Министерство образования Республики Беларусь
Учреждение образования
БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ ИНФОРМАТИКИ И РАДИОЭЛЕКТРОНИКИ

Кафедра иностранных языков №2

Directions and Test № 6 for Correspondence Students

Методические указания и контрольное задание № 6 по английскому языку для студентов заочной формы обучения

МИНСК 2002

УДК 802.0 (075.8)
ББК 81.432.1 я 73
М 54

Составители: А.И.Рогачевская, И.Г.Субботкина, Н.С.Кучинская.

М 54 **Методические указания и контрольная работа №6** по английскому языку для студентов заочной формы обучения /А.И.Рогачевская, И.Г.Субботкина, Н.С.Кучинская. -Мн.: БГУИР, 2002.-18 с.

Данная работа дополняет программу, методические указания и контрольные задания, изданные кафедрой, и включает контрольное задание №6, представленное текстами по основным специальностям БГУИР.

Задание предназначено для студентов 2-го курса заочной формы обучения и имеет целью формирование навыков самостоятельно читать литературу по специальностям вуза для извлечения информации из иноязычных источников.

УДК 802.0 (075.8)
ББК 81.432.1 я 73

Содержание

МЕТОДИЧЕСКИЕ УКАЗАНИЯ

Контрольное задание №6 включает два варианта и ряд текстов по просмотровому чтению. Каждый вариант представлен текстом по специальности радиотехнического профиля.

Целью задания является оказание помощи в самостоятельной работе над развитием практических навыков чтения и перевода литературы по специальности на английском языке.

В задание включены тексты из оригинальных источников по специальностям вуза. Основная цель обучения студентов в неязыковом вузе в условиях заочного обучения – формирование умений самостоятельно читать литературу на английском языке по специальностям вуза с целью извлечения информации из иноязычных источников.

ТРЕБОВАНИЯ НА ЭКЗАМЕНЕ

К экзамену по английскому языку допускаются студенты, имеющие зачет за 1-й курс, выполнившие письменные контрольные работы и сдавшие учебный материал по чтению за 2-й курс.

На экзамене по английскому языку проверяются умения:

а) читать со словарем текст по специальностям вуза.
Форма проверки понимания – письменный или устный перевод.
Норма перевода – 1000 печатных знаков в час устно;

б) читать без словаря текст, содержащий изученный грамматический материал и 5-8 незнакомых слов на 600-800 печатных знаков.

Форма проверки понимания – передача содержания прочитанного на русском языке.
Время подготовки – 8-10 минут.

КОНТРОЛЬНОЕ ЗАДАНИЕ №6

ВАРИАНТ 1

Прочтите и письменно переведите 1-3 абзацы текста.

Microcomputers

1. People have talked of a “computer revolution” ever since the electronics industry used in the 1970s silicon chips instead of transistors. Computers have become smaller, cheaper and more numerous. Designers have called these small computers microcomputers or micros since that time. You have probably heard about personal or small business computers with famous brand names such as Apple, Commodore, IBM, Zenith.

2. Each microcomputer has input and output devices. Some microcomputers are all in one piece – the screen and the keyboard are in the same cabinet. In others the screen and the keyboard are separate. The heart of the microcomputer consists of a short-term memory and the part that does processing (the central processor). One chip serves for the memory, and a different chip for the processor. The central processor (or microprocessor) consists of two main parts:

1) a control unit, which takes data from the memory in the right order and passes it on to the calculator. It also takes instructions one by one and makes sure their right order;
2) a “calculator”, which can add and subtract, multiply and divide. It can carry out “logical” operations, e.g., it can put names into alphabetical order. This unit is often called the Arithmetic and Logic Unit.

3. Microcomputers are very helpful in education. A microcomputer, when we use the right input and output devices, can:

- display words, still or moving pictures and graphics on the screen;
- display information in a clear way using tables, colour, pie-charts, etc.;
- perform simple and difficult calculations over and over again, e.g., statistical functions, and display the results;
- store or access information quickly and directly;
- produce sound patterns and notes, e.g., music, speech of a kind;
- collect and store data by means of sensors, e.g., of temperature or pressure, and then display these data;
- control devices linked to the microcomputer, e.g., a robot arm.

There are just some of the things that micros are good at in education. Whether or not we fully use the microcomputer depends on the type of programs for it.

ВАРИАНТ 2

Прочтите и письменно переведите 1-6 абзацы текста

Artificial Intelligence – Computer or Human?

1. How far away is an artificial intelligence, a machine or computer program that can mimic some or all of the characteristics of human intelligence? If you're talking about a robot that can converse in many languages and ponder its own fate, this type of artificial intelligence is very far away (if it is even possible). Still, efforts continue in giving computers at least some of the attributes of human intelligence. And some efforts have been partially successful.

2. Of all the technologies on the horizon, the most far-reaching in its potential impact is **artificial intelligence** (**AI**). Computer scientists working in the field of artificial intelligence believe that the one area of human intelligence which is at the core of human intelligence is what is often called "common sense". But they do not agree on what that is or, more important to them, how to achieve it in a "computer". In the United States, two groups of AI teams are currently working on diverse attempts at creating AI in a computer. One approach is to imitate human thought, and the other approach is to create the same effect as human thought regardless of how that is done.

3. Rodney Brooks of M.I.T. is developing a machine, named Cog, that has cameras for eyes; a "skin" that has sensory input; and a brain of eight 32-bit, Macintosh-type processors. Cog is learning the way humans learn, by trial and error. The object is an AI machine that can do diverse tasks and think the way humans can.

4. Douglas Lenat of Austin, Texas, is developing a machine, called CYC, that is being fed all the rules of "human consensus reality", or common sense. Instead of having CYC learn by experience, the knowledge of the experience is being input. Lenat believes that once CYC has about two million common sense rules, it will be able to do much of its own learning. For example, CYC can read the encyclopedia and then ask questions about anything it didn't understand – and its common sense will be strong enough to tell it what it did or didn't understand.

5. CYC represents the top-down approach to Ai, that the basis of human thought is symbolic knowledge. Intelligence can be created by coding the logical structures we use to apprehend the world. Cod represents the bottom-up approach to AI. This approach encourages

programs to work more like biological structures than logical structures. The programs build a lot of small, simple programs and let them interact and learn which interactions are successful.

6. The capability that both AI approaches are trying to develop is to infer from known facts. If a software package is able to infer, it can be of great help to humans. One of the first applications of this inference power is in **intelligent agents** that are being developed, especially for the Internet. For example, an agent could peruse the Internet and put together a customized newspaper for you to read when you get up every morning. You would select topics you are interested in reading about, give them priorities, and specify the total length of the newspaper. The agent would find the articles of greatest interest to you and put together your own newspaper (on your computer screen or printed on paper).

ТЕКСТЫ ДЛЯ ПРОСМОТРОВОГО ЧТЕНИЯ

1. Прочтите текст и письменно ответьте на следующий вопрос:

What can you do if you know fundamental concepts of computers and their uses?

The Need for Computer Literacy

A major technological revolution has both positive and negative effects. Because the computer revolution is so new, many effects are still to be discovered. But there's one effect you can count on-the effect on you and your future. Because computers have moved into society so rapidly and so completely, you need basic computer skills just to pursue your career goals and function effectively in society. In short, you need **computer literacy**, sufficient computer knowledge to prepare you for working and living in a computerized society.

For many people, computer literacy means simply knowing which key to press. That knowledge is important, but it isn't enough. You need understand some fundamental concepts about how computer systems are set up and how they work. To see this point, think about cars. Assume that you have learned to drive and you can get from point A to point B. If you want to maintain your car and drive with maximum safety, however, you must learn more. For example, does your car have an antilock braking system (ABS)? If so, in a sudden stop, the brake pedal normally vibrates. But some people do not know this fact. They think that something is wrong, and they release the brake pedal-resulting in

crashes that could have been prevented. In the same way, lack of knowledge causes people to make mistakes using computers.

Lack of knowledge also causes some people to fear computers. We have even coined a term to describe this irrational fear: **cyberphobia**.

With knowledge of fundamental concepts of computers and their uses, you will be able to learn more rapidly how to use computers effectively – tomorrow's computers as well as today's. You will quickly recognize tasks that can benefit from computer applications. You will know to take wise choices when you select computer equipment. You will know how to gauge the gravity of the computer's potentially negative effects, such as its threat to jobs and individual privacy. And most of all, you will be prepared for full citizenship in a society that requires computer literacy for the best jobs and careers.

2. Прочтите текст и письменно ответьте на следующий вопрос:

What is a hybrid computer?

The Concept of the Computer

1. Modern computers are of three types: analog, digital, and hybrid. An analog computer uses physical analogs of numerical measurements, such as length, rotation, voltage, etc. People design analog computers for specialized fields (hydrodynamics, aerodynamics, industrial control, etc.). A digital computer is a binary machine, which represents 0 and I electrically. Through binary arithmetic, in which all numbers are strings of 0s and Is, the computer can represent any letter, number or symbol on its keyboard in the binary code. If a number (for example, 100) must have seven digits for its binary representation, we say that it contains seven bits. The term bit is an abbreviation for "Binary digIT". An 8-bit string is a byte. A hybrid computer is a machine which combines some of the characteristics of digital and analog computers.

2. The constituent parts of a computer are called hardware. Computers vary greatly in their internal organization, but every digital computer has a processor, memory, an input device to receive information, and an output device to transmit information. Computer's architecture is the internal logical linkage of the processor to the memory and peripherals, that is, input and output devices.

3. A processor or CPU, which is short for central processing unit, is the nerve centre of any digital computer system. It coordinates and controls the activities of other units and performs all the arithmetic and logical processes. In the instruction cycle the processor carries out four

commands: fetch the instruction, fetch the data (if any) upon which the instruction is to act, carry out the instruction, store the result in the memory. It repeats the same four steps with the next instruction. The link of the CPU to input and output devices is not as direct as the link to the memory. To run a disk drive, for example, the CPU has a specialized processor, a controller, that transmits instructions directly to a disk drive.

4. The computer stores and manipulates binary representations in primary memory and records results in secondary memory. Although the computer can represent any kind of information, it is necessary to tell the computer what kind of information it is currently representing. Microcomputers in particular can accept input directly from a keyboard, by reading a disk, by communicating with another computer over a telephone line.

3. Прочтите текст и письменно ответьте на следующий вопрос:

Why couldn't Ch. Babbage translate his ideas into reality?

On the History of Computer Development

The oldest form of mechanical calculating devices was the abacus. It remained the only aid to calculation until the 17th century. After the invention of logarithms in 1614, W.Oughtred constructed the first slide-rule in 1630. B.Pascal built an adding machine in 1642 at the age of 19. Later he produced some others, one of them could add six-figure numbers. In 1671 Leibnitz invented the first machine, which performed multiplication by repeated addition.

Ch. Babbage, the English mathematician of the 19th century, was the first who conceived the idea of the automatic machine for complex calculations. He designed his Analytical Engine to perform four arithmetic operations. It was to have three parts: a store, a mill, and sequence mechanisms. The store was to hold 1000 numbers, as well as intermidiate results and instructions. The mill called up numbers from the store and performed arithmetic calculation with them. It corresponded to the modern processor. The sequence mechanisms, which we would call a program, decided which numbers to call up from the store and how to operate on them. A system of punched cards controlled the sequence of operations. Ch.Babbage couldn't translate his ideas into reality because there were no reliable and accurate electrical equipment, but his Analytical Engine was a true prototype of the modern digital computer. Ch.Babbage and Lady Lovelace, Lord Byron's daughter, worked out a coded program. Lady Lovelace was a brilliant

mathematician. She believed and fully understood the potentialities of the Analytical Engine. She took an active part in Babbage's experiments. So it is fair to say that she was the world's first computer programmer.

About seventy years passed before the production of the first digital computer, which was similar to Babbage's Analytical Engine. In 1937 Dr.H.Aiken of Harvard University began to work at the first completely automatic digital computer which he called the Mark 1. He completed it in 1944. The Mark 1 was mainly mechanical with some electro-magnetic devices. It was a very large computer, 51 feet long and 8 feet tall. The store had 72 counters. Each counter could hold 23 digits.

The first electronic computer, the Electronic Numerical Integrator and Calculator (ENIAC), was constructed in 1946 at the University of Pennsylvania.

The third generation computers started in 1964. There were silicon chips instead of transistors.

All computers of the present time, from the microcomputer to the supercomputer, belong to the fourth generation.

The computer revolution is very dynamic. We are on the threshold of the fifth generation of computers.

4. Прочтите текст и письменно ответьте на следующий вопрос:

What are the main characteristics of the 5th generation computer?

The Fifth Generation Computer System

The fifth generation computer will not only differ in size, speed, and storage capacity. By contrast with the fourth generation systems, which mainly store and process data, it will have the following characteristics: the use of artificial intelligence and natural languages, a speech input, knowledge bases, very large-scale integration technologies, the application of optical fibres and videodisks, flexibility and high reliability.

The idea of artificial intelligence is the intensification of man's creative activities with the aid of computers. Artificial intelligence is a machine intelligence. A programmer packs a program in the computer for the solution of some practical problems. In operation it looks like human intelligence. There are different categories of artificial intelligence uses, such as robots and machines with sensory capabilities, knowledge-based systems and expert systems. A knowledge base is more flexible and less structural than a database. It is able to function with fewer stored facts, to generate and infer new facts in the process of the problem solution. Expert systems are knowledge-based systems for

highly specialized areas: branches of medicine, spectroscopic analysis, and the like.

Artificial intelligence needs new methods of program organization and construction. Very large-scale integration technologies will reduce the size of the computer, enlarge its speed and storage capacity. For the solution of these problems some researchers think of optical circuitry, gallium arsenide circuitry, and cryogenic (etremely cold) circuitry. For the solution of still more difficult problems, such as the production of hyperintelligent robots, some researchers discuss the problems of biochip circuitry. This is a revolutionary idea and its realization is in the distant future.

5. Прочтите текст и письменно ответьте на следующий вопрос:

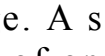
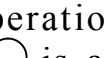
What does the word "language" as a technical term mean?

Programming

A computer is a general purpose machine which represents and processes information. The machine is hardware, and we apply it for specific tasks by means of software, i.e., programs, or lists of instructions which are written in the code that the computer has been manufactured to understand.

The fundamental principles of programming are connected with the sequence of instructions, the use of flowcharts, symbolic coding aids, loops, etc. The terms "coding" and "programming" are often used as synonyms. However, "a code" is more specifically a short list of instructions that direct the computer to perform only a part of the entire calculations, whereas the term "program" means the complete list of instructions used for the problem.

The basic stages in a program preparation are:
1) problem analysis, 2) outline or macroflowcharting, 3) detailed or microflowcharting, 4) coding, 5) input preparation, 6) testing and debugging. Some of the above stages may be overlapped, and each stage is followed by a careful check.

The outline flowchart represents, in a diagrammatic form, the basic logic and structure of the required problem Flowcharts are drawn from topt botton of a page. A set of symbols is used, e.g., the symbol  represents any kind of operation, the symbol  stands for input/output operations. The symbol  is a "connector" symbol and is used to show the exit to, or entry from another point in the same flowchart, or to indicate which lines are to follow when we have to continue the diagram on another page.

At the coding stage the program may be coded in a machine code or by means of a programming language.

The word “language”, when used as a technical term in programming, means a collection of rules which specify how certain symbols may be combined to form meaningful statements. (Languages in the nontechnical sense, such as English, are called natural languages in programming). The bridge between the programming language program and the required machine code program is provided by means of a special processor program, or translator. The initial program written by a programmer is called the source program. Since it is only the machine code which the computer can understand, the processor program translates the source program into the required maching code program which is called the object program.

There are some important factors that characterize programming languages: the way and the time at which the object program is prepared, the “level” of the programming language, the format and the general structure of the source program, the basic data types, the possibility to use the program for other types of the computer, etc.

6. Прочтите текст и письменно ответьте на следующий вопрос:

Where is a library of subroutines stored?

Subroutine

The group of instructions that performs one individual operation or a logical section of the overall function of the program is called a subroutine. A subroutine may be used on each occassion when the same operation is to be performed on different data at different times. Subroutines can be classified into mathematical, arithmetical, input/output, and commercial.

Once a subroutine has been written, tested and proved, it can be incorporated in any program as required. As the computer proceeds down the main program, the control may jump to the subroutine and then, after doing the subroutine, jump back to the main program. The term “jump” or “branch” is used in the sense of “take the next instruction from …”. Thus the expression “jump to the subroutine” means “take the next instruction from the address where the first instruction of the subroutine is located”

In order to use a subroutine, we must know 1) the entrance, i.e., the address of the first instruction; 2) the address of the temporaries in which the initial conditions are to be set up; 3) the addresses of the temporaries whose contents will be the results of the subroutine computation; 4) the exit, i.e., the address of some jump instruction so

that when the computation of the subroutine has been completed, the computer will transfer control back to the main program.

Several subroutines may be used in one program. The computer user can thus build up a library of subroutines. A library of subroutines is any collection of subroutines. It can be incorporated in different programs when required. It is stored in some part of the computer memory. There also can be some catalogue outside the computer that the programmer consults when he wants to use a subroutine. This catalogue tells the user where each subroutine is located and all the data about how to use it.

7. Прочтите текст и письменно ответьте на вопрос:

What elements in most examination courses in England can you name?

Computers in education

The use of computers in education is not new but until 1980s there was a computer assisted instruction primarily in universities. With the coming of inexpensive microcomputers their applications have become more versatile. Today we can see the microcomputer in schools, institutes, universities, in training teachers, engineers, businessmen. It ideally answers the aims of mass education from primary school on up.

In many subjects the personal computer help to do long or complex calculations. In other it builds up large data banks of information. Computers are very useful to drill students in spelling, vocabulary or arithmetic. They can point out mistakes and repeat the drill. A student may go on to the next question if his answers are correct. He can learn the material at his own pace.

Computers help much in teaching laboratory sciences. A student can carry out, on the computer screen, long, expensive or otherwise impracticable experiments in physics, chemistry, or social sciences.

So the computer is a part of school or institute curricula today. It can drill students in the facts and figures which they are to know. It can aid to carry out scientific experiments. At the same time students learn something about the computer and programming, and they may learn more if they become interested. In England, for example, most examination courses in computer studies have some or all of the following elements: history of computers, principles of programming, computer languages, computer applications, social problems of computer technology, etc.

In a well-run school with creative educational aims, the computer can function as a teacher's assistant. It can free teachers to do what teachers ought to do – help students to discover the world.

There are some groups of problems in computer assisted instruction (CAI): the elaboration of the theory of CAI on the basis of modern scientific concepts; the creation of the CAI technology; psychological and pedagogical questions of the projection of teaching systems. The final aim of such systems is to make the process of learning interesting and easy.

8. Прочтите текст и письменно ответьте на следующий вопрос:

What does graphical user interface provide?

Computer Technology Today

Today's microcomputer is smaller, faster, cheaper, and more powerful than ENIAC. Microcomputers are available in desktop, laptop, notebook, and palmtop models. The Christmas season of 1994 was notable for the computer industry because for the first time, the sales of microcomputers exceeded the sales of television sets. It has been estimated that by 2010, microcomputers will be as common as television sets.

Because of microcomputers, individuals who are not computer professionals are now the majority of users. To make computers more **user friendly graphical user interface** (**GUI**) provides icons (pictures) and menus (lists of command choices) that users can select with a mouse. The first commercially marketed GUI, known as Finder, was introduced by Apple for the Macintosh in 1984. Microsoft has developed a similar GUI, known as Windows, that is popular on IBM-compatible microcomputers. In addition, most new applications include tutorials and extensive help for new users.

The microcomputer industry has been split between the Apple and IBM families of microcomputers since 1981. Historically, these two families could not use the same programs. This changed in 1991 when Apple, IBM, and Motorola entered into an agreement that has resulted in the development of microcomputers that can switch between a Macintosh mode and an IBM mode. Since 1992, all Apple Macintosh computers come equipped with the capability of reading IBM formatted floppy disks and executing programs written for IBM microcomputers. In late 1995, IBM released computers capable of reading Apple formatted floppy disks and running programs written for Apple computers. In 1996, IBM purchased license rights to the Apple Macintosh operating system. It is a matter of time before the two families become one.

9. Прочтите текст и письменно ответьте на следующий вопрос:

What made the Internet and World Wide Web take off in the late 1980s and early 1990s?

The internet: What is it?

The **Internet** does not exist – at least, not in the way many people think it does. There is no home office or central computer. It is not a service owned and operated by a business or government agency. The Internet is basically a set of rules for connecting networks. You can also think of it as the set of networks connected according to those rules. The World Wide Web is simply a way of using the Internet.

When the government established the **ARPANET** (for Advanced Research Projects Agency NETwork) in 1969, it connected scientists at a few major universities. In the 1970s, **e-mail** (electronic mail) quickly became popular and the **File Transfer Protocol** (ETP) was established to facilitate the download of files from one computer to another. Gradually, more and more sites and networks were connected to the network (200 sites by 1981). By 1984, academic and research users were already outnumbered 2 to 1 by commercial users. When ARPANET was dissolved in 1989, it was only part of a fast-growing *internet*work. The only physical aspect of the Internet was the "backbone" of major lines that carried communications between the networks. It was still an exotic tool used by technicians. As it became more sophisticated and accessible, simple text menus became common.

The World Wide Web was developed in Europe for nuclear scientists in the early 1990s. The Web is a **GUI**-based (graphical user interface) system using **hyperlinks** (highlighted words and icons that connect to another document, sometimes at another location). The pre-Web Internet was like a computer operating under DOS with simple text-based menus and commands. The relationship between the World Wide Web and the Internet is like using Windows on a computer. It's still the same computer, but the way the user interacts with it is different. The World Wide Web is simply that part of the Internet that operates using this interface Just as DOS software was redesigned to work under Windows, older Internet sites have been adjusted to be compatible with the Web.

Ease of access and faster communications made the Internet and World Wide Web take off in the late 1980s and early 1990s. When America Online began offering Internet access in 1989, the established base of more technical users resented the newcomers; but the popularization of the Internet proceeded rapidly. Today, **Internet**

service providers (ISPs) are everywhere and most peoples' view of the Internet consists entirely of World Wide Web sites. Schools, libraries, and even some stores and restaurants provide terminals with Internet access, and every business wants to establish its presence. New computers are routinely equipped with modems. The 1980s made computers commonplace. History will most likely record the 1990s as the decade in which we began living in an online world.

10. Прочтите текст и письменно ответьте на следующий вопрос:

What is a bridge between the Internet and the intranets?

The Internet in industry

The development of the Internet was a tremendous leap in bringing people and information together. Internet technology is also helping to connect businesses with their employees and customers.

Intranets are networks internal to a company, college, hospital, or other institution. They look like the Internet and use the same rules and technology. They provide quick, easy communication between departments and co-workers. An online expense form, for example, can be filled out by an employee, approved by a manager, and processed by the Accounting department with no use of paper or physical mail. Internets are currently in use in over 60 percent of Fortune 500 companies.

Internal networking has also made possible the use of **network computers (NCs).** These range from what are essentially stripped down PCs (for example, IBM's Network station, which has only a 33MHz CPU), to very powerful models. They lack CD-ROM and floppy drives and are sealed. Their only function is to access the network server where all files and software are stored and where the work is actually done. One of the major complaints of network managers is user-added hardware and software. Network computers cost less initially, are easy to maintain and replace, and allow greater control of the computing environment.

Intranets provide a standard that permits Web-based information to be used internally and to connect with other intranets. **Extranets** are a bridge between the Internet and the intranets. They provide limited, outside access to corporate networks. Extranets can function as a collaborative link between intranets for conferencing and joint projects, a window to the intranet for employees on the road working as telecommuters, or as a gateway for customers and suppliers.

Extranets can reduce the need for mail, telephone tag, and unnecessary travel. Physicians can file insurance claims online. Airlines

can allow travelers to select prices and schedules themselves. Federal Express advertises the fact that customers can track the progress of their own packages. Access to extranets can be customized to give users access to just the relevant areas they need without requiring them to extract it themselves from a glut of information. The data can be presented in a way that is most useful to each user without compromising security.

The online world is a product not only of technology but also of the innovative ways in which people apply that technology. This is only the beginning.

11. Прочтите текст и письменно ответьте на следующий вопрос:

Why do companies like robots very much?

Robots

Robots have been in the movies and on television for years. However, those “show business” robots are not necessarily true representations of working robots. A robot is a computer that outputs motion instead of information. Robots do not need to look, move, or act like humans.

Today’s robots include input sensors that detect light, sound, touch, and heat. These sensors enable the robot to change its motion based on outside stimuli.

Don’t worry about robots taking over the world in your lifetime. In the absence of artificial intelligence, today’s robots are not very smart. They can perform a few manual tasks repeatedly and rapidly, but they can do only the tasks they are programmed to do. Cog, mentioned earlier may be a prototype of future robots because it combines sensory input and Al-like thinking.

Robots have many applications in industry. For example, spot-welding machines are nonmobile robots that move an “arm” (a manipulating mechanism) while the base is fixed to a track or a holding base. In general, robotic systems can do precise tasks accurately and consistently. Robots can perform tasks that are dangerous for humans. Robots can also do repetitive tasks without getting bored and careless. Although robots are expensive, they work 24 hours per day, do not go on strike, do not show up to work with a hangover, and do not require health insurance and pensions. For these reasons, companies like robots very much. As robots grow more capable, the opportunities for unskilled and semiskilled employment are sure to decline.

12. Прочтите текст и письменно ответьте на следующий вопрос:

What is the biggest challenge in computer programming?

Artificial Life

Computer viruses, are programs that can “infect” a computer by propagating in unseen ways. Some viruses are malicious and can destroy data. Others are merely irritating. But according to some researchers, all viruses have at least one of the key characteristics of living organisms – the capability to reproduce.

Computer viruses have inspired a new area of research – artificial life (also called a-life). In a-life research, researchers create a “life-form” within the computer. These life-forms are currently one-celled “creatures” that can move themselves and reproduce themselves by their own “will”. They have been used to test evolutionary theories and to test theories of life-form behavior.

One outgrowth of artificial life research is experimentation with genetic algorithms. As you know, an algorithm is a procedure for solving a problem. The biggest challenge in computer programming is to produce an effective algorithm for solving a program. In genetic algorithm research, scientists are letting the computer mimic nature.

According to evolutionary theories of biology, organisms try survive. Occasional errors in the genetic code introduce mutations, leading to change. Sometimes these changes are advantageous and give the organism a better chance to survive. The organisms with an advantageous genetic code predominate because they have more opportunities to reproduce.

Genetic algorithm research mimics nature in the following way. A number of algorithms are placed into a computer “environment” and are given the potential to mutate in random ways. All the algorithms compete to try to solve the problem. Over time, one of the algorithms emerges as the best at tacking the problem.

13. Прочтите текст и письменно ответьте на следующий вопрос:

What does the user wear in a typical VR system?

Virtual Reality

Virtual reality (VR) is a computer technology that uses multiple sensors for input and output and interactively adjusts the output based on the input. In a typical VR system, the user wears glasses with twin television screens (one for each eye), stereo headphones, and a glove. The glasses and headphones immerse the user in the pictures and sound

of an imaginary environment. The user alters the environment by moving the glove.

VR has been embraced by game makers as a great new toy; however, VR has serious uses as well. While an architect is designing a building, the buyer may not be able to visualize the structure well enough to say whether some feature will be satisfactory. With VR, the buyer can “walk through” a building while it is still being designed. The most important application of VR made to date is in training doctors; the doctors can practice a procedure as many times as needed to master it satisfactorily.

Tomorrow’s virtual reality systems may transform the nature of entertainment. Instead of watching a movie on a flat screen, you will feel as if you’re in the movie yourself, with the action going on all around you! The possibilities are limitless – and so are the concerns. Virtual reality could very well become the “designer drug” of the twenty-first century, producing sensory addictions that could be hard to shake. Why study or work when you can don a VR suit and experience just about anything you like?

Св. план 2002, поз. 47

Учебное издание

Методические указания и контрольное задание № 6 по английскому языку для студентов заочной формы обучения

Составители: Рогачевская Анна Ивановна
Субботкина Ирина Григорьевна
Кучинская Наталья Сергеевна

Корректор Е.Н Батурчик

Подписано в печать Формат 60x84 1/16

Бумага Печать Усл.печ.л.

Уч. – изд. л. 1,0 Тираж 200 экз. Заказ

Издатель и полиграфическое исполнение;
Учреждение образования
“Белорусский государственный университет информатики и радиоэлектроники”
Лицензия ЛП № 156 от 05.02.2001.
Лицензия ЛВ № 509 от 03.08.2001
220013, Минск, П.Бровки, 6