21世纪高等学校计算机规划教材

21st Century University Planned Textbooks of Computer Science

计算机英语教程

Computer English Course

吕云翔 杨雪 林珣 编著

- 精选最新英语时文和经典原版教材
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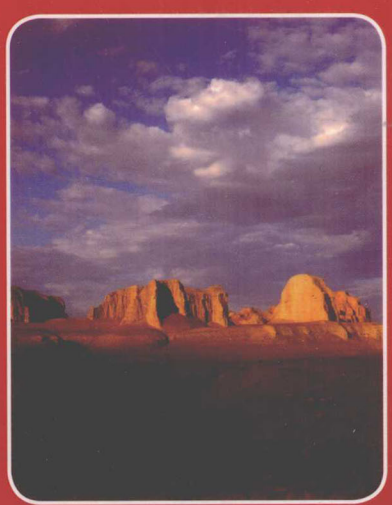

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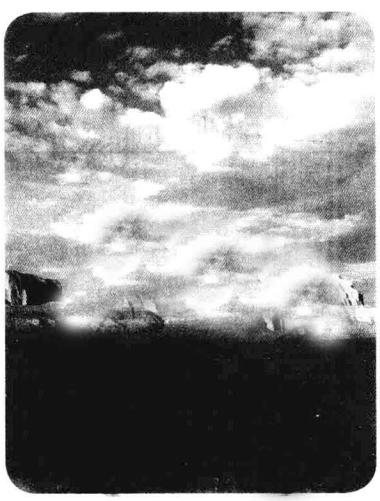

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内 容 提 要

本书是面向计算机及相关专业的专业英语课程的教材，它全面介绍和讲解了深刻影响着我们生活的信息技术，内容包括最新科研成果、业界前沿课题和发展趋势，又有计算机文化典故和名人轶事等。本教材注重英语听、说、读、写、译的全面发展和实际应用。各章内容均分为阅读与翻译、写作、听说三大部分。听、说、读、写、译全方位训练可使读者掌握英语交流所具备的基本技能及计算机相关知识。

本书适合国内各大院校计算机、软件工程、信息系统、通信工程等专业教学之用，也可作为其他相关专业或IT领域人员的自修参考用书。

21世纪高等学校计算机规划教材

计算机英语教程

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前　言

作为全球 IT 行业的通用交流语言，英语是每一位 IT 从业人员必须掌握的语言，计算机专业英语知识的运用与实践是 IT 从业人员必须具备的基本职业技能。

本书是参照全国计算机等级考试（计算机职业英语部分）的要求，按照新的《大学英语教学大纲》为各类高校和职业学校开设的计算机英语课程而编写的，适用于计算机相关专业学生和广大从事计算机相关工作的在职人员。

本书选材广泛，内容丰富。全书共分为 12 章，分别从计算机基础、计算机硬件、计算机软件、操作系统、计算机程序设计、数据库、计算机网络、因特网、电子商务、计算机安全、软件工程和新技术的展望等方面全面介绍和讲解深刻影响着我们生活的信息技术，内容既包含新的科研成果、业界前沿课题和发展趋势，又有计算机文化典故和名人轶事。

本书在对话场景的编排上以 3 位计算机专业大学本科生 Mark、Henry 和 Sophie 的学习生活为主要背景，围绕各章主题展开他们交流的话题，并在对话中丰富各章主题，将全书内容巧妙地联系在一起。

本书信息容量大，知识性强，注重英语的听、说、读、写、译能力的全面培养和实际应用。各章内容均分为阅读与翻译、写作和听说 3 大部分。其中，阅读分为精读和泛读两部分，精读部分全面丰富地论述本章主题，使读者深入了解和掌握相关专业知识；泛读部分介绍计算机领域的新技术进展，供读者开阔视野；两部分均列出了计算机专业词汇。翻译部分结合阅读部分的文章，将其中涉及的复杂句型和特殊句型或涉及计算机相关的重要知识点的句子摘录出来，一部分作为阅读提示，另一部分作为翻译练习，帮助读者巩固计算机和英语的专业知识。写作部分讲解 IT 常用文体写作方法，且在方法指导的基础上辅以实例。听说部分是与各章主题相关的专题讨论，将计算机的相关知识与实际的场景对话相结合，旨在综合训练读者的听说能力，并在对话中掌握计算机的相关知识。听、说、读、写、译全方位的训练可使读者掌握英语交流所应具备的基本技能，并学习计算机相关知识。

本书采用场景式教学和体验式学习相结合的方式，教材中设计的听力、口语、阅读与翻译和写作练习融合了角色扮演、多人会话和小组讨论等行之有效的训练方法，能较好地满足课堂教学的需要。

另外，本书有配套的 MP3 听力材料，听力录音均聘请专业人员编录，可为学生提供非常有价值的短文和口语模板。配套的 MP3 听力材料、练习参考答案以及教学 PPT 可以在网站上的本书网页中免费注册下载。本书建议教学时长为 48 学时或 32 学时（可根据情况进行适当的调整）。

本书在编写的过程中得到了美国专家 Eric Langager 的指导，在此表示衷心的感谢。

本书在编写和出版过程中还得到人民邮电出版社的鼎力支持，在此一并表示感谢。

由于作者能力有限，书中难免有不足，望读者给予批评指正（邮箱：yunxianglu@hotmail.com）。

编者

2011 年 12 月于北京

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Unit 1
The Fundamentals of Computers

Part 1 Reading and Translating

Section A The History of Computers

1. Introduction

While computers are now an important part of the lives of human beings, there was a time when computers did not exist. Knowing the history of computers and how much progress has been made can help you understand just how complicated and innovative the creation of computers really is.

Unlike most devices, the computer is one of the few inventions that do not have one specific inventor. Throughout the development of the computer, many people have added their creations to the list required to make a computer work. Some of the inventions extend the types of computers, while others help computers to be further developed.

2. The Beginning

Perhaps the most significant date in the history of computers is the year 1936. It was in this year that the first "computer" was developed. It was created by Konrad Zuse and ***dubbed*** the Z1 Computer. *This computer stands as the first as it was the first system to be fully programmable.* There were devices prior to this, but none had the computing power that ***set*** it ***apart*** from other electronics.

It wasn't until 1942 that any business saw profit and opportunity in computers. This first company was called ABC computers, owned and operated by John Atanasoff and Clifford Berry. ABC was the first to use vacuum tubes. Its design also incorporated the idea of basing calculations on the binary number system. Two years later, the Harvard Mark I computer was developed, ***furthering*** the science of computing. (See Figure 1-1)

Over the ***course*** of the next few years, inventors all over the world began to search more into the study of computers, and how to improve upon them. Those next ten years say the introduction of the ***transistor***, which would become a vital part of the inner workings of the computer, the **ENIAC** I computer, as well as many other types of systems. The ENIAC I is perhaps one of the most interesting, as it required 20 000 ***vacuum tubes*** to operate. It was a massive machine, and started the revolution to build smaller and faster computers.

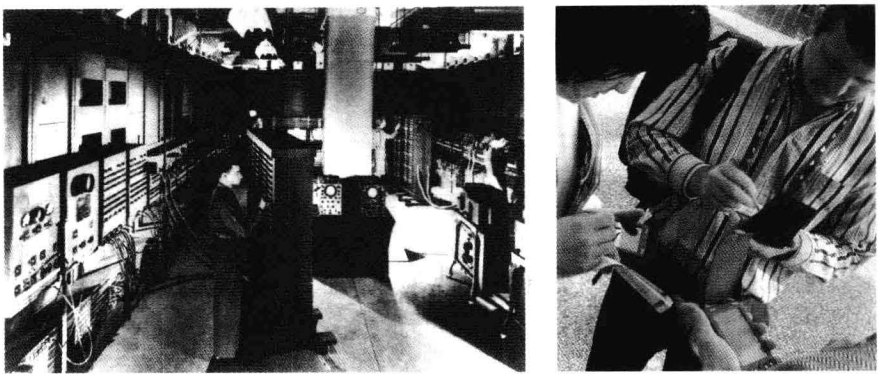

Figure 1-1 Grandparents and offspring

The age of computers was forever altered by the introduction of International Business Machines (**IBM**) into the computing industry in 1953. This company, over the course of computer history, has been a major player in the development of new systems and servers for public and private use. *This introduction brought about the first real signs of competition within computing history, which helped to* ***spur*** *faster and better development of computers.* Their first contribution was the IBM 701 **EDPM** Computer.

3. A Programming Language Evolves

A year later, the first successful high level programming language—FORTRAN, was created. This was a programming language not written in ***"assembly"*** or ***binary***, which is considered as very low level language. FORTRAN was written so that more people could begin to program computers easily.

The year 1955, the Bank of America, ***coupled with*** Stanford Research Institute and General Electric, ***saw*** the creation of the first computers for use in banks. The **MICR**, or Magnetic Ink Character Recognition, coupled with the actual computer, the **ERMA**, was a ***breakthrough*** for the banking industry. It wasn't until 1959 that the pair of systems was put into use in actual banks.

In 1958, one of the most important breakthroughs in computer history occurred, the creation of the ***integrated circuit.*** This device, also known as the ***chip***, is one of the base requirements for modern computer systems. *On every motherboard and card within a computer system, are many chips that contain information on what the boards and cards do.* Without these chips, the systems as we know them today cannot function.

4. Gaming, Mice & the Internet

For many computer users now, games are a vital part of the computing experience. 1962 saw the creation of the first computer game, which was created by Steve Russel and **MIT**, which was dubbed Spacewar.

The ***mouse***, one of the most basic components of modern computers, was created in 1964 by Douglass Engelbart. It obtained its name from the "tail" leading out of the device.

One of the most important aspects of computers today was invented in 1969. **ARPA** net was the original Internet, which provided the foundation for the Internet that we know today. This development would ***result in*** the evolution of knowledge and business across the entire planet.

It wasn't until 1970 that Intel entered the ***scene*** with the first dynamic **RAM** chip, which resulted in

an explosion of computer science innovation.

On the heels of the RAM chip was the first microprocessor, which was also designed by Intel. These two components, in addition to the chip developed in 1958, would ***number*** among the core components of modern computers.

A year later, the ***floppy disk*** was created, gaining its name from the flexibility of the storage unit. This was the first step in allowing most people to transfer bits of data between unconnected computers.

The first ***networking card*** was created in 1973, allowing data transfer between connected computers. This is similar to the Internet, but allows for the computers to connect without use of the Internet.

5. Household PC's Emerging

The next three years were very important for computers. This was the time when companies began to develop systems for the ***average*** consumers. The Scelbi, Mark-8 Altair, IBM 5100, Apple Ⅰ and Ⅱ,TRS-80, and the Commodore Pet computers were the ***forerunners*** in this area. *While expensive, these machines started the trend for computers within common households.*

One of the most major breakthroughs in computer software occurred in 1978 with the release of the VisiCalc Spreadsheet program. All development costs were paid for within a two-week period of time, which made this one of the most successful programs in computer history.

1979 was perhaps one of the most important years for the home computer users. This was the year that WordStar, the first word processing program, was ***released*** to the public for sale. This drastically altered the usefulness of computers for the everyday users.

The IBM home computer quickly helped revolutionize the consumer market in 1981, as it was affordable for home owners and standard consumers. 1981 also saw the ***mega***-giant Microsoft enter the scene with the **MS-DOS *operating system***. This operating system utterly changed computing forever, as it was easy enough for everyone to learn.

6. The Competition Begins: Apple VS Microsoft

Computers saw yet another vital change during the year of 1983. The Apple Lisa computer was the first with a graphical user interface, or a **GUI**. Most modern programs contain a GUI, which allows them to be easy to use and ***pleasing*** for the eyes. This marked the beginning of the ***out-dating*** of most text-based only programs.

Beyond this point in computer history, many changes and alterations have occurred, from the Apple-Microsoft wars, to the developing of microcomputers and a variety of computer breakthroughs that have become an accepted part of our daily lives. Without the initial first steps of computer history, none of those would have been possible.

Words

dub[dʌb] *v.*授予称号	chip[tʃip] *n.*芯片
further['fəːðə] *v.*促进，推动	mouse[maus] *n.*鼠标，滑鼠
course[kɔːs] *n.*进程，过程，比赛场地	scene[siːn] *n.*舞台
transistor[træn'zistə] *n.*晶体管	number['nʌmbə] *v.*列入，把……算作
spur[spəː] *v.*刺激，激励，鞭策	average['ævəridʒ] *adj.*平常的，普通的，一般的
assembly[ə'sembli] *n.*汇编，集合	forerunner['fɔːˌrʌnə] *n.*先驱

binary['bainəri] *n.*二进制	mega['megə] *adj.*巨大的，极佳的
see[si:] *v.*目睹，历经，体验	please[pli:z] *v.*（使……）高兴，（使……）满意
breakthrough['breik'θru:] *n.*突破，重大成就	outdate[aut'deit] *v.*使过时
release[ri'li:s] *v.*发布	

Phrases

set apart　分开放，隔离开	on the heels of　紧跟着
vacuum tube　真空管，电子管	floppy disk　软盘
be coupled with　和……联合，结合	networking card　网卡
integrated circuits　集成电路	operating system　操作系统
result in　导致，结果是	

Abbreviations

ENIAC	Electronic Numerical Integrator And Calculator[Computer]	电子数字积分计算机
IBM	International Business Machines	（美国）国际商用机器公司
EDPM	Electronic Data Processing Machine	电子数据处理机
MICR	Magnetic Ink Character Recognition	磁墨水字符识别
ERMA	Electronic Recording Method of Accounting	电子账目记录方法
MIT	Massachusettes Institute of Technology	（美国）麻省理工学院
ARPA	Advanced Research Projects Agency	（美国国防部）高级研究计划署
RAM	Random-Access Memory	随机访问存储器
MS-DOS	Microsoft Disk Operating System	微软磁盘操作系统
GUI	Graphical User Interface	图形用户界面

Complex Sentences

1. **Original**: This computer stands as the first as it was the first system to be fully programmable.

Translation：因为这台计算机是第一个完全可编程的系统，所以它名列第一。

2. **Original**: On every motherboard and card within a computer system, are many chips that contain information on what the boards and cards do.

Translation：在计算机系统中的每一个主板和卡上，有许多包含信息的芯片，主板和卡执行这些芯片上的信息。

Exercises

I. Read the following statements carefully, and decide whether they are true (T) or false (F) according to the text.

___1. Before 1936, all devices which had the computing power had to rely on other electronics.

___2. IBM was the first company who initiated the computer business.

___3. ENIAC I was made with the technology of the vacuum tube.

___4. Prior to the high level programming language, "assembly" or binary is difficult to write and understand for the majority.

___5. Apple produced the first computer with a GUI.

Ⅱ. Choose the best answer to each of the following questions.

1. Which of the following descriptions is WRONG according to this article?

A. It was the creation of the integrated circuit that made the volume of the computers smaller

B. ARPA net provided the foundation for the Internet that we use today

C. Intel produced the first chip in the world, which exploded the innovation of computer science

D. "Mouse" obtained its name from the feature of its figure

2. Among the following products, which appeared the earliest during the computer software development history?

A. MS-DOS B. WordStar C. Spacewar D. VisiCalc Spreadsheet

3. In the following devices, which is NOT included in the list of the core components of modern computers?

A. Chip B. Transistor C. RAM D. Microprocessor

Ⅲ. Translating.

1. This introduction brought about the first real signs of competition within computing history, which helped to spur faster and better development of computers.

2. While expensive, these machines started the trend for computers within common households.

Section B The Varieties of Computers

1. Introduction

Before you begin, you will need to understand three key concepts.

(1) Purpose of a Computer: Turn Data into Information

- Data: Data consists of the raw facts and figures that are processed into information—for example, the votes for different candidates being elected to student-government office.
- Information: Information is data that has been summarized ***or otherwise manipulated*** for use in decision making—for example, the total votes for each candidate, which are used to decide who win.

(2) Difference between Hardware and Software

- Hardware: Hardware consists of all the machinery and equipment in a computer system. The hardware includes, among other devices, the keyboard, the screen, the printer, and the "box"—the computer or processing device itself. Hardware is useless without software.
- Software: Software, or programs, consists of all the electronic ***instructions*** that tell the computer how to perform a task. These instructions come from a software developer in a form (such as **CD**, or compact disk) that will be accepted by the computer. Examples are Microsoft Windows and Office XP/Vista.

(3) The Basic Operations of a Computer (***Regardless of*** Type and Size)

- Input operation: Input is whatever is put in ("input") to a computer system. Input can be nearly any kind of data—letters, numbers, symbols, shapes, colors, temperatures, sounds, pressure, light beams, or whatever raw material needed processing. When you type some words or numbers on a keyboard, those words are considered input data.

- Processing operation: Processing is the manipulation a computer does to transform data into information. When the computer adds 2 and 2 to get 4, that is the act of processing. The processing is done by the central processing unit—frequently called just the **CPU**—a device consisting of electronic circuitry that executes instructions to process data.
- ***Storage*** operation: Storage is of two types—temporary storage and permanent storage, or primary storage and secondary storage. *Primary storage, or* ***memory****, is the internal computer circuitry that temporarily holds data waiting to be processed. Secondary storage, simply called storage, refers to the devices and media that store data or information permanently.* A floppy disk or ***hard disk*** is an example of this kind of storage. (Storage also holds the software—the computer programs.)
- Output operation: Output is whatever is put out ("output") from the computer system—the results of processing, usually information. Examples of output are numbers or pictures displayed on a screen, words printed out on paper by a printer, or music ***piped*** over some loudspeakers.
- Communications operation: Though not all computers have communications ability, which offers an extension capability. In other words, it extends the power of the computer. With wired or wireless communications connections, data may be input from ***afar***, processed in a remote area, stored in several different locations, and output in ***yet*** other places. However, you don't need communications ability to write letters, do calculations, or perform many other computer tasks.

2. All Computers, Great and Small: The Categories of Machines

At one time, the idea of having your own computer was almost like having your own personal nuclear reactor. In those days, during the 1950s and 1960s, computers were enormous machines affordable only by large institutions. Now they come in a variety of shapes and sizes, which can be classified according to their processing power: ***supercomputers***, ***mainframe*** computers, ***workstations***, microcomputers and microcontrollers. We also consider servers.

(1) Supercomputers

Typically ***priced*** from $1 million to more than $350 million, supercomputers are high- capacity machines with thousands of processors that can perform more than several trillion calculations per second. These are the most expensive and fastest computers available. "Supers" , as they are called, have been used for tasks requiring the processing of enormous volumes of data, such as doing the ***census*** count, forecasting weather, designing aircraft, modeling molecules and breaking ***encryption*** codes. More recently they have been employed for business purposes—for instance, ***sifting demographic*** marketing information—and for creating film ***animation***.

Supercomputers are still the most powerful computers, but a new generation may be coming that relies on ***nanotechnology***(Nano means "one-billionth"), in which molecule-sized nanostructures are used to create tiny machines for holding data or performing tasks. *A biological nanocomputer, which would be made of* **DNA** *and could fit into a single human cell, would use* DNA *as its software and* ***enzymes*** *as its hardware; its molecular-sized circuits would be viewable only through a microscope.* Some believe that within 10 years computers with the size of a pencil eraser will be available that work 10 times faster than today's fastest supercomputer. Eventually nanotech could ***show up*** in every device and appliance in your life.

（2）Mainframe Computers

The only type of computer available until the late 1960s, mainframes are water-cooled or air-cooled computers that cost $5000 ~ $5 million and vary in size from small, to medium, to large, depending on their use. Small mainframes ($5000 ~ $200000) are often called midsize computers; they ***used to*** be called minicomputers, although today the term is seldom used. Mainframes are used by large organizations—such as banks, airlines, insurance companies, and colleges—for processing millions of ***transactions***. Often users access a mainframe by means of a ***terminal***, which has a display screen and a keyboard and can input and output data but cannot by itself process data. Mainframes process billions of instructions per second.

（3）Workstations

Introduced in the early 1980s, workstations are expensive, powerful personal computers usually used for complex scientific, mathematical, and engineering calculations and for **CAD** and computer-aided manufacturing. Providing many capabilities comparable to those of midsize mainframes, workstations are used for such tasks as designing airplane ***fuselages***, developing prescriptions drugs, and creating movie special effects. *Workstations have* ***caught the eye of*** *the public mainly for their graphics capabilities*, which are used to ***breathe three-dimensional*** life into movies such as The Lord of the Rings and Harry Potter. The capabilities of *low-end* workstations ***overlap*** those of ***high-end desktop microcomputers.***

（4）Microcomputers

Microcomputers, also called personal computers (**PC**s), which cost from $500 to over $5000, can fit next to a desk or on a desktop or can be carried around. They either are stand-alone machines or are connected to a computer network, such as a local area network. A local area network (**LAN**) connects, usually by special cables, a group of desktop PCs and other devices, such as printers, in an office or a building.

Desktop PCs are microcomputers whose case or main ***housing*** sits on a desk, with keyboard in front and monitor (screen) often on top. （See Figure 1-2）

Figure 1-2 Desktop PC

Tower PCs are microcomputers whose case sits as a "tower", often on the floor beside a desk, ***freeing up*** *desk surface space*. Some desktop computers, such as Apple's iMac, no longer have a boxy housing; most of the actual computer components are built into the back of the flat-panel display

screen.

Notebooks computers, also called ***laptop computers***, are light-weight portable computers with built-in monitor, keyboard, hard disk ***drive***, CD/DVD drive, battery, and **AC** ***adapter*** that can be plugged into an electrical outlets; they weigh anywhere from 1.8 to 9 pounds.

Netbooks, a fairly recently category, are low-cost, lightweight, computers with tiny dimensions and functions designed for basic tasks, such as Web searching, E-mail and word processing. They weigh anywhere from 2.25 to 3.2 pounds, cost generally between $270 and $500, have little processing power, and have screens between 8.9 and 12 inches wide diagonally. Netbooks fill a technological category between notebooks and handheld devices.

Mobile Internet devices (**MID**s) are smaller than notebook computers but larger and more powerful than PDAs (see below), and they are for consumers and business professionals. Fully Internet integrated, they are highly ***compatible with*** desktop microcomputers and laptops. The initial model focus on data communication, not voice communication.

Personal digital assistants (**PDA**s), also called ***handheld computers*** or ***palmtops***, combine personal organization tools—schedule planners, address books, to-do lists—with the ability in some cases to send E-mails and faxes. Some PDAs have touch-sensitive screens. Some also connect to desktop computers for sending or receiving information. (For now, we are using the word digital to mean computer based.) The range of handheld wireless devices, such as multipurpose ***cellphones***, has ***surged*** in recent years.

（5）Microcontrollers

Microcontrollers, also called ***embedded computers***, are the tiny, specialized ***microprocessors*** installed in "smart" appliances and automobiles. These microcontrollers enable microwave ovens, for example, to store data about how long to cook your potatoes and at what power setting. Microcontrollers have been used to develop a new universe of experimental electronic appliances—e-appliances. For example, they are behind the new single-function products such as digital cameras, MP3 and MP4 players, and ***organizers***, which have been developed into ***hybrid*** forms such as ***gadgets*** that store photos and videos as well as music. They also help run tiny Web servers embedded in clothing, jewelry, and household appliances such as refrigerators. In addition, microcontrollers are used in blood-pressure monitors, air bag sensors, gas and chemical sensors for water and air, and vibration sensors.

（6）Servers

A ***server***, or network server, is a central computer that holds collections of data (***databases***) and programs for connecting or supplying services to PCs, workstations and other devices, which are called ***clients***. These clients are linked by a wired or wireless network. The entire network is called a client/server network. In small organizations, servers can store files, provide printing stations and transmit E-mails. In large organizations, servers may also house enormous libraries of financial, sales and product information.

Words

manipulate[mə'nipjuleit] *v.*操作，处理	memory['meməri] *n.*内存
instruction[in'strʌkʃən] *n.*指令	pipe[paip] *v.*传送
storage['stɔridʒ] *n.*存储，存储器	afar[ə'fɑ:] *adv.*遥远地

yet[jet] *adv.*还，尚，仍然，甚至，更
supercomputer[ˌsju:pəkəm'pju:tə] *n.*超级计算机
mainframe['meinfreim] *n.*主（计算）机
workstation['wə:ksteiʃən] *n.*工作站
price[prais] *v.*标价，定价
census['sensəs] *n.*人口普查
encryption[in'kripʃən] *n.*加密术，密码术
sift[sift] *v.*筛选
demographic[di:mə'græfik] *adj.*人口统计学的
animation[ˌæni'meiʃən] *n.*动画片，卡通
nanotechnology['nænəutek'nɔlədʒi] *n.*纳米技术
enzyme['enzaim] *n.*酶
transaction[træn'zækʃən] *n.*事务，交易
terminal['tə:minl] *n.*终端
fuselage['fju:zilɑ:ʒ] *n.*飞机机身
breathe[bri:ð] *v.*将……注入
overlap['əuvə'læp] *v.*重叠，覆盖
housing['hauziŋ] *n.*壳
drive[draiv] *n.*驱动器
adapter[ə'dæptə] *n.*适配器
palmtop[pɑ:mtɔp] *n.*掌上型电脑
surge[sə:dʒ] *v.*急剧上升，飞涨，激增 *n.*巨涌，大浪，汹涌澎湃
microcontroller[maikrəukən'trəulə] *n.*微控制器
microprocessor[maikrəu'prəusesə] *n.*微处理器
organizer['ɔ:gənaizə] *n.*备忘记事本，电子笔记本
hybrid['haibrid] *adj.*混合的
gadget['gædʒit] *n.*小配件，机械装置，小工具
server['sə:və] *n.*服务器
database['deitəbeis] *n.*（储存在计算机中的）数据库，资料库
client['klaiənt] *n.*客户端

Phrases

or otherwise 或相反
regardless of 不管，不顾
hard disk 硬盘
show up 出现
used to 过去一向，过去时常，过去曾（而现在不再）做
catch the eye of 吸引……的眼光
three-dimensional 立体的，三维的
low-end 低端的
high-end 高端的
desktop microcomputer 台式微型计算机
free up 空出来
notebook computer 笔记本电脑
laptop computer 膝上型电脑
netbook 上网本
be compatible with 与……相（兼）容的，一致的，协调的
handheld computer 掌上电脑
cellphone 蜂窝式便携无线电话，大哥大，手机
embedded computer 嵌入式计算机

Abbreviations

CD	Compact Disk	光盘
CPU	Central Processing Unit	中央处理器
DNA	Deoxyribo Nucleic Acid	脱氧核糖核酸
CAD	Computer-Aided Design	计算机辅助设计
PC	Personal Computer	个人计算机
LAN	Local Area Network	局域网
AC	Alternating Current	交流电
MID	Mobile Internet Device	移动互联网终端
PDA	Personal Digital Assistant	个人数字助理

Complex Sentences

1. **Original**: Workstations have caught the eye of the public mainly for their graphics capabilities.

Translation: 主要由于其所具有的图形能力，工作站已经引起了公众的关注。

2. **Original**: Tower PCs are microcomputers whose case sits as a "tower", often on the floor beside a desk, freeing up desk surface space.

Translation: 塔式个人计算机是一种其机箱像"塔"一样放置的微型计算机，通常机箱放在桌子旁边的地上，腾出了桌面空间。

Exercises

Ⅰ. Read the following statements carefully, and decide whether they are true (T) or false (F) according to the text.

___1. Computers can transform the raw data into information with meaning.

___2. Supercomputers calculate very fast with a high-capacity processor.

___3. Terminal is a specific type of mainframe.

___4. In a client/server network, the server sits in the geographic center of the entire network.

___5. CPU is one of the most vital components in processing operation in a computer.

Ⅱ. Choose the best answer to each of the following questions.

1. By which criterion the computers are classified according to this article?

A. Figure　　B. Capability　　C. Price　　D. Size

2. "After entering your new password and pressing the 'submit' button, a message 'Password Changes Successfully!' shows up on the screen of your computer." In the above scenario, which kind of operation is NOT included?

A. Input　　B. Processing

C. Storage　　D. Communication

3. Which kind of computer may be the most appropriate used in an automatic gate in a household garage according to this article?

A. Workstation　　B. Microcomputer

C. Microcontroller　　D. Server

Ⅲ. Translating.

1. Primary storage, or memory, is the internal computer circuitry that temporarily holds data waiting to be processed. Secondary storage, simply called storage, refers to the devices and media that store data or information permanently.

2. A biological nanocomputer, which would be made of DNA and could fit into a single human cell, would use DNA as its software and enzymes as its hardware; its molecular-sized circuits would be viewable only through a microscope.

Section C　Where Is Information Technology Headed?

1. Three Directions of Computer Developments: Miniaturization, Speed and Affordability

Since the days of ENIAC, computers have developed in three directions - and are continuing to do so.

Miniaturization Everything has become smaller. ENIAC's old-fashioned radio-style vacuum tubes ***gave away*** after 1947 ***to*** the smaller, faster, more reliable transistor. A transistor is a small device used as a ***gateway*** to transfer electrical signals along predetermined paths (circuits).

The next step was the development of tiny integrated circuits. Integrated circuits are entire collections of electrical circuits or pathways that are now ***etched*** on tiny squares (chips) of silicon half the size of your thumbnail. Silicon is a natural element found in sand. In pure form, it is the base material for computer processing devices.

The miniaturized processor, or microprocessor, in a personal desktop computer today can perform calculations that once required a computer filling an entire room. (See Figure 1-3)

Figure 1-3 Miniaturization

Speed *Thanks to miniaturization and new material used in making processors, computer makers can* ***cram*** *more hardware components into their machine, providing faster processing speeds and more data storage capacity.*

Affordability Processor costs today are only a fraction of what they were 15 years ago. *A* ***state-of-the-art*** *processor costing less than $1000 provides the same processing power as a huge 1980s computer costing more than $1 million.*

2. Three Directions of Communications Development: Connectivity, Interactivity and Multimedia

Connectivity *Connectivity refers to the connection of computers to one another by a communications line in order to provide online information access and/or the sharing of* ***peripheral devices***. The connectivity resulting from the expansion of computer networks has made possible E-mail and online shopping, for example.

Interactivity Interactivity refers to two-way communications: the user can respond to information he or she receives and modify what a computer is doing. That is, there is an exchange or dialogue between the user and the computer; and the computer responds to user requests. A noninteractive program, once started, continues without requiring human contact, or interaction. The ability to interact