TECHNOLOGY, COMPUTING, INTERNET

1. <u>What is technology? What do we consider as its beginning? What areas can technology be divided into?</u>

Technology is the way of dealing with matter for the benefit of humans. We consider stone tools as its beginning. Technology can be divided into several areas, such as construction, tools and mechanical engineering, energy, electrical engineering, and IT.

2. <u>Name the most important breakthroughs in the development of technology.</u>

There have been several major breakthroughs in the development of technology: the mastery of fire, the invention of the bow, the use of boats and ships, the invention of the wheel, metalworking. The invention of the steam engine by James Watt and his predecessors enabled the technical revolution at the turn of the 18th and 19th centuries.

At the turn of the 19th and 20th centuries, the scientific and technological revolution began. Among other things, people began to use electricity, the internal combustion engine and artificial fertilizers were invented. The most important inventors of this time include Edison, Tesla, Křižík, Siemens, Diesel.

From the second half of the 20th century onwards, the development of technology accelerates steadily. The biggest breakthroughs are the invention of the integrated circuit in the 1960s and 1970s and, in particular, the beginning of the use of artificial intelligence in 2022.

3. <u>What do you know about the first computer in today´s sense of this word?</u>

The first computer in today's sense of this word was constructed in the U.S.A. in the mid-1940s for complicated calculations for the atomic bomb project by John von Neumann (an American mathematician of Hungarian origin). This computer was based on the work of electronic parts and worked with figures 0 and 1. It was a huge machine situated in a room as large as a gym and aircraft engines were used to cool it.

4. <u>What kinds of computers are there at present?</u>

At present there are huge computers working for great institutions or research institutes (the most difficult calculations are required by weather forecasts.

Personal computers (PCs) are used by single users at work, at school or at home. Besides fixed computer workstations there are portable computers. The most frequently used ones are laptops, tablets, smartphones and other smart devices.

5. <u>Characterize the difference between the hardware and the software.</u>

In every computer you can distinguish the hardware and the software: *The hardware* is everything you can see and touch, it is the machine itself. *The software* are the programs necessary for the machine to work.

6. <u>What is the most important part of every computer?</u>

The most important part of a computer is a *processor*. It is only as small as a postage stamp but the processing of information takes place here. That's why it is sometimes called "the heart" or "the brain" of a computer. The processor is situated in a *case*.

7. Speak about peripherals.

The devices connected to the computer are called peripherals. The best-known ones are input devices (the keyboard, the mouse, the touchpad, the touchscreen, the microphone, the scanner, the digital camera, the barcode reader etc.) and output devices (the monitor, the printer, the loudspeaker, the headphones etc.).

The computer can get information from input devices as well as from its memory. As the internal memory serves RAM (random access memory) – it holds data only when a computer runs. To external memories belong hard disks, flash disks (= memory sticks/ pen drives), memory cards.

8. What do you know about operating systems?

The software are the programs directing the work of a computer. The most important program is an operating system. No computer can work without it, it is the base for the activity of other programs. At present the most widespread operating systems are Windows 10 and Windows 11 made by Microsoft, and LINUX. Mobile operating systems (Apple iOS, Google Android) are used with mobile devices.

9. Name some other computer programs.

Among other programs belong e.g. computer games, text editors (Word), spreadsheets (Excel), presentation programs (PowerPoint), programs for playing music and films (Windows Media Player), web browsers (Microsoft Edge, Mozilla Firefox, Google Chrome), email programs (Microsoft Outlook, Mozilla Thunderbird, Gmail), databases (Access), dictionaries, timetables, educational programs.

There is an incredible number of apps you can download into your mobile devices.

10. Enumerate the basic types of computer networks.

At present computers are very often connected to each other to make networks. There are three basic types:

Local area networks (LANs): they cover a small area, e.g. a computer lab, an office, a building, metropolitan area networks (MANs): computers in a town or a small territory, and wide area networks (WANs): the best-known is the Internet.

11. What does the Internet enable?

At present it is easy to write letters anywhere in the world by means of a computer (E-mail), to introduce oneself or one's own firm on a website, to talk to many people from various countries at the same time (extremely popular are especially various social networks such as Facebook, Instagram, X or TikTok), to read electronic shape of newspapers and magazines, to buy goods in various shops, to listen to music, to watch films, to look up information in timetables, to play on-line games. The Internet provides great possibilities for education, work and entertainment.

12. Explain dangers connected with the Internet.

On the other hand, the activity of cyber criminals is very dangerous (hackers and crackers who can get into computers of banks and government institutions, spreading of computer viruses, children pornography, propaganda + fake news, instructions how to make drugs, explosives etc.). Anyway, the Internet has gradually been replacing TV, radio, newspapers and magazines, telephone, postal services, some kinds of shops.

13. You and computers

Can you imagine your life without a computer? How would your life change if you didn´t have a computer?

When did you start working on a computer?

How long have you had your own computer? Do you prefer using a workstation, laptop or a small mobile device? When and why?

What do you use your computer for (for school, in your free time)?

What social networks do you use? Why?

What is your experience with on-line shopping?

What kind of computer games do you play most often? Describe your favourite game.