The evolution of computers

1   📖   A   Read the following passage, and then answer the questions.

Computers in the form of personal desktop computers, laptops and tablets have become such an important part of everyday lives. It's now hard to grasp that not so long ago, personal computers did not exist. Although computers have technically been in use since the abacus approximately 5000 years ago, it is modern computers that have had the greatest and most profound impact on society.

First Generation: The first full-sized digital computer in history was developed in 1944 and it was named Mark I. It weighed five tons and was used only for calculations. Despite its size and limited ability it was the first of many that would start off generations of computer development and growth. In fact, first generation computers, created between 1940 and 1956 were extremely large in size. The inner workings of the computers at the time were largely unsophisticated. These early machines required magnetic drums for memory and vacuum tubes that worked as switches and amplifiers. It was the vacuum tubes that were mainly responsible for the large size of the machines and the massive amounts of heat that they released: These computers produced so much heat that they regularly overheated despite large cooling units.

Second Generation: The second generation of computers, developed from 1956 to 1963, managed to do away with vacuum tubes and replaced them with transistors. This allowed computers to use less electricity and generate less heat. Second generation computers were also significantly faster and smaller than their predecessors. Another significant change was the fact that a core memory was developed for second generation computers.

Third Generation: From 1964 to 1971 computers went through significant breakthroughs in terms of speed, courtesy of integrated circuits. Integrated circuits, or semiconductor chips, were large numbers of miniature transistors packed on silicon chips. This not only increased the speed of computers but also made them much smaller, more powerful and less expensive. In addition, instead of punch cards and the printouts of previous systems, keyboards and monitors were now allowing people to interact with computing machines.

Fourth Generation Computers: The height of computer revolution took place in the years from 1971 till the present time. During this time technology developed to a point where manufacturers could place millions of transistors on a single circuit chip. This was called monolithic integrated circuit technology. It also heralded the invention of the Intel 4004 chip which was the first microprocessor to become commercially available in 1971. This invention led to the dawn of the personal computer industry. By the mid -70s, personal computers such as the Altair 8800 became available to the public in the form of kits and required assembly. By the late 70s and early 80s assembled personal computers for home use, such as the Commodore Pet, Apple II and the first IBM computer, were making their way into the market. Personal computers and their ability to create networks eventually would lead to the Internet in the early 1990s. The fourth generation of computers also saw the creation of even smaller computers including laptops and hand-held devices while computer memory and storage also went through major improvements, with an increase in storage capacity and speed. Which leaves us to wonder: "what will the Fifth Generation of computers look like?"

Present and beyond: In the future, computer users can expect even faster and more advanced computer technology. Fifth Generation computing devices, based on artificial intelligence, are still in development , though there are some applications, such as voice recognition, that are being used today. Quantum computation and nanotechnology will also radically change the face of computers in years to come. The goal of fifth-generation computing is to develop devices that respond to natural language input and are capable of learning and self-organization.

1 When was the first full-sized digital computer developed?

2 What kind of switches and amplifiers did the first generation of computers use?

3 What were vacuum tubes first replaced with?

4 What did the use of transistors in the second generation of computers bring about?

5 What improvements were made on the second generation of computers?

6 What replaced punched cards and printouts in the third generation of computers?

7 When were the first personal computers commercialized?

8 What is the core of using quantum computation and nanotechnology?

B Find words in the passage with the following meanings.

1 In a way that is important enough to be noticed.

2 Achievement that come after a lot of hard work.

3 The process of making something better.

4 Announced something that was going to happen soon.

5 To react to something by taking a particular course of action.

2 what is a computer?

Complete the following passage about "what is a computer?" with words.

A computer is an **1** .... machine which can accept data in a certain form, 2 .... the data, and give the results of the **3**.................. in a specified format as information.

First, data is fed into the computer's **4**..................... Then, when the program is **5** ...., the computer performs **6**.................................... and processes the data. Finally, we can see the **7** .... on the screen or in **8** .... form.

A computer system consists of hardware which is any electronic or **9** ....part you can see or touch. Software is a set of instructions, called a **10**......................., which tells the computer what to do. There are three basic hardware sections: the central processing unit (CPU), main memory and **11**............... .

3 Language work 1:   Simple sentence & word order

Pick up from the text simple sentences.

➢ A simple sentence, also called an independent clause, contains a subject and a verb, and it expresses a complete thought.

E.g. The most common input devices are the mouse and the keyboard.

Consider the following examples:
 1 **The input** and **output devices** are referred to as peripherals.
 2 A computer **accepts** and **processes** information.

The above examples are simple sentences. Note that sentence **1** contains a compound subject, and sentence **2** contains a compound verb.
➢ We can form simple sentences with a subject and a verb in a single clause (**1**). We can include auxiliary verbs as part of the verb phrase and an adverbial after the verb (**2**). We can use verbs with an object (**3**) or without an object (**1**). We can also use linking verbs with complements (**4**).

1 The computer has stopped.
2 We can see the results on the screen.
3 A computer consists of two parts.
4 The most influential component is the central processing unit.

Word order
1 **The subject** of a sentence is usually put before the verb except in questions.
 E.g. What is a computer?

2 **Adverbs**.
➢ Adverbs go before adjectives.
 E.g. It's a **reasonably cheap** computer.
➢ After verbs of movement (come, go, arrive, run, walk, etc) we often use adverbs of place first.
 E.g. She moves **to the next page quickly**.

➢ Adverbs of time can be used in initial position followed by a comma.
 E.g. **Today,** you can make your own movies on your PC.

➢ Adverbs of frequency go before the main verb (**1**) but go after **be** (**3**) and after the first auxiliary verb (**2**).

 E.g.**1** We **usually** book our holiday through the Web.
 E.g.**2** He has **never** opened e-mails from strangers.
 Eg. **3** The student is **always** on time.

➢ Adverbs of manner often go before adverbs of place and time.

 E.g. Simulation games are **widely** used **in universities nowadays**.

3 **Adjectives**
➢ Adjectives usually come before the noun (also known as headword. However, they come after certain verbs "be - look-seem -become - sound"
 E.g. **Electrical** engineers use graphics to design circuits   E.g. Laser printers are **expensive**.
➢ This is the usual order of adjectives before the noun:
 Opinion – Description (number- size- physical quality -age /time- shape- colour**) – Origin/Place – Material – type - Purpose ➡ Headword.**
 E.g. Powerful new publishing systems.
E.g. High-quality scalable fonts.
 E.g. Thin American aluminium printing plates.
➢ Adjectives are ordered from the most subjective (e.g. **nice**) to the most objective (e.g. **silicon**).
➢ Brand names (**Microsoft**, **Sony**, etc) are considered as adjectives of

A   Rewrite these sentences in the correct order.

1   works / at / Jan / on Saturday / a computer shop / mornings/.

2 we / rugby / these days / on TV / rarely/ see /.

3 will / she / the race / win / probably/.

4 ago / ordered / I /a few / a new computer / weeks/.

5 upstairs / Mary / quietly / went/.

6   busy / rather / am / I/.

7   I / join / can / list / mailing / the / school / ?

8 bought/ a / music / Sony / new / player / I / portable/.

9 is / computer / he / young / clever / programmer/a

B Put the words between brackets in the most suitable form.

1 In the future, computers ……………….. human beings in everything. (probably – replace)

2 The employment prospects for graduates in computer science
…………………………….. excellent. (very – to be)

3 When you buy a new computer, you…………..…… software included at no extra cost.(usually – get)

4 WhatsApp Messenger is a cross-platform instant messaging application that allows smartphone users to exchange text, image, video and audio messages for free. Its users ………..…………………
it on their desktop. (have – the possibility – also – download)

5 New technologies were introduced to provide users the ability to……………………………….
information (easily – transfer – and – rapidly)

6 A malware is a software that ………………………….......................... unauthorized access to a computer system. (specifically – to disrupt – gain – damage – to be – designed)

7 A database is an organized collection of data which……………………………………………….
electronically from a computer system (stored – generally – and – accessed – to be)

8 Young people who have grown up with PCs and mobile phones…………………………. the digital generation. (often – to be – call)

9 Mobiles let you make voice calls; they ………………………………texts and connect to the internet. (to send – allow – also)

10 Thanks to Wi-Fi, it……………………….the internet from cafes, hotels, parks and many other public places. (access – easy – to be – now)

C Which sentence is correct?

1-

a- A binary code is a coding system.

b- A code binary is a coding system.

c- Both sentences are correct

3-

a- You can use 4G for a better connexion, now

b- Now, you can use 4G for a better connexion

c- Both sentences are correct

2-

a- He obtained confidential information.

b- He obtained information confidential.

c- Both sentences are correct

4-

a- Cookies are text files small

b- Cookies are small text files

c- Both sentences are correct

D Define the underlined words/phrase.

Future computers promise to be faster than today's computers and smaller than a deck of cards. Perhaps they will become the size of coins and offer "smart" or artificial intelligence features like expert intelligence, neural network pattern recognition features, or natural language capabilities. These capabilities will allow users to more conveniently interact with systems and efficiently process large amounts of information from a variety of sources: fax, e-mail, Internet, and telephone. Already evident are some evolving cutting-edge applications for computer technology: wearable computers, DNA computers, virtual reality devices, quantum computers, and optical computers.

4 📖 **A Read the following passage, and then answer the questions.**

The four basic types of computers are: Supercomputers, Mainframe Computers, Minicomputers and Microcomputers.

Supercomputers are the most powerful computers in terms of performance and data processing. They are very expensive and very large in size. They can be accommodated in large air-conditioned rooms. Presently, the U.S.A.'s "SUMMIT" is the world's fastest Supercomputer. These computers are used in many fields like: **Space Exploration, Earthquake Studies and natural resources exploration, Weather Forecasting** and **Nuclear Weapons Testing.**

Although *Mainframe computers* are not as powerful as supercomputers, but certainly they are quite expensive nonetheless, and many large firms and government organizations use them to run their business operations. Mainframe computers can be accommodated in large air-conditioned rooms because of their size. They are mostly used by banks, educational institutions and insurance companies who process and store large amount of data about their customers.

Minicomputers are used by small businesses and firms. They are also called "Midrange Computers". These are small machines and can be accommodated on a disk with less processing and data storage capabilities than super-computers and Mainframes. These computers are not designed for a single user. Individual departments of a large company or organizations use Mini-computers for specific purposes.

Desktop computers, laptops, personal digital assistant (PDA), tablets and smartphones, Gaming consoles, Sound & Navigation system of a car, Netbooks, Notebooks and Calculators are all types of *microcomputers*. These are widely used; they are the cheapest and are specially designed for general usage like entertainment, education and work purposes. Well-known manufacturers of Micro-computer are Dell, Apple, Samsung, Sony and Toshiba.

1- What are the types of computers?
2- What is the fastest supercomputer in the world?
3- What kind of computers do banks, educational institutions and insurance companies use?
4- What is the most used type of computers?

B Find synonyms or sentences close to the meaning of the following words in the text.

1- save = …………..   3- goals = ………………..

2- definite= ………………   4- famous = ………………

C Fill in the blanks with the appropriate words: discovery – physics – enable – impossible – deep

Summit will …………researchers to apply techniques like machine learning and………. learning to problems in human health such as genetics and cancer, high-energy ………. (such as astrophysics and fusion energy), ………………. of new materials, climate modeling, and other scientific discoveries that were previously impractical or ……………, according to ORNL.

D   Wearable Computers

The latest trend in computing is wearable computers. 1…………………………….., common computer applications (e-mail, database, multimedia, calendar/scheduler) are integrated into watches, cell phones, and even clothing. Many other wearables target outdoors enthusiasts and fitness freaks, 2……………………..them to track their location, altitude, calories 3 …………………., step, speed, and much, much more.

The Apple 5 ¡Watch, now in its fifth incarnation, is one of the 4……………………viewed wearables to date. This small watch has 5…………………………of the functionalities of a full-blown smart phone. It lets you perform normal 6………………………and email duties. And it has an integrated cell phone, unlike some other watches that must be paired with a phone to make calls. It even has a built-7……………………….electrical heart sensor that you can use to take an electrocardiogram and share it instantly with your doctor.

But watches are just the beginning. Sewn-in accessories for clothing are growing, as are smart eyeglasses, smart belts, sleep monitors, heart rate 8…………………….and intelligent ear buds. A company called MC10 is even 9………………………skin patches that will track various biological processes happening in your body.

Wearables are indeed a new horizon in personal computing. Their flexibility and mind-warping 10……………………speak to the idea that the computer revolution isn't 11……………………… if anything, the PC era might just be getting underway.

Which of these words go in the above text?

	A	B	C	D
1	Essentiality	Essence	Essentially	Essential
2	Allows	Allowing	Allowed	Allowance
3	Burned	Burn	Burning	Burnt
4	Better	Well	Good	Best
5	Several	Many	Enough	Best
6	Texts	Texture	Texting	Texted
7	Up	In	On	Into
8	Tracking	Trackable	Trackers	Tracks
9	Touting	Tout	Touted	Touter
10	Potentially	Potential	Potentiality	Potent
11	Out	Off	Over	Beyond