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Представлены оригинальные тексты по специальности, практические задания и упражнения, задания на поисковое чтение, направленные на формирование у студентов активного и пассивного словарей, развитие навыков поискового чтения, перевода и составления аннотации.

Методические указания соответствуют требованиям программы, утвержденной учебно-методическим объединением по специальности электроэнергетика и электротехника промышленности (ЭС)

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Chapter 1

1.*Read and translate the texts below. Retell the key sentences of the texts to make up a brief summary.*

ELECTRIC CURRENT

An electric current is usually thought of as a flow of electrons. When two ends of a battery are connected to each other by means of a metal wire, electrons flow out of one end (electrode or pole) of the battery, through the wire, and into the opposite end of the battery.

An electric current can also be thought of as a flow of positive "holes." A "hole" in this sense is a region of space where an electron might normally be found but does not exist. The absence of the electron's negative charge can be thought of as creating a positively charged hole. In some cases, an electric current can also consist of a flow of positively charge particles known as cations. A cation is simply an atom or group of atoms carrying a positive charge.

Current measurement

The ampere (amp) is used to measure the amount of current flow. The unit was named for French mathematician and physicist Andrй Marie Ampиre (1775–1836), who founded the modern study of electric currents. The ampere is defined in terms of the number of electrons that pass any given point in some unit of time. Since electric charge is measured in coulombs, an exact definition for the ampere is the number of coulombs that pass a given point each second.

Characteristics of an electric current

Potential difference. In order for an electric current to flow, a number of conditions must be met. First, a potential difference must exist between two points. The term potential difference (or voltage) means that the force created by a group of electrons in one place is greater than the force of electrons in some other place. The greater force pushes electrons away from the first place and toward the second place.

Potential differences usually do not occur in nature. In most cases, the distribution of electrons in the world around us is fairly even. Scientists have invented certain kinds of devices, however, in which electrons can be accumulated, producing a potential difference. A battery, for example, is nothing other than a device for producing large masses of electrons at one electrode (a point from which electric current is sent or received) and a deficiency of electrons at the other electrode. This difference accounts for the battery's ability to generate a potential difference, or voltage.

Electrical resistance. A second condition needed in order for a current to flow is a path along which electrons can travel. Some materials are able to provide such a path, and others are not. Materials that permit a flow of electric current are said to be conductors. Those that block the flow of electric current are called nonconductors or insulators. The metal wire connecting the two battery poles in the example cited earlier provides a path for the movement of electrons from one pole of the battery to the other.

The conductivity of materials is an intrinsic (or natural) property based on their resistance to the movement of electrons. The electrons in some materials are tied up in chemical bonds and are not available to conduct an electric current. In other materials, large numbers of electrons are free to move, and they transmit a flow of electrons easily.

Electrical resistance (or resistivity) is measured in a unit known as the ohm (Ω). The unit was named in honor of German physicist Georg Simon Ohm (1789–1854), the first person to express the laws of electrical conductivity. The opposite of resistance is conductance, a property that is measured in a unit called the mho (ohm spelled backwards). The resistance of a piece of wire used in an electric circuit depends on three factors: the length of the wire, its cross-sectional area, and the resistivity of the material of which the wire is made. To understand the effects of electrical resistance, think of water flowing through a hose. The amount of water that flows through the hose is similar to the current in the wire. Just as more water can pass through a fat fire hose than a skinny garden hose, a fat metal wire can carry more current than a skinny metal wire. For the wire, the larger the cross-sectional area, the lower its resistance; the smaller the cross-sectional area, the greater its resistance.

A similar comparison can be made with regard to length. It is harder for water to flow through a long hose simply because it has to travel farther. Similarly, it is harder for current to travel through a long wire than through a short wire.

Resistivity is a property of the material of which the wire itself is made and differs from material to material. Imagine filling a fire hose with molasses rather than water. The molasses will flow more slowly simply because of its viscosity (stickiness or resistance to flow). Similarly, electric current flows through some metals (such as lead) with more difficulty than it does through other metals (such as silver).

2. Read the texts below rendering their key ideas:

Electric circuits

In most cases, the path followed by an electric current is known as an electric circuit. At a minimum, a circuit consists of (1) a source of electrons (such as a battery) that will provide a potential difference and (2) a pathway on which the electrons can travel (such as a metal wire). Recall that potential difference (or voltage) refers to a greater force of electrons in one place than in another; that greater force propels electrons toward the place with the lower force.

For any practical (or useful) application, a current also requires (3) an appliance whose operation depends on a flow of electric current. Such appliances include electric clocks, toasters, radios, television sets, and various types of electric motors. In many cases, electric circuits also contain (4) some kind of meter that shows the amount of electric current or potential difference in a circuit. Finally, a circuit is likely to include (5) various devices to control the flow of electric current, such as rectifiers, transformers, condensers, and circuit breakers. Appliances may be placed into an electric circuit in one of two ways. In a series circuit, current flows through the appliances one after the other. In a parallel circuit, an incoming current is divided up and sent through each separate circuit independently.

An important advantage of parallel circuits is their resistance to damage. Suppose that any one of the appliances in a series circuit is damaged so that current cannot flow through it. This breakdown prevents

current from flowing in any of the appliances. Such a problem does not arise with a parallel circuit. If any one of the appliances in a parallel circuit fails, current still continues to flow through the other appliances in the circuit. The principle mathematical relationship governing the flow of electric current in a circuit was discovered by Ohm in 1827. Ohm's law states that the amount of current (i) in a circuit is directly related to the potential difference (V) and inversely related to the resistance (r) in the circuit. In other words, i = V/r. What Ohm's law says is that an increase in potential

This electric circuit will be used as a control panel in an industrial system. difference or a decrease in resistance produces an increase in current flow. Conversely, a decrease in potential difference or an increase in resistance produces a decrease in current flow. The more complicated an electric circuit becomes, the more difficult it becomes to apply Ohm's law.

Current flow and electron flow

The field of electrical engineering is burdened with a strange problem that developed more than 200 years ago. When scientists first studied the flow of electric current from one place to another, they believed that the flow was produced by the motion of tiny particles. Since the electron had not yet been discovered, they assumed that those particles carried a positive charge.

Today we know otherwise. Electric current is a flow of negatively charged particles: electrons. But the custom of showing electric current as positive has been around for a long time, and it is still widely used. For that reason, it is not uncommon to see electric current represented as a flow of positive charges, even though we have known better for a long time.

Direct and alternating current

The type of electric current described thus far is direct current (DC current). Direct current always involves the movement of electrons from a region of high negative charge to one of lower negative charge. The electric current produced by batteries is direct current.

Interestingly enough, the vast majority of electric current used for practical purposes is alternating current (AC current). Alternating current is current that changes the direction in which it flows very quickly. In North America, for example, commercial electrical power lines operate at a frequency of 60 hertz. (Hertz is the unit of frequency.) In a 60 hertz line, the current changes its direction 60 times every second.

Other types of alternating current also are used widely. Outside of North America, a 50 hertz power line is more common. And in airplanes, alternating current is usually rated at 400 hertz. (7.500)

3. Write down a short summary of the text below:

Alternative Energy Sources

Fuel cells develop electricity by direct conversion of hydrogen, hydrocarbons, alcohol, or other fuels, with an efficiency of 50% to 60%. Although they have been used to produce electric power in space vehicles and some terrestrial locations, several problems have kept them from being widely used. Most important, the catalyst, which is an important component of a fuel cell, especially one that is operating at around room temperature, is very expensive. Controlled nuclear fusion could provide a virtually unlimited source of heat energy to produce steam in generating

plants; however, many problems surround its development, and no appreciable contribution is expected from this source in the near future.

Solar energy has been recognized as a feasible alternative. It has been suggested that efficient collection of the solar energy incident on 14% of the western desert areas of the United States would provide enough electricity to satisfy current demands. Two main solar processes could be used. Photovoltaic cells (see solar cell) convert sunlight directly into electrical energy. Another method would use special coatings that absorb sunlight readily and emit infrared radiation slowly, making it possible to heat fluids to 1,000°F (540°C) by solar radiation. The heat in turn can be converted to electricity. Some of this heat would be stored to allow operation at night and during periods of heavy cloud cover. The projected efficiency of such a plant would be about 30%, but this fairly low efficiency must be balanced against the facts that energy from the sun costs nothing and that the waste heat from such a plant places virtually no additional burden on the environment. The principal problem with this and other exotic systems for generating electricity is that the time needed for their implementation may be considerable.

Windmills, once widely used for pumping water, have become viable for electric-power generation because of advances in their design and the development of increasingly efficient generators. Windmill "farms," at which rows of windmills are joined together as the source of electrical energy, serve as a significant, though minor, source of electrical energy in coastal and plains areas. However, the vagaries of the wind make this a difficult solution to implement on a large scale.

Chapter 2

ENGINEERING AS A PROFESSION

Engineering is often compared to medicine and law in discussions of professional status. It would appear to qualify according to the dictionary meaning of the word. Engineering require specialized knowledge and intensive preparation with continued study after leaving the university. The profession has a strong organizational structure, requires high standards, and operates in the public service. These attributes are

commonly associated with the word professional as it is used here. This is a rather restricted interpretation and it differs from its use in describing, say, a professional actor or sportsman who is paid for his efforts, as opposed to an amateur who performs for enjoyment. It is also sometimes used in reference to level of experience so that one speaks of a professional job house painting or plumbing. Another use refers to a continued effort over an extended period of time so that one hears reference to a "professional student" as one who spends many years at a university.

Most important is the fact that engineers see themselves as professionals. They have to be technically competent and operate with responsibility in conformity with accepted notions of professionalism.

The type of responsibility is rather different from a doctor. The doctor's responsibility is clearly recognizable because of directness of a doctor's relationship. For the engineer, the result of his labors - be it a bridge, air-conditioning unit, automobile or computer - is interposed between himself and the user. However, since people's lives are often at stake if an error is made, a high level of competence is essential.

Engineering is somewhat tainted in the public eye. It is recognized that technology, or its misapplication, is responsible for the various pollution threats and also for devastating weapons of war, and the public assumes that it is the engineers who have brought us to this pass. It should be realized that technology, too operates according to demands, and just as the demand for goods, and comfort has led to environmental damage, so technology can also correct this. In one sense engineers with their machines are the tools of society, and it is society that ultimately determines how they are to be used.

The usual structure of engineering curricula includes four main components. First come the basic sciences of physics, chemistry and mathematics. Then a block of humanities courses is required. The engineering courses fall in the general areas of mechanics of solids, properties of materials, mechanics of fluids, thermodynamics, electrical science, transfer and rate processes and systems. Finally come the design courses which put it all together. It is this design discipline which exemplifies engineering in action, for it illustrates how engineers solve practical problems by applying their scientific knowledge and skills in the

interactive decision-making process. This is how engineers adapt science to human needs.

II. Make some corrections (not less then 5), translate the summary into English:

Текст называется "Инженерия как профессия". В *статье* говорится о том, что инженерно-строительное *искусство* как профессия основывается на специализированных знаниях. Согласно мнению автора, данная профессия требует высокой квалифицированной подготовки специалистов и *обладает точными техническими свойствами.* Отмечается, что после окончания университета специалисту, чтобы стать настоящим профессионалом, необходим практический опыт работы на производстве. Не менее важным фактором является ответственность, *возможность* инженера ощутить себя профессионалом: разработать и изготовить, отремонтировать или наладить электрическое устройство. Ответственность инженера сопоставима с ответственностью врача, при всем различии их профессий. Для инженера *огромную роль играют* результаты его деятельности: изготовление оборудования, компьютеров, автомобилей, что и является связующим звеном специалиста-разработчика и изготовителя с потребителем.

Инженеринг является важным промышленным сектором, позволяет выделить основные экономические проблемы современного промышленного производства. В тексте отмечается, что производство товаров массового потребления, как правило, приводит к загрязнению окружающей среды. Кроме того, не следует забывать, что производство военного оборудования и различного оружия это тоже результат деятельности инженеров. Инженерная технология базируется на основных принципах, а именно: на точных науках, на гуманитарном цикле, на механической отрасли. В заключении подчеркивается важность принципа интеграции, соединения различных аспектов деятельности, что позволяет направить все умения инженера в нужное русло и успешно завершить работу.

a. Give 2-3 English equivalents to the following words and constractions:

В статье говорится о том, что –
связующим звеном –
кроме того –
в тексте отмечается, что –
в заключении подчеркивается важность принципа интеграции–
как правило –
не менее важный фактор –
сопоставимый, сопоставлять –
подчеркивать, подчеркивается –
базироваться на основных принципах –
делать вывод –
высказывать мысль –
Сравнивать –
Анализировать –
Рассматривать –
Иллюстрировать примерами –

III. Compare the original and its translation. Which techniques have been used in the translation ?

GRAPHS

We can see the relationship between two or more pieces of information by using graphs. They can, for example, be used to show the relationship between size and weight or between speed and distance. Using graphs, we can present numerical data as a picture. This often makes the data easier to understand and use. A simple graph has a vertical axis (known as the Y-axis) and a horizontal axis (known as the X-axis). The axes are placed at right angles to each other. The point where the axes meet is known as the origin, or zero point.

Используя графики, можно наблюдать зависимость между двумя или более видами информации. Их, например, можно использовать,

чтобы показать зависимость между размером и весом или между скоростью и расстоянием. Используя графики, можно представить цифровые данные в виде изображения. Это часто облегчает понимание и пользование данными. У простейшего графика имеется вертикальная ось (известная как ось Y) и горизонтальная ось (известная как ось X). Эти оси располагаются под прямым углом друг к другу. Точка пересечения осей называется началом координат или точкой О.

IV. Rearrange the segments of the translation in the right order.

WHAT IS ELECTRICITY?

Electricity is a flow of negative charges ailed electrons. (Electrons are particles that form a part of all atoms.) These electric charges are measured in units called coulombs. Electricity is a very versatile form of energy that can be converted into many other forms of energy, including light and heat. There are two types of electricity: direct current (DC), which flows in one direction only, and alternating current (AC), which

(a)электричество; (b) эти электрические заряды измеряются единицами; (c) называемых электронами;

(d) электроны - это частицы; (e) который изменяет направление потока 60 раз в

секунду; (f) существует два вида электричества: постоянный ток (DC); (g) которые

входят в состав всех атомов;(h) называемыми кулонами;(i) электричество представляет собой весьма разностороннюю форму энергии;

changes direction 60 times per (j) это поток отрицательных seconds. зарядов;

(k) которую можно превратить во многие другие формы энергии, включая свет и тепло;

(l) который идет только в одном направлении; (m) и переменный ток (AC).

V. Edit the machine translation of the text.

THE MICROWAVE OVEN

Shortly after the end of W wnu War II, Percy Spencer already known as an electronics genius and war hero, was touring one of his laboratories at the Raytheon Company. He stopped momentarily in front a magnetron, the power tube that drives a radar set. Feeling a sudden and strange sensation, Spencer noticed that the chocolate bar in his pocket had begun to melt.

Spencer, who obtained 120 patents in his lifetime, knew how to apply his curiosity. So he did what any good inventor would - he went for some popcorn. Spencer didn't feel like a snack, he asked for unpopped popcorn. Holding he bag oil corn next to the magnetron, Spencer watched as the kernels exploded into puffy white morsels.

From this simple experiment, Spencer and Raytheon devel1oped the microwave oven. The first microwave oven was very big and heavy. At first, it was used exclusively in restaurants, railroad cars and ocean liners -places where large quantities of food had to be cooked quickly. In fact, it took decades after the invention of the microwave oven for it to be refined to a point where it would be useful to the average consumer.

Today, Percy Spencer's radar boxes melt chocolate and pop popcorn in millions of homes around the world.

Вскоре после того, как конец Второй Мировой Войны, Перси Спенсер, уже известный как гений электроники и военный герой, посещал одну из его лабораторий в Raytheon Компании. Он остановил на мгновение впереди магнетрон, труба власти (мощи), которая ведет (везет) радарный набор. Чувствуя внезапную и странную сенсацию, Спенсер заметил, что шоколадный брусок (бар) в его кармане начал таять.

Спенсер, который получил 120 патентов в его целой жизни, знал, как применить его любопытство. Так что он сделал то, что любой хороший изобретатель будет - он пошел для некоторой жареной кукурузы. Спенсер не чувствовал себя подобно закуске, он просил о несовавшей жареной кукурузе. Проводя (держа) он

зерно нефти (масла) мешка рядом с магнетроном, Спенсер наблюдало как ядра, взорванные в опухшие белые кусочки.

От этого простого эксперимента, Спенсера и Raytheon develloped микроволновая печь. Первая микроволновая печь была очень большая и тяжелая. Сначала, это использовалось исключительно в ресторанах, автомобили железной дороги и океанские лайнеры - места, где большие количества продовольствия должны были быть приготовлены быстро. Фактически, требуется десятилетия после изобретение микроволновой печи для этого, чтобы быть очищенным к пункту (точке), где это будет полезно для среднего потребителя. Сегодня, радарные коробки Перси Спенсера тают шоколад и суют жареную кукурузу в миллионах домов во всем мире.

VI. Translate the operator's manual.

ELECTRIC

How to use the oven?

1. Insert the plug into the wall receptacle. Make sure that the timer dial is OFF.

-- Open the door and place the food to be cooked on the grill, then close the door.

-- Turn the timer clockwise and set the dial at the appropriate dial number according to the type of food to
be cooked. The toaster is switched ON, and cocking start.

-- To set the dial knob at dial number 5 or below turn the dial knob beyond dial number 6 first, and then
return it to the position desired.

-- When cooking is completed the bell rings and the oven toaster is switched OFF.

-- To stop the operation in the middle of a process, turn the dial counterclockwise and set it at OFF.

-- When you have finished using the oven toaster, be sure to turn the dial OFF and remove the plug from
the wall receptacle. If the plug is pulled out while the dial is ON, sparks may appear, possible damaging the wall receptacle.

Precautions

-- If unwrapped meat or fish is placed in the oven toaster will stain in insides of the appliance, leading to a
change in the heating conditions. Wrap such food in aluminum foil before cooking it in the oven toaster.

-- To turn off the oven toaster in operation, turn the dial OFF.

-- When the food is done and the current has been cut, the dial will continue to make a noise for a while.
This is not a sign of any malfunction.

-- When the oven toaster is dropped or fall from a table of counter, should not use it again until it has been inspected as safe by an authorized service facility.

-- Do not toast bread for more than six minutes. Avoid heating any food longer than the specified time or it will burn.

-- When used in the oven toaster, the plate is also heated. Do not touch the heated plate.

Important safeguards

When using electrical appliances, basic safety precautions should always be taken including the following.

-- Read all instructions before using.

-- To protect against electrical hazards, do not immerse plugs, power cord, or heaters in water or other liquid.

-- Do not touch heated surfaces in or after use, carry the toaster after cooled.

-- Close supervision is necessary when any appliance is used, by or near children.

-- Unplug cord from outlet when not in use, before putting on or taking off parts, and before cleaning.

-- Do not operate any appliance with a damaged cord or plug, or after the appliance malfunction or is dropped or damaged in any manner.

-- Do not place on or near a gas flame or electric heater, and not use near to flammable things (curtain, alcohol, etc.)

-- Do not let cord hang over edge of table or counter, or touch hot surfaces.

-- Avoid putting water on the body or washing the inside.

-- Do not splash water on door window then the oven toaster is being heated.

-- Do not put the oven toaster on a tablecloth, coated case, carpets or anything else that is not heat resistant.

-- Do not use appliance for other than intended use.

13. Do not turn on the oven toaster when the bottom lid is open.

VII. Translate the following specification into Russian.

STANDARD MICROWAVES

Inverter Technology

Delivers true multi-level power settings, preserving the full flavor and texture of your food. The consistent distribution of microwave energy also helps delicate foods to simmer without overcooking the edges and surface, a common problem with microwaves. Inverter Turbo Defrost lets you defrost foods even faster than our powerful auto defrost feature. This advanced sequencing system distributes microwave energy in a new and efficient way, resulting in fast, thorough defrosting.

One-Touch Genius Sensor Reheat and Cook

Adjusts power levels and calculates cooking times automatically, making reheating and cooking a variety of foods easier than ever.

Browner

An auto-browning feature lightly cooks the top of your food, adding an authentic, oven-like touch. Each microwave has either 4 or 8 categories of browning, and some models come with an included browning dish to enhance the browning process.

Elegant Faceplate Design

An attractive, reflective door and front panel will look spectacular in practically any kitchen.

Keep Warm/Simmer

Delivers low microwave power to keep your food warm without overcooking or to simmer foods like soup, gravy, or desserts until they're ready to serve.

Multi-Lingual Menu Action Screen with Function Key

Find easy-to-follow instructions in English, Spanish or French just by pressing the function key on the menu action screen.

Auto Reheat

Even if your food has been refrigerated, the auto reheat feature helps restore the original look and taste.

Auto Defrost

Defrost meat, poultry, and seafood at the push of a button.

Quick Minute

Set cooking times in one-minute intervals, or add a minute to a current cooking session.

Popcorn Key

Pop a bag of prepackaged microwave popcorn at the push of a button.

Chapter 3

I. Translate the following text into Russian.

Traditionally, engineering activities have been grouped into certain areas of specialization. These originated as civil and military engineering, catering to man's early needs. Scientific discoveries and their development gave birth to a variety of fields of application such as mechanical, chemical, and electrical engineering. Today the rapid rise of technology is bringing the adequacy of even these widely accepted designations into question in describing specialist areas within engineering. Several of the more commonly accepted categories are described below.

Aerospace Engineering combines two fields, aeronautical and astronautical engineering. The former is concerned with aerodynamics, structure and propulsion of vehicles designed for the flight in the Earth's atmosphere. The latter relates to flight above the Earth's atmosphere and involves the design of rockets and space vehicles incorporating sophisticated propulsion, guidance, and life support systems.

The day when one man drew his design in chalk on the floor and then proceeded to build it are long past. Today large teams of engineers are needed to cope with the complexity of modern flight vehicles. The design of an aircraft involves a multitude of specialty areas such as stress analysis, control surface theory, aircraft stability, vibration, production techniques and flight testing.

Agricultural Engineering is one of the earliest forms of engineering practiced by man. It uses agricultural machinery,

irrigation, and surveying and deals with the many associated problems of crop raising and animal husbandry. Not only are the fundamental engineering subjects such as hydraulics, metallurgy, and structures of importance, but soil conservation, biology, and zoology are also necessary components. It is here tat machines interface with the animal and kingdoms. Challenging problems occur in areas such as land reclamation and efficient utilization, and improved methods of food production and harvesting.

Chemical Engineering encompasses the broad field of raw material and food processing and the operation of associated facilities. It is mainly involved with the manufacture and properties of materials such as fuels, plastics, rubber, explosives, paints, and cleaners. The chemical engineer is well grounded in both basic and engineering chemistry and apart the production of special materials, may be involved in such areas as combustion, recycling of waste products, and air and water pollution.

Civil Engineering is one of the oldest branches of the engineering profession. It covers a wide field, and many subsidiary branches have grown from it. The civil engineer is mainly employed in the creation of structures such as buildings, bridges, dams, highways, harbors, and tunnels. He is usually knowledgeable in hydraulics, structures, building materials, surveying, and soil mechanics. One important area comprises water supply, drainage, and sewage disposal. More than any other branch of engineering, the results of the civil engineer's efforts are the most visible in a permanent form.

Electrical Engineering, in general, deals with creation, storage, transmission and utilization of electrical energy and information. Most of its activities may be identified with power or communications. Electrical engineering is of recent origin, dating back only to the eighteenth century, when electrical phenomena were first subjected to scientific scrutiny. After this, useful applications were quickly identified. Today, the impact of a power failure graphically illustrates our dependence on electrical power. The field encompasses information systems, computer technology, energy conversion, automatic control, instrumentation, and many other specialties.

Industrial Engineering is mainly concerned with the manufacture of useful commodities from raw materials. Since most of the other engineering fields have a bearing on this activity, the industrial engineer requires a particularly broad view. The management of men, materials, machines, and money are all within his endeavor in achieving effective production. Plant layout, automation, work methods, and quality control are included, and, more than in most of the other traditional branches of engineering, the industrial engineer needs to have some grounding in psychology and dealing with personnel.

Mechanical Engineering develops machines for the generation and utilization of power. Mechanical engineers design turbines, engines, pumps, and their ancillary mechanisms and structures. Heating, ventilating, air-conditioning, transportation, manufacturing, and vibration are some areas falling within their domain. The art of mechanical engineering dates back to the labor-saving devices and military machines of ancient times, but it received its greatest boost in the eighteenth century with the invention of the steam engine and industrial machinery, which marked the onset of the industrial revolution.

Mining and Metallurgical Engineering. The production and use of metals, has two distinct branches. One deals with the location, extraction, and treatment of ores to obtain base metals, and the other with the transformation of these metals into useful forms and with the study of techniques for improving their performance in specific applications. The study of ceramics is often included in this field. Special topics range all the way from materials that may be used with living tissue to the development of composites for high-temperature applications such as in the heat shields used for satellite reentry.

In addition to the fields identified above, other categories of engineering are often encountered. These include architectural, ceramic, geological naval and marine, nuclear, petroleum, sanitary, and textile engineering.

II. Correct the mistakes (6), translate the summary of the text into English.

Текст называется "Сфера инженерии". Автор *утверждает,* что научные открытия *привели к* образованию несколько областей применения инженерно-строительного искусства, а именно: *сельскохозяйственная, химическая, гражданская, электрическая, металлургическая и космическая.* В статье рассматриваются инженерные *области*. Горная и металлургическая инженерия базируется на улучшении технологий добычи руд и других полезных ископаемых. Механическая инженерия разрабатывает оборудование, направленное на производство и использование энергии. Воздушно-космическая инженерия *основана на* изучении спутников и ракет, применяемых для полетов выше уровня атмосферы Земли. Сельскохозяйственная инженерия направлена на улучшение урожая и поднятия уровня животноводства. Химическая инженерия имеет огромное поле деятельности: от производства пищевых продуктов до производства топлива и красителей. Гражданская инженерия – самая старая из инженерных отраслей. Она включает строительство зданий, дамб и туннелей. Электрическая инженерия обеспечивает работу информационных систем, *компьютерные технологии*, обеспечивает автоматический контроль. Промышленная инженерия *базируется* на выработке продуктов и товаров из сырья.

III. Compare the original and the translation. Which techniques have been used in the translation ?

COLOR

The three primary colors of light are red, green, and blue. When you mix one primary color equally with another, a secondary color is formed. When you mix all three primary colors, you get white light. The way different colors of light combine is known as the additive process.Тремя основными цветами света являются красный, зеленый и синий. При смешении одного основного цвета с другим в равных пропорциях получается вторичный цвет. При смешении всех трех основных цветов получается белый свет.

Способ комбинации разных цветов света называется аддитивным процессом.

IV. Rearrange the segments of the translation in the right order.

QUANTUM THEORY

Quantum Theory explains the behavior of light and other forms of energy in the electromagnetic spectrum. Quantum theory explains how light behaves in some ways like waves, and in other ways like streams of particles, which are in fact packets of energy called a quantua (one packet is called a quantum). There are three instances, shown here, when light can be explained only in terms of quanta.(a) квантовая теория служит для объяснения поведения световой; (b) именуемых квантами (один пучок называется квантом); (c) квантовая теория объясняет; (d) когда поведение света можно объяснить только понятиями квантов; (e) и других форм энергии в электромагнитном спектре; (f) а в других случаях, - как поток частиц; (g) почему свет ведет себя в некоторых случаях как волна; (h) которые, по существу, являются пучками энергии; (i) существует три случая, показанных здесь.

V. Correct the mistakes (8) in the machine translation of the text.

Engineers in this field design, test, build, and operate machinery of all types; they also work on a variety of manufactured goods and certain kinds of structures. The field is divide into (1) machinery, mechanisms, materials, hydraulics and pneumatics; and (2) heat as applied to engines, work and energy, heating ventilating, and air conditioning. The mechanical engineer, therefore, must be trained in mechanics, hydraulics, and thermodynamics and must know such subjects as metallurgy and machine design. Some mechanical engineers specialize in particular types of machines such as pumps or steam turbines. A mechanical engineer designs not only the machines that make products but the products themselves, and must design for both economy and efficiency. A typical example of

modern mechanical engineering is the design of a car or an agricultural machine.

Механическая разработка

Инженеры в этом полевом проекте/ испытании, строят, и используют машины всех типов; они также *воздействуют на разнообразие изготовленных товаров и некоторых видов структур.* Область (поле) -делится на (1) машины, механизмы, материалы, hydraulics и pneumatics; и (2) высокая температура в применении к двигателям, *работать и энергия, нагревая проветривание*, и кондиционирование воздуха. *Механический инженер*, поэтому, должен быть обучен *в механике*, hydraulics, и термодинамике и должен знать такие предметы как *проект машины* (механизма) и *металлургия.* Некоторые механические инженеры специализируются в специфических типах машин (механизмов) типа насосов или паровых турбин. *Механический инженер* проектирует не только машины (механизмы), которые *делают* изделия, но и изделия непосредственно, и должны проектировать *и для экономики (экономии) и для эффективности*. Типичный пример современной механической разработки - проект автомобиля или сельскохозяйственной машины (механизма).

VI. Translate the operator's manual.

AUTOMATIC TOAS

Safeguards When using electrical appliances, basic safety precautions should always be followed including the following:

-- Read all instructions.

-- Do not touch hot surfaces. Use handles or knobs.

-- To protect against electrical shock, do not immerse cord, plug, or toaster in water or other liquid.

-- Close supervision is necessary when any appliance is used by or near children.

-- Unplug from outlet when not in use and before cleaning. Allow cooling before cleaning.

-- To disconnect, make sure bread lever is in the raised position, then remove plug from wall outlet.

-- Do not operate this appliance with a damaged cord or plug or after the appliance malfunctions, or has been damaged in any manner. Return appliance to the place of purchase for a replacement.

-- The use of accessory attachments not recommended by the appliance manufacturer may cause injuries.

-- Do not use outdoors.

-- Do not let cord hang over edge of table or counter, or touch hot surfaces.

-- Do not place on or near a hot gas or electric burner, or in a heated oven.

-- Oversized foods, metal foil packages, or utensils must not be inserted in a toaster as they may involve a risk of fire or electrical shock.

A fire may occur if this toaster is covered or touching flammable material, including curtains, draperies, walls, etc., when in operation.

-- Do not attempt to dislodge food when toaster is plugged in.

-- Failure to clean crumb tray may result in a fire hazard.

Do not clean with metal scouring pads. Pieces can break off the pad and touch electrical parts, involving a risk of electrical shock.

-- Do not use appliance for other than intended household use.

-- Do not leave unattended when on use.

--

Instructions

A short power - supply cord is provided to reduce the ha/cards resulting from entanglement or tripping over a longer cord. An extension cord may be used with care; however, the marked electrical rating should be at least as great as the electrical rating of I the toaster. The extension cord should not be allowed to drape over the counter or tabletop where it can be pulled on by children or tripped over.

How to Use

-- Remove all protective wrappings from food before placing in toasting wells.

-- Avoid toasting foods with "runny" frostings, icings or open fillings.

-- Avoid torn slices of bread and broken pastries which may get lodged in toasting wells.

-- For best results, clean crumb tray frequently.

- To remove lodged food, unplug toaster and allow to cool completely. Turn upside down and shake.
- Different breads require color settings. Bread lever may be raised manually at any time to check toast color.

To Clean

Caution: Unplug. Never immerse toaster in water.

-- Allow unit to cool completely.

-- Wipe outside with soft, damp cloth. Never use abrasive cleanser or steel wool to clean.

-- Unscrew to pull open crumb tray at bottom of toaster and brush out crumbs. Wipe surface with damp cloth to remove stubborn spots.

Note: When first used, your toaster may smoke slightly. Any smoke or odor is normal and will not recur after a few uses.

Toast

-- 1 Plug power cord into outlet, the volt of which conforms to the electrical rating of the toaster.

-- Adjust color selector control to desired lightness or darkness. Turn knob to the LEFT for light or the RIGHT for darker toast.

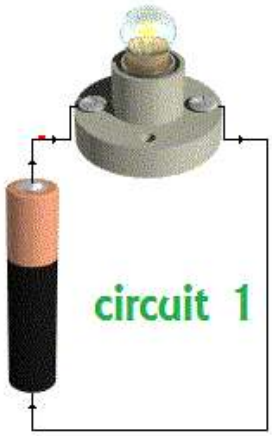
-- Insert bread into toasting wells and depress bread lever. Toast will automatically pop up when selected color is reached.

-- Unplug cord from wall outlet.

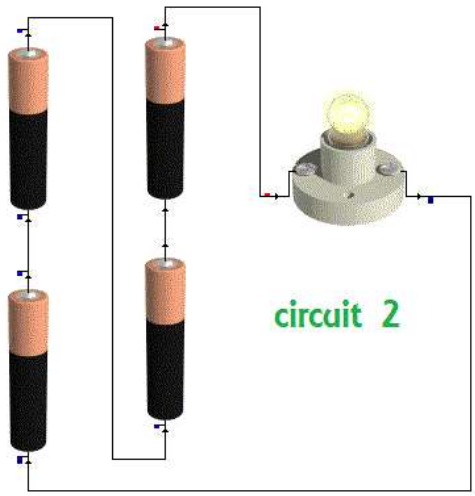
Chapter 3

Electricity exercises

1. Read and complete: Voltage and current

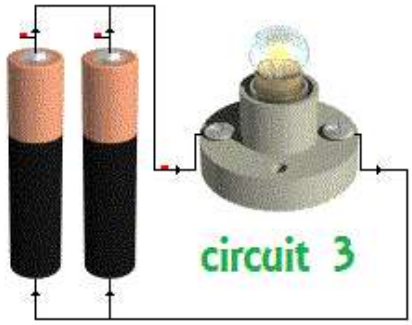


A battery is a source of electrical energy - it provides the 'pressure' which causes electricity to flow. We measure this electrical pressure in volts, V. The higher the voltage, the greater the pressure.
The flow of electricity is called current and is measured in amps, A.
If a single battery makes a bulb glow dimly, two batteries connected in series as in circuit bellow will make it glow brighter. In the next circuit, 4 batteries are connected in series so the total tension will be V1 + V2 + V3 + V4.

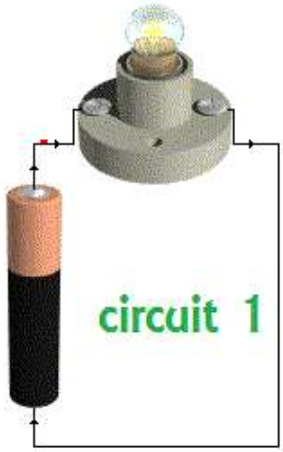


This happens because when batteries are connected in series their voltages 'add up'. Four similar batteries connected in series (circuit 2) produce 4 times the electrical pressure.

The greater the electrical pressure (in a given circuit) the higher the current.



When batteries are connected in parallel however, their voltages do not 'add up'. The voltage provided by the two batteries in circuit 3 is the same as by the single battery in circuit 1.
Even so, there are reasons for connecting batteries in parallel: two batteries last longer than one, and can supply a higher current, should it be required.



Read 3 or 4 times. Later, do these exercises:

Fill in all the gaps:

Ex.1

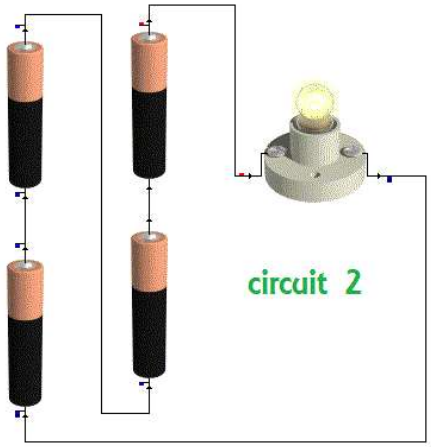
1. A battery is a source of _____ it provides the _____which causes electricity _____.

2. We measure this electrical pressure in _____V.

3. The_____the voltage, the _____the pressure.

4. The flow of electricity is called _____and is measured in _____A.

5. If a single battery____ a bulb glow _____, two batteries connected in _____as in circuit bellow will make it _____.



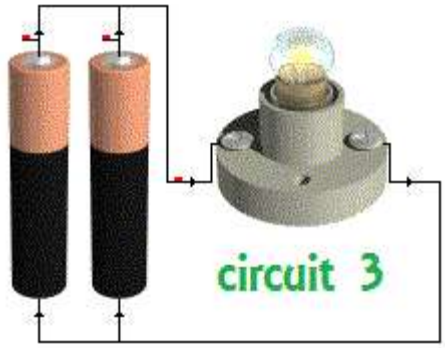
Ex.2

1. In the next circuit, 4 batteries are _____in series so the total tension will be V1 + V2 + V3 + V4.

2. This _____ because when batteries are connected in series their voltages "_____".

3. Four similar batteries [ ] in series (circuit 2) produce 4 times the electrical pressure.

4. The [ ] the electrical pressure (in a given circuit) the [ ] the current.



1. When batteries are connected in _____however, their voltages do not "_____".

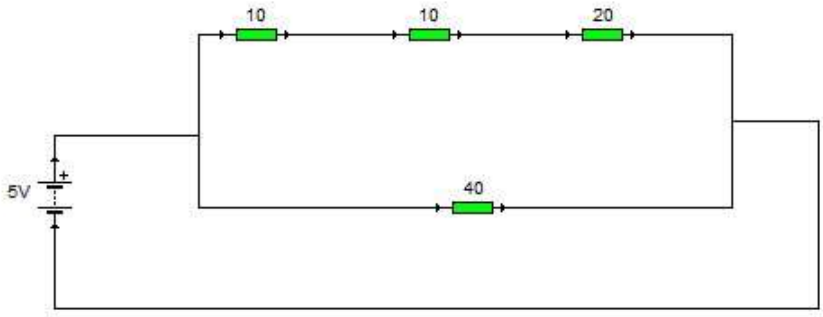
2. The voltage _____by the two batteries in circuit 3 is the same as by the single battery in circuit 1.
3. There are _____for connecting batteries in parallel: two batteries _____than one, and can supply a_____, should it be required.

Calculate the equivalent resistor and the current in the battery.

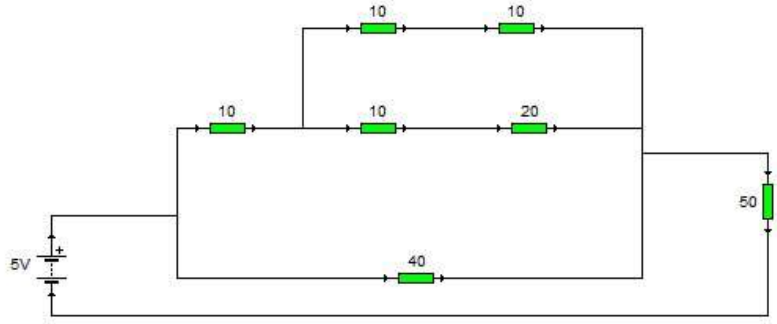
Remember: In a series circuit, the total resistance of the circuit (also called effective resistance) is equal to the sum of the individual resistances, so Re = R1 + R2 + R3 ...

In a parallel circuit, a quicker method of finding the equivalent resistance is to use the general formula:

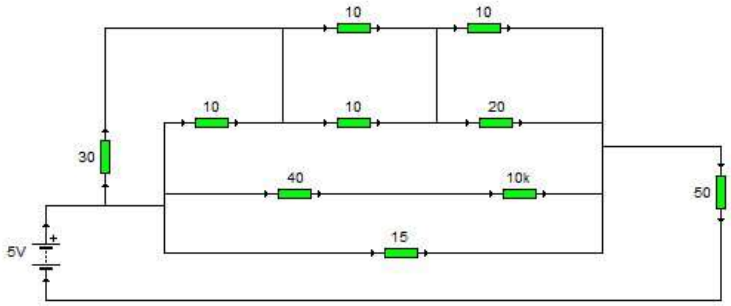
1 / Re = 1/R1 + 1/R2 + 1/R3 .....



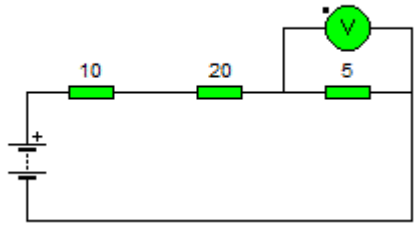
Solution: Re = 20 Ω I = 250 mA



Re = 64,18 Ω I = 77,9 mA



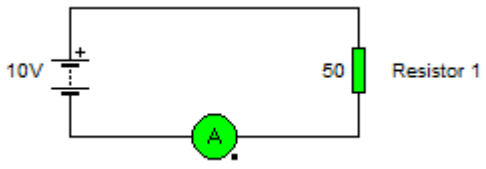
Re = 58,41 Ω I = 85,6 mA

1º 

In this circuit, the value of the battery is 10 Volts and the current measured in the ammeter is 2 mA.

a) Calculate the value of Resistor 1 in this circuit.
b) How much current would flow if the value of R was doubled?

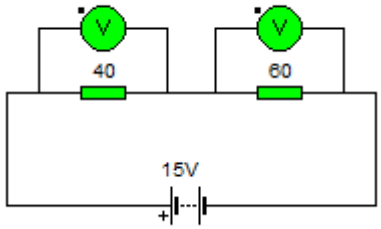
Solutions: R = 5 KΩ and b) I = 1 mA



2є Calculate the current flowing in this circuit.

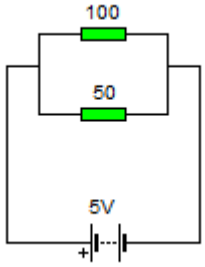
b) What would be the ammeter reading if the resistor's value was halved?

Solutions: a) 200 mA b) 400 mA



3є a) Calculate the current flowing through the 40 Ohms resistor.
b) Calculate the current flowing through the 60 Ohms resistor.

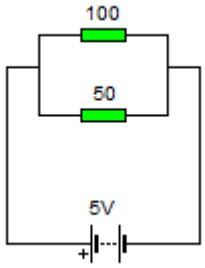
c) What will be the reading on the current in the battery?
d) What is the total resistance in this circuit?
Solutions: V1 = 6 volts b) V2 = 9 volts c) 150 mA d) Rt = 100 Ω



4º What will be the value of the current flowing through the 100 Ohm resistor?

And what about the current in the other resistor?

Solutions: 50 mA and 100 mA

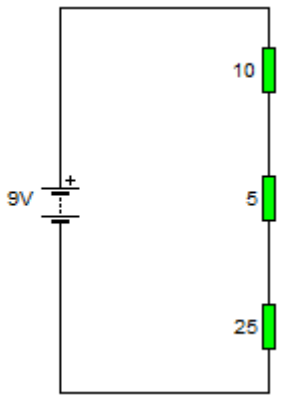


6є We have a two parallel resistors. Calculate the total resistance of the circuit and the current flowing through each resister.

Solutions: Rt = 33,33 Ω, I1 = 0,05 A and I2 = 0,1 A

7º A series circuit has 4 resistances of 20, 40, 10 and 5 Ohms. Calculate the Total resistance and the current flowing through each one if the battery has a value of 10 Volts

Solutions: Total resistance = 75 Ω. I = 0,13 Amps



8є In this circuit, calculate:

a) The total resistance in the circuit

b) The current flowing in the circuit.

c) The voltage across every resistor

Solutions:

a) = 40 Ω b) = 0,225 A c) V1 = 2,25 V2 =1,125 V3 = 5,625

Note: If you ad V1 plus V2 plus V3, you get the Battery voltage

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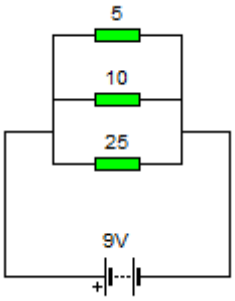
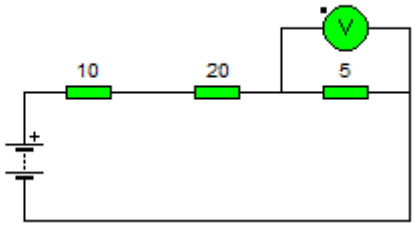


9º 5 ,10 and 25 Ohms resistors are connected in parallel. Calculate the total resistance and the current flowing through each one

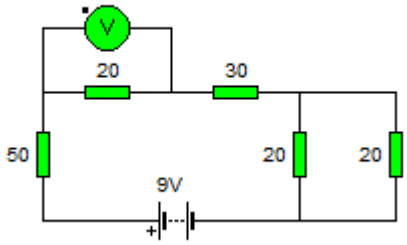
Solutions: Rt = 2,94 Ω I1 = 1,8 A I2 = 0,9 A and I3 = 0,36 A



10º In the circuit on the left, we have 3 series resistors. We measure 8 volts in the voltmeter (represented by V).

Calculate the voltage across the 20 Ω resistance

V = 32 V



11є In the next circuit , calculate the voltage across the 20 Ohm resistor.

Solution: 1,64 volts

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12. Answer the following questions:

1. What is electricity? What is The electric power?. How is it measured?
2. Electric current and electric circuits.
3. A hair dryer has a resistance of 100 Ω and it is plugged to a 220 mains supply. If it is operating for 40 minutes, calculate how many kilowatts per hour of energy does it use and how much do you pay if 1kwh = 0,20€.
4. What resistor values are indicated by the following colour bands? (A) Blue, black, yellow
5. The atom is…what?
6. Conductors and Insulators. Examples
7. What types of currents do you know?
8. Define Resistance, Current and voltage.
9. Formulate the Ohm law.
10. Describe engineering as a profession: the area and field, tasks and requirements.
11. Alternative Energy Sources; what are they?
12. Spheres/kinds of modern engineering, name and describe them; which of them are most perspective in your opinion?

Chapter 4

Close reading tasks:

Text 1

Someone with a great desire to learn is said to be highly motivated. Motivation is very important in what one learns and how quickly one learns it. A motivated person will generally learn faster and more efficiently than an unmotivated one. To learn efficiently, a person must intend to learn (intentional learning). However, incidental learning—learning that is not intended but which results simply from exposure to material—sometimes does occur. The degree of incidental learning does not approach that of intentional learning in real-life situations. To what extent motives aid learning is undecided. Motives do contribute as incentives to performance of what has been learned. If an individual expects to be rewarded for doing well, performance (perhaps on a test) may improve. It also may worsen, if the fear and anxiety over not passing is great enough. Human motives in relation to learning are so varied and complex that controlled experiments to analyze them are virtually impossible.

1. According to the passage, which of the following is true about incidental learning?

A More learning is incidental rather than intentional.
B Incidental learning is caused by a desire to become more educated.
C Less learning is incidental rather than intentional.
D Incidental learning is superior to intentional learning.

2. According to the passage, which of the following is true about motivation and learning?

A The connection between motives and learning is clearly known.
B The expectation of reward always leads to increased performance.
C The connection between motives and learning is too complex to be precisely analyzed.
D There is absolutely no connection between motives and learning.

3. Which of the following situations is an example of incidental learning?

A Studying for an exam
B Reading a book about astronomy
C Going to a lecture about art history
D Seeing newspaper headlines while waiting for the bus

4. The underlined word "incentives" most nearly means
A motivators. **B** rewards. **C** obstacles. **D** payments.

5. Which of the following summarizes the author's opinion about learning?
A Incidental learning is superior to intentional learning.
B Intentional learning, while more efficient than incidental learning, is
far less prevalent.
C Intentional learning is a more efficient and superior means of learning.
D There is essentially no difference between intentional and incidental
learning.

6. Which of the following would be the best title for this passage?
A "Motivation and School Performance"
B "Incidental Learning in the Classroom"
C "The Connection Between Motivation and Learning"
D "Experiments in Intentional Learning"
7. What is the closest meaning of the underlined word "efficiently"?

A effectively **B** quickly **C** cheaply **D** proficiently

8. The passage implies that if a student studies for an exam, he is practicing
A incidental learning. **C** residual learning.
B intentional learning. **D** motivational learning.

9. The underlined word "motivation" means
A dread. **B** repulsion. **C** neglect. **D** impulsion.

10. According to the passage, in order to learn by intentional learning, one must be
A highly motivated. **C** tired of learning.
B unmotivated. **D** in need of learning.

Text 2

From the dawn of civilization, the gaze of humanity has been drawn to the stars. The stars have been relied upon to direct travelers, to make agricultural predictions, to win wars, and to awaken love in the hearts of men and women.

Ancient stargazers pondering the nighttime sky saw definite star patterns emerge. The names for many of these star patterns retain the names given to them by the Greeks which were most often derived from mythology. The Greeks only knew 48 star patterns. Today's astronomers have charted 88 of these patterns, or constellations, which may be viewed from different parts of the world at different times of the year.

1. Stars have been relied upon for all of the following EXCEPT
A as directional aids. **C** as medical cures.
B for crop predictions. **D** as war omens.

2. The underlined word "retain" most nearly means
A keep **B** eliminate **C** know **D** view

3. Approximately how many new patterns have been discovered since the time of the ancient Greeks?
A 40 **B** 48 **C** 88 **D** 136

4. The underlined word "derived" most nearly means
A written. **B** gazed. **C** drawn. **D** learned.

5. Which of the following might share a name with a constellation?
A U.S. president **C** An ancient Greek hero
B A country in the Middle East **D** A farmer

6. The passage states that
A man never depends on the stars.
B stars are only for beautifying our skies.
C man has depended on stars at times.
D moons are the same as stars.

7. The author states that
A only adults are intrigued with the stars and constellations
B stars have scientific significance only.
C only children are intrigued with the stars and constellations.
D people have been intrigued with the stars and constellations since ancient times.

8. "Predictions" in this passage refer to
A crop fertility **B** war success **C** Cupid's progress **D** travel directions

9. The word "charted" in this passage means
A admired **C** illustrated
B identified according to composition and location D named

10. Which two words are used synonymously in the passage?
A-Humanity-astronomers **C** Stargazers-travelers

B Different parts-different times **D** Patterns-constellations

Text 3
Andrew Carnegie, known as the King of Steel, built the steel industry in the United States, and, in the process, became one of the wealthiest men in America. His success resulted in part from his ability to sell the product and in part from his policy of expanding during periods of economic decline, when most of his competitors were reducing their investments. Carnegie believed that individuals should progress through hard work, but he also felt strongly that the wealthy should use their fortunes for the benefit of society. He opposed charity, preferring instead to provide educational opportunities that would allow others to help themselves. "He who dies rich, dies disgraced,"

he often said. Among his more noteworthy contributions to society are those that
bear his name, including the Carnegie Institute of Pittsburgh, which has a library, a museum of fine arts, and a museum of natural history. He also founded a school of technology that is now part of Carnegie-Mellon University. Other philanthropic gifts are the Carnegie Endowment for International Peace to promote understanding between nations, the Carnegie Institute of Washington to fund scientific research, and Carnegie Hall to provide a center for the arts. Few Americans have been left untouched by Andrew Carnegie's generosity. His contributions of more than five million dollars established two thousand five hundred libraries in small communities throughout the country and formed the nucleus of the public library system that the Americans all enjoy today.

1. Which of the following is the main topic of the passage?
A - The establishment of the public library system
B - The work of Carnegie-Mellon University
C - The building of the steel industry
D - The philanthropy of Andrew Carnegie

2. How many libraries did Carnegie establish for the public library
system?
A - 25 **B** – 500 **C** - 2,500 **D** - Five million

3. The underlined word “fortunes” could best be replaced by
A - assets **B** - talents **C** - influence **D** - advice

4. The underlined word "expanding" is opposite in meaning to
A - economic decline **B** - reducing **C** - competitors **D** - economy

5. The underlined word "those" refers to
A - educational opportunities **C** - noteworthy contributions
B - fortunes **D** - individuals

6. Choose the paragraph that tells how Carnegie became wealthy.

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A - Andrew Carnegie, known as the King of Steel, ...

B - Carnegie believed that individuals should...

C - Among his more noteworthy contributions to society are those that
bear his name ...

D - Few Americans have been left untouched by Andrew Carnegie's generosity ...

7. What does the author mean by the following statement?

His success resulted in part from his ability to sell the product, and in part from his policy of expanding during periods of economic decline, when most of his competitors were reducing their investments.

A - By selling his investments, he was able to purchase more products.

B - He succeeded by investing his competitor's products.

C - He was successful in spite of difficulties in selling his product during economic depressions.

D - He achieved success because he invested when the competition was
not investing.

8. The author mentions all of the following as recipients of philanthropic contributions by Carnegie, except for

A - the arts **B** – technology **C** - economics **D** - science

**9. What does Carnegie mean when he says, "He who dies rich, dies
disgraced"?**

A - Rich people should be ashamed of their money.

B - Rich people should use their money for the benefit of society before
they die.

C - Rich people often live disgraceful lives.

D - People should try to become rich before they die.

Text 4

Although the composition and role of the board of directors of a company will vary from one organization to the next, a few generalizations may be made. As regards the composition of the board, customarily some directors are prominent men and women selected to give prestige to the group. Others are usually chosen from among retired executives of the organization for their specialized knowledge of the company. It is generally true that, as long as the top management maintains the confidence of the board of directors, the directors will not actively intervene to dictate specific policies. This is the same administrative procedure usually followed by the board of trustees of a college or university, and is similar in many respects to the parliamentary system
of ministerial responsibility practiced in Great Britain.

1. The title that best expresses the ideas in this passage is
A - The Board of Directors **C** - The Parliamentary System
B - The Board of Trustees **D** - Management
2. Who generally formulates policies for a company?
A - top management **C** - the board of directors
B - a dictator **D** - retired executives
3. The underlined word "prominent" could best be replaced by
A - professional **B** - ethical **C** - important **D** - elderly
4. The underlined word "selected" is closest in meaning to
A - chosen **B** - made **C** - retired **D** - specialized
5. The underlined word "others" refers to
A - regards **B** - directors **C** - executives **D** - men and women
6. What is the composition of a board of directors according to the
passage?
A - It consists of the shareholders of the company.
B - A director is a talented employee of the company.
C - A director must be either an important person giving prestige to the
group or a retired executive.
D - A director is a respected postgraduate.
7. What does the author mean by the following statement?It is generally true that, as long as the top management maintains the

confidence of the board of directors, the directors will not actively intervene to dictate specific policies.
A - Policies are dictated by the board with the approval of top management.
B - The board will assume control only if they lose confidence in management.
C - A vote of confidence by management authorizes the board to make
policies.
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D - When management loses confidence in the board, they will assume
control.

8. The author mentions all of the following as having similar administrative procedures, except for

A - the board of directors of a company
B - the board of trustees of a college
C - the members of Congress in the United States
D - the members of Parliament in Great Britain

9. Who would not be a likely candidate to be chosen as a member of the board of directors of City Bank?

A - a retired president of City Bank **C -** a City Bank employee

B - a respected lawyer **D -** a state senator

Text 5

The chief figure of the scientific revolution of the seventeenth century was Sir Isaac Newton. He was a physicist and mathematician who laid the foundations of calculus, extended the understanding of color and light, studied the mechanics of planetary motion, and discovered the law of gravitation. Isaac Newton's supreme scientific work was his system of universal gravitation. He went to his farm in 1665 to avoid the plague, and during this time he worked out the law of
gravity and its consequences for the solar system. This law arose from Newton's question: what keeps the moon in its regular path

around the Earth? He concluded that only their attraction for each other could account for it. He later remarked to a friend that he got the idea while watching an apple fall from a tree in his orchard. Every particle of matter in the universe, he wrote, attract every other particle with a force varying in inverse proportion to the square of the distance between
them, and directly proportional to the product of their masses.

1. The underlined word "law" most nearly means

A principle. **B** rule. **C** legislation. **D** decree.

2. Which of the following was NOT a contribution made by Newton?

A laying the foundation of calculus
B discovering the law of gravitation
C establishing the theory of relativity
D extending the understanding of color and light

3. The underlined word "revolution" most nearly means

A uprising **B** rotation **C** battle **D** upheaval

4. The underlined word "supreme" most nearly means

A god-like **B** ideal **C** greatest **D** dominating

5. Newton's law of gravity can be applied to which of the following
celestial bodies?

A Venus and Earth **C** Mars and Jupiter
B Earth and the moon **D** Saturn and Mercury

6. Which of the following scientific fields benefitted the most from Newton's work?

A biology **B** chemistry **C** geology **D** astronomy

7. In the passage, the phrase "every particle of matter attracts every other particle" means that every particle

A repels other particles. **C** draws other particles to itself.
B seeks other particles. **D** evades other particles.

8. According to the passage, the system of universal gravitation is Newton's

A least important scientific work. **C** most misunderstood scientific work.
B most disputed scientific work. **D** most important scientific work.

9. Isaac Newton can best be described as a

A biologist. **B** geologist. **C** physicist. **D** physician.
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10. When did Newton discover the system of universal gravitation?
A sixteenth **B** seventeenth **C** eighteenth **D** nineteenth
Text 6

Humans have long been studying the flight of birds and trying to imitate it. Not until the twentieth century did engineers fully understand the principles of flight that birds have been using for millions of years. Birds are adapted in their body structure, as no other creatures, to life in the air. Their wings, tails, hollow bones, and internal air sacs all contribute to this great faculty. These adaptations make it possible for birds to seek out environments most favorable to their needs at different times of the year. This results in the marvelous phenomenon we know as migration—the regular, seasonal movement of entire populations of birds from one geographic location to another.

Each year with great regularity most species of birds return to their summer homes, court and choose mates, build their nests, lay eggs, and rear their young. In the late summer and fall they acquire their new plumage. Then they join with others of their kind in large and small flocks, feeding and storing up fat in their bodies. Thus they prepare for the hardships of winter, whether they remain in the cold northlands or make the strenuous journey to the south.

1. Which of the following is NOT an activity of birds in the summer?
A building nests **C** traveling southward
B laying eggs **D** choosing mates
2. The underlined word "phenomenon" most nearly means
A miracle. **B** event. **C** celebration. **D** milestone.
3. The BEST title for this passage would be
A "The Migration of the Hummingbird."
B "How Birds Fly."
C "The Annual Migration of Birds."
D "Courting and Mating Rituals of Birds."
4. Which of the following is implied by the passage?

A Because birds have not properly adapted to changes in climate, they
are forced to endure cold winters.
B Each individual bird has its own pattern of migration.
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C The migration of birds is a "social" undertaking.
D All birds fly south for the winter.

5. Which of the following would best follow this passage?
A a specific discussion of migratory flight patterns.
B a description of how birds fly.
C a discussion of when birds return to their summer homes.
D a discussion of birds' feeding patterns.

6. The underlined word "faculty" most nearly means
A strength. **B** knack. **C** endowment. **D** ability.

7. The word "adaptations" in this passage refers to
A coloration. **C** physical properties of the bird.
B size. **D** reproductive practices.

8. The main idea of this passage is that
A birds are built the same as other creatures.
B the ability to fly is the main birds' feature which determins their life
and differs them from other creatures.
C birds can easily rear their young.
D birds need to be told when to migrate.

9. The phrase "for birds to seek out environments" means that
A birds stay in the same place year-round.
B migration is a function of bird keepers.
C birds travel where and when they feel the need to do so.
D birds prefer only one geographic zone all year.

10. Which adaptation is NOT a stated help to flight?
A internal air sacs **B** hollow bones **C** tails **D** coloration

Text 7

Each child has his individual pattern of social, as well as physical, development. Some of it depends on his home life and his

relationships with the people who love him. Children in large families learn how to get along with others through normal brother-sister play and tussles. An only child, on the other hand, may have to learn his lessons in social living through hard experiences on the playground or in the classroom. Twins who always have one another to lean on may be slow in
responding to others because they do not need anyone else. A child who is constantly scolded and made to feel he does everything wrong may have a difficult time developing socially. He may be so afraid of displeasing the adults around him that he keeps to himself (where he can't get into trouble), or he may take the opposite route and go out of his way to create trouble. Like the isolated child, he too may return to infantile pleasures, developing habits that will satisfy him, but create barriers toward social contact.

1. According to the passage, who may have the easiest time learning
to get along with others?

A an only child **C** twins
B a child from a large family **D** children who are continually scolded

2. The underlined word "infantile" most nearly means

A undeveloped. **B** idle. **C** childish. **D** babyish.

3. Which of the following would be the BEST title for this passage?

A "The Social Development of the Only Child"
B "Physical Development of Children"
C "The Role of Family Structure in the Social Development of Children"
D "Early Social Development: A Case Study"

4. Which of the following is implied by the passage?

A Excessive scolding of children may impede their social development
B Children who are constantly scolded develop alternative methods for
social development.
C Isolated children often exhibit quicker social development.
D All children develop socially in identical ways.

5. The underlined word "barriers" most nearly means

A boundaries. **B** passages. **C** obstacles. **D** paths.

6. The main idea in this passage is that

A twins are slower in developing than single children.

B only children take longer to develop.

C children develop socially, physically, and developmentally according
to an individual pattern.

D secure children take longer to develop.

7. The social development of a child can be affected by

A habits. **C** patterns.

B infantile pleasures. **D** the number of siblings.

8. One inference that can be drawn from this passage is that

A continual scolding is not harmful to the child.

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B continual scolding inhibits healthy social development.

C continual scolding does not affect physical development.

D continual scolding has adverse effects on the disciplinarian.

9. Where does the passage say the only child learns his social lessons?

A home and school **C** playground and home

B playground and classroom **D** all of the above

10. Home life and people who live with the child affect his development

A partially.

B at no time.

C totally.

D in no noticeable ways.

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