

TOMSK POLYTECHNIC UNIVERSITY

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**ENGLISH  
FOR INTERNET TECHNOLOGIES**

Tomsk Polytechnic University Publishing House  
2012

МИНИСТЕРСТВО ОБРАЗОВАНИЯ И НАУКИ РОССИЙСКОЙ ФЕДЕРАЦИИ  
Федеральное государственное бюджетное образовательное учреждение  
высшего профессионального образования  
**«НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ  
ТОМСКИЙ ПОЛИТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ»**

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**В.Н. Вичугов, Т.И. Краснова**

**АНГЛИЙСКИЙ ЯЗЫК  
ДЛЯ СПЕЦИАЛИСТОВ В ОБЛАСТИ  
ИНТЕРНЕТ-ТЕХНОЛОГИЙ**

*Рекомендовано Учебно-методическим объединением по образованию  
в области лингвистики Министерства образования и науки  
Российской Федерации в качестве учебного пособия  
для студентов технических специальностей и направлений*

Издательство  
Томского политехнического университета  
2012

УДК 811.111:004.7(075.8)  
ББК Ш143.21-923  
В55

**Вичугов В.Н.**

В55      Английский язык для специалистов в области интернет-технологий: учебное пособие / В.Н. Вичугов, Т.И. Краснова; Томский политехнический университет. – Томск: Изд-во Томского политехнического университета, 2012. – 116 с.

ISBN 978-5-4387-0174-3

Пособие направлено на формирование и развитие у студентов языковых и речевых навыков и умений использования английского языка в сфере профессиональной коммуникации. Содержит лексико-грамматический материал по теме, аутентичные тексты, задания для аудирования и говорения.

Предназначено для студентов 2 и 3 курсов Института кибернетики.

**УДК 811.111:004.7(075.8)**  
**ББК Ш143.21-923**

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**ISBN 978-5-4387-0174-3**

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# UNIT 1 HISTORY OF THE INTERNET

## SECTION 1

### LEAD-IN

#### 1. Discuss the following questions.

- Do you agree with the statement that modern world can't live without computers and the Internet? Why?
- Has the invention of the Internet had a great impact on the society?
- Could you give a definition of the Internet? Do you know how the Internet started?
- If you use the Internet, what do you usually use it for?
- How do you think the Internet will develop in the future?



#### 2. Match the groups of verbs below with their general meaning from the box.

move • make, start • join • look at • find

1. browse, surf, view \_\_\_\_\_
2. download, navigate, transfer \_\_\_\_\_
3. connect, link \_\_\_\_\_
4. discover, locate \_\_\_\_\_
5. originate, create, invent \_\_\_\_\_

#### 3. Complete the sentences with the words from the box.

network    cyberspace    random    create    transfer  
navigate    interactive

1. Some people spend too much time playing \_\_\_\_\_ games on the Internet.

2. You can sometimes have a computer \_\_\_\_\_ that is not connected to the Internet.
  3. It is easy to \_\_\_\_\_ around a screen with a mouse.
  4. Berners-Lee discovered how to \_\_\_\_\_ links between computers in new ways.
  5. Some people surf the Internet at \_\_\_\_\_, just to see what they can find.
  6. People use the Internet to \_\_\_\_\_ information from one place to another.
  7. When you surf the Internet, you are traveling in \_\_\_\_\_.
- 4. Even if you're an online novice, you may be surprised at how much you already know about cyberspace. You can test your knowledge now by taking this brief quiz.**

### INTERNET QUIZ

1. What can you do with the Internet?
  - A. Exchange information with friends and colleagues
  - B. Access pictures, sounds, video clips and other media elements
  - C. Find diverse perspective on issues from a global audience
  - D. Post and respond to inquiries on a variety of subjects
  - E. All of the above
2. The Internet was developed in the...
  - A. early 1990s
  - B. late 1980s
  - C. early 1970s
  - D. late 1960s
3. USENET is...
  - A. A set of tools reserved exclusively for Internet administrators
  - B. Short for United States Electronic Network
  - C. A bulletin board system that allows for posting and responding to messages on the Internet
  - D. A precursor to the Internet that is now obsolete
4. True or false: The Internet is managed by the U.S. government
  - A. True
  - B. False
5. What is a spider?
  - A. A computer virus
  - B. A program that catalogs Web sites

- C. A hacker who breaks into corporate computer systems
  - D. An application for viewing Web sites
6. What is not always necessary for accessing the Web?
- A. A Web browser
  - B. A connection to an Internet Access Provider
  - C. A computer
  - D. A modem
7. If someone has sent you spam, they...
- A. Signed you up for the Meat of the Month Club
  - B. Sent you an insulting, obscenity-laden e-mail message
  - C. Infected your computer with a virus
  - D. Sent you unsolicited e-mail

 **READING**

5. Read the text and name the stages of Internet development.

**THE INTERNET – WHAT IS IT?**



The Internet is an international computer network that provides users with access to information stored on thousands of different computer systems that tie together millions of different computers. Different systems are able to communicate with each other using TCP/IP, a set of protocols that defines how computers exchange information with each other.

The Internet had its foundation in 1969 with the development of the ARPANET (Advanced Research Projects Agency Network), a Department of Defense funded project designed to develop and test networking technology. Originally hosted by four research universities in the United States, the project was later expanded to include other computer systems in the United States, England, and Norway. By 1983, DARPA (Defense Advanced Research Projects Agency) had decided on TCP/IP as the

standard protocol for inter-system communications over the ARPANET. The network was eventually split into two separate networks – the ARPANET continued to be used primarily for research purposes, while the MILNET became a military network.

In 1986, the National Science Foundation created the NSFNET, linking together the United States' supercomputing centers. Originally intended as a means for universities and other research institutes to access the ARPANET and exchange information, the NSFNET eventually replaced the ARPANET and became the backbone of today's Internet. Over 10,000 computer systems were connected to the Internet by 1989. Today the Internet's backbone is owned and operated by major Internet Service Providers (ISPs) such as GTE, MCI, Sprint, UUNet, and America Online. Connected to the backbone are many smaller networks which include university computing networks, government systems, and local ISPs.

Today's Internet has become not only a major research network but also an enormous electronic medium that facilitates the commercial exchange of goods and services. Worldwide in its reach, the Internet has far exceeded its original designers' expectations and promises to become the world's major communications network. (from <http://www.unf.edu/~alderman/TheInternet/whatis.html>)

**6. Read the text again and for questions 1–5, choose the answer (A, B, or C) which you think fits best according to the text.**

1. The Internet
  - A) stores all the information
  - B) communicates with different computers
  - C) allows to get information from different computers
2. The project ARPANET got financial aid from
  - A) government
  - B) charity
  - C) business companies
3. TCP/IP are
  - A) two networking protocols
  - B) two models of information distribution
  - C) two standards for computer industry
4. The NSFNET
  - A) was introduced earlier than the ARPANET

- B) was very popular among military
  - C) became a substitute for the ARPANET
5. The Internet's backbone now belongs to
- A) ISPs
  - B) military research agencies
  - C) university computer networks

## ***VOCABULARY AND GRAMMAR***

### **7. Match the terms with their definitions.**

- |                      |   |
|----------------------|---|
| 1. backbone          | a) the method of making menus of material available over the Internet   |
| 2. bandwidth         | b) a tool (software) for finding files stored on anonymous FTP sites  |
| 3. Wi-Fi             | c) any computer on a network that is a repository for services available to other computers on the network                          |
| 4. archie            | d) a special-purpose computer (or software package) that handles the connection between 2 or more packet-switched networks          |
| 5. gopher            | e) the frequency width of a transmission channel in Hertz, kiloHertz, megaHertz, etc.   |
| 6. router            | f) an individual computer on a network that runs its own programs and processes information received from a central server          |
| 7. broadband         | g) a form of wireless data communication  |
| 8. client            | h) the method used to move data around on the Internet  |
| 9. ADSL              | i) a computer, or a software package, that provides a specific kind of service to <i>client</i> software running on other computers |
| 10. server           | j) a transmission facility having a bandwidth sufficient to carry multiple voice, video or data channels simultaneously             |
| 11. frame relay      | k) a central network connecting other networks together   |
| 12. host             | l) a packet switching standard that achieves greater speeds with fast, reliable networks  |
| 13. packet switching | m) technology to carry high speed data over ordinary phone lines  |

**8. Fill in the correct word.**

<b>broadband</b>	<b>Wi-Fi</b>	<b>ADSL</b>	<b>gopher</b>	<b>routers</b>
<b>bandwidth</b>	<b>gateway</b>	<b>hosts</b>	<b>archie</b>	<b>server</b>

1. America Online has a \_\_\_\_\_ that translates between its internal, proprietary e-mail format and Internet e-mail format.
2. \_\_\_\_\_ was designed to be much easier to use than FTP, while still using a text-only interface. It has been largely supplanted by Hypertext, also known as WWW (World Wide Web).
3. The greater the \_\_\_\_\_, the greater the amount of data that can travel in a given time period.
4. \_\_\_\_\_ create or maintain a table of the available routes and use this information to determine the best route for a given data packet.
5. By 1999 \_\_\_\_\_ had been almost completely replaced by web-based search engines.
6. Our mail \_\_\_\_\_ is down today, that's why e-mail isn't getting out.
7. The \_\_\_\_\_ signal cannot travel long distances without loss of integrity.
8. Web \_\_\_\_\_ are companies that provide space on a server they own for use by their clients as well as providing Internet connectivity.
9. \_\_\_\_\_ is called "asymmetric" because download speeds to the subscriber are faster than upload speeds from the subscriber.
10. Fiber optic cable, in particular, has a very high bandwidth, and is referred to as \_\_\_\_\_.

**9. Use the words on the right to form one word that fits in the same space in the text.**

**HOW SWITCHING WORKS?**

Switching systems 1) \_\_\_\_\_ packet networks to  
2) \_\_\_\_\_ optimize their operation and recover from  
localized damage. The switching in Internet networks is  
performed by computers called 3) \_\_\_\_\_. They  
use a number of standard routing protocols to switch the  
incoming packets from one network to another as re-  
quired.

**ABLE**

**DYNAMIC**

**ROUTE**

One of the biggest advantages of packet 4) \_\_\_\_\_ networks is that they use the available bandwidth very 5) \_\_\_\_\_ by sharing it at all times. Today's Internet routing protocols use 6) \_\_\_\_\_ algorithms that have been optimized for efficiency over many years. In practice, most network connections today are very 7) \_\_\_\_\_ and so all packets for a given computer are usually sent over the same path as long as it remains operational.

**SWITCH**  
**EFFICIENCY**  
**SOPHISTICATE**  
**RELY**

(from www.livinginternet.com)

### WORD FORMATION

When you are reading, you will come across unfamiliar words. It is possible to guess the meanings of these words if you understand the way words in English are generally formed.



An English word can be divided into three parts: a prefix, a stem and a suffix. Let us now consider some prefixes, their usual meanings, and how they change the meanings of English words.

### PREFIXES

<b>Negative and positive</b>	<b>Size</b>	<b>Location</b>	<b>Time and order</b>	<b>Number</b>
un- non- in- im- il- ir- mis- dis- anti-	semi- mini- micro- macro- mega-	inter- super- trans- ex- extra- peri- sub- infra-	pre- ante- fore- post- prime- retro-	mono- bi- tri- quad- penta- hex- sept- oct- dec

re-over-				multi-
<b>E. g.</b> irrelevant, non-programmable, misdirect, antigrare, overload, recognise	<b>E. g.</b> semiconductor, equidistant, minicomputer, microcomputer, megabyte	<b>E. g.</b> interface, supersonic, transmit, exclude, subschema, peripheral	<b>E. g.</b> antecedent, prefix, primary, postdated, retroactive	<b>E. g.</b> monochromatic, binary, triangle, quadruple, pentagon, hexadecimal, September, octal, decimal, multiplexor

**10. Translate the following words. Pay attention to the prefixes dis-, in-, un-, non-, ir-, which give negative meaning to the words.**

**dis-**: disadvantage, disconnect, disappear, disclose, discomfort, discontinue, discount, discredit, disintegrate.

**in-**: invisible, inaccurate, inactive, incapable, incompact, insignificant, inhuman, informal, ineffective, indifferent, indecisive, inconsumable, incorrect.

**un-**: uncontrollable, unbelievable, unable, unchanged, uncomfortable, uncommunicative, undisciplined, unexpected, unfavourable, unforgettable, unkind.

**non-**: non-effective, non-aggressive, non-comparable, noncomputable, nonconstant, noncontrollable, nondigital, nondimensional, nonprogrammable, nonusable.

**ir-**: irregular, irrelative, irresponsive, irrational, irreplaceable, irrecognizability.

**11. Put one of the above prefixes in each space in the phrases below to make the word which follows it opposite in meaning.**

**ir-, il-, dis-, non-**

- |  |                                      |
|--|--------------------------------------|
| 1. a(n) _____ rational number            | 8. a(n) _____ aggregated approach    |
| 2. a(n) _____ binary code                | 9. a(n) _____ computerized system    |
| 3. a(n) _____ switched network           | 10. a(n) _____ recoverable error     |
| 4. a(n) _____ logical assumption         | 11. a(n) _____ stop processing       |
| 5. a(n) _____ refutable fact             | 12. a(n) _____ connected line        |
| 6. a(n) _____ metallic fiber-optic cable | 13. a(n) _____ regular communication |
| 7. a(n) _____ formatted data             | 14. a(n) _____ linear element        |



## **SPEAKING**

### **12. Work in pairs. Discuss the following problem:**

Should government invest money in Internet development or fund more urgent social projects?

### **13. Role play the following situation in pairs:**

**Nelly:** You are always trying to be as nice as you can be. You have learned all the rules of proper etiquette in your day to day experience.

But when it comes to the Internet, your skills are a bit lacking. You seem to forget what it means to be nice.

**Tina:** You are Nelly's friend and you are very concerned about her lack of manners when it comes to the Internet. It is time to teach her some online manners. Explain her the basic rules of netiquette, teach how to avoid a flame war, tell about emoticons.



## **WRITING**

### **DESCRIBING GRAPHS**

Graphs can be used to visually represent the relationship of data. It can help organize and show people statistics, which can be good for some and not so good for others, depending on what the statistics show.

#### **Describing Graphs: Vocabulary**

#### **Helpful words and phrases for describing graphs**

Bar graph/chart, pie chart, line graph, double line graph, diagram

One unusual feature of the graph is ...

The most outstanding feature of the graph is

...

The graph indicates that ...

Several trends are apparent. Firstly ....., secondly .....

There was an upward/downward trend over the period.



There are clear/striking differences in ...  
In the ten year period ...  
What is more noteworthy about this situation is that ...  
Especially alarming in this regard is the fact that ...  
A similar situation can be observed in ...  
The incidence amongst ...  
It clearly leads the area in ...  
... maintained and strengthened its position  
The number of .... is negligible  
In contrast, ...  
In comparison, ...  
According to the pie chart ...  
The share of ...

### **Verbs and Nouns**

**UP – Verbs:** go up, take off, shoot up, soar, jump, increase, rise, grow, rocket, improve, climb, escalate, double, treble, quadruple, outnumber

**UP – Nouns:** a sudden increase, a gradual rise, a growth, an improvement, an upturn, a surge, an upsurge, an upward trend

**DOWN – Verbs:** go/come down, fall, fall off, drop, slump, plunge, slide, dip, decline, decrease, plummet, slip, shrink

**DOWN – Nouns:** a fall, a decrease, a decline, a drop, a downturn, a downturn trend

**NO CHANGE – Verbs:** remain stable/steady/relatively unchanged, level off, stay at the same level, flatten off, remain constant, stagnate, stabilize, hold steady

**AT THE TOP – Verbs:** reach a peak, peak, top out

**AT THE BOTTOM – Verbs:** reach a low point, bottom out

**RECOVER:** pick up, bounce back, rally

**OTHER:** make up, comprise, account for

### **Adjectives and Adverbs**

#### **DEGREES OF CHANGE**

##### **Adjectives:**

dramatic, considerable, sharp, significant, substantial, moderate, slight, barely noticeable, approximately the same

##### **Adverbs:**

dramatically, considerably, sharply, significantly, substantially, moderately, slightly

### SPEED OF CHANGE (over time)

Abrupt, sudden, rapid, quick, steady, gradual, slow

### Prepositions

a rise from \$10 to \$12

to increase by 50 %

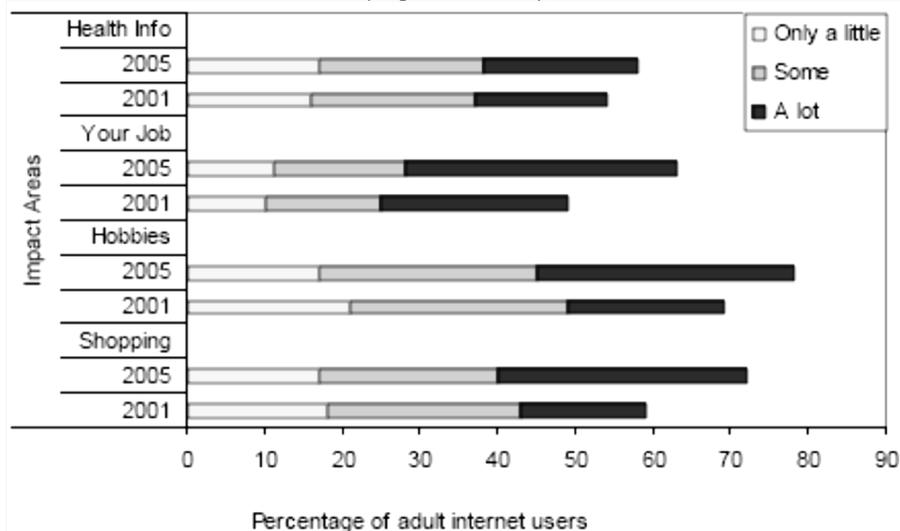
to fall by 30 %

an increase of 7.5 per cent over last year

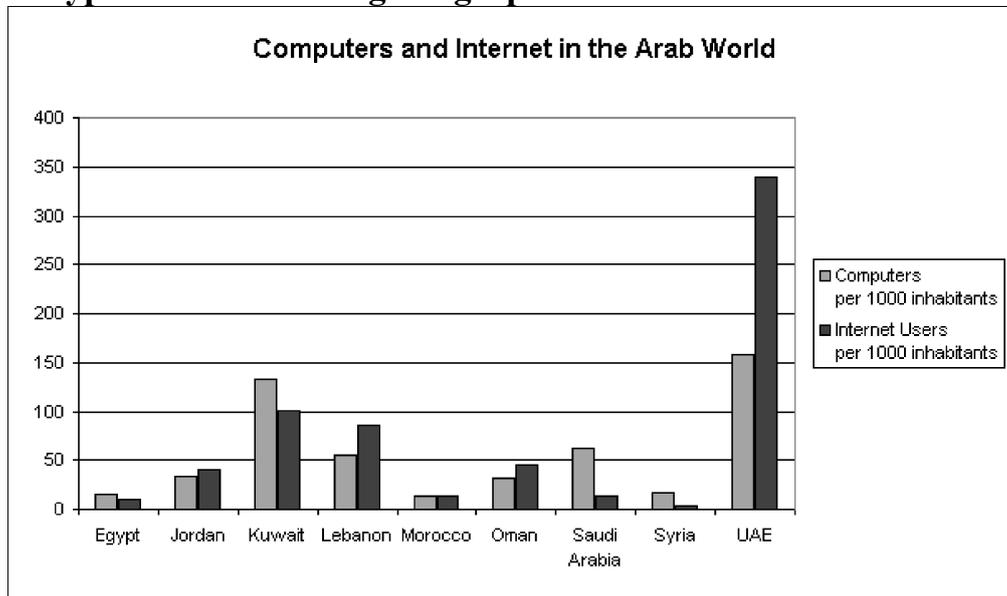
**14. The graph below shows how the Internet improved various aspects of the Internet users' lives in the USA. Study the graph and answer the following questions:**

- What was the share of the online Americans who said the Internet had greatly improved the way they got the information about health care in 2001?
- How has the ability to do the job changed?
- What is the share of the online Americans in 2005 who say the Internet has greatly improved the way they pursue hobbies and interests? How has it changed since 2001?
- What happened to the share of the online Americans who said the Internet had greatly improved their ability to shop?

**Internet penetration and impact  
(April 2006)**



15. Study the bar graph below and read the model. Underline the constructions typical for describing the graphs.



### Model

The chart shows striking differences in the level of computer and Internet penetration in the Arab world.

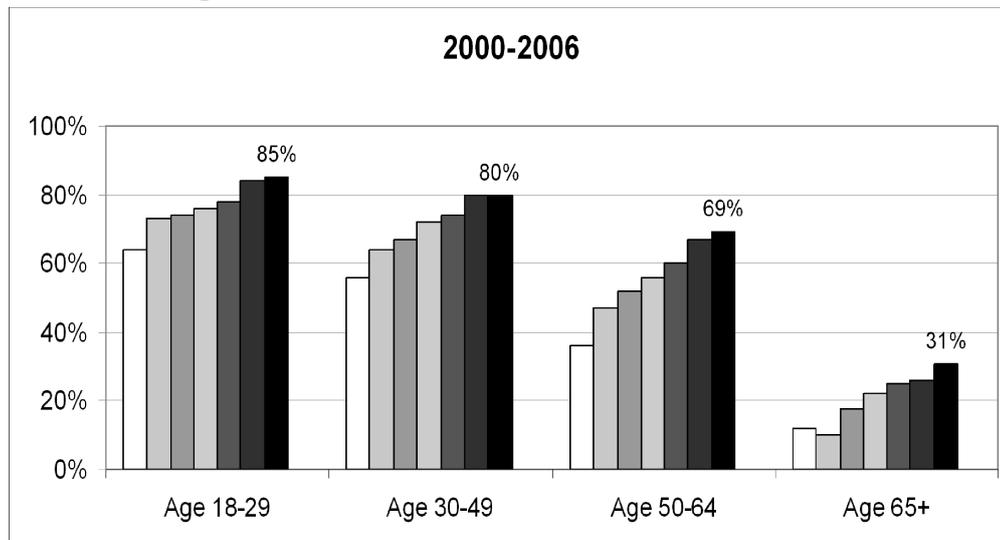
The UAE and Kuwait are by far the most computerized countries, with Lebanon a distant third. The UAE has over 150 computers for every 1000 inhabitants, compared to Kuwait's 130 and Lebanon's 60. In contrast, countries such as Egypt, Morocco and Syria have less than 20 computers per 1000 inhabitants.

There are also great differences in Internet use and availability. The UAE has by far the highest proportion of users, with more than one-third of its population using the Internet. Kuwait and Lebanon are second and third again, with 100 users per thousand in Kuwait and 80 in Lebanon. In some countries the number using the Internet is negligible: Saudi Arabia has less than 20 users per thousand, and there are fewer than 5 users per thousand in Syria.

One unusual feature of the graph is that Internet use does not seem to be directly related to the number of computers. In several countries (the UAE, Lebanon, Jordan and Oman), there are more Internet users per thousand people than computers. However, in other countries, such as Kuwait, Saudi Arabia and Syria, the number of Internet users is lower than the number of computers.

In summary, there are major differences between computer use and Internet use in the Arab world, but the UAE clearly leads the area in both number of computers and number of internet users per capita. (from <http://www.ielts-exam.net/>)

**16. The bar graph below shows the Internet penetration among adults in the USA. Each bar shows a representative survey from one year – the white bar is for the year 2000, the black bar is for the year 2006. Write a report describing the information shown below.**



## **SECTION 2**



### **READING**

**1. Read the text.**

#### **STRUCTURE OF THE INTERNET**

The Internet is a loose amalgamation of computer networks run by many different organizations in over seventy countries. Most of the technological decisions are made by small committees of volunteers who set standards for interoperability. The US portion of the Internet is best thought of as having three levels. At the bottom are local area networks (LANs); for example, campus networks. Usually the local networks are connected to a regional, or mid-level network. The mid-levels connect to one or more backbones. A backbone is an overarching network to which multiple regional networks connect, and which

generally does not serve directly any local networks or end-users. The U.S. backbones connect to other backbone networks around the world. There are, however, numerous exceptions to this structure.

Most backbone and regional network traffic moves over leased phone lines. However, there is a fundamental distinction in how the lines are used by the Internet and the phone companies. The Internet provides connectionless packet-switched service whereas telephone service is circuit-switched. The difference may sound arcane, but it has vastly important implications for pricing and the efficient use of network resources.

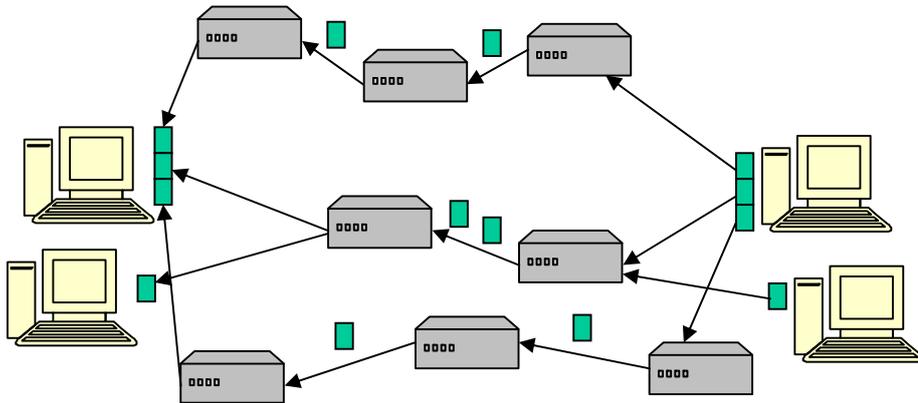
Phone networks use circuit switching: an end-to-end circuit must be set up before the call can begin. A fixed share of network resources is reserved for the call, and no other call can use those resources until the original connection is closed. This means that a long silence between two teenagers uses the same resources as an active negotiation between two fast-talking lawyers. One advantage of circuit-switching is that it enables performance guarantees such as guaranteed maximum delay, which is essential for real-time applications like voice conversations.

The Internet uses “packet-switching” technology. The term “packets” refers to the fact that the data stream from your computer is broken up into packets of about 200 bytes (on average), which are then sent out onto the network. Each packet contains a “header” with information necessary for routing the packet from origination to destination. Thus each packet in a data stream is independent. The main advantage of packet-switching is that it permits “statistical multiplexing” on the communication lines. That is, the packets from many different sources can share a line, allowing for very efficient use of the fixed capacity.

**2. Read the text again and answer the following questions.**

1. Who runs the Internet?
2. What are the levels of the Internet?
3. What are main differences between circuit-switching and packet-switching technologies?
4. What type of switching technology should be used for nuclear power station control? Why?
5. What type of switching will be more reliable if part of network infrastructure is destroyed?

**3. Describe the following scheme. What type of switching technology is it? What do small rectangles mean?**



**VOCABULARY**

**4. Match each term with the most suitable synonym.**

1) Packet

- A) Bag      B) Heap      C) Chunk      D) Missile      E) Batch

2) Circuit

- A) Scheme    B) Network    C) Channel    D) Plan      E) Circle

3) Header

- A) Mark      B) Foundation    C) Base      D) Collection    E) Title

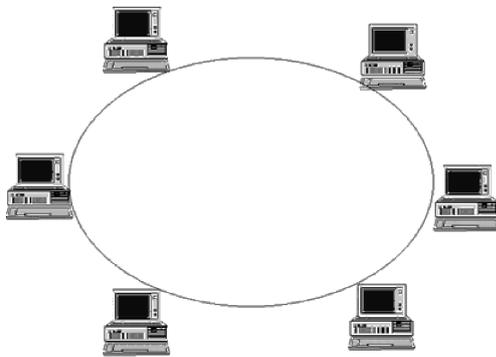
**5. Fill in the correct word in each gap.**

<b>wire</b>	<b>latency</b>	<b>capacity</b>	<b>connection</b>
	<b>packet</b>	<b>circuit</b>	<b>network</b>

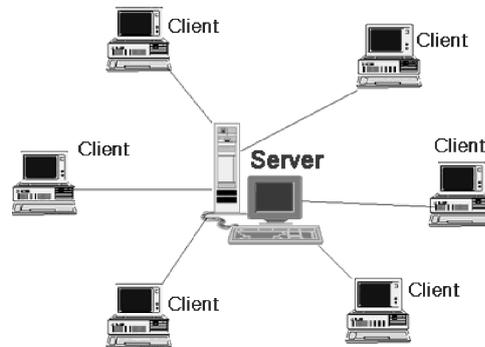
Early telephone systems are a suitable example of \_\_\_\_\_ switching. The subscriber would ask the operator to connect them to another subscriber. The end result was a physical electrical \_\_\_\_\_ between the two subscribers' telephones for the duration of the call. The copper \_\_\_\_\_ could not be used to carry other calls at the same time. This type of switching can be relatively inefficient because \_\_\_\_\_ is wasted on connections which are set up but are not in continuous use. This contrasts with \_\_\_\_\_ switching which splits traffic data into chunks, called packets that are routed over a shared \_\_\_\_\_. This type of switching is used to optimize the use of the bandwidth available in a network, to minimize the transmission \_\_\_\_\_.

## ***SPEAKING***

**6. Discuss the advantages and disadvantages of two types of computer networks: peer-to-peer (A) and client/server (B).**



**A**



**B**



## ***WRITING***

**7. Translate the following text into Russian.**

The Internet is formed by connecting local networks through special computers in each network known as gateways. Gateway interconnections are made through various communication paths, including telephone lines, optical fibers, and radio links. Additional networks can be added by linking to new gateways. Information to be delivered to a remote machine is tagged with the computerized address of that particular machine. Once addressed, the information leaves its home network through a gateway. It is routed from gateway to gateway until it reaches the local network containing the destination machine. Internets have no central control, that is, no single computer directs the flow of information. This differentiates internets from other types of online computer services, such as CompuServe, America Online, and the Microsoft Network.

<http://www.ideafinder.com/history/inventions/internet.htm>

**8. Write at least 5 sentences in answer to the following question:**

**What type of switching technology is used for delivering a letter by the postal service?**

Try to imagine what will happen if the road, that is usually used for delivering letters, is under repair.

## UNIT 2 INTERNET PRIVACY

### *SECTION 1*

#### *LEAD-IN*

#### **1. Discuss the following questions.**

- Do you know the IP address of your computer? How could you find it?
- What are common ways of connecting to (accessing) the Internet?



#### **READING**

#### **2. Read the text and give a definition of an IP address.**

### **IP ADDRESSES**

Each computer on the Internet has a unique numerical address, called an Internet Protocol (IP) address, used to route packets to it across the Internet.

Just as your postal address enables the postal system to send mail to your house from anywhere around the world, your computer's IP address gives the Internet routing protocols the unique information they need to route packets of information to your desktop from anywhere across the Internet. If a machine needs to contact another by a domain name, it first looks up the corresponding IP address with the domain name service. The IP address is the geographical descriptor of the virtual world, and the addresses of both source and destination systems are stored in the header of every packet that flows across the Internet.

You can find your IP address on a Windows computer by opening an MSDOS or Command window and typing one of "winipcfg" or "ipconfig". You can find your IP address on a Mac computer by checking your Network control panel.

As described in the pages on confidentiality and privacy, Internet sites can and do track your IP address and other information. If you want to block or disguise your IP address, you can use an anonymizer.

An IP address is made up of four bytes of information (totaling 32 bits) expressed as four numbers between 0 and 255 shown separated by periods. For example, your computer's IP address might be 238.17.159.4, which is shown below in human-readable decimal form and in the binary form used on the Internet.

<b>Example IP Address</b>	
Decimal:	238 . 17 . 159 . 4
Binary:	11101110 00010001 10011111 00000100

The Internet Assigned Numbers Authority (IANA) manages the allocation of IP addresses to different organizations in various sized blocks. Most of the address blocks have been allocated to research, education, government, corporations, and Internet Service Providers (ISPs), who in turn assign them to the individual computers under their control.

If you connect to the Internet over a phone line, then your IP address is probably assigned dynamically by your Internet service provider from an available pool of addresses each time you log on. If your computer is permanently connected to an Internet network, such as at the office or on a high speed home connection, then your IP address could be permanently assigned, or could be re-assigned each time you reboot your computer. (from [www.livinginternet.com](http://www.livinginternet.com))

**3. Decide whether the statements below are True or False according to the text.**

1. The IP address is the same as postal address.
2. Internet sites follow and control IP addresses.
3. An anonymizer is used to hide your IP address.
4. There are a lot of organizations managing the allocation of IP addresses.
5. All IP addresses are allocated to ISPs.
6. ISPs have got a variety of IP addresses for users connected to the Internet over a phone line.

**4. Complete the following sentences with no more than 2 words from the text.**

1. The IP address shows the geographical position of the computer in the \_\_\_\_\_.
2. In human-readable decimal form the IP address consists of \_\_\_\_\_.
3. \_\_\_\_\_ are assigned under ISPs control.
4. When you \_\_\_\_\_ the computer your IP address can be reassigned.

## VOCABULARY AND GRAMMAR

### 5. Choose the most suitable word or phrase underlined in each sentence.

1. An IP address refers to a unique number appointed/assigned to each computer on the Internet.
2. If you set your web browser start page to an anonymizer/anonymous site, then every subsequent web access you make from that page will also be anonymized.
3. A static IP address is a permanent address, while a (an) active/dynamic address changes with each new Internet session.
4. Though the Internet might feel anonymous, it is not an anonymous environment by default/on default.
5. You can set your browser to refuse/reject cookies.
6. Sites that provide anonymous surfing/penetration keep the user's IP address hidden from the Internet.
7. The solution of establishing a secure communication is a (an) encryption/decryption method called Public Key Cryptography (PKC).

### 6. Decide which answer A, B, C or D best fits each space.

#### How Anonymizers Work

Anonymizer sites access the Internet on your behalf, protecting your personal information from 1) \_\_\_\_\_. An anonymizer 2) \_\_\_\_\_ all of your computer's identifying information while it surfs for you, enabling you to remain at least one step removed from the sites you visit. There are two basic types of Internet anonymizers – networked and single-point.



Network anonymizers 3) \_\_\_\_\_ your communications through a network of Internet computers between you and the destination. The main advantage of the networked anonymizer 4) \_\_\_\_\_ is that it makes traffic analysis much more difficult.

Single-point anonymizers pass your surfing through a single web site to protect your identity, and often offers an encrypted 5) \_\_\_\_\_ channel for passage of results back to the user. Single-point anonymizers offer less 6) \_\_\_\_\_ to sophisticated traffic analysis than do networked designs.

Both networked and single-point anonymizers share a range of design 7) \_\_\_\_\_. Most importantly, once you access a web page through an anonymizer, the page is 8) \_\_\_\_\_ so that all of its links are also anonymized. Therefore, you can just continue to click on links and stay in the anonymizer mode. (from [www.livinginternet.com](http://www.livinginternet.com))

- |                         |                 |                        |                     |
|-------------------------|-----------------|------------------------|---------------------|
| 1. A) find              | B) disclosure   | C) discovery           | D) identity         |
| 2. A) protects          | B) helps        | C) holds               | D) grasps           |
| 3. A) put               | B) accompany    | C) relate              | D) transfer         |
| 4. A) volume            | B) design       | C) size                | D) capacity         |
| 5. A) coordina-<br>tion | B) frequency    | C) communica-<br>tions | D) coopera-<br>tion |
| 6. A) help              | B) modification | C) resistance          | D) opposition       |
| 7. A) qualities         | B) kinds        | C) sorts               | D) features         |
| 8. A) sorted            | B) reflected    | C) formulated          | D) filtered         |

### WORD FORMATION

We have already seen how prefixes change the meaning of a word. Let us now consider some suffixes and how they change the meaning of English words.

### SUFFIXES

Nouns	Verbs	Adjectives	Adverbs
-ance	-ize	-able	-ly
-ence	-ate	-ible	
-or	-fy	-ful	
-er	-en	-less	
-ist	-ify	-ic	
-ness		-ical	
-ian		-ish	
-tion, -ation, -ion		-ive	
-ity		-ous	
-ism		-ed	
-dom			
-ship			

<b><u>E. g.</u></b> performance, programmer, analyst, compilation, conversion, measurement, magnetism, freedom, partnership	<b><u>E. g.</u></b> computerize, activate, calculate, simplify, harden, widen	<b><u>E. g.</u></b> computational, circular, automatic, comparable, divisible, yellowish, interactive, computed	<b><u>E. g.</u></b> electronically, logically, comparably
--	--	--	--

**7. Read the following sentences and circle the suffixes. Translate the sentences.**

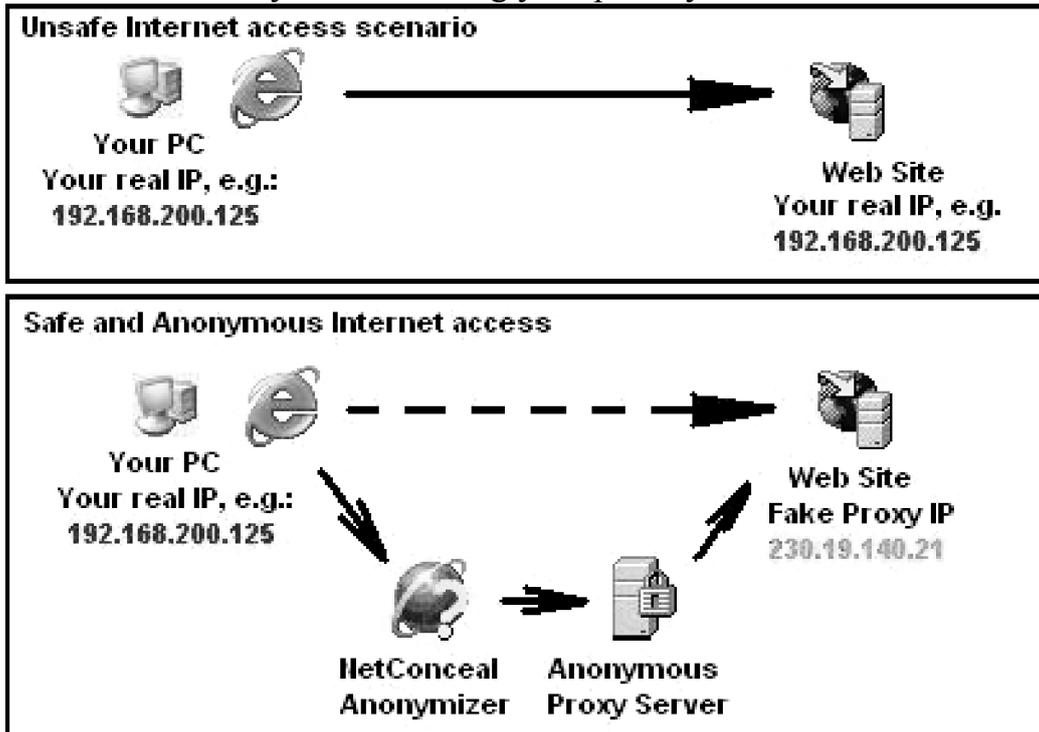
1. Anonymous P2P is desirable and in some cases necessary to ensure freedom of speech and the free flow of information.
2. A sufficiently detailed protocol includes details about data structures and representations, at which point it can be used to implement multiple, interoperable versions of a program.
3. A cryptographic protocol has an entity authentication mechanism, based on the X.509 system.
4. A wide variety of cryptographic protocols go beyond the traditional goals of data confidentiality, integrity, and authentication to also secure a variety of other desired characteristics of computer-mediated collaboration.

**8. Fill in the table by forming nouns and adjectives from the verbs below.**

	<b>Concrete noun</b>	<b>Abstract noun</b>	<b>Verb</b>	<b>Adjective</b>
<b><u>e.g.</u></b>	calculator	calculation	to calculate	calculating
1.			to compute	
2.			to multiply	
3.			to analyse	
4.			to summarise	
5.			to replace	
6.			to discover	
7.			to protect	
8.			to operate	
9.			to create	
10.			to refer	

9. Describe two situations showed at pictures. Then answer the following questions:

- Have you ever used anonymizers?
- Is it a trustworthy tool for hiding your privacy?



10. There are different opinions on online anonymity. Decide which group of debaters you belong to and express your views on the following question:

Is anonymity on the Internet a good or a bad thing?

SUPPORTERS	OPPONENTS
Personal information about the users can be harmful for them and used by criminals. People have right to hide their identities	Anonymity enables or encourages illegal or dangerous activity (e.g., terrorism, drug trafficking, sexual approaches towards minors, and so on)

**11. Work in pairs. Discuss the following issues about the cookies.**

- Does the cookie technology violate the user's right to privacy?
- Does the use of information filters violate the principle of free speech?

**12. Work in groups and discuss such topic as Internet scandals.**

The Web is a great way to deliver information, but it's also a great way to expose, spread, or jump-start a scandal. What Internet scandals do you know? How did they affect people's lives? What is your opinion to this problem?



**LISTENING**

**13. You are going to listen to a magazine article about the influence of cookies on Internet security. For questions 1–6 fill in the relevant information.**

- |   |                                |
|---|--------------------------------|
| You can get a cookie during ...   | <input type="text" value="1"/> |
| In business cookies can help ...  | <input type="text" value="2"/> |
| The cookies deposited on your system help the host server understand if ... | <input type="text" value="3"/> |
| Cookies cannot hurt your computer because they are ...                      | <input type="text" value="4"/> |
| Cookies cannot access information on your ...                               | <input type="text" value="5"/> |
| By choosing proper settings you can always ...                              | <input type="text" value="6"/> |



## **WRITING**

### **14. Read the text and write an annotation. Use the following clichés:**

The text (article) under review ... gives us a sort of information about ...

The article deals with the problem ...

The subject of the text is ...

At the beginning (of the text) the author describes (dwells on, explains, touches upon, analyses, comments, characterizes, underlines, reveals, gives account of)

...

The article begins with the description of (a review of, the analysis of) ...

The article opens with ...

Then (after that, further on, next) the author passes on to (gives a detailed analysis, goes on to say that) ...

To finish with, the author describes ...

At the end of the article the author draws the conclusion that (sums up by saying) ...

In conclusion the author ...

### **SNEAKY WAYS TO GET AROUND THOSE INTERNET PRIVACY ISSUES**

It is nearly impossible to maintain privacy online. Users may be giving out personal information, including e-mail addresses and contact information, without knowing it. There are many ways for users privacy to be violated online. However, there are some ways to avoid these privacy issues, and to get around them. Properly configuring the Web browser is one way to ensure that privacy is not invaded. In the browsers Setup, Options, or Preferences menus users have the option of using a pseudonym instead of their real names; users may also withhold their e-mail address, and other personally identifiable information. It is also advisable to turn on cookie notices in the Web browser, and use cookie management software. There are many cookies that can be used for data mining purposes to track how much time a user spends on a specific Web site, what links are clicked on, and other details a company would record for marketing purposes.

If a user is mailing to an unknown party, posting to a newsgroup, mailing lists, chat rooms, and other public spaces on the Internet that mentions their e-mail address, the users should use a pseudonymous or alternate e-mail address.

Users should only use their main e-mail address on small, members-only lists, and with individuals they trust. Free e-mail service providers, such as Yahoo and Hotmail are best for creating a side e-mail account. Users should never give their personal details to strangers or other users they just met. It is important for users to realize that they can't trust any person that is asking for their personal information online. There is a lot of personal information users may prefer to withhold until they meet the other person, which includes their full name, place of employment, phone number, and street address. (from [www.internet-security-abc.com](http://www.internet-security-abc.com))

### ***INTERNET ACTIVITIES***

#### **15. You are going to carry out a research on the Internet.**

If you spend any amount of time surfing the Web, you've probably come across the term "net neutrality." But what is it, and why is it stirring up controversy in Congress, the business world and the blogosphere? The net neutrality debate is divided into two camps: Fighting against net neutrality are the telecom companies and cable providers, who provide Internet access to consumers. Opposing them are content providers like Google, Amazon, and non-profits like MoveOn.org and the National Religious Broadcasters. But what are they fighting about?

You should surf the web and do the following tasks:

- Define the term "net neutrality". (use any search engine)
- Understand what the two opposing camps are fighting for. (You may visit the following links: [www.HandsOff.org](http://www.HandsOff.org) which is in favour of the telecoms and [www.SaveTheInternet.com](http://www.SaveTheInternet.com) which is in favour of Net Neutrality.

Then discuss in groups your opinions on this problem. Which side do you take?

## ***SECTION 2***



### ***READING***

#### **1. Read the text and translate it.**

##### **PRIVACY WHILE BROWSING THE WEB**

When you surf the web your browser sends out information about your browser, system and internet connection. This information is called HTTP Headers that can contain information that is commonly used by marketers and statistical analysis programs.

The HTTP Protocol wasn't designed with anonymity in mind. The idea was to share information in more presentable format. An HTTP request from the web browser looks like this:

```
GET /page.html HTTP/1.1
Host: www.mail.ru
Accept: */*
Referer: http://www.google.com/search.html
Accept-Language: pt-br
User-Agent: Mozilla/5.0 (X11; U; Linux i686; en-US;
rv:1.8.1) Gecko/20061010 Firefox/2.0
Cookie: PHPSESSID=5c3f73c4ff787f5560239076d9e8e850
Connection: Keep-Alive
```

Once a TCP/IP connection with the web server is achieved (usually to the port 80), the IP address of the client is logged and the HTTP request sent. Any or all of the above information of the request may be logged as well.

The "User-Agent" header describes your web browser. Typically it contains the browser name and version (e. g. Firefox 2.0), your Operating System and version (e. g. Linux), and possibly additional information (such as which "service packs" you have installed).

The "Accept" headers describe what sort of things the web browser can handle, and what it would prefer to be given if there's a choice. The "Accept" header itself describes which document types the web browser can handle, so for example we can tell whether your browser is capable of handling "image/png" graphics. "Accept-Language" header tells the web server what language(s) you prefer to receive your documents in – again, if the web server offers a choice. For example, if the header tells the web server that your preference is for "en-gb" followed by "en", that means you're probably an English-speaking Briton. "pt-br" on the other hand would suggest a Portuguese-speaking Brazilian.

The "Referer" header tells the web server which document referred you to the current page – in essence, if you followed a link to get to this page, it is the URL-address of the page you came from to get here. If on the other hand you didn't follow a link – maybe you clicked on a browser "bookmark", or maybe you just typed the address of this page directly into your browser – then the "referer" will be missing.

Every time a web server provides you with a response, it has the opportunity to send your browser a "cookie". These cookies are small pieces of information which your browser stores, and then sends back to that same web server whenever you subsequently request a document. So there are two im-

portant points here: (1) each cookie is only sent back to the same website as it came from in the first place, and (2) the "contents" of the cookie can only be made up of whatever information the web server already knew anyway. For example, a web server can't just say "send me a cookie containing your e-mail address" unless that same web server had already sent you that information in the first place.

**2. What information can be revealed from the following HTTP request?**

```
GET /mail.html HTTP/1.1
Host: www.yahoo.com
Accept: */*
Referer: http://www.yandex.ru/yandsearch?rpt=rad&text=mail+system
Accept-Language: en-us
User-Agent: Mozilla/4.0 (compatible; MSIE 7.0; Windows NT 5.1)
Cookie: LastVisit=01_03_2007
Connection: Keep-Alive
```

**3. Match the parts of a URL with their names and descriptions. There is one extra name and one extra description.**

A URL is the "address" of a document, image, sound, video clip or other resource on the World Wide Web. It consists of the following parts:

http://	max:sqr@	blogs.com	:8080	/main/pg	?name=max	#news
1	2	3	4	5	6	7

Names		Descriptions	
A	query	K	The identifier for a logical connector between an application entity and the transport service.
B	port	L	This is used for identifying registered users
C	route	M	This contains additional identification information
D	path	N	This is a format used to retrieve the document
E	hostname	O	This represents the computer on which the document can be found
F	login	P	The gateway that is used for sending requests

G	fragment	Q	This is a chain of directories, on which the document is found
H	scheme	R	This is used to specify a location within the current page

**4. Answer the following questions.**

- 1) Which of URL parts are optional and which are mandatory?
- 2) Which port number is used by default?
- 3) How do you think, are the following URL addresses equal?

<http://compnews.com/first.html>

<http://CompNews.com/first.html>

- 4) How do you think, are the following URL addresses equal?

<http://english.ru/articles.shtml>

<http://english.ru/Aticles.SHTML>

**5. Read the following text and decide if the statements below are True or False.**

A privacy policy is a disclaimer placed on a website informing users about how the website deals with a user's personal information. The privacy policy generally contains information regarding whether or how their information is shared with parent companies, subsidiaries, or third parties. Often this also explains how or if the website uses cookies and web bugs.

**WEBSITE PRIVACY POLICY**

We are committed to safeguarding the privacy of our website visitors; this policy sets out how we will treat your personal information.

We may collect information about your computer and your visits to this website such as your IP address, geographical location, browser type, referral source, length of visit and number of page views. We may use this information in the administration of this website, to improve the website's usability, and for marketing purposes.

We use cookies on this website. A cookie is a text file sent by a web server to a web browser, and stored by the browser. The text file is then sent back to the server each time the browser requests a page from the server. This enables the web server to identify and track the web browser.

We may send a cookie which may be stored on by your browser on your computer's hard drive. We may use the information we obtain from the cookie in the administration of this website, to improve the website's usability and for marketing purposes. We may also use that information to recognise your computer when you visit our website, and to personalise our website for you. Our advertisers may also send you cookies.

Most browsers allow you to refuse to accept cookies. This will, however, have a negative impact upon the usability of many websites, including this one.

**True or False?**

- 1) Every website should have its privacy policy.
- 2) Switching off cookies may influence web pages content.
- 3) If the visitor switches off cookies the web server will not be able to identify the visitor's computer next time when the visitor views web pages from this web server.
- 4) It is not possible to send an executable program as a cookie.
- 5) The main purpose of a website privacy policy is to describe how a web server receives information about its visitors.
- 6) The website privacy policy prohibits some types of information usage concerning registered website visitors.
- 7) When the user reboots the computer some cookies are not deleted.

**6. Four sentences have been removed from the text. Choose from the sentences A–E the one which fits each gap (1–5). There is one extra sentence which you do not need to use.**

A	Companies that deal in search results have to understand that they carry very sensitive information.
B	It was a mistake, and we apologize.
C	All search engines collect this kind of user data, and it's valuable to marketers, insurance companies, people involved in divorce and custody battles.
D	But the Internet giant has since removed the search logs from public view.
E	They said that anyone among the 658,000 could easily be identified based on the searches each individual conducted.

## AMERICA ON-LINE APOLOGIZES FOR RELEASE OF USER SEARCH DATA

Published: August 7, 2006, 9:59 AM PDT

AOL apologized on Monday for releasing search log data on subscribers that had been intended for use with the company's newly launched research site.

The randomly selected data, which focused on 658,000 subscribers and posted 10 days ago, was among the tools intended for use on the recently launched AOL Research site. (1)\_\_\_\_\_.

"This was a screw-up, and we're angry and upset about it. It was an innocent enough attempt to reach out to the academic community with new research tools, but it was obviously not appropriately vetted, and if it had been, it would have been stopped in an instant," AOL, a unit of Time Warner, said in a statement. "Although there was no personally identifiable data linked to these accounts, we're absolutely not defending this. (2)\_\_\_\_\_. We've launched an internal investigation into what happened, and we are taking steps to ensure that this type of thing never happens again."

Although AOL had used identification numbers rather than names or user IDs when listing the search logs, that did not quell concerns of privacy advocates. (3)\_\_\_\_\_.

"We think it's a major privacy concern, and we're glad to see AOL is taking it seriously," said Ari Schwartz, deputy director of the Center for Democracy and Technology. Schwartz and other privacy advocates noted that with bits of information, a "mosaic" could be created that could eventually lead a person to identify the individual in question. "(4)\_\_\_\_\_. Even if it doesn't have what we would traditionally consider to be personally identifiable information involved." (from <http://news.cnet.com>)



### ***SPEAKING***

- 7. How do you think, will it be possible to view web pages on the Internet without identifying your personality in ten years time? Is it possible nowadays?**

## UNIT 3 INTERNET SERVICES

### SECTION 1

#### LEAD-IN

#### 1. Discuss the following questions.

- Are the Internet and the World Wide Web the same thing?
- Do you have to type in the HTTP and WWW in the address field of your web browser?
- What are the tools that allow users to view and search the Web? Describe them.



#### READING

2. Five sentences have been removed from the text. Choose from the sentences A–F the one which fits each gap (1–5). There is one extra sentence which you do not need to use.

#### THE WORLD WIDE WEB – WHAT IS IT?

Contrary to common misconceptions, the World Wide Web is not exactly the same thing as the Internet. The Internet describes the **overall** infrastructure that allows sharing of computer resources world wide.

1



But the Internet **encompasses** other systems for exchanging information, including FTP sites, telnet and TN3270 resources, IRC relay chat systems, and USENET news groups, to name a few. What distinguishes the Web from all the other Internet resource systems is its look and feel. Using the hypertext transfer protocol (HTTP) to exchange information over the Internet, Web sites can provide users with media rich resources.

2

The Web makes extensive use of the graphical user interfaces (GUIs) that are common both to PCs and to Macs, thus providing a richer and more entertaining experience. All current Web browsers, such as Netscape and Microsoft Internet Explorer, support the full media capabilities of the World Wide Web as well as providing support for other Internet protocols.

3

His idea was to provide an international medium of exchange that would facilitate the sharing of information and ideas among CERN's members. His proposal laid the foundations for hypertext markup language (HTML) and the attendant protocols for organizing and sharing HTML documents over the Internet.

Although the Web began in relative obscurity, the eventual success of Berners-Lee's idea is obvious today – most of the resources that people locate on the Internet now are Web pages, designed to offer users graphical, hyperlinked access to a wealth of textual, visual, and audio materials. As new systems come online, the overwhelming majority will be designed with the Web interface in mind.

4

HTML allows users a non-linear approach to finding information and works more like the way people think – as interest dictates, the mind follows. Web pages are designed to allow users to follow clickable links to related or other information as the need or desire arises. Search Engines or Web Directories can help users find materials by keyword and then provide hyperlinks to the information located. (from <http://www.unf.edu>)

<a href="ftp://ftp.novell.com">ftp://ftp.novell.com</a>	This address connects you to Novell's anonymous ftp site, where people using Novell software can download file updates
<a href="gopher://gopher.tc.umn.edu">gopher://gopher.tc.umn.edu</a>	This address connects to the Mother Gopher at the University of Minnesota
<a href="http://www.unf.edu">http://www.unf.edu</a>	This address connects you to the University of North Florida's Homepage. Documents maintained here are in HTML format. The addressing convention "http" identifies this address as a hypertext site

<a href="news://usenet.unf.edu">news://usenet.unf.edu</a>	<div style="border: 1px solid black; display: inline-block; padding: 2px;">5</div> If you are using Netscape, you will get a pop-up window that lets you browse and read news
<a href="telnet://locis.loc.gov">telnet://locis.loc.gov</a>	If you have installed a telnet helper for your browser, this command will connect you via telnet to the Library of Congress's OPAC
<a href="tn3270://nervms.nerdc.ufl.edu">tn3270://nervms.nerdc.ufl.edu</a>	This will open a 3270 telnet session to LUIS, Florida's State University System OPAC

- A. They may include pictures, video, sound, and other graphical content.
- B. The Semantic Web will also play a role in trustworthy transactions.
- C. Navigating the Web is facilitated using the hypertext markup language (HTML).
- D. The Web is a part of this network and is, indeed, probably the best known and most used part of the Internet.
- E. This will connect you to a list of newsgroups maintained by the University of North Florida.
- F. Development of the Web began in 1989 as the result of a proposal by Tim Berners-Lee of the European Particle Physics Laboratory (CERN).

**3. In small groups discuss your answers to the following questions:**

- What is the importance of the World Wide Web development?
- Does it have the future?

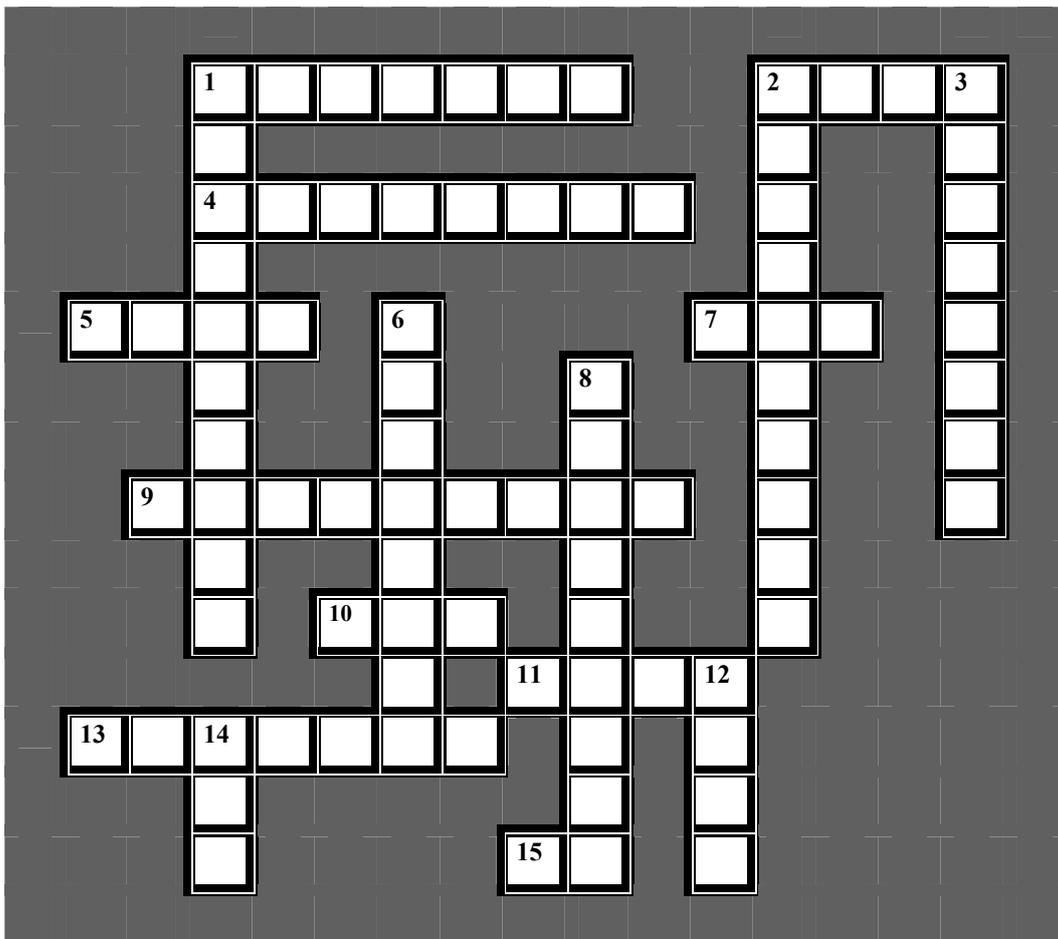
***VOCABULARY AND GRAMMAR***

**4. Match the highlighted words from the text with the meanings 1–7 below.**

- |               |                   |
|---------------|-------------------|
| 1. superior   | 5. potentialities |
| 2. general    | 6. uncertainty    |
| 3. to include | 7. to help        |
| 4. to dispose |                   |

5. Look at the crossword. Read the explanations given and complete the crossword.

## Web Vocabulary



### Across

1. What you see is what you get.
2. A programming language used in certain Web applets.
4. A saved URL.
5. The Web image format for photos.
7. The company that gives you Web access.

### Down

1. Computers that you access when you browse the Web (2 words).
2. A scripting language used for pop-up box navigation, image roll-overs, scrolling text, etc.
3. An \_\_\_ GIF appears to move.
6. Another name for the URL or address.

- |   |   |
|---|---|
| 9. A popular streaming audio format.                                | 8. Another common audio (and video) format. |
| 10. The Web image format for drawings.                              | 12. If it's clickable, it must be a _____.  |
| 11. The language of the Web.  | 14. Uniform Resource Locator.               |
| 13. A helper application for your browser in reading special media. |   |
| 15. The Microsoft browser.  |   |

**6. What do these abbreviations mean? Look up the ones you don't know in a dictionary.**

ARPANET, ISP, RTSP, NCP, WAN, VPN, ADSL, PKC, URI, FTP, CSS, SSI, HTTP, XML, VOIP, BBS, FAQ, RSS, UDP, POP, SMTP, DNS, CIDR, SSL

### WORD FORMATION

**7. From the verbs below make nouns by adding the appropriate suffixes. Translate the nouns.**

**-er, -or**

To control, to compute, to design, to use, to spam, to manufacture, to simulate, to operate, to route, to protect, to process, to deal, to perform, to crack, to program, to execute, to transmit, to lame, to convert, to crawl, to consume, to hack.

**-tion, -sion**

To organize, to connect, to combine, to apply, to represent, to encrypt, to corporate, to transact, to extend, to execute, to protect, to substitute, to communicate, to compress, to inform, authenticate,

**-ment**

To require, to measure, to equip, to invest, to accomplish, to improve, to develop, to achieve, to displace, to govern, to establish, to replace, to attach.

**8. Look at the suffixes and organize the following words into 3 groups: nouns, adjectives and adverbs.**

Organization, functional, available, equipment, processor, completely, architectural, converter, convertible, controller, removable, logical, browser, addition, additional, accomplishment, mainly, insertion, digital, daily, wireless, substitution, artificial, anonymity, virtual, frequently, navigation, simultaneously, transmission, dynamically, representation.

## PASSIVE VOICE

Passives are very common in technical writing where we are more interested in facts, processes, and events than in people. We use the passive by using the appropriate tenses of the verb to be followed by the past participle of the verb we are using.

### Examples:

#### Active

Many people use the Internet to access and download music and movies. (Present Simple)

#### Passive

The Internet is often used to access and download music and movies. (Present Simple)

<b>Present Simple</b>	New users on the Internet <i>are</i> sometimes <i>called</i> "newbies"
<b>Present Continuous</b>	The blogs <i>are being</i> largely <i>used</i> as easily-updatable online diaries now
<b>Present Perfect</b>	For as long as people have needed to conduct private conversations across distances, a variety of encryption methods <i>have been used</i> to protect secret communications
<b>Past Simple</b>	HTTP <i>was</i> originally <i>designed</i> by Tim Berners-Lee to support the special demands of web communications
<b>Past Continuous</b>	The movements of users through the website pages <i>were being tracked</i> by their IP addresses
<b>Past Perfect</b>	By 2006 new services such as Gmail and Google Video <i>had been</i> already <i>launched</i> by Google company
<b>Future Simple</b>	In some areas Wi-Fi networks <i>will be installed</i>
<b>Future Perfect</b>	Broadband access <i>will have been provided</i> in areas with low population density by next year
<b>Modals</b>	Sometimes you <i>might be asked</i> if you want to proceed with the immediate installation of the plug-in

**9. Put each verb in brackets into a suitable passive tense.**

1. Dial-up Internet access \_\_\_\_\_ (replace) by broadband access in many parts of the world now.
2. By 1990, ARPANET \_\_\_\_\_ (overtake) and \_\_\_\_\_ (replace) by newer networking technologies and the project came to a close.
3. The communities of the developing countries \_\_\_\_\_ (soon affect) by the capabilities the Internet is bringing to individual communications.
4. Bandwidth \_\_\_\_\_ (price) by large Internet service providers by several methods, such as at a fixed rate for constant availability of a certain number of megabits per second, or by a variety of use methods that amount to a cost per gigabyte.
5. With the continued doubling of computer capability every couple of years, the “virtual reality” \_\_\_\_\_ (integrate) with Internet shortly.
6. Dozens of innovative web browsers \_\_\_\_\_ (develop) by various people and teams over the years.
7. In the fifties most communication networks \_\_\_\_\_ (limit) by their nature to only allow communications between the stations on the network.

**10. Rewrite the following sentences using the Passive Voice.**

1. We can view the Internet protocol suite as a set of layers.
2. According to the research, people send about 31 billion e-mails worldwide every day.
3. HTML uses tags to describe how and where one should display text, images and any other content.
4. A core group of designers has always driven the architecture of the Internet, but the form of that group has changed as the number of interested parties has grown.
5. Electronics has extended man’s intellectual power.
6. Scientists are looking for new ways for the improvement of Internet technology.



***SPEAKING***

**11. Discuss the following questions about blogging in small groups.**

**BLOGGING**

- Jung von Matt, a German advertising firm, called blogs ‘the toilet of the Internet’. What do you think they meant by saying this?

- What, in your opinion, are the main reasons why people run blogs?
- Some people think that blogging is a manifestation of exhibitionism. Do you agree with this opinion?
- According to Technorati, a search engine for blogs, 41 % of blogs are in Japanese, 28 % in English, 14 % in Chinese and only 1 % in German. How can you explain these statistics?
- Mr Bhatia, who started Hotmail, thinks that in five years everybody will have a blog. Do you believe in this prediction?
- Some critics worry that bloggers do not present credible news and if their influence is bigger we can be easily manipulated. Do you share these fears?
- Some companies employ bloggers to promote their products or services. Do you think such activities are fair?



**12. Work in groups. Say which of the following ideas about the Web are good or bad.**

independent • world wide • cheap to use • expensive to buy computers • the information may not be true or correct • spend too much time playing games • talking in chat rooms • make new friends • visit many interesting websites • wait for a long time to download Web pages

**13. Work in pairs. Look at the following European country codes. Discuss which countries they could stand for.**

.at	•	.be	•	.bg	•	.de	•	.dk	•	.es	•	.fr	•	.gr	
•	.hu	•	.it	•	.lu	•	.nl	•	.pt	•	.ro	•	.si	•	.uk

**14. Imagine you could interview the people from the list below. Role play these interview in a group.**

- Tim Berners-Lee (the inventor of the WWW)
- Bill Gates (the founder of the Microsoft)
- Steve Wozniak (the designer of the first Apple computer)

**15. Role play the following situation in pairs:**

**Steve:** You love looking for information on the Internet. You can spend hours looking for one small piece of information because you love to see where other links go. You are not too knowledgeable about how to get the information you are looking for, but at least you know it is out there.

**Steve's father:** You are very concerned about the time you feel your son is wasting on the Internet. You do not see the Internet as a valuable source of information and would much rather see Steve using a book to gather information. It is time to learn how much the Internet really does have to offer.



### **LISTENING**

**16. Before listening to the recording discuss the following questions.**

- What web browser do you use at your home computer?
- Is the choice of web browser important for you?
- What points do you take into consideration when you choose a browser?

**17. You are going to hear an article about the rivalry of two browsers. How do you think what are they?**

**Now listen and say whether these statements are True or False.**

1. The rivalry between the two browsers became favourable for users.
2. Microsoft tried to build the browser into their operating system.
3. Netscape's strategy is similar to Microsoft's one.
4. Netscape's browser suite includes the two parts Netscape Navigator and Netscape Mail.

5. The U.S. government accused Microsoft of trying to deceive the users of Windows operating system.

**18. Before listening to the recording discuss the following questions.**

- Do you know what Instant Messaging is?
- How does it work?
- What Instant Messaging software do you know?

**19. Listen to the interview with a business computer analyst Nigel Notes about Instant Messaging. Complete these notes using a word, figure or short phrase.**

1. With Instant Messaging people can communicate with each other in \_\_\_\_\_.
2. Instant Messaging started with small software written in \_\_\_\_\_.
3. People can get some Instant Messaging programmes free \_\_\_\_\_.
4. On average Instant Messaging software stays open on the desktop for \_\_\_\_\_.
5. The latest innovations include customizable \_\_\_\_\_ and new \_\_\_\_\_.



**WRITING**



**20. Write an article to a magazine intended for Internet beginners. Describe your favourite search engines, their strong and weak points. Analyse Internet search strategies and give advice on choosing the best ones.**

## *INTERNET ACTIVITIES*

### **21. You are going to carry out a research on blogs.**

Take a look at some of the sites from the following groups: Blogs and Not Blogs.

<b>Blogs</b>	<b>Not Blogs</b>
<a href="http://www.1976design.com/blog/">http://www.1976design.com/blog/</a> <a href="http://www.boingboing.net/">http://www.boingboing.net/</a> <a href="http://weblog.herald.com/column/davebarry">http://weblog.herald.com/column/davebarry</a>  or any other blog web site	<a href="http://www.apple.com/">http://www.apple.com/</a> <a href="http://news.google.com/">http://news.google.com/</a> <a href="http://nytimes.com/">http://nytimes.com/</a> <a href="http://www.microsoft.com/">http://www.microsoft.com/</a>

As you look at some of the sites, discuss the following with your group:

- What common features do you notice among the blogs?
- Are there some features common to some, but not all, of the blogs?
- What primary differences you notice between the blog sites and the non-blog sites?

Now give a definition of a blog. As you create your definition, consider:

- What are the key characteristics of a blog?
- What makes a blog a blog?
- Are there "essential elements" of a blog?

At last work on your own and create a blog using the free online tool Blogger (<http://www.blogger.com>). While planning your blog answer the following questions:

- Who is your audience?
- What is the focus of your blog?
- What will you call your blog?

When your blog is ready, demonstrate it to the group. Choose the best blog.

## SECTION 2



### READING

#### 1. Read the text and translate it.

##### INTERNET PROTOCOL SUITE

The Internet protocol **suite** is the set of communications protocols that implements the protocol stack on which the Internet and many commercial networks run. It is part of the TCP/IP protocol suite, which is named **after** two of the most important protocols in it: the Transmission Control Protocol (TCP) and the Internet Protocol (IP), which were also the first two networking protocols defined. Note that today's TCP/IP networking represents a synthesis of two developments that began in the 1970's, namely LAN's (Local Area Networks) and the Internet, that revolutionised computing.

The Internet protocol suite – like many protocol suites – can be viewed as a set of layers. Each layer solves a set of problems involving the transmission of data, and provides a well-defined service to the upper layer protocols based on using services from some lower layers. Upper layers are logically closer to the user and deal with more abstract data, relying on lower layer protocols to translate data into forms that can eventually be physically transmitted. The original TCP/IP **reference** model consisted of four layers, but has evolved into a five-layer model.

The application layer is used by most programs for network communication. Data sent over the network is passed into the application layer where it is **encapsulated into** the application layer protocol. From there, the data is passed down into the lower layer protocol of the transport layer.

The transport layer's responsibilities include end-to-end message transfer capabilities independent of the underlying network, along with error control, fragmentation and flow control. End-to-end message transmission or connecting applications at the transport layer can be categorized as either connection-oriented (e. g. TCP) or connectionless (e. g. UDP). The transport layer provides this service of connecting applications together **through** the use of ports.

On the network layer Internet Protocol (IP) provides a connectionless, unreliable, best-effort packet delivery service. It's service is called connectionless because it resembles the Postal Service more than it does the telephone system. IP packets, like telegrams or mail messages, are treated independently. Each packet is stamped with the addresses of the receiver and the sender. Routing decisions are made on a packet-by-packet basis.

The data link is all about getting information from one place to a selection of other places. At this layer one does not need to be able to go everywhere, just able to go somewhere else. It is analogous to social interaction in that one needs to know at least one other person, but not necessarily know Fred, Bob, or James.

The physical layer is responsible for encoding and transmission of data over network communications media. It operates with data in the form of bits that are sent from the physical layer of the sending (source) device and received at the physical layer of the destination device.

Today, most commercial operating systems include and install the TCP/IP stack by default. For most users, there is no need to look for implementations. TCP/IP is included in all commercial Unix systems, Mac OS X, and all free-software Unix-like systems such as Linux distributions and BSD systems, as well as Microsoft Windows.

Some protocols from the TCP/IP protocol suit:

Layer	Protocols
Application	HTTP, FTP, SSH, Telnet, BitTorrent
Transport	TCP, UDP
Network	IP
Data Link	Ethernet, FDDI (fiber distributed data interface), PPP (point-to-point protocol)
Physical	10Base-T, 100Base-T, DSL (digital subscriber line).

**2. Match selected words in the text with the most suitable synonym.**

- suite – subsystem, collection, sequence
- after – in the name of, behind, later, further, then
- reference – connection, relational, informational, standard
- encapsulated into – processed according to, processed by, used with combination of, used by, inserted into
- through – allowing, providing, by means of, depending on

**3. Decide whether the statements below are true or false.**

- The Internet protocol suite is based on the protocol stack.
- TCP/IP protocol suite contains more protocols than the Internet protocol suite.

- In the TCP/IP protocol suite there are only two protocols: TCP and IP.
  - Connection-oriented protocol TCP is based on circuit-switching technology.
  - It is possible to send information from one country to other using protocols from just physical layer and data link layer.
4. **Describe functions of each protocol layer in the following real life task: the physical training teacher wanted to invite Petrov Vasya to sport competition but Vasya was absent so trainer asked Vasya's classmates to give him the letter, in which trainer asked Vasya to call him.**
  5. **Describe how you understand the meaning of the following terms from the text: fragmentation, best-effort delivery, connectionless, unreliable delivery.**
  6. **Read the text and translate it.**

## **FILE TRANSFER PROTOCOL**

The File Transfer Protocol (FTP) was one of the first efforts to create a standard means of exchanging files over a TCP/IP network, so the FTP has been around since the 1970's. The FTP was designed with as much flexibility as possible, so it could be used over networks other than TCP/IP, as well as being engineered to have the capability with exchanging files with a broad variety of machines. The base specification is RFC 959 and is dated October 1985. There are some additional RFCs relating to FTP, but it should be noted that most of the new additions are not in widespread use.

The protocol can be thought of as interactive, because clients and servers actually have a conversation where they authenticate themselves and negotiate file transfers. In addition, the protocol specifies that the client and server do not exchange data on the conversation channel. Instead, clients and servers negotiate how to send data files on separate connections, with one connection for each data transfer. Note that a directory listing is considered a file transfer.

When using FTP, users use FTP client programs rather than directly communicating with the FTP server. Here's an example of using the "ftp" program on UNIX-like systems. The items the user types are in bold.

Terminal	FTP-Client	Comments
Petya\$ <b>/usr/bin/ftp</b>		
ftp> <b>open ftp.example.com</b> Connected to ftp.example.com (10.132.12.14).		Connects to the FTP service at port 21 on the IP ad- dress 10.132.12.14.
220 Hello, this is the Example Mail Service.		
Name (ftp.example.com:root): <b>Petya</b>	USER Petya	Send username
331 Password required to access user account Petya.		
Password: <b>RjDc+D;3</b>	PASS RjDc+D;3	Send password. Note that this password is not en- crypted
230 Logged in.		
ftp> <b>cd Univer</b>	CWD Univer	Change directory to "Univer"
250 "/home/Petya/Univer" is new working directory.		
ftp> <b>ls</b>	PORT 192,168,1, 2,7,138	The client wants the server to send to port number 1930 (1930 = 7*256+138) on IP address 192.168.1.2
200 PORT command successful.	LIST	Send the list of files in "Bills"
150 Opening ASCII mode data con- nection for /bin/ls.		The server now connects out from its port 20 on 10.132.12.14 to port 1930 on 192.168.1.2.
-rw-r--r-- 1 ftpuser ftpusers -rw-r--r-- 1 ftpuser ftpusers 226 Listing completed.	14886 Dec 3 15:22 Task.TXT 317000 Dec 4 17:40 Report.TXT	
ftp> <b>get Report.TXT</b> local: Report.TXT remote: Re- port.TXT	PORT 192,168,1, 2,7,139	The client wants the server to send to port number 1931 on the client machine.
200 PORT command successful.	RETR Re- port.TXT	Download "Report.TXT"
150 Opening ASCII mode data con- nection for Yoyodyne.TXT.		The server now connects out from its port 20 on 10.132.12.14 to port 1931 on 192.168.1.2.
226 Transfer completed. 317000 bytes received in 0.0262 secs (1.2e+04 Kbytes/sec)		That succeeded, so the data is now sent over the estab- lished data connection.
ftp> <b>quit</b>	QUIT	
221 Goodbye.		

(from <http://www.ncftp.com>)

## 7. Fill the gaps in the following example of using the “ftp” program.

Terminal	FTP-Client
Petya\$ <b>/usr/bin/ftp</b>	
ftp> <b>open ftp.server.ru</b> Connected to ftp.server.ru (10.201.45.12).	
220 Hello, this is the Mail Service.	
Name (ftp.server.ru:root): <b>Mike</b>	USER <input type="text"/> <b>1</b>
331 Password required to access user account <input type="text"/> <b>2</b>	
<input type="text"/> <b>3</b>	PASS kEfg6
230 Logged in.	
<input type="text"/> <b>4</b>	<input type="text"/> <b>5</b>
250 "/home/Mike/upload" is new work- ing directory.	
ftp> <b>ls</b>	PORT 192,168,145,21, 8,138
200 PORT command successful.	<input type="text"/> <b>6</b>
150 Opening ASCII mode data connec- tion for /bin/ls.	
-rw-rw-r-- 1 www www 14886 May 3 10:22 info.doc -rw-rw-r-- 1 www www 6400 Apr 4 11:40 desc.txt -rw-rw-r-- 1 www www 325000 Apr 5 11:42 results.tgz -rw-rw-r-- 1 www www 52345 Apr 6 11:43 desc.txt 226 Listing completed.	
ftp> <b>get</b> <input type="text"/> <b>7</b>	PORT <input type="text"/> <b>8</b> ,8,139
200 PORT command successful.	<input type="text"/> <b>9</b>
150 Opening ASCII mode data connec- tion <input type="text"/> <b>10</b>	
226 Transfer completed. 325000 bytes received in 2.12 secs (1.53e+02 Kbytes/sec)	
<input type="text"/> <b>11</b>	QUIT
221 Goodbye.	

**8. Complete the sentences with the words from the box**

sender delayed	scheduled confirmation	protocol service	traffic guarantees
-------------------	---------------------------	---------------------	-----------------------

1 Best effort delivery describes a network service in which the network  
2 does not provide any \_\_\_\_\_ that data is delivered. In a best effort  
3 network all users obtain best effort \_\_\_\_\_, meaning that they obtain  
4 unspecified variable bit rate and delivery time, depending on the cur-  
5 rent \_\_\_\_\_ load. The postal service delivers letters using a best effort  
6 delivery approach. The delivery of a certain letter is not \_\_\_\_\_ in  
7 advance – no resources are preallocated in the post office. The mail-  
man will make his "best effort" to try to deliver a message, but the de-  
livery may be \_\_\_\_\_ if too many letters all of a sudden arrives to a  
postal office. The \_\_\_\_\_ is not informed if a letter has been deli-  
vered successfully. However, it is possible to pay extra for a delivery  
\_\_\_\_\_ receipt, which requires that the carrier get a signature from  
the recipient to prove the successful delivery. (from  
<http://en.wikipedia.org>)

**9. Read the text about active and passive modes and decide which mode is used in FTP connection that is illustrated in exercise 6.**

In active mode, the FTP client opens a random port (> 1023), sends the FTP server the random port number on which it is listening over the control stream and waits for a connection from the FTP server. When the FTP server initiates the data connection to the FTP client it binds the source port to port 20 on the FTP server.

In passive mode, the FTP server opens a random port (> 1023), sends the FTP client the server's IP address to connect to and the port on which it is listening over the control stream and waits for a connection from the FTP client. In this case the FTP client binds the source port of the connection to a random port greater than 1023.

## UNIT 4 ONLINE PAYMENT SYSTEMS

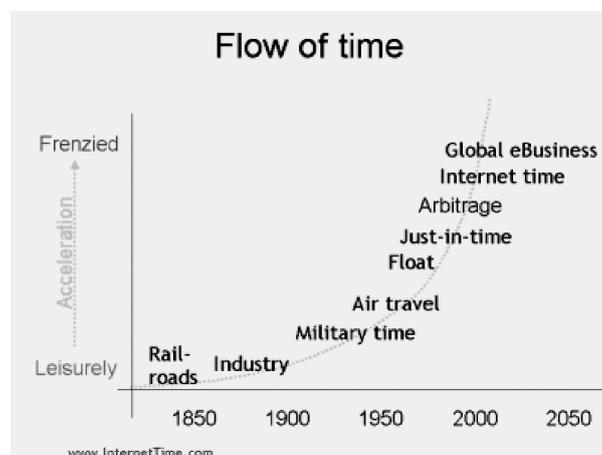
### SECTION 1

#### LEAD-IN

**1. Discuss the following questions.**

- Have you ever heard of e-shopping? What do you know about it?
- Do you know anyone who has bought anything online? What did they buy?
- What are the advantages and disadvantages of e-shopping? Make a list.
- What online payment systems do you know?
- What do you know about online fraud?

**2. Look at the graph below and tell about the data it shows. What do you think about the development of global e-business?**



#### READING

- 3. You are going to read a magazine article about electronic payment. Choose the most suitable heading from the list A–H for each part (1–6) of the article. There is one extra heading which you do not need to use. There is an example at the beginning (0).**

**A** Benefits of electronic payment  
**B** Effects on businesses  
**C** The increasing popularity of electronic payment  
**D** Online security

**E** Types of transactions  
**F** Account types  
**G** Concerns about electronic payment  
**H** Methods of electronic payment

## ELECTRONIC PAYMENT

**C**

**0**

When it comes to payment options, nothing is more convenient than electronic payment. You don't have to write a check, swipe a credit card or handle any paper money; all you have to do is enter some information into your Web browser and click your mouse. It's no wonder that more and more people are turning to electronic payment – or e-payment – as an alternative to sending checks through the mail.



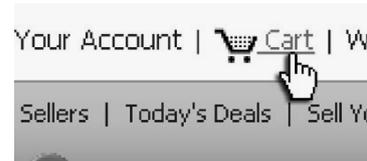
**1**

An electronic payment is any kind of non-cash payment that doesn't involve a paper check. Methods of electronic payments include credit cards, debit cards and the ACH (Automated Clearing House) network. The ACH system comprises direct deposit, direct debit and electronic checks (e-checks).

**2**

For all these methods of electronic payment, there are three main types of transactions:

1. A one-time customer-to-vendor payment is commonly used when you shop online at an e-commerce site, such as Amazon. You click on the shopping cart icon, type in your credit card information and click on the checkout button. The site processes your credit card information and sends you an e-mail notifying you that your payment was received.
2. You make a recurring customer-to-vendor payment when you pay a bill through a regularly scheduled direct debit from your checking account or an automatic charge to your credit card. This type of payment plan is commonly offered by car insurance companies, phone companies and loan management companies.



3. To use automatic bank-to-vendor payment, your bank must offer a service called online bill pay. You log on to your bank's Web site, enter the vendor's information and authorize your bank to electronically transfer money from your account to pay your bill.

3

Electronic payment is very convenient for the consumer. In most cases, you only need to enter your account information – such as your credit card number and shipping address once. The information is then stored in a database on the retailer's Web server. When you come back to the Web site, you just log in with your username and password. Completing a transaction is as simple as clicking your mouse: All you have to do is confirm your purchase and you're done.

4

Electronic payment lowers costs for businesses. The more payments they can process electronically, the less they spend on paper and postage. Offering electronic payment can also help businesses improve customer retention. A customer is more likely to return to the same e-commerce site where his or her information has already been entered and stored.

5

The main drawbacks to electronic payments are concerns over privacy and the possibility of identity theft. Fortunately, there are many safeguards available to protect your sensitive personal information from falling into the wrong hands.

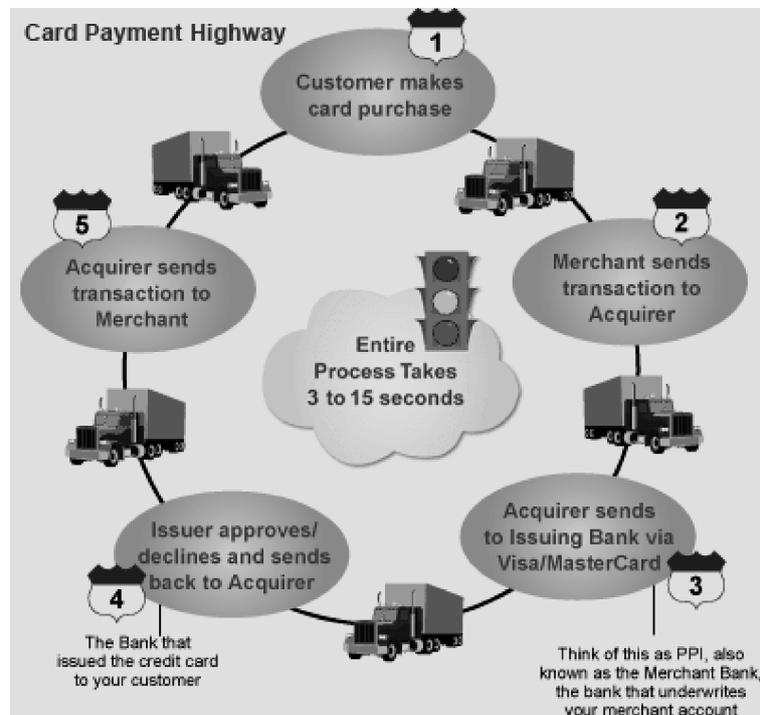


6

You can defend yourself against identity theft by using virus protection software and a firewall on your computer. You should also make sure that you send your credit card information over a secure server. Your Internet browser will notify you when a server is secure by showing a lock or key icon. In addition, the URL on a secure site is usually designated by the prefix "https" instead of

"http." Retailers do their part by using data encryption, which codes your information in such a way that only the key holder can decode it. (from <http://money.howstuffworks.com>)

4. Read the text again and explain the scheme below, describing the card payment process.



### VOCABULARY AND GRAMMAR

5. Match the terms with their definitions.

1. catalogue	a) a network in which some of the parts are connected using the public Internet, but the data sent across the Internet is encrypted
2. fulfilment	b) the process of validating card details to process a transaction
3. fraud	c) debit card that uses the visa system
4. settlement period	d) the software package that is used to run and maintain the standard web e-commerce enabled product catalogue
5. authorisation	e) the three digit number that is printed on the back of a card that is used for extra confirmation that the card user has the original card

6. Virtual Private Network (VPN)	f) the final stage of a purchasing transaction where the goods are delivered to the customer
7. mobile commerce	g) an open technical standard for the commerce industry developed by Visa and MasterCard as a way to facilitate secure payment card transactions over the Internet
8. Card Verification Code (CVC)	h) software that allows easy update and maintenance of a range of products in an e-commerce site
9. Visa Electron	i) the time taken from the moment a transaction is completed to the point where the funds are available to the merchant
10. Secure Electronic Transaction (SET)	j) a term coined to refer to generically to transactions that are made or facilitated using mobile devices
11. shopping cart	k) a process of deliberately deception to gain goods or services, in the case of credit cards, this might be through the use of a stolen card number

**6. Fill in the correct word.**

<b>track</b>	<b>withdrew</b>	<b>conduct</b>	<b>digital</b>	<b>trans-</b>
<b>action</b>	<b>e-money</b>	<b>real</b>	<b>interact</b>	

**E-MONEY**

In general, there are two distinct types of e-money: identified e-money and anonymous e-money (also known as 1) \_\_\_\_\_ cash). Identified e-money contains information revealing the identity of the person who originally 2) \_\_\_\_\_ the money from the bank. Also, in much the same manner as credit cards, identified e-money enables the bank to 3) \_\_\_\_\_ the money as it moves through the economy. Anonymous e-money works just like 4) \_\_\_\_\_ paper cash. Once anonymous e-money is withdrawn from an account, it can be spent or given away without leaving a 5) \_\_\_\_\_ trail.



There are two varieties of each type of e-money: online e-money and offline e-money. Online means you need to 6) \_\_\_\_\_ with a bank (via modem or network) to conduct a transaction with a third party. Offline means you can 7) \_\_\_\_\_ a transaction without having to directly involve a bank. Offline anonymous 8) \_\_\_\_\_ (true digital cash) is the most complex form of e-money because of the double-spending problem. (from <http://projects.exeter.ac.uk>)

### WORD FORMATION

7. Fill in the following table. Form the words derived from the given ones if possible.

	Concrete noun	Abstract noun	Verb	Adjective / adverb
<b>e. g.</b>	safe, saver, sav- iour, savings	safety	save	safe
1.			solve	
2.	assembler			
3.		manipulation		
4.		responsibility		
5.				accessible
6.		accuracy		
7.	relation			
8.			correct	
9.	eliminator			
10.				vulnerable

## Compound Nouns

In English, words, particularly adjectives and nouns, are combined into compound structures in a variety of ways. And once they are formed, they sometimes metamorphose over time. There is only one sure way to *know* how to spell compounds in English: use an authoritative dictionary.

There are three forms of compound words:

the **closed form**, in which the words are melded together, such as firefly, secondhand, softball, childlike, crosstown, redhead, keyboard, makeup, notebook;

the **hyphenated form**, such as daughter-in-law, master-at-arms, over-the-counter, six-pack, six-year-old, mass-produced;

and the **open form**, such as post office, real estate, middle class, full moon, half sister, attorney general.

## Compound noun phrase

It is common to find one noun modifying another: student body, book cover, water commission. But when we create a long string of attributive nouns or modifiers, we create difficulties:

*People who author web-pages have become aware of what is now known as the uniform resource locator protocol problem.*

The difficulty we have here is knowing what is modifying what. Also, the reader keeps expecting the string to end, so the energy of the sentence (and our attention) dwindles into a series of false endings. Such phrases are a particular temptation in technical writing. Usually, the solution to an overly extended compound noun phrase is to start the translation with the last noun.

### 8. Identify the form of compound words and translate them.

Firewall, web page, web site, network, netnews, software, malware, spyware, computer-aided, computer-assisted, computer-generated, computer-literate, computer-mediated, computer-oriented, computerphobia, online chat, online service, mail filter, mail gateway, mailbomb, mailbox, narrow-band, navigation tool.

**9. Translate the following compound nouns and compound noun phrases.**

**Technology**

High technology; analog technology; communication technology; compatible technologies; packet communication technology; advanced technology; artificial intelligence technology; well-proven technology.

**Data**

Missed data; asynchronous data; encoded data; input data; raw data; digitized data; data flow; data compression.

**Network**

Asynchronous network; backbone network; baseband network; baseband-switched network; broadband integrated-service digital network; data-computing network; data-transmission network; dial-up network; packet wireless communication network.

**Packet**

Packet filtering; packet sniffer; packet switching; packet assembly; Packet Switch Node; packet switching network.

**Server**

Access server; client/server architecture (CSA); backup server; client software; load server; database server; dedicated server; staging server, asynchronous-communication server.



***SPEAKING***

**10. Work in groups and discuss the benefits of e-commerce.**

Electronic commerce describes the buying, selling, and exchanging of products, services, and information via computer networks, primarily the Internet. What are the benefits of e-commerce?

**Benefits of E-Commerce**

<b>To organisations</b>	<b>To Customers</b>	<b>To Society</b>

**11. Discuss the advantages and disadvantages of using e-money.**



**LISTENING**



**12. You are going to listen to a magazine article about online payment system PayPal. For questions 1–6 fill in the relevant information.**

For financial transfers between computers  
PayPal uses ...

With the help of PayPal the funds can be  
transferred ...

Some PayPal users are not ...

The weakest point of the PayPal system is that  
it doesn't maintain ....

Like any bank PayPal offers ...

There is also a strange practice in PayPal,  
they can ...



**WRITING**

**13. Work in pairs. What questions do you think an online consumer will have? Think of five FAQs for an online business, e. g. about the type of business, the products offered, payment, security.**

1. Write the questions.
2. Give them to another pair.
3. Imagine you run an online business and answer the questions you receive.
4. Write the answers under the questions and give them back to their authors.

**14. Read the text and write an annotation. Use the clichés from Unit 2.**

**THREE WAYS TO MAKE SURE YOUR ONLINE CREDIT CARD TRANSACTION IS SAFE**

In the age of the Internet and busy schedules, more people are finding it more convenient to do their shopping and banking online. Nowadays, people are working longer hours and are too busy with other activities to be able to fit in time to travel to the local shopping center. Instead they can go straight home from work and with a few clicks of the mouse, have a package ready to ship to their front door. The Internet now comes first before the importance of the television and telephone. Playing an important part in people's lives, the computer is the fastest way to communicate, bank and shop. Many online consumers are using debit and credit cards to pay for their purchases, while other methods such as e-wallets, Paypal, mobile and other wireless transactions are following close behind.



The Federal Trade Commission (FTC) wants all online consumers to be well informed about the new payment technologies and how the consumers can make their online transactions as secure and as safe as possible. Although it's impossible to control the fraud and deception on the Internet, the FTC encourages all online consumers to take the necessary steps to ensure the security of your personal information and all other online transactions.

As an online consumer, it's up to you, and only you, to protect yourself from theft. Here are three ways to make sure that your online credit card transactions are safe:

1. Use a secure web browser. Using software that encrypts online purchase information will help to secure your transactions. Make sure that your web browser is updated on its encryption capabilities. You can ensure this update by using the latest version of encryption software from the manufacturers. Some web browsers offer free downloads over the Internet. While submitting your information, be sure to look for the icon "lock" in the web browsers status bar. This will ensure your information is secure during the transmission.
2. Read before you write. Never provide any personal information to any website before first checking with the website's privacy policy. This way you can be aware if your information will be shared or used in any way with other

online merchants. You will also want to know exactly what security features are established so your personal information can not be acquired fraudulently. You should be able to understand the privacy, shipping and refund policies before you provide any information or make a purchase. If after reading the privacy policy, you are not comfortable, then you may want to consider taking your business elsewhere.

3. Review all financial statements. Always review your bank and credit card statements and look for any unauthorized purchases or errors. Statements can be fairly confusing to look over, but take your time and be thorough, if you notice anything questionable, contact your bank or credit card company immediately. You should also contact these financial institutions if your purse or wallet is lost or stolen, or even if you think there are unauthorized uses of your accounts. Always keep records of your online transactions and read all your e-mails from those merchants from which you have made purchases from. Those merchants may be sending you important information about your purchase or account with them. (from [www.internet-security-abc.com](http://www.internet-security-abc.com))

## INTERNET ACTIVITIES

### 15. You are going to carry out a research on the Internet.

Electronic commerce is being targeted by the government as an important Internet issue. Huge amounts of time and energy are being devoted to examining the issues of how to make electronic commerce efficient, effective and accepted. Each of you will pick an area to research. This includes: Spam, Internet Advertising, Credit Card Fraud, and E-Bay.

You are to answer these questions:

- What personal information about yourself do you believe should be private?
- How do cookies work?
- How can you best protect your privacy?
- How can your employer track which web sites you visit?
- What laws are there in existence to protect you?

You will then come back together and pool your research.

You may use the recommended resources or use your own.

<http://www.austlii.edu.au/au/other/unswlj/thematic/1998/vol21no2/dezwart.html>

<http://sandpit.law.uts.edu.au/~chrisw/itlaw/issues/ecom.html>

<http://www.rbs2.com/privacy.htm>

<http://www.findlaw.com>

## SECTION 2



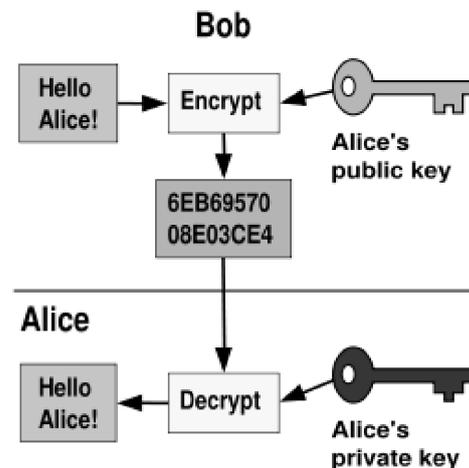
### 1. Read the text and translate it.

#### PUBLIC KEY CRYPTOGRAPHY

The role of cryptography is very important in the design of electronic payment systems. The cryptographic mechanisms include public-key cryptography, one-way hash functions, challenge-response cryptographic protocols, digital signatures and key management protocols.

Public key cryptography, also known as asymmetric cryptography, is a form of cryptography in which a user has a pair of cryptographic keys – a public key and a private key. The private key is kept secret, while the public key may be widely distributed. The keys are related mathematically, but the private key cannot be practically derived from the public key. A message encrypted with the public key can be decrypted only with the corresponding private key, and a message encrypted with the private key can only be decrypted using the public key.

An analogy for public-key encryption is that of a locked mailbox with a mail slot. The mail slot is exposed and accessible to the public; its location is in essence the public key. Anyone knowing the street address can go to the door and drop a written message through the slot; however, only the person who possesses the key can open the mailbox and read the message.



### 2. Decide whether the statements below are true or false.

- 1) One should keep his public key in a secret place.
- 2) Several private keys can be associated with public key.
- 3) Several public keys can be associated with private key.
- 4) It is easy to create a private key with the corresponding public key.
- 5) It is easy to create a public key with the corresponding private key.

6) It is possible to decrypt a message with public key, that was used for encrypting this message.

**3. Write the sequence of actions from the list below for the following task: send message that can be read only by the receiver (some actions are not used).**

- A) The message is transferred from the sender to the receiver.
- B) The sender encrypts the message with the receiver's public key.
- C) The receiver gets the sender's public key.
- D) The receiver decrypts the message with his/her private key.
- E) The receiver decrypts the message with sender's public key.
- F) The sender gets the receiver's public key.

**4. Write the sequence of actions from the list below for the following task: the receiver should be sure that the message was written by the sender and no one changed or faked it (some actions are not used).**

- A) The message is transferred from the sender to the receiver.
- B) The sender gets the receiver's public key.
- C) The receiver decrypts the message with the sender's public key.
- D) The sender encrypts the message with his/her private key.
- E) The receiver gets the sender's public key.
- F) The sender encrypts the message with the receiver's public key.

**5. Read the text and decide which word best fits each space.**

### **DIGITAL SIGNATURE**

A digital signature is different from a handwritten one. It is unique and different every time it is (1)\_\_\_\_\_, and is related to the thing or things it is signing (an electronic document, picture, program and so on). It is created by doing a mathematical calculation on the thing that is being signed that produces a unique numerical (2)\_\_\_\_\_. That value is (3)\_\_\_\_\_ using a private cryptographic key and the result linked to the things that were signed. So to make a digital signature you have to generate or buy a private cryptographic key and a (4)\_\_\_\_\_ public key and certificate.

There are basically two kinds of cryptography in use. Secret key (symmetric), and public/private key (asymmetric). With secret key, the same key is used to encrypt information and decrypt information. (5)\_\_\_\_\_ the operation is symmetric. With public/private key, the two keys are of different values. Encryption is done using one of them, and (6)\_\_\_\_\_ can then only be

done using the other. Hence the operation is asymmetric. You can give your (7)\_\_\_\_\_ key to everyone. Then, if they want to send something to you they encrypt it with your public key and they know that only you can (8)\_\_\_\_\_ it. By the same terms, if you encrypt something using your private key, then anyone who has your public key can check to see if they can (9)\_\_\_\_\_ it, and if they can, they know it must have come from you.

- |                 |             |                |                 |
|-----------------|-------------|----------------|-----------------|
| 1) A proposed   | B requested | C generated    | D uploaded      |
| 2) A value      | B answer    | C key          | D message       |
| 3) A increased  | B checked   | C encrypted    | D decrypted     |
| 4) A signed     | B verified  | C separate     | D corresponding |
| 5) A But        | B Hence     | C Then         | D Nevertheless  |
| 6) A decryption | B checking  | C transferring | D signing       |
| 7) A symmetric  | B signing   | C private      | D public        |
| 8) A see        | B read      | C receive      | D encrypt       |
| 9) A encrypt    | B decrypt   | C generate     | D read          |

**6. Read the text and translate it.**

**SECURE HTTP**

HTTPS is a URI scheme used to indicate a secure HTTP connection. It is syntactically identical to the http:// scheme normally used for accessing resources using HTTP. Using an https://URL indicates that HTTP is to be used, but with a different default TCP port (443) and an additional encryption/authentication layer between the HTTP and TCP. This system was designed by Netscape Communications Corporation to provide authentication and encrypted communication and is widely used on the World Wide Web for security-sensitive communication such as payment transactions and corporate logons.

Strictly speaking, HTTPS is not a separate protocol, but refers to a normal HTTP interaction over an encrypted Secure Sockets Layer (SSL) or Transport Layer Security (TLS) transport mechanism. This ensures reasonable protection from eavesdroppers and man-in-the-middle attacks, provided it is properly implemented and the top level certification authorities do their job.

To prepare a web-server for accepting HTTPS connections the administrator must create a public key certificate for the web-server. This certificate must be signed by a certificate authority of one form or another, who certifies that the

certificate holder is who they say they are. Web browsers are generally distributed with the signing certificates of major certificate authorities, so that they can verify certificates signed by them.

Organizations may also run their own certificate authority, particularly if they are responsible for setting up browsers to access their own sites, as they can trivially add their own signing certificate to the defaults shipped with the browser.

Some sites use self-signed certificates. Using these provides protection against pure eavesdropping but unless the certificate is verified by some other method and that other method is secure, there is a risk of a man-in-the-middle attack.

The system can also be used for client authentication, in order to restrict access to a web server to only authorized users. For this, typically the site administrator creates certificates for each user which are loaded into their browser, although certificates signed by any certificate authority the server trusts should work. These normally contain the name and e-mail of the authorized user, and are automatically checked by the server on each reconnect to verify the user's identity, potentially without ever entering a password. (from <http://www.consultants-online.co.za>)

**7. Read the text once more and answer the following questions.**

- 1) Why it is dangerous to use pure HTTP for transferring security-sensitive information?
- 2) What are two main functions of HTTPS?
- 3) What is the difference between eavesdropping and man-in-the-middle attack?
- 4) What is disadvantage of using self-signed certificates?
- 5) What should be done in order users be able to access their personal information on the web server without entering passwords?

**8. Imagine situation when someone comes to the bank in order to get some money. Perform the following tasks according to this situation.**

- 1) Describe the mechanism of authentication.
- 2) Describe the mechanism of authorization.
- 3) Describe the situation when authentication is passed but authorization is failed.
- 4) Describe the situation when authentication is failed but authorization is passed.

## SECTION 1

### LEAD-IN

#### 1. Discuss the following questions.

- How do you choose your e-mail client?
- Which of the following factors are important for you when you choose your e-mail client: security, privacy, functionality, reliability, availability, ease of use or visual appeal?
- Can you have more than one e-mail client? Can be any problem with compatibility?
- Which browser-based e-mail clients do you know?



#### LISTENING

#### 2. Read the following summary of the text, then listen to the text and fill in the gaps.

E-mail has become a very popular form of communication. Using an e-mail client you can compose an e-mail message and send it to another person. You can also use online e-mail services and e-mail offered by your

1) \_\_\_\_\_. Usually your message could arrive in 2) \_\_\_\_\_. The network ID will provide you with 3) \_\_\_\_\_, the SMTP server handles the communications as you send an e-mail message, and the POP server provides the transmission for receiving e-mail. Usually your e-mail message is divided into small 4) \_\_\_\_\_. POP is used to extract e-mail from a 5) \_\_\_\_\_. Access to the contents of the mailbox is granted by entering in your 6) \_\_\_\_\_. POP2 was popular in 7) \_\_\_\_\_. The newer version, POP3, can be used with or without SMTP. IMAP is similar to 8) \_\_\_\_\_, which is also a protocol for retrieving e-mail messages.





## READING

3. You are going to read a text about Internet e-mail. For questions 1–6, choose the answer (A, B, C or D) which you think fits best according to the text.

### DECIPHERING INTERNET E-MAIL

#### Internet E-mail

According to the research about 31 billion e-mails are sent worldwide every day – and that number is only expected to rise. With the capability to send pictures, documents or even video messages to anyone in the world who has an e-mail address, it has become a massively popular form of communication.

#### How Does Sending & Receiving E-mail Work?

Using an e-mail client (software such as Microsoft Outlook or Eudora) you can compose an e-mail message and send it to another person anywhere, so long as you know their e-mail address. All online services and Internet Service Providers (ISPs) offer e-mail, and support gateways so that you can exchange e-mail with users of other systems. Usually, it takes only a few seconds for an e-mail to arrive at its destination.



When you initially set-up your e-mail client you will need specific information from your ISP, such as your network user ID, SMTP and POP server address. The network ID will provide you with your e-mail address, the SMTP server handles the communications as you send an e-mail message, and the POP server provides the transmission for receiving e-mail.

#### SMTP – Simple Mail Transfer Protocol

When you send an e-mail message, your e-mail client connects to your ISP's mail server, which is an SMTP (Simple Mail Transfer Protocol) server. It is common for your e-mail message to be broken down into small packets of data (for a speedier transmission), which is reassembled when it reaches its destination. The SMTP server will generally hand-off the message to another server that is able to translate the domain name of the recipient's address and find the correct IP address to deliver the message to. This process may be repeated multiple times until the e-mail is routed to the correct destination server.

## **POP – Post Office Protocol**

While SMTP provides the protocol for sending an e-mail, it is a different server that receives your e-mail at your ISP. POP, short for Post Office Protocol, is a protocol used to retrieve e-mail from a mail server. Your ISP will have set up a mailbox on the POP server for all its customers. When incoming e-mails are received by the POP server, it is then filtered down to the correct user mailbox. When you use your e-mail client and connect to the POP server, you log in with your ID (network username), which allows the server to locate your mailbox. Access to the contents of the mailbox is granted by entering in your password. The POP server will deliver your e-mail to your local system and will delete the messages from the server as well.

Most e-mail applications use the POP protocol. There are two versions of POP. The first, called POP2, became a standard in the mid-80's and requires SMTP to send messages. The newer version, POP3, can be used with or without SMTP. While most people will refer to POP with a version number (e. g. POP3), when using the term POP without a number, like any other protocol, it is generally assumed you would be referring to the most recent version anyways.

## **IMAP: Internet Message Access Protocol**

The Post Office Protocol is designed to be a simple protocol offering only a basic set of commands, and it is still the most widely used protocol. Similar to POP is IMAP (Internet Message Access Protocol), which is also a protocol for retrieving e-mail messages, but supports some features not found in POP. For example IMAP allows you to search e-mail messages for keywords while the messages still reside on the server. You can also store messages on the e-mail server, and better manage multiple accounts and set message flags. IMAP was developed at Stanford University in 1986.

(from <http://www.webopedia.com>)

1. An e-mail client is ...
  - A) any online e-mail service.
  - B) a software.
  - C) an e-mail provided by ISPs.
  - D) a person who uses e-mail.
2. With an e-mail client you can send a message to another person ...
  - A) only if you know the address.
  - B) only if you know their ISP.
  - C) only if you know your ISP.
  - D) only if you know their address and ISP.

3. Which protocol doesn't filter down the messages to the user's boxes?  
 A) SMTP.  
 B) POP.  
 C) IMAP.  
 D) none of the above.
4. IMAP has ...  
 A) less options than POP.  
 B) more options than POP.  
 C) another name – POP2.  
 D) another name – POP3.

### ***VOCABULARY AND GRAMMAR***

4. Use the words on the right to form one word that fits in the same space in the text.

#### **Spam**



There is no doubt that one of the  
 1) \_\_\_\_\_ black clouds hanging over e-  
 mail is spam. Spam can be 2) \_\_\_\_\_ any  
 electronic junk mail (generally e-mail adverti-  
 sing for some product) that is sent out to thou-  
 sands, if not millions, of people with an e-mail  
 address. In addition to 3) \_\_\_\_\_ people's time with  
 4) \_\_\_\_\_ e-mail, spam also eats up a lot of network band-  
 width.

Many individuals are able to use spam filters in their e-mail cli-  
 ents to help filter some of the 5) \_\_\_\_\_ out of their in-  
 box, but for some corporations more strict 6) \_\_\_\_\_  
 measures are needed because of the sheer volumes of junk mail.  
 Microsoft, for example, receives about 10 million e-mails per  
 day via the Internet. Of those 85 to 90 percent is 7) \_\_\_\_\_  
 out as spam. Having an e-mail client download this huge num-  
 ber of spam mail would simply take too long. For this reason  
 many corporations and companies will use spam filters at the  
 server level (instead of the client) to help keep the spam e-mails  
 from ever 8) \_\_\_\_\_ an employee's computer.

**BIG**  
**CONSIDER**

**WASTE**  
**WANT**

**ANNOY**  
**SPAM**

**FILTER**

**REACH**

**5. What do these abbreviations mean? Look up the ones you don't know in a dictionary.**

ASP, IMAP, CGI, PHP, ATM, XUL, WebDAV, XSS, WAP, API, AVI, Bps, ISDN, LAN, MIME, NAP, PDF, PING, PPP, SAN, SLIP, TCP.

**EXPLANATIONS AND DEFINITIONS**

Texts containing technical terminology frequently contain definitions and explanations. This is particularly the case if the text is aimed at non-experts or students of technical subjects, or if the purpose of the text is to inform specialists about new developments.

1. Common words and expressions used in definitions or explanations are listed below.

is / are means is taken to be denotes is / can be defined as	by ... we mean by ... is meant in other words that is (to say)
--	---

*Examples:*

- Netiquette **is** a form of online etiquette.
  - E-mail (electronic mail) **can be defined as** a system for sending and receiving messages on a single computer system or on an interconnection of computer systems, such as the Internet.
  - Virtual reality **refers to** computer simulations of real-world "environments" that use 3D graphics and external devices like a data glove or helmet to allow users to interact with the simulation.
2. Some definitions and explanations give further distinguishing characteristics by means of a defining clause.

*Examples:*

- An avatar is an icon in chats and games **which represents a participant**.
- AVI is a Microsoft video format **where audio and video coding appears in alternate segments**.

- Another way of defining or explaining is to use a noun, a noun phrase, or a clause separated from the rest of the sentence by commas or dashes.

*Examples:*

- Computers – **electronic devices for processing information** – are now used in practically every aspect of life. (noun phrase)
- Blogs, **chronological records of thoughts, links, events, or actions which are posted on the web**, are very popular nowadays. (clause)

- Study the following definitions. A definition usually includes three parts: the term to be defined, the group it belongs to, and the characteristics which distinguish it from other members of the group.**

Term	Group	Characteristics
A browser	is a software	that loads and displays a web page.

**Now analyse the following definitions and identify the different parts.**

- A chain letter is a form of spam which asks you to distribute the letter to many other people.
- By chat we mean a form of real-time electronic communications where participants type what they want to say, and it is repeated on the screens of all other participants in the same chat.
- Spim can be defined as spam sent by instant messaging.
- A virus refers to a destructive program that has the ability to reproduce itself and infect other programs or disks.

- Give your own definitions to the following terms.**

Wi-Fi, cyberspace, a cookie, Java, a password, a plug-in, a directory.



### **SPEAKING**

- Work in pairs. How do you feel about getting these unwelcome messages? Why? Add other types of unwanted communication to the list.**

Wrong number phone calls • spam • viruses • junk mail • joke calls • bills • calls from telephone salespeople
--

- Role play the following situation in pairs:**

**Spammer Sally:** You are an e-mailaholic. If you had a choice, e-mail would be the only form of communication. You love sending and receiving e-mails, no matter who they are from.

**Garry:** You are Sally's best friend. You are worried about Sally's behaviour. Explain him about Internet addiction and why spam is such a problem.

**10. Study a real situation happened to one company. Give your opinion on this problem. Then answer the questions below.**

An information security manager routinely monitored the contents of electronic correspondence among employees. She discovered that many employees were using the system for personal purposes. Some messages were love letters, and others related to football betting pool. The security manager prepared a list of the employees, with samples of their messages, and gave them to the management. Some managers punished their employees for having used the corporate e-mail for personal purposes. Some employees, in turn, objected to the monitoring, claiming that they should have the same right to privacy as they have using the company's interoffice mail system.

- a) Is monitoring of e-mail by managers ethical? (It is legal.) Why do you feel so?
- b) Is the use of e-mail by employees for personal communication ethical? Why or why not?
- c) Is the security manager's submission to management of a list of abusers ethical? Why or why not?
- d) What should the company do in order to rectify the situation?



**LISTENING**

**11. Compare how many e-mails, phone calls and letters you make/send and receive each week.**

**12. Here are three typical responses on the question "Which do you like using most: e-mail, telephones or the post?" Listen to the different opinions on this question. Which one do you most agree with?**

Tick the features of each type of communication.

	<b>E-mail</b>	<b>Telephone</b>	<b>Post</b>
cheap	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
send pictures/images	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
instant delivery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
instant reply	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
interactive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
modern	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
private	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
slow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
send sound	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
unwanted communication	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
usually formal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

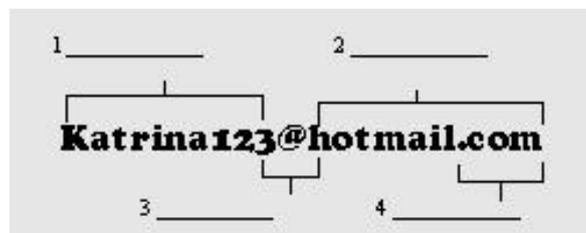
**13. Listen to the text about e-mail addresses and servers, and answer the questions.**

- What do the two types of mail server do?
- What are the parts of an e-mail address?
- How many types of e-mail client are there?
- What happens when you send an e-mail?

**14. Decide if the sentences are True or False.**

- |  |              |
|--|--------------|
| 1. You cannot choose your own user name.   | <b>T / F</b> |
| 2. The domain name shows the network.      | <b>T / F</b> |
| 3. .edu and .com are TLDs.                 | <b>T / F</b> |
| 4. A DNS sends an e-mail to a POP3 server. | <b>T / F</b> |

**15. Label the parts of the e-mail address.**



**WRITING**

**16. You are going to design an e-mail policy for your University.**

Write a letter to your University authorities with your ideas. The letter should be of between 120–180 words in an appropriate style.

## SECTION 2



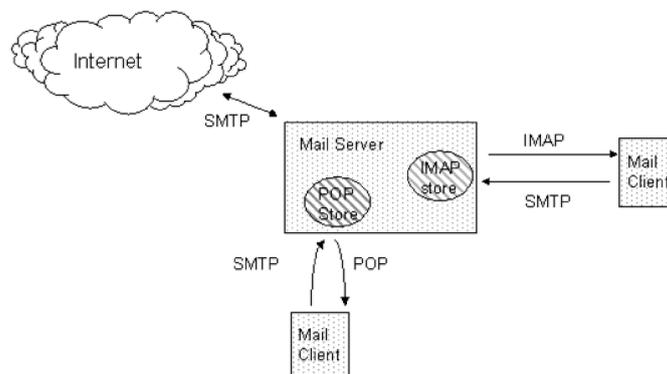
### READING

#### 1. Read the text and translate it.

### E-MAIL PROTOCOLS

Basically, a protocol is about a standard method used at each end of a communication channel, in order to properly transmit information. In order to deal with your e-mail you must use a mail client to access a mail server. The mail client and mail server can exchange information with each other using a variety of protocols.

Simple Mail Transfer Protocol (SMTP) is the de facto standard for e-mail transmissions across the Internet. SMTP is a relatively simple, text-based protocol, where one or more recipients of a message are specified (and in most cases verified to exist) and then the message text is transferred. It is quite easy to test an SMTP server using the telnet program. SMTP uses TCP port 25. To determine the SMTP server for a given domain name, the MX (Mail eXchange) DNS record is typically used, falling back to a simple A (address) record in the case of no MX. SMTP is a "push" protocol that does not allow one to "pull" messages from a remote server on demand. To do this a mail client must use POP3 or IMAP.



SMTP developed out of Mail Box Protocol (1971), FTP Mail (1973), and Mail Protocol. The work continued throughout the 1970s, until the ARPANET converted into the modern Internet around 1980. Jon Postel then proposed a Mail Transfer Protocol in 1980 that began to remove the mail's reliance on FTP. SMTP was published as RFC 821 in 1982, also by Jonathan Postel.

After establishing a connection between the sender (the client) and the receiver (the server), the following is a legal SMTP session. In the following con-

versation, everything sent by the client is prefaced with C: and everything sent by the server is prefaced with S:. On most computer systems, a connection can be established using the telnet command on the client machine, for example.

```
telnet www.example.com 25
```

which opens a TCP connection from the sending machine to the MTA listening on port 25 on host www.example.com.

```
S: 220 www.example.com ESMTP Postfix
C: HELO mydomain.com
S: 250 Hello mydomain.com
C: MAIL FROM:<sender@mydomain.com>
S: 250 Ok
C: RCPT TO:<friend@example.com>
S: 250 Ok
C: DATA
S: 354 End data with <CR><LF>.<CR><LF>
C: Subject: test message
C: From: sender@mydomain.com
C: To: friend@example.com
C:
C: Hello,
C: This is a test.
C: Goodbye.
C: .
S: 250 Ok: queued as 12345
C: QUIT
S: 221 Bye
```

One of the limitations of the original SMTP is that it has no facility for authentication of senders. Therefore the SMTP-AUTH extension was defined. However, the impracticalities of widespread SMTP-AUTH implementation and management means that e-mail spamming is not and cannot be addressed by it.

Modifying SMTP extensively, or replacing it completely, is not believed to be practical, due to the network effects of the huge installed base of SMTP. Internet Mail 2000 is one such proposal for replacement.

## **2. For questions 1–5, choose the correct answer (A, B, C or D).**

- 1) A protocol is a
  - A) record of sequential data.

- B) set of rules for use in various circumstances.
  - C) program used for connecting to a server.
  - D) description of a server operating system.
- 2) Protocol SMTP is used for
- A) transferring e-mail messages between servers.
  - B) delivery e-mails from a mail-server to a client machine.
  - C) sending e-mail messages over FTP protocol.
  - D) for reading e-mail messages.
- 3) Protocol SMTP is the de facto standard for e-mail transmissions because
- A) it is the perfect protocol for e-mail transmissions.
  - B) there is no alternative to it.
  - C) it includes authentication tools.
  - D) it is widely used.
- 4) When SMTP server for a given domain name is determined by address DNS record?
- A) Always.
  - B) If there are several MX DNS records for this domain name.
  - C) If there is no MX DNS record for this domain name.
  - D) If DNS server is not accessible.
- 5) What is the meaning of the following sentence from the text: “The impracticalities of widespread SMTP-AUTH implementation means that e-mail spamming is not and cannot be addressed by it”?
- A) It is impossible to define e-mail addresses of spammers.
  - B) SMTP-AUTH extension cannot solve the problem with spamming.
  - C) Using SMTP-AUTH results in increasing the number of spam e-mails.
  - D) SMTP-AUTH extension is not used on each mail server so it doesn't help to solve the problem with spamming.

### **3. Read the text and translate it.**

#### **POP3 AND IMAP**

Local e-mail clients use the Post Office Protocol version 3 (POP3), an application-layer Internet standard protocol, to retrieve e-mail from a remote server over a TCP/IP connection.

The design of POP3 and its procedures support end-users with intermittent connections (such as dial-up connections), allowing these users to retrieve e-mail when connected and then to view and manipulate the retrieved messages

without needing to stay connected. Although most clients have an option to leave mail on server, e-mail clients using POP3 generally connect, retrieve all messages, store them on the user's PC as new messages, delete them from the server, and then disconnect. In contrast, the newer, more capable Internet Message Access Protocol (IMAP) supports both connected and disconnected modes of operation. E-mail clients using IMAP generally leave messages on the server until the user explicitly deletes them. This and other facets of IMAP operation allow multiple clients to access the same mailbox. Most e-mail clients support either POP3 or IMAP to retrieve messages; however, fewer Internet Service Providers (ISPs) support IMAP.

Like many other older Internet protocols, POP3 originally supported only an unencrypted login mechanism. Although plain text transmission of passwords in POP3 still commonly occurs, POP3 currently supports several authentication methods to provide varying levels of protection against illegitimate access to a user's e-mail. One such method, APOP, uses the MD5 hash function in an attempt to avoid replay attacks and disclosure of a shared secret.

POP3 works over a TCP/IP connection using TCP on network port 110. E-mail clients can encrypt POP3 traffic using TLS or SSL. A TLS or SSL connection is negotiated using the STLS command.

Dialog example:

```
S: <wait for connection on TCP port 110>
C: <open connection>
S:      +OK POP3 server ready
<1896.697170952@dbc.mtview.ca.us>
C:      APOP mrose c4c9334bac560ecc979e58001b3e22fb
S:      +OK mrose's maildrop has 2 messages (320 oc-
tets)
C:      STAT
S:      +OK 2 320
C:      LIST
S:      +OK 2 messages (320 octets)
S:      1 120
S:      2 200
S:      .
C:      RETR 1
S:      +OK 120 octets
S:      <the POP3 server sends message 1>
S:      .
```

```

C:    DELE 1
S:    +OK message 1 deleted
C:    RETR 2
S:    +OK 200 octets
S:    <the POP3 server sends message 2>
S:    .
C:    DELE 2
S:    +OK message 2 deleted
C:    QUIT
S:    +OK dewey POP3 server signing off (maildrop
empty)
C:    <close connection>
S:    <wait for next connection>

```

POP3 servers without the optional APOP command expect you to log in with the USER and PASS commands:

```

C:    USER mrose
S:    +OK User accepted
C:    PASS mrosepass
S:    +OK Pass accepted

```

(from <http://everything.explained.at>)

#### 4. Answer the following questions.

- 1) What should be done in order to hide a password from the eavesdroppers while receiving e-mails?
- 2) What is the main advantage of IMAP protocol in comparison with POP3 protocol?
- 3) What port does POP3 run on?
- 4) How POP3 traffic can be encrypted?
- 5) Does POP3 protocol allow a client to leave the e-mail messages on the server after receiving them?

#### 5. Complete the following sentences with the most suitable word.

- 1) The POP3 protocol \_\_\_\_\_ users to retrieve e-mail messages.
- 2) The command \_\_\_\_\_ is used for sending encrypted password.
- 3) In many old Internet protocols passwords are not \_\_\_\_\_.
- 4) When e-mail messages are retrieved to a client machine using POP3 protocol, they are usually \_\_\_\_\_ from the server.

5) In order to avoid eavesdropping of e-mail messages one should encrypt POP3 \_\_\_\_\_.

**6. Restore the SMTP session according to received e-mail message.**

**E-mail message:**

```
Return-Path: <mainboss@office.ru>
Received: from office.ru (vasya.office.ru
[10.123.34.12])
    by mxs.mail.ru with ESMTP id 1HrSmu-000Mne-00
    for <worker@mail.ru>; Tue, 8 May 2007 12:49:17
+0700 (NOVST)
Date: Tue, 8 May 2007 12:49:17 +0700 (NOVST)
Message-Id: <1HrSmu-000Mne-00@mxs.mail.ru>
To: worker@mail.ru
From: boss@office.ru
Subject: The meeting
Content-Type: text/plain
```

The meeting is canceled.

**SMTP session:**

```
S: 220 Mail.Ru ESMTP
C: HELO [redacted] 1
S: 250 mx23.mail.ru ready to serve
C: MAIL [redacted] 2
S: 250 OK
C: [redacted] 3
S: 250 OK
C: [redacted] 4
S: 354 Go ahead
C: From: [redacted] 5
C: To: [redacted] 6
C: Subject: [redacted] 7
C:
C: [redacted] 8
C: [redacted] 9
S: 250 OK id= [redacted] 10
C: [redacted] 11
S: 221 mx23.mail.ru closing connection
```

## UNIT 6 PERSONAL WEB PAGE

### *SECTION 1*

#### *LEAD-IN*

**1. Discuss the following questions.**

- When thinking about a web site, can you readily describe the image or identity of a site as if it were a person?
- To improve site traffic, what kinds of additional content can you add to a Web site?
- What are the reasons why a person, organization, or business might want to have a Web site?

**2. How much do you know about web design? Check your knowledge with our quiz.**

#### WEB DESIGN QUIZ

1. Which of these is not one of the 4 main principles of web design?
  - a. proximity
  - b. alignment
  - c. variety
  - d. repetition
  - e. contrast
2. The principle of alignment dictates that a good mix of alignments creates the most appealing and effective design.
  - a. T
  - b. F
3. Which of the following is the most powerful and effective alignment.
  - a. left
  - b. right
  - c. centered
  - d. justified



4. For left alignments the left side of your text should be flush with the left side of the screen
  - a. T
  - b. F
5. The principle of proximity dictates that related objects should be:
  - a. well spaced out
  - b. near each other
  - c. close to headers
  - d. on different pages
6. In accordance with the principle of contrast, combining which of the following is the best?
  - a. bright vibrant colours
  - b. a mix of pale and bright colours
  - c. subdued, complementary
  - d. opposite colours
7. Which of the following is a useful tool of figuring out the colour?
  - a. periodic table
  - b. colour wheel
  - c. a set of paints
  - d. an eye dropper



### **READING**

- 3. Five sentences have been removed from the text. Choose from the sentences A–F the one which fits each gap (1–5). There is one extra sentence which you do not need to use.**

### **PERSONAL WEB PAGE**

From the user's point of view, the page is the basic unit of the web.

**1**

A web page has a similar format to a page from a book or magazine, with text and graphics displayed in a layout, and is displayed in a normal computer application window. Scroll bars are displayed if the page is too long or too wide, and you can perform the usual windowing functions such as minimize, maximize, change size, and close.

There are billions of web pages in existence on the Internet. Web pages have been published on almost every subject imaginable by almost every type of person and organization.

2

Although most word processors now let you save documents in HTML format making basic creation quite straightforward.

You can sometimes tell from the name of the page whether it is an organization or a personal home page, because individual's home pages sometimes include "~" or "^", as in:

`http://www.twenty.net/~jsmith/home.html`

Graphics are displayed in web pages if they haven't been turned off in your configuration settings to increase the download speed. With most browsers you can right-click on a picture and select "View Image" to view it by itself, or "Save Image As" to save the file to your computer for later viewing with another application. Graphics come in a wide range of formats.

3

Personal web pages are often used solely for informative or entertainment purposes. Defining personal web page is difficult, because many domains or combinations of web pages that are under the control of a single individual can be used by the individual for commercial purposes, ranging from just the presentation of advertising, to electronic commerce: the sale of goods, services or information.

4

Personal web pages may be as simple as a single page or may be as elaborate as an online database with gigabytes of data. Many Internet service providers offer a few megabytes of space for customers to host their own personal web pages.

The content of personal web pages varies and can, depending on the hosting server, contain anything that any other websites do.

5

Many can contain biographical information, résumés, and blogs. Many personal pages will include information about the author's hobbies and pastimes, and information of interest to friends and family of the author.

(from [www.livinginternet.com](http://www.livinginternet.com))

A. However, typical personal web pages contain images, text and a collection of hyperlinks.

- B. There are many different techniques you can use to draw people to your site.
- C. In fact eBay began as the personal web page of Pierre Omidyar.
- D. There are a wide range of applications available that enable the construction of web pages.
- E. Web pages are written in the HTML language and sent to web browsers by a web server using the HTTP protocol.
- F. At one time GIF's were the most popular, but lately they are going out of style.

4. What things don't you like or annoy you about websites? Make a list.

5. Look at Matej's Top 10 Web page annoyances on his home page. Which ones are similar to the annoyances you mentioned?

### MY TOP 10 WEB PAGE ANNOYANCES

#### 1. Frames

Don't you hate those silly boxes in Web page? Sometimes the text doesn't fit in the frame and you have to use the horizontal scroll bar. This makes it very hard to read.

#### 2. Downloading plug-ins

The little programmes that you have to download to get an audio or video message before you can enter the site – they make me want to go somewhere else!

#### 3. Pop-up ads

The horrible advertisements that suddenly appear – they drive me crazy.

#### 4. Bad design

Too many buttons and links on different parts of the page are confusing.

#### 5. Blinking fonts

Brightly-coloured texts are difficult to read, but fonts that blink on and off? Ugh!

#### 6. Counters

It's wonderful to know that I'm visitor number 345,345,218, but I feel terrible finding out I'm visitor number 11. Why not put counters in a separate link? Then, if you want to know your number, you can just click there.

#### 7. Flash



These animations are good if they download quickly, but please make them relevant to the website, and not just there to make the site look pretty.

### **8. No Privacy Policy**

I never give my e-mail address to a website that does not have a privacy policy. I want to be sure that they won't sell or send it to another site.

### **9. Silly sound files**

Sound files that start with a bang, or a dog barking make me jump! They're really annoying, and you can't turn them off.

### **10. Why only English?**

Doesn't anyone realize that we live in a multilingual world?

## **6. Write the number of the annoyance that matches each sentence.**

- a) Websites should have rules about giving e-mail addresses to other sites.
- b) Web pages should have options for different languages.
- c) Animations should be about the same subject as the Web page.
- d) Web pages should not need special programmes to run.
- e) The text should not blink on and off.
  
- f) Dividing Web page into a lot of small frames is bad design.

## **7. Work in pairs. Do you agree or disagree with Matej's list? Rank your top five annoyances from the text: 1 = most annoying, 5 = least annoying.**

## ***VOCABULARY AND GRAMMAR***

### **8. Complete the sentences with the words in the box.**

**confusing • else • fits • relevant • scroll bar**

1. This is a well-designed Web page. Everything \_\_\_\_\_ well on the screen.
2. Web surfers will go somewhere \_\_\_\_\_ if the page doesn't appear quickly.

3. That animation is good because it is pretty and it is \_\_\_\_\_ to the Web page.
4. That website is very \_\_\_\_\_ because I couldn't find the Back button.
5. It's annoying when you have to use the horizontal \_\_\_\_\_ to see all of the text.

**9. Complete the sentences with the words from the box.**

**busy • consistent • generate • home pages      struc-  
ture • surfers • upload • Web-authoring**

1. That web page is much too \_\_\_\_\_. I don't know what to look at.
2. An FTP server is a computer that lets you \_\_\_\_\_ files to the Internet.
3. The buttons on this page are not \_\_\_\_\_ with the button on the last page.
4. Net \_\_\_\_\_ never like reading a lot of text on the screen.
5. \_\_\_\_\_ software means you don't have to learn HTML to make a Web page.
6. Many students have their own \_\_\_\_\_ on the World Wide Web.
7. HTML creates the \_\_\_\_\_ for Web pages to run on a browser.
8. Web-authoring programmes \_\_\_\_\_ HTML tags for you.

**10. Translate the following compound nouns and compound noun phrases.**

**Protocol**

protocol analyzer; protocol stack; access protocol; communication protocol; connection-oriented data-transfer protocol; login host protocol; real-time streaming protocol.

**Internet**

Internet access; Internet backbone; Internet packet gateway; Internet search tools; Internet session; Internet-protocol spoofing; Internet service provider.

**File**

File backup; file recovery; file integrity; high-security file; shareable file; user authorization file; update file; file allocation; file compression; file control system; file extension; file processing.

## THE INFINITIVE CONSTRUCTIONS

In Modern English we distinguish the following predicative constructions with the Infinitive:

1. The Objective-with-the-Infinitive Construction  
**e.g.** **We know all data to be translated** into binary code before being stored in main storage. (Subject + verb + object + to-Infinitive)
2. The Subjective-with-the-Infinitive Construction  
**e.g.** **They are expected to be** the most commonly **used** devices. (Subject + verb (usually in Passive Voice) + to-Infinitive)
3. The For-to-Infinitive Construction  
**e.g.** There is no **reason for computer experts to use** computers of the first generation nowadays. (Object + for + noun/pronoun + to-Infinitive)
4. The Absolute Infinitive (It is used only in literary style, It is translated into Russian with the help of a clause with such conjunctions as при этом/причем.)  
**e.g.** **The claims should be forwarded by a registered letter, the text to be written** in English. (Subject + to-Infinitive)

### 11. Translate the sentences and name each Infinitive construction.

1. It is considered to be very good netiquette to share your knowledge and help with others who ask questions by e-mail, in news groups, on mailing lists, and in chat rooms.
2. As a result, network application developers will find it easier to develop and deploy emerging applications for data communication using VoIP.
3. Anytime you visit a web page that includes more than simple HTML content, you are likely to need at least one plug-in.
4. VoIP is said to be cheap, but most people use it for free.
5. The main reason for people to turn massively to this new technology is the cost.
6. If a page seems to be taking a long time to load, don't hesitate to stop the connection and then select the link again.
7. You don't have to wait for a page to load to click a link, press the back button, or select a new link from your bookmarks.
8. Mosaic was the first popular Web browser, the knowledge of the Web to be spread quickly across the world.



**12. Work in groups and discuss the following questions about your personal web site.**

- How should you design your personal website?
- What graphics, images and colours would you use?
- What would you say in your text?
- How many pages would you have?
- What would you call the links on your navigation bar to show the different pages?

**13. Work in pairs. Evaluate the website of your University and make suggestions for improvement.**

**14. You will take an active part in a round-table discussion.**

The topic for discussion is Internet censorship. Read the following introduction to the problem:

**Internet censorship**

Everyone is against censorship these days. Prime Minister Blair is against it (but he wants to make racist remarks illegal). The regulatory body Internet Watch is against it (but they have removed over two thousand items from the Net). So just what does it mean to support "free speech" today? Does free speech exclude pornographic material? Or racist Hate Speech? What about threatening remarks? Many people who claim to support free speech can also think of a number of exceptions. A position summed up by the dictum "I'm against censorship, **but**..."



Now you will need to express your views on the following question:

***Should the Internet be regulated? If so, by whom? Who should have responsibility for controlling web content?***

You will be divided into 2 groups supporting opposing views: for and against Internet censorship.

**15. Work in groups and discuss the following questions about women and men online.**

## Women and Men Online

- How women and men use the Internet?
- Are there any differences?
- Are men more intense users than women?
- Who is more enthusiastic about online communication? online transactions? online information? online recreation?



### **WRITING**

16. Write an article about strong and weak points of a website. The article should be of between 120–180 words in an appropriate style.
17. The results of the survey below show what kind of people posted any content to the Internet such as Web pages. Write a report describing the information shown below.

<b>A Portrait of Those Who Post Content Online</b>	
The percentage of internet users in each group who have done at least one of the following online: shared something they created themselves like a story or a video, created their own webpage, worked on others' webpages, or created a blog.	
	% who are content creators
<b>Gender</b>	
Men	37%
Women	32%
<b>Age</b>	
18-29	43%
30-49	36%
50-64	29%
65+	18%
<b>Race / ethnicity</b>	
White (not Hispanic)	32%
Black (not Hispanic)	39%
Hispanic (English speaking)	42%
<b>Educational attainment</b>	
Less than high school	32%
High school grad	28%
Some college	37%
College +	38%
<b>Household income</b>	
Under \$30K	32%
\$30K-\$50K	32%
\$50K-\$75K	33%
Over \$75K	41%
<b>Community type</b>	
Urban	39%
Suburban	34%
Rural	27%

Source: Pew Internet Project's December 2005 survey of 3,011 adults; 1,931 were internet users.

## INTERNET ACTIVITIES

### 18. You are going to carry out a research on websites.

Access the White House website ([www.whitehouse.gov](http://www.whitehouse.gov)). Prepare a report on the most interesting content you find there.

### 19. You are going to carry out a research on commercial websites.

Find two companies on the Web that are in the same business. For example, Amazon ([www.amazon.com](http://www.amazon.com)) and Barnes and Noble ([www.barnesandnoble.com](http://www.barnesandnoble.com)) or Dell ([www.dell.com](http://www.dell.com)) and Gateway ([www.gateway.com](http://www.gateway.com)). Compare the websites of the pairs you have chosen on the basis of ease-of-use and usefulness. Pick the better website in each pair and explain your choice.

### 20. You are going to carry out a research on search engines.



This task will require you to learn and apply a variety of Internet search skills using the popular search engine: Google. Your group has been hired to create a promotional campaign to promote the search engine Google. In order to be successful, your campaign has to be effective in teaching your audience a number of Googling skills.

You'll be sharing your tools with a specific audience that will be identified by your class in consultation with your teacher. The formats selected will vary depending on the selected audience.

#### **Examples might include:**

"Googling Shortcuts" poster to put in the University library.

"How to Google" brochure to distributed at the local community centre.

"Homework Help Website" to teach parents.

"Google Yourself" Powerpoint presentation to teach teachers.

#### **Process:**

##### 1. Introduction

- a. What is Google? (<http://en.wikipedia.org/wiki/Google#History>)
- b. How do search engines work? (<http://computer.howstuffworks.com/search-engine.htm>)

2. Search skills.
  - a. Standard search terms ([http://www.ldcsb.on.ca/schools/cfe/rpt/RPT\\_Googling/StandardSearchTerms.pdf](http://www.ldcsb.on.ca/schools/cfe/rpt/RPT_Googling/StandardSearchTerms.pdf))
  - b. Other search tools to use – Google Cheat Sheet (<http://www.google.com/help/cheatsheet.html>) from [www.google.com](http://www.google.com)
  - c. Finding images via Google Image Search ([http://www.ldcsb.on.ca/schools/cfe/rpt/RPT\\_Googling/ImageSearch.pdf](http://www.ldcsb.on.ca/schools/cfe/rpt/RPT_Googling/ImageSearch.pdf))
3. Create your promotional tool.
4. Share your tool with your intended audience.

## ***SECTION 2***



### ***READING***

#### **1. Read the text and translate it.**

##### **HTML**

HTML, short for Hypertext Markup Language, is the predominant markup language for the creation of web pages. It provides a means to describe the structure of text-based information in a document — by denoting certain text as headings, paragraphs, lists, and so on — and to supplement that text with interactive forms, embedded images, and other objects. HTML is written in the form of labels (known as tags), surrounded by less-than (<) and greater-than signs (>). Markup is the process of taking ordinary text and adding extra symbols. Each of the symbols used for markup in HTML is a command that tells a browser how to display the text. HTML can also describe, to some degree, the appearance and semantics of a document, and can include embedded scripting language code which can affect the behavior of web browsers and other HTML processors.

Tim Berners-Lee created the original HTML on a NeXTcube workstation using the NeXTSTEP development environment. At the time, HTML was not a specification, but a collection of loosely defined elements to solve an immediate problem: the communication and dissemination of ongoing research between Berners-Lee and his colleagues. The more recent versions of HTML are much stricter, demanding more precise code. Most browsers, however, continue to render pages that are far from valid HTML. HTML 4.0 began to try to "clean up" the standard by marking some of element types and attributes as deprecated, and suggesting they not be used. The last HTML specification published by the World Wide Web Consortium (W3C) is the HTML 4.01 Recommendation, pub-

lished in late 1999 and its issues and errors were last acknowledged by errata published in 2001. Since the publication of HTML 4.0 in late 1997, the W3C's HTML Working Group focused increasingly on the development of XHTML, an XML-based counterpart to HTML. In 2007, the old HTML Working Group was renamed to XHTML2 Working Group and a new HTML Working Group was chartered to continue the development of HTML.

HTML markup consists of several types of entities, including: elements, attributes, data types and character references. All HTML documents should start with a Document Type Declaration (informally, a "DOCTYPE") in order to enable Document Type Definition (DTD)-based validation with SGML tools. The DTD contains machine readable grammar specifying the permitted and prohibited content for a document conforming. Browsers do not direct to the page in the DTD, however. Browsers only look at the doctype in order to decide the layout mode. For example:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01//EN"
"http://www.w3.org/TR/html4/strict.dtd">
```

This declaration references the Strict DTD of HTML 4.01, which does not have presentational elements like `<font>`, leaving formatting to Cascading Style Sheets and the `span` and `div` tags. In addition, HTML 4.01 provides Transitional and Frameset DTDs. The Transitional DTD was intended to gradually phase in the changes made in the Strict DTD, while the Frameset DTD was intended for those documents which contained frames.

Elements are the basic structure for HTML markup. Elements have two basic properties: attributes and content. Each attribute and each element's content has certain restrictions that must be followed for an HTML document to be considered valid. An element usually has a start label (e.g. `<label>`) and an end label (e.g. `</label>`). The element's attributes are contained in the start label and content is located between the labels (e.g. `<label>Content</label>`). Some elements, such as `<br>`, will never have any content and do not need closing labels. There are several types of markup elements. Structural markup describes the purpose of text. For example, `<h2>Golf</h2>` establishes "Golf" as a second-level heading. Structural markup does not denote any specific rendering, but most web browsers have standardized on how elements should be formatted. Further styling should be done with Cascading Style Sheets (CSS).

Presentational markup describes the appearance of the text, regardless of its function. For example `<b>Tennis</b>` indicates that visual output devices should render "Tennis" in bold text, but has no clear semantics for aural devices that read the text aloud for the sight-impaired. Most presentational markup ele-

ments have become deprecated under the HTML 4.0 specification, in favor of CSS based style design.

Most elements take any of several common attributes: id, class, style and title. The id attribute provides a document-wide unique identifier for an element. The class attribute provides a way of classifying similar elements for presentation purposes. The title is used to attach subtextual explanation to an element. In most browsers this title attribute is displayed as what is often referred to as a tooltip.

**2. For questions 1–6, choose the correct end of the sentence (A, B, C or D).**

- 1) HTML is used for
  - A) uploading hypertext documents to the server.
  - B) creating structured text-based documents.
  - C) exchange of office documentation.
  - D) validation of web-pages.
- 2) According to HTML specifications in order to define a sentence as a paragraph this sentence should be
  - A) divided from other text by empty lines.
  - B) written in uppercase.
  - C) written after the new line character.
  - D) written between two tags.
- 3) Deprecated elements
  - A) are assumed not to be used in HTML documents.
  - B) are not displayed by modern browsers.
  - C) are differently displayed by browsers.
  - D) cause error messages when browser renders HTML document.
- 4) HTML
  - A) is planned to be replaced by XHTML.
  - B) is being developed.
  - C) was completely developed in 1999.
  - D) is not being developed.
- 5) Document Type Declaration is
  - A) an optional part of HTML document that can be written at the end of the document.
  - B) a mandatory part of HTML document that can be written at the end of the document.
  - C) an optional part of HTML document that can be written at the beginning of the document.

D) a mandatory part of HTML document that can be written at the beginning of the document.

6) According to the Strict DTD of HTML 4.01 appearance of HTML document should be defined by

- A) cascading style sheets.
- B) presentational elements.
- C) attributes of the elements.
- D) content of the elements.

**3. Complete the sentences.**

- 1) Many elements became deprecated because ...
- 2) Presentational elements are used for ...
- 3) Mixing presentational and structural elements in one HTML document is detrimental because ...
- 4) The Transitional DTD of HTML 4.01 is used for documents that ...

**4. The emphasis element (<em>) and the italics element (<i>) have the same presentation. Both these elements are displayed in italics. But there is one main difference between them. Describe this difference. Which element is more preferable and why?**

**5. For each entity of the following HTML text name its type:**

```
<div id='author'><span class='field' id="Name">Ivan</span></div>
```

**6. Read the text and translate it.**

### **XHTML**

The Extensible HyperText Markup Language, or XHTML, is a markup language that has the same depth of expression as HTML, but also conforms to XML syntax. Whereas HTML is an application of SGML, a very flexible markup language, XHTML is an application of XML, a more restrictive subset of SGML. Because they need to be well-formed, true XHTML documents allow for automated processing to be performed using standard XML tools – unlike HTML, which requires a relatively complex, lenient, and generally custom parser.

The goal for XHTML and XML was to reduce the demands on parsers and user-agents in general. With HTML, user-agents increasingly took on the burden of “correcting” errant documents. Instead XML requires user-agents to signal a “fatal” error when encountering malformed XML. This means that an XHTML browser can theoretically omit error recovery code even though it may even need slightly more error detection checks. The recommendation for browsers to post an error rather than attempt to render malformed content should help eliminate malformed content.

**7. Decide whether the statements below are true or false.**

- 1) The XHTML is a next version of the HTML.
- 2) XHTML documents require fewer resources for parsing than HTML documents.
- 3) HTML browsers are not able to display not valid HTML documents correctly.
- 4) XHTML parsers should stop document processing in case of malformed document.
- 5) The HTML has more structural elements in comparison with the XHTML.

**8. What markup language is more preferable for the creation of hypertext documents that will be displayed on mobile phones? Why?**

## UNIT 7 INTERNET SECURITY

### *SECTION 1*

#### *LEAD-IN*



**1. Listen to the dialogue and say what security problem is stated there.**

**Then answer the following questions:**

- Have you ever been to a similar situation?
- Do you often get such type of e-mail?
- Do you know any preventative measures?
- What other Internet security problems do you know?

**2. How much do you know about Internet security? Check your knowledge with our Security Quiz.**

#### **SECURITY QUIZ**

1. Hackers break into home systems using which of the following methods
  - a. Social engineering
  - b. Utilizing network administration tools
  - c. Trojan programs
  - d. None of the above
  - e. All of the above
2. The term "Hacker" refers to...
  - a. An antisocial individual bent on destroying any computer they can
  - b. Someone who likes figuring out how computers work
  - c. A murderer
  - d. None of the above
  - e. All of the above
3. The computer term "cracker" refers to ...
  - a. A hacker that uses their knowledge for criminal activity
  - b. A saltine snack



- c. A thief that can open a safe
  - d. None of the above
4. Which of the following is not considered a computer crime?
    - a. Breaking into other computers for fun
    - b. Knowingly distributing computer viruses
    - c. Stealing credit cards numbers from others computers and using them to charge things
    - d. Writing programs that are used to do harm to other PCs.
    - e. All the above are computer crimes
  5. It is easier to "hack" into a PC that has a DSL or cable modem connection to the Internet, than a "dial-up" connection.
    - a. True
    - b. False
  6. What must a hacker know to hack into your PC?
    - a. Your IP address
    - b. Your operating system
    - c. Your systems vulnerabilities
    - d. All of the above
    - e. None of the above
  7. Which of the following is not a good defense measure against hackers?
    - a. Firewall
    - b. Antivirus program
    - c. Not clicking on files that end in .DLL or .EXE
    - d. Using a dial-up modem
    - e. All of the above are very good defense measures
  8. How are most computer viruses spread?
    - a. Floppy diskette
    - b. Downloaded off of the Internet
    - c. E-mail
    - d. Air-borne
  9. Encryption is used for ...
    - a. Sending secure e-mail
    - b. Sending credit card information securely over the Internet
    - c. Confidential military information
    - d. All of the above
  10. A firewall prevents hackers from breaking into your computer.
    - a. True
    - b. False

11. You will know your computer is infected with a Trojan program when odd things start to happen.
  - a. True
  - b. False
12. A good password ...
  - a. Is longer than 5 characters
  - b. Has a mix of numbers and upper and lower case letters.
  - c. Should be written and stored in a safe place
  - d. All of the above
  - e. Two of the above



### **READING**

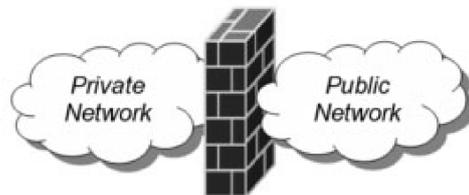
3. Read the following text and say what new information you have learnt about firewalls.

## **FIREWALLS**

As traffic increases dramatically on the Internet, so, too, do the risks that an institution's data may be sabotaged or stolen. As a result, network firewalls have become a hot topic. Relatively new creations, Internet firewalls, barriers placed between a network and the outside world

to prevent potentially damaging intrusion, have their roots in control mechanisms and security measures that have long been standard practice in the main-frame community. But today's networked world has grown from the bottom up rather than from the top down, with millions of new connections originating from personal computers and small networks. It's no longer possible to know who or what is on the other end of a network connection unless extraordinary measures are taken.

Just as no physical fire wall is perfect protection against a fire, no digital firewall can make a network 100 percent secure against outside intrusion. But they can come remarkably close if there is a comprehensive security policy. Firewalls can be built in several ways, using a variety of mechanisms. The most common are: 1) router-based filters; 2) host computer gateways', or bastions; 3) a separate, isolation network. The cost of a firewall can range from a SI 00,000



turnkey (installed and maintained by an outside vendor,) hardware/software system, to do it yourself software.

Perhaps the simplest approach to creating a firewall involves using a programmable router – the type of device normally used to create a permanent Internet connection to the outside world. Routers work by controlling traffic at the IP, i. e., the Internet Provider level, selectively passing or blocking data packets based on source/destination address or port information. While reasonably good firewalls can be created with routers alone, it may prove difficult to program the router to exclude everything that you want kept out. Unfortunately, most routers come configured with a minimum of built-in protection, and many organizations simply install them this way without customizing them.

Another approach to firewall construction is to use a computer rather than a router. This system, also called a bastion host, offers many more capabilities, including the ability to log all the activity over the gateway. While a router-based firewall monitors data packets at the IP level, hosts exert their control at an application level, where traffic can be examined more thoroughly. However, host-based firewalls must use specialized software applications gateways and service proxies to plug existing security holes. These are, in essence, stripped down versions of the original programs; they are less flexible and pass along mail messages only after verifying that they fit within the programmed restriction.

A third way to establish a firewall, similar to the host-based systems just described, is to create another network, i.e., an isolated subnetwork that sits between the external and internal networks. Typically, this network is configured so that both the Internet and the private network can access it, but traffic across the isolation network is blocked.

Sometimes, simply foiling an outside attack isn't enough. One high-powered deterrent is Sidewinder, a complete turnkey firewall system advertised as "security that strikes back." Its operating system is secure in and of itself, requiring no proxies or gateway applications. The patented mechanism wherein the operating system and its applications stay secure is called Type Enforcement. Data and processes are assigned to class types and interaction between them is strictly regulated.

It provides defense in depth, that is, even if a determined hacker were able to break into the Sidewinder platform itself, he or she would be left stranded in one domain without access to any other applications or processes. And breaking in is made more difficult because Sidewinder can filter any data that passes the network boundary.

One of Sidewinder's most interesting features is that it can strike back. When Sidewinder detects a hacker, it immediately sends a silent alarm to the system administrator for a decision. The system can let the intruder in and permit certain activities up to a point, all the while collecting information on the source of the probe and what types of actions the hacker takes. The system can also provide dummy password files, dead-end traps, and other stealthy defenses – a veritable "hall of mirrors", where nothing is quite the way it appears. Moreover, Sidewinder can also force a disconnection from any outside network.

**4. Decide whether the statements below are True or False according to the text, justify your decision by quoting the relevant words from the text.**

1. Internet firewalls are derived from the mainframe procedures.
2. Most of the router-based filters are adjusted to the needs of the customers using them.
3. Host-based firewalls offer more reliable verification of the message traffic than that given at IP level.
4. Service proxies are more limited in function than the original programs.
5. Sidewinder can filter both incoming and outgoing messages.
6. Sidewinder is described as a complete turnkey firewall system because it provides multi-level reaction, a retaliatory capacity and built-in traffic control.
7. Sidewinder strikes back by isolating the hacker before he accesses network domains.

**5. Basing on the information from the text, write grammatically correct one-sentence definitions for TWO of the following terms.**

Firewall      Type Enforcement      Isolation Network      Sidewinder

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_

**VOCABULARY AND GRAMMAR**

6. Complete the following sentences using the logical connectors given below. There are 2 extra words.

while • similarly • so • i.e. • possibly  
 despite • therefore • because

The walls of medieval cities were useless unless they had gateways; 1) \_\_\_\_\_, private computer networks have gateways to the outside world. Firewalls, 2) \_\_\_\_\_ sets of computers using filters to allow only authorized messages to pass through, are used as fortified gateways. Large systems with complex firewalls use an inner and outer gateway. The "outside" gateway connected to the Internet, can only reach one machine inside the firewall, 3) \_\_\_\_\_ the "inside" gateway doesn't trust the outside one, and 4) \_\_\_\_\_ only provides it with certain limited services. 5) \_\_\_\_\_ messages from outside in such a system may pass first to a firewall router, it takes no messages itself, and 6) \_\_\_\_\_ cannot be compromised.

7. What do these abbreviations mean? Look up the ones you don't know in a dictionary.

BPD, SOAP, ADN, Ajax, FDDI, JPEG, REST, SAML, RTSP, SEO, SMDS, SNMP, SQL, TLD, WAIS, UDDI, DHCP, NIC.

**WORD FORMATION**

8. Fill in the following table.

	Concrete noun	Abstract noun	Verb	Adjective / adverb
<b>e. g.</b>	eraser	erasing	erase	erasable
1.		validity		
2.	reject			
3.				digital
4.			recognize	

5.			corresponding
6.		transformation	
7.		fault	
8.			optional
9.		practice	
10.	variety		

### THE GERUND

<b>The -ing form is used:</b>
1. as a <i>noun</i> . Browsing the web can be very exciting.
2. after <i>love, like, dislike, hate, enjoy</i> . I love surfing the Net.
3. after certain verbs ( <i>avoid, admit, confess to, deny, look forward to, mind, object to, prefer, regret, risk, spend, suggest, give up, approve of, depend on, complain of, thank for, insist on, rely on, etc.</i> ) I don't mind installing new software.
4. after expressions: <i>to be busy with, to be used to, to be proud of, to be worth (while), it's no use, there's no point (in), to be sure of, to be surprised at, etc.</i> Any Windows, Macintosh, or Unix computer is capable of running a web server when it is connected to the Internet.
5. after <i>prepositions</i> You can multiply your surfing fun by browsing more than one web page at the same time.

**9. Fill in the right form of the verb given. Use Gerund, to + Infinitive or bare Infinitive.**

- Once the malware appears on your machine, it can be very challenging \_\_\_\_\_ (get) rid of. Access to the contents of the mailbox is granted by entering in your password.
- With VoIP you can speak to someone while \_\_\_\_\_ (send) her files or even showing yourself using a web cam.
- I'm tired of pop-up web advertisements, they just keep \_\_\_\_\_ (appear).

4. Employees who are about \_\_\_\_\_ (lose) their jobs can sometimes leave malware behind on the company system to do damage to their former employer.
5. The primary purpose of the firewall is \_\_\_\_\_ (prevent) unauthorized users from gaining access to your web server through packet filtering, user authentication, address obfuscation, along with client and server access lists.
6. You can't block pop-up ads by \_\_\_\_\_ (turn) off a feature or service in the operating system.
7. Regular Internet users with an eye to privacy may succeed in \_\_\_\_\_ (achieve) a desirable level of privacy through careful disclosure of personal information and by avoiding spyware.
8. The Internet is the most robust communications network ever designed, able \_\_\_\_\_ (adapt) itself almost instantaneously to damage or outages to individual sections.
9. Meta-search engines allow you \_\_\_\_\_ (submit) a search query to several engines at once.
10. Many phishing scams actually take real URL's and change them ever so slightly to make them \_\_\_\_\_ (look) like the real ones.



### ***LISTENING***

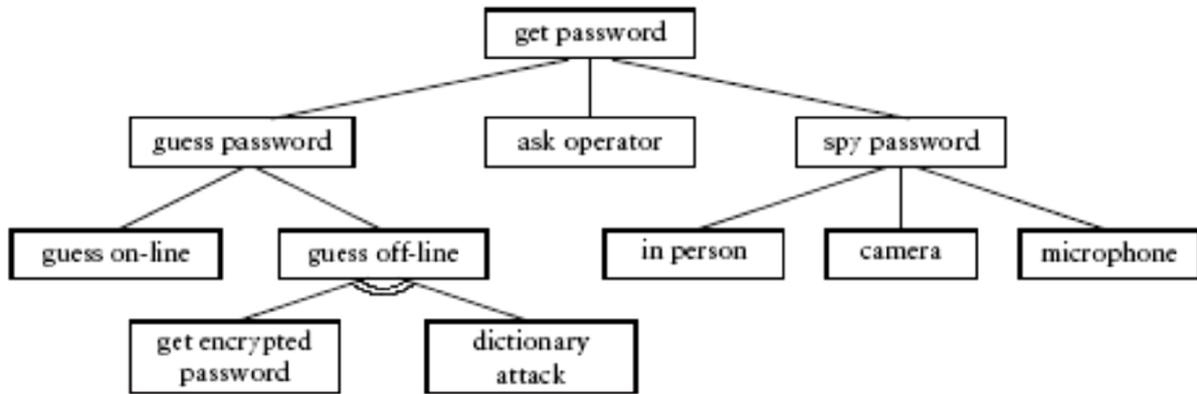
10. **Listen to a magazine article about the malware. Decide if the sentences below are True or False.**
  1. It's not easy to get rid of malware on your computer.
  2. The first malware programmes were just tricks.
  3. Malware can be used by employers to damage the work of their employees.
  4. Malware can't display pop-ups while the user is not on the Internet.
  5. If your e-mail address book is infected, spam will be sent to everyone listed in it.
  6. Malware can't control your modem.



### ***SPEAKING***

11. **Look at the attack tree and describe the process of obtaining another user's password.**

## ATTACK TREE

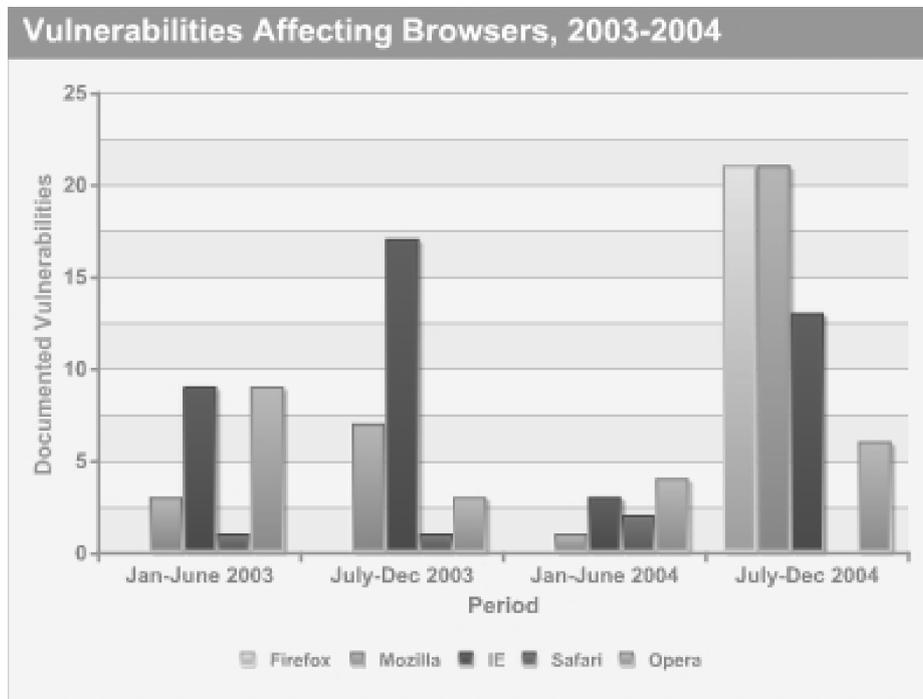


**How could you keep your password secure? Make a list of suggestions for Internet “newbies”.**



### *WRITING*

**12. The bar graph below shows vulnerabilities affecting browsers. Write a report describing the information shown below.**



## INTERNET ACTIVITIES

### 13. You are going to carry out a research on antivirus software.

Access the websites of the major antivirus vendors ([www.symantic.com](http://www.symantic.com) and [www.mcafee.com](http://www.mcafee.com)). Find out what the vendor's research centres are doing. Also, check newsgroups (e.g. virus, comp.virus, maous.comp.virus)

### 14. You are going to carry out a research on cybercrime.

Visit a website Cybercrime

(<http://library.thinkquest.org/04oct/00460/index.html>). Divide the class into 3 groups and study the information under the following titles:



- Prologue (history, cybercriminals, victims, misconceptions, etc.)
- A closer look (network intrusion, network attack, malware, cyberterrorism, defacement, etc.)
- Fighting back (purging cybercrime, prevention, etc.)

(You may take part in interactive activities provided with the website.)

Make a report to your class about the issue you studied.



Then discuss the following question:

- Which type of ethical hacking should trustworthiness be most emphasized in?

## SECTION 2



### READING

#### 1. Read the text and translate it.

### COMPUTER SECURITY VULNERABILITIES

In computer security, the word vulnerability refers to a weakness in a system allowing an attacker to violate the confidentiality, integrity, availability, access control, consistency or audit mechanisms of the system or the data and applications it hosts. Vulnerabilities may result from bugs or design flaws in the sys-

tem. A vulnerability can exist either only in theory, or could have a known exploit. Vulnerabilities often result from the carelessness of a programmer, though they may have other causes. Some vulnerabilities arise from un-sanitized user input, often allowing the direct execution of commands or SQL statements (known as SQL injection). Others arise from the programmer's failure to check the size of data buffers, which can then be overflowed, causing corruption of the stack or heap areas of memory (including causing the computer to execute code provided by the attacker). A vulnerability may allow an attacker to misuse an application through bypassing access control checks or executing commands on the system hosting the application.

Vulnerabilities have been found in every major operating system including Windows, Mac OS, various forms of Unix and Linux, OpenVMS, and others. The only way to reduce the chance of a vulnerability being used against a system is through constant vigilance, including careful system maintenance and best practices in deployment (e. g. the use of firewalls and access controls).

**2. Decide whether the statements below are true or false.**

- 1) All vulnerabilities are results of programmers' mistakes.
- 2) Any vulnerability has the corresponding exploit.
- 3) Even expensive operating systems have vulnerabilities.
- 4) Using firewall can prevent your system from being damaged by using vulnerabilities.
- 5) Not checking size of user input cannot result in execution of malicious code.

**3. Discuss the following topic: what should a programmer do in order to write a program without vulnerabilities?**

**4. Read the text and translate it.**

### SQL INJECTION

SQL injection is a technique that exploits a security vulnerability occurring in the database layer of an application. SQL injection occurs when user input is not filtered for escape characters and is then passed into a SQL statement. This results in the potential manipulation of the statements performed on the database by the end user of the application.

The following line of code written in PHP illustrates this vulnerability:

```
$res = mysql_query("SELECT * FROM users WHERE  
login='$login' AND password='$pas'");
```

If the "login" variable is crafted in a specific way by a malicious user, the SQL statement may do more than the code author intended. For example, setting the "login" variable as

```
admin' OR '1' = '1
```

renders this SQL statement by the parent language:

```
SELECT * FROM users WHERE login='admin' OR '1' =  
'1' AND password='anything';
```

This example could be used to force the selection of a valid username.

Theoretically any valid SQL command may be injected via this method, including the execution of multiple statements. The following value of "login" in the statement below would cause the deletion of the "users" table:

```
admin';DROP TABLE users;SELECT * FROM data WHERE  
name LIKE '%
```

This input renders the final SQL statement as follows:

```
SELECT * FROM users WHERE login='admin';DROP TA-  
BLE users;SELECT * FROM data WHERE name LIKE '%'  
AND password='anything';
```

SQL injection is easy to work around in most programming languages that target web applications. In PHP, there are different built-in functions to use for different DBMSes for escaping values suitable for embedding in literal SQL statements. For MySQL, there is the built-in function `mysql_escape_string`:

```
$res = mysql_query("SELECT * FROM users WHERE  
login='".mysql_escape_string($login)."' AND pass-  
word='".mysql_escape_string($pas)."'");
```

The SQL injection problem can be solved if the database engine supports a feature called 'disabling literals'. Disabling literals means, the database engine runs in a mode where text and number literals are not allowed as part of SQL statements, only placeholders are allowed. So statements of the form:

```
SELECT * FROM USER WHERE NAME='Smith'  
SELECT * FROM ITEMS WHERE USERID=2
```

are not allowed in this mode (the database engine would simply throw an exception). The queries would have to be written as:

```
SELECT * FROM USER WHERE NAME=?  
SELECT * FROM ITEMS WHERE USERID=?
```

By disabling literals, the usage of placeholders is enforced. Because placeholders must be used for all user input, SQL injection of the form described above becomes impossible in this mode. Disabling literals solves the SQL injection problem in a similar way that array bounds checking and the lack of pointer

arithmetics solves buffer overflows in certain programming languages (for example Java or C#).

**5. Complete the sentences.**

- 1) SQL injection allows an attacker to ...
- 2) SQL injection becomes possible when a program ...
- 3) If a program doesn't work with database then ...
- 4) In order to exclude possibility of SQL injection in PHP ...
- 5) Mode 'disabling literals' means that ...
- 6) In mode 'disabling literals' instead of text and number literals ...

**6. Consider the following PHP code:**

```
$rows = mysql_query("UPDATE users SET phone='$phone' WHERE user='$username' AND pas='$password';");
```

1. What values of variables \$phone, \$username and \$password should be used in order to set password '123' for user 'editor'?
2. What values of variables \$phone, \$username and \$password should be used in order to delete the table 'users'?
3. Edit this code in order to exclude any possibility for SQL injection.
4. Write SQL statement using placeholders.

**7. What are pros and cons of two methods of disclosing vulnerabilities:**

- a) full disclosure (to disclose all the details of a security problem which are known);
- b) limiting disclosure to the users placed at greatest risk, and only releasing full details after a delay.

## GLOSSARY

- ADSL** – An acronym for Asymmetric Digital Subscriber Line, ADSL is a method of transmitting data over traditional copper telephone lines at speeds higher than were previously possible.
- Applet** – An applet is a small software application, typically in the Java programming language.
- Archie** – is a software utility for finding files stored on FTP servers, Archie is a system for locating files on the Internet.
- ARPANET** – Advanced Research Projects Agency Network. It was a network developed in the late 1960's and early 1970's by the U.S. Department of Defense. As an experiment in wide area networking (WAN), ARPANet was developed with the goal of being robust enough to survive a nuclear war.
- Backbone** – is a high-speed line or series of connections that forms a major pathway within a network.
- Bandwidth** – is the maximum amount of data that can travel a communications path in a given time, usually measured in seconds.
- BBS** – This is the acronym for Bulletin Board System, a system that lets people read each other's messages and post new ones.
- Blog** – Short for web log; usually a chronological record of thoughts, links, events, or actions posted on the web. For examples, see the Yahoo Directory of Weblogs.
- Broadband** – When the bandwidth of a signal is large, it can simultaneously carry many channels of information. Fiber optic cable, in particular, has a very high bandwidth, and is referred to as broadband.
- Browser** – A browser is a software program that allows you to view and interact with various kinds of Internet resources available on the World Wide Web. A browser is commonly called a web browser.
- Client** – A client is a program that uses the services of another program. The client program is used to contact and obtain data or request a service from the server.
- Cookie** – A cookie is a file sent to a web browser by a web server that is used to record one's activities on a website. For instance, when you buy items from a site and place them in a so-called virtual shopping cart, that information is stored in the cookie.

- Cryptography** – The process of securing private information that is passed through public networks by mathematically scrambling (encrypting) it in a way that makes it unreadable to anyone except the person or persons holding the mathematical "key" that can unscramble (decrypt) it.
- CSS** – stands for Cascading Style Sheets. It is a technique built into version 4.0 and later browsers that support styles for pages. For example, you can set up styles for fonts and page layouts that will apply automatically to pages developed under a particular style you develop.
- Database** – A database is a structured format for organizing and maintaining information that can be easily retrieved. A simple example of a database is a table or a spreadsheet.
- Directory** – A directory is a system that your computer uses to organize files on the basis of specific information. Directories can be organized hierarchically so that files appear in a number of different ways, such as the order in which they were created, alphabetically by name or by type, and other ways.
- Encryption** – A way of coding the information in a file or e-mail message so that if it is intercepted by a third party as it travels over a network it cannot be read. Only the person or persons that have the right type of decoding software can unscramble the message.
- Firewall** – A firewall is a combination hardware and software buffer that many companies or organizations have in place between their internal networks and the Internet. A firewall allows only specific kinds of messages from the Internet to flow in and out of the internal network.
- Gateway** – A gateway refers to hardware or software that bridges the gap between two otherwise incompatible applications or networks so that data can be transferred among different computers.
- Gopher** – is a text-based internet search engine developed by the University of Minnesota.
- Host** – A host is any computer directly connected to a network that acts as a repository for services (such as e-mail, Usenet newsgroups, FTP, or World Wide Web) available for other computers on the network.
- Internet Service Provider** – Also called an ISP or access providers, Internet service providers refers to the remote computer system to which you connect your personal computer and through which you connect to the Internet.
- IP Address** – An IP address is a numeric code that uniquely identifies a particular computer on the Internet. Just as a street address identifies the lo-

cation of your home or office, every computer or network on the Internet has a unique address, too. Internet addresses are assigned to you by an organization called InterNIC.

**Java** – is an object-oriented programming language developed by Sun Microsystems, Inc. to create executable content (i.e, self-running applications) that can be easily distributed through networks like the Internet.

**MIME** – stands for Multipurpose Internet Mail Extension, a standard system for identifying the type of data contained in a file based on its extension. MIME is an Internet protocol that allows you to send binary files across the Internet as attachments to e-mail messages.

**Netiquette** – is a form of online etiquette – an informal code of conduct that governs what is generally considered to be the acceptable way for users to interact with one another online.

**Netscape** – was founded in 1994 by Jim Clark and Mark Andreessen, Netscape developed the first commercially successful web browser, Netscape Navigator. The browser, based on the Mosaic software from the National Center for Supercomputing, helped fuel the explosive growth of the World Wide Web.

**Network** – A network is two or more computers connected to each other so they can share resources. The Internet is a "network of networks," whereby anyone – from an individual at a home with a PC to a large corporate multidepartment system – can freely and easily exchange information.

**Newsgroup** – A newsgroup is an electronic discussion group consisting of collections of related postings (also called articles) on a particular topic that are posted to a news server which then distributes them to other participating servers.

**Packet/Packet Switching** – A packet is a chunk of information sent over a network. Packet-switching is the process by which a carrier breaks up data into these chunks or packets. Each packet contains the address of origin, the address of its destination, and information about how to reunite with other related packets.

**Plug-In** – A plug-in extends the capabilities of a web browser, such as Netscape Navigator or Microsoft Internet Explorer, allowing the browser to run multimedia files.

**POP Server** – A POP server uses the Post Office Protocol, to hold users' incoming e-mail until they read or download it.

**PPP** – An acronym for Point-to-Point Protocol, PPP is a communications protocol used to transmit network data over telephone lines. It allows you

to connect your computer to the Internet itself, rather than logging on through an Internet service provider's host computer and using UNIX commands through a shell.

**Router** – A router is a piece of hardware or software that connects two or more networks. A router functions as a sorter and interpreter as it looks at addresses and passes bits of information to their proper destinations.

**Search Engine** – A search engine is a type of software that creates indexes of databases or Internet sites based on the titles of files, keywords, or the full text of files. The search engine has an interface that allows you to type what you're looking for into a blank field. It then gives you a list of the results of the search.

**Server** – A server is a computer that handles requests for data, e-mail, file transfers, and other network services from other computers (i.e., clients).

**SMTP** – An acronym for Simple Mail Transfer Protocol, SMTP is the protocol used for routing e-mail across the Internet.

**SQL** – An acronym for Structured Query Language. A specialized language for sending queries to databases. Most industrial-strength and many smaller database applications can be addressed using SQL.

**SSL** – An acronym for Secure Socket Layer, SSL is a protocol developed by Netscape Communications Corporation for securing data transmission in commercial transactions on the Internet. Using public-key cryptography, SSL provides server authentication, data encryption, and data integrity for client/server communications.

**String/Search String** – A string refers to a sequence of characters, words, or other elements that are connected to each other in some way. A search string usually refers to a string of words or a phrase that is used to search and locate or retrieve a specific piece of information contained in a database or a set of documents.

**Tags** – are descriptive formatting codes used in HTML documents that instruct a web browser how to display text and graphics on a web page. For example, to make text bold, the tag <B> is used at the beginning and end of the text.

**TCP/IP** – stands for Transmission Control Protocol/Internet Protocol, the language governing communications between all computers on the Internet. TCP/IP is a set of instructions that dictates how packets of information are sent across multiple networks.

- USENET** – refers to the collection of newsgroups (sometimes called the Big Eight hierarchies) and a set of agreed-upon rules for distributing and maintaining them.
- URL** – An acronym for Uniform Resource Locator, a URL is the address for a resource or site (usually a directory or file) on the World Wide Web and the convention that web browsers use for locating files and other remote services.
- WAIS** – An acronym for Wide Area Information Servers, WAIS is a network information retrieval service that you can use to search for keywords or phrases in specially indexed files.
- WAN** – An acronym for Wide Area Network, WAN refers to a network that connects computers over long distances via telephone lines or satellite links. In a WAN, the computers are physically and sometimes geographically far apart.

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Учебное издание

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**АНГЛИЙСКИЙ ЯЗЫК  
ДЛЯ СПЕЦИАЛИСТОВ В ОБЛАСТИ  
ИНТЕРНЕТ-ТЕХНОЛОГИЙ**

Учебное пособие

Научный редактор  
*кандидат педагогических наук,  
доцент Т.В. Сидоренко*

Редактор *В.Ю. Пановица*  
Компьютерная верстка и дизайн обложки  
*О.Ю. Аршинова*

Подписано к печати 17.12.2012. Формат 60x84/16. Бумага «Снегурочка».  
Печать XEROX. Усл. печ. л. 6,75. Уч.-изд. л. 6,10.  
Заказ 1485-12. Тираж 100 экз.



Национальный исследовательский Томский политехнический университет  
Система менеджмента качества  
Издательства Томского политехнического университета сертифицирована  
NATIONAL QUALITY ASSURANCE по стандарту BS EN ISO 9001:2008



. 634050, г. Томск, пр. Ленина, 30  
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