# МИНИСТЕРСТВО ОБРАЗОВАНИЯ РЕСПУБЛИКИ БЕЛАРУСЬ

Учреждение образования «БРЕСТСКИЙ ГОСУДАРСТВЕННЫЙ ТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ»

Кафедра иностранных языков по техническим специальностям

# КОНТРОЛЬНЫЕ ЗАДАНИЯ

по дисциплине «Иностранный язык» (английский) и методические рекомендации по их выполнению

для студентов заочной формы обучения специальности 1-37 01 06 «Техническая эксплуатация автомобилей»



Методические указания предназначены для студентов заочного отделения специальности 1-37 01 06 «Техническая эксплуатация автомобилей» и рассчитаны на самостоятельную работу.

Основная цель данного методического пособия — развитие и контроль навыков практического владения английским языком студентами неязыковых специальностей.

В издании включены контрольные задания и рекомендации по их выполнению и порядку представления выполненных работ на проверку, рекомендованная литература (основные и дополнительные пособия) с указанием подлежащих проработке разделов грамматики английского языка. Каждая контрольная работа представлена в пяти вариантах.

Контрольные задания подготовлены в соответствии с учебной рабочей программой, разработанной на кафедре иностранных языков по техническим специальностям БрГТУ.

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# Методическая записка к контрольным заданиям

Целью выполнения контрольных заданий по дисциплине "Иностранный язык" является закрепление материала, самостоятельно изученного студентами в течение учебного семестра, и проверка уровня их подготовленности к зачету и итоговому экзамену.

Контрольное задание предлагается в нескольких вариантах. Студенту необходимо самостоятельно выбрать вариант контрольной работы в соответствии с цифрами студенческого шифра. Студенты, шифр которых оканчивается на 1 или 2, выполняют вариант №1; на 3 или 4 — №2; на 5 или 6 — № 3; на 7 или 8 — №4; на 9 или 0 — №5.

Выполнять контрольное задание рекомендуется в отдельной тетради. На обложке тетради укажите свои фамилию и инициалы, специальность, номер контрольного задания и Вашего варианта, а также Ваш студенческий шифр.

Контрольное задание должно выполняться четким почерком и аккуратно. При выполнении работы рекомендуется оставлять широкие поля для методических указаний и замечаний преподавателя-рецензента. Материалы контрольной работы следует располагать в тетради следующем образом:

	Левая страница		Правая страница	
По	ля	Текст на иностранном языке	Текст на русском языке	Поля

Выполненные контрольные задания должны быть направлены для проверки и рецензирования на кафедру иностранных языков по техническим специальностям до начала практических занятий. При получении работы с отметкой "незачтено" внимательно прочтите рецензию, ознакомьтесь с замечаниями и проанализируйте отмеченные в работе ошибки. Руководствуясь указаниями рецензента, еще раз проработайте учебный материал, вызвавший у Вас затруднения. Все предложения, в которых были обнаружены грамматические ошибки и неточности перевода, перепишите в исправленном виде в конце контрольной работы (после рецензии).

# Рекомендуемая литература

## Основные пособия

- 1. Бгашев В.Н., Доматовская Е.Ю. Английский языкю. Учебник для машиностроительных специальностей вузов. М.: Высш. шк., 1990. 416 с.
- 1. Дубровская С.Г., Дубина Д.Б. Английский для технических вузов. М.: Изд-во ACB, 2007. 328 с.
- 2. Полякова Т.Ю., Синявская Е.В., Тынкова О.И., Улановская Э.С. Английский для инженеров. М.: Высш. шк., 2008. 463 с.
  - 3. Англо-русский словарь / В.К. Мюллер. М.: РИПОЛ классик, 2009. 736 с.
  - 4. Англо-русский словарь / В.К. Мюллер. М.: Рус. яз., 1981. 888 с.
- 5. Англо-русский и русско-английский автомобильный словарь. / М.В. Тверитнев. М.: РУССО, 2005. 568 с.

## Дополнительные пособия

- 1. Орловская И.В., Самсонова Л.С., Скубриева А.И. Учебник английского языка для технических университетов и вузов. М.: Изд-во МГТУ им. Н.Э. Баумана, 2008. 448 с.
- 2. Хоменко С.А., Скалабан В.Ф., Крупеникова А.Г., Ушакова Е.Г. Английский для студентов технических вузов: основной курс. В 2 ч. Ч. 1. 287 с. Ч. 2. 207 с. Мн.: Выш. шк., 2006.

## **КОНТРОПЬНАЯ РАБОТА № 1**

Материал первого семестра включает следующие разделы курса английского языка:

- 1. Основные правила чтения и произношения гласных и основных буквосочетаний гласных. Основные правила чтения и произношения согласных и основных буквосочетаний согласных. Ударение в слове.
  - 2. Формы артикля. Основные правила употребления артикля.
- 3. Имя существительное: образование форм множественного числа и притяжательного падежа. Существительное в функции определения.
- 4. Местоимение: общее понятие о местоимениях английского языка, группы местоимений и их особенности.
- Неопределенное местоимение one, его функция в предложении и особенности перевода на русский язык.
  - 6. Числительные: количественные и порядковые, чтение хронологических дат.
- Спряжение глаголов to be и to have, особенности их перевода на русский язык.
- 8. Времена группы Indefinite (Present, Past, Future) в действительном и страдательном залоге. Особенности образования, употребления и перевода на русский язык.
  - 9. Предлоги (места, времени, направления).

- Перепишите следующие предложения и вставьте, где необходимо, артикль.
- 1. My father bought ... shirt and ... pair of ... shoes for himself.
- 2. ... petrol I bought yesterday was ... cheapest in ... area.
- 3. ... happiness is often ... product of ... honesty and ... hard work.
- II. Перепишите следующие предложения и вставьте глагол to be или to have в нужной форме.
- 1. She ... no make-up on except for her lips and she ... a lovely mouth that he wanted to see with no lipstick on.
- 2. He ... near sighted and ... thick spectacles that magnified his eyes to almost Martian proportions.
- 3. It ... Monday today and the children ... at school...
- III. Вставьте подходящее по смыслу местоимение (some, any, no или их производные, little, few, much, many).
- 1. Don't give the boy ... more sweets, it won't do him ... good.
- 2. There isn't ... cheese in the fridge but there is ... sausage.
- 3. Does .... know what is happening?
- IV. Перепишите и письменно переведите на русский язык предложение, обращая особое внимание местоимение one(s).
- 1. If one wants to subscribe to a newspaper one can do it at a post office.
- 2. This is the first telegramme and this is the second one.
- 3. One cold winter day the children went to the station.
- V. Найдите одну ошибку в каждом предложении и запишите правильный вариант.
- 1. They arrived at the nine o'clock.
- Minsk was founded in the eleven century.
- 3. He was born on the twenty-two of May.

- VI. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на атрибутивное употребление существительного.
- 1. At each station mezzanine you can find large colour-coded maps.
- 2. Reduced fares are available for Medicare card holders and senior citizens.
- 3. Town planners are thinking of new methods of construction and transportation.

VII. Напишите вопросы к выделенным частям предложения.

- 1. Tom is always very careful when driving.
- 2. Ann bought herself a new dress yesterday.
- 3. He was interrupted by the ringing of the telephone.
- VIII. Перепишите предложения и укажите (в скобках) грамматические характеристики слова, оформленного подчеркнутой морфемой s (мн. ч существительного, притяжательный падеж, 3-е лицо ед. ч. глагола в Present Indefinite).
- 1. In the column there were carts loaded with household goods.
- 2. It seems unnatural for a gentleman to dye his hair.
- 3. Can I go over to Ann's today, Mummy? Yes, you can, on your bike.
  - IX. Переведите письменно следующие предложения на английский язык.
- 1. Ее волосы совсем темные и красивые.
- 2. Брауны живут в Лондоне на авеню Белсайд.
- 3. Он дал нам эти книги вчера и просил вернуть их в среду.
- 4. Тридцать второй президент США Ф. Рузвельт родился в 1882 году.
- X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «From the highest ... library building in London».

## LONDON'S ATTRACTIONS and LIBRARIES

In the sphere of visual art London can supply any visitor a vast range of emotions. The British Museum is an almost incomparable introduction to Egyptian, Greek, and Roman arts in all their branches, from pottery to sculpture; and it can hold its own with antiquity department of the Louvre or the prewar Pergamon Museum in Berlin. The collection has been arranged with great care, and the layout is clear and easy to grasp.

The National Gallery in Trafalgar Square has one of the best balanced picture collections in the world. It can show the progress of Italian painting from the medieval to the mature mastery of Renaissance; some outstanding pictures of the old Roman masters; an excellent choice of Spanish painters, with El Greco, Velasquez, and Ribera leading; a great variety of unsurpassed Dutch and Flemish masters; a most valuable display of French paintings from the early days of the Impressionists; and, of course, the bulk of the finest English painting, with Gainsborough, Turner, Constable, and Reynolds.

The Tate Gallery in Millmank has a collection complementary to that of the National Gallery, for it presents modern masters of England and France. Its collection of French Impressionists is outstanding, and there are some fine examples of modern sculpture. The Victoria and Albert Museum in Brompton Road has a splendid collection mainly of the applied arts, of all countries and periods, also a new Costume Court, and many exhibits of interest to any student of the visual arts.

There are great treasures dispersed in private collections throughout the country; the Queen's collection is the most valuable among them.

London is one of the most literary-minded cities in the world. It would be hard to think of a subject which has not got a library devoted specially to it.

Let us start with the highest library in London, the Capitular Library of St. Paul's Cathedral. To reach it, you must be prepared for a long climb, for it is situated right up

near the Whispering Gallery which encircles the base of the cathedral dome.

The origin of the library dates back to the seventh century, but all its books, with the exception of some books printed before 1500 and six manuscripts, were destroyed in the Great Fire of London in 1666. The archives, however, were preserved. The Library was refounded after the Fire and the collection was built up again by gift and purchase during the 17th and 18th centuries.

From the highest library in London to the biggest — which, of course, is that of the British Museum. The British Museum Library contains about six million books and the large circula Reading Room is in the centre of the Museum building. In the Reading Room is a reference section of 30,000 volumes on open shelves and also the catalogues for the whole library.

In 1841 the London Library in St. James Square was founded — a library of about

600,000 volumes, mainly devoted to the humanities and fine arts.

Guildhall Library founded in 1425, maintained by the City of London Corporation, is the largest public general library in London. It has a very extensive collection, including many thousand original records, relating to every aspect of London history and

topography.

Each of the London boroughs maintains a public library service. Holborn's Central Library, for example, is housed in a fine new building which was opened in 1960 and has attracted interested visitors from all parts of the world. It has over 150,000 books (lending and reference), as well as over 5,000 gramophone records of musical works and language instruction. 1960 also saw the opening of Kensington's new Central Library, the largest municipal public library building in London.

- Перепишите следующие предложения и вставьте, где необходимо, артикль.
- 1. They would like to stay at ... hotel, but ... hotels there are very expensive.
- 2. We'll go for ... walk if ... sun comes out.
- 3. This is ... last time I do you ... favour.
- Перепишите следующие предложения и вставьте глагол to be или to have в нужной форме.
- 1. The sea ... a bit cold but the children ... happy.
- 2. ... there a train to Manchester?
- 3. They had their English class in the morning yesterday, but normally they ... English classes in the afternoon.
- III. Вставьте подходящее по смыслу местоимение (some, any, по или их производные, little, few, much, many).
- 1. We didn't have ... money but Tom had ....
- 2. He was very shy and didn't talk to ....
- 2. Tom lives ... near Toronto.
- IV. Перепишите и письменно переведите на русский язык предложение, обращая особое внимание местоимение *one(s)*.
- 1. These books are too difficult for you. Take the ones on the top shelf.
- 2. Don't buy that expensive suit, this one is much better and cheaper.
- 3. "It shows that one should be careful what one says", said Faith lightly.
- V. Найдите одну ошибку в каждом предложении и запишите правильный вариант.
- 1. Let's meet at the six o'clock.
- 2. Did he come back on the six of May?
- 3. We met in nineteen hundred ninety two.

VI. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на атрибутивное употребление существительного.

1. Moving payements will replace the older forms of city traffic only in certain streets.

In the future we'll probably have electric cars or steam cars.

3. Police departments agreed to retrofit existing police cars with driver-side air bags.

VII. Напишите вопросы к выделенным частям предложения.

1. When Father comes back from work we'll have supper.

Alexander Fleming invented penicillin in 1928.

3. Each candidate was questioned in turn by the two separate examiners.

VIII. Перепишите предложения и укажите (в скобках) грамматические характеристики слова, оформленного подчеркнутой морфемой *s* (мн. ч существительного, притяжательный падеж, 3-е лицо ед. ч. глагола в Present Indefinite).

1. Raymond Parker was a foreman at the motor works.

2. The B-17 flies with a five-man crew against our nine.

3. Miss Ushertold told Esther that she would be singing Nicolo's solos.

IX. Переведите письменно следующие предложения на английский язык.

1. Эти новости очень интересные.

2. Вы предпочитаете черный кофе или кофе с молоком?

3. Они были в Ливерпуле, и этот город им очень понравился.

4. Королева Великобритании Елизавета і родилась 21 апреля 1926 года.

X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок « An old-established section ...... members of the force»

# SCOTLAND YARD

Scotland Yard is the headquarters of the Metropolitan Police in London. To most people, its name immediately brings to mind the picture of a detective — cool, collected, efficient, ready to track down any criminal with complete confidence that he will bring him to justice, or a helmeted police-constable — that familiar figure of the London scene and trusty helper of every traveller from overseas.

Scotland Yard is situated on the Thames Embankment close to the Houses of Parliament and the familiar clock tower of Big Ben, and its jurisdiction extends over 740 square miles with the exception of the ancient City of London, which possesses its own separate Police force.

One of the most successful developments in Scotland Yard's crime detection and emergency service has been the "999 system". On receipt of a call 999 Room operator ascertains by electronic device the position of the nearest available police car, which is contacted by radio. Almost instantly, a message is also sent by teleprinter to the police stations concerned, so that within seconds a call for assistance being received, a police car is on its way to the scene and all neighbouring police stations have been notified.

Apart from the 999 Room, one of the most interesting places in Scotland Yard is the Map Room. Here is the General Crime Map, the Deaths by Violence Map, the Accidents Map and the Vehicles Recovered Map.

An old-established section of the Metropolitan Police is the Mounted Branch, with its strength of about 200 horses stabled at strategic points. These horses are particularly suited to ceremonial occasions, for they are accustomed to military bands.

An interesting branch of Scotland Yard is the branch of Police Dogs, first used as an experiment in 1938. Now these dogs are an important part of the Force. One dog, for example, can search a warehouse in ten minutes, whereas the same search would take six men an hour.

There is also the River Police, or Thames Division, which has its own crime investigation officers who handle all crimes occurring within its river boundaries.

There are two other departments of Scotland Yard — the Witness Room (known as the Rogues' Callery) where a photographic record of known or suspected criminals is kept, and the Museum, which contains murder relics, forgery exhibits and coming moulds.

The name "Scotland Yard" originates from the plot of land adjoining Whitehall Palace where, in about the 14th century, the royalty and nobility of Scotland stayed when visiting the English Court.

The popular nickname of the London policeman "bobby" is a tribute to Sir Robert Peel, who introduced the police force in 1829, and whose Christian name attached itself to members of the force.

- I. Перепишите следующие предложения и вставьте, где необходимо, артикль.
- 1. Thank you for ... favour you've done for me.
- 2. Peter has ... charming wife and two children. ... two children are twins.
- 3. I didn't see ... dog when I walked into ... room because it was under ... bed.
- II. Перепишите следующие предложения и вставьте глагол to be или to have в нужной форме.
- 1. How many boys and girls ... there in his family?
- 2. It ... very warm today, but three days ago it ... cool.
- 3. She ... enormous eyes, made larger by the triple-thick theatrical eyelashes she ... wearing.
- III. Вставьте подходящее по смыслу местоимение (some, any, по или их производные, little, few, much, many).
- 1. I couldn't find ... books by this author at the university library.
- 2. ... left his scarf on the window-sill vesterday.
- 3. Never mind such things can happen to ....
- √ IV. Перепишите и письменно переведите на русский язык предложение, обращая особое внимание местоимение *one(s)*.
- 1. He has interviewed my friends the ones I have now and the ones who were with me in former years.
- 2. When one knows that others suffer one's ashamed.
- 3. "Did father have an ordinary illness like an English one?" said Gavin.
- V. Найдите одну ошибку в каждом предложении и запишите правильный вариант.
- 1. Sunday is the seven day of the week.
- 2. My mother's birthday is twenty of July.
- 3. How old is he? I think he is twenty-first.
- ∨ VI. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на атрибутивное употребление существительного.
- 1. Sixty per cent of drivers favour air bag requirements, while fifty per cent support automatic seat belts.
- 2. The cost of each car is about \$7,000, of which \$1,500 is for the air bags and other safety equipment.
- 3. E. Rutherford moved to Canada to continue his research work.
  - VII. Напишите вопросы к выделенным частям предложения.
- 1. He works at night and sleeps in the day-time.

- 2. I ordered a taxi to take me to the air-port.
- 3. He opened his eyes and was blinded by the circle smaller than the moon.
- VIII. Перепишите предложения и укажите (в скобках) грамматические характеристики слова, оформленного подчеркнутой морфемой s (мн. ч существительного, притяжательный падеж, 3-е лицо ед. ч. глагола в Present Indefinite).
- 1. They hoped for one of the new houses on a building site on the outskirts of the town.
- 2. By the time she gets into the public school system, things will be different.
- 3. He wore the remains of shorts and his feet were bare like Jack's.
  - IX. Переведите письменно следующие предложения на английский язык.
- 1. Ваши деньги на столе. Возьмите их.
- 2. Вот книга, которую вы хотите прочитать.
- 3. Не делай это за него. Пусть он все делает сам.
- 4. В нашей библиотеке более сотни книг на французском языке.

X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «Double-deckers have .... pay a £10 fine».

# **LONDON TRAFFIC**

Traffic in London differs from that of the Continent. In England they keep to the left but not to the right. In England people say: "If you go left, you go right. If you go right, you go wrong."

They say that once upon a time people kept to any side of the road they liked. But then they decided to make it a rule to keep to the left. As Napoleon hated the British very much, he decided that in France the people should keep to a different side. And later on in all the countries which he conquered he made the traffic keep to the right.

In London one can see many buses, cars and taxes in the streets. The English omnibuses are often called "double-deckers", because they are very high and have seats on the upper and lower decks. The London buses first came into the streets in 1829. At first they were horse-drawn omnibuses, with three horses. They say they were imported from Paris. The double-deckers of today are speedy and comfortable, but they seem to be very clumsy moving slowly through the endless line of taxis and cars of all sizes and models. Still they manage to maneuver very well without running into one another.

There are no trams in London since 1952. The main transport is the underground. The London underground is often called the tube, because it looks like a long, narrow and dimly lit tube, with its walls plastered with all kinds of advertisements. There are no vestibules in the London underground. The sign of the London underground — a red circle crossed with a blue stripe can be seen on the buildings or just under a staircase leading straight under the ground. The London underground stations are old and not attractive to the eye. Trains haven't any fixed schedule. During rush hours big crowds gather. The tube tunnels seem to be very small, too narrow for a train.

One must be very careful using the word "subway" in London. It does not mean "the underground". It means "a passage under the street for pedestrians".

There are two main kinds of buses in London: the red double-decker and the red single-decker. There are a large number of routes in London. The main places the bus goes to are shown on the front of the bus.

Some double-deckers in London have automatic doors, and you pay the driver when you go in. On the single-deckers you buy your ticket from a machine in the bus.

These buses travel between, the main stations and stop at fewer stops than the double-deckers. But most London buses have a conductor, who will come round and collect fares.

You can get a bus map of London at most underground stations. This map shows the routes for all the buses. But you'll have to find the bus stop yourself and remember to look for the number of the bus on the post at the bus stop. You must do so because in busy street there may be four or five bus stops close together.

 $\sqrt{\text{Double-deckers}}$  have seats for 65 people. Only 5 people are allowed to stand when the seats are full. So the conductor may stop you getting on the bus if there are five

passengers already standing.

Traffic wardens, a familiar sight in London, were introduced in 1960 to control parking. They wear navy-blue uniforms and a peaked cap with yellow bands.

Parking in London is very expensive. You must either use a car park or a parking meter where you can park for up to 2 or 4 hours. In central London it costs 10 p to park for 10 minutes. If you don't return in time, you will often find the traffic warden has booked you and given you a parking ticket. This will mean that you must pay a £10 fine.

If you are very unlucky you may not even find your car because the police or traffic wardens have towed it away. When you collect you have to pay £45 + £10 fine... so be careful where you leave your car!

- Перепишите следующие предложения и вставьте, где необходимо, артикль.
- 1. ... student must use ... his ID card to be admitted to ... library.
- 2. If ... person expects to play ... guitar well, he must be willing to practice often.
- 3. ... government plans to help ... poor and ... unemployed.
- II. Перепишите следующие предложения и вставьте глагол to be или to have в нужной форме.
- Often forests ... the source of the food she cooked.
- 2 I'm afraid there ... no time to see Granny.
- 3. He ... just six feet tall and he ... a gallant hearing.
- III. Вставьте подходящее по смыслу местоимение (some, any, по или их производные, little, few, much, many).
- 1. We haven't got ... apples, but I can offer you ... grapes.
- 2. Can you lend me ... money? I'm afraid I have no money on me.
- 3. Your dictation is better, you've made .... mistakes than usual.
- IV. Перепишите и письменно переведите на русский язык предложение, обращая особое внимание местоимение one(s).
- 1. I know we are actors, and after eight performances a week one wants one's Sundays to oneself.
- 2. The moment one gets into the mountains, one is on one's own.
- One has to rely on oneself for everything.
  - V. Найдите одну ошибку в каждом предложении и запишите правильный вариант.
- 1. What's the two month of the year?
- 2. One three of the population of the country work in agriculture.
- My father's birthday is the five of June.
- Перепишите следующие предложения и переведите их на русский язык, обращая внимание на атрибутивное употребление существительного.

- 1. Motor transport include buses, lorries, motor coaches and motor cars.
- 2. Large amounts of energy can be received from ocean tides and currents, huge underground steam deposits.
- 3. Plastics are employed in a number of aircraft applications.

VII. Напишите вопросы к выделенным частям предложения.

- 1. She will give two concerts in London next week.
- 2. We waited for a bus for nearly an hour.
- 3. This proposal will be brought over next week.

VIII. Перепишите предложения и укажите (в скобках) грамматические характеристики слова, оформленного подчеркнутой морфемой s (мн. ч существительного, притяжательный падеж, 3-е лицо ед. ч. глагола в Present Indefinite).

- 1. Once upon a time nothing but herds of oxen went through here on their way from Normandy.
- 2. If anyone comes to the door, I'll go and let them in.
- 3. He took the morning train and arrived at his mother's at lunch-time.

ІХ. Переведите письменно следующие предложения на английский язык.

- 1. Ваши советы очень полезные.
- 2. Озеро Байкал самое глубокое из всех озер в мире.
- 3. Какие туфли тебе понравились? Эти или те?
- 4. Мой родной город небольшой. Его население около трехсот тысяч жителей.

X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок « The man who ran ...... in December 1980».

## LIVERPOOL AND THE BEATLES

In October 1962, when the first single record, "Love Me Do", by an unknown group from Liverpool entered the British Top Thirty, the Beaties became nationally famous in England. The famous four who recorded that song were John Lennon, Paul McCartney, George Harrison and Ringo Starr, who became the most successful pop group the world has ever known.

However, the road to success was not always easy. John and Paul had spent many afternoons listening to American stars like Chuck Berry and Elvis Presley before they were able to write the famous Lennon and McCartney songs.

Some years before, when John Lennon was only 19 and George Harrison about 17, the group was invited to play at the famous Star Club in Hamburg in Germany. Although the long evenings spent playing in hot nightclubs in Liverpool and in Hamburg had not earned them much money, they found the experience very useful when playing to huge audience later on.

The Beatles began a series of lunchtime concerts at Liverpool's Cavern Club. They were a great success. The road outside the club was always crowded with girls who worked in nearby shops and offices. They came to see the Beatles during their lunch-break.

The man who ran the local record shop became the Beatles manager. His name was Brian Epstein. He managed to change four ordinary working-class lads into international superstars. George Martin, their record producer, encouraged them to introduce all kinds of unusual instruments on their records and combined popular and classical styles in a new and original way.

During the 1960s the Beatles were always in the news headlnes; films, world tours and sometimes scandal. John once suggested that the Beatles were better known than Jesus Christ. This caused anti-Beatles demonstrations in America where young Americans

burned their Beatles records. In addition some people thought there were hidden messages about drugs in some of the songs.

After a decade of successful music and films, the Beatles finally decided to break up in the early seventies, after public disagreements about money and personalities.

Although many fans hoped there would be a reunion throughout the 1970s, this became impossible with the tragic murder of John Lennon in New York in December 1980.

In October 1982, 20 years after "Love Me Do" entered the British Hit Parade, a Beatles song was again in the Top Ten. The song was... "Love Me Do". The survival Beatles are still deeply involved in musical and film projects, but many fans still long for the music of the 60s.

- Перепишите следующие предложения и вставьте, где необходимо, артикль.
- $1.\dots$  weather was lovely when I woke up yesterday morning;  $\dots$  sun was shining and there was  $\dots$  beautiful blue sky.
- 2. ... pollution is one of ... greatest problems facing ... mankind.
- 3. She was wearing ... jeans. In ... fact they are ... jeans she wore ... last year.
- II. Перепишите следующие предложения и вставьте глагол to be или to have в нужной форме.
- 1. How many potatoes ... there on the plate?
- 2. The Opera and Ballet Theatre ... situated not far from a beautiful park.
- 3. I'm lucky enough to ... a friend who ... a gifted pianist.
- III. Вставьте подходящее по смыслу местоимение (some, any, по или их производные, little, few, much, many).
- 1. Very ... people have heard about it..
- 2. You should have seen how ... he ate. I couldn't believe it.
- 3. He expected ... people, but only ... came.
- IV. Перепишите и письменно переведите на русский язык предложение, обращая особое внимание местоимение one(s).
- 1. This means one has to carry all one's own food.
- 2. One won't see any local people for days, so one can't get help if one is lost.
- 3. One has to do one's best to find sheltered places to spend the night.
- V. Найдите одну ошибку в каждом предложении и запишите правильный вариант.
- 1. I came to Nottingham third days ago.
- 2. The population of my native town is three hundreds fifty thousand people.
- 3. February is the two winter month.
- VI. Перепишите следующие предложения и переведите их на русский язык, обращая внимание на атрибутивное употребление существительного.
- 1. The current energy problem is the result of many complex and inter-related factors.
- 2. Astronaut coaches, space capsules, missile fuel cases are manufactured of plastic materials.
- 3. The water transport in ancient times developed most rapidly on great rivers.
  - VII. Напишите вопросы к выделенным частям предложения.
- 1. If we start at nine, we'll have plenty of time for the shops.
- 2. When I opened the envelope I was delighted to see a picture of my friend's family.

## 3. He was sent for very late.

- VIII. Перепишите предложения и укажите (в скобках) грамматические характеристики слова, оформленного подчеркнутой морфемой s (мн. ч существительного, притяжательный падеж, 3-е лицо ед. ч. глагола в Present Indefinite).
- 1. His eyes glowed redly like two coals.
- I suppose it sometimes happens that letters arrive for people when no one of that name
  is staying here.
- 3. "But frankly, this business of your wife's seems to me rather out of my class", said Michael.

ІХ. Переведите письменно следующие предложения на английский язык.

- 1. Его одежда грязная и мокрая. Постирай ее, пожалуйста.
- 2. Она принесла чай, который мы выпили с большим удовольствием.
- 3. Они поедут за город со своими родителями.
- 4. У него очень богатая библиотека, В ней более четырехсот книг.

X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «However the fact is ....... down to the river Cam».

## **CAMBRIDGE UNIVERSITY**

Cambridge is situated at a distance of 70 miles from London; the greater part of the town lies on the left bank of the river Cam crossed by several bridges.

Cambridge is one of the loveliest towns of England; it is not a modern industrial city and looks much more like a country town.

It is very green presenting to a visitor a series of beautiful groupings of architecture, trees, gardens, lawns and bridges. The main building material is stone having a pinkish colour which adds life and warmth to the picture in all seasons of the year. The dominating factor in Cambridge is its well-known University, a centre of education and learning, closely connected with the life and thought of Great Britain. Newton, Byron, Darwin, Rutherford and many other scientists and writers were educated at Cambridge. In Cambridge everything centers on the University and its colleges.

The oldest college is Peterhouse, which was founded in 1284. The most recent is Robinson College, which was opened in 1977. The most famous is probably King's, because of its magnificent chapel. Its choir of boys and undergraduates is also very well known.

The University was exclusively for men until 1871 when the first women's college was opened. Another was opened two years later and a third in 1954. In the 1970s, most colleges opened their doors to both men and women. Almost all colleges now are mixed, but it will be many years before there are equal numbers of both sexes. Until today there are more than twenty colleges in Cambridge. There is a close connection between the University and colleges, though they are quite separate in theory and practice.

Each college has its own building, its own internal organization, its own staff and students. In order to enter the university, one must first apply to a college and become a member of the university through the college. The colleges are not connected with any particular study. Students studying literature, for example, and those trained for physics may belong to one and the same college.

However the fact is that one is to be a member of a college in order to be a member of the University. The colleges are governed by twenty or thirty "fellows". Fellows of a college are "tutors" (teachers, often called "dons"). Each tutor has 10-12 students reading

under his guidance. Tutors teach their own subject to those students in the college who are studying it, and they are responsible for their progress.

Every college is governed by a dean. Discipline is looked after by proctors and

numerous minor officials called "bulldogs".

The University is like a federation of colleges. It arranges the courses, the lectures and the examinations, and grants the degrees. A college is a group of buildings forming a square with a green lawn in the centre. An old tradition does not allow the students to walk on the grass: this is the privilege of professors and head-students only. Most of the colleges, however, allow visitors to enter the grounds and courtyards. The most popular place from which to view them is from the Backs, where the college grounds go down to the river Cam.

Students study at the University for four years, three terms a year. Long vacation lasts about three months. There are many libraries at Cambridge, some of them have rare collections of books. In one of them among the earliest books by Shakespeare and other great writers one may see an early description of Russia by an Englishman on diplomatic

service there (in 1591) and a Russian reading book of the seventeenth century.

# КОНТРОЛЬНАЯ РАБОТА 2

Материал второго семестра включает следующие разделы курса грамматики английского языка:

1. Времена групп Continuous и Perfect (Predsent, Past, Future) в действительном и страдательном залоге: особенности образования, употребления и перевода на русский язык.

2. Модальные глаголы и их эквиваленты.

3. Времена группы Perfect Continuous (Predsent, Past, Future) в действительном залоге: особенности образования, употребления и перевода на русский язык.

4. Предлоги (места, направления). Предлоги, совпадающие с наречиями.

- 5. Порядок слов в утвердительном предложении. Особенности вопросительных и отрицательных предложений. Типы вопросительных предложений.
  - 6. Правило согласования времен в главном и придаточном предложении.
  - 7. Словообразование: суффиксы имен существительных и прилагательных.

# Вариант 1

- Перепишите следующие предложения, подчеркните в каждом из них сказуемое и определите его видовременную форму и залог. Переведите предложения на русский язык письменно.
- 1. George went to the cinema, but he didn't enjoy the film much.

2. Do you know that they were born on the same day?

- 3. Some people think that the "Twelfth Night" wasn't written by Shakespeare.
- After the stewardesses had served lunch to the passengers, they calmed down.
  - Перепишите следующие предложения, употребив глагол в нужной форме.

1. Don't come so early. Jim still (sleep), I'm sure.

- 2. By the first of January he (work) at this firm for three years.
- 3. Another ten years and you (forget) all about it.
- III. Письменно трансформируйте следующие предложения в предложения со сказуемым в страдательном залоге.
- 1. I can assure you I can arrange everything in time.
- 2. They tell somebody he has shot your uncle.
- 3. Naturally one expects you to interest yourself in the job they have offered you.

- IV. Перепишите предложения, употребив прилагательное в требуемой по смыслу форме.
- 1. The twenty-second of December is (short) day in the year.
- 2. Of all British cars, this one uses (little) petrol.
- 3. They went (slowly) than Ralph had bargained for.
  - V. Выберите подходящее по смыслу слово.
- 1. The birds were flying (high, highly) and low.
- 2. He had found out that Sawbridge's family had lived (close, closely) to mine.
- 3. Meanwhile Martin's own reward was coming (near, nearly)
- VI. Запишите следующие предложения, используя нужный модальный глагол или его эквивалент.
- 1. You (не можете) speak aloud in the library.
- 2. Though the day was rather windy the firemen (смогли) put the fire out in less than ten minutes.
- You (не должны) park near a zebra crossing.
- 4. Do you know if David is at home? He (может) be in his office but I'm not sure.
  - VII. Составьте предложения из предложенных фрагментов и запишите их.
- 1. took/house/than/it/week/the/a/paint/our/workmen/to/more.
- 2. anyone/knows/music/she/than/ever/more/classical/met/about/have/l/much/else/before.
- bréakfast/later/vou/would/or/now/like/a/have/to/bit?
  - VIII. Перепишите предложения, вставляя требуемый по смыслу предлог.
- ... recent years there has been increasing interest ... global warming, and there is no doubt that Man's activities are partly responsible ... it. We can't afford to ignore a warming ... its possible effect ... the climate. Forecasts ... a warmer wetter world suggest, for instance, that the sea will have risen by as much as five metres ... 2050. ... that case large areas of London and many other coastal towns would be ... water.
- IX. Перепишите следующие предложения, заменяя данные в скобках слова подходящими по смыслу их производными.
- 1. It's a good (describe) of the latest methods.
- 2. Nobody noticed his (disappear).
- 3. I can't (definition) the meaning of this word.
- 4. The (worry) parents waited anxiously for the news.
- X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «The success of the company ... was introduced».

## Karl Benz

Karl Friedrich Benz (25 November 1844 – 4 April 1929) was a German engine designer and automobile engineer, generally regarded as the inventor of the petrol-powered automobile and pioneering founder of the automobile manufacturer, Mercedes-Benz. Other German contemporaries, Gottlieb Daimler and Wilhelm Maybach working as partners, also worked on similar types of inventions, without knowledge of the work of the other, but Benz patented his work first and, after that, patented all of the processes that made the internal combustion engine feasible for use in automobiles. In 1879, Benz was granted a patent for his first engine, which he had designed in 1878

Despite living near poverty, his mother strove to give him a good education. Benz had originally focused his studies on locksmithing, but eventually followed his father's steps toward locomotive engineering. At the age of 15, he passed the entrance exam for mechanical engineering at the University of Karlsruhe, which he subsequently attended.

At the age of twenty-seven, Karl Benz joined August Ritter in launching a mechanical workshop in Mannheim.

Despite business misfortunes, Benz led in the development of new engines. He concentrated all his efforts on creating a reliable gas two-stroke engine. Benz finished his two-stroke engine on 31 December 1878 and was granted a patent for it. Benz soon patented the speed regulation system, the ignition using sparks with battery, the spark plug, the carburetor, the clutch, the gear shift, and the water radiator.

Benz's lifelong hobby brought him to a bicycle repair shop in Mannheim owned by Max Rose and Friedrich Wilhelm Esslinger. In 1883, the three founded a new company

producing industrial machines, which soon began to produce gas engines as well.

The success of the company gave Benz the opportunity to include in his old passion of designing a horseless camage. Based on his experience with bicycles, he used similar technology when he created an automobile which featured wire wheels (unlike carriages' wooden ones) with a four-stroke engine of his own design between the rear wheels, with a very advanced coil ignition and evaporative cooling rather than a radiator. Power was transmitted by means of two roller chains to the rear axle. It was the first automobile entirely designed as such to generate its own power, not simply a motorized stage coach or horse carriage, which is why Karl Benz was granted his patent and is regarded as its inventor.

The 1885 version was difficult to control, leading to a collision with a wall during a public demonstration. The first successful tests on public roads were carried out in the early summer of 1886. The next year Benz created the *Motorwagen Model 2* which had several modifications, and in 1887, the definitive *Model 3* with wooden wheels was introduced.

The great demand for stationary, static internal combustion engines forced Karl Benz to enlarge the factory in Mannheim. During the last years of the nineteenth century, Benz was the largest automobile company in the world with 572 units produced in 1899.

The new directors recommended that Benz should create a less expensive automobile suitable for mass production. In 1893, Karl Benz created the *Viktoria*, a two-passenger automobile with a 3-hp engine, which could reach the top speed of 11 mph and had a pivotal front axle operated by a roller-chained tiller for steering. The model was successful with 85 units sold in 1893.

In 1895, Benz designed the first truck in history, with some of the units later modified by the first bus company: the *Netphener*, becoming the first buses in history.

In 1896, Karl Benz was granted a patent for his design of the first flat engine. It had horizontally-opposed pistons, a design in which the corresponding pistons reach top dead centre simultaneously, thus balancing each other with respect to momentum. Flat engines with four or fewer cylinders are most commonly called boxer engines. This design is still used by Porsche, Subaru, and some high performance engines used in racing cars. In motorcycles, the most famous boxer engine is found in BMW motorcycles.

Benz introduced *Parsifil* in 1903 with a vertical twin engine that achieved a top speed of 37 mph (60 km/h). Karl Benz announced his retirement from design management on 24 January 1903, although he remained as director on the Board of Management through its merger with DMG in 1926 and, remained on the board of the new Daimler-Benz

corporation until his death in 1929.

- Перепишите следующие предложения, подчеркните в каждом из них сказуемое и определите его видовременную форму и залог. Переведите предложения на русский язык письменно.
- 1. I'm delighted to tell you that you have passed your exam.
- 2. It is two months since I started driving my car.
- This is the first time I have eaten so many hamburgers.
- 4. Two hundred people were invited to the wedding.

- II. Перепишите следующие предложения, употребив глагол в нужной форме.
- 1. He (not/be satisfied) until he (get) an apology.
- 2. As soon as we (hear) from the suppliers, we (let) you know when the goods (be) in stock.
- 3. This time tomorrow we (cross) the Atlantic.
- III. Письменно трансформируйте следующие предложения в предложения со сказуемым в страдательном залоге.
- 1. I've only used this pen once since the day I mended it.
- 2. It must have disappointed him terribly that people told him they didn't want him.
- 3. We haven't moved anything since they sent you away to cure you.
- IV. Перепишите предложения, употребив прилагательное в требуемой по смыслу форме.
- 1. Elbrus is (high) peak in the Caucasian mountains.
- 2. There were (few) problems than we expected.
- 3. Piggy spoke (softly) to Ralph than his sister.
  - V. Выберите подходящее по смыслу слово.
- 1. He was (high, highly) intelligent.
- 2. Philip, smoking a cheap cigar, observed Clutton (close, closely).
- 3. We were (near, nearly) smashed up on the shore several times.
- VI. Запишите следующие предложения, используя нужный модальный глагол или его эквивалент.
- 1. Students (не могут) bring pet animals to the reading-hall.
- 2. She (смогла) enter the university as she knew the material well enough.
- 3. You (не нужно) hurry, we've got plenty of time.
- 4. The dress you bought yesterday is very good quality. It (наверное) be very expensive.
  - VII. Составьте предложения из предложенных фрагментов и запишите их.
- top/don't/page/forget/put/name/to/at/of/the/your/the.
- 2. surprised/didn't/himself/Henk/to/sav/was/whv/l/defend/anvthing.
- 3. well/will/think/Paul/his/you/do/pass/exam/English/really/that.

VIII. Перепишите предложения, вставляя требуемый по смыслу предлог. Tom arrived ... the station shortly at five o'clock in the afternoon. This is a bad time to travel ... London, both ... bus and train, because crowds ... people go home ... work ... this hour. He had to join a long queue ... people waiting to buy tickets. But when his turn came, ha had some difficulty ... making the man understand the name of the station he wanted to go ... .

- IX. Перепишите следующие предложения, заменяя данные в скобках слова подходящими по смыслу их производными.
- 1. He gave me very (help) advice.
- 2. The (depart) of the train was delayed.
- 3. Is that a fair (divide) of the work)?
- 4. She (stimulus) us to further efforts.
- X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «Diesel understood ... known as diesel engines».

## Rudolf Diesel

Diesel was bom in Paris, France in 1858 as the second of three children to Theodor and Elise Diesel. Diesel's parents were German-born immigrants living in France. Theodor Diesel, a bookbinder by trade, had left his home town of Augsburg, Kingdom of Bavaria, in 1848. Theodor met his wife, Elise Strobel, daughter of a Nuremberg merchant, in Paris in 1855 and himself became a leather goods manufacturer there.

Diesel spent his early childhood in France, but as a result of the outbreak of the Franco-Prussian War in 1870, the family was forced to leave and emigrated to London. Diesel's mother sent 12-year-old Rudolf to Augsburg to live with his aunt and uncle, so that he might learn to speak German and visit the Royal County Trade School. At the age of 14, Rudolf wrote to his parents that he wanted to become an engineer. In 1875, he received a merit scholarship from the Royal Bavarian Polytechnic of Munich which he accepted against the will of his parents who would rather have seen him begin earning money.

Diesel graduated with highest academic honors from his Munich alma mater in January 1880 and returned to Paris, where he assisted his former Munich professor Carl von Linde with the design and construction of a modern refrigeration and ice plant. Diesel became the director of the plant a year later.

Diesel understood thermodynamics and the theoretical and practical constraints on fuel efficiency. He knew that even very good steam engines are only 10-15% thermodynamically efficient, which means that up to 90% of the energy available in the fuel is wasted. His work in engine design was driven by the goal of much higher efficiency ratios. He tried to design an engine based on the Carnot Cycle. However, he gave up on this and tried to develop his own approach. Eventually he designed his own engine and obtained a patent for his design. In his engine, fuel was injected at the end of compression and the fuel was ignited by the high temperature resulting from compression. In 1893, he published a book in German with the title "Theory and design of a rational thermal engine to replace the steam engine and the combustion engines known today". He managed to build a working engine according to his theory and design. His engine and its successors are now known as diesel engines.

From 1893 to 1897, Heinrich von Buz, director of MAN AG in Augsburg, gave Rudolf Diesel the opportunity to test and develop his ideas. Rudolf Diesel obtained patents for his design in Germany and other countries, including the USA (U.S. Patent 542,846 and U.S. Patent 608,845).

In the evening of 29 September 1913, Diesel boarded the post office steamer *Dresden* in Antwerp on his way to a meeting of the Consolidated Diesel Manufacturing company in London. He took dinner on board the ship and then retired to his cabin at about 10 p.m., leaving word for him to be called the next morning at 6:15 a.m. He was never seen alive again. Ten days later, the crew of the Dutch boat "Coertsen" came upon the corpse of a man floating in the sea. The body was in such an advanced state of decomposition that they did not bring it aboard. Instead, the crew retrieved personal items (pill case, wallet, pocket knife, eyeglass case) from the clothing of the dead man, and returned the body to the sea. On 13 October these items were identified by Rudolf's son, Eugen Diesel, as belonging to his father.

After Diesel's death, the diesel engine underwent much development, and became a very important replacement for the steam piston engine in many applications. Because the diesel engine required a heavier, more robust construction than a gasoline engine, it was not widely used in aviation. However, the diesel engine became widespread in many other applications, such as stationary engines, submarines, ships, and much later, locomotives, trucks, and in modern automobiles. Diesel engines are most often found in

applications where a high torque requirement and low RPM requirement exist. Because of their generally more robust construction and high torque, diesel engines have also become the workhorses of the trucking industry. Recently, diesel engines that have overcome this weight penalty have been designed, certified, and flown in light aircraft. These engines are designed to run on either diesel fuel or more commonly jet fuel.

- Перепишите следующие предложения, подчеркните в каждом из них сказуемое и определите его видовременную форму и залог. Переведите предложения на русский язык письменно.
- 1. I have been trying to open this box for the last forty minutes but in vain.
- 2. Hey! Somebody has drunk my coffee! My cup was full.
- 3. I don't think I have ever seen her looking so upset before.
- 4. Your shoes are being mended at the moment.
  - II. Перепишите следующие предложения, употребив глагол в нужной форме.
- 1. By next Christmas I (live) in London for three years.
- 2. We (finish) the repairs to your car by tomorrow morning. It (be ready) for you at 11 o'clock.
- 3. If we don't hurry, the meeting (start) by the time we get there.
- III. Письменно трансформируйте следующие предложения в предложения со сказуемым в страдательном залоге.
- 1. They had eaten all the dinner before they finished the conversation.
- 2. We'll lock the house for the summer and the old gardener will look after it.
- 3. One cannot eat an orange if nobody has peeled it.
- IV. Перепишите предложения, употребив прилагательное в требуемой по смыслу форме.
- 1. His plan is (practical) one of all our plans.
- 2. I feel (little) confident about the future than I did a year ago.
- 3. A child of five after two lessons would draw (well) than you do.
  - V. Выберите подходящее по смыслу слово.
- 1. I'm sure you know how (deep, deeply) I sympathize with you.
- 2. During the last year at St Lake's Philip had to work (hard, hardly).
- 3. Suddenly she stopped (short, shortly), and disengaged herself from her companion.
- VI. Запишите следующие предложения, используя нужный модальный глагол или его эквивалент.
- 1. You (можете) take the books out of the reading-hall.
- 2. Happily Ann (смогла) swim across the river, otherwise she would have drowned.
- 3. Whatever you do you (не должны) touch this switch. It's dangerous.
- 4. He's got a few cars, a yacht and a helicopter. He (наверное) be very rich.
  - VII. Составьте предложения из предложенных фрагментов и запишите их.
- bought/is/the/this/I/machine/from/completely/washing/different/one/have/ recently.
- 2. us/future/be/our/children's/it/to/natural/about/for/concerned/is.
- 3. minute/me/look/newspaper/could/have/a/let/a/for/you/at/your.

VIII. Перепишите предложения, вставляя требуемый по смыслу предлог. I have been fond ... reading ever since my childhood and ... present I read two or

three books ... week. ... this rate, I think, I'll be familiar ... every book I borrow ... our local library soon. But I regret that now people don't read as much as they used to and I blame TV ... that. ... my opinion TV is responsible ... many ills of our society.

- Перепишите следующие предложения, заменяя данные в скобках слова подходящими по смыслу их производными.
- 1. She didn't make any (impress) progress.
- 2. When did you accept his (propose)?
- 3. You must (apology) for being so rude.
- He listened to my (object) attentively.

 Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «The Panhard-Levassor firm ... а change of mind».

# Panhard-Levassor

The Panhard-Levassor firm had a history going back to the 1840s. In those days the firm of Perin et Pauwels made furniture, and then woodworking machinery. Rene Panhard became a partner in this enterprise in 1867, the name changing to Perin et Panhard and the range of engineering activities expanded. Emile Levassor joined in 1872, both he and Panhard having had technical educations. After Perin's death in 1886 the firm was renamed Panhard et Levassor.

Panhard-Levassor gained engine building experience by making Deutz stationary gas engines in the 1870s, and in 1888 the firm made a limited number of German Daimler petrol engines (see Mercedes) under licence to validate the French patents. To make a profit these engines had to be sold, and Levassor found a buyer in Armand Peugeot (see Peugeot) the first two being delivered in March 1890. At this time P&L did not intend to make motorcars, but when the first Peugeot arrived in the P&L workshops in August, the latter firm had a change of mind.

In addition to being among the first motorcar manufacturers in the world, P&L achieved a permanent place in the history of motoring when Levassor in 1891 devised the "systeme Panhard". This placed the v-twin engine at the front of the chassis, driving through a clutch to a set of sliding gears (not yet in a box) with final drive to the back axle by chain. The systeme was so successful that other makers copied the layout, and apart from the use of shaft final drive (see Renault), it formed the pattern for motorcars for many decades ahead. The only major change came in 1895 when Levassor developed in conjunction with Daimler the 'Phenix' engine, a vertical twin cylinder in-line engine, with a four-cylinder version appearing in 1896.

The numerous successes of Panhard-Levassor cars in early motoring competitions especially that of Levassor in finishing first in the 1895 Paris-Bordeaux-Paris race (in just over two days of continuous driving at an average speed of 15mph) caught the public imagination and for those who could afford it, a Panhard-Levassor was the car to have. Up to the early 1900s such was the demand for Panhard-Levassor cars that there was a significant waiting list for new ones, and the company was paying its shareholders a 50% dividend each year. Therefore only gradually did it change its winning formula.

Emile Levassor died in 1897, perhaps as a result of an accident in the 1896 Paris-Marseille-Paris race when his car overturned, but Rene Panhard and his two sons managed the firm well and employed good staff at all levels of the business. When the firm merged with Citroen in 1965 there was still Panhard family members on the board.

- Перепишите следующие предложения, подчеркните в каждом из них сказуемое и определите его видовременную форму и залог. Переведите предложения на русский язык письменно.
- 1. I have been waiting for you since two o'clock. I have something urgent to tell you.
- 2. They finished their work at eleven o'clock and came home.
- 3. While Jack was sitting biting his nails, we were working out a plan to cover up our traces.
- 4. He had been warned the day before not to go near the canal.
  - II. Перепишите следующие предложения, употребив глагол в нужной форме.
- 1. By the end of the next week he (be) out of hospital.
- 2. Do you think he (reach) the house when we arrive?
- 3. I (let) you know as soon as I (finish) my work.
- III. Письменно трансформируйте следующие предложения в предложения со сказуемым в страдательном залоге.
- 1. They gave the thief a fair trial and sent him to prison.
- 2. There's a new block of flats they are building down the road, perhaps you'd like someone to introduce you to the landlord.
- 3. Someone has already promised me a watch for my birthday when they presented me with one as a prize.
- IV. Перепишите предложения, употребив прилагательное в требуемой по смыслу форме.
- 1. London is (large) city in England.
- 2. I spoke English (little) fluently a year ago than I do today.
- 3. His heart leaped as he saw himself running (fast) than any of the other boys.
  - V. Выберите подходящее по смыслу слово.
- 1. With her beautiful expressive eyes she looked (deep, deeply) into his.
- 2. I need (hard, hardly) say that I agree with you.
- He was joined shortly by a stewardess.
- VI. Запишите следующие предложения, используя нужный модальный глагол или его эквивалент.
- 1. You (не можете) swim across the river in this place. It's extremely dangerous.
- 2. As he was not interrupted he (cmor) finish his work by the evening.
- 3. You (не нужно) call her, she is coming tomorrow.
- 4. Dave isn't answering the phone. He (наверное) be out.
  - VII. Составьте предложения из предложенных фрагментов и запишите их.
- 1. was/came/George/going/surprise/to/the/that/news/a/everyone/as/resign/to.
- 2. like/please/take/you/if/these/one/cakes/of.
- 3. atmosphere/has/reduce/what/to/the/be/the/of/to/pollution/done?
- VIII. Перепишите предложения, вставляя требуемый по смыслу предлог. Shortly ... the war , my brother and I were invited to spend a few day's holiday ... my uncle who had just returned ... abroad. He had rented a cottage in the country although he rarely spent much time there. We understood the reason ... this ... our arrival: the cottage had no comfortable furniture in it, many of the windows were broken and the

roof leaked. ... our first evening we sat ... the fire listening ... the uncle talking about his adventures ... distant countries. Though I was tired ... the long train journey I could not bear to miss any of my uncle's exciting tales.

- IX. Перепишите следующие предложения, заменяя данные в скобках слова подходящими по смыслу их производными.
- 1. Learning foreign languages is a strong (necessary) nowadays.
- 2. (Climate) changes seriously affect crops.
- 3. There are no (mountain) areas in my country.
- 4. Does he (reality) what I mean?

X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «He founded the Olds...... later chairman of REO».

## Ransom E. Olds

Ransom Eli Olds (June 3, 1864 – August 26, 1950) was a pioneer of the American automotive industry, for whom both the Oldsmobile and Reo brands were named. He claimed to have built his first steam car as early as 1894, and his first gasoline powered car in 1896.

Olds was born in Geneva, Ohio, the youngest son of blacksmith and pattern-maker Pliny Fiske Olds and his wife Sarah Whipple Olds. His parents moved the family to Cleveland, Ohio, when Olds was still a boy. He eventually settled in Lansing, Michigan, where he married Metta Ursula Woodward on June 5, 1889.

He founded the Olds Motor Vehicle Company in Lansing, Michigan, on August 21, 1897. The company was bought by a copper and lumber magnate named Samuel L. Smith in 1899 and renamed Olds Motor Works. The new company was relocated from Lansing to Detroit. Smith became President while Olds became vice president and general manager. In 1901 Olds designed the Curved Dash Oldsmobile which sold for \$650.00. It was this car, rather than Henry Ford's Model T, that was the first mass-produced, low-priced American motor vehicle. Although the factory was destroyed by fire that year, the company still sold over 600 models of the Curved Dash. In 1904 sales were up to 5000 units.

As Smith's son, Frederick, came into the business, he and Olds clashed frequently until Fred Smith removed Olds from the position of vice president and general manager in 1904 and Olds left his company. He went on to form the R.E. Olds Motor Car Company. Its name was quickly changed to REO Motor Car Company to avoid a lawsuit from the Olds Motor Works. The name REO came from the initials of his name as an acronym. Olds served as president (until 1925) and later chairman of REO.

The Olds Motor Works was bought by General Motors in 1908. The Oldsmobile brand, after a production run of 107 years, was discontinued by General Motors in 2004. Olds was the first person to use the assembly line in the automotive industry, Henry Ford came after him. This new approach to putting together automobiles enabled him to more than quintuple his factory's output, from 425 cars in 1901 to 2,500 in 1902.

Ransom E. Olds in the Olds Pirate racing car in 1896 or 1897

Olds was also famous for his auto racing on the beaches of Florida at Ormond and Daytona. He had the first timed run on the beach in a solo run some time between 1894 and 1897. In 1896 or 1897, rich automobile pioneers Olds and Alexander Winton (Winton Motor Carriage Company) staged an unofficial event; Winton beat Olds by only 0.20 seconds.

In 1913, Olds purchased 37,541 acres (152 km²) of land by the northern part of Tampa Bay in Florida and developed the area into what is now the city of Oldsmar.

In 1906, Olds organized the Capital National Bank, later called Lansing National Bank, and Michigan National Bank. Olds was also involved in the organization of the Michigan Screw Company and Atlas Drop Forge Company, all located in Lansing, Michigan.

Olds was the primary financier of the Olds Tower. When completed in 1931 it was the tallest office building in Lansing, and retains that distinction today. Located at 124 West Allegan Street, the building is now called the Boii Tower.

Olds was also involved in the Hotel Olds located at 111 South Capitol Avenue in Lansing. Today this is known as the George W. Romney Building, where the office of the Governor of Michigan is located.

Olds was a Republican, and served as a delegate from Michigan's 6th District to the 1908 Republican National Convention, which nominated William Howard Taft for president.

In the early 1900s, Olds built an elaborate Queen Anne-style mansion on South Washington Avenue in Lansing. Among the home's many technological innovations was a turntable in the garage which allowed Olds to pull in at night and leave again the next morning without driving in reverse. The mansion was demolished in 1972 to make way for Interstate 496, which ironically was then named for Olds himself. He had another house in Ann Arbor, Michigan, which is still standing, and is open to the public for tours.

- Перепишите следующие предложения, подчеркните в каждом из них сказуемое и определите его видовременную форму и залог. Переведите предложения на русский язык письменно.
- Jane washed all the test-tubes after she had completed the experiment.
- 2. He felt sick because he had eaten too much.
- 3. Dr Johnson is being interviewed at the moment.
- 4. Smoking is not allowed at this restaurant.
  - II. Перепишите следующие предложения, употребив глагол в нужной форме.
- 1. We (go) to Scotland next summer. It (be) the first time we (spend) a holiday there.
- 2. We'd better move the dining table into the kitchen. We (eat) there during the winter.
- 3. You (come) to the concert tonight? If so, we (meet) you there.
- III. Письменно трансформируйте следующие предложения в предложения со сказуемым в страдательном залоге.
- 1. You must clear up all the books and papers and put them away in the cupboards you usually keep them in.
- 2. People should tell us how much they expect of us.
- 3. When I returned and I found out that they had towed my car away, I asked why they had done this and they told me that it was because I had parked under a "No Parking" sign.
- IV. Перепишите предложения, употребив прилагательное в требуемой по смыслу форме.
- The Volga is (long) river in Europe.
- 2. He drives (little) carefully than I expected.
- Each time the words were screamed (loudly) than before.
  - V. Выберите подходящее по смыслу слово.
- 1. They stick you with everything if you don't look (sharp, sharply).
- 2. "Open your eyes (wide, widely)", he ordered gently and examined each eye in turn in the bright pencil of light.
- 3. His heart beat so that he could (hard, hardly) breathe.

- VI. Запишите следующие предложения, используя нужный модальный глагол или его эквивалент.
- 1. The law says you (не можете) drive a car without a seat-belt.
- 2. The police were suspicious at first but I (cmor) convince them that we were innocent.
- 3. You (не нужно) work such long hours. You won't earn more.
- 4. Do you know if Ann likes ice-cream? She (может), but I am not sure.
- VII. Составьте предложения из предложенных фрагментов и запишите их.
- 1. do/according/we/how/to/we/paid/work/are/much.
- 2. time/can't/people/the/who/dealing/stand/l/complain/with/all.
- 3. him/all/airport/you/off/are/the/to//going/see/to?
  - VIII. Перепишите предложения, вставляя требуемый по смыслу предлог.
- ... our grandfather's house, there was an attic, the door to which was always kept locked. One day, however, my sister found the key ... drawer, so ... out great excitement we set off ... the stairs to explore the locked room. When we opened the door we could see nothing ... first, then I noticed a small window, high up ... the roof. It was dirty, so that hardly any light came ... ... general we found nothing ... interest in the attic.
- IX. Перепишите следующие предложения, заменяя данные в скобках слова подходящими по смыслу их производными.
- 1. The (major) of students took the examination successfully.
- 2. They (success) in completing the project.
- 3. In his (young) he worked in various jobs.
- 4. Circumstances do not (permission) me to help you.
- X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «When Maybach was ... gearshift system».

# Wilhelm Maybach

Wilhelm Maybach (1846 - 1929) was born in Heilbronn, Germany. His family later moved to Stuttgart but tragedy struck and he was an orphan by the age of ten. Fortunately, a charitable organization learned of his plight and took him in. He attended school at Reutlinger Bruderhaus where Gustav Werner, the school's founder, recognized Maybach's technical talents.

When Maybach was 19, he met Gottlieb Daimler, who was also impressed with Maybach's abilities. Maybach became Daimler's protrigir, and the two developed a close working relationship and friendship that lasted until Daimler died in 1900. In 1869, Maybach and Daimler moved their families to Karlsruhe and went to work for the Deutz engine company. While at Deutz, Maybach began to design lightweight, high-speed engines that could be used in a variety of applications. Following a dispute with the management, Daimler and Maybach left Deutz in 1882 and moved again: this time to Canstatt. The team continued to work on new engines. Over the next three years, they developed a radical new engine and installed it first in a wooden cart, then in a carriage. At that point, Maybach realized adding an engine to a carriage was not the way to go and began working on a new vehicle designed to be a true automobile. At the Paris World Exhibition in 1889, Daimler and Maybach displayed their new car, which had features like steel wheels and a sliding pinion gearshift system.

In November 1890, Daimler and two partners founded "Daimler Motoren Gesellschaft" (DMG) or Daimler Motor Company and made Wilhelm Maybach chief engineer. The arrangement did not work out. Maybach grew unhappy with the terms of his

contract and left the following February. Over the next eighteen months, Maybach worked in an apartment and Gottlieb Daimler continued to provide financial support. Out of this period came important engine developments, including the new Phoenix engine with its improved carburetor and belt drive system.

Following a better offer, Maybach returned to DMG as chief engineer in 1895. There, he produced more innovations like the fan-cooled honeycomb radiator and the first four-cylinder automobile engine, laying the groundwork for the modern automobile. By this time, the French were calling him the "King of the Designers".

His most famous design came after the death of his old friend. In April 1900, just a month after Gottlieb Daimler's passing, Emil Jellinek, Daimler's representative for Nice, asked Maybach and Daimler's son, Paul, to design a new, more powerful car he could sell to the wealthy residents of the French Riviera. As the French company Panhard already owned the rights to the Daimler name in France, Jellinek asked that the new car be named for his daughter, Mercedes. With Maybach's powerful engine and a revolutionary new body, including a pressed-steel frame, the new Mercedes quickly became a success and marked the end of the "horseless carriage" era of automotive design.

Unfortunately, Maybach did not get to enjoy the fruits of his labor. Without the protection of Gottlieb Daimler, Maybach fell victim to company politics and the demands of his job. In the fall of 1903, the exhausted Maybach fell ill and had to spend a long time recuperating. After he returned to DMG, he was replaced as chief engineer and relegated to an "Inventor's Office". Embittered, he left the company in 1907, never to return.

Maybach found a new opportunity in airship propulsion. After Count Zeppelin's Daimler-powered LZ4 airship had engine troubles and was destroyed in a storm, Wilhelm Maybach wrote to the Count, telling him of a new improved engine design created by Maybach's son Karl. Count Zeppelin was already a fan of Wilhelm's work and in 1909, Count Zeppelin and the Maybachs opened "Luftfahrzeug Motorenbau GmbH" in Bissingen.

Three years later, the company moved to Friedrichshafen and changed its name to Motorenbau Friedrichshafen. At the same time, the Maybachs bought a 40% share of the company. On May 6, 1918, the firm became Maybach Motorenbau GmbH.

By the time the company moved to Friedrichshafen in 1912, Wilhelm Maybach, who was now 63 years old, had turned operations over to Karl, paving the way for the second part of the Maybach legacy.

In 1996, Wilhelm Maybach was inducted into the Automotive Hall of Fame.

## КОНТРОЛЬНАЯ РАБОТА № 3

Материал третьего семестра включает следующие разделы курса английского языка:

- 1. Неличные формы глагола: простые и сложные формы инфинитива, функции, конструкции с инфинитивом.
- 2.Неличные формы глагола: причастие I и причастие II, простые и сложные формы, конструкции с причастием.
  - 3. Отглагольное существительное.
  - 4. Сложные предложения. Сочинительные и подчинительные союзы.
  - 5. Косвенная речь.

- Перепишите следующие предложения, вставляя, где необходимо, частицу to.
- 1. He made me (to do) all the work again.
- 2. My neighbour let me (to borrow) his own car.
- 3. You must (to take) care not (to offend) her.

- II. Вставьте инфинитив в нужной форме.
- 1. I hate (to bother) you, but the man is still waiting (to give) a definite answer.
- 2. The girl pretended (to read) a book and not (to look) at me.
- 3. I'm sorry (to bother) you in this stupid way.
- III. Перепишите следующие предложения, используя инфинитив в качестве сложного дополнения, и переведите их на русский язык.
- 1. The pills the doctor has given me made me (to feel) much better.
- 2. I saw my father (to leave) the house that very morning
- 3. George was sure that fresh air and exercise would make us (to sleep) well.
- IV. Перепишите следующие предложения, употребляя инфинитив в качестве сложного подлежащего, и переведите их на русский язык.
- 1. It is believed that John has arrived in London.
- 2. It is known that Jack is good at painting.
- 3. It seemed that she sensed the purpose of this question.
- V. Перепишите следующие предложения, употребляя причастие I в качестве сложного дополнения, и переведите их на русский язык.
- 1. He could feel himself (turn) red.
- 2. He turned and saw a pair of large dark eyes (look) at him through the window of the cab.
- 3. "I just happened to be in the neighbourhood," she said, "and found myself (pass) by."
- VI. Перепишите следующие предложения, употребляя причастие II в качестве сложного дополнения, и переведите их на русский язык.
- 1. Have you ever seen the mountains (cover) with snow?
- 2. We want the work (finish) by Saturday.
- 3. Please have these letters (translate) into English.
- VII. Перепишите следующие предложения, обращая внимание на использование причастия I и причастия II в функции обстоятельства, и переведите их на русский язык.
- 1. Cronshaw, hearing her, turned a sleepish eye on her.
- 2. Mel stopped, realizing he was talking to himself.
- 3. Reaching the hotel at Knightsbridge he went to their sitting room, and rang for tea.
- VIII. Перепишите следующие предложения, обращая внимание на сочинительные или подчинительные союзы. Переведите письменно на русский язык.
- 1. His idea was to ease the tension, but Mrs Clemence threw him a glance of reproach.
- 2. What she wanted was a love too proud and independent to exhibit its joy or its pain.
- 3. Since the newspapers were covering the search closely, there was no point in his reserve.
- 4. It was in the kitchen passage where the fuse box was located.
- Письменно преобразуйте следующие предложения из прямой речи в косвенную, внося необходимые изменения.
- 1. "I've been in London for a month but so far I haven't had time to visit the Tower," said Rupert.
- 2. "Who has been using my type-writer?" said my mother.
- 3. "Don't forget your sandwiches," said his mother.
- X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «Timing the spark ... advanced the timing became».

## **IGNITION SYSTEM**

When a piston in an engine reaches the top of its travel, that point is known as Top Dead Centre (TDC). No engine actually fires the spark plug with the pistons at TDC. More often they fire slightly before TDC. How does the ignition system work, and what is ignition timing? The electrical system in your car supplies voltage to the coil and ignition unit. The engine will have a trigger for each cylinder, be it a mechanical trigger, electronic module or crank trigger. At that point, the engine effectively sends a signal to the coil to discharge into the high voltage system. That charge travels into the distributor cap and is routed to the relevant spark plug where it is turned into a spark. The key to this is the timing of the spark in relation to the position of the piston in the cylinder. Having the spark ignite the fuel-air mixture too soon is basically the same as detonation and is bad for all the mechanical components of the engine. Having the spark come too late will cause it to try to ignite the fuel-air mixture after the piston has already started to recede down the cylinder, which leads to the loss of power.

Timing the spark nowadays is usually done with the engine management system. It measures airflow, ambient temperature, takes input from knock sensors and literally dozens of sensors all over the engine. It then has an ignition timing map built into its memory and it cross references the input from all the sensors to determine the precise time that it should fire the spark plug, based on the ignition timing map. At 3000rpm, in a 4 cylinder engine, it does this about 100 times a second. In older systems, the spark timing was done using simple mechanical systems which had nowhere near the ability to compensate for the all the variables involved in a running combustion engine. Typically as an engine revolves quicker, the ignition timing needs to advance because the spark needs to get to the cylinder more quickly due to the engine running faster. In modern systems, this is all taken account of in the ignition timing map. On older mechanical system, they used mechanical or vacuum advance systems, so that the more vacuum generated in the intake manifold (due to the engine running quicker), the more advanced the timing became.

Despite the speed that an engine turns, it is possible to be able to check the ignition timing or an engine using an ignition timing light. Timing lights are typically strobe lights. They work by being connected to the battery directly and then having an induction coil clamped around one of the spark plug leads - normally the first or last cylinder in the engine depending on the manufacturer. When the engine fires the spark plug for that cylinder, the inductive loop detects the current in the wire and flashes the strobe light once. If the engine is ticking over at 1100rpm, the strobe will flash 550 times a minute (four stroke engine). How does this help to see the timing of an engine? You must have seen strobe lights working in a stage show: they're used to effectively freeze the position of something in time and space by illuminating it only at a certain point and for a fraction of a second. Shooting a strobe at someone walking in a dark room will result in you seeing them walk as if they were a flip-book animation on a reel of film. This effect is what's used to visualize the timing of your engine. Somewhere on the front of the engine there will be a notch near one of the timing belt pulleys and stamped into the metal next to it will be timing marks in degrees. On the pulley itself there will be a bump, recess or white-painted blob. When you point the strobe light down towards the timing belt pulley, remember it fires once for each firing of the cylinders. Each time it fires, the white blob on the pulley should be at the same position in its rotation — the strobe fires once for each ignition spark at which point the mark should be in the same place, and the effect to you is that the whole pulley, timing mark and all, are now standing still in the strobe light. The mark on the pulley will line up with one of the degree marks stamped on the engine. So for example if the white dot always aligns with the 10° mark, it means your engine is firing at 10 degrees before TDC. When you revolve the engine, the timing will change so the mark will move closer or

further away from the TDC mark depending on how fast the engine is spinning. In some engines, the two marks are simply painted or stamped, and there are no degree markings. In this case, the marks align when the first piston is exactly at TDC.

The same timing marks exist stamped into the metal near, and on the pulley on the end the camshaft. Essentially these marks are used to line up the cam to the correct position when you're changing the timing belt. You have to make sure the engine is rotated to TDC and that the cams are properly aligned too. If you don't, the cams will spin permanently out-of-synch with the engine crank and the engine will run badly, if at all.

- 1. Перепишите следующие предложения, вставляя, где необходимо, частицу to.
- 1. He never let himself (to be) angry.
- 2. Why not (to make) him a doctor like his father?
- 3. I used (to spend) a lot of time in Robert's room.
- II. Вставьте инфинитив в нужной форме.
- 1. What he took to writing for was not (to earn) a living but a name. All he wanted was (to read) and not (to forget)
- 2. Lady Franklin was horrified at herself, (to ask) his name, (to be told) his name and (to forget) it!
- 3. This man must (to sit) here for about an hour. Who can he (to wait) for?
- III. Перепишите следующие предложения, используя инфинитив в качестве сложного дополнения, и переведите их на русский язык.
- 1. I thought it (to be) a signal to start.
- 2. We didn't expect him (to come) back so soon and were wondering what had happened.
- 3. I'd like it (to be done) as guietly as possible, without attracting anybody's attention.
- IV. Перепишите следующие предложения, употребляя инфинитив в качестве сложного подлежащего, и переведите их на русский язык.
- 1. It's said that he is the best student in our group.
- 2. It's known that he has collected a large number of pictures by Dali.
- 3. When she passed by it appeared that they were looking at her attentively.
- V. Перепишите следующие предложения, употребляя причастие I в качестве сложного дополнения, и переведите их на русский язык.
- 1. As they danced they watched Crisp and Mary's mother (move) about the room.
- 2. The news left me (wonder) what would happen next.
- 3. Did anyone see you (enter) the house?
- VI. Перепишите следующие предложения, употребляя причастие II в качестве сложного дополнения, и переведите их на русский язык.
- 1. He thought it necessary to have the ceiling of the room (whitewash).
- 2. Have you ever heard this opera (sing) in Italian?
- 3. They have scarcely any money (save) for their old age.
- VII. Перепишите следующие предложения, обращая внимание на использование причастия I и причастия II в функции обстоятельства, и переведите их на русский язык.
- 1. Resuming the tune on his pipe. Adrian stole several glances at his silent neighbour.
- 2. I came here this afternoon thinking I might find Fleur.
- 3. Arriving at the gallery off Cork Street, however, he paid his shilling, picked up a catalogue, and entered.

VIII. Перепишите следующие предложения, обращая внимание на сочинительные или подчинительные союзы. Переведите письменно на русский язык.

- 1. Her step was more dancing than walking and, in spite of her black dress, there was nothing but joy in her whole attitude.
- 2. One advantage of being a medical practitioner is that you can usually tell when people are lying to you.
- 3. There was a moment of strain, it seemed as though neither of them knew what to say next.
- 4. It was during his absence from the Great Hall that the door bell was heard.

IX. Письменно преобразуйте следующие предложения из прямой речи в косвенную, внося необходимые изменения.

- 1. "I'll come with you as soon as I'm ready," she replied.
- 2. "How long have you been learning English?" the examiner asked.
- 3. "Don't drive too close to the car in front," said the driving instructor.

X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «A carburettor is ... in acceleration».

## CARBURETTOR

It is pretty fundamental to the operation of internal combustion engines to know how fuel-air mix is formed. The fuel and air are mixed in one of two main ways. The old-school method is to use a carburettor, whilst the new-tech approach is to use fuel injectors. The basic purpose is the same: to mix the fuel and air together in proportions that keep the engine running. Too little fuel and the engine runs 'lean' which makes it run hot. Too much fuel and it runs 'rich' which conversely makes the engine run cooler. Running rich can also result in fouled up spark plugs, flooded engines and stalling, not to mention wasting fuel. Finding the right balance normally involves about 10 milligrams of petrol for each combustion stroke.

A carburettor is basically a shaped tube. The shape of the tube is designed to swirl the incoming air and generate a vacuum in a section called the venturi pipe (or the venturi). In the side of the venturi is a fuel jet which is a finy hole connected to the float chamber via a pipe. It's normally made of brass and has a miniscule hole at the end of it which determines the flow of fuel through it. In more complex carburettors, this is an adjustable needle valve where a screw on the outside of the carburettor can screw a needle in and out of the valve to give some tuning control over the fuel flow. The fuel is pulled through the jet by the vacuum created in the venturi. At the bottom of the tube is a throttle plate (throttle butterfly) which is a flat circular plate that pivots along its centreline. It is connected mechanically to the accelerator pedal (twist-grip throttle) via the throttle cable. The more you push on the accelerator or twist open the throttle, the more the throttle butterfly opens. This allows more air in which creates more vacuum, which draws more fuel through the fuel jet and gives a larger fuel-air charge to the cylinder, resulting in acceleration.

When the throttle is closed, the throttle butterfly in the carburettor is also closed. This means the engine is trying to suck fuel-air mix and generating a vacuum behind the butterfly valve so the regular fuel jet won't work. To allow the engine to idle without shutting off completely, a second fuel jet known as the idle valve is screwed into the venturi downwind of the throttle butterfly. This allows just enough fuel to get into the cylinders to keep the engine ticking over.

To make sure a carburettor has a good, constant supply of fuel to be sucked through the fuel jets, it has a float chamber or float bowl. This is a reservoir of petrol that is constantly topped up from the fuel tank. Petrol goes through an inline filter and a strainer to make sure it's clean of contaminants and is then deposited into the float chamber. A sealed plastic box is pivotted at one end and floats on top of the fuel. This is called the float. A simple lever is connected to the float and controls a valve on the fuel intake line.

As the fuel drops in the float chamber, the float drops with it which opens the valve and allows more fuel in. As the level goes up, the float goes up and the valve is restricted. This means that the level in the float chamber is kept constant no matter how much fuel the carburettor is demanding through the fuel jets. The quicker the level tries to drop, the more the intake valve is opened and the more petrol comes in to keep the fuel level up. This is why carburettors don't work too well when they're tipped over — the float chamber leaks or empties out resulting in a fuel spill — something you don't get with injectors. To combat this, another type of chamber is used where carburettors can't be guaranteed to be upright (like in chainsaws). These use diaphragm chambers instead. The principle is more or less the same though. The chamber is full of fuel and has a rubber diaphragm across the top of it with the other side exposed to ambient air pressure. As the fuel level drops in the chamber, the outside air pressure forces the diaphragm down. Because it's connected to an intake valve in the same way that the float is in a float chamber, as the diaphragm is sucked inwards, it opens the intake valve and more fuel is let in to replenish the chamber. Diaphragm chambers are normally spill-proof.

One of the problems with the spinning, compressing, vacuum-generating properties of the venturi is that it cools the air in the process. Whilst this is good for the engine (colder air is denser and burns better in a fuel-air mix), in humid environments, especially cool, humid environments, it can result in carburettor icing. When this happens, water vapour in the air freezes as it cools and sticks to the inside of the venturi. This can result in the opening becoming restricted or cut off completely. When carbs ice up, engines stop.

In cars there's normally a heat shield over the exhaust manifold connected via a pipe to a temperature-controlled valve at the air filter. When its cold, the valve is open and the air filter draws warm air from over the exhaust manifold and feeds it into the carburettor. As the temperature warms up, the valve closes and the carburettor gets cooler air because the risk of icing has reduced.

- I. Перепишите следующие предложения, вставляя, где необходимо, частицу to.
- 1. I can't (to think) what made him (to do) such a thing.
- Let's (to watch) the boys diving.
- 3. You'd better (to try) not (to think) about it.
- Вставьте инфинитив в нужной форме.
- 1. The idea was too complicated (to express) in just one paragraph. It seemed it would take less than a page (to put) it into words.
- 2. Passing by a radio he suddenly remembered (to buy) some tape for his recorder.
- 3. He hated (to bother) with thrilling matters when he had many more important questions (to decide).
- III. Перепишите следующие предложения, используя инфинитив в качестве сложного дополнения, и переведите их на русский язык.
- 1. Just at that moment he heard his door (to open) and quickly (to shut).
- The regulations require me (to wear) this uniform.
- 3. Everybody saw him (to lock) the door and (to put) the key into his pocket.
- IV. Перепишите следующие предложения, употребляя инфинитив в качестве сложного подлежащего, и переведите их на русский язык.
- 1. It's reported that the delegation of French teachers has left London.
- 2. It's considered that our ballet is one of the best in Europe.
- 3. It happened that everybody had taken the problem seriously.

- V. Перепишите следующие предложения, употребляя причастие і в качестве сложного дополнения, и переведите их на русский язык.
- 1. I last saw him (go) towards the riverbank.
- 2. Where's my umbrella? I thought I left it (hang) with my coat.
- 3. Did you hear the voice (call) for help?
- VI. Перепишите следующие предложения, употребляя причастие II в качестве сложного дополнения, и переведите их на русский язык.
- 1. I know for sure he wanted to have his portrait (paint).
- 2. On Saturday she had her hair (dye) and (cut).
- 3. I want to have the ceiling (whitewash) and the walls (paper).
- VII. Перепишите следующие предложения, обращая внимание на использование причастия I и причастия II в функции обстоятельства, и переведите их на русский язык.
- 1. Nodding to her husband, she went over to her father.
- From there on he travelled by the clock, timing himself to reach Melton Mews at two o'clock.
- 3. He opened the door, and closing it softly, detained Soames on the inner mat.
- VIII. Перепишите следующие предложения, обращая внимание на сочинительные или подчинительные союзы. Переведите письменно на русский язык.
- I quite agree with you, but villain ought to be punished, but the cost has got to be reckoned.
- 2. That this charming young woman accepted political life with enthusiasm was a real surprise to me.
- 3. No sooner had she seen me approaching from the landing than she slammed the door in my face.
- 4. It was Gina who described the scene between Lewis and Edgar.
- IX. Письменно преобразуйте следующие предложения из прямой речи в косвенную, внося необходимые изменения.
- "You haven't given me quite enough. The bill is for \$15 and you've paid me only \$13," he pointed out.
- 2. "How long will it take me to get to Edinburgh by coach? asked the tourist.
- 3. "Don't forget to put your name at the top of the page," he said.
- X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «When fuel-injection ... should be used».

## INJECTION SYSTEM

Compared to carburettors, fuel injectors themselves are incredibly simple. They are basically electro-mechanically operated needle valves. When a current is passed through the injector electromagnetic coil, the valve opens and the fuel pressure forces petrol through the spray tip and out of the diffuser nozzle, atomizing it as it does so. When current is removed, the combination of a spring and fuel back-pressure causes the needle valve to close. This gives an audible 'tick' noise when it happens, which is why even a quiet fuel-injected engine has a soft but rapid tick-tick-tick noise as the injectors fire. This on-off cycle time is known as the pulse width and varying the pulse width determines how much fuel can flow through the injectors. When you ask for more throttle either via the accelerator pedal or twist-grip (on a motorbike) you're opening a butterfly valve similar to

the one in a carburettor. This lets more air into the intake system and the position of the throttle is measured with a potentiometer. The engine control unit (ECU) gets a reading from this potentiometer and "sees" that you've opened the throttle. In response the ECU increases the injector pulse width to allow more fuel to be sprayed by the injectors. Downwind of the throttle body is a mass airflow sensor which is normally a heated wire. The more air that flows past it, the quicker it dissipates heat and the more current it needs to remain warm. The ECU can continually measure this current to determine if the fuel-air mix is correct and it can adjust the fuel flow through the injectors accordingly. On top of this, the ECU also looks at data coming from the oxygen sensors in the exhaust. These tell the ECU how much oxygen is in the exhaust so it can automatically adjust for rich- or lean-running.

When fuel-injection was first introduced, it was fairly simple and used a single injector in the throttle body. Basically it was a carburettor-derivative but instead of having the induction vacuum suck fuel into the venturi, an injector forced fuel into the airflow. This was known as throttle-body fuel-injection, or single-point fuel-injection.

As engine design advanced, the single-point system was phased out and replaced with multi-point or multi-port fuel-injection. In this design, there is one injector for each cylinder, normally screwed into the intake manifold and aimed right at the intake valve. Because fuel is only sprayed when the intake valve is open, this systems provides more accurate fuel-metering and a quicker throttle response. Typically, multi-point injection systems have one more injector for cold-starting which sprays extra fuel into the intake manifold upstream of the regular injectors, to provide a richer fuel-air mix for cold starting. A coolant temperature sensor feeds information back to the ECU to determine when this extra injector should be used.

As you would expect though, technology marches on with no regard to home mechanics, and the latest technology is direct injection, also known as GDI (gasoline direct injection). This is similar to multi-point injection only the injectors are moved into the combustion chambers themselves rather than the intake manifold. This is nearly identical to the direct injection system used in diesel engines. Essentially, the intake valve only allows air into the combustion chamber and the fuel is sprayed in directly through a highpressure heat-resistant injector. The fuel and air mix inside the combustion chamber itself due to the positions of the intake valve, injector tip and top of the piston crown. The piston crown in these engines is normally designed to create a swirling vortex to help mix the fuel and air before combustion, as well as having a cavity in it for ultra-lean-burn conditions (picture on the left). The ECU controls the amount of fuel injected based on the airflow into the engine and demand, and will operate a direct injection engine in one of three modes. Full power mode is basically foot-to-the-floor driving. The fuel-air ratio is made richer and the injectors spray the fuel in during the piston intake stroke. In stoichiometric mode the fuel-air ratio is leaned off a little. The fuel is still sprayed in during the piston intake stroke but the burn is a lot cleaner and the ECU chooses this mode when the load on the engine is slightly higher than normal, for example during acceleration from a stop. Finally, when you're cruising with very little engine load, for example when you're on wide-open motorway with no traffic, the ECU will choose an ultra lean mode. In this mode, the fuel is injected later on in the 4-stroke cycle as the piston is moving up during its compression stroke. This forces the fuel-air charge right up next to the tip of the spark plug for the best burn conditions and the combustion itself takes place partly in the cylinder and partly in the shaped piston crown.

- I. Перепишите следующие предложения, вставляя, где необходимо, частицу to.
- 1. I asked him if he was willing (to help) me (to do) the job.
- 2. Why not (to allow) her (to do) as she likes.
- 3. Don't let us (to waste) time. There are hundreds of things (to be done).

- II. Вставьте инфинитив в нужной форме.
- 1. Is there anything else (to tell) him? I believe he deserves (to know) how the matter stands and (to tell) all about it.
- 2. I'm sorry (to disappoint) you but I didn't mean anything of the kind.
- 3. The book is likely (to publish) and (to appear) on sale pretty soon. It's sure (to sell) well and (to sell) out in no time.
- III. Перепишите следующие предложения, используя инфинитив в качестве сложного дополнения, и переведите их на русский язык.
- 1. I told her (to return) the book promptly.
- 2. He felt the eyes of his group (to rest) on him.
- 3. He was seen (to cross) the street and (to turn) round the corner.
- IV. Перепишите следующие предложения, употребляя инфинитив в качестве сложного подлежащего, и переведите их на русский язык.
- 1. It's reported that the spaceship has landed successfully.
- 2, it's said that he'll be one of the best students at our faculty in the nearest future.
- 3. It appears that Bill has been playing chess with his neighbour for two hours.
- V. Перепишите следующие предложения, употребляя причастие I в качестве сложного дополнения, и переведите их на русский язык.
- 1. When Mary opened her eyes she saw Nina (stand) by her side.
- 2. Did you see Mary (look) into the shop window?
- 3. He found them (sit) together and (talk) peacefully.
- VI. Перепишите следующие предложения, употребляя причастие II в качестве сложного дополнения, и переведите их на русский язык.
- 1. He heard his name (call) from behind.
- 2. Have you got your watch (repair).
- 3. They found the door (lock).
- VII. Перепишите следующие предложения, обращая внимание на использование причастия I и причастия II в функции обстоятельства, и переведите их на русский язык.
- 1. So saying, he left her and turned towards Soho.
- 2. Having been away from it for two days I'd forgotten how depressing it could be.
- 3. Opening the window, he went out to the terrace.
- VIII. Перепишите следующие предложения, обращая внимание на сочинительные или подчинительные союзы. Переведите письменно на русский язык.
- 1. Either he had recovered from his panic of the night, or he pretended to have.
- 2. It annoyed the assistant managing editor that Pete hadn't reported at once.
- 3. I am sure he was warned about the unwanted visitor, because he left the house by the back stairs.
- 4. It was on the patient's having his breakfast in bed that the doctor insisted.
- IX. Письменно преобразуйте следующие предложения из прямой речи в косвенную, внося необходимые изменения.
- 1. "We like working on Sundays because we get double pay." explained the builder.
- 2. "Who do you want to speak to?" asked the telephonist.
- 3. "Don't forget to thank Mrs Jones when you are saying good-bye to her," said his mother.
- X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «The most basic type ... top of the valve».

## VALVE MECHANISM

The valves are what let the fuel-air mixture into the cylinder, and let the exhaust out. It seems simple enough, but there are some interesting differences in the various types of valve mechanism.

Spring return valves are about the most commonly used and most basic type of valve-train in engines today. Their operation is simplicity itself and there are only really three variations of the same style. The basic premise is that the spinning camshaft operates the valves by pushing them open, and valve return springs force them closed. The cam lobes either operate directly on the top of the valve itself, or in some cases, on a rocker arm which pivots and pushes on the top of the valve. The three variations of this type of valve-train are based on the combination of rocker arms and the position of the camshaft.

The most basic type has the camshaft at the top of the engine with the cam lobes operating directly on the tops of the valves. The second more complex type still has the camshaft at the top of the engine, but the cam lobes operate rocker arms, which in turn pivot and operate on the tops of the valves. With some of these designs, the rocker arm is pivoted in the middle and with other designed, it's pivoted at one end and the cam lobe operates on it at the midpoint. The third type which you'll find in some motorcycle engines and many boxer engines are pushrod-activated valves. The camshaft is actually directly geared off the crank at the bottom of the engine and the cam lobes push on pushrods which run up the sides of the engine. The top of the pushrod then pushes on a rocker arm, which finally pivots and operates on the top of the valve.

Tappet valves aren't really a unique type of valve but a derivative of spring-return valves. For the most part, the direct spring return valve wouldn't act directly on the top of the valve itself, but rather on an oil-filled tappet. The tappet is basically an upside-down bucket that covers the top of the valve stem and contains the spring. It's normally filled with oil through a small hole when the engine is pressurized. The purpose of tappets is two-fold. The oil in them helps quiet down the valve-train noise, and the top of the tappet gives a more uniform surface for the cam lobe to work on. From a maintenance point of view, tappets are the items which wear and are a lot easier to swap out than entire valve assemblies.

Desmodromic valve systems are unique to Ducati motorbikes. The word 'desmodromic' is derived from Greek roots 'desmos' (controlled, linked) and 'dromos' (course, track). It refers to the exclusive valve control system used in Ducati engines; both valve movements (opening and closing) are 'operated'. It means, that in both the above systems the closure mechanism on the valve relies on mechanical springs or hydraulics. There's nothing to actually force the valve to close. With the Ducati Desmodromic system, the camshaft has two lobes per valve, and the only spring is there to take up the slack in the closing system. Ducati valves are forced closed by the camshaft. It's one of the reasons Ducati motorbike engines have been able to revolve much higher than their Japanese counterparts. The idea is that with springs especially, once you get to a certain speed, you're bound by the metallurgy of the spring - it can no longer expand to full length in the time between cylinder strokes and so you get 'valve float' where the valve never truly closes. With Desmodromic valves, that never happens because a second closing rocker arm hooks under the top of the valve stem and jams it upwards to force the valve closed. In fact, the stroke length, rods, and pistons all play their part in valve timing and maximum engine speed — it's not just the springs and valve float. This is why F1 cars use such a small stroke and pneumatic valves springs. In truth, both systems, spring or Desmodromic only work well up to a limit. Newer Japanese bikes have engines that can revolve to the same limit as a Ducati just using spring-return valves.

In the 1980s, the buzzword was 16-valve. What does all this mean? It's really simple: "traditional" 4-cylinder in-line engines have two valves per cylinder -- (one intake and one exhaust). In a 16V-engine, you have four per cylinder (two intake and two

exhaust: 4 valves x 4 cylinders makes 16 valves, or 16V). It follows that a 20V-engine has 20 valves - 5 per cylinder (three intake and two exhaust). Unless you've got a 5-cylinder Audi or Volvo in which case you've still got 4 valves per cylinder. If you're in America, the thing to have now is 32V - a 32-valve engine. Basically it's a V-8 with 4 valves per cylinder.

And what do all these extra valves get you apart from a lot more damage if they ever go wrong? A better breathing engine: more fuel-air mix in, quicker exhaust.

- I. Перепишите следующие предложения, вставляя, где необходимо, частицу to.
- 1. Why not (to start) out now? We can't (to wait) for the weather (to change).
- 2. You needn't (to ask) for permission. I let you (to take) my books whenever you like.
- 3. There's nothing (to do) but (to wait) till somebody comes (to let) us out.
  - Вставьте инфинитив в нужной форме.
- 1. Wrap my lunch, child. I must (to go). He doesn't like (to keep) waiting.
- 2. Poor girl, she didn't know what (to do). And there was nothing (to do) but to knit all day long.
- 3. She didn't mean (to bother) anyone and she didn't mean (to bother).
- III. Перепишите следующие предложения, используя инфинитив в качестве сложного дополнения, и переведите их на русский язык.
- 1. There is some information I want you (to obtain).
- 2. Lawson nodded quickly and walked away. Philip felt a shiver (to pass) through his heart.
- 3. I've never heard him (to speak) of his life in Australia.
- IV. Перепишите следующие предложения, употребляя инфинитив в качестве сложного подлежащего, и переведите их на русский язык.
- 1. It's expected that many delegates will arrive at this conference.
- 2. It's said that the negotiations have already finished.
- 3. It seems that you know much about the history of this city.
- V. Перепишите следующие предложения, употребляя причастие I в качестве сложного дополнения, и переведите их на русский язык.
- 1. I noticed Tom Wells (stand) in the shadow of the fountain.
- 2. She felt her voice (tremble) and tried to control herself.
- 3. She watched him (pass) the gate and (walk) down the street.
- VI. Перепишите следующие предложения, употребляя причастие II в качестве сложного дополнения, и переведите их на русский язык.
- 1. I'd like my hair (shampoo).
- 2. You should make your views (change).
- 3. We found the house (desert).
- VII. Перепишите следующие предложения, обращая внимание на использование причастия I и причастия II в функции обстоятельства, и переведите их на русский язык.
- 1. Going up to the dressing table he passed his hand over the lilac-coloured pin-cushion.
- 2. Philip, not knowing what on earth this new attitude implied, went back to his work.
- 3. Arriving at the station, she saw him at once, leaning against the railing.
- VIII. Перепишите следующие предложения, обращая внимание на сочинительные или подчинительные союзы. Переведите письменно на русский язык.

  1. The blue upholstery won't go with the yellow stair-carpet, nor will it go with the brown
- 1. The blue uphoistery won't go with the yellow stair-carpet, nor will it go with the brown woodwork.

- 2. How we can get the document is just what we should consider the first thing.
- 3. The door gave a little but came back as though somebody was holding it against me.
- 4. It was about four o'clock that the one really disturbing incident of the day happened.

IX. Письменно преобразуйте следующие предложения из прямой речи в косвенную,

внося необходимые изменения.

- 1. The advertisement said, "If you answer the question correctly you may win \$100."
- 2. "Why didn't the police report the crime? the judge inquired.
- 3. "Don't smoke near the petrol pump," said the mechanic.

X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «All engines ..... an engine down».

## **ENGINE COOLING SYSTEM**

If you fill a metal engine with fuel and air hundreds of times a second and make it explode, it is going to get pretty hot. To stop it all from melting into a fused lump of steel and aluminium, all engines have some method of keeping them cool.

You dont see this air cooling much on car engines at all now. The most famous cars it was used on were rear-engined boxers like the original VW Beetle, Karmann Ghia, and Porsche Roadsters. It is still used a lot on motorbike engines because it's a very simple method of cooling. For air cooling to work, you need two things — lots of fins and good airflow. On an air-cooled engine the fins are built into the outside of the cylinders. The idea is simple — the fins act as heat sinks, getting hot with the engine but transferring the heat to the air as the air passes through and between them. Air-cooled engines don't work particularly well in long, hot traffic jams though, because there's very little air passing over the fins. They are good in the winter when the air is coldest, but that illustrates a weak spot in the whole design. Air cooled engines can't regulate the overall temperature of the cylinder heads and engine, so the temperature tends to swing up and down depending on engine load, air temperature and forward speed. A famous problem with air-cooling is associated with V-twin motorcycles. Because the rear cylinder is tucked in the frame behind the front cylinder, its supply of cool, uninterrupted air is extremely limited and so in these designs, the rear cylinder tends to run extremely hot compared to the front.

All engines, to some extent, have oil-cooling. It's one of the functions of the engine oil — to transfer heat away from the moving parts and back to the sump where fins on the outside of the sump can help transfer that heat out into the air. But for some engines, the oil system itself is designed to be a more efficient cooling system. BMW 'R' motorbikes are known for this (their nickname is 'oilheads'). As the oil moves around the engine, at some points it's directed through cooling passageways close to the cylinder bores to pick up heat. From there it goes to an oil radiator placed out in the airflow to disperse the heat into the air before returning into the core of the engine. Actually, in the case of the 'R' motorbikes, they're air- and oil-cooled as they have the air-cooling fins on the cylinders too. This is by far and away the most common method of cooling an engine down.

With water cooling, a coolant mixture is pumped around pipes and passageways inside the engine separate to the oil, before passing out to a radiator. The radiator itself is made of metal, and it forces the coolant to flow through long passageways each of which has lots of metal fins attached to the outside giving a huge surface area. The coolant transfers its heat into the metal of the radiator, which in turn transfers the heat into the surrounding air through the fins just like the air-cooled engine fins. The coolant is normally a mixture of distilled water and an antifreeze component. The water needs to be distilled because if you use tap water, all the minerals in it will deposit on the inside of the cooling system and mess it up. The antifreeze is in the mix to stop the liquid from freezing in cold

weather. If it froze up, you'd have no cooling at all and the engine would overheat and weld itself together in a matter of minutes. The antifreeze mix also has other chemicals in it for corrosion resistance too and when mixed correctly it raises the boiling point of water, so even in the warmer months of the year, a cooling system always needs a water-antifreeze mix in it. The coolant in the system in a typical car is under pressure once the engine is running, as a byproduct of the water pump and the expansion that water undergoes as it heats up. Because of the coolant mixture, the water in the cooling system can get over 100°C without boiling which is why it's never a good idea to open the radiator cap immediately after you've turned the engine off. If you do, a superheated mixture of steam and coolant will spray out.

Water cooling is the most common method of cooling an engine down, but it's also the most complicated. For example you don't want the coolant flowing through the radiator as soon as you start the engine. If it did, the engine would take a long time to come up to operating temperature which causes problems with the emissions systems, the drivability of the engine and the comfort of the passengers. In truly cold weather, most water cooling systems are so efficient that if the coolant flowed through the radiator at start-up, the engine would literally never get warm. So this is where the thermostat comes in to play. The thermostat is a small device that normally sits in the system in-line to the radiator. It is a spring-loaded valve actuated by a bimetallic spring: the hotter it gets, the wider open the valve is. When you start the engine, the thermostat is cold and so it's closed. This redirects the flow of coolant back into the engine and bypasses the radiator completely but because the cabin heater radiator is on a separate circuit, the coolant is allowed to flow through it. It has a much smaller surface area and its cooling effect is nowhere near as great. This allows the engine to build up heat quite quickly.

As the coolant heats up, the thermostat begins to open and the coolant is allowed to pass out to the radiator where it dumps heat out into the air before returning to the engine block. Once the engine is fully hot, the coolant is at operating temperature and the thermostat is permanently open, redirecting almost all the coolant flow through the radiator. It's the action of the thermostat that allows a water-cooled engine to better regulate the heat in the engine block. Unlike an air-cooled engine, the thermostat can dynamically alter the flow of coolant depending on engine load and air temperature to maintain an even temperature.

## КОНТРОЛЬНАЯ РАБОТА № 4

Материал четвертого семестра включает следующие разделы курса английского языка:

- 1. Герундий: простые и сложные формы, функции, герундиальные обороты.
- 2. Сослагательное наклонение.
- 3. Условные предложения.
- 4. Типы придаточных предложений. Союзное и бессоюзное подчинение.
- Использование глагольных времен в придаточных предложениях времени и условия.
  - 6. Пунктуация сложносочиненного и сложноподчиненного предложения.

- Перепишите следующие предложения, обращая внимание на герундиальные формы, и переведите их на русский язык письменно.
- 1. It's natural living like this alone with nature.
- She kept eyeing Henry with interest.
- 3. She turned round on his entering the room.

- Перепишите следующие предложения, употребив инфинитив или герундий. Переведите устно на русский язык.
- 1. Over coffee he began to calm down a little; he made himself useful by (to hand) round the coffee cups.
- 2. I wouldn't like you to think that I am in the habit of (to make) a nuisance of myself.
- She went on (to read) about how (to stick) plastic flowers on her blouse.
- III. Перепишите следующие предложения, употребив нужную форму герундия и предлог, где необходимо. Переведите устно на русский язык.
- 1. Good-bye, and thank you ever so much (to come) with me.
- 2. This was Daphne's only chance (to tell) them of her college life.
- 3. I was aware (to plunge) into a network of fresh difficulties.
- IV. Переведите на английский язык фрагменты, данные в скобках, и напишите предложения.
- 1. They prided themselves (что первые выдвинули эту теорию).
- 2. We counted (что застанем его на месте).
- I can't recall (чтобы меня с ним когда-нибудь знакомили).
- V. Перепишите следующие предложения, обращая внимание на формы наклонения и переведите их на русский язык письменно.
- 1. If you were me, here and now, what would you do?
- 2. They would enjoy themselves much more if they had a party of their own.
- 3. I shouldn't have slept a wink all night if I hadn't known you were safe.
- Перепишите следующие предложения, используя нужные формы. наклонения, и переведите на русский язык устно.
- 1. If I (not to be) what I am, things (to be) so simple.
- 2. If you (to be allowed) to stay in Canada, what you (to do)?
- 3. If anyone (to suggest) to me yesterday that O'Murphy was a traitor, I (to laugh) in his face.
- VII. Переведите на английский язык фрагменты, данные в скобках, обращая внимание на употребление глагольных времен в придаточных обстоятельственных предложениях условия и времени, и напишите предложения.
- 1. The delegation will start for London (как только они получат свои визы).
- At their travel bureau they will tell you exactly (когда отправится поезд).
- 3. Ask the locksmith (много ли у него займет времени, чтобы изготовить дубликат (а double) этого ключа).
- VIII. Перепишите следующие предложения, обращая внимание на способ соединения предложений, и переведите письменно на русский язык.
- More and more, she became convinced that some misfortune had overtaken Paul.
- All that she had sought for and achieved seemed suddenly to have no meaning.
- Hardly had they entered the house when a violent thunderstorm broke out.
- Перепишите предложения, заполнив пропуски нужными словами. образованными от данных напротив каждого предложения.
- 1. A strong pain killer is the most ...... way of getting rid of a headache.

You should consider your options ...... before making s decision.

Many youth ..... offer summer enrichment programmes.

care organize

effect

Х. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «When these components ... into additional HP»

#### RELATION BETWEEN PERFORMANCE AND AIR FLOW

Components that influence airflow *into* the engine are the: air filter, intake air piping, mass air sensor (if applicable), throttle body or carburetor, intake manifold, camshaft, intake port and valve of cylinder heads, turbo's compression, section, and supercharger (if applicable).

Components that influence airflow out of the engine are the: exhaust valve and exhaust ports of the cylinder heads, camshafts, exhaust manifolds, turbo's turbine (if applicable), exhaust tubing, catalytic converters, muffler.

When these components are modified to increase flow *out* of the engine, pumping losses are reduced. Pumping losses refer to the amount of horsepower (HP) used to push the exhaust gases out of the cylinders on the engine's exhaust stroke. Since less HP is used to get the exhaust out of the engine, more horsepower is available at the flywheel. An added benefit of reducing pumping losses is that fuel mileage will also increase.

No matter how much additional air is forced into the engine, no additional HP will be made unless additional fuel is also added. The energy that makes HP in an engine comes from the combustion of the fuel, not only the air. In general, every two HP produced requires one pound of fuel per hour. When modifications are performed that increase airflow into the engine, more air is available for the combustion of fuel. The combustion of the additional fuel is what translates into additional HP.

Air flow is not just influenced by the size (area) of the paths it takes into and out of the engine. It is also influenced by the speed at which it moves. Specific Port Flow (cubic meter/sec) = Flow Velocity (m/s) x Average Path Area (m²)

Whenever an engine modification increases the average area of the airflow paths into and out of an engine, there is a chance the velocity of the flow will decrease. Most of the time the factor of velocity decrease is very small compared to the area increased, so flow is generally increased. If modifications are taken too far, the velocity will decrease more than the area increases, so flow is adversely affected (example - four inch exhaust system on a 1.6 liter engine).

- Перепишите следующие предложения, обращая внимание на герундиальные формы, и переведите их на русский язык письменно.
- 1. Keeping his secret won't do any harm.
- 2. Julie expressed horror at the very thought of going out into the cold.
- 3. It was no good your doing things by halves.
- Перепишите следующие предложения, употребив инфинитив или герундий.
   Переведите устно на русский язык.
- 1. The master seized the arms of his chair and grasped them as though (to prevent) himself from (to fall) upon Philip.
- 2. I remember (to see) her (to come) on board only a few minutes before the boat sailed.
- 3. John had introduced himself to Philip before (to come) in to see Ketty.
- III. Перепишите следующие предложения, употребив нужную форму герундия и предлог, где необходимо. Переведите устно на русский язык.
- 1. His mother would not like the idea (to eat) fruit unwashed.
- 2. "It seems to me an awfully selfish way (to look) at things," said Philip.
- 3. Sandy could not remember (to ask) about it.

- IV. Переведите на английский язык фрагменты, данные в скобках, и напишите предложения.
- 1. He couldn't get used (чтобы его называли дедушкой).
- 2. She was quite unconscious (что пришла в неудачный момент).
- 3. Excuse me (что я вошел не постучав).
- V. Перепишите следующие предложения, обращая внимание на формы наклонения и переведите их на русский язык письменно.
- 1. If I were Jim I wouldn't tell that to the judge.
- 2. He was aware that if he met George in the street he would not recognize him.
- 3. Had Irene been present, the family circle would have been complete.
- VI. Перепишите следующие предложения, используя нужные формы наклонения, и переведите на русский язык устно.
- 1. If we (not to be) foolish and sentimental and melodramatic at twenty-five, we (to be) less wise at fifty.
- 2. If it (to be) an accident, I don't think Mrs Bautry (to tell) us this story.
- 3. If I (to be) you I (to do) my hair rather differently
- VII. Переведите на английский язык фрагменты, данные в скобках, обращая внимание на употребление глагольных времен в придаточных обстоятельственных предложениях условия и времени, и напишите предложения.
- 1. I don't think I shall be able to call on them and say good-bye (до того, как уеду за границу).
- 2. (Если вы не хотите залезать на дерево) you can shake it and the apples will fall down to the ground.
- 3. (Когда я поеду в Санкт-Петербург) I shall stay at my friends'.
- VIII. Перепишите следующие предложения, обращая внимание на способ соединения предложений, и переведите письменно на русский язык.
- 1. Jan waved till the taxi disappeared round the bend in the road.
- 2. Scarcely had his hands touched her head when she sighed deeply.
- 3. I don't wish you to be my wife unless you are bound to me by love.
- IX. Перепишите предложения, заполнив пропуски нужными словами, образованными от данных напротив каждого предложения.
- 1. The two countries have overcome many of their ....... differences.

2. Everyone should have basic ...... of first aid procedures.

3. The ..... will spend two weeks in France. compete

X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «The exhaust manifold ... on the cylinder head».

#### ANALYSIS OF THE EXHAUST SYSTEM IN AN AVERAGE CAR

The above is a diagram of the major components of an exhaust system in a car. Exhaust system components are designed for a specific engine. The pipe diameter, component length, catalytic converter size, muffler size, and exhaust manifold design are engineered to provide proper exhaust flow, silencing, and emission levels on a particular engine. Let's discuss the function and specifics of each component.

culture

know

The exhaust manifold is a pipe that conducts the exhaust gases from the combustion chambers to the exhaust pipe. Many exhaust manifolds are made from cast iron or nodular iron. Some are made from stainless steel or heavy-gauge steel. The exhaust manifold contains an exhaust port for each exhaust port in the cylinder head, and a flat machined surface on this manifold fits against a matching surface on the exhaust port area in the cylinder head. Some exhaust manifolds have a gasket between the manifold and the cylinder head, as can be seen in the diagram below:

Gaskets are meant to prevent leakage of air/gases between the manifold and cylinder heads. The gaskets are usually made out of copper, asbestos-type material, or paper. In other applications, the machined surface fits directly against the matching surface on the cylinder head. The exhaust passages from each port in the manifold join into a common single passage before they reach the manifold flange. An exhaust pipe is connected to the exhaust manifold flange. On a V-type engine an exhaust manifold is bolted to each cylinder head.

The exhaust pipe is connected from the exhaust manifold to the catalytic converter. On in-line engines the exhaust pipe is a single pipe, but on V-type engines the exhaust pipe is connected to each manifold flange, and these two pipes are connected into a single pipe under the rear of the engine. This single "Y" pipe is then attached to the catalytic converter. Exhaust pipes may be made from stainless steel or zinc-plated steel, and some exhaust pipes are double-walled. In some exhaust systems, an intermediate pipe is connected between the exhaust pipe and the catalytic converter. Some have a heavy tapered steel or steel composition sealing washer positioned between the exhaust pipe flange and the exhaust manifold flange. Other exhaust pipes have a tapered end that fits against a ball-shaped surface on the exhaust manifold flange. Bolts or studs and nuts retain the exhaust pipe to the exhaust manifold.

Some V-type engines have dual exhaust systems with separate exhaust pipes and exhaust systems connected to each exhaust manifold.

- Перепишите следующие предложения, обращая внимание на герундиальные формы, и переведите их на русский язык письменно.
- 1. All I want is getting to the truth.
- 2. He didn't feel like talking to anyone now.
- 3. But of course someone might have gone to the table without your noticing.
- Перепишите следующие предложения, употребив инфинитив или герундий.
   Переведите устно на русский язык.
- 1. He seemed (to have) some difficulty in (to start).
- 2. She tried (to stop) (to go out) (to see) people.
- 3. And with immense effort of the will, he managed (to stand) there, without (to go) down (to open) the door.
- III. Перепишите следующие предложения, употребив нужную форму герундия и предлог, где необходимо. Переведите устно на русский язык.
- 1. "I don't see the use (to read) the same thing over and over again," said Philip.
- 2. That's no reason (to give up).
- 3. David would not dream (to say) such a thing to anyone.
- IV. Переведите на английский язык фрагменты, данные в скобках, и напишите предложения.
- 1. I am really ashamed (что так давно вам не писал.
- 2. Не is upset (что ему приходится начинать все снова).
- 3. She denied (что обещала что-либо подобное).

- V. Перепишите следующие предложения, обращая внимание на формы наклонения и переведите их на русский язык письменно.
- 1. If Howden had been less preoccupied he might have noticed that she seemed unusually radiant this morning.
- 2. If Miss Emily suffered half as much as she said she did, she would have sent for Dr Haydock long ago.
- 3. If you were a man you'd never speak to her again.
- VI. Перепишите следующие предложения, используя нужные формы наклонения, и переведите на русский язык устно.
- 1. I (not to mind) if he (to say) my pictures were bad, but he said nothing.
- 2. After all, if he (to have) any talent I (to be) the first to encourage him.
- 3. I (not to go) if you (not to say) you'd come with me.
- VII. Переведите на английский язык фрагменты, данные в скобках, обращая внимание на употребление глагольных времен в придаточных обстоятельственных предложениях условия и времени, и напишите предложения.
- 1. Ask John (когда он закончит упаковывать вещи).
- 2. (Если она придет на вечеринку одна), and there will be nobody she knows, she will feel lonely.
- 3. The milk will be fresh a long time (если вы поставите его в холодильник).
- VIII. Перепишите следующие предложения, обращая внимание на способ соединения предложений, и переведите письменно на русский язык.
- 1. The thing to be settled on now is whether anything can be done to save him.
- 2. It seems as if all these years I've been living under false pretences.
- 3. No sooner had I wiped one salt drop from my cheek than another followed.
- IX. Перепишите предложения, заполнив пропуски нужными словами. образованными от данных напротив каждого предложения.
- 1. It is our .... to protect the environment.

oblige broad qualify

- Education can help .... your horizons.
- 3. Unfortunately, she wasn't .... and didn't get the job.

Х. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «In a three-way ... or cylinder misfiring».

## THE CATALYTIC CONVERTER

Three major automotive pollutants are carbon monoxide (CO), unburned hydrocarbons (HC), and oxides of nitrogen (NOx). When air and gasoline are mixed and burned in the combustion chambers, the by-products of combustion are carbon, carbon dioxide (CO2), CO, and water vapor, Gasoline is a hydrocarbon fuel containing hydrogen and carbon. Since the combustion process in the cylinders is never 100% complete, some unburned HC are left over in the exhaust. Some HC emissions occur from evaporative sources, such as gasoline tanks and carburetors.

Oxides of nitrogen (NOx) are caused by high cylinder temperature. Nitrogen and oxygen are both present in air. If the combustion chamber temperatures are above 1.371 degrees Celsius, some of the oxygen and nitrogen combine to form NOx. In the presence of sunlight, HC and NOx join to form smog.

Catalytic converters may be pellet-type or monolithic-type. A pellet-type converter contains a bed made from hundreds of small beads, and the exhaust gas passes over this bed (see Fig 1) In a monolithic-type converter, the exhaust gas passes through a honeycomb ceramic block (Fig 2). The converter beads, or ceramic block, are coated with a thin coating of platinum, palladium, or rhodium, and mounted in a stainless steel container. An oxidation catalyst changes HC and CO to CO<sub>2</sub> and water vapor (H<sub>2</sub>0). The oxidation catalyst may be referred to as a two-way catalytic converter.

In a three-way catalytic converter, the converter is positioned in front of the oxidation catalyst. A three-way catalytic converter reduces NOx emissions as well as CO and HC. The three-way catalyst reduces NOx into nitrogen and oxygen.

Some catalytic converters contain a thermo-sensor that illuminates a light on the instrument panel if the converter begins to overheat. Unleaded gasoline must be used in engines with catalytic converters. If leaded gasoline is used, the lead in the gasoline coats the catalyst and makes it ineffective. Under this condition, tail pipe emissions become very high. An engine that is improperly tuned would also cause severe overheating of the catalytic converter. Examples of improper tuning would be a rich air-fuel mixture or cylinder misfiring.

Many catalytic converters have an air hose connected from the belt-driven air pump to the oxidation catalyst. This converter must have a supply of oxygen to operate efficiently. On some engines, a mini-catalytic converter is built into the exhaust manifold or bolted to the manifold flange.

- Перепишите следующие предложения, обращая внимание на герундиальные формы, и переведите их на русский язык письменно.
- 1. He had great difficulty in undoing his collar.
- 2. I could not help thinking of the island in this anatomical way.
- 3. She changed the style of her dancing and did not keep so strictly to the ground.
- II. Перепишите следующие предложения, употребив инфинитив или герундий. Переведите устно на русский язык.
- 1. Can you (to ask) me after (to hear) me (to play)?
- 2. Thank you for (to let) me (to talk) to you.
- 3. Ralph began (to disappear) for days and weeks without (to warn).
- III. Перепишите следующие предложения, употребив нужную форму герундия и предлог, где необходимо. Переведите устно на русский язык.
- 1. I had not asked for advice. I was quite capable (to advise) myself.
- 2. Miss Brodie was greatly taken aback and suffered greatly from a sense (to betray).
- 3. He was looking forward (to take) the tickets.
- IV. Переведите на английский язык фрагменты, данные в скобках, и напишите предложения.
- 1. We hope he will succeed (найти свое место в жизни).
- 2. Why do you avoid (называть вещи своими именами)?
- 3. Не insists (на том, чтобы его послали туда вместо меня).
- V. Перепишите следующие предложения, обращая внимание на формы наклонения и переведите их на русский язык письменно.
- 1. If she had told you that she was forty you would have been quite willing to believe it.
- 2. If he closed his eyes, he thought, he would visualize the scene.
- 3. If he had the better fortune to appear before another judge, would the result be different now?

VI. Перепишите следующие предложения, используя нужные формы наклонения, и переведите на русский язык устно.

1. How it (to be) if I (to drop) around this evening?

- 2. If only I (to feel) that somebody wanted me, that I was of use to somebody, I (to become) a different person.
- 3. Your manners are all right. I (not to bring) you here if they (not to be).
- VII. Переведите на английский язык фрагменты, данные в скобках, обращая внимание на употребление глагольных времен в придаточных обстоятельственных предложениях условия и времени, и напишите предложения.
- 1. Ask the flower girl how much money I shall have to pay (если я возьму все цветы).
- 2. Ask Ann (придет ли она на вечеринку одна или ее сестра тоже придет).
- 3. Tell the hotel boy to brush your shoes (когда вы вернетесь с прогулки).
- VIII. Перепишите следующие предложения, обращая внимание на способ соединения предложений, и переведите письменно на русский язык.
- 1. I ventured on asking why he was in such a hurry to get back to town.
- 2. I am always ready to listen to whatever you may wish to disclose.
- 3. He is suspicious and jealous for fear anyone else might want to share in his power.
- IX. Перепишите предложения, заполнив пропуски нужными словами, образованными от данных напротив каждого предложения.
- 1. My mother's has been a great help in my life.
- 2. Travelling by train is far more .... than traveling by bus.

encourage comfort import

- 3. Safety in the workplace has become an issue of great .....
- X. Прочитайте спедующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «The muffler quiets ...... to dissipate their energy».

## THE RESONATOR, MUFFLER, AND TAILPIPE

Since the resonator and muffler perform basically the same functions, I decided to write about them under one houding. Firstly, the main function of the muffler is to reduce the sound of the engine's outcoming exhaust gases through the exhaust pipes to a minimal level. Since the muffler cannot roduce the noise of the engine by itself, some (if not most) exhaust systems also have a resonator between the catalytic converter and the muffler. Resonators are

basically the second muffler, and are usually the "straight through" type.

The muffler quiets the noise of the exhaust by "muffling" the sound waves created by the opening and closing of the exhaust valves. When an exhaust valve opens, it discharges the burned gases at high pressures into the exhaust pipe, which is at low pressure. This type of action creates sound waves that travel through the flowing gas, moving much faster than the gas itself (up to 1400 mph = 625.8m/s), that the resonator and muffler must silence. It generally does this by converting the sound wave energy into heat by passing the exhaust gas and its accompanying wave pattern, through perforated tubes and tuning chambers. Passing into perforations and reflectors within the chamber forces the sound waves to dissipate their energy.

The above described and pictured muffler design is the most common type, the reverse-flow design, which changes the direction of exhaust flow inside the muffler. Exhaust gases are directed to the third chamber, forced forward to the first chamber, from

where they travel the length of the muffler and are exhausted into the tailpipe.

Some mufflers are a straight through design in which the exhaust passes through a single perforated pipe into a outside chamber packed with metal, fiberglass, packed glass, or other sound absorbing (or insulating) material. As the exhaust gases expand from the perforated inner pipe into the outer chamber, they come in contact with the insulator and escape to the atmosphere under constant pressure. Because of this, the expanding chamber tends to equalize or sproad the pressure peaks throughout the exhaust from each individual cylinder of the engine. This type of muffler is thus freer flowing and designed for the purpose of reducing back pressure and, consequently, makes slightly more noise.

The tail pipe basically carries the flow of exhaust from the muffler to the rear of the vehicle. Some vehicles have an integral resonator in the tail pipe. Like the resonator mentioned earlier, this resonator is similar to a small muffler, and it provides additional exhaust silencing. In some exhaust systems, the resonator is clamped into the tail pipe. Tail pipes have many different bends to fit around the chassis and driveline components. In general, all exhaust systems components must be positioned away from the chassis and driveline to prevent rattling. The tail pipe usually extends under the rear bumper, and the end of this pipe is cut at an angle to deflect the exhaust downward.

- Перепишите следующие предложения, обращая внимание на герундиальные формы, и переведите их на русский язык письменно.
- 1. He didn't like the idea of her staying with her father's people in Capetown.
- 2. She explained this to them by saving she was busy.
- 3. I can't bear the thought of your deserting your post when your presence is so necessary.
- Перепишите следующие предложения, употребив инфинитив или герундий.
   Переведите устно на русский язык.
- 1. Without (to speak) they went along, and there was no one (to see) either in front or behind them.
- 2. After that they decided (to go) where there was no chance at all of their (to see),
- 3. He took a silk scarf from his neck and gave it over to me (to use) for a handkerchief, since my own was wet with my (to cry).
- III. Перепишите следующие предложения, употребив нужную форму герундия и предлог, где необходимо. Переведите устно на русский язык.
- 1. She was on the point (to obtain) permission to go for walks alone.
- 2. Did he suspect her (to see) him enter the room?
- 3. His heart sank at the thought (to go) out into the bleak darkness.
- IV. Переведите на английский язык фрагменты, данные в скобках, и напишите предложения.
- 1. He had the most irritating habit (шутить в самый неподходящий момент).
- 2. The equipment must go through a number of tests (до того, как его установят).
- 3. The operator can set the machine in motion (нажатием кнопки или педали).
- V. Перепишите следующие предложения, обращая внимание на формы наклонения и переведите их на русский язык письменно.
- 1. If it had been anybody else's play, he would have rejected it.
- 2. Everyone would have known if they had guarreled.
- 3. If he did retire, would anyone notice the difference?
- VI. Перепишите следующие предложения, используя нужные формы наклонения, и переведите на русский язык устно.
- 1. If you (to let) me have my way before there (to be) no cause for our trouble tonight.
- 2. If I (to be) twenty-seven again I suppose I (to be) as big a fool as I was then.
- 3. Paul's mother never (to say) the things she did if she (to know) that he could hear her.
- VII. Переведите на английский язык фрагменты, данные в скобках, обращая внимание на употребление глагольных времен в придаточных обстоятельственных предложениях условия и времени, и напишите предложения.
- 1. Ask the customs office (будут ли они осматривать наш багаж).
- 2. (Как только вы его увидите) ask him if he will be able to visit us before leaving.
- 3. (Если вы будете работать усердно) you will finish your work by the evening.

VIII Перепишите следующие предложения, обращая внимание на способ соединения предложений, и переведите письменно на русский язык.

- 1. He said there was nothing much the matter with me.
- 2. She uttered a wild scream which in its heart-rendering intensity seemed to echo for miles.
- 3. I will do anything you wish provided it lies in my power.

IX. Перепишите предложения, заполнив пропуски нужными словами, образованными от данных напротив каждого предложения.

- Regular exercise and correct diet are essential for a ...... lifestyle.
- 2. Sunscreen offers protection against the .... effects of the sun's rays.

health harm

3. Computer databases give companies ...... business information.

value

X. Прочитайте следующий текст и устно переведите его на русский язык. Перепишите и письменно переведите отрывок «A header is a different ... increase in horsepower».

#### HOW TO IMPROVE EFFICIENCY AND POWER

The analysis of the components in an automotive exhaust system makes it obvious that the principle of the engine as a pump is not being utilized to the fullest. Air is not allowed to flow too freely because of restrictions in the form of the catalytic converter, the resonator, and the muffler. However, these components are necessary by regulations to maintain suffer exhaust gas emissions and minimal sound levels (noise suppression). Also, in part, it takes time and money to design an excellent performing and free flowing exhaust system; something that car manufacturers just can't afford to waste resources on. This is where aftermarket companies come in to create cost effective options for performance minded car owners. Of course, a free flowing exhaust would be expected to make more noise than a normal one. But a good manufactured system has a deep throaty tone, while yielding increases in horse power and also passing emission tests. We will go through some of the modifications of the exhaust system that would "unleash" some horsepower and efficiency, while still being street legal

A header is a different type of manifold, it is made of separate equal-length cylindrical tubes with smooth curves in it for improving the flow of exhaust. Each time a power stroke occurs and an exhaust valve opens, a positive pressure occurs in the exhaust manifold. A negative pressure occurs in the exhaust manifold A negative pressure occurs in the exhaust manifolds between the positive pressure pulses, especially at lower engine speeds. Some exhaust headers are tuned so the exhaust pulses enter the exhaust manifold between the exhaust pulses from other cylinders, preventing interference between the exhaust pulses. If the exhaust pressure pulses interfere with each other, the exhaust flow is slowed, causing a decrease in volumetric, efficiency (and thus decrease in horsepower). Proper exhaust manifold/header tuning actually creates a vacuum, which helps to draw exhaust out of the cylinders and improve volumetric efficiency, resulting in an increase in horsepower.

For engines with the "V" type configurations, it would be more efficient to use a dual exhaust system than the "Y" pipe. In other words, two pipes (instead of one) connect the exhaust manifokl/header to two catalytic converters, two resonators, and two muffers. Thereby each manifokl/header to two catalytic converters, exhaust pipes, mufflers, and tallpipes. The advantage of a dual exhaust system is that the engine exhausts air and gases more freely, thereby lowering the back pressure, which is inherent in an exhaust system. With a dual exhaust system, a sizable increase in engine horsepower can be obtained because the "breathing" capacity of the engine is improved, leaving less exhaust gases in the engine at the end of each exhaust stroke. This, in turn, leaves more room for an extra intake of the airfuel mixture. The disadvantage of a dual exhaust system is that it would be costly due to the additional components. No doubt the addition of another exhaust system adds more weight to the car, but the increase in horsepower is substantial enough to outweigh the horsepower losses through additional weight.

## Учебное издание

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