**Учебная дисциплина:** Английский язык 1 курс

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**«Тенденции в современном машиностроении»**

Trends In The Modern Machine-Building Industry.

The scientific and technological progress will continue in engineering along two main headlines. Firstly, it is automation, including the creation of “unmanned” industries. Secondly, raising the reliability and extending the service life of machines. This certainly requires new technology. The machine modules on a large scale are well suited for “unmanned” industries. Intense work is being carried out on new robots. What we need is not merely manipulators which can take up a work piece and pass it on, but robots which can identify objects, their position in space, etc. We also need machines that would trace the entire process of machining. Some have been designed and are manufactured. Modern engineering thinking has created new automated coal-digging complexes and machine systems, installations for the continuous casting of steel, machine-tools for electro physical and electrochemical treatment of metals, unique welding equipment, automatic rotor transfer lines and machine-tool modules for flexible industries. New technologies and equipment have been designed for most branches of engineering. In the shortest time possible the engineers are to start producing new generations of machines and equipment which would allow manufacturers to increase productivity several times and to find a way for the application of advanced technologies. Large reserves in extending service life for machines can be found in the process of designing. At present, advanced methods have been evolved for designing machines proceeding from a number of criteria. Automatic design systems allow for an optimizing of the solutions in design and technology when new machines are still in the blueprint stage. A promising reserve in increasing the life of parts is strengthening treatment. In recent years new highly efficient methods have been found. First and foremost of them is the vacuum plasma methods for coating components with hard alloy compounds, such as nitrides and carbides of titanium, tungsten and boron. Methods have been designed for reinforcing machine parts most vulnerable to wear and tear, such as in grain harvesters, to'make them last several times longer. Thus, it is not merely quantity engineers and scientists are after, rather it is a matter of major characteristics. In other words, this is a matter of quality, and not of the mere number of new machines, apparatuses and materials

**1. Найдите данные слова в тексте и уточните их значения по контексту:**  
module, robot, to identify, manipulator, electro physical, electrochemical, unique, rotor, line, productivity, to reserve, criteria, to optimize, vacuum, plasma, component, nitride, carbide, titanium, apparatus.

**2. Найдите в тексте эквиваленты для следующих русских словосочетаний:**  
срок службы, передовые методы, электрофизическая обработка, модуль станка, система проектирования, составы из твердых сплавов, методы вакуумной плазмы, упрочнение деталей машин, гибкое производство, полностью автоматизированное производство

**3. Определите какие выражения правдивы, а какие нет:(true или false)**

1.There are two main trends in modern machine-building: automation and raising of the reliability of machines.

2.The creation of «unmanned» industries is included into automation.  
3. Machine modules and robots are not suited for «unmanned industries».

4. Automation and raising of the reliability of machines require new technologies.

5. Advanced technologies are applied in most branches of engineering.

6. The service life of machine parts can't be increased by strengthening treatment.

7.Hard alloy compounds are employed for coating components.  
8. The process of designing can also be automated. This gives the advantage of optimizing solutions in design and technology.

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**«Экологически чистые автомобили»**

Environmentally Friendly Cars

Many of the world’s cities lie under a permanent blanket of smog. People are concerned about global warming, and fuel prices just keep going up and up. In recent years car manufacturers have been put under pressure to invent a vehicle that is both cheaper to run and better for the environment. One of the first ideas which car manufacturers tried, was to replace engines which run on fossil fuels with electric motors. Unfortunately, these vehicles had several drawbacks and they didn’t sell very well. The problems were that the batteries of these electric cars ran out very quickly and took a long time to recharge. Car manufacturers have improved the concept so that environmentally friendly cars can now be efficient and economical as well. The hybrid car, which has both an electric motor and

a traditional petrol engine, comes in. The electric motor never needs to be recharged and it is much better for the planet than a traditional car. In a hybrid car, the engine is controlled by a computer which determines whether the car runs on petrol, electricity, or both. When the car needs maximum power, for example, if it is accelerating or climbing a steep hill, it uses all of its resources, whereas at steady speeds it runs only on petrol. When slowing down or braking, the electric motor recharges its batteries. Hybrid cars are made using materials such as aluminium and carbon fiber, which makes them extremely light. Hybrid cars are better for the environment because they use far less petrol than normal cars, so they produce less pollution. Of course, hybrid cars aren’t perfect; they still run on fossil fuel an so pollute the environment to some extent. However, they may be the first step along the road to cleaner, ‘greener’ cars. Car manufacturers are already working on vehicles which run on hydrogen. The only emission from these cars is harmless water vapour. These are still some way in the future, though, as designers need to think of cheap and safe ways of producing, transporting and storing hydrogen, but at last, it looks like we might be heading in the right direction.

***1. Сопоставьте слова (выражения) из левого столбика с их переводом из правого***

|  |  |
| --- | --- |
| a) environmentally friendly cars  b) global warming  c) keep going up and up  d) have been put under pressure  e) fossil fuel  f) electric motor  g) drawbacks  h) the hybrid car  i) never needs to be recharged  j) carbon fibre  k) hydrogen  l) harmless water vapour | 1.водород  2.углеродное волокно  3.никогда не требует перезарядки  4.ископаемое топливо  5.гибридный автомобиль  6.продолжают подниматься  7.были подвергнуты давлению  8. безвредные для окружающей среды автомобили  9.глобальное потепление  10.безопасный водяной пар  11.недостатки  12.электродвигатель |

**2. Найдите эквиваленты данный выражений на английском**

1 -- работать на ископаемом топливе --

2 -- длительное время для перезарядки --

3 -- традиционный автомобиль --

4 -- при замедленном движении или торможении --

5 -- невероятно легкий --

6 -- гораздо меньше бензина --

7 -- до определенной степени --

8 -- первый шаг на пути к –

**3. Закончите предложение одним из предложенных вариантов**

1.Car manufactures are trying to invent a new vehicle because

a)today’s cars produce too much poisonous gas;

b)today’s cars produce too much power;

c)today’s cars moves too fast.

2.Vehicles which ran on electric motors

a)moved too slowly

b)were not very popular;

c)had to have their engines replaced.

3.The electric motor in hybrid cars

a)doesn’t need to recharge its batteries;

b)had its own petrol engine;

c)takes a long time to be recharged.

4.The computer in a hybrid car

a)helps the car to go up hills;

b)keeps the car running at a steady speed;

c)decided how the car should be powered in any given time.

5.Hybrid cars are better for the powered in any given time.

a)they use different fuels;

b)the electric motor is smaller than a normal engine;

c)they produce less harmful gases.

**4. Исправьте ошибки в предложениях**

1. Car manufacturers are trying invent a vehicle that is better for the enviroment.

2. One of a first ideas was to use electric motors.

3. Cars can now to be efficient and economical.

4. In hubrid cars engines are controlled from a computer.

5. Hybrid cars use far least petrol than traditional cars.

6. Cars with electric motors are harmlesser to the environment than traditional cars.