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«Белорусский государственный университет
информатики и радиоэлектроники»

Кафедра иностранных языков №1

МЕТОДИЧЕСКОЕ ПОСОБИЕ
ПО РАЗВИТИЮ НАВЫКОВ ЧТЕНИЯ
НА АНГЛИЙСКОМ ЯЗЫКЕ ДЛЯ СТУДЕНТОВ ФТК И ВФ

READ AND SPEAK
FOR FULL TIME STUDENTS OF THE
TELECOMMUNICATIONS AND MILITARY FACULTIES

Минск БГУИР 2009

Р е ц е н з е н т:

заведующий кафедрой иностранных языков №2
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Включает восемь разделов, каждый из которых содержит краткий
тематический словарь, тексты и задания к ним. Единый комплекс упражнений и
заданий ориентирован на развитие у студентов ФТК и ВФ навыков и умений чтения
литературы и специальных оригинальных текстов.

Авторами методического пособия реализовано требование профессионально-
ориентированного обучения.

Предназначено для работы в аудитории под руководством преподавателя и для
самостоятельной работы.

CONTENTS

UNIT I
NETWORKS

Part A

Word List

accessible	/qk'sɛsqbl/	доступный, достижимый
appliance	/q'plaɪqns/	прибор, устройство
architecture	/'Q:kɪtɛktSq/	архитектура, структура, модель
attach	/q'txtS/	прикреплять, присоединять
box	/bPks/	блок, модуль, стойка
broadband	/'brO:dbxnd/	широкий диапазон, ширина полосы пропускания, широкополосный канал связи; широкополосный
circuit	/'sq:kɪt/	схема, цепь, контур
coax	/'kquxks/	коаксиальный кабель, коаксиальная линия передачи
combine	/kPm'baɪn/	объединять, сочетать
configure	/kqn'fɪgq/	формировать, придавать форму; конфигурировать
connect	/kq'nɛkt/	соединять, присоединять
contain	/kqn'teɪn/	содержать, вмещать
context	/'kPntɛkst/	контекст; ситуация, окружение, среда
customer	/'kʌstqmq/	заказчик, потребитель
deliver	/dɪ'lɪvq/	доставлять
digital	/'dɪdZɪtl/	цифровой
engineering	/ˌɛndZɪ'nɪqrɪN/	техника, разработка; технология
traffic engineering	/'trxfɪk ˌɛndZɪ'nɪqrɪN/	трафик, рабочая нагрузка линейной связи; обмен (данными)
equipment	/ɪ'kwɪpmqnt/	оборудование, аппаратура
evolve	/ɪ'vPlv/	развивать
feature	/'fi:tSq/	техническая характеристика, параметр; функция, возможность
functionality	/ˌfʌNkSqn'alɪtɪ/	функциональность, выполняемые функции

gateway	/'geɪtweɪ/	шлюз (сети); межсетевой интерфейс; международная АТС
implement	/'ɪmplɪmənt/	выполнять, осуществлять
install	/ɪn'stɔ:l/	устанавливать
manage	/'mænɪdʒ/	управлять; справляться
network	/'netwɜ:k/	сеть, радиотрансляционная сеть
overtake	/ˌəʊvə'teɪk/	догнать, наверстать; обрушиваться; овладевать
range	/reɪndʒ/	диапазон, интервал; класс
rate	/reɪt/	скорость, интенсивность, тариф
record	/'rekɔ:d/	запись
roll out	/rəʊl aʊt/	развертывать
router	/'ru:tə/	маршрутизатор; программа маршрутизации
share	/ʃeə/	разделять, совместно использовать
standardization	/ˌstændədaɪ'zeɪʃən/	стандартизация, нормализация; проверка
storage	/'stɔ:rɪdʒ/	хранение, накопление; запоминающее устройство, память
support	/sə'pɔ:t/	поддерживать, содействовать
switch	/swɪtʃ/	переключать, включать, выключать
transfer	/'trænsfə:/	перенос, перемещение; передача (данных); переключение (на другой источник питания)
wire	/'waɪə/	проволока, провод; (диэлектрический) волновод
wiring	/'waɪərɪŋ/	(электрическая) проводка, монтаж

1. Define the following words as part of speech and give the initial words of the following derivatives.

Simplest, sharing, connection, customer, installed, managed, router, simultaneously, wireless, wiring, digital, storage.

5

2. Give Russian words with similar roots.

Printer, provider, server, functionality, component, modem, cable, internet, combine, separate, machines, containing, client, technology, video, professionally, player, stereo, alternative.

3. Translate the following words paying attention to the suffixes.

Controller, allowed, configured, evolves, appliance, accessible, residential, router, local, usually, entertainment, older, environment, alliance.

4. Fill in the gaps with words derived from the words in brackets.

1. Some devices that … (*use*) in a personal area network are printers, fax machines, telephones and scanners.

2. It is expected … (*increasing*) with technology improvements.

3. Personal area networks … (*wire*) with computer buses.

4. A home network is used … (*connection*) multiple devices within the home.

5. Recently telephone companies … (*use*) home networking.

6. This device makes it possible to connect people to the internet … (*simultaneous*).

7. Network controllers can be installed … (*allowed*) them to connect to networks.

5. Read the text and name the key points raised in it.

Home Network

A home network is a residential local area network, and is used to connect multiple devices within the home.

The simplest home networks are used to connect two or more PCs for sharing files, printers, and a single connection to the Internet (usually broadband Internet through a cable or DSL[1] provider). A server can be added for increased functionality.

More recently telephone companies such as AT&T and British Telecom have been using home networking to provide triple play services (voice, video and data) to customers. These use IPTV to provide the video service. The home network usually operates over the existing home wiring (coax in North America, phone wires in multi dwelling units and powerline in Europe). These home networks are often professionally installed and managed.

Let us consider an example of a simple home network.

A home network may consist of the following components (fig. 1):

1. A broadband modem for connection to the internet (either a DSL modem using the phone line, or cable modem using the cable internet connection).

2. A residential gateway (sometimes called a router) connected between the broadband modem and the rest of the network. This enables multiple devices to connect to the internet simultaneously. Residential gateways, hubs/switches, DSL modems, and wireless access points are often combined.

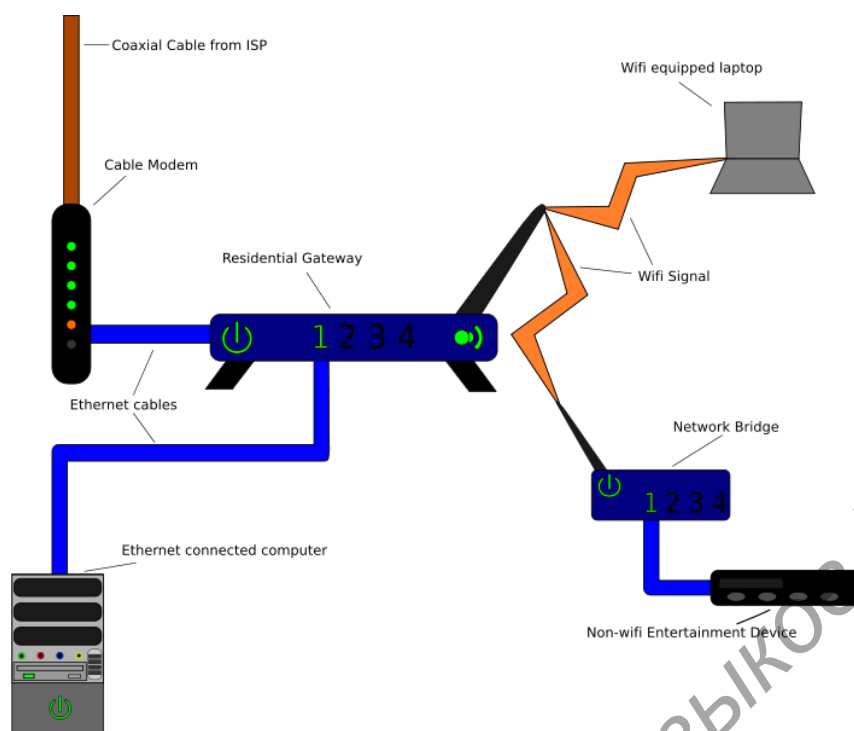3. A PC, or multiple PCs including laptops.

Fig. 1. Network Devices

4. A wireless access point, usually implemented as a feature rather than a separate box, for connecting wireless devices.

5. Entertainment peripherals – an increasing number of devices can be connected to the home network, including DVRs[2], digital audio players, games machines, stereo system, and IPset-top box.

6. Internet Phones (VoIP[3]).

7. A network bridge connects two networks together, often giving a wired device, e.g. Xbox, access to a wireless network.

8. (Rarely) a network hub/switch – a central networking hub containing a number of Ethernet ports for connecting multiple networked devices.

9. A network attached storage (NAS[4]) device can be used for storage on the network.

10. A print server can be used to share printers among computers on the network.

Older devices may not have the appropriate connector to the network. USB and PCI[5] network controllers can be installed in some devices to allow them to connect to networks.

Network devices may also be configured from a computer. For example, broadband modems are often configured through a web client on a networked PC. As networking technology evolves, more electronic devices and home appliances are becoming Internet ready and accessible through the home network. Set-top boxes[6] from cable TV providers already have USB and Ethernet ports "for future use".

Notes:
[1]DSL – digital subscriber line – цифровая абонентская линия.
[2]DVR – digital video recorder – цифровой видеомагнитофон.

[3]VoIP – Voice IP – передача голоса (голосового трафика) по IP-сетям, голос поверх IP, телефония на базе IP.

[4]NAS – network attached storage – подключаемый к сети накопитель или кластер накопителей, сетевая подсистема памяти, сетевая система хранения данных.

[5]PCI – peripheral components interconnect – PCI-шина, компьютерная шина со скоростью передачи данных до 33 Мб/с.

[6]Set-top box – телефонная абонентская приставка.

6. Read the following statements and say whether they are true or false. Correct the false ones.

1. A home network is a personal area network.

2. A server can be added for increased storage capacity.

3. Telephone companies such as AT&T and British Telecom have recently been using home networking to provide double play services to customers.

4. The home network usually operates over coax in North America, phone wires in multi dwelling units (MDU) and powerline in Europe.

5. A home network may comprise a narrowband modem.

6. A residential gateway links the broadband modem and the rest of the network.

7. A residential gateway enables multiple devices to connect to the internet one at time.

8. USB and PCI network controllers must be installed in all devices to allow them to connect to networks.

7. Match the parts to complete the sentences.

1. A wireless access point can be used
2. Entertainment peripherals
3. A network bridge
4. A network attached storage (NAS) device can be used
5. A print server can be used

a) to share printers among computers on the network.
b) connects two networks together.
c) for storage on the network.
d) are an increasing number of devices that can be connected to the home network.
e) for connecting wireless devices.

8. Read paragraphs 1 and 2 and describe the essence of a home network.

9. Using information of paragraph 3, describe services that can be provided by telephone companies such as AT&T and British Telecom.

10. Make the description of a simple home network using the text and fig. 1.

11. Make an outline of the text.

12. Make a short summary of the text in written form using your outline.

Part B

13. Study the key words and word combinations of the following text. Guess the topical question of it.

Local area network (LAN), wired or wireless LAN, different IEEE protocol, to interconnect local devices, to connect the internet, the defining characteristics of LANs.

14. Read the text and find out the topical sentences of the paragraphs.

15. Find 1 or 2 sentences which can be omitted as inessential in each logical part.

16. Read the text and write out key words and phrases revealing the contents of the text.

Local Area Network

A network covering a small geographic area, like a home, office, or building. Current LANs[1] are most likely to be based on Ethernet technology. For example, a library may have a wired or wireless LAN for users to interconnect local devices (e.g., printers and servers) and to connect to the internet. On a wired LAN, PCs in the library are typically connected by category 5 (Cat5) cable, running the IEEE[2] 802.3 protocol through a system of interconnected devices and eventually connect to the Internet. The cables to the servers are typically on Cat 5e enhanced cable, which will support IEEE 802.3 at 1 Gbit/s. A wireless LAN may exist using a different IEEE protocol, 802.11b, 802.11g or possibly 802.11n. The staff computers can get to the color printer, checkout records, and the academic network and the Internet. All user computers can get to the Internet and the card catalog. Each workgroup can get to its local printer. Note that the printers are not accessible from outside their workgroup.

This is a typical library network, in a branching tree topology and controlled access to resources (fig. 2).

All interconnected devices must understand the network layer (layer 3), because they are handling multiple subnets (the different colors). Those inside the library, which have only 10/100 Mbit/s Ethernet connections to the user device and a Gigabit Ethernet connection to the central router, could be called "layer 3 switches" because they only have Ethernet interfaces and must understand IP. It would be more correct to call them access routers, where the router at the top is a distribution router that connects to the Internet and academic networks' customer access routers.
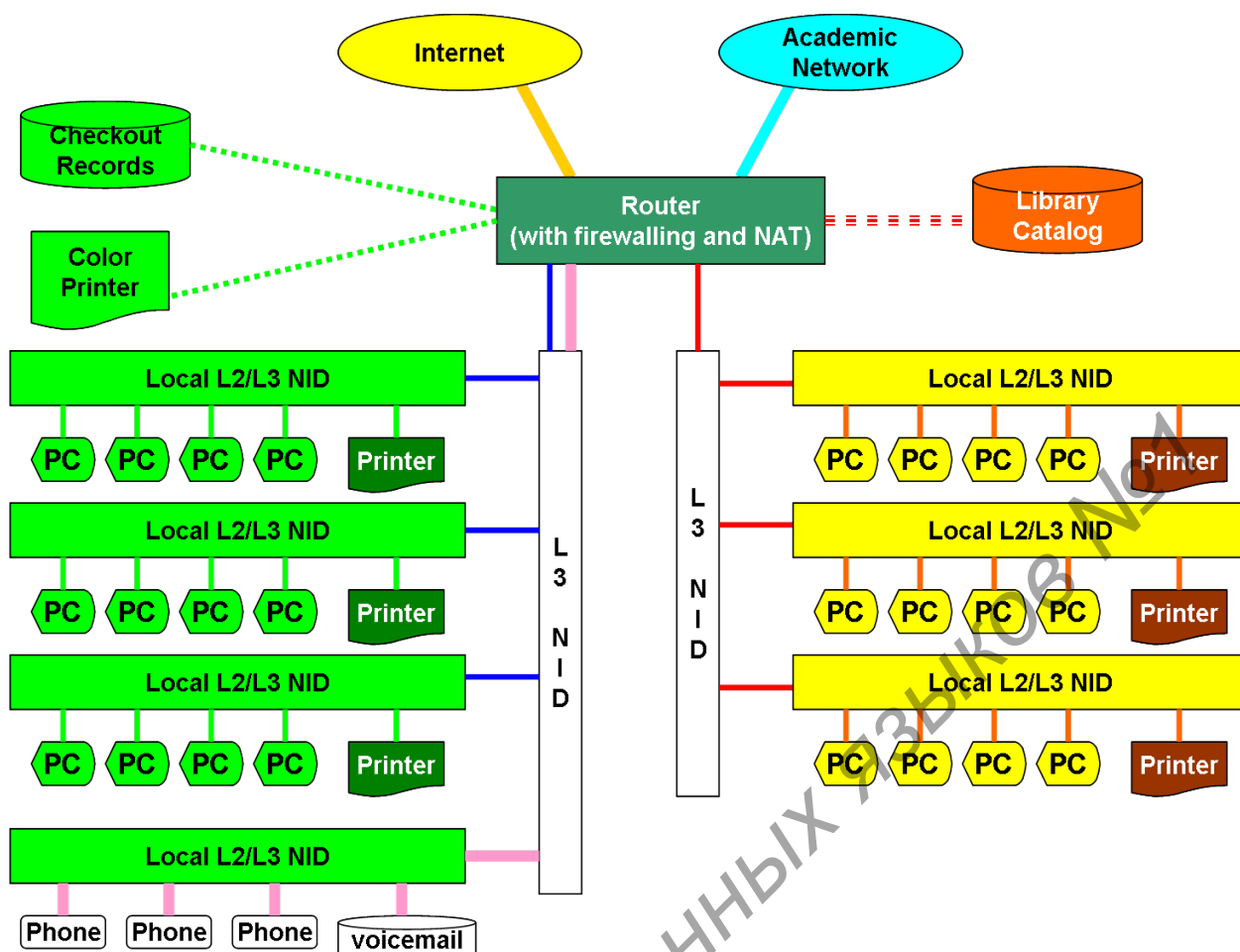
Fig. 2. Library Network

The defining characteristics of LANs, in contrast to WANs (wide area networks), include their higher data transfer rates, smaller geographic range, and lack of a need for leased telecommunication lines. Current Ethernet or other IEEE 802.3 LAN technologies operate at speeds up to 10 Gbit/s. This is the data transfer rate. IEEE has projects investigating the standardization of 100 Gbit/s, and possibly 40 Gbit/s.

Notes:
[1]LAN – local area network – локальная сеть.
[2]IEEE – Institute of Electrical and Electronic Engineers – Институт инженеров по радиоэлектронике.
[3]NAT – network address translation – преобразование сетевых адресов.
[4]Local L2/L3NID – местная сетевая информационная база данных.

17. Sum up the text using the key words and word combinations and the topical sentences.

18. Express your attitude to the facts given in the text. You may use the following phrases:

    – it is full of interesting information … ;
    – I find the text rather/very cognitive … ;
    – I've learnt a lot … ;
    – I don't agree with it … .

19. Say which facts presented in the text you've already been familiar with.

20. Make a questionnaire to the text and interview your partner on the problems raised in the text.

Part C

21. Read the title of the text and say what information is presented in it.

22. Scan the following text and say what problem is described in the text.

Architecture and Context

The PSTN[1] was the earliest example of traffic engineering to deliver Quality of Service (QoS[2]) guarantees. A.K. Erlang (1878 – 1929) is credited with establishing the mathematical foundations of methods required to determine the amount and configuration of equipment and the number of personnel required to deliver a specific level of service.

In the 1970s the telecommunications industry conceived that digital services would follow much the same pattern as voice services, and conceived a vision of end-to-end circuit switched services, known as the Broadband Integrated Services Digital Network (B-ISDN[3]). The B-ISDN vision has been overtaken by the disruptive technology of the Internet. Only the oldest parts of the telephone network still use analog technology for anything other than the last mile loop to the end user, and in recent years digital services have been increasingly rolled out to end users using services such as DSL[4], ISDN[5], FTTX and cable modem systems.

Many observers believe that the long term future of the PSTN is to be just one application of the Internet – however, the Internet has some way to go before this transition can be made. The QoS guarantee is one aspect that needs to be improved in the Voice over IP (VoIP) technology.

There are a number of large private telephone networks which are not linked to the PSTN, usually for military purposes. There are also private networks run by large companies which are linked to the PSTN only through limited gateways, like a large private branch exchange (PBX[6]).

Notes:
[1]PSTN – postal telephone network – почтовая телефонная сеть связи; public switched telephone network – коммутируемая телефонная сеть общего пользования.
[2]QoS – Quality of Service – качество обслуживания.
[3]B-ISDN – the Broadband Integrated Services Digital Network – широкополосная цифровая сеть с интегрированным обслуживанием.
[4]DSL – Digital Subscriber Line – цифровая абонентская линия.
[5]ISDN – integrated-service digital network – интегральная цифровая сеть связи.
[6]PBX – private branch exchange – учрежденческая телефонная станция с исходящей и входящей связью.

23. Find the following information in the text.

1. Digital technology as an advanced technology in the telecommunications industry.

2. The application of the PSTN in the future.

24. Say where the information presented in the text can be used.

UNIT II
SATELLITE AND GROUND SYSTEMS OF MOBILE NETWORK AND BROADCASTING

Part A

Word List

access	//'ҳksҫs///	доступ
affiliate	//'qflllҫlt//	компания-филиал, партнер
alpha-numeric	//"ҳlfqnjН'mҫrlk//	содержащий буквенные и цифровые данные
angle	//'ҳNgl//	угол
cache	//kҳS//	прятать про запас
disseminate	//dl'sҫmlnҫlt//	распространять
gear	//ḡlq(r)//	включаться, приводить в движение
handheld	//'hҳndhҫld//	умещающийся в руке
latency	//'lҫlt(q)nsi//	скрытое состояние
link	//llNk//	канал связи
perigee	//'pҫrldŽi://	перигей
wireline	//'walqlaln//	телефонный кабель

1. Compare the meanings of the following English words with the Russian ones. They may have different meaning.

Class, distribution, equator, generation, geosynchronous, globe, inadequate, location, multi-megabit, orbit, polar, present, sensor, system, terminal, unique, place, transmission.

2. Read the following words in each line and define their roots. Translate the words into Russian:

1) apply, application, applicator;
2) distribute, distribution, distributive, distributor;
3) communicate, communication, communicative, communicator;
4) transmit, transmitter, transmission;
5) generate, generation, generational, generative, generator.

3. Fill in the gaps with words derived from the words in brackets.

1. Geosynchronous systems have several advantages in terms of long satellite life and wide area … (*cover*) by a small number of satellites.

2. OmniTRACS provides two-way communications as well as … (*locate*) positioning.

3. The system is used … (*extensive*) for alphanumeric … (*message*) and on-board sensor reading for trucking fleets.

4. Newer generations of Inmarsats are incorporating … (*digit*) techniques for use with smaller, … (*little*) expensive terminals.

5. The advantages of little LEOs are their small size and … (*relative*) low costs.

6. The system presents considerable challenges for … (*apply*) development.

4. Translate the following sentences paying attention to the words in bold type. What part of speech do they belong to?

1. **However**, LEOs require substantially greater numbers of satellites to provide adequate coverage, and these will need more frequent replacement.

2. Qualcomm's OmniTRACS provides two-way communications **as well as** location positioning.

3. **Beyond** its current ability to distribute digital video, it is ripe for data communications experimentation and pilot applications development.

4. **Unlike** the other mobile satellite systems, DBS is not intended to be used as a two-way system over the satellite segment.

5. The downlink data rate is between 5 Kbps and 15 Kbps **while** the uplink is between 55 bps and 165 bps.

6. The data communications uplink is provided **through** wireline networks such as the public switched telephone system (PSTN) and Internet gateways.

7. These weaknesses are addressed by the low earth orbit systems, which follow elliptical orbits, allowing them to provide reduced delays and better coverage and elevation angles **when** close to their orbital perigee.

5. Read the text and name the key points raised in it.

6. Divide the text into logical parts and entitle them.

7. Choose the adjectives and adverbs used to describe:

    a) the advantages of geosynchronous systems;
    b) the disadvantages of geosynchronous systems;
    c) big LEOs' capabilities;
    d) little LEOs' capabilities.

The Challenges of Satellite Communications Systems

Satellite systems hold forth the promise of true "anywhere, anytime" access to communications, even in the most rural and remote areas of the globe. These systems provide communications coverage over very wide areas, including over the ocean. In general, they fall into three broad classes: geosynchronous (GEO), "big" low earth orbit (LEO), and "little" LEOs.

Geosynchronous systems, in which the satellites maintain a high orbit that keeps them over a fixed spot on the Earth's equator, have several advantages in terms of long satellite life and wide area coverage by a small number of satellites. They have the disadvantages of round trip latencies that exceed a half a second, poor coverage and inadequate elevation angles (to avoid building radio shadows in urban areas) at the high latitudes. These weaknesses are addressed by the low earth orbit systems, which follow elliptical orbits, allowing them to provide reduced delays and better coverage and elevation angles when close to their orbital perigee. However, LEOs require substantially greater numbers of satellites to provide adequate coverage, and these will need more frequent replacement.

Geosynchronous systems include Inmarsat and OmniTRACS. The former is geared mainly for analog voice transmission. Newer generations of Inmarsats are incorporating digital techniques for use with smaller, less expensive terminals (i.e., the size of briefcase). The Inmarsat system uses allocations in the 6 Ghz band for the ground station to the satellite, 1.5 Ghz for the satellite to terminal downlink, 1.6 Ghz for the terminal to satellite uplink, and 4 Ghz for the satellite to ground station.

Qualcomm's OmniTRACS provides two-way communications as well as location positioning. The system operates in the 12/14 Ghz bands. The downlink data rate is between 5 Kbps and 15 Kbps while the uplink is between 55 bps and 165 bps. The system is used extensively for alphanumeric messaging and on-board sensor reading for trucking fleets.

Little LEOs are intended to be relatively small and inexpensive satellites that provide low cost, low data rate, two-way digital communications (but not voice) and location positioning to small, handheld terminals. The frequency allocations are in the VHF band below 400 MHz. The advantages of little LEOs are their small size and relatively low costs. Systems include Leosat, Orbcomm, Starnet, and Vitasat. For example, the Orbcomm system requires 34 satellites for reliable, full world coverage, and provides 2400 bps on the uplink and 4800 bps on the downlink.

Big LEOs are larger, more expensive satellites that provide voice communications as well as moderate to high speed data communications (56 Kbps). Proposals include Aries, Ellipso, Globalstar, Iridium, and Odyssey. Frequency allocations are above 1 GHz. For example, Motorola's Iridium system will offer worldwide cellular phone service from 66 satellites placed in 6 polar orbits.

Of the commercially available GEO systems, the Hughes DBS[1] system provides several unique communications capabilities. Beyond its current ability to distribute digital video, it is ripe for data communications experimentation and pilot applications development. DBS has the potential for multi-megabit per second transmissions, although latencies are high (i.e., greater than 500 ms for the downlink alone).

However, the system presents considerable challenges for applications development. Unlike the other mobile satellite systems, DBS is not intended to be used as a two-way system over the satellite segment; the data communications uplink is provided through wireline networks such as the public switched telephone system (PSTN) and Internet gateways. The DBS is a highly asymmetric communications system that spans hybrid links (i.e., satellite downlink, wired uplink). This makes

DBS a particularly attractive technology for wide-area data distribution or asymmetric data access, in which more information can profitably be broadcast on the downlink than on the uplink.

Notes:

[1]DBS – direct broadcast satellite – спутник прямого вещания.

8. Read the text and write 10 questions on its content. Types of questions:

1. What is the (nature, difference, process, advantage, importance, role, etc.) of …?
2. What is referred to as …?
3. What is used as …?
4. Where do we use …?
5. What function do the satellite systems play?

9. Match the parts to complete the sentences.

1. Little LEOs are intended

2. Newer generations of Inmarsats are intended

3. Geosynchronous systems have several advantages

4. DBS is ripe

5. GEO systems have the disadvantages of round trip latencies that

a) in terms of long satellite life and wide area coverage by a small number of satellites.
b) for data communications experimentation and pilot applications development.
c) exceed a half a second and poor coverage;
d) to be used with smaller, less expensive terminals.
e) to be relatively small and inexpensive satellites that provide low cost, low data rate, two-way digital communications.

10. Arrange the following statements as the text goes.

1. DBS is a particularly attractive technology for wide-area data distribution.
2. LEOs need more frequent replacement and provide adequate coverage.
3. The OmniTRACS is used extensively for alphanumeric messaging and on-board sensor reading for trucking fleets.
4. The advantages of little LEOs are their small size and relatively low costs.
5. Motorola's Iridium system will offer worldwide cellular phone service from 66 satellites placed in 6 polar orbits.
6. Newer generations of Inmarsats are incorporating digital techniques for use with smaller, less expensive terminals.
7. These systems' frequency allocations are above 1 GHz.

11. Express your attitude to the importance of the Hughes DBS system.

12. Make a short summary of the text in a written form. The phrases given below will help you.

1. The paper deals with … .
2. The author attempts to provide … .
3. There exist … .
4. Of prime interest to the reader will be the consideration of … .

5. It is true that … .
6. In conclusion … is (are) given.

Part B

13. Look through the text and note the title which conveys the contents most of all.

1. Satellite Based High Bandwidth Data Broadcast.
2. New Architectures that Provide Services Direct to the Consumer.
3. Future US Military Satellite Communication Systems.
4. Different Generations of Telecommunication Systems.

14. Divide the text into paragraphs. Find 1 or 2 sentences which can be omitted as inessential in each paragraph.

Text B

It is believed that the elements of successful DBS[1] applications include the abilities to (1) exploit high bandwidth downlinks, (2) take advantage of the broadcast nature of the channel, and (3) hide the considerable latencies encountered in using the system. These three issues are addressed in the following paragraphs. A unique aspect of the DBS system is its potential for a very high bandwidth downlink. This makes DBS particularly appropriate for disseminating massive amounts of information. One way that the system could be used is to provide a distribution for large collections of information, such as directories, catalogs, software updates, or other digital library objects that could be locally cached on subscriber systems for better low latency access. The downlink is broadcast-based. Many subscribers can pick packets from the broadcast data stream simultaneously. Thus a broadcast satellite is of consider value as a way to implement a "community information system." For certain kinds of frequently requested information, it should be possible to combine information requests from multiple users. In effect, we trade some latency in order to combine more common results to be broadcast to users, thus more efficiently using the broadcast channel. Furthermore, if request combining can be effectively exploited, the system would be able to support a larger user population within a given amount of available bandwidth. Satellite systems always face significant latencies, but these may be even larger in the DBS system because of the hybrid uplink path. Given the high downlink bandwidth, aggressive prefetching could be cheap operation, and we can trade downlink bandwidth in order to reduce the number of expensive uplink transactions. Alternately, other strategies could be pursued to trade uplink transactions for bandwidth whenever possible. For example, when fetching multiple images in a World Wide Web HTML[2] document, these can be combined into a single multi-image fetch rather than multiple image by image fetches. This is an example of a strategy that can be of equal value in wireline, WLAN[3], or satellite networks: the strategy dramatically reduces the number of TCP[4] transactions needed to fetch an image intense document, which can lead to significantly higher latencies even in networks with symmetric bandwidths. These and other mechanisms must be developed to demonstrate their ability to be effectively used in constructing new kinds of information dissemination applications well suited for satellite networks. These will also be of value in other wireless network environments.

Notes:

[1]DBS – direct broadcast satellite – спутник прямого вещания.

[2]HTML – HyperTexl Markup Language – язык гипертекстовой разметки.

[3]WLAN – Wireless Local Area Network – беспроводная сеть передачи данных.

[4]TCP – transmission control protocol – протокол управления передачей данных.

15. Write out key words and phrases revealing the contents of the text.

16. Ask questions to the text making an outline of it.

17. Sum up the text using the key words, phrases and the outline.

18. Say which facts presented in the text you've already been familiar with.

Part C

19. Read the title of the text and say what information is presented in it.

New Architectures that Provide Services Direct to the Consumer

Traditionally, satellites have been used to advantage primarily for the transport of thin route traffic and the distribution of TV to cable head ends and network affiliates. This is due to the ability of one satellite, located at GEO[1] in particular to provide communications continuity over one-third of the globe. Fiber, on the other hand, is a point-to-point, wide bandwidth medium that typically requires significant traffic to justify its installation. In the past, the customers of satellite service providers have tended to be large businesses, the telecommunications carriers, and TV program distributors. A major change is occurring to include the end consumer in this customer mix, with direct to the home (DTH), direct broadcast satellite (DBS), mobile telephony, and Internet access as the primary services. This change is accelerating as a result of the insertion of new technology onto satellites; namely increased power, phased array antennas, large diameter antennas, multi-spot beam antennas, and on-board processing and switching. These changes allow satellites to be a cost effective competitor to cable TV, cellular telephony, and the high bandwidth Internet service providers in many parts of the world.

The recently proposed satellite based, high data rate Internet services are aiming at a moving target, as the terrestrial network is embracing new technology at an impressive rate. The effective bandwidth of fiber is increasing many-fold with the introduction of dense wavelength division multiplexing (DWDM), and with optical switching and multiplexing approaching commercial viability. In addition, LMDS[2], MMDS[3], cable modem, and xDSL[4] technologies are all vying for this business, to provide high bandwidth services to homes and small businesses, at low cost to the subscriber.

Notes:

[1]GEO – geosynchronous earth orbit – геосинхронная околоземная орбита.

[2]LMDS – Local Multipoint Distribution Service – местная (локальная) многоточечная распределенная служба (связи); беспроводная система связи, или беспроводная модемная служба, функционирующая в диапазоне сверхвысоких частот 26–30 ГГц.

20. Find the following information in the text:

1) traditional communicational services;
2) changes in the field of communication;
3) the recently proposed satellite based services.

21. What can you add to the text using your own experience in the field of providing satellite based services to the consumer?

UNIT III
SYSTEMS OF WIRELESS COMMUNICATION, BROADCASTING AND TELEVISION

Part A

Word List

blurred	/blɛː(r)d/	неясный, туманный; расплывчатый, смазанный
boost	/buːst/	повышать; усиливать
broadcasting	/'brɔːdkɑːstɪŋ/	радиовещание, трансляция; радиопередача
cease	/siːs/	переставать (делать что-либо), прекращать(ся)
clarity	/'klærɪtɪ/	разборчивость, четкость; четкость изображения
deploy	/dɪ'plɔɪ/	использовать, употреблять; развертывать
dissemination	/dɪ'semɪneɪʃ(ə)n/	рассеивание, распространение
facilitate	/fə'sɪlɪteɪt/	облегчать; содействовать; способствовать
fading	/'feɪdɪŋ/	замирание; затухание; плавное снижение уровня громкости
feeder	/'fiːdə/	питатель, фидер; подающий механизм, податчик
flexible	/'fleksəbl/	гибкий
fuzzy	/'fʌzɪ/	размытый, нечеткий

hiss	/hɪs/	шипение, шипящие шумы
incur	/ɪn'kɜː/	вытекать, следовать из
merge	/mɑːdʒ/	слияние, объединение
multiplexed	/'mʌltɪplekst/	с уплотнением, уплотненный; сложный; со сложной структурой
obstacle	/'ɒbstəkl/	неоднородность (в линии передачи); препятствие
overpass	/'əʊvəpɑːs/	преодолевать
pop	/pɒp/	хлопок; щелчок
range	/reɪndʒ/	диапазон; интервал
ratio	/'reɪʃɪəʊ/	отношение, коэффициент
scarce	/skeəs/	недостаточный, скудный
set-top converter box		компьютерная приставка к телевизору
smooth	/smuːð/	гладкий, ровный
sparkle	/'spɑːkl/	блеск, искрение
static	/'stætɪk/	статическая помеха
subscriber	/səb'skraɪbə/	абонент; пользователь
terrestrial	/tɪ'restrɪəl/	наземный
trunk	/trʌŋk/	главная линия
ultimate	/'ʌltɪmɪt/	предельный; максимальный
undertake	/ˌʌndə'teɪk/	предпринимать, совершать
unidirectional	/ˌjuːnɪdaɪ'rekʃ(ə)nl/	однонаправленный
unscramble	/'ʌn'skræmbl/	разлагать на компоненты, составные части
upgrade	/ʌpgreɪd/	модернизировать, совершенствовать, обновлять

1. Define the following words as parts of speech and give the initial words of the following derivatives.

Computerization, entertainment, television, digital, wider, dissemination, user, available, unidirectional, directly, broadcasting.

2. Translate the following international words.

Transform, antenna, horizon, spectrum, information, service, company, consolidate, programming, transmission, pole, provider, pioneer, compression, analog, channel, local, design, centimeter, adaptable, direct.

3. Give Russian words with similar roots.

Traditional, potential, standard, image, cable, combine, converter, modulation, operator, television, system, diameter.

19

4. Match the English equivalents among the words given above exercises 1 – 3.

Изменять, обслуживание, возможность, диапазон, изображение, объединять, передача, полюс, первопроходец, сжатие, приспосабливаемый, прямой, проектировать.

5. Pick out the equivalents of the following words and word combinations in paragraphs 2, 3 of the text below.

Кабельное телевидение, местные программы, абоненты, поддерживать сигнал, однонаправленный, зарывать в землю, компьютерная приставка к телевизору, быстрый прогресс, спутник непосредственного вещания, конкурировать, наземное ТВ-вещание, зеркальная антенна.

6. Fill in the gaps with one of the following words:

high-speed access	broadcasters	potential
problems	cable operators	subscriber

1. There are … that could slow the mass deployment of high-definition television.
2. Television … will have to replace their entire technological base.
3. The … will be allowed to order special programs on a pay-per-view basis.
4. New technologies will make it possible for … to increase their maximum offering of channels from around 125 to around 500.
5. The cable promises … to the Internet.
6. New communication technologies offer the … for a revolution in how everyone on this planet deals with information.

7. Read the following text. Choose the sentences covering the main idea of the text.

Trends in Television

1. Computerization is transforming the world of television news and entertainment. This is evident in the three kinds of television systems available. The first is traditional over-the-air broadcasting, in which analog signals are sent out from land-based towers for reception by antenna of every TV set in area. Now digital television broadcasting is also on horizon. Digital TV has the potential to provide a wider range of channels within the scarce radio frequency spectrum. It also will facilitate the flexible use of that spectrum for delivery of new kinds of services, such as "data-casting" (the dissemination of data messages to multiple users through airwaves) to TV sets or PCs. A related trend concerns picture clarity. Much effort is going into developing high-definition television (HDTV[1]), a new, digital standard providing images five times as rich in information as today's TV pictures.

2. A second kind of service is cable television. Cable television is available in many countries as phone service. Cable TV works this way: the cable company's central office consolidates the transmission, which combines some local programming with transmissions received from satellites. From there it is sent in analog form to subscribers over a unidirectional, tree-and-branch network. Amplifiers boost the signals along trunks and local feeders, which, like telephone lines, are suspended from poles or buried in the

ground. The "drop", usually in the form of coaxial cable, brings the signal to the home, connecting either directly to a "cable-ready" television set or to a set-top converter box. Modulation technologies introduced in the past few years, however, have allowed fiber optic lines to replace coax in the trunk and feeder portions of the system.

3. The third kind of television service in which rapid progress can be seen involves satellites. Direct-broadcast satellites are a form of television transmission that competes with cable and terrestrial broadcasting. The first satellite-broadcast television images were designed for use by cable- and broadcast-TV service providers, but more recently, a high-powered satellite specifically designed for home TV service was introduced; it calls for a far more modest dish that is only 46 centimeters in diameter and costs no more than a few hundred dollars. Since digital compression technology is more easily adaptable to cable transmission, direct-broadcast satellite operators pioneered its use in TV.

Notes:
[1]HDTV – high-definition television – телевидение высокой четкости.

8. Read the following statements and say whether they are true or false. Correct the false ones.

1. There are four kinds of television systems available nowadays.
2. The first traditional over-the-air broadcasting is based on transmission of analog signals.
3. Digital TV doesn't give a wider range of channels.
4. HDTV provides images three times as rich as today's TV pictures.
5. The cable company's central office combines some local programming with satellite transmissions.
6. Amplifiers boost signals along copper wires.
7. The first satellite-broadcast television was specifically designed for its home use.
8. Direct-broadcast satellite operators have begun to use digital compression technology in TV.

9. Match the parts to complete the sentences.

1. Computerization is changing
2. In over-the-air broadcasting
3. Digital TV has the potential
4. The cable company's central office sends programming in analog form
5. Due to modulation technologies
6. Satellite television competes with
7. Direct-broadcast satellite operators pioneered the use of digital compression technology because

a) analog signals are sent out from land-based towers.
b) to subscribers over a unidirectional, tree-and-branch network.
c) the world of television and entertainment.
d) cable and terrestrial broadcasting.
e) it is easily adaptable to cable transmission.
f) to provide a wider range of channels within the scarce radio frequency spectrum.
g) fiber optic lines replaced coax in the trunk and feeder portions of the system.

10. Using information of paragraph 2 speak about the way cable TV works.

11. Make an outline of the text.

12. Make a short summary of the text in written form using your outline.

Part B

13. Study the key words and word combinations of the following text. Guess the topical question of it.

Television system, lines per image, provide, little interference, potentially, picture quality, benefits, smoother motion, richer and more natural colours, prefer high definition to analog, problems, weak signal, double images, picture sparkles, broadcast, upgrade their TVs, switch to, slower undertake.

14. Look at the title. Make your predictions about the contents of the text.

15. Divide the text into logical parts. Entitle each part.

High-Definition Television

High-definition television (HDTV) is a television system that has more lines per picture than present systems, and thus produces much sharper images. At present American TV has 525 lines per image and European TV 625, while high definition systems may have more than 1000. Many observers feel that the battle for high definition TV markets will be the next great world economic battle.

Digital HDTV can provide sharper, clearer pictures and sound with very little interference or other imperfections. Of perhaps greatest importance, digital television sets will potentially be able to send, store and manipulate images as well as receive them, thereby merging the functions of the television set and the computer.

HDTV potentially offers a much better picture quality than standard television. HD's greater clarity means the picture on the screen can be less blurred or fuzzy. It also brings such benefits as smoother motion, richer and more natural colours, and the ability to allow a variety of input devices to work together. With HDTV the lack of imperfections in the television screen often seen on traditional television is another reason why many prefer high definition to analog. Problems such as snow caused from a weak signal, double images from ghosting or multi-path and picture sparkles from electromagnetic interference do not occur with HDTV broadcasts. The colours will generally look more realistic, due to greater bandwidth. The visual information is about 2–5 times more detailed overall. The gaps between scanning lines are smaller or invisible.

However there are some reasons why the best HD quality is not usually achieved. The main problem is a lack of HD input. Many cable and satellite channels and even some "high definition" channels are not broadcast in true HD. Also image quality may be lost if the television is not properly connected to the input device or not properly configured for the input's optimal performance. Moreover viewers will have to upgrade their TVs in order to see HDTV

broadcasts, incurring household expense in the process. Adding a new aspect ratio makes for computer confusion if their display is capable of one or more ratios but must be switched to the correct one by the user. All these moments have led to slower undertake of the technology as many people wait to see what becomes the "ultimate" de-facto standard.

16. Make questions to the text.

17. Find the sentences containing:

a) the main idea of the text;

b) specifying information (technical characteristics of HDTV, potential of HDTV, picture quality, why people prefer high definition to analog, problems facing HDTV operators, reasons for slower undertake of this technology).

18. Sum up the text using the key words, word combinations and the topical sentences.

19. Express your attitude to the facts given in the text. You may use the following phrases:

1. It is full of interesting information … .
2. I find the text rather / very cognitive … .
3. I've learnt a lot … .
4. I don't agree with it … .

Part C

20. Look through the following text, define the information presented in it and entitle the text.

Text C

Audio broadcasting, in which an analog audio signal is converted into a digital signal before being transmitted, is also known as digital audio broadcasting (DAB) and high-definition radio. Digital radio reception is virtually free of static and fading, pops, and hisses; overall, adjacent stations do not interfere within one another, audio clarity and volume are improved, and weather, noise, and other interference cease to be a factor. Digital radio can be land based (or terrestrial) or transmitted via satellite. In either case, a special receiver is required to decode the multiplexed signal; the receiver may contain a small display that provides information about the audio content (such as the name of the artist or title of the music).

The land-based technology was first deployed in Great Britain in 1995, and has since become established throughout Europe. The first satellite-based digital radio system was World Space, which orbited the first of its three geostationary earth orbit (GEO) satellites in 1998. Each satellite transmits three overlapping signal beams carrying more than 40 channels of programming; most of world (except mainly North America and Australia) is covered. In metropolitan areas where tall buildings, overpasses, and other obstacles can interfere with the signals when, for example, the receiver is in a moving vehicle, a network of

ground-based repeaters retransmit the signals. The receiver also buffers the signal briefly so that if it loses the satellite signal it can use one from a repeater to maintain a continuous broadcast.

21. Look through the text and say how digital radio works.

22. Say where the presented information can be used.

UNIT IV
COMPUTER SECURITY

Part A

Word List

abuse	/q'bju:s/	злоупотребление
account	/q'kaunt/	абонемент в он-лайновых службах – запись в базе подписчиков, служащая для идентификации пользователя; учетная запись
authorize	/'O:Tqralz/	разрешать, санкционировать
back up		восстановить предшествующее состояние
client	/'klalqnt/	приложение или машина в сети, использующая ресурсы (сервисы) другой машины или инициирующая запрос к приложению-серверу
confidential	/"kPnfl'denSql/	тайный, конфиденциальный
confirm	/kqn'fq:m/	подтверждать
consent	/kqn'sent/	согласие, позволение, разрешение
damage	/'dxmldZ/	повреждать, портить, наносить ущерб, убыток
entice	/ln'tals/	склонять; соблазнять, убеждать
firewall	/'falqwO:l/	межсетевой экран (МЭ), брандмауэр, защитная система («огненная стена»), система (аппаратная или программная) для защиты от несанкционированного попадания в сеть или предупреждения выхода из нее пакетов данных
harm	/hQ:m/	вред, убыток, урон, ущерб (in; to); причинять вред, наносить ущерб
host	/hqust/	главная вычислительная машина
identify	/al'dentlfal/	идентифицировать, отождествлять; распознавать

malicious	/məˈlɪʃəs/	злоумышленный, злонамеренный
monitor	/ˈmɒnɪtə/	осуществлять текущий контроль, контролировать
penetrate	/ˈpenɪtreɪt/	проникать внутрь, проходить сквозь
pertinent	/ˈpɜːtɪnənt/	относящийся к делу
pop-up		поп-ап, всплывающая реклама (в интернет-рекламе), сама по себе открывающаяся в новом окне, «выскакивающем поверх» всех остальных открытых окон
secure	/sɪˈkjuə/	безопасный, надежный
share	/ʃeə/	совместно использовать ресурс
sophisticated	/səˈfɪstɪkeɪtɪd/	усовершенствованный (о приборе, машине, системе и т. п.)
spyware	/ˈspaɪweə/	«шпионящее» ПО (передает данные с жесткого диска компьютера пользователю на другом компьютере)
surreptitious	/ˌsʌrəpˈtɪʃəs/	тайный, сделанный тайком
threat	/θret/	опасность, угроза
vulnerable	/ˈvʌlnərəbl/	уязвимый; ранимый
worm	/wɜːm/	червь (программа, самостоятельно распространяющая свои копии по сети)

1. Translate the following words which may have some similarity with the words in Russian but often differ in meaning.

Regular, share, provider, online banking, identity, data, security, pretend, transfer, release, prevent, safe, spam, prevent, software, cracker, virus, directory, infect, surf, confidential.

2. Read the following words in each line and define their part of speech. Translate the words into Russian.

1) administer, administrator, administration, administrative;
2) prevent, preventive, prevention;
3) define, definition, definite, indefinite;
4) protect, protection, protective, protector;
5) provide, provision, provider;
6) serve, server, service;
7) detect, detection, detector, detected, detectable;
8) spy, spyware, anti-spyware, espionage;
9) safe, safety, safely;
10) suspect, suspicion, suspected;
11) secure, security, insecure, secured.

3. Match the following terms with their definitions.

1) spyware	a) freeware of deliberately poor quality with some, but generally not all, of the features of a software application, intended to entice those who download the freeware to buy the complete application;
2) nagware	b) copyrighted software given away for free by the author. The author retains the copyright, which means that you cannot do anything with it that is not expressly allowed by the author. Usually, the author allows people to use the software, but not sell it;
3) adware	c) malicious software that has been designed (programmed) specifically to damage or disrupt a computer system. The most common forms of malware are computer viruses, worms, and Trojan horses;
4) malware	d) software characterized by frequent updates, fixes, and patches;
5) software	e) any software that covertly gathers user information through the user's Internet connection without his or her knowledge, usually for advertising purposes;
6) freeware	f) the term given to software that routinely issues a pop-up window or other form of visual interface asking the user to register a product, purchase an application or take another form of action;
7) baitware	g) a general term used to describe a collection of computer programs, procedures and documentation that perform some tasks on an operating system;
8) dribbleware	h) any software package which automatically plays, displays, or downloads advertisements to a computer after the software is installed on it or while the application is being used. Some types of it are also spyware and can be classified as privacy-invasive software.

4. Translate the following sentences paying attention to the words in bold type.

1. Unfortunately when something is shared, it is open to **abuse.**
2. Your goal is to prevent others from **accessing** your data remotely.
3. You can also set the firewall to ask for your **confirmation** before granting access to an unknown program.
4. The leading threats to the security of your computer come from four types of **malicious software**.
5. Spyware **tracks** your online activity.
6. A good antivirus program will continually **monitor** all of your file transfers.
7. Password will prevent **unauthorized parties** from opening your desk or laptop and looking through your files.
8. It is a software program that **is designed** to search through your hard drive, CD's and floppy disks for any known or potential viruses.
9. One of the biggest mistakes that many PC users make is that they fail to back up **pertinent information**.

5. Complete the following sentences filling in one of the words given below:

worm, by default, antivirus software, phished, hacker, password, virus, updated, attacked

1. Unless your computer is used exclusively on a mountain top in Outer Mongolia and never exchanges information of any sort with any other computer, anywhere, it is likely to be … by a virus program soon.

2. With very few exceptions, a computer without … … is just like a car without brakes – it simply isn't safe.

3. Even if you aren't running a web server – be sure to keep your system … with the latest patches – the security of your system depends on it!

4. … is a program or piece of code that is loaded onto your computer without your knowledge and runs against your wishes. Viruses can also replicate themselves.

5. … … Windows XP doesn't ask for any login information or make you authenticate yourself in any way in order to access the system.

6. Whatever you do, NEVER make your … from a word that appears in a dictionary.

7. The term … refers to individuals who gain unauthorized access to computer systems for the purpose of stealing and corrupting data.

8. A … is a special type of virus that can replicate itself and use memory, but cannot attach itself to other programs.

9. The golden rule to avoid being … is to never click the links within the text of the e-mail. Always delete the e-mail immediately.

6. Read the text and arrange the following items of the outline in accordance with the text.

1. Computers have become widely used because of significant changes in computer technologies.
2. You must protect your PC.
3. Threats you face working in the internet.
4. Firewalls as one of the first means of protecting your PC.
5. Back up your stuff to be on the safe side.
6. Types of malicious software.
7. Antivirus software and its function.
8. Good passwords can make your PC more secure.

Computer Security

Computer technology has changed a lot over the past 20 years. People who would normally never touch a computer now utilize such a device almost every day to get their work done. They use e-mail and surf the web regularly.

When you are connected to the Internet you are sharing a vast network with hundreds of millions of other users. This shared network provides resources that 15 years ago were never thought possible. Unfortunately when something is shared, it is open to abuse. On the Internet this abuse comes from hackers and virus creators. Their sole intent is to cause chaos and/or harm to your computer system and millions of other computer systems all over the world. 20 years ago this may not have been as much of a problem, but in today's world of online banking and identity theft, this can be a huge problem.

It is in fact a horrifying moment when a computer user realizes that a virus has managed to penetrate his or her CPU system and destroyed years of data and hard work. In an effort to minimize the probability of having to experience such a stressful moment you must take care of your PC and protect it.

Start with the software changes. Your goal is to prevent others from accessing your data remotely. A combination of computer firewalls and antivirus PC security software can take your sensitive information from unprotected to secure with very little effort. A firewall can be considered your first line of defense when connected to the internet. In order for information that is behind a firewall to be sent or received from your computer, permission must be granted by the firewall. You can set up your firewall to always grant access to programs you trust and always block access to programs you do not trust. You can also set the firewall to ask for your confirmation before granting access to an unknown program.

It is important to be aware of the different types of viruses that exist and also to know how they work in order to be able to protect your PC.

The leading threats to the security of your computer come from four types of malicious software: viruses – software designed to invade computers and to copy, damage or delete data; worms – sophisticated viruses that can reproduce themselves and spread to other computers without your interaction; Trojans, named for the Trojan horse, – viruses that pretend to be helpful programs while destroying your data, damaging your computer and stealing personal information; spyware – software that tracks your online activity. Activity Spyware may bombard you with pop-up advertising, collect your personal information, or change the settings on your computer without your knowledge or consent.

Most computer users have now installed in their computer's memory certain antivirus software protecting their computer from viruses that are transmitted over the internet and through file exchanges. A good antivirus program will continually monitor all of your file transfers.

Anti-virus is a vaccine. Its purpose is to protect your computer from unwanted harmful software implanted on your computer unknowingly. It is a software program that is designed to search through your hard drive, CD's and floppy disks for any known or potential viruses.

However, it is still advisable to fully scan your entire system for viruses once a week. You can schedule this scan to run automatically while you are asleep or away from home. You will also need to sign up for automatic updates to the antivirus program, as new viruses are released daily.

Another useful step is to use strong passwords. Set an administrative password even if you are the only user of your computer. This will prevent unauthorized parties from opening your desk or laptop and looking through your files. Passwords should be easy to remember but difficult to guess. Change them regularly, and use passwords that contain numbers and characters rather than easy to guess names and words. Whatever you do, NEVER make your password from a word that appears in a dictionary. Password cracking tools are everywhere, and if your password can be found in a dictionary or is a very common word, a password cracker can easily find it and use it

against you. Use readily available utilities, like cracker, that will identify all insecure passwords quickly and easily. If you want to allow house guests or friends to use your computer, create a separate guest account that does not have administrator access. Check online at Microsoft.com for instructions on setting up accounts or ask a computer-savvy friend for help.

One of the biggest mistakes that many PC users make is that they fail to back up pertinent information. Make a hardcopy of this information and keep it in a secure location. To be on the safe side, make a rule for yourself to back up your stuff.

7. Match the letter of the correct answer to the following questions.

1. Why has internet become so widely used by people all over the world?
   a) because those who would never touch a computer now utilize their computer for surfing in the Internet;
   b) because it is possible to share a network with hundreds of millions of other users;
   c) because Internet provides services and access to unlimited resources of the WWW.
2. What are the threats of work at the Internet connected with?
   a) Internet is full of chaos;
   b) You will have to change your PC software;
   c) It is open to abuse of different kinds.
3. What are hackers' and crackers' aims?
   a) to make Internet more effective;
   b) to minimize the possibility of stressful moments connected with the consequences of their PC infection;
   c) to harm your computer or get profit using the information stored at your computer.
4. What is the primary purpose of installing firewalls at your PC?
   a) to give access to all programs trying to reach your CPU system;
   b) to control the information sent from your computer;
   c) to get maximum control of the information sent and received from your computer denying access to ambiguous programs.
5. What are the viruses spread for?
   a) for their reproduction and improving the performance of users' computers;
   b) for getting access to other users' computers in order to damage, destroy or steal personal information;
   c) only for playing jokes.
6. Why is antivirus software often called a "vaccine" for your computer"
   a) because it helps you to update your computer;
   b) it makes your computer friendly to viruses;
   c) it serves for protecting your computer from any known harmful programs that can creep in without your knowledge.
7. What kind of passwords are better?
   a) names and dates of birth as they are easy to remember;

b) short number codes;

c) a combination of numbers, characters and symbols as they are more difficult to devise.

8. *Read the following sentences and say which of them are true or false.*

1. People use Internet only for gaming.

2. There is nothing to care about getting connected to the Internet.

3. Some 20 years the problem of Internet security was not as much of a problem.

4. It is a great fun to find the results of your hard work destroyed or corrupted.

5. Installing firewalls, antivirus software and using good passwords are minimum things one should take care of to protect his PC.

6. Malicious software makes the operation of your PC more effective.

7. Spyware implanted at your computer lets you keep track of other users' online activities.

8. Worms are viruses that remain resident in one computer.

9. To provide greater safety passwords should be as simple as possible.

10. There is always sense to make hardcopy of your most important information.

9. *Think of the tips you would give to a beginner on the ways to secure his PC while working at the Internet.*

Part B

10. *Read the title of the following text. Make your predictions about the contents of the text.*

What is Spyware?

In simplest terms, spyware is a type of malware that watches what users do with their computer and sends this information to the creator (or occainsionally a hacker) over the internet. Generally, different types of spyware collect different information about a user. Less harmful programs attempt to track what websites a user visits, sending this information to an advertisement agency. More malicious programs may try recording what a user types to intercept passwords or credit card numbers, sometimes referred to as keyloggers. Other spyware programs simply launch pop-ups with advertisements. This type of malware may also be referred to as adware.

Originally, spyware just referred to malicious software that spied on (or monitored) the user, sending information back to its creator. More recently users have come to use the term spyware regarding any software that does any sort of spying to benefit a third party. This includes adware and keyloggers, amongst other types of malware that monitors the user or allows full or partial control of a computer system's operation to a remote user without the consent of the machine user (such as Trojan horses).

Unlike viruses and worms, spyware does not usually self-replicate. Spyware may exploit known weaknesses in computer security or be installed by free software (freeware), infecting computers for commercial gain. Spyware typically does this by displaying unsolicited pop-up advertisements (sometimes to coercing the user into

buying an anti-spyware product created by the same person(s) that made the spyware), theft of personal details (such as stealing usernames, passwords, and credit card numbers), monitoring of Web-browsing activity (for marketing purposes), or simply routing HTTP requests to advertising sites.

Spyware is currently one of the major security threats to computers running Microsoft Windows OSs. As Microsoft's internet browser, Internet Explorer, is closely tied in with the OS, when a security vulnerability is exploited through Internet Explorer, the operating system itself may be exploited. Due to the fact that Microsoft Windows series of OSs are widely used, the vulnerabilities found in windows systems are often exploited as there is usually more chance of finding an unpatched system running Windows at random than finding, for example, an unpatched OS/2 system. To prevent this, use an alternative browser like Firefox or any other one.

Notes:
[1]OS – Operating System – операционная система.
[2]HTTP – HyperText Transfer Protocol – протокол передачи гипертекста.

11. Read the text and find out the topical sentences of the paragraphs.

12. Write out key words and phrases revealing the contents of the text.

13. Divide the text into logical parts. Entitle each part.

14. Find 1 or 2 sentences which can be omitted as inessential in each logical part.

15. Find the paragraph in the text which describes the ways of coercing into consenting installation of a program.

16. Sum up the text using the key words and word combinations and the topical sentences.

17. Say which facts presented in the text you've already been familiar with. Do you consider the information presented in the text useful?

18. Using internet, find some information on anti-spyware programs and present it in class.

Part C

19. Look through the following text and title it.

Text C

What else is left now that you have a virus scanner and an application to help keep track of the spyware that can affect your machine? A firewall of course! A firewall is a device or a program that helps stop other users from getting into your computer. Every user should know at least something about firewalls, as they can be the extra layer of security that protects you while you're online. If you were infected with a trojan horse program, there is a chance that it can let someone take complete control of your PC as though they were sitting at their keyboard! These programs work by opening up a port on your computer and then allowing anyone with the client to connect to it and gain control of your computer.

Imagine you were doing some home banking over the internet and someone was watching the whole time. To make matters worse, some of these applications have a mechanism that's built into them that lets the thief delete the server portion of the trojan, which means that you would never even know that it was there.

One way to help stop this from occurring is by using the anti-virus software that can find and delete trojan programs for you. When you use firewall software, it asks you if you want to allow a program to access the internet in the first place. This will stop such trojan programs from talking to whomever controlled them. Another thing these firewalls can do is prevent inbound traffic to your machine. The trojan programs have both inbound and outbound traffic to and from your PC as commands are sent to your PC. Worms that spread over the internet use outbound traffic to scan and send themselves out to other hosts. This is only one of the many features a firewall provides to you, and I highly recommend using one.

If you have Windows XP, you should have installed Service Pack 2, which fixed a number of security flaws, but also put something called the "security center" on your machine. This helpful new application checks to see what it can do to protect you, and the new XP firewall that comes bundled is turned on by default!

20. Find the following information in the text:

– what is meant by "firewall";
– examples of grave consequences caused by malicious software;
– ways of combating virus programs.

21. Think of the tips you would give your friend to make his computer secure.

22. Devise your ABC rules for unsophisticated PC users. Include tips that refer not only to software but hardware security as well.

UNIT V
RECENT TECHNOLOGIES IN TELEPHONY

Part A

Word List

application	/ˌæplɪˈkeɪʃn/	применение, приложение, использование
allow	/əˈlaʊ/	позволять, разрешать, давать возможность
available	/əˈveɪləbl/	имеющийся в распоряжении, доступный
increasingly	/ɪnˈkriːsɪŋlɪ/	все более, все в большей степени
cancel	/ˈkænsl/	аннулировать, отменять, отказаться
instead	/ɪnˈsted/	вместо, взамен
significant	/sɪgˈnɪfɪkənt/	важный, существенный

reduce	/rɪˈdjuːs/	снижать, уменьшать, сокращать
receive	/rɪˈsiːv/	получать, встретить
bandwidth	/ˈbændwidθ/	ширина полосы частот
therefore	/ˈðeəfɔː/	по этой причине, следовательно
high-tech	/ˈbændwidθ/	высокотехнологичный
base station	/ˈbeɪs ˈsteɪʃ(ə)n/	базовая станция
switch	/swɪtʃ/	свитч
broadband	/ˈbrɔːdbænd/	широкополосный
wireless	/ˈwaɪəlɪs/	беспроводной
ensure	/ɪnˈʃuə/	гарантировать

1. Match the following English words with the Russian equivalents and compare their meanings.

1) available   a) вместо
2) therefore   b) беспроводной
3) significant   c) следовательно
4) connect   d) увеличение
5) instead   e) способный
6) reduction   f) существенный
7) wireless   g) доступный
8) increase   h) соединять
9) accept   i) снижение
10) capable   j) принимать

2. Define the following words as parts of speech and give the initial words of the following derivatives.

Increasingly, connection, significant, receiver, transmitter, application, wireless, specification, manufacturer, technically, interconnect.

3. Read the following words in each line and define their roots. Translate the words into Russian:

1) increasingly, increase, increasing;
2) advanced, advance, advancing;
3) reduced, reducer, reduction;
4) application, applied, applicable, applicant;
5) provided, provision, provider;
6) connective, connection, connected, connectedly.

4. Pick out the equivalents of the following words and words combinations in paragraphs 3 of the text below.

Все более популярный, замещать, взамен, главная причина, значительные, дешевле, позволяя, по более низкой цене.

5. Read the following text. Choose the sentences covering the main idea of the text.

What is VoIP?

Many people are asking the question "What is VoIP[1]?" nowadays as it seems to have come out of nowhere. Voice over Internet Protocol (VoIP) is a technology and an emerging set of applications which allow you to make phone calls over a Broadband Internet connection. VoIP can be used to call any telephone anywhere in the world. It doesn't matter if the person you are calling has VoIP or not, as this is all taken care of by your VoIP Service Provider. VoIP telephone calls can be made either by using a Personal Computer (PC) connected to the Internet, or by a standard telephone which will need to be connected to the Internet using a special adapter. Also, newer IP/Broadband Telephones are available, which can connect directly to a cable modem or Internet router.

When you make a VoIP telephone call and begin to speak, the first step is to convert the analogue signal of your voice into digital data. This is done with an Analogue-to-Digital Converter. The next step is to compress the audio data using a codec (enCOder/DECoder) which significantly reduces the amount of digital data while maintaining audio quality. The compressed digital data can now be sent over the Internet. The data stream must be divided into smaller chunks, known as 'packets' which, besides containing the audio data, contains information about the origin, the destination, and a timestamp that allows it to be reconstructed in the correct sequence.

Over the last few years, VoIP has become increasingly popular and is already starting to replace existing telephone networks, with some people and businesses choosing to cancel their traditional phone line and use VoIP instead. The main reason people and businesses are switching over to VoIP is because of the significant cost savings that can be made over a traditional service provider. Long distance and international calls are much cheaper, and VoIP Service providers do not have the extra burden and costs to maintain the exiting telephone networks, allowing them to provide their services at greatly reduced costs.

VoIP provides similar features to traditional phone systems, such as voicemail, call forwarding, call waiting, caller ID, call blocking etc. VoIP also offers new features which do not currently exist on traditional phone systems, for example, the ability to have a virtual number – a telephone number from any available area code. This allows you to receive calls from people outside your local calling area with the caller paying only for a local call.

The increases in Internet bandwidth, when combined with the advances of audio compression and machine speed have allowed VoIP services to be capable of a high quality, sometimes even better than the PSTN (Public Switched Telephone Network). However, many users are also likely to accept a drop in quality for the benefit of free long distance calls that using VoIP gives you. This being the case, an even wider range of people are able and likely to use these systems. It is not surprising therefore that VoIP is increasingly being used today.

Notes:
[1]VoIP (IP-телефония) – система связи, обеспечивающая передачу речевого сигнала по сети Интернет или другим IP-сетям.

6. Read the following statements and say whether they are true or false. Correct the false ones.

1. VoIP can be used to call any telephone anywhere in the world.
2. The person you are calling needs to have VoIP.
3. VoIP telephone calls can be made only by using a Personal Computer connected to the Internet.
4. When you make a VoIP telephone call the first step is to convert the digital signal of you voice into analogue data.
5. VoIP has become increasingly popular and is starting to replace existing telephone networks.
6. VoIP offers new features. One of them is the ability to have a virtual number.
7. Long distance and international calls are more expensive when using VoIP.

7. Match the parts to complete the sentences.

1. VoIP is a technology which allows you…	a) that can be made over a traditional service provider.
2. VoIP telephone calls can be made either by using …	b) do not currently exist on traditional phone systems, for example, the ability to have a virtual number.
3. The main reason people are switching over to VoIP is because of the significant cost savings…	c) to make phone calls over a Broadband Internet connection.
4. VoIP provides new features which…	d) a personal computer connected to the Internet, or by a standard telephone line linked up to the Internet using a special adapter.

8. Read paragraph 2 and describe the essence of making a VoIP telephone call.

9. Using the information of paragraphs 3 and 4, name the advantages of making a VoIP telephone call.

10. Make an outline of the text.

11. Make a short summary of the text in written form using your outline.

Part B

12. Read the text and write out key words and phrases revealing the contents of the text.

13. Find the paragraph in the text which describes the main possibilities Bluetooth provides.

14. Divide the text into logical parts.

Bluetooth

Bluetooth is a wireless communication technology facilitating data transmission over short distances from fixed and mobile devices, creating wireless personal area networks. Bluetooth provides a way to connect and exchange information between computers, printers, GPS receivers, digital cameras, etc.

The Bluetooth specifications are developed and licensed by the Bluetooth Special Interest Group, which consists of companies in the field of telecommunication, computing, networking and consumer electronics.

The name "Bluetooth" itself does not have any significance in relation to any of its functions or its purpose. "Bluetooth" is called after Danish King Herald Blätand who lived in the 10th century and united Denmark and Norway in 976 AD. In English, Blätand transformed into Bluetooth.

Bluetooth can be found in such devices as telephones, modems and headsets to transfer information between two or more devices that are near each other in low-bandwidth situation.

A master Bluetooth device can communicate with up to seven devices. This network group of up to eight devices is called a piconet. A piconet is a computer network, using Bluetooth technology protocols to allow one master device to interconnect with up to seven active devices.

The Bluetooth specification allows connecting two or more piconects together to form a scatternet, with some devices acting as a bridge by simultaneously playing the master role in one piconet and the slave role in another.

Any Bluetooth device will transmit the following information on demand: the name of the device, its class, list of services, technical information, for example, device features, manufacturer, Bluetooth specification used.

15. Make questions to the text.

16. Find the sentences containing:

– the main idea of the text;
– the origin of the name "Bluetooth".

17. Express you attitude to the facts given in the text. You may use the following phrases:

1. It is full of interesting information… .
2. I find the text rather/very cognitive… .
3. I've learnt a lot… .
4. I don't agree with it… .

18. Say which facts presented in the text you've already been familiar with.

Part C

19. Look through the following text, *define the information presented in it and entitle the text.*

Text C

Third Generation (3G) is a name for a set of mobile technologies, which use a host of high-tech infrastructure networks, handsets, base stations, switches and other equipment to allow cell phones to offer broadband wireless internet access, data, video, live TV & CD-quality music services.

On the CDMA[1] platform the equivalent 3G networks are called CDMA-2000. 3G is turning phones and other devices into true multimedia players, making it possible to download media rich content and do full-scale banking on the move. Japan was the first country to introduce 3G with the service there being called the Freedom of Mobile Multimedia Access.

That uses wideband code division multiple access (W-CDMA[2]) technology to transfer data over its networks. W-CDMA is not the only 3G technology. Others include CDMAOne, which differs technically, but provides similar services. The 3G services & phones are expensive and uptake of this market is expected to be slow.

Micro payments will be possible via cell phones. The device will include the calendar, radio, MMS[3], video, TV, banking, camera, music and so on. A live video-conference will ensure that 3G users don't need to be in office. Some of these services are provided by existing networks but slow transfer speeds limit the possibilities.

Today there are over 70 commercial 3G operators around the world with the service being popular in Japan, Sweden, the UK, Denmark and Australia.

Software developers are working on what they call Deep 3G, that is the future standard higher than 3G also called as 3.9G or 4G.

Notes:

[1]CDMA – Code Division Multiple Access – множественный доступ с кодовым разделением каналов.

[2]W-CDMA – Wideband CDMA – широкополосный CDMA.

[3]MMS – Multimedia Message Service – служба передачи мультимедийных сообщений.

20. Find the following information in the text:

– the name of the country which was the first to introduce 3G technology;
– the possibilities 3G technology gives to the users.

21. Prove the following point of view: 3G technology is popular all over the world.

UNIT VI
METROLOGY

Part A

Word List

available	/ǝ'veɪlǝbl/	доступный
beneficial	/ˌbenɪ'fɪʃǝl/	полезный, выгодный
comparison	/kǝm'pærɪsn/	сравнение
competitive	/kǝm'petɪtɪv/	соревнующийся
establish	/ɪs'tæblɪʃ/	учреждать, устанавливать
facilitate	/fǝ'sɪlɪteɪt/	облегчать
humidity	/hjuː'mɪdɪtɪ/	влажность
implementation	/ˌɪmplɪmen'teɪʃn/	выполнение
length	/leŋθ/	длина
limit	/'lɪmɪt/	ограничить
litigation	/ˌlɪtɪ'geɪʃn/	тяжба
measurement	/'meʒǝmǝnt/	измерение, pl. размеры
metrology	/me'trɒlǝdʒɪ/	метрология
mole	/mǝul/	моль, молекула
precursor	/priː'kɜːsǝ/	предшественник
recognize	/'rekǝgnaɪz/	узнавать, признавать
require	/rɪ'kwaɪǝ/	требовать
sweep	/swiːp/	мести
traceability	/ˌtreɪsǝ'bɪlɪti/	отслеживаемость
weight	/weɪt/	вес
yield	/jiːld/	приносить, давать, уступать

1. Define the following words as parts of speech and give the initial words of the following derivatives.

Measurement, scientific, quantitatively, qualitatively, acceptance, relatively, metrological, regional, standardized, applied, commonality, available, implementation, acceptance, definition, specification, executive, responsibility.

2. Fill in the gaps with words derived from the words in brackets.

1. The earliest forms of metrology were set up by … (*region*) authorities.

2. Metrology was necessary for the … (*implement*) of mass …. (*product*), … (*equip*) commonality.

3. Metrology was thus one of the precursors to the … (*Industry*) Revolution.

4. Many inventions made it easier to … (*quantity*) or … (*quality*) assess physical properties.

5. The discovery of many fundamental … (*science*) principles could be applied to standards of measurement.

6. Metrology was necessary for the … (*implement*) of mass … (*produce*).

38

3. Find words and phrases in the text which mean:

1) the science of measurement;
2) a measure of length that is the basic unit in the metric system;
3) a unit of measurement of molecular weight;
4) the act of measuring or the process of being measured;
5) an arrangement of workers, machines and equipment in which the product being assembled passes from operation to operation until completed;
6) completeness of the information about every step in a process chain;
7) the base unit of mass equal to 1.000 grams;
8) ancient times.

4. Translate the following sentences paying attention to the words in bold type.

1. The earliest examples of these **standardized measures** are length, time, and weight.

2. Many inventions made it easier to **quantitatively or qualitatively assess** physical properties, using the defined units of measurement established by science.

3. Metrology was thus one of the **precursors** to the Industrial Revolution.

4. This system has gained unprecedented **worldwide acceptance** as definitions and standards of modern measurement units.

5. These units are then established and maintained through various agencies in each country, and establish a hierarchy of measurement standards that **can be traced back** to the established standard unit, a concept known as **metrological traceability**.

5. Read the text and name the key points raised in it.

History of Measurement

Metrology has existed in some form or another since antiquity. The earliest forms of metrology were simply arbitrary standards set up by regional or local authorities, often based on practical measures such as the length of an arm. The earliest examples of these standardized measures are length, time, and weight. These standards were established in order to facilitate commerce and record human activity.

Little progress was made with regard to proto-metrology until various scientists, chemists, and physicists started making headway during the Scientific Revolution. With the advances in the sciences, the comparison of experiment to theory required a rational system of units, and something more closely resembling modern metrology began to come into being. The discovery of atoms, electricity, thermodynamics, and other fundamental scientific principles could be applied to standards of measurement, and many inventions made it easier to quantitatively or qualitatively assess physical properties, using the defined units of measurement established by science.

Metrology was thus one of the precursors to the Industrial Revolution, and was necessary for the implementation of mass production, equipment commonality, and assembly lines.

Modern metrology has its roots in the French Revolution, with the political motivation to harmonize units all over France and the concept of establishing units of measurement based on constants of nature, and thus making measurement units available "for all people, for all time". In this case deriving a unit of length from the dimensions of

the Earth, and a unit of mass from a cube of water. The result was two platinum standards for the meter and the kilogram established as the basis of the metric system on June 22, 1799. This further led to the creation of the International System of Units. This system has gained unprecedented worldwide acceptance as definitions and standards of modern measurement units. Though not the official system of units of all nations, the definitions and specifications of SI[1] are globally accepted and recognized. As early as the 1950s, businesses worldwide determined that there was a need to bring unity to measurement in the manufacturing process. As a result, the International Organization of Legal Metrology was created in 1955. Today, dozens of countries are members of the organization and share a common goal, to unify manufacturing and business throughout the world. The SI is maintained under the auspices of the Meter Convention and its institutions, CGPM[2], its executive branch CIPM[3], and its technical institution BIPM[4].

As the authorities on SI, these organizations establish and promulgate the SI, with the ambition to be able to service all. This includes introducing new units, such as the relatively new unit, the mole, to encompass metrology in chemistry. These units are then established and maintained through various agencies in each country, and establish a hierarchy of measurement standards that can be traced back to the established standard unit, a concept known as metrological traceability.

Notes:
[1]SI – the International System of Units – система единиц (СИ).
[2]CGPM – the General Conference on Weights and Measures.
[3]CIPM – the International Committee for Weights and Measures – Международный комитет мер и весов.
[4]BIPM – the International Bureau of Weights and Measures – Международное бюро мер и весов.

6. Choose the correct answer to the following questions.

1. What were the earliest forms of metrology?
   a) meter and kilogram;
   b) the mole;
   c) arbitrary standards set up by local authorities.
2. What were the earliest examples of standardized measures?
   a) length, time, and weight;
   b) the length of an arm;
   c) atoms, electricity, thermodynamics.
3. What was the concept of the French Revolution?
   a) to establish the metric system;
   b) to harmonize units all over France and to establish units of measurement based on constants of nature;
   c) to create the International System of Units.
4. When were the standards for meter and kilogram established?
   a) on June 22, 1979;
   b) on June 22, 1799;
   c) on June 22, 1977.

5. The International Organization of Legal Metrology was created in:
   a) 1799;
   b) 1955;
   c) 1957.

7. Read the following statements and say whether they are true or false. Correct the false ones.

1. The standards of length, time and weight were established in order to facilitate commerce and record human activity.

2. During the Scientific Revolution scientists, chemists, and physicists made little progress in metrology.

3. Kilogram is a unit of mass from a cube of oil.

4. Metrology is vital for the implementation of mass production, equipment commonality, and assembly lines.

5. One of the aims of modern metrology is to make measurement units available "for all people, for all time".

6. The International Organization of Legal Metrology was created in 1958 to bring unity to measurement in the manufacturing process.

7. SI introduced the relatively new unit, the mole, to encompass metrology in chemistry.

8. Metrological traceability is the property of the result of a measurement whereby it can be related to standards, through a chain of comparisons.

8. Match the parts to complete sentences.

1. The comparison of experiment to theory required…

2. Metrology was one of the predecessors to …

3. The concept of establishing units of measurement led to the creation of …

4. The definitions and specifications of SI are…

5. In 1950s there was a need…

a) the Industrial Revolution.

b) globally accepted and recognized.

c) to bring unity to measurement.

d) a rational system of units.

e) the International System of Units.

9. Read the text. There are 4 paragraphs in it. Match an appropriate title with the corresponding paragraph. One title is odd.

   1) The subfields of metrology;
   2) The concept of metrological traceability;
   3) The origin of metrology;
   4) Modern metrology and its institutions;
   5) Metrology and the Scientific Revolution.

10. Make the description of traceability. Use information in the text.

Part B

11. Look through text B and choose the title.

    1) Branches of Metrology;
    2) Metrology Conventions;
    3) Mechanical Metrology.

12. Divide the text into logical parts. In each part find the key sentence.

13. Find the paragraph in the text which describes electromagnetic metrology.

Text B

With so many countries competing for the market share of manufacturing business, metrology is essential to keep the market competitive. Having unified measurements can help with repair costs in the future and ensure that products can be used worldwide without difficulty. Many organizations hold international conventions where metrology members can share ideas and concerns, and compare notes. These metrology conventions are becoming a popular means for unifying the wide array of measurements used throughout the world.

Electromagnetic metrology members spend their time unifying the measurements for radio waves, temperature, humidity, radioactivity, DC frequency, fiber optics, photometry, and ionizing radiation. Those who participate in electromagnetic metrology work toward creating a unified version of electrical voltage and currents. Without electromagnetic metrology, every country creating parts for electronic equipment would use different electrical measurements. Products would break down easily or fail to work. Accurate measurements of temperature and humidity are also necessary to prevent energy waste in heating and cooling products.

Over the past decade, there has been an increased need for metrology in chemistry labs. Metrology of chemistry makes it possible to create strong processes for quality control of many goods manufactured worldwide. As pollution controls increase, there is an intense need to regulate worldwide emission controls. Metrology of chemistry helps ensure that different countries utilize chemicals in a manner that protects the environment. Chemistry metrology helps define standards to be used in gas/air mixtures, gas analyzers, inorganic materials, spectrometry, and microanalysis.

Mechanical metrology concentrates on standardizing acoustics, force/pressure, vibration, volume, density, and dimensions. As Asian companies begin sweeping the country in terms of inexpensive manufacturing, other companies are relying on mechanical metrology to help them compete. With a set of standards in place, customers can buy products from any country and know they will be getting parts with universal measurements. This helps keep repair costs competitive.

14. Name the main problems discussed in the text.

15. Find the sentences containing information about a unified version of electrical voltage and currents and pollution control.

16. Express your attitude to the facts given in the text. You may use the following phrases:

1. It is full of interesting information… .
2. I find the text rather/very cognitive… .
3. I've learnt a lot … .
4. I don't agree with it … .

17. Make a questionnaire to the text and interview your partner on the problem raised in the text.

Part C

18. Read the title of the text and say what information is presented in it.

19. Scan the following text and say what problem is described in the text.

Metrology in Society

Sufficiently correct measurements are essential to commerce. About nine out of every ten people working in metrology specialize in commercial measurement, most at the technician level. Correct measurements are beneficial to manufacturing, but other methods are available and sometimes are more appropriate.

Metrology has thrived at the interface between science and manufacturing. Aerospace, commercial nuclear power, medicine, medical devices and semiconductors rely on metrology to translate theoretical science into mass produced reality.

The basic concepts of metrology are deceptively simple. Metrology is seldom recognized for its significance and is rarely taught in a systematic manner above the technician level. Within most businesses, metrology core beliefs such as recording all setups and observations for possible future reference are opposed to the general business practice of minimizing recordkeeping to limit litigation effects.

The nature of engineering and engineering education in general is changing. Judgment development will replace skills conclusively yielded to computers between 1960 and 2000. Hopefully, metrology will take its rightful place in judgment development in the future.

20. Say where the presented information can be used.

21. Speak on one of the following points to your partner.

1. Correct measurements are beneficial to manufacturing.
2. Metrology has thrived at the interface between science and manufacturing.
3. Metrology is seldom recognized for its significance.
4. The role of metrology in judgment development.

UNIT VII
WIRELESS AND WIRED NETWORKS

Part A

Word List

accomplish	/q'kРmpllS/	выполнять, совершать
bandwidth	/'bхndwidT/	полоса частот, полоса пропускания, ширина полосы
branch	/brQ:ntS/	отделение, филиал, подразделение
forgo	/fО:'gqu/	отказываться, воздерживаться
deploy	/dl'plРl/	развертывать, использовать
dial-up	/'dalqlАp/	дисковый набор
eliminate	/l'llmlnelt/	устранять, исключать
emerge	/lmq:dZ/	появляться, возникать
foot the bill	/'futРq'bll/	брать расходы на себя, расплачиваться
gobble	/'gРbl/	поглощать
intercept	/'lntqsept/	перехватывать (сигнал), добывать незаконным путем (информацию)
intrude	/ln'tru:d/	вторгаться
linger	/'llNgq/	засиживаться, задерживаться
obstruction	/qb'strАkSqn/	препятствие, затруднение
outlet	/'autlet/	торговая точка, магазин
power drain	/'pauq'dreln/	потребление мощности
sophisticated	/sq'flstlkeltld/	сложный, современный, передовой
stall	/stО:l/	останавливаться, стопориться
tech-savvy	/'tek'sхvl/	сообразительный, находчивый, смышленый
vendor	/'vendО:/	продавец, торговец
Wi-Fi hot sport		точка беспроводного доступа в Интернет

1. A. Complete the parts of the table where you see dots (…).

Verb	Noun	Noun agent	Adjective
to connect	…	…	…
…	…	supporter	…
…	…	…	productive
…	installation	…	
…	…	subscriber	
to apply	…		…
…	encryption	…	
…	…	employer	…
to deploy	deployment		…

…	…	provider	
to receive	…	…	…
…	intrusion	…	
to intercept	…	…	…
…	…	…	maintainable

B. Complete the table below.

accomplish	
	operation
construct	
	decryption
add	
involve	
	emergence
allow	
require	
	prevention

2. Translate the following sentences paying attention to the words in bold type.

1. Virtual Private Networks (VPNs) also prevent the data from being **intercepted** by unauthorized third parties.

2. Small businesses can install either a software-based VPN on their servers or an appliance that requires minimal IT skills for installation and **maintenance**.

3. Some vendors offer easy-to-use **plug-n-play appliances** that don't require sophisticated skills to install and maintain them.

4. You are using VPNs because you want **round-the-clock access** to your company data.

5. Subscribing to VPN services also **eliminates** the need for any internal IT staff to manage the VPNs.

3. Find out the equivalents to the following words and word combinations in paragraphs 2 and 3 of the text below.

Кодирование, удаленный, обеспечивать, рентабельный, сеть общего пользования, вторжение, предрасположенный, дорогостоящий, выполнять, дополнительный уровень, поэтому.

4. Match the words with their definitions.

1) VPN

2) remote access

3) encrypting

4) download

5) firewall

a) a new network technology that supports multiprotocol virtual networks;

b) to copy or transfer (data or a program) into the memory of one's own computer from another computer or the Internet;

c) a network that uses the Internet to transfer information using secure methods;

45

6) tunneling protocol	d) a computer system that isolates another computer from the Internet in order to prevent unauthorized access;
	e) an access to a computer from a physically separate terminal;
	f) putting (a message) into code.

5. Read the text and find the definition of a VPN.

6. Read the subtitles and name the key points raised in the text.

What is a VPN?

1. As prices come down, virtual private networks are becoming a good small business option to connect remote employees. It's easy to spend half the time out on the road these days. But to do business, you need access to applications and documents back on the company network. And you need them via remote access that won't compromise security or break the bank.

2. Thankfully, secure, cost-effective remote communication can be accomplished via a virtual private network (VPN). A VPN is a private network that connects a remote computer to the home network via a public network such as the Internet. Using a public network like this makes the operation much less costly and therefore more affordable for small or mid-size businesses than constructing a private network.

3. Yet even on the Internet, which is prone to intrusion and hacking, VPNs ensure privacy via encryption technology, tunneling protocols, and security procedures. "In effect, the protocols, by encrypting data at the sending end and decrypting it at the receiving end, send the data through a 'tunnel' that cannot be 'entered' by data that is not properly encrypted", says Paul Stamp, of Forrester Research, a Cambridge, Mass. research firm. "An additional level of security involves encrypting not only the data, but also the originating and receiving network addresses".

Connecting remote employees

4. Many businesses are using virtual private networks to connect remote employees. According to the Gartner group, of Stamford, Conn., small businesses rate security technologies among the top three IT initiatives in the past year. More small businesses will increase their spending on security software this year than all other software categories, according to Forrester.

5. Small businesses can use the VPNs to access their IT systems remotely in a secure manner, says Anil Miglani, senior vice president of AMI Partners, of New York, a research company. "Thus, employees can connect to their e-mail as well as other business applications and also download data from their company servers even while traveling or working from home", he says. "Similarly, small businesses can transfer data to and from their branches in a safe and secure manner. This increases productivity and also lowers the total costs".

6. VPNs allow only authorized users to access the company data and also prevent the data from being intercepted by unauthorized third parties. "In an era when

businesses are trying to increase their productivity while also ensuring the security of their data, VPNs have emerged as a critical tool", Miglani says.

What to look for in VPNs

7. VPNs come in different forms. Small businesses can install either a software-based VPN on their servers or install an appliance that requires minimal IT skills for installation and maintenance. Also, businesses can forgo on-site VPNs altogether and subscribe to VPN services offered by third parties.

Miglani offers advice for what a small business should look for when deploying a VPN:

– **ease of use**. There are many vendors that offer easy-to-use plug-n-play appliances that don't require sophisticated IT skills to install and maintain them;

– **security**. Install a firewall to increase the security. Most VPNs do come with firewalls;

– **monitoring**. Make sure that your VPN service provider offers 24x7 monitoring and management;

– **customer support**. Make sure that the service provider offers 24x7 customer support. You are using VPNs because you want round-the-clock access to your company data. If something goes wrong, you shouldn't have to wait for the problem to be resolved;

– **capacity**. Make sure that the solution will support the number of users your business has and will also support the required bandwidth to support all those users;

8. In addition, telecom companies offer VPN services as a subscription. "Subscribing to VPN services allows small businesses to minimize their upfront costs and also eliminates the need for any internal IT staff to manage the VPNs", Miglani says.

7. Read paragraph 3 and explain how a VPN ensures the security of information.

8. Look through paragraph 7 and say what a small business should take into consideration when deploying a VPN.

9. Match the letter of the correct answer to the following questions.

1. Why are VPNs getting a good option for small businesses?
   a) because the prices rise;
   b) because VPNs are attractive for employees;
   c) because the costs decrease.
2. What do small businesses use VPNs for?
   a) to hire new personnel;
   b) to increase productivity;
   c) to invest money in modern IT technologies.
3. How can a VPN provide secure access to the company servers?
   a) by encrypting data;
   b) by decrypting data at the receiving end;
   c) by the interception of the incoming information.
4. What does subscribing to VPN services allow small businesses to do?
   a) to use VPN services free of charge;

b) to lower their upfront expenses;

c) to have quick but limited access to the company data.

10. Read the following statements and say whether they are true or false.

1. A virtual private network can provide secure, cost-effective remote communication.

2. A VPN, using the Internet, makes the operation more expensive and more affordable for small and mid-size businesses.

3. Privacy of VPNs is ensured by encryption technology, tunneling protocols and security procedures.

4. The protocols send only the properly encrypted data through the channel.

5. Only authorized users have access to the company data via VPNs.

6. Few VPNs are sold with firewalls.

11. Match the parts to complete the sentences.

1. Many businesses are using virtual private networks	a) you want round-the-clock access to your company data.
2. Make sure a VPN will also support	b) applications and documents back on the company network.
3. You are using VPNs because	c) while traveling or working from home.
4. To do business you need access to	d) to connect remote employees.
5. Employees can connect to their e-mail and other business applications	e) 24×7 monitoring and management.
6. Make sure that your VPN service provider offers	f) the required bandwidth to support all the users.

12. Make an outline of the text.

13. Using the information from the text speak about a VPN and its importance for a small business.

Part B

14. Look at the title. Make your predictions about the contents of the text.

15. Read the text and write out key words and phrases revealing the contents of the text.

16. Divide the text into logical parts. In each part find the key sentence.

17. Find sentences which can be omitted as inessential in each logical part.

Why Wi-Fi?

By Anne Stuart

Unless you've been living under a rock for the past year or so, you've seen the term "Wi-Fi". You've probably figured out that it's shorthand for "wireless fidelity". You may even know that it's got something to do with accessing the Internet or a private network through the air instead of through cables.

What you're probably still wondering is: Why should I care?

Because chances are that, within the next year or so, you'll use Wi-Fi regularly at work, at home, or on the road. You may well depend on Wi-Fi as much as you do on your cell phone, your laptop computer, or your personal digital assistant (PDA[1]).

In fact, all those devices increasingly come ready to work with Wi-Fi. That means the next time you invest in hardware, you're likely to invest in the Wi-Fi label as well. So it makes sense to learn what Wi-Fi does well – and where it still needs work.

Wi-Fi refers to products certified to work with the high-tech industry's global standard for high-speed wireless networking. Hardware carrying the Wi-Fi logo has passed rigorous testing by the Wi-Fi Alliance, a trade association based in Mountain View, Calif. Certification means that, regardless of which company manufactured it, the equipment should play nicely with other Wi-Fi devices and networks.

As Wi-Fi compatibility grows – to date, the alliance has certified nearly 865 products – so has its popularity. Currently, about 4.7 million Americans regularly use Wi-Fi, according to Stamford, Conn.-based research group Gartner Inc. In four years that figure will grow to 31 million users in the United States alone.

Why is Wi-Fi so widespread and what's in it for businesses?

It's fast. Wi-Fi's latest version is many times faster than DSL or cable connections, and literally hundreds of times faster than those old dial-up connections. That's particularly handy when you're working on the run, on the road, or from home. If you've ever watched seconds tick by while watching Web pages load, you'll appreciate the potential productivity gain.

It's convenient. As soon as a Wi-Fi-equipped device is within range of a base station, it's online. With no wires, you can move your laptop computer from place to place – for instance, from your office to a conference room down the hall – without losing your network connection. When traveling, you can set up shop any place equipped with a Wi-Fi network: another company's office, a hotel room, or a convention center.

It's everywhere. Public Wi-Fi access sites – or "hot spots" – are spreading very fast. They're in bookstores, airport lounges, fast-food restaurants (including some McDonald's and Schlotzky's Deli outlets), and coffee shops (including many Starbucks outlets). In addition, local merchants from Cincinnati to Athens, Ga., to Portland, Ore., are footing the bill for bigger hot spots, accessible throughout a business district or neighborhood.

Some companies charge for hot-spot use; others offer free access. All hope they're creating environments where tech-savvy customers will linger – and, presumably – spend more money on coffee, books, sandwiches, or whatever the hot-spot host sells. Does the idea pay off? Overall, it's too early to tell. Ultimately, the answer will affect how fast the public hot-spot market heats up. Recently, IDC, the Framingham, Mass.-based research company, estimated that the number of commercial Wi-Fi sites would grow 57 % annually over the next five years – but warned that the market is young, volatile, and based on unproven business models. In other words, if hot spots don't generate revenue, expect that growth rate to stall.

For all its wonders, the Wi-Fi world comes with some drawbacks. Among them:

Range: Although you lose the wires, you're still limited to the base station's range, typically 75 to 150 feet indoors and a few hundred feet outdoors, depending on equipment, radio frequency, and obstructions.

Power drain: Networks using early versions of Wi-Fi technology tend to quickly gobble power – a disadvantage for battery-dependent laptop users.

Interference: Nearby microwave ovens and cordless phones, particularly older models, can slow down Wi-Fi transmissions.

Security: Here's the downside of providing fast, easy access: outsiders can sometimes get into your wireless networks as fast and easily as you can. Check with hardware vendors about the latest security precautions and products. The Wi-Fi Alliance currently recommends using Wi-Fi Protected Access (WPA[2]) technology, which both authenticates users and encrypts data. Look for even tougher security measures within the next year.

Notes:
[1]PDA – personal digital assistant – персональный секретарь, карманный компьютер.
[2]WPA – Wi-Fi Protected Access – защищенный беспроводной доступ в Интернет.

18. Explain what Wi-Fi means and why it is so widespread.

19. Make questions to the text.

20. Name the disadvantages of Wi-Fi at the present moment.

21. Say what new information you have learnt from the text.

22. Sum up the text using the key words and word combinations and the topical sentences.

Part C

23. Look through the following text, define the information presented in it and entitle the text.

Text C

More than 50 percent of small companies operate local area networks to help them do business more efficiently. Should you invest in a LAN or outsource?

A local area network (LAN) is a collection of computers and other devices connected to each other to enable communication and sharing. Small and mid-size firms that outgrow a few PCs and the physical sharing of disks often upgrade to LANs in order to facilitate collaboration and the sharing of business tools.

LANs started in the early 1980s as a way to share documents and printers easily. On a LAN, not every worker needs his or her own printer – one printer can serve a workgroup or office. By hitting "print" from within Microsoft Word, for instance, the print request travels across the network to the shared printer.

In the same fashion, an application running on one computer – dubbed a server – can be shared among computers, sometimes called clients. The server becomes a location where files are stored, applications are centrally managed, and access to files and resources is granted only to those who have the proper rights.

A LAN has the distinction of being in a smaller area – hence the name local – and that makes it ideal for a small business. When a computer network extends beyond a building or a campus or a small area via telecommunication lines, it becomes a wide area network (WAN).

Before wireless technology made untethered communication possible, LANs were created by using cables to connect computers to each other. Now, LANs are often a combination of wired and wireless connections.

A LAN comprises the software that allows the sharing of applications and devices, and also the hardware, meaning the physical connections. Most networks are linked using Ethernet cable, which operates at various speeds, from ten megabits per second to up to ten gigabits per second. Other hardware components of a LAN are hubs, bridges, and routers. A hub consolidates the connection of various computers into a central location.

Ethernet cable has physical limitations – the signal traveling over the wires can lose its integrity if the distance is too far. Bridges help extend and segment the network. And routers determine where requests are going and speed them to their destination.

More than 53 percent of small businesses have adopted some form of a LAN, says Laurie McCabe, vice president of AMI Partners, a New York-based research firm. Of those small businesses that are using LANs, 76 percent are using a server-based network, as opposed to a peer-to-peer network, where PCs are connected and share resources without a central server.

At some small businesses, a LAN is built the way it has been for decades: a server or servers run software and manage user accounts. But the notion of a LAN is changing, says Michael Dortch, principal business analyst with the Robert Francis Group. Businesses are considering moving away from physically running and managing applications on a server in the office, and instead paying someone to run the applications for them. The concept of a server is still there, only the server may be in another city or country. The connections from desktop PC, or client, to the server are Internet connections, not wired ones.

"SMBs[1] don't want or need LANs, any more than they want or need PCs", Dortch says. "What they want and need is simple, consistent, affordable access to the IT-empowered tools and resources that help them to do business effectively and successfully. Growing numbers of SMBs are looking to hosted services as alternatives to physical LANs they have to implement and manage themselves".

Notes:
[1]SMB – small-to-medium business – малые и средние предприятия.

24. Find the following information in the text:

1) what LAN is;
2) how LANs work;
3) why LANs work for small businesses.

25. Say what you have learnt about LANs.

UNIT VIII
MULTICHANNEL COMMUNICATION SYSTEMS

Part A

Word List

alleviation	/ə"li:vɪ'eɪʃn/	облегчение; смягчение
amplifier	/'æmplɪfaɪə/	усилитель; линза
band	/bænd/	полоса частот
coherence	/kəu'hɪərəns/	связь; сцепление; связность
comprise	/kəm'praɪz/	включать; заключать в себе
conventional	/kən'venʃənl/	обычный
crosstalk	/'krɒs"tɔːk/	перекрестные помехи
deploy	/dɪ'plɔɪ/	развертывание; развертывать; приводить в действие
designated	/'dezɪgneɪtld/	определяемый, назначенный
deviation	/"di:vɪ'eɪʃn/	отклонение; отступление
domain	/dəu'meɪn/	домен, зона
implementation	/"implɪmen'teɪʃ(ə)n/	выполнение, осуществление
embodiment	/ɪm'bɒdɪmənt/	воплощение; олицетворение; объединение
enhance	/ɪn'hɑːns/	увеличивать; усиливать
feasible	/'fi:zəbl/	выполнимый; осуществимый; исполнимый
impairment	/ɪm'peəmənt/	ухудшение; повреждение
induced	/ɪn'djuːst/	вызванный; вынужденный
multiplex	/'mʌltɪpleks/	многократный; сложный; составной
orthogonal	/ɔː'θɒgənl/	прямоугольный; ортогональный

1. Define the following words as parts of speech and give the initial words of the following derivatives.

Conventional, employer, carrying, emitted, systems, amplifier, development, modulated, internationally, converting, increasing, frequencies, transparency, significantly, requirement, useful, particularly.

2. Read the following words in each line and define their roots. Translate the words into Russian:

1) currently, current, currency;
2) optical, optics, optician;
3) plurality, pluralism, plural;
4) interconnected, interconnect, interconnection;
5) modulate, modulation, module;
6) converting, convertible, convertibility, converter, convert;

7) compensation, compensator, compensative, compensate;
8) conventional, conventionalism, conventionality, conventionalize;
9) frequency, frequentative, frequenter, frequent;
10) separate, separation, separatism, separator.

3. Fill in the gaps with words derived from the words in brackets.

1. Wavelength division multiplexed (WDM) communication systems though … (*significant*) enhancing capacity of communication networks have certain technical limitations.

2. Broadening the spectral band of the optical amplifier … (*requirement*) new types of amplifiers operating in a wider band than conventional erbium-doped fiber amplifiers (EDFAs).

3. To reduce spacing between WDM channels, new WDM transmitters, multiplexers and demultiplexers should be … (*use*) with narrower transmission band and tight performance specifications which are not commercially available at this time.

4. The effect of four-wave mixing is … (*intensify*) as the number of equally spaced channels increases and as the power per channel increases.

5. Nonlinear effects in the optical link, … (*particular*) four-wave mixing, cause channel crosstalk and lead to significant performance degradation for the overall system.

4. In paragraphs 1 – 4 find the words similar in meaning to the following ones.

One, nowadays, connections, filament, great number, include, embrace, different, turning into, use, development.

5. Read the text and name the problems considered in it.

Methods of Multiplexing Data

1. Conventional optical fiber communications systems employ optical fibers to transport information in optical telecommunication networks. An electrical signal carrying information is used to modulate the light emitted by an optical source, typically a laser diode. The modulated light is then propagated through an optical fiber link comprising, in modern systems, at least one erbium-doped fiber amplifier (EDFA[1]) and, in some systems, dispersion compensation modules (DCM[2]). The light emerging from the optical fiber link illuminates an optical detector converting the information encoded on the optical signal back into an electrical signal. In early development stages of optical communication systems, the only way to increase the bit rate was to increase the modulation speed of the laser. In the later evolution of multichannel fiber transmission systems, two distinct methods of multiplexing data have been introduced: wavelength division multiplexing (WDM[3]) and coherence division multiplexing (CDM[4]).

2. Currently, WDM communication systems are the only multichannel optical systems deployed commercially. To increase the optical fiber capacity, WDM communication systems employ multiple lasers and wavelength-selective passive components to multiplex and demultiplex a plurality of distinct optical channels onto a single fiber. A plurality of laser sources, each modulated by a single information channel, have distinct frequencies lying on an internationally agreed

frequency grid, and are typically separated by 50, 100 or 200 GHz within the transparency range of the optical fiber.

3. A traditional WDM communication system comprises a plurality of WDM transmitters, a wavelength division multiplexer and a wavelength division demultiplexer interconnected by an optical link, and a plurality of WDM optical receivers.

4. Each WDM transmitter operating at a specified distinct wavelength is capable of accepting an electrical input carrying an information channel. If the information channel is coded in an optical domain, then the optical signals have to be converted into an electrical domain by plurality of transponders to drive WDM transmitters. The number of individual information channels in modern WDM communication systems varies from 8 to 128.

5. A conventional optical link comprises one or more spans. Each span customarily comprises at least one optical amplifier (EDFA), a segment of optical fiber, and, optionally, a dispersion compensation module (DCM). The number of spans depends on the WDM system design and length of the transmission line. For a conventional long haul link, each span has a length of between 80 and 120 km. The maximum length of a link, which is determined by the requirement to regenerate the optical signal, is typically about 600 km. The multiplexed optical signal transmitted via the optical link is routed to the wavelength division demultiplexer for demultiplexing back into individual channels. In each individual channel, the optical signal is received and detected by a respective WDM receiver. A number of WDM receivers corresponds to the number of WDM transmitters. Each WDM optical receiver detects the respective optical signal and processes it to provide recovered clock and data for the subsequent system electronics.

6. WDM communication systems though significantly enhancing capacity of communication networks have certain technical limitations. To add more WDM channels to the system, one has to broaden the optical bandwidth determined by the spectral band of the optical amplifier, or reduce spacing between the adjacent channels. Broadening the spectral band of the optical amplifier requires new types of amplifiers operating in a wider band than conventional EDFAs. To reduce spacing between WDM channels, new WDM transmitters, multiplexers and demultiplexers should be used with narrower transmission band and tight performance specifications which are not commercially available at this time. In multichannel WDM systems, a substantial inventory of spare parts is required with specific optical characteristics, such as WDM transmitter wavelength. Beyond these technological difficulties, there are principal limitations, such as nonlinear effects and optical dispersion. Nonlinear effects in the optical link, particularly four-wave mixing, cause channel crosstalk and lead to significant performance degradation for the overall system. The effect of four-wave mixing is intensified as the number of equally spaced (in frequency) channels increases and (or) as the power per channel increases. Non-zero fiber dispersion is vital for minimization of nonlinear effects. In some types of the optical fiber, such as Dispersion Shifted Fiber (DSF[5]) having low dispersion in the range of 1550 nm, multichannel WDM transmission is not feasible.

Notes:
[1]EDFA – erbium-doped fiber amplifier – усилитель на оптическом волокне, легированном ионами эрбия.

[2]DCM – dispersion compensation modules – модуль компенсации дисперсии.

[3]WDM – wavelength division multiplexed – мультиплексирование (мультиплексированный) с разделением по длине волны.

[4]CDM – coherence division multiplexed – мультиплексирование (мультиплексированный) с разделением по когеренции.

[5]DSF – dispersion shifted fiber – волокно со смещенной дисперсией.

6. Match the letter of the correct answer to the following questions.

1. What do conventional optic fiber communication systems employ to transport information in optical telecommunication networks?
   a) a metallic waveguide;
   b) atmosphere;
   c) optical fibers.

2. What is used to modulate the light emitted by an optical source?
   a) magnetic field;
   b) an electrical signal carrying information;
   c) radioactive isotopes.

3. What does the light emerging from the optical fiber link illuminate?
   a) an oscillator;
   b) radioactive material;
   c) an optical detector.

4. What was the only way to increase the bit rate in early development stages of optical communication systems?
   a) to increase the modulation speed of the laser;
   b) wavelength division multiplexing (WDM);
   c) coherence division multiplexing (CDM).

5. What communication systems are the only multichannel systems deployed commercially nowadays?
   a) coherence division multiplexing (CDM);
   b) dispersion compensation modules (DCM);
   c) wavelength division multiplexing (WDM).

7. Read the following statements and say whether they are true or false. Correct the false ones.

1. Nowadays WDM communication systems are not the only multichannel optical systems used commercially.

2. To reduce the optical fiber capacity, WDM communication systems use a lot of lasers and wavelength-selective passive components to multiplex and demultiplex a plurality of distinct optical channels onto a single fiber.

3. A conventional WDM communication system consists of a plurality of WDM transmitters, a wavelength division multiplexer and a wavelength division demultiplexer interconnected by an optical link, and a plurality of WDM optical receivers.

4. Each WDM transmitter operating at a specified distinct wavelength can accept an electrical input carrying an information channel.

5. If the information channel is coded in an optical domain, then the optical signals do not have to be turned into an electrical domain by plurality of transponders to drive WDM transmitters.

6. The number of individual information channels in modern WDM communication systems varies from 8 to 64.

8. Match the parts to complete the sentences.

1. A conventional optical link comprises

2. WDM communication systems though significantly enhancing capacity of communication networks have

3. Each span customarily comprises at least

4. For a conventional long haul link, each span has a length of

5. The number of spans depends on

6. A number of WDM receivers corresponds to

7. The maximum length of a link, which is determined by the requirement to regenerate the optical signal, is typically

a) one optical amplifier (EDFA), a segment of optical fiber, and, optionally, a dispersion compensation module (DCM).

b) about 600 km.

c) certain technical limitations.

d) the WDM system design and length of the transmission line.

e) the number of WDM transmitters.

f) between 80 and 120 km.

g) one ore more spans.

9. Using information of paragraphs 1 – 4, name advantages of a WDM communication system.

10. Make an outline of the text.

11. Make a short summary of the text in written form using your outline.

Part B

12. Scan the text and choose the best title for it.
1. The advantages of WDM systems.
2. The advantages of the present invention.
3. The advantages of optical devices.
4. The advantages of CDM channels.

13. Read the text and find out the topical sentences of the paragraphs.

Text B

In the present invention, the system and method employing both wavelength and coherence division multiplexing address the limitations of the existing WDM technology. The invention utilizes the benefits of existing WDM systems and enhances their capacity to a theoretical limit. It is a principal advantage of the present invention that impairments of WDM and disadvantages of CDM communication systems are substantially diminished or eliminated by loading one or more WDM transmission

channels with a plurality of CDM transmission channels, and using an optical spectral range of one WDM channel for transmitting multiple CDM channels.

It is yet another significant advantage of the method and system of the present invention that the overall count of transmission channels is substantially increased, and the number of CDM channels added or dropped can be varied without changing the WDM physical infrastructure.

It is still another important advantage of the present invention that it utilizes a specially designed broadband optical source characterized by substantial noise reduction compared to the conventional broadband source used in the conventional CDM communication systems.

The invention provides a multichannel optical communication system for transmitting optical signals via an optical fiber. The system comprises a plurality of individual WDM transmission channels. A desired number of individual WDM transmission channels of this plurality is selected for transmission of WDM optical signals. Each WDM optical signal is transmitted via respective WDM transmission channel on a unique wavelength within a designated bandwidth. At least one WDM channel is assigned to transmit CDM optical signals. For CDM transmission, a CDM transmission unit is disposed within this at least one WDM transmission channel. The CDM transmission unit comprises one or more CDM transmission channels for transmitting CDM optical signals within the designated bandwidth of assigned at least one individual WDM transmission channel.

A broadband optical source significantly different from conventional broadband sources is used for transmitting CDM optical signals within one WDM transmission channel. According to one embodiment of the present invention a broadband optical source having continuous spectrum within one WDM channel comprises a semiconductor optical amplifier (SOA) for reducing relative intensity noise (RIN) originated from beating between different frequency components of this spectrum. According to another embodiment of the present invention a broadband optical source with reduced RIN has a discrete spectrum with equally spaced individual spectral lines wherein spacing between the spectral lines exceeds an electrical detection bandwidth of transmitted CDM optical signals.

The invention provides a method of multichannel optical transmission via optical fiber. According to the method, a plurality of individual WDM transmission channels is provided. A requested number of individual WDM transmission channels are selected for transmitting WDM optical signals. At least one WDM transmission channel is selected for transmitting CDM optical signal within a designated range of wavelengths assigned to this channel. A light beam is generated by a broadband source within the spectral range of this WDM transmission channel. This beam is split into a plurality of optical paths, one path chosen as a reference path, and other paths assigned to CDM transmission channels. In each CDM channel, the light beam is phase modulated and delayed by several coherence times relative to the reference path and other CDM channels. At the output of the optical link WDM and CDM channels are demultiplexed, and information channels detected.

14. Name the main problems of the text.

15. Make questions to the text.

16. Express your attitude to the facts given in the text. You may use the following phrases:

    1. It is full of interesting information… .
    2. I find the text rather / very cognitive… .
    3. I've learnt a lot … .
    4. I don't agree with it… .

17. Say which facts presented in the text you've already been familiar with.

18. Give your point of view on the possibility of using presented in the text information in your future profession.

Part C

19. Scan the following text and say what problem is described in it. Entitle the text.

20. Read the text and arrange the following items of an outline:

    a) Advantages of OFDM;
    b) Frequency division multiplexing;
    c) FDM Applications in Industry;
    d) Orthogonal Frequency Divison Multiplexing (OFDM).

Text C

Digital communications systems require each channel to operate at a specific frequency and with a specific bandwidth. In fact, communication systems have evolved so that the largest amount of data can be communicated through a finite frequency range. Frequency division multiplexing (FDM[1]) and orthogonal frequency division multiplexing (OFDM[2]) are able to effectively utilize the frequency spectrum. OFDM systems are currently being implemented in some of the newest and most advanced communications systems.

Frequency division multiplexing (FDM) involves the allocation of each channel to a unique frequency range. This frequency range prescribes both the center frequency and channel width (bandwidth). Because these channels are non-overlapping, multiple users can operate concurrently simply by using different channels of the frequency domain. Note that each channel operates a different carrier frequency and that these channels are bandlimited to operate within a defined bandwidth.

It is important to note that the implementation of a pulse-shaping filter allows each channel to be bandlimited to a specific frequency range.

FDM is commonly used in a variety of communications protocols including Bluetooth and cellular protocols such as GSM[3], TDMA[4], and CDMA[5]. Bluetooth, a digital communications protocol that is utilized by cell phones, laptops, and PDA's, is one example. It operates in the 2.4 GHz unlicensed band and implements FDM by

defining 79 channels from 2.402 GHz to 2.480 GHz which are spaced at 1 MHz apart. Each channel is bandlimited through the implementation of a Gaussian filter.

As second common implementation of FDM is in the Global System for Mobile Communications protocol (GSM) which is a 3G cellular communication standard. With GSM, the frequency range is divided into downlink channels from 890 – 915 MHz and the uplink channels at 935 – 960 MHz. Moreover, these frequency bands are further divided so that there are 124 channels which are spaced at 200 kHz intervals. Again, the bandwidth of each channel can be limited through the implantation of a root raised cosine filter.

OFDM is a subset of frequency division multiplexing in which a single channel utilizes multiple sub-carriers on adjacent frequencies. In addition the sub-carriers in an OFDM system are overlapping to maximize spectral efficiency. Ordinarily, overlapping adjacent channels can interfere with one another. However, sub-carriers in an OFDM system are precisely orthogonal to one another. Thus, they are able to overlap without interfering. As a result, OFDM systems are able to maximize spectral efficiency without causing adjacent channel interference.

Orthogonal frequency division multiplexing is commonly implemented in many emerging communications protocols because it provides several advantages over the traditional FDM approach to communications channels. More specifically, OFDM systems allow for greater spectral efficiency reduced intersymbol interference (ISI[6]), and resilience to multi-path distortion.

Notes:
[1]FDM – Frequency Division Multiplexing – частотное уплотнение; метод частотного уплотнения каналов.
[2]OFDM – Orthogonal Frequency Division Multiplexing – мультиплексирование с ортогональным частотным разделением каналов.
[3]GSM – Global System for Mobile – глобальная система мобильной связи.
[4]TDMA – Time Division Multiple Access – многостанционный (множественный) доступ с временным разделением каналов.
[5]CDMA – Code Division Multiple Access – многостанционный доступ с кодовым разделением каналов.
[6]ISI – intersymbol interference – межсимвольная интерференция.

21. Find the following information in the text:

  a) what digital communication systems require;
  b) where the frequency spectrum can be effectively utilized;
  c) what the common implementation of FDM is;
  d) what the advantages of OFDM are.

22. Say where the information presented in the text can be used.

APPENDIX
SUPPLEMENTARY READING

Text 1

1. Read the text.
2. Divide the text into paragraphs.
3. Express the idea of each paragraph in one sentence.
4. Write a summary of the text in English.

DIGITAL TELEVISION

Digital television (DTV) is a telecommunication system for broadcasting and receiving moving pictures and sound by means of digital signals, in contrast to analog signals used by analog (traditional) TV. DTV uses digital modulation data, which is digitally compressed and requires decoding by a specially designed television set, or a standard receiver with a set-top box, or a PC fitted with a television card. Introduced in the late 1990s, this technology appealed to the television broadcasting business and consumer electronics industries as offering new financial opportunities. There are a number of different ways to receive digital television. One of the oldest means of receiving DTV (and TV in general) is using an antenna (known as an aerial in some countries). This way is known as Digital Terrestrial Television (DTT). With DTT, viewers are limited to whatever channels the antenna picks up. Signal quality will also vary. Other ways have been devised to receive digital television. Among the most familiar to people are digital cable and digital satellite. In some countries where transmissions of TV signals are normally achieved by microwaves, digital MMDS[1] is used. Other standards, such as DMB[2] and DVB-H[3], have been devised to allow handheld devices such as mobile phones to receive TV signals. Another way is IPTV[4], that is receiving TV via Internet Protocol with guaranteed quality of service (QoS). Finally, an alternative way is to receive TV signals via the open Internet infra-structure, usually referred to as Internet TV. Today, regardless of how viewers receive DTV, most will pick up digital television via a set-top box, which decodes the digital signals into signals that analog televisions can understand - thus using the television purely as a monitor. However, a growing number of TV sets with integrated receivers are available – these are known as iDTVs. Many countries around the world currently operate a simulcast service where a broadcast is made available to viewers in both analog and digital at the same time. As digital becomes more popular it is likely that the existing analog services will be removed. In some cases this has already happened where a broadcaster has offered incentives to viewers to encourage them to switch to digital or simply switched their service regardless of whether they want to switch. In other cases government policies have been introduced to encourage the switch-over process, especially with regard to terrestrial broadcasts. Government intervention usually involves providing some funding for broadcasters to enable a switch-over to happen by a given deadline. Luxembourg was the first country to complete the move to digital broadcasting, on September 1, 2006.

• The Netherlands moved to digital broadcasting on December 11, 2006. The switch-off was helped greatly by the fact that about 90 percent of the households have cable that continues to use analogue broadcasts.

• In Finland, terrestrial analogue transmissions were terminated nationwide at 4am, September 1, 2007 (switch-off was previously planned for the midnight after August 31 but a few extra hours were added for technical reasons). Cable-TV viewers will continue to receive analogue broadcasts till the end of February 2008.

• Andorra completed its switch-off on September 25, 2007.

• Germany started the switch-off at different times in different regions. The first was the Berlin area, where the switch-off began on November 1, 2002 and was completed on August 4, 2003. Most other regions have followed, and in most populous areas the switch-off is completed, but a number of regions have not yet started. The switch-off is planned to be completed by the end of 2008.

• In the United Kingdom, the first switch off of analogue television was on 30 March 2005, in the villages of Llansteffan and Ferryside in Wales.The last regions will be switched off in 2012.

• In Ukraine, analogue transmissions will be terminated on July 17, 2015.

DTV has several advantages over traditional, analog TV, the most significant being that digital channels take up less bandwidth. This means that digital broadcasters can provide more digital channels in the same space, provide high-definition television service, or provide other non-television services such as multimedia or interactivity. DTV also permits special services such as multiplexing (more than one program on the same channel), electronic program guides and additional languages, spoken or subtitled. In many cases, viewers perceive DTV to have superior picture quality, improved audio quality, and easier reception than analog. However, DTV picture technology is still in its early stages. DTV images have some picture defects that are not present on analog television or motion picture cinema, due to present-day limitations of bandwidth and compression algorithms such as MPEG[5]-2.When a compressed digital image is compared with the original program source, some hard-to-compress image sequences may have digital distortion or degradation. For example: quantization noise, incorrect color, blockiness, a blurred shimmering haze. Broadcasters attempt to balance their needs to show high quality pictures and to generate revenue by using a fixed bandwidth allocation for more services.

Notes:

[1]MMDS – Multichannel Multipoint Distribution Service – многоканальная многоточечная распределенная служба (связи).

[2]DMB – Digital Multimedia Broadcasting – цифровое мультимедийное вещание.

[3]DVB-H – Digital Video Broadcasting – Handheld – цифровое телевизионное вещание для мобильных устройств.

[4]IPTV – Internet Protocol Television – интернет-телевидение.

[5]MPEG – Motion Pictures Experts Group – экспертная группа по кинематографии, группа MPEG образована в 1988 г., занимается алгоритмами сжатия видеоизображений.

Text 2

1. Read the text and entitle it.
2. Express the idea of each paragraph in one sentence.
3. Write a summary of the text in English.

A person with a Wi-Fi enabled device such as a computer, cell phone or PDA can connect to the Internet when in proximity of an access point. The region covered by one or several access points is called a hotspot. Hotspots can range from a single room to many square miles of overlapping hotspots. Wi-Fi can also be used to create a mesh network. Both architectures are used in community networks, municipal wireless networks like Wireless Philadelphia, and metro-scale networks like M-Taipei.

Wi-Fi also allows connectivity in peer-to-peer mode, which enables devices to connect directly with each other. This connectivity mode is useful in consumer electronics and gaming applications.

When the technology was first commercialized there were many problems because consumers could not be sure that products from different vendors would work together. The Wi-Fi Alliance began as a community to solve this issue so as to address the needs of the end user and allow the technology to mature. The Alliance created the branding Wi-Fi CERTIFIED to show consumers that products are interoperable with other products displaying the same branding.

A typical Wi-Fi setup contains one or more Access Points (APs) and one or more clients. An AP[1] broadcasts its SSID (Service Set Identifier, "Network name") via packets that are called beacons, which are usually broadcast every 100 ms. The beacons are transmitted at 1 Mbit/s, and are of relatively short duration and therefore do not have a significant effect on performance. Since 1 Mbit/s is the lowest rate of Wi-Fi it assures that the client who receives the beacon can communicate at at least 1 Mbit/s. Based on the settings (e.g. the SSID), the client may decide whether to connect to an AP. If two APs of the same SSID are in range of the client, the client firmware might use signal strength to decide which of the two APs to make a connection to. The Wi-Fi standard leaves connection criteria and roaming totally open to the client. This is a strength of Wi-Fi, but also means that one wireless adapter may perform substantially better than another. Since Wi-Fi transmits in the air, it has the same properties as a non-switched ethernet network. Even collisions can therefore appear as in non-switched ethernet LAN's. Unlike a wired Ethernet, and like most packet radios, Wi-Fi cannot do collision detection, and instead uses a packet exchange to try to avoid collisions.

Notes:
[1]AP – access point – узел (точка, пункт) доступа; приемопередатчик беспроводной сети.

Text 3

1. Read the text.
2. Divide the text into paragraphs.
3. Express the idea of each paragraph in one sentence.
4. Write a summary of the text in English.

Standard Wi-Fi Devices

A wireless access point (AP) connects a group of wireless stations to an adjacent wired local area network (LAN). An access point is similar to an ethernet hub, but instead of relaying LAN data only to other LAN stations, an access point can relay wireless data to all other compatible wireless devices as well as to a single (usually) connected LAN device, in most cases an ethernet hub or switch, allowing wireless devices to communicate with any other device on the LAN. A wireless router integrates a wireless access point with an IP router and an ethernet switch. The integrated switch connects the integrated access point and the integrated ethernet router internally, and allows for external wired ethernet LAN devices to be connected as well as a (usually) single WAN device such as cable modem or DSL modem. A wireless router advantageously allows all three devices (mainly the access point and router) to be configured through one central configuration utility, usually through an integrated web server. A wireless Ethernet bridge connects a wired network to a wireless network. This is different from an access point in the sense that an access point connects wireless devices to a wired network at the data-link layer. Two wireless bridges may be used to connect two wired networks over a wireless link, useful in situations where a wired connection may be unavailable, such as between two separate homes. A wireless range extender (or wireless repeater) can increase the range of an existing wireless network by being strategically placed in locations where a wireless signal is sufficiently strong and nearby locations that have poor to no signal strength. An example location would be at the corner of an L-shaped corridor, where the access point is at the end of one leg and a strong signal is desired at the end of the other leg. Another example would be 75 % of the way between the access point and the edge of its useable signal. This would effectively increase the range by 75 %. There are very few stand-alone 802.11 wireless repeaters on the market, but some access points routers have a built-in repeater mode. Nearly all WLAN[1] repeaters currently available today are actually built-in functions of access points. For example, the Cisco 350 and 1200 allow you to configure the access point to behave as a repeater (and not as an access point). Buffalo Technology, however, does offer a stand alone repeater in their AirStation Pro Series WLA-AWCG. The advantage of the stand alone repeaters is that they are generally less expensive. One downside of wireless repeaters, though, is that they reduce throughput on the WLAN. A repeater must receive and retransmit each frame on the same RF channel, which effectively doubles the number of frames that are sent. This problem compounds when using multiple repeaters because each repeater will duplicate the number of frames sent.

Notes:
[1]WLAN – wireless LAN – беспроводная локальная сеть.

Text 4

1. Read the text.
2. Express the idea of each paragraph in one sentence.
3. Write a summary of the text in English.

Comparing Wireless and Wired LANs

How exactly does a wireless LAN get integrated with a wired LAN? Where does switching fit into a wireless LAN? Before answering these questions, it might be helpful to see how the two technologies compare.

At the most basic level, switched networks involve wires, and wireless networks don't. That might seem silly, but it points out some major differences in the physical layer.

A traditional Ethernet network is defined by the IEEE 802.3 standards. Every Ethernet connection must operate under tightly controlled conditions, especially regarding the physical link itself. For example, the link status, link speed, and duplex mode must all operate like the standards describe. Wireless LANs have a similar arrangement, but are defined by the IEEE 802.11 standards.

Wired Ethernet devices have to transmit and receive Ethernet frames according to the Carrier Sense Multiple Access/Collision Detect (CSMA[1]/CD[2]) method. On a shared Ethernet segment, where PCs communicate in half-duplex mode, each PC can freely "talk" first, and then listen for collisions with other devices that are also talking. The whole process of detecting collisions is based on having wired connections of a certain maximum length, with a certain maximum latency as a frame travels from one end of the segment to another before being detected at the far end.

Full-duplex or switched Ethernet links are not plagued with collisions or contention for the bandwidth. They do have to abide by the same specifications, though. For example, Ethernet frames must still be transmitted and received within an expected amount of time on a full-duplex link. This forces the maximum length of full-duplex, twisted-pair cabling to be the same as that of a half-duplex link.

Even though wireless LANs are also based on a set of stringent standards, the wireless medium itself is challenging to control. Generally speaking, when a PC attaches to a wired Ethernet network, it shares that network connection with a known number of other devices that are also connected. When the same PC uses a wireless network, it does so over the air. No wires or outlets exist at the access layer, as other end users are free to use the same air.

A wireless LAN then becomes a shared network, where a varying number of hosts contend for the use of the "air" at any time. Collisions are a fact of life in a wireless LAN because every wireless connection is in half-duplex mode.

Notes:
[1]CSMA – Carrier Sense Multiple Access – коллективный доступ с контролем несущей.
[2]CD – Collision Detect – обнаружение столкновений.

Text 5

1. Skim through the text and say what the main idea of it is.
2. Speak about the major applications of the DBS system.

Applications Enabled by Direct Broadcast Satellite Technology

Before we describe our strategies for supporting applications within the DBS system, it is important to gain a better understanding of the kinds of applications that are suited to broadcast-based information dissemination. Consider the following applications scenarios, which illustrate some of the possibilities inherent in the DBS system:

• *Rapid Information Dissemination*: A major forest fire is burning out of control in a National Park. Firefighters are being brought in from several adjacent states, and they are not familiar with the disaster area. Detailed forest service maps are needed to help them plan their disaster response, but there are not enough to go around. A DBS dish is rapidly installed in the disaster management command center, a complete set of digital maps are quickly downloaded over the DBS broadcast channel. Depending on where the individual teams are to be sent, selected maps are further distributed to mobile computers (perhaps over a WLAN in the command center) or computers embedded in support vehicles (perhaps via a campus-area packet relay network that spans the depot around the command center) that are then taken into the field by the firefighter teams.

• *Integrated Broadcast Video and Interactive Data Services*: Rural health centers around the country are equipped with DBS dishes. A "medical practitioners channel" is established to transmit DirectTV broadcasts of the latest medical procedures. During these broadcasts, a viewing physician can use the system's data communications capabilities to interactively select from a collection of medical journal articles that describe the procedure or treatment currently on view be downloaded into his or her personal computer.

• *Information on Demand*: Up-to-the-minute weather reports are captured for the entire country and fed into a DBS "digital weather channel." For major metropolitan areas (or areas in which the weather is changing rapidly or is particularly severe), these reports are frequently scheduled. They may include high resolution "moving" weather maps (e.g., in MPEG) as well as detailed textual descriptions of the current weather conditions, perhaps specialized to specific regions of the metropolitan area. DirectPC users can enable filtering programs to capture the reports for their areas (or where they are planning to travel to). Users in less populated regions will receive their reports on a much less frequent basis. Nevertheless, they can use the system's uplink capabilities to request a report "on demand", and the network will schedule its delivery for a future time slot. If multiple users request the same information, its priority can be increased, and a sooner slot can be allocated to transmit the requested information.

DBS systems can be installed rapidly, even in areas without a well developed communications infrastructure, although some uplink path will be needed, perhaps through the public switched telephone system. This makes DBS ideal for establishing communications in support of emergency response activities, and the system is particularly effective at distributing critical information to the field.

DBS was developed primarily to deliver video to users. However, the ability to integrate interactive data access with simultaneous video broadcasts opens new opportunities for information dissemination combined with television. Distance learning applications that combine broadcast telelectures on DirectTV with simultaneous access to instructional materials on DirectPC is but one example.

The final scenario shows how a broadcast channel could be efficiently structured to combine frequent and less frequent data retrieval requests.

Text 6

1. Read the text.
2. Divide the text into paragraphs.
3. Express the idea of each paragraph in one sentence.
4. Write a summary of the text in English.

Cross-layer Air Interface Design for Satellite Systems

In order to make future satellite systems meeting new services and application requirements, a complete system optimization is needed. A strict modularity and layer independence may lead to non-optimal performance in IP-based next-generation satellite communication systems. Furthermore, the growth of heterogeneous networks entails the need of adaptive actions. Such optimization is not guaranteed by the current layered protocol stack. In this framework, an optimized cross-layer approach is needed where interactions even between non-adjacent protocol layers are conceived to achieve a better adaptation to system dynamics and the highly dynamic applications demands. System efficiency is an important task in satellite communications where radio resources are costly and scarcely available. Whereas, QoS[1] support is the mandatory aspect requested by end users that do not care about resource utilization, but expect a good service. System optimization and QoS support are typically conflicting needs; for instance, the best QoS condition for delay-intolerant traffic is to have a high amount of available resources, thus contrasting with system efficiency. These conflicting needs can be solved by means of a suitable cross-layer system design and by exploiting the multiplexing effect. In particular, the different layers of the OSI protocol stack should be jointly optimized or dynamically jointly adapted to find the best trade-off between resource utilization efficiency and QoS provision. The idea behind cross-layer design is that we can obtain substantial gains in performance and efficiency by jointly optimizing the behavior of different layers. This tutorial aims at describing the cross-layer framework starting from a survey of mechanisms to support it and describing the different cross-layer techniques that can be obtained by combining different protocol layers together. A wide literature overview on wireless and satellite systems will be provided and recent results will be presented in order to prove the usefulness and the potentialities of the cross-layer interface design.

Notes:
[1]QoS – Quality of Service – качество обслуживания.

Text 7

1. Read the text.
2. Find the information about the advantages of digital broadcast systems.
3. Write a summary of the text in English.

Digital Broadcast Systems

An important development is the digitalization of the networks for radio and television broadcasting. Once deployed, these can not only disseminate audio and visual material to the public at large but also provide new (multi-media) services with conditional access. Digital transmission allows more flexible multiplexing of different traffic streams. Hence, broadcast networks are not restricted to pure radio and television services, but also allow encryption for various purposes or watermarking of information for anti-piracy enforcement and copyright protection. Systems designed for Digital Audio Broadcasting (DAB[1]) in the European EUREKA[2] program also appear suitable, in terms of data rates, for transmission of still pictures or data files. Elegant novel modulation techniques have been developed that allow significantly more programs to be transmitted within the same bandwidth. In particular, single-frequency networks, allowing master and relay transmitters to operate on the same carrier frequencies, will provide a spectrum efficiency that cannot be achieved with analog FM transmitters. Meanwhile, for short wave transmission, the system called Digital Radio Mondiale (DRM) has been developed.

Most broadcast systems are restricted to one-way transmission, a major drawback for interactive services, but can be augmented by using other networks for the reverse link. Future interactive services to mobile users are often highly asymmetric in their communication requirements. The bulk of data is likely to travel towards the (mobile) users, with only command and control messages traveling in the reverse direction. A broadcast network may support the high data rates required in the downlink. In the context of standardization for future Digital Video Broadcasting (DVB[3]), digital Terrestrial Television broadcasting (DTTB) concepts are also soon to be standardized. Such digital television systems will use MPEG-type video encoding.

Notes:
[1]DAB – Digital Audio Broadcasting – цифровое радиовещание.
[2]EUREKA – a Europe-wide Network for industrial R&D – Европейская сеть исследований и разработок для индустрии, проект EUREKA.
[3]DVB – Digital Video Broadcasting – цифровая ТВ-трансляция.

Text 8

1. Read the text.

2. Divide the text into paragraphs.

3. Express the idea of each paragraph in one sentence.

4. Write a summary of the text in English.

Computer Protection Products. Why You Need Them?

By Tim Stokes

Is your identity and computer safe while you are surfing the internet? There are several harmful programs such as spyware, adware and viruses all waiting to infect your computer. To ensure you are safe, I am going to discuss why the need for computer protection products is so great today.

1. Spyware is computer software that is secretly installed onto your computer as you surf the internet. It is designed to take full or partial control over your computer without your consent or knowledge. Often these spyware programs gather information about your surfing habits and report back to a third party. Other programs take complete control of your computer. Spyware programs, without your knowledge, can redirect your web browser to a site containing harmful viruses.

Have you noticed lately that your computer may be running very slow? The cause my be attributed to several spyware programs running on your computer all at the same time. Some may be a low threat while others may be a high threat.

2. The computer virus is a small software program that is intended to spread from one computer to another. It is intended to interfere with the operation of your computer. A virus can corrupt or even delete data on your computer; it may even erase everything on your hard drive. Viruses are also designed to spread itself from computer to computer through the use of your e-mail program.

Some of the methods used to spread a virus are through video files, images and most commonly through e-mail attachments. Viruses can also be found in illicit software and other programs that you may have purposely or inadvertently downloaded from the internet.

3. Worms and Trojan Horses are two programs that are often confused as a virus. A virus needs an existing file to attach itself to while worms and Trojan horses do not. A worm sends copies of itself by way of a computer network which in turn harms the network. A worm's side effects may be minimal or they may damage or even erase files.

A Trojan horse is a file that appears to be harmless but in reality it has disguised itself in hopes that a user will open the program releasing its harmful effects. Some Trojan horse programs are harmless but the majority are designed to do harm to your computer and others by spread of the program.

4. Ok, now for the good news, there are ways to protect yourself from these harmful programs. Computer anti-virus and spyware detection programs are common today. I have found that a single protection program is not sufficient protection for the computer.

For my everyday protection, I have a program to remove spyware and a separate program for virus protection. Where the anti-virus program is great for virus

protection the spyware program is great for removing spyware and Trojan horse files. The important thing to remember is to update your program files often and at least run your spyware program everyday. Get rid of the bad programs by quarantining them and start enjoying yourself on the internet again.

I hope by writing this article that I have helped you to understand why you need computer protection products. There is no reason why we all can't make a living on or even just use the internet for fun. Just because there will always be people out there that get a kick out of making people suffer, make sure you are protected.

Text 9

1. Read the text and express the idea of it in several sentences.

The Future of VoIP

The future of VoIP seems to be looking bright. It appears that VoIP will become mainstream. As more and more people are becoming aware of this new technology its popularity is hugely increasing. If all you need is a simple piece of software downloaded from the internet to make free phone calls, then it's not surprising.

Consumers undoubtedly will soon change how they make phone calls, but in order for softphones to become more widely used, the technology will have to be accessible to more devices than just a PC or laptop. Some predict it is only a matter of time before people across the world will be able to use VoIP-enabled softphones on a mobile device.

Ever since Skype introduced software for voice calls on computers, the industry has been buzzing. Google has entered the VoIP market with an instant chat and voice application, and is testing a Wi-Fi consumer service that could help it deliver phone and information services to wireless devices.

Technology executives are betting that consumers will soon change how they make phone calls, reducing the need for a phone service from a traditional provider. VoIP essentially turns telephone calls into just another piece of software running over an IP network, and due to this simplicity the future for VoIP seems promising.

The electronics companies are already starting to sell dual purpose products such as digital cameras the appear to be a normal digital camera, but when a person slides the back of the device down, there's a keypad for making calls. Memory sticks that store from 64 megabytes to 1 gigabyte, preloaded with a softphone are also now available. They come with a microphone and earphones.

Internet companies such as Yahoo, Google, America Online and Earthlink have already experimented with this technology. Not a long time ago Yahoo added improved VoIP calling to its Yahoo Messenger. EarthLinh launched the beta of its Vling Internet calling service. Google has debuted Google Talk. AOL announced i would be offering its VoIP service called TotalTalk. AOL's TotalTalk will essentially let people replace their traditional landlines. It has advanced communication features, such as unified voice, e-mail and instant messaging, and call-management.

Accessibility must improve in order for this industry to really expand to its potential. As people don't always want to boot up their computer and put their headset on to make a phone call.

The phone companies will face a challenge with these drastic changes emerging with VoIP technology and will need to expand alongside it before other companies take over to fill the void.

All in all, VoIP is becoming increasingly popular with Internet companies and electronics manufacturers alike, all developing products and services that harness VoIP technology. It appears that the future of VoIP is healthy and VoIP is here to stay.

Учебное издание

МЕТОДИЧЕСКОЕ ПОСОБИЕ
ПО РАЗВИТИЮ НАВЫКОВ ЧТЕНИЯ
НА АНГЛИЙСКОМ ЯЗЫКЕ ДЛЯ СТУДЕНТОВ ФТК И ВФ

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FOR FULL TIME STUDENTS OF THE
TELECOMMUNICATIONS AND MILITARY FACULTIES

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