1. Read and translate:

ELECTRONICS HELPS MAN  
PART 1

Our age has been called a variety of things: the Space Age, the Electronic Age, the Atomic Age, etc. One of them, however, is very exact and that is the Age of Automation.

Automation is considered to be the highest stage in the development of technology. It has made the development of rocket production and nuclear industry possible. Automation is known to be very effective in continuous **cycle production, rolled stock production** and operation of **thermal and hydropower plant**s. Automation of production processes is impossible without automatic control; the required machines based on electronic computation. Electronic computing techniques **find broad application** in many spheres and are a basis for the development of modem programme-controlled machine tools and the controlling of spaceship flights. The following can be given as examples of how electronics helps man.

The letters at the General Post Office are now handled by electronic automats. Not long ago hundreds of women sorted letters arriving from all the world by hand. Now, one girl sits at a control panel watching a screen which is like that of a television set. The address appears on the screen and the girl having read the number of the post office to which the letter is addressed presses the necessary button and the envelope is conveyed to the mail bag which is then taken to the post office indicated on the envelope.

A number of higher learning establishments are installing **electronic** **data processing system**sfor the counting of educational data. Automatic translating machines, computer-based teaching devices and other different applications of **computer technology** are the things which help people in their life, work and study.

2. Answer the questions:

1. What stage in the development of technology is automation con­sidered to be?
2. What has automation made possible?
3. Why is automation of production processes impossible?
4. Electronic computing techniques are a basis for the development of modern programme-controlled machine tools, aren’t they? Give your examples.
5. Who sorted letters arriving from all the world by hand not long ago?
6. How are the letters at the General Post Office now handled by electronic automats?
7. What are higher learning establishments installing electronic data processing systems for?
8. What applications of computer technology help people in their life, study and work?

3. Learn:

what used to be called – те, що раніше називалося

provided – якщо, при умові

wrist watch – наручний годинник

to inspect – уважно вивчати, старанно оглядати

figure – цифра, малюнок, схема

other than – крім

ingenuity – винахідливість, майстерність

to bring about – призводити, спричинювати

the reason is twofold – причина двояка

beyond – за межами, на відстані

elaborate – старанно розроблений

concern – відношення, турбота

scope – можливість, простір

to arrange – упорядковувати; пристосувати

4. Read and translate:

ELECTRONICS HELPS MAN  
PART 2

Automation may be said to be a modern term signifying the use of machines to do work that formely had to be done by people. **What used** **to be called** automation.

Any tool is claimed to be a form of automation **provided** it helps people work more easily, better, or more quickly. **Provided** the tool can do its work without requiring human guidance it is said to be a higher form of labour saving, for example your self-winding **wrist watch**.

A machine language of some sort is the foundation of every higher form of automation.

The machine that automatically makes, **inspect**s and packs 1,200 cigarettes a minute can do nothing else**.** It is a one-purpose machine as many of others are.

But the digital computer seems to be versatile and can be used as the brains for automating a wide variety of work where **figur**ing, remembering and making logical choices are required. The computer proves to be only a very high-speed adding and subtracting machine. It is unlikely to be the thinking machine as it is sometimes called. Everything it does **other than**adding and subtracting is the result of man’s **ingenuity**.

The design of newer equipment with greater usefulness and capabilities is said to be **bring**ing **about** an ever increasing growth in the development of control equipment. **The reason is twofold.** Firstly automatic controls relieve man of many monotonous activities so that he can devote his abilities to other occupation. Secondly modern complex controls can perform functions which are **beyond** the physical abilities of man. For example an **elaborate** automatic control system operates the engine of a modern jet airplane with only a minimum amount of the pilot’s attention, so that he is free to fly his airplane.

Mention should be made that the design and development of automatic control systems is a principal **concern** of an engineer. In recent years we know automatic control systems to have been rapidly advancing in importance in all fields of engineering. The applications of control system are known to cover a very wide **scope**, ranging from the design of precision control devices such as sensitive instrument to the design of the equipment used for controlling the manufacture of steel or other industrial processes. New applications for **arrang**ing automatic controls are continually being discovered.

5. Answer the questions:

1. What is automation?
2. What is the foundation of every higher form of automation?
3. What is a one-purpose machine?
4. Can the digital computer be used as the brains for automating a wide variety of work?
5. What do automatic controls relieve man of?
6. What functions can modern complex controls perform?
7. Do the applications of control system cover a very wide scope?
8. What is continually being discovered?

6. Arrange the following words in pairs according to the opposite meaning:

|  |  |
| --- | --- |
| artificial  hard  few  rapid  to lose  high  analysis  to disappear  possible  the same  much  to rise | low  soft  slow  natural  to appear  different  impossible  many  little  to acquire  to go down  synthesis |

7. Remember:

lights – освітлення

electronics is not so much a new subject as a new way ... – електроніка не стільки новий предмет, скільки новий погляд

to result from – випливати (з чогось), мати результатом

charge – заряд

tube – трубка, електронна лампа

for the third of a century – протягом трьох століть

sound pictures – кіно

to owe – бути зобов’язаним, завдячувати

incandescent lamp – лампа розжарювання

valve – клапан, електронна лампа

welding – зварювання

8. Read and translate the text. Answer the questions below it:

Electricity and Electronics

“Atomic Age” is the name often applied to the period in which we live. It is also frequently referred to as the “Air Age”. These terms emphasizethe importance of science and invention in our time. But we can speak of an age that has prepared the way for these and includes them all (atomic age, air age) – the “Age of Electricity and Electronics.”

From the remarkable achievements of nuclear science and the noticeable progress in aviation to the innumerable discoveries that have added comfort and convenience to our daily lives, we are constantly dependent upon electricity and electronics.

It is very difficult to separate the meaning of the two words “electricity” and “electronics”. The field of electricity is usually thought of as electricity that is used in magnets, generators, motors, **lights** and heaters.

The field of electronics is usually thought of as electricity that is used in radio, television, and other equipment where electron tubes and transistors are needed.

Basically **electronics is not so much a new subject as a new way** of looking at electricity. All electrical effects are really electronic because all electric currents **result** **from** the movements of electrons, and all electric **charge**s are due to the accumulation of electrons.

Electronics is the science or practice of using electricity in devices similar to radio **tube**s so as to get results not possible with ordinary electrical equipment.

Although electronics has received greater attention in recent years, we have been using electronic equipment for the third of a century. Radio, television, **sound pictures**, fluorescent lighting and long-distance telephone calls **owe** their existence to electronics. As most of these familiar pieces of equipment serve to carry or give information one may say that communication has been the major purpose of electronics.

Electronics is closely connected with a series of discoveries and inventions which have revolutionized the life of man in this twentieth century. In 1883 Thomas A. Edison discovered current conduction through gas in an **incandescent lamp**. This phenomenon known as the Edison effect, marked the birth of electronic science. The Edison effect was followed by the discoveries of electromagnetic waves, X-rays, wireless communication and at last by the invention of the two-electrode detector or the “**valve”**. These basic discoveries and a lot of others have produced what is known as electronics.

Nothing can be done in modern research laboratory without the aid of electricity and electronics. Nearly all of the measuring devices used in industry and research are electrically operated. Electronics has found broad application in industry as a means of automation, control and inspection, and as a direct means of fulfilling such operations as melting, cutting of superhard materials and **welding**.

1. What does term “Age of Electricity and Electronics” emphasize?
2. Are we constantly dependent upon electricity and electronics?
3. Why is it difficult to separate the meaning of “electicity” and   
   “electronics”?
4. Is electronics a new subject?
5. Why are all electrical effects really electronic?
6. What is electronics?
7. How long have we been using electronic equipment?
8. Do radio, television, fluorescent lighting and long-distance calls owe their existence to electronics?
9. What phenomenon marked the birth of electronic science?
10. What is electronically operated in industry?

9. Learn the phrases and words. Then read and translate the text:

redundant – зайвий, надмірний

AT&T – American Telephone and Telegraph

commuting journey – регулярні поїздки на роботу і назад (додому) [робочими потягами]

to benefit *–* позитивно впливати; приносити користь

overhead costs – накладні витрати

it is not all roses *–* не все так (добре, гладко; не все без проблем)

telecommuting – виконання роботи за допомогою використання телекомунікаційної системи (телезв’язку)

disruption (to) – занепокоєння, перешкода

exclusion (from) – відключення (від)

to deal with – вирішувати; справлятися з чим-небудь

to set up – заснувати; засновувати (організовувати)

local satellite office – місцевий офіс із супутниковим зв’язком

benefit – вигода, користь

colleague – колега; співробітник

to keep up-to-date *–* бути в курсі (останніх новин, подій)

office gossip – плітки, чутки, розмови (що циркулюють в офісі)

Are technological developments making the formal workplace **redundant**? The growth in working from home is being led by *British Telecom* and ***AT&T****.*

Teleworking

Reducing the number of **commuting journey**s **benefit**s the environment and saves on **overhead costs** to organisations. However, **it is not all roses**. For some, **telecommuting** brings isolation, **disruption** **to** family life and **exclusion from** the office network.

Some organisations are **deal**ing **with** these problems by **set**ting **up** **local satellite office**s. Employees still have to com­mute but the distance is shorter. Once there, they have the **benefit** of working with **colleague**s and **keep**ing **up-to-date** with the **office gossip**.

consists of title and subject cards, you have two records for each movie listed in your data base.

**File**. A file is a collection of related records. Your subject catalogue is one file; your title catalogue is another. Your DBMS will eliminate duplicate records and combine the two files.

While every data base consists of fields, records, and files, some can handle more data than others. Say that this particular program allows 65 characters in a field, 12 fields in a record, and 300 records in a file. Each letter, number, or space in an entry counts as one character. You note that in setting up your DBMS you’ll have to shorten the descriptions of the movies.