

Задание: письменно перевести текст в тетрадь, выполнить письменно все задания

AUTOMATION (text B)

Automation is the system of manufacture performing certain tasks, previously done by people, by machines only. The sequences of operations are controlled automatically. The most familiar example of a highly automated system is an assembly plant for automobiles or other complex products.

The term automation is also used to describe nonmanufacturing systems in which automatic devices can operate independently of human control. Such devices as automatic pilots, automatic telephone equipment and automated control systems are used to perform various operations much faster and better than could be done by people.

Automated manufacturing had several steps in its development. Mechanization was the first step necessary in the development of automation. The simplification of work made it possible to design and build machines that resembled the motions of the worker. These specialized machines were motorized and they had better production efficiency.

Industrial robots, originally designed only to perform simple tasks in environments dangerous to human workers, are now widely used to transfer, manipulate, and position both light and heavy work pieces performing all the functions of a transfer machine. In the 1920s the automobile industry for the first time used an integrated system oil production. This method of production was adopted by most car manufacturers and became known as Detroit automation. The feedback principle is used in all automatic-control mechanisms when machines have ability to correct themselves.

The feedback principle has been used for centuries. An outstanding early example is the fly ball governor invented in 1788 by James Watt to control the speed of the steam engine. The common household thermostat is another example of a feedback device.

Using feedback devices, machines can start, stop, speed up, slow down count inspect, test, compare, and measure. These operations are commonly applied to a wide variety of production operations.

Computers have greatly facilitated the use of feedback in manufacturing processes. Computers gave rise to (the development of numerically controlled machines. The motions of these machines are controlled by punched paper or magnetic tapes. In numerically controlled machining centres machine tools can perform several different machining operations.

Vocabulary:

previously - ранее;

sequence - последовательность;

assembly plant - сборочный завод;

nonmanufacturing - непроизводственный;

device - устройство, прибор;

resemble - походить;
efficiency - эффективность;
flyball governor - центробежный регулятор;
steam engine - паровоз;
household thermostat - бытовой термостат;
facilitate - способствовать;
punched - перфорированный;
aid - помощь;
dimension - измерение, размеры.

I. Find the following words and word combinations in the text.

автоматические устройства;
автоматизированное производство;
выполнять простые задачи;
как легкие, так и тяжелые детали;
интегрированная система производства;
принцип обратной связи;
механизм может разгоняться и тормозить;
компьютер автоматически посылает команды;
высокоавтоматизированная система;
непроизводственная система.

2. Answer the questions:

1. How is the term automation defined in the text?
2. What is the most «familiar example» of automation given in the text?
3. What was the first step in the development of automaton?
4. What were the first robots originally designed for?
5. What was the first industry to adopt the new integrated system of production?
6. What is feedback principle?
7. What do the abbreviations CAM and CAD stand for?
8. What is FMS?