From the History of Computers

Vocabulary:

multiple – кратный
abacus – счеты
slide rule – логарифмическая линейка
logarithm table – логарифмическая таблица
calculus – исчисление; математический анализ
to cut out the human being altogether – полностью исключить человека
tabulate the census – занести данные по переписи (населения) в таблицу
to punch the holes – пробивать отверстия
unit of data – единица информации
Keyboard terminals – терминал (вывод) с клавишным управлением
proliferation – размножение, быстрое увеличение

I. Remember the meaning of the given verbs. Think about word formation with help of suffixes. Use your dictionary.

Example: to calculate – calculating, calculator, calculation.

To compute, to invent, to know, to multiply, to divide, to depend, to solve, to provide, to process, to code, to punch, to collect, to design, to store, to contribute, to use, to manipulate, to assemble, to connect, to consume, to rely, to divide, to multiply, to inform, to instruct, to discover, to operate.

II. Translate the following word combinations including:

A: Participle I
Computers using vacuum tubes; the machine calculating mathematical problems; the computer keeping instructions in its memory; binary code storing data and instructions; the vacuum tube controlling and amplifying electronic signals; computers performing computations in milliseconds; electronic pulses moving at the speed of light; students coding the information by using a binary code; devices printing the information; keyboard terminals replacing vacuum tubes.

B: Participle II
The given information; the name given to the machine; the coded data; the device used in World War II; the invention named ENIAC; the machine

called EDVAC; instructions kept in the memory; the engine designed for storing data; data stored in a binary code; vacuum tubes invented by J. Neumann; the general-purpose machine proposed by Ch. Babbage; the machine provided with the necessary facts.

III. Read the text and choose the best title to it.

A. The first computers
B. The first calculating devices
C. Types of Computers

Let us take a look at the history of computers that we know today. The very first calculating device used was the ten fingers of a man's hands. This, in fact, is why today we still count in tens and multiples of tens.

Then the abacus was invented. People went on using some form of abacus well into the 16th century, and it is still being used in some parts of the world because it can be understood without knowing how to read.

During the 17th and 18th centuries many people tried to find easy ways of calculating. John Napier, a Scotsman, invented a mechanical way of multiplying and dividing, which is now the modern slide rule works. Henry Briggs used Napier's ideas to produce logarithm tables which all mathematicians use today.

Calculus, another branch of mathematics, was independently invented by both Sir Isaac Newton, an Englishman, and Gottfried Wilhelm Leibniz, a German mathematician. The Step Reckoner was the first digital mechanical calculator invented by Leibniz around 1672 and completed in 1694. The name comes from the translation of the German term for its operating mechanism; staffelwalze meaning 'stepped drum'. It was the first calculator that could perform all four arithmetic operations: addition, subtraction, multiplication and division. The first real calculating machine appeared in 1820 as the result of several people's experiments.

In 1830 Charles Babbage, a gifted English mathematician, proposed to build a general-purpose problem-solving machine that he called "the analytical engine". This machine, which Babbage showed at the Paris Exhibition in 1855, was an attempt to cut out the human being altogether, except for providing the machine with the necessary facts about the problem to be solved. He never finished this work, but many of his ideas were the basis for building today's computers.

By the early part of the twentieth century electromechanical machines had been developed and were used for business data processing. Dr. Herman Hollerith, a young statistician from the US Census Bureau successfully tabulated the 1890 census. Hollerith invented a means of coding the data by punching holes into cards. He built one machine to punch the holes and others to tabulate the collected data. Later Hollerith left the Census Bureau and established his own tabulating machine company. Through a series of merges the company eventually became the IBM Corporation.

Until the middle of the twentieth century machines designed to manipulate punched card data were widely used for business data processing. These early electromechanical data processors were called unit record machines because each punched card contained a unit of data.

In the mid – 1940s electronic computers were developed to perform calculations for military and scientific purposes. By the end of the 1960s commercial models of these computers were widely used for both scientific computation and business data processing. Initially these computers accepted their input data from punched cards. By the late 1970s punched cards had been almost universally replaced by keyboard terminals. Since that time advances in science have led to the proliferation of computers throughout our society, and the past is but the prologue that gives us a glimpse of the future.

IV. *Answer the following question:*

1. What was the very first calculating device?
2. What is the abacus?
3. What is the modern slide rule?
4. Who gave the ideas for producing logarithm tables?
5. How did Newton and Leibniz contribute to the problem of calculation?
6. When did the first calculating machine appear?
7. What was the main idea of Ch. Babbage's machine?
8. How did electromechanical machines appear and what were they used for?
9. What means of coding the data did Hollerith devise?
10. How were those electromechanical machines called and why?
11. What kind of computers appeared later?
12. What new had the computers of 1970s?

V. Find the English equivalents in the text.

Вычислительное устройство; легкий способ вычисления; поэтому (вот почему); кратное десяти; изобрести механический способ умножения и деления; логарифмическая линейка; составить таблицы логарифмов; математический анализ; изобрести независимо (друг от друга); в результате; полностью исключить человека; кроме (за исключением); обработка деловой информации; средство кодирования информации; перфокарты; пробивать отверстия; оформить собранные данные в таблицу; работать с данными на перфокарте; устройство, записывающее информацию блоками; единица информации; выполнять вычисления; для научных целей; клавишный терминал.

VI. Complete the following sentences:

1. The first calculating device...
2. Then the abacus was.
3. People tried to find.
4. Calculus was.
5. The general-purpose problem-solving machine was.
6. Electromechanical machines had been.
7. Electronic computers were.
8. Punched cards had been.

VII. Give a short summary of the text.