных интересов аспиранта с возможными вариантами ответов. Дается образец оформления, а также примерная структура реферата (письменного перевода аутентичных англоязычных научно-технических текстов).

Приложение содержит примеры экзаменационных текстов по основным направлениям подготовки аспирантов, а также базовые явления грамматики английского языка в таблицах.

# 1. ТРЕБОВАНИЯ К КАНДИДАТСКОМУ ЭКЗАМЕНУ

Основная цель курса иностранного (английского) языка для аспирантов - подготовка высокообразованного специалиста, научного работника, владеющего иностранным языком как средством осуществления научной, профессиональной и творческой деятельности в иноязычной сфере, а также средством межкультурной коммуникации в сферах науки, культуры и быта страны изучаемого языка.

Изучения иностранного языка аспирантами всех специальностей имеет целью достижение ими практического владения языком, позволяющего использовать его в научно-исследовательской работе.

1. **Лексика:** к концу практического курса обучения лексический запас аспиранта должен составлять не менее 5500 лексических единиц с учетом вузовского минимума, включая 500 терминов по специальности аспиранта. Рекомендуется составление терминологического словаря с учетом специфики научной сферы деятельности аспиранта.
2. **Грамматика:** аспирант должен знать и практически владеть грамматическим минимумом по иностранному языку, необходимым и достаточным для осуществления устной и письменной коммуникации в научно- профессиональной, деловой, бытовой и учебной сферах. Рекомендуется использование в устной и письменной речи сложных грамматических конструкций, характерных для научного стиля.
3. **Чтение:** аспирант должен уметь читать (и переводить) оригинальную научную литературу по своей специальности (научно-популярные статьи из журналов, газет, интернет-источников и т.д.) с последующей фиксацией по- лученной информации в виде плана, резюме, сообщения и пр. Предполагается освоение аспирантами следующих видов чтения: изучающее, ознакомительное, просмотровое, поисковое.
4. **Говорение:** аспирант должен владеть подготовленной и неподготовленной монологической и диалогической речью, в особенности в рамках научно- профессиональной тематики аспиранта. Предполагается обсуждение профессиональных тем (в т.ч., в ходе публичных выступлений), а также умение общаться на иностранном языке в условиях естественной (бытовой и учебной) коммуникации.
5. **Письмо:** аспирант должен уметь фиксировать полученную из научно- профессиональных текстов информацию в форме плана, аннотации, резюме, письменного сообщения, реферата. Написание реферата (письменного перевода) является одной из основных задач обучения аспиранта и реализуется на базе работы с текстами научного стиля различных жанров (монографии, статьи и сборники научных трудов, материалы конференций, интернет- форумов и порталов по специальной тематике аспиранта).
6. **Фонетика:** в ходе практической работы рекомендуется работа по коррекции произношения аспиранта.
7. **Культура и традиции стран изучаемого языка:** развитие научной мысли в Великобритании, США: великие ученые и открытия.
8. **Правила речевого этикета:** нормы речевого этикета, публичное выступление по профессиональной тематике аспиранта.

# 2. СТРУКТУРА КАНДИДАТСКОГО ЭКЗАМЕНА

Кандидатский экзамен по-иностранному (английскому) языку проводится в два этапа.

На первом этапе аспирант выполняет письменный перевод (реферат) научного текста по специальности на язык обучения объемом 15000–25000 печатных знаков. Перевод оценивается с точки зрения его адекватности, соответствия нормам русского языка и знания терминологии по данной специальности. Успешное выполнение письменного перевода реферата является условием допуска ко второму (устному) этапу экзамена. Реферат оценивается по зачетной системе.

Второй этап экзамена проводится в устной форме и включает 3 вопроса:

1. Изучающее чтение оригинального текста по специальности аспиранта объемом 2000–3000 печатных знаков. Форма выполнения – полный адекватный письменный перевод на русский язык с использованием словарей. Время выполнения работы – 45–60 минут. Форма проверки – передача основного содержания текста на иностранном языке в виде резюме.

* 1. Беглое чтение оригинального текста по специальности аспиранта объемом 1000–1500 печатных знаков. Время выполнения – 1–2 минуты. Форма проверки - передача извлеченной информации на родном языке.
  2. Беседа на иностранном языке с экзаменаторами, связанная со специальностью и научной деятельностью аспиранта.

Результаты экзамена оцениваются по пятибалльной системе.

# Образец экзаменационного билета

1. Read and translate (in writing) Text 1 using dictionaries. Sum it up (in English).
2. Read Text 2 connecting with your profession and retell it in Russian.
3. Speak about the aims and the tasks of your research work.

# 3. ПРАКТИЧЕСКИЕ РЕКОМЕНДАЦИИ К ОТВЕТАМ НА ВОПРОСЫ ЭКЗАМЕНА

* 1. **Первый вопрос** – чтение и перевод оригинального текста по специальности аспиранта. Объем – 2000–3000 печатных знаков. Форма выполнения работы – полный адекватный письменный перевод на русский язык с использованием словарей.

Время выполнения задания – 45–60 минут. Форма проверки – передача основного содержания текста на английском языке в форме резюме, отражающего тематику текста, основную авторскую идею с подведением итогов и выводами из прочитанного.

***Пример текста:* Architecture** en.wikipedia.org

Architecture ([Latin](http://en.wikipedia.org/wiki/Latin) *[architectura](http://en.wiktionary.org/wiki/architectura#Latin)*, from the Greek α[ρχιτέκτων](http://en.wiktionary.org/wiki/%E1%BC%80%CF%81%CF%87%CE%B9%CF%84%CE%AD%CE%BA%CF%84%CF%89%CE%BD) – arkhitekton, from α[ρχι-](http://en.wiktionary.org/wiki/%E1%BC%80%CF%81%CF%87%CE%B9-) "chief" and [τέκτων](http://en.wiktionary.org/wiki/%CF%84%CE%AD%CE%BA%CF%84%CF%89%CE%BD) "builder, carpenter") can mean:

The art and science of [designing](http://en.wikipedia.org/wiki/Design) and erecting buildings and other physical structures.



The practice of an [architect](http://en.wikipedia.org/wiki/Architect), where architecture means to offer or render professional services in connection with the design and construction of a building, or group of buildings and the space within the site surrounding the buildings.



A general term to describe buildings and other structures.



A style and method of design and construction of buildings and other physical structures.



A wider definition may comprise all design activity, from the macro-level ([urban design](http://en.wikipedia.org/wiki/Urban_design), [landscape architecture](http://en.wikipedia.org/wiki/Landscape_architecture)) to the micro-level (construction details and furniture). Architecture is both the process and product of planning, designing and [constructing](http://en.wikipedia.org/wiki/Construction) form, space and ambience that reflect functional, technical, social, and aesthetic considerations. Architecture also encompasses the pragmatic aspects of realizing buildings and structures, including scheduling, cost estimating and construction administration.

Architectural works are often perceived as cultural and political symbols and as [works of art](http://en.wikipedia.org/wiki/Work_of_art). Historical civilizations are often identified with their surviving architectural achievements.

Architecture sometimes refers to the activity of designing of any kind of system and the term is common in the [information technology](http://en.wikipedia.org/wiki/Information_technology) world.

Architect’s plan, design and review the construction of buildings and structures for the use of people. Architects also coordinate and integrate [engineering](http://en.wikipedia.org/wiki/Engineering) design, which has as its primary objective the creative manipulation of materials and forms using [mathematical](http://en.wikipedia.org/wiki/Mathematics) and [scientific](http://en.wikipedia.org/wiki/Applied_science) principles.

***Пример перевода текста:* Архитектура**

Термин «архитектура» (от латинского «*architectura*», образован от греческого «αρχι» («главный») и «τεκτων» («строитель», «плотник») может означать:

* наука и искусство проектирования и возведения зданий и иных сооружений;
* профессиональная деятельность архитектора, заключающаяся в предоставлении комплекса услуг, связанных с проектированием и строительством зданий или групп сооружений с оформлением окружающего пространства;
* общий термин для описания зданий и прочих сооружений;
* стиль и способ проектирования и строительства зданий и иных конструкций.

Более широкое определение может включать любой вид конструктивной деятельности: от макроуровня (дизайн городской среды, ландшафтная архитектура) до микроуровня (строительные элементы и фурнитура). Архитектура является одновременно процессом и результатом планирования, создания форм, пространства и среды исходя из функциональных, технических, социальных и эстетических соображений. Архитектура также затрагивает практические аспекты возведения зданий и сооружений, включая график работ, расчет стоимости и соблюдение строительных норм.

Архитектурные творения часто воспринимаются как в качестве культурно-политических символов, так и произведений искусства. Исторические цивилизации зачастую идентифицируются по сохранившимся архитектурным достижениям.

Иногда термин «архитектура» относится к деятельности по проектированию любой системы и является общепринятым в сфере информационных технологий.

Архитекторы планируют, проектируют и пересматривают вопросы строительства зданий и сооружений для удобства людей. Архитекторы также принимают участие в инженерном проектировании, имеющем основной целью творческие преобразования материалов и форм с использованием математических расчетов и научных принципов.

**ФРАЗЫ ДЛЯ РЕЗЮМИРОВАНИЯ ТЕКСТА**

The article goes on to say that…

I’d like to speak about… I’m going to speak about…

First of all, I’d like to tell you a few words about… And now some words about…

It’s necessary to say that…

It should be noted / said / stressed that… I’d also like to add that…

I think…

To my mind… As you know…

In conclusion I can say that…

In conclusion it should be said that… In conclusion I’d like to say that…

## Пример резюмирования текста на английском языке

***The article I am going to review*** is taken from the Internet. It is called Architecture. ***It deals with*** the definition of Architecture as a multifunctional term.

***First of all***, architecture can mean the art of designing and erecting different types of buildings and structures. It can also mean the practice of an architect in planning, designing and constructing activities.

***It should be said*** that at the same time it can refer to a style and method of designing and constructing buildings and other structures.

***The article goes on to say that*** architectural works are often perceived as cultural and political symbols and as works of art.

***I’d like to add that*** the term architecture is common in the information technology world.

***It should be stressed that*** architects plan, design and review the construction of buildings and structures for the use of people.

***In conclusion I’d like to say that*** architecture is not only the process but also the product of planning, designing and constructing form, space and ambience which reflect functional, social and aesthetic considerations.

* 1. **Второй вопрос** – беглое чтение оригинального текста по специальности аспиранта. Объем – 1000-1500 печатных знаков. Время выполнения – 2 минуты. Форма проверки – передача содержания на русском языке.

***Пример текста:* Skyscraper** [www.wikipedia.org](http://www.wikipedia.org/)

A skyscraper is a tall, continuously habitable building of many stories, often designed for office and commercial use. There is no official definition or height above which a building may be classified as a skyscraper. One common feature is that skyscrapers tend to make use of a steel framework structure from which walls are suspended, rather than having load-bearing walls as seen in conventional buildings.

As there is no official definition of what constitutes a skyscraper, a relatively small building may be considered one if it protrudes well above its built environ- ment and changes the overall [skyline](http://en.wikipedia.org/wiki/Skyline). The maximum height of structures has pro- gressed historically with building methods and technologies. 'Supertall' has arisen as a contemporary expression for exceptionally tall buildings, although again there is no formal definition.

The [Emporis Standards Committee](http://en.wikipedia.org/wiki/Emporis_Standards_Committee) defines a [high-rise](http://en.wikipedia.org/wiki/Tower_block) building as "a multi- storey structure between 35–100 metres tall, or a building of unknown height from 12–39 floors" and a skyscraper as "a multistorey building whose architectural height is at least 100 metres." Some [structural engineers](http://en.wikipedia.org/wiki/Structural_engineer) define a highrise as any vertical construction for which wind is a more significant [load factor](http://en.wikipedia.org/wiki/Load_factor) than [earth-](http://en.wikipedia.org/wiki/Earthquake) [quake](http://en.wikipedia.org/wiki/Earthquake) or weight. Note that this criterion fits not only high-rises but some other tall structures, such as [towers](http://en.wikipedia.org/wiki/Tower).

The word *skyscraper* often carries a connotation of pride and achievement. The skyscraper, in name and social function, is a modern expression of the age-old symbol of the [world center](http://en.wikipedia.org/wiki/Axis_mundi) or *axis mundi*: a pillar that connects earth to heaven and the four compass directions to one another.

## Пример передачи общего содержания текста на русском языке

В данной статье речь идет о небоскребах и высотных зданиях.

Небоскреб представляет собой пригодное для жилья и использования высотное здание, часто предназначенное под офисы и для иных коммерческих целей.

Не существует четкого определения, какой именно высоты здание считается небоскребом. Однако общим признаком подобных конструкций является наличие стального каркаса, на котором крепятся возвышающиеся несущие стены. За неимением четких критериев даже сравнительно невысокое здание может выглядеть небоскребом, если оно выделяется на фоне окружающих его построек.

С развитием технологий и методов строительства высота сооружений постоянно увеличивалась в ходе истории. По стандартам комитета всемирной организации «Emporis», высотными считаются многоэтажные здания от 35 до 100 метров высотой, либо 12–39-этажные здания любой высоты, а небоскребами являются многоэтажные сооружения свыше 100 метров.

В качестве вывода можно констатировать тот факт, что небоскребы являются синонимом гордости и достижений современности и часто устанавливаются в знаменательных местах («ось земли»).

* 1. **Третий вопрос** – беседа на английском языке с экзаменаторами, связанная со специальностью и научной деятельностью аспиранта.

Рекомендуется подготовить рассказ-представление о себе, своей специальности (образовании), рассказать о научном руководителе, о сфере научных интересов и направлении исследования, обозначить примерную тему диссертации и обосновать актуальность проводимой работы, а также практическое применение предполагаемых результатов исследования.

***Пример рассказа о научных интересах аспиранта***

# What is your name?

-My name is Ivan Ivanovich Ivanov.

# What educational institution did you graduate from? When?

-I graduated from Voronezh State University of Architecture and Civil Engineering in 20…

# What is your speciality?

-My speciality is …/ My profession is …

# Why did you decide to take a post-graduate course?

-I decided to take a post graduate-course because I had been interested in science since my 3-d year at the University / because scientific approach is very important in my profession.

# What is the subject of your future scientific research?

-The subject of my scientific research is …

-My future scientific research is devoted to the problem of …

* My future scientific research deals with the problem of …

# Who is your scientific supervisor?

-My scientific supervisor is Ivan Petrovich Petrov, Professor, Doctor of technical/ economic sciences, Head of the Chair of … / Head of the Department of …

-He has got a lot of publications devoted to the problem of …

# Have you ever participated in any scientific conferences?

-Yes, I’ve participated in many conferences devoted to the most actual problems of economy/physics/geodesy/hydrology etc.

-Not yet, but I hope, together with my supervisor, I’ll prepare some reports for sci- entific conferences/I’ll take part in several conferences in the near future.

# Do you have any publications?

-Yes, I’ve got some publications connected with my research.

* Not yet, but I hope, together with my supervisor, I’ll prepare some publications, they will be devoted to my research.

# What methods are you going to use in your investigation?

-Together with my supervisor we are going to apply such methods as theoretical, experimental, practical and computational methods because they will help me to complete my research.

# What will your scientific research give the world? In what way can your investigation/research be useful to … science?

-I think / I hope / I dare say that the problem of our scientific research is very ur- gent and our scientific research will be very useful for … / it will help people in the field of …

# ПРИМЕРНЫЙ ПЕРЕЧЕНЬ ВОПРОСОВ О СПЕЦИАЛЬНОСТИ И НАУЧНОЙ ДЕЯТЕЛЬНОСТИ АСПИРАНТА

1. **Who is your scientific supervisor and what is his/her contribution to sci- ence?**

My scientific supervisor is E.I. Shmitko. He is doctor of technical science, profes- sor, head of the chair of ―Technology of Building Materials and Structures‖. He has many publications devoted to the problem of cellular concrete. My scientific supervisor is considered to be a competent specialist. He is the man to be relied on.

# What does your scientific work deal with? Or: What problem do you inves- tigate?

My scientific work deals with the problem concerning structure of cellular con- crete. Or: I’m going to investigate the problem … .

# What can you say about your scientific work?

***While speaking about my scientific work it should be said that*** it is very important for building industry.

***It is common knowledge that*** cellular concrete is widely used in construction. But technology of cellular concrete has not fully investigated several operations that result in some variable properties of concrete***.***

***It should be stressed that*** it is the density that determines the properties of cellular concrete.

***The aim of my research is*** to control the characteristics of cellular concrete struc- tures. I will determine the possibilities of controlling the characteristics of cellular concrete structures by means of different factors.

***I’m going to carry out the theoretical analysis of experimental data. I will also deliver some recommendations for*** producing cellular concrete with better proper- ties and characteristics.

***In conclusion I’d like to say that my recommendations will be useful for*** enter- prises producing products from cellular concrete.

# Do you need any special equipment for fulfilling your investigation?

For fulfilling my investigation I will use different measuring devices, plants, tools and computer programs.

# What illustrations are you going to prepare to demonstrate the results of your investigation?

To demonstrate the results of my investigation I am going to prepare different ta- bles, diagrams, graphs, drawings because they will help me to convincingly and precisely prove my conclusions.

# What conclusions will you make if the results of your research are positive/negative?

If the results of my research are positive I will make the conclusion that I have managed to increase the quality of cellular concrete and to develop a new complex method for its estimation.

If the results of my research are negative I will make the conclusion that I have to further investigate the problem under other conditions and with other parameters.

# How do you plan you research?

First of all, I make up the plan of my research. Then I analyze literature concerning the field of my research both in Russian and in English, sum up the information obtained, carry out my experiment, make conclusions and apply the results of my research in practice.

# What have you already managed to do?

I have already managed to make up the plan of my research, to analyze some literature both in English and in Russian, and to prepare an article dealing with my research for publication.

# What points of your plan have you failed to fulfill?

I have failed to make my experiment, to make conclusions and to apply the results of my research in practice.

# How will you continue your investigation?

I will continue to analyze literature concerning my research. I will carry out my experiment, make conclusions and apply the results of my research in practice.

# How many English publications important for your research have you found?

I have found about twenty English publications important for my research and I have already analyzed all of them.

# How many key terms have you selected from the English publications?

I have selected about 50 key terms from the English publications. The most im- portant of them are: cellular concrete, foam generator, foam liquid concentrate and others.

# What points of view expressed in the publications do you criticize?

It should be said that at present I only analyze literature and get acquainted with different points of view, so I don’t criticize anything.

# Who are the best-informed scientists in the field of your research?

The best-informed scientists in the field of my research are Ye.M. Chernyshov,

A.N. Fedin, Ye.I Shmitko, J. Gonsales, Sh. Wood and others.

# How long can it take you to complete your research?

I think that it can take me about two years to complete my research.

# By what time/by when will you have completed your research?

I hope that I will have completed my research by the end of 2015.

# What contribution may your research make into science?

I think that the recommendations done by me will be useful for building industry.

# Did you take part in scientific conferences?

Yes, I did. I took part in scientific conferences held in our University and in some other institutions.

# Did you make any reports? What were they devoted to? Were your re- ports a success?

Yes, I did. I made some reports. They were devoted to the problem of my research. I think that my reports were a success because there were a lot of questions and I answered all of them.

# Are you going to take part in scientific conferences in the future?

There is no doubt about it. I will certainly take part in scientific conferences and I will make reports devoted to the theme of my research.

# Have you got any publications?

Not yet. But in the near future I am going to prepare some articles for publication. They will be devoted to the theme of my research.

Or: Yes, I have. I have got two publications devoted to the theme of my investigation. They were published in the proceedings of our University.

# What is the purpose of your publications?

The main purpose of my publications is to attract attention of scientists to the problem of my research and to make a certain contribution to science.

# How long have you been working at your research?

I have been working at my research for about two years/ since 2010.

# By when had you completed your précis?

I had completed my précis by the end of April/September.

# Speak about your précis?

While speaking about my précis it should be said that I have analyzed about 20 pa- pers to prepare it. It consists of an introduction, seven main parts, professional vocabulary and references. The main parts deal with the history of cellular concrete and the technology of its production. Professional vocabulary contains 80 key- terms connected with problem being investigated. References have 10 names.

# What do you think the social role of your investigation is?

In my opinion, my investigation will help to improve the quality of production, to reduce a total cost of housing construction and to provide people with harmless and safe houses to live in.

# Why are you interested in such a problem?

I am interested in such a problem because I consider it to be urgent and timely but not thoroughly investigated yet.

# What kind of sources do you prefer to use for the theoretical substantiation/grounds of your research?

For the theoretical grounds of my research I prefer to use some works of my scientific supervisor, different publications of Russian and foreign scientists and the ma terials presented by the Internet.

# Could you speak about the historical background of your problem?

As far as I know some aspects of this problem have been already investigated both by Russian and foreign scientists but still some of them should be further studied. So, my task is to fill in this gap, and I will do my best to accomplish it.

# Can you say now what structure of your dissertation will be? How many chapters will it consist of?

Now I can’t exactly say anything about the structure of my dissertation. But I think that it will consist of three chapters, conclusions and Appendix. We will decide this problem with my scientific supervisor together. I am sure he/she will help me.

1. **ПОДГОТОВКА РЕФЕРАТА ПО ДИСЦИПЛИНЕ «ИНОСТРАННЫЙ ЯЗЫК»**

Подготовка реферата осуществляется аспирантом по индивидуальной тематике на основе аутентичных источников, коррелирующих с темой его диссертационного исследования.

Требования к содержанию

1. Реферат выполняется на русском языке на основе прочитанной литературы на иностранном языке по теме диссертации. Общий объём текстового материала для реферата, прочитанный аспирантом на иностранном языке в ходе основного курса - 220-250 страницам (монографии, научные статьи и работы зарубежных специалистов).
2. Реферат представляет собой обзор зарубежной литературы по исследуемой тематике и полный письменный перевод с иностранного языка научного текста по специальности объемом 30 тыс. печатных знаков (15 страниц).

К реферату прилагается аннотация на иностранном языке объёмом 1 страница.

1. Общий объем реферата составляет около 20 - 25 страниц, которые включают Титульный лист, План работы, Введение, Основную часть (состоящую из нескольких разделов), Заключения и Списка литературы. Реферат также должен содержать Приложение (перевод) и обязательно словарь- минимум терминов по специальности с переводом на русский язык в количестве не менее 100 единиц.
2. Реферат должен иметь не менее 5 цитат по тексту с их точной формулировкой на иностранном языке, приведенной в скобках.
3. Тема реферата для сдачи экзамена по иностранному языку может перекликаться с темой реферата по специальности с той разницей, что для его написания используются только иноязычные источники.
4. Отбор материала осуществляется аспирантом и его научным руководителем с учётом значимости информации для научной работы. Материал должен соответствовать тематике диссертационного исследования. В качестве источников используется научная литература по специальности, опубликованная за рубежом за последние 5 лет.
5. Обязательным условием является наличие Отзыва специалиста по научной специальности на реферат, подготовленный для сдачи экзамена по иностранному языку кандидатского минимума. В отзыве должно быть отражено, что содержание реферата соответствует тематике научно- исследовательской работы аспиранта и/или представляет научно- практический интерес для его исследовательской работы, имеет научную новизну, а также содержит информацию необходимую в дальнейшей работе над диссертацией. Реферат, завизированный специалистом, представляется преподавателю иностранного языка.
6. Реферат рецензируется преподавателем кафедры иностранных языков, оценивается по зачётной системе и служит допуском к кандидатскому экзамену по иностранному языку.
7. После получения рецензии специалиста по научной специальности и оценки преподавателя кафедры иностранных языков реферат сдается в отдел аспирантуры и докторантуры.

Требования к оформлению реферата

Реферат оформляется на компьютере с использованием текстовых редакторов.

Размеры листа стандартные: 210х297 мм (формат А4), ориентация книжная.

Поля: слева – 25 мм, справа – 15 мм, вверху – 20 мм, внизу – 20 мм. Шрифт - Обычный, Times New Roman Cyr. Размер шрифта - 14 пунктов. Насыщенность букв и знаков должна быть ровной в пределах строки. Минимально допустимая высота шрифта 1,8 мм.

Текст размещается на одной стороне листа. Межстрочный интервал - полуторный.

Объем реферата – 20 - 25 страниц.

Все страницы нумеруются по порядку от титульного листа до последней страницы. На титульном листе цифра 1 не ставится, на следующей странице проставляется цифра 2 и т.д. Порядковый номер печатается в правом верхнем углу поля страницы без каких-либо дополнительных знаков (тире, точки).

Титульный лист является первой страницей реферата и оформляется по строго определённым правилам (Приложение 1)

На втором листе помещается оглавление, в котором приводятся все заголовки работы и указываются страницы, с которых они начинаются. Заголовки оглавления должны точно повторять заголовки в тексте. Рекомендуется использовать автоматическое оглавление.

# ЗАКЛЮЧЕНИЕ

Данные методические указания призваны помочь аспирантам в подготовке к сдаче кандидатского экзамена по иностранному (английскому) языку и в написании реферата по прочитанной литературе.

Работа с настоящими методическими указаниями способствует развитию основных навыков по всем видам речевой деятельности, необходимых и достаточных для осуществления устной и письменной коммуникации, а также навыков и умений перевода специальных научных текстов, что соответствует требованиям к кандидатскому экзамену по иностранному языку.

Рекомендуются к использованию как для самостоятельной работы, так и для работы под руководством преподавателя.

**Приложение 1**

**Примеры научно-технических текстов**

**по основным направлениям подготовки аспирантов**

# Text 1: Portland Cement Production

<http://www.cement.org/basics>

Two different processes, "dry" and "wet," are used in the manufacture of portland cement.

When rock is the principal raw material, the first step after quarrying in both processes is the primary crushing. Mountains of rock are fed through crushers ca- pable of handling pieces as large as an oil drum. The first crushing reduces the rock to a maximum size of about 6 inches. The rock then goes to secondary crush- ers or hammer mills for reduction to about 3 inches or smaller.

In the wet process, the raw materials, properly proportioned, are then ground with water, thoroughly mixed and fed into the kiln in the form of a "slurry" (con- taining enough water to make it fluid). In the dry process, raw materials are ground, mixed, and fed to the kiln in a dry state. In other respects, the two process- es are essentially alike.

The raw material is heated to about 2,700 degrees F in huge cylindrical steel rotary kilns. Kilns are frequently as much as 12 feet in diameter - large enough to accommodate an automobile and longer in many instances than the height of a 40- story building. Kilns are mounted with the axis inclined slightly from the horizon- tal. As the material moves through the kiln, certain elements are driven off in the form of gases. The remaining elements unite to form a new substance with new physical and chemical characteristics. The new substance, called clinker, is formed in pieces about the size of marbles.

Clinker is discharged red-hot from the lower end of the kiln and generally is brought down to handling temperature in various types of coolers. The heated air from the coolers is returned to the kilns, a process that saves fuel and increases burning efficiency.

# Text 2: A central heating system

[en.wikipedia.org](http://en.wikipedia.org/)›[wiki/Central\_heating](http://en.wikipedia.org/wiki/Central_heating)

A central heating system provides warmth to the whole interior of a building

(or portion of a building) from one point to multiple [rooms](http://en.wikipedia.org/wiki/Room_(architecture)). When combined with other systems in order to control the building [climate](http://en.wikipedia.org/wiki/Climate), the whole system may be a [HVAC](http://en.wikipedia.org/wiki/HVAC) ([heating](http://en.wikipedia.org/wiki/Heating), [ventilation](http://en.wikipedia.org/wiki/Ventilation_(architecture)) and [air conditioning](http://en.wikipedia.org/wiki/Air_Conditioning)) system.

Central heating differs from local heating in that the heat generation occurs in one place, such as a [furnace room](http://en.wikipedia.org/wiki/Furnace_room) in a house or a [mechanical room](http://en.wikipedia.org/wiki/Mechanical_room) in a large building (though not necessarily at the "central" geometric point). The most com- mon method of heat generation involves the combustion of [fossil fuel](http://en.wikipedia.org/wiki/Fossil_fuel) in a [furnace](http://en.wikipedia.org/wiki/Furnace) or [boiler](http://en.wikipedia.org/wiki/Boiler). The resultant heat then gets distributed: typically by [forced-air](http://en.wikipedia.org/wiki/Forced-air) through ductwork, by water circulating through pipes, or by steam fed through pipes. Increasingly, buildings utilize solar-powered heat sources, in which case the distribution system normally uses water circulation.

In much of northern [Europe](http://en.wikipedia.org/wiki/Europe) and in urban portions of [Russia](http://en.wikipedia.org/wiki/Russia), where people seldom require air conditioning in homes due to the temperate climate, most new housing comes with central heating installed. Such areas normally use [gas heaters](http://en.wikipedia.org/wiki/Gas_heater), [district heating](http://en.wikipedia.org/wiki/District_heating), or [oil-fired](http://en.wikipedia.org/wiki/Heating_oil) systems. In the western and southern [United States](http://en.wikipedia.org/wiki/United_States) nat- ural-gas-fired central forced-air systems occur most commonly; these systems and central-boiler systems both occur in the far northern regions of the USA. Steam- heating systems, fired by coal, oil or gas, feature in the USA, Russia and Europe: primarily for larger buildings. [Electrical heating systems](http://en.wikipedia.org/wiki/Electric_heating) occur less commonly and are only practical with low cost electricity or when [geothermal heat pumps](http://en.wikipedia.org/wiki/Geothermal_heat_pump) are used. Considering the combined system of central generating plant and electric resistance heating, the overall efficiency will be less than for direct use of fossil fuel for space heating.

Electric heating or resistance heating converts electricity directly to heat. Electric heat is often more expensive than heat produced by combustion appliances like natural gas, propane, and oil. Electric resistance heat can be provided by base- board heaters, space heaters, radiant heaters, furnaces, wall heaters, or thermal storage systems.

In larger commercial applications, central heating is provided through an [air](http://en.wikipedia.org/wiki/Air_handler) [handler](http://en.wikipedia.org/wiki/Air_handler) which incorporates similar components as a furnace but on a larger scale.

# Text 3: Types of ventilation

[en.wikipedia.org](http://en.wikipedia.org/)›[wiki/Ventilation\_(architecture)](http://en.wikipedia.org/wiki/Ventilation_(architecture))

Mechanical or forced ventilation: through an [air handling unit](http://en.wikipedia.org/wiki/Air_handling_unit) or direct in- jection to a space by a [fan](http://en.wikipedia.org/wiki/Fan_(mechanical)). A local exhaust fan can enhance infiltration or natural

ventilation, thus increasing the ventilation air flow rate.

[Natural ventilation](http://en.wikipedia.org/wiki/Natural_ventilation) occurs when the air in a space is changed with outdoor air without the use of mechanical systems, such as a fan. Most often natural ventilation is assured through operable windows but it can also be achieved through temperature and pressure differences between spaces. Open windows or vents are not a good choice for ventilating a basement or other below ground structure. Al- lowing outside air into a cooler below ground space will cause problems with humidity and condensation.

[Mixed Mode Ventilation](http://en.wikipedia.org/wiki/Mixed_Mode_Ventilation) or Hybrid ventilation: utilises both mechanical and natural ventilation processes. The mechanical and natural components may be used in conjunction with each other or separately at different times of day. The natural component, sometimes subject to unpredictable external weather conditions may not always be adequate to ventilate the desired space. The mechanical component is then used to increase the overall ventilation rate so that the desired internal conditions are met. Alternatively the mechanical component may be used as a control measure to regulate the natural ventilation process, for example, to restrict the air change rate during periods of high wind speeds.

# Text 4: Key elements of a fire safety policy

[en.wikipedia.org](http://en.wikipedia.org/)›[wiki/Fire\_safety](http://en.wikipedia.org/wiki/Fire_safety)

Fire safety refers to precautions that are taken to prevent or reduce the likelihood of a [fire](http://en.wikipedia.org/wiki/Fire) that may result in death, injury, or property damage, alert those in a structure to the presence of a fire in the event one occurs, better enable those threatened by a fire to survive, or to reduce the damage caused by a fire. Fire safety measures include those that are planned during the [construction](http://en.wikipedia.org/wiki/Construction) of a building or implemented in structures that are already standing, and those that are taught to oc- cupants of the building.

Threats to fire safety are referred to as *fire hazards*. A fire hazard may include a situation that increases the likelihood a fire may start or may impede [es-](http://en.wikipedia.org/wiki/Fire_escape) [cape](http://en.wikipedia.org/wiki/Fire_escape) in the event a fire occurs.

Fire safety is often a component of [building safety](http://en.wikipedia.org/wiki/Building_code). Those who inspect build- ings for violations of the Fire Code and go into schools to educate children on Fire Safety topics are fire department members known as *fire prevention officers*. The Chief Fire Prevention Officer or Chief of Fire Prevention will normally train new- comers to the Fire Prevention Division and may also conduct inspections or make presentations.

# Text 5: The automotive Industry

[ru.wikipedia.org](http://ru.wikipedia.org/) › [wiki/English](http://ru.wikipedia.org/wiki/English) The automotive industry designs, develops, manufactures, markets, and sells

the world's [motor vehicles](http://en.wikipedia.org/wiki/Motor_vehicle).

About 250 million vehicles are in use in the United States. Around the world, there were about 806 million cars and light trucks on the road in 2007; they burn over 260 billion gallons of gasoline and diesel fuel yearly. The numbers are increasing rapidly, especially in China and India. In the opinion of some, urban transport systems based around the car have proved unsustainable, consuming excessive energy, affecting the health of populations, and delivering a declining level of service despite increasing investments. Many of these negative impacts fall dis- proportionately on those social groups who are also least likely to own and drive cars. The [sustainable transport](http://en.wikipedia.org/wiki/Sustainable_transport) movement focuses on solutions to these problems.

With rapidly rising oil prices, industries such as the automotive industry, are experiencing a combination of pricing pressures from raw material costs and changes in consumer buying habits. The industry is also facing increasing external competition from the public transport sector, as consumers re-evaluate their private vehicle usage.

The automotive market is formed by the demand and the industry. The Eu- ropean automotive market has always boasted a higher number of smaller cars than the United States. With the high fuel prices and the [world petroleum crisis](http://en.wikipedia.org/wiki/World_petroleum_crisis), the United States may see its automotive market become more like the European market with fewer large vehicles on the road and more [small cars](http://en.wikipedia.org/wiki/Small_car). For luxurious cars, with the current volatility in oil prices, going for smaller cars is not only smart, but

also trendy. And because fashion is of high importance with the upper classes, the little green cars with luxury trimmings become quite plausible.

# Text 6: Road construction

[en.wikipedia.org](http://en.wikipedia.org/)›[wiki/Road](http://en.wikipedia.org/wiki/Road)

Road construction requires the creation of a continuous [right-of-way](http://en.wikipedia.org/wiki/Right-of-way_(transportation)), over- coming geographic obstacles and having [grades](http://en.wikipedia.org/wiki/Grade_(slope)) low enough to permit [vehicle](http://en.wikipedia.org/wiki/Vehicle) or [foot travel](http://en.wikipedia.org/wiki/Walking) and may be required to meet standards set by [law](http://en.wikipedia.org/wiki/Law) or official guidelines. The process is often begun with the removal of earth and rock by digging or blast- ing, construction of [embankments](http://en.wikipedia.org/wiki/Embankment_(transportation)), [bridges](http://en.wikipedia.org/wiki/Bridge) and [tunnels](http://en.wikipedia.org/wiki/Tunnels), and removal of vegetation (this may involve [deforestation](http://en.wikipedia.org/wiki/Deforestation)) and followed by the laying of [pavement material](http://en.wikipedia.org/wiki/Pavement_(material)).

A variety of [road building equipment](http://en.wikipedia.org/wiki/Heavy_equipment) is employed in road building.

After [design](http://en.wikipedia.org/wiki/Structural_road_design), [approval](http://en.wikipedia.org/wiki/Approval_rating), [planning](http://en.wikipedia.org/wiki/Planning), [legal](http://en.wikipedia.org/wiki/Legal) and [environmental](http://en.wikipedia.org/wiki/Environmental_policy) considerations have been addressed alignment of the road is set out by a [surveyor](http://en.wikipedia.org/wiki/Surveying). Roads are de- signed and built for primary use by [vehicular](http://en.wikipedia.org/wiki/Vehicular) and [pedestrian](http://en.wikipedia.org/wiki/Pedestrian) [traffic](http://en.wikipedia.org/wiki/Traffic). [Storm drainage](http://en.wikipedia.org/wiki/Storm_drain) and environmental considerations are a major concern. Drainage systems must be capable of carrying the ultimate design flow from the upstream catchment with approval for the outfall from the appropriate authority to a [watercourse](http://en.wikipedia.org/wiki/Watercourse), [creek](http://en.wikipedia.org/wiki/Stream), [river](http://en.wikipedia.org/wiki/River) or the [sea](http://en.wikipedia.org/wiki/Sea) for drainage discharge.

A [borrow pit](http://en.wikipedia.org/wiki/Borrow_pit) (source for obtaining fill, gravel, and rock) and a water source should be located near or in reasonable distance to the road construction site. Ap- proval from [local authorities](http://en.wikipedia.org/wiki/Local_authorities) may be required to [draw water](http://en.wikipedia.org/wiki/Water_well) or for [working (crush-](http://en.wikipedia.org/wiki/Gravel) [ing and screening)](http://en.wikipedia.org/wiki/Gravel) of materials for construction needs. The [top soil](http://en.wikipedia.org/wiki/Top_soil) and [vegetation](http://en.wikipedia.org/wiki/Vegetation) is removed from the borrow pit and stockpiled for subsequent [rehabilitation](http://en.wikipedia.org/wiki/Land_rehabilitation) of the extraction area. Side slopes in the excavation area not steeper than one vertical to two horizontal for safety reasons.

Old road surfaces, fences, and buildings may need to be removed before construction can begin. [Trees](http://en.wikipedia.org/wiki/Tree) in the road construction area may be marked for re- tention. These protected trees should not have the topsoil within the area of the tree's drip line removed and the area should be kept clear of construction material and equipment. Compensation or replacement may be required if a protected tree is damaged. Much of the vegetation may be [mulched](http://en.wikipedia.org/wiki/Mulched) and put aside for use during re- instatement. The [topsoil](http://en.wikipedia.org/wiki/Topsoil) is usually stripped and stockpiled nearby for rehabilitation of newly constructed embankments along the road. Stumps and roots are removed and holes filled as required before the earthwork begins. Final rehabilitation after road construction is completed will include seeding, planting, watering and other activities to reinstate the area to be consistent with the untouched surrounding areas.

# Text 7: Artificial intelligence

<http://en.wikipedia.org/wiki/Artificial_intelligence>

Artificial intelligence (AI) is the [intelligence](http://en.wikipedia.org/wiki/Intelligence) of machines and the branch of [computer science](http://en.wikipedia.org/wiki/Computer_science) that aims to create it. AI textbooks define the field as "the study and design of intelligent agents" where an [intelligent agent](http://en.wikipedia.org/wiki/Intelligent_agent) is a system that per- ceives its environment and takes actions that maximize its chances of success. [John](http://en.wikipedia.org/wiki/John_McCarthy_%28computer_scientist%29)

[McCarthy](http://en.wikipedia.org/wiki/John_McCarthy_%28computer_scientist%29), who coined the term in 1956, defines it as "the science and engineering of making intelligent machines."

The field was founded on the claim that a central property of humans, intel- ligence—the [sapience](http://en.wikipedia.org/wiki/Sapience) of *[Homo sapiens](http://en.wikipedia.org/wiki/Homo_sapiens)*—can be so precisely described that it can be simulated by a machine. This raises philosophical issues about the nature of the [mind](http://en.wikipedia.org/wiki/Mind) and the ethics of creating artificial beings, issues which have been addressed by [myth](http://en.wikipedia.org/wiki/History_of_AI#AI_in_myth.2C_fiction_and_speculation), [fiction](http://en.wikipedia.org/wiki/Artificial_intelligence_in_fiction) and [philosophy](http://en.wikipedia.org/wiki/Philosophy_of_AI) since antiquity. Artificial intelligence has been the subject of optimism, but has also suffered setbacks and, today, has become an essential part of the technology industry, providing the heavy lifting for many of the most difficult problems in computer science.

AI research is highly technical and specialized, deeply divided into subfields that often fail to communicate with each other. Subfields have grown up around particular institutions, the work of individual researchers, the solution of specific problems, longstanding differences of opinion about how AI should be done and the application of widely differing tools. The central problems of AI include such traits as reasoning, knowledge, planning, learning, communication, perception and the ability to move and manipulate objects. General intelligence (or "[strong AI](http://en.wikipedia.org/wiki/Strong_AI)") is still among the field's long term goals.

# Text 8: Production, cost, and efficiency

[en.wikipedia.org](http://en.wikipedia.org/)

In microeconomics, [production](http://en.wikipedia.org/wiki/Production) is the conversion of [inputs](http://en.wikipedia.org/wiki/Factor_of_production) into [outputs](http://en.wikipedia.org/wiki/Output_%28economics%29). It is an economic process that uses inputs to create a [commodity](http://en.wikipedia.org/wiki/Good_%28economics%29) for [exchange](http://en.wikipedia.org/wiki/Trade) or direct use. Production is a [flow](http://en.wikipedia.org/wiki/Stock_and_flow) and thus a rate of output per period of time. Distinctions include such production alternatives as for [consumption](http://en.wikipedia.org/wiki/Consumption_%28economics%29) (food, haircuts, etc.) vs. [investment goods](http://en.wikipedia.org/wiki/Investment#In_economics_or_macroeconomics) (new tractors, buildings, roads, etc.), [public goods](http://en.wikipedia.org/wiki/Public_good) (national de- fense, small-pox vaccinations, etc.) or [private goods](http://en.wikipedia.org/wiki/Private_good) (new computers, bananas, etc.), and ["guns" vs. "butter"](http://en.wikipedia.org/wiki/Guns_versus_butter_model).

[Opportunity cost](http://en.wikipedia.org/wiki/Opportunity_cost) refers to the [economic cost](http://en.wikipedia.org/wiki/Economic_cost) of production: the value of the next best opportunity foregone. Choices must be made between desirable yet [mu-](http://en.wikipedia.org/wiki/Mutually_exclusive) [tually exclusive](http://en.wikipedia.org/wiki/Mutually_exclusive) actions. It has been described as expressing "the basic relationship between [scarcity](http://en.wikipedia.org/wiki/Scarcity) and [choice](http://en.wikipedia.org/wiki/Choice)." The opportunity cost of an activity is an element in ensuring that scarce resources are used efficiently, such that the cost is weighed against the value of that activity in deciding on more or less of it. Opportunity costs are not restricted to monetary or financial costs but could be measured by the [real cost](http://en.wikipedia.org/wiki/Real_versus_nominal_value) of [output forgone](http://en.wikipedia.org/wiki/Production-possibility_frontier#Opportunity_cost), [leisure](http://en.wikipedia.org/wiki/Leisure), or anything else that provides the alternative benefit ([utility](http://en.wikipedia.org/wiki/Utility)).

Inputs used in the production process include such primary [factors of pro-](http://en.wikipedia.org/wiki/Factors_of_production) [duction](http://en.wikipedia.org/wiki/Factors_of_production) as [labour services](http://en.wikipedia.org/wiki/Labour_%28economics%29), [capital](http://en.wikipedia.org/wiki/Capital_%28economics%29) (durable produced goods used in production, such as an existing factory), and [land](http://en.wikipedia.org/wiki/Land_%28economics%29) (including natural resources). Other inputs may include [intermediate goods](http://en.wikipedia.org/wiki/Intermediate_good) used in production of final goods, such as the steel in a new car.

[Economic efficiency](http://en.wikipedia.org/wiki/Economic_efficiency) describes how well a system generates desired output with a given set of inputs and available [technology](http://en.wikipedia.org/wiki/Technology). Efficiency is improved if more

output is generated without changing inputs, or in other words, the amount of "waste" is reduced. A widely-accepted general standard is [Pareto efficiency](http://en.wikipedia.org/wiki/Pareto_efficiency), which is reached when no further change can make someone better off without making someone else worse off.

Much [applied economics](http://en.wikipedia.org/wiki/Applied_economics) in [public policy](http://en.wikipedia.org/wiki/Public_policy) is concerned with determining how the efficiency of an economy can be improved. Recognizing the reality of scarcity and then figuring out how to organize society for the most efficient use of resources has been described as the "essence of economics," where the subject "makes its unique contribution."

# Text 9: Public relations (PR)

[en.wikipedia.org](http://en.wikipedia.org/)›[Public relations](http://en.wikipedia.org/wiki/Public_relations)

Public relations (PR) is the actions of a corporation, store, government, individual, etc., in promoting goodwill between itself and the public, the community, employees, customers, etc.

An earlier definition of public relations, by The first World Assembly of Public Relations Associations, held in Mexico City, in August 1978, was "the art and [social science](http://en.wikipedia.org/wiki/Social_science) of analyzing [trends](http://en.wikipedia.org/wiki/Fad), predicting their consequences, counseling organizational leaders, and implementing planned programs of action, which will serve both the organization and the [public interest](http://en.wikipedia.org/wiki/Public_interest)." Others define it as the practice of managing [communication](http://en.wikipedia.org/wiki/Communication) between an organization and its publics.

The [European](http://en.wikipedia.org/wiki/Europe) view of public relations notes that besides a relational form of interactivity there is also a reflective paradigm that is concerned with publics and the [public sphere](http://en.wikipedia.org/wiki/Public_sphere); not only with relational, which can in principle be private, but also with public consequences of organizational behaviour. A much broader view of interactive communication using the [Internet](http://en.wikipedia.org/wiki/Internet), as outlined by Phillips and Young in Online Public Relations Second Edition (2009), describes the form and nature of Internet-mediated public relations. It encompasses social media and other channels for communication and many platforms for communication such as [personal com-](http://en.wikipedia.org/wiki/Personal_computer) [puters](http://en.wikipedia.org/wiki/Personal_computer) (PCs), [mobile phones](http://en.wikipedia.org/wiki/Mobile_phone) and [video game consoles](http://en.wikipedia.org/wiki/Video_game_console) with [Internet access](http://en.wikipedia.org/wiki/Internet_access). The in- creasing use of the mentioned technologies give the media a democratisation pow- er and thus, aid to the demystification of subjects.

Public relations is used to build rapport with employees, customers, inves- tors, voters, or the general public. Almost any organization that has a stake in how it is portrayed in the public arena employs some level of public relations. There are a number of public relations disciplines falling under the banner of [corporate](http://en.wikipedia.org/wiki/Corporate_communications) [communications](http://en.wikipedia.org/wiki/Corporate_communications), such as [analyst relations](http://en.wikipedia.org/wiki/Analyst_relations), [media relations](http://en.wikipedia.org/wiki/Media_relations), [investor relations](http://en.wikipedia.org/wiki/Investor_relations), [in-](http://en.wikipedia.org/wiki/Internal_communications) [ternal communications](http://en.wikipedia.org/wiki/Internal_communications) and [labor relations](http://en.wikipedia.org/wiki/Labor_relations). Most of them include the aspect of peer review to get liability.

# Примерная структура реферата

1. **Содержание** – содержание на русском языке 2.**Contents** – содержание на английском языке

3.**Аннотация** – аннотация на русском языке (объем 10-12 строк) 4.**Abstract** – аннотация на английском языке (объем 10-12 строк)

1. **Введение** – введение в проблематику реферата на русском языке (объем примерно 1 страница)
2. **Introduction** – введение в проблематику реферата на английском языке (объем примерно 1 страница)
3. **Глава I, II, III** – основная часть реферата: перевод с английского языка на русский аутентичного научно-технического текста по специальности аспиранта
4. **Chapter I, II, III** – аутентичный научно-технический текст по специально- сти аспиранта на английском языке
5. **Заключение** – выводы на русском языке (объем примерно 1 страница) 10.**Conclusion** – выводы на английском языке (объем примерно 1 страница)
6. **References** / Библиографический список – список используемых источни- ков: научные книги, монографии, статьи, интернет-ресурсы, словари
7. **Professional Vocabulary** / Терминологический тезаурус – словарь профес- сиональных терминов (оформляется в соответствии с английским алфавитом с указанием части речи: [n] – существительное, [adj] – прилагательное, [v] - глагол)
8. **Authentic Materials** / Аутентичные материалы – ориги- нал/ксерокопия/скан/скрин-шот текстов на английском языке
9. **Supplement** – приложение 15.**Table** – таблица