Exercise 1

1. [Automation](https://lms.kgeu.ru/mod/url/view.php?id=70884) is a system of manufacture designed to extend the capacity of machines to perform certain tasks formerly done by humans, and to control sequences of operations without human intervention.
2. Automatic telephone switching equipment, automatic pilots, and automated guidance and control systems.
3. The division of labor, power transfer and the mechanization of the factory, and the development of transfer machines and feedback systems as explained below
4. The division of labor – the reduction of a manufacturing or service process into its smallest independent steps.
5. In manufacturing, the division of labor results in increased production and a reduction in the level of skills required of workers.
6. Mechanization was the next step necessary in the development of automation.
7. The development of power technology also gave rise to the factory system of production, because all workers and machines had to be located near the power source.
8. The transfer machine is a device used to move a work piece from one specialized machine tool to another, in such a manner as to properly position the work piece for the next machining operation.
9. Industrial robots are being used to transfer, manipulate, and index (that is, to position) both light and heavy workpieces, thus performing all the functions of a transfer machine.
10. This method of production was adopted by most automobile manufacturers and rapidly became known as Detroit automation.

Exercise 2

1. Manufacture system designed to extend the capacity of machines is called automation.
2. Automated manufacture arose out of division of labor, power transfer and the mechanization of the factory.
3. The division of labor is, the reduction of a manufacturing or service process into its smallest independent steps.
4. Another step necessary in the development of automation was mechanization.
5. As a result of the development of power transfer specialized machines were motorized and their production efficiency was improved.
6. The development of power technology also gave rise to the factory system of production.
7. The transfer machine is a device used to move a work piece from one specialized machine tool to another.
8. Industrial robots were originally designed only to perform simple tasks.
9. The goal of the assembly-line system was to make automobiles available to people who previously could not afford them.

Exercise 3

1. [Automation](https://lms.kgeu.ru/mod/page/view.php?id=50187) is a system of manufacture designed to reduce the capacity of machines to perform certain tasks formerly done by humans.- True
2. In the fields of communications, aviation, and astronautics [automation](https://lms.kgeu.ru/mod/page/view.php?id=50187) is used in a very limited scale.- False
3. Automated control systems are used to perform various operations much faster or better than could be done by humans.-True
4. Power transfer and the mechanization of the factory were the main obstacles in the development of [automation](https://lms.kgeu.ru/mod/page/view.php?id=50187).-False
5. The division of labor developed in the first half of the 19th century and was first discussed by the French economist Adam Smith.-False
6. Mechanization was the next step necessary in the development of [automation](https://lms.kgeu.ru/mod/page/view.php?id=50187).- True
7. The development of power technology gave rise to the factory system of production.-True
8. The transfer machine is a device used to move workers from one place to another.-False
9. In the 1920s the auto industry combined [automation](https://lms.kgeu.ru/mod/page/view.php?id=50187) concepts into an integrated system of production.-True
10. The goal of the assembly-line system in auto industry was to make automobiles more expensive and luxurious.-False

Exercise 4.

1. Автоматизированная производственная линия состоит из ряда рабочих мест, соединённых системой перемещения деталей между станциями.
2. Современные автоматизированные линии управляются программируемыми логическими контроллерами.
3. Автоматизированные производственные линии используются во многих отраслях промышленности, в первую очередь в автомобилестроении.
4. Если деталь производится серийно, то автоматизированная линия передачи часто является наиболее экономичным методом производства.
5. Линии передачи датируются примерно 1924 годом.
6. Рабочие операции пресса включают в себя резку и формование деталей из листового металла.
7. Автоматизированная система предназначена для выполнения некоторого полезного действия, и это действие требует силы.

Exercise 5.

1. Electricity is the most widely used energy source in modern automated systems.
2. Automated systems perform basically two types of operations: 1) processing; 2) movement and location.
3. Automation is a production system designed to increase the productivity of machines and mechanisms.
4. Communications, aviation and aerospace are the industries with the most extensive use of automation.
5. The division of labor, the transfer of energy and the mechanization of production accelerated the development of automation.
6. The next step required in the development of automation was mechanization.
7. The development of power transmission technology contributed to the development of automation.
8. Industrial robots were originally designed to perform simple tasks in environments that are unsafe to humans.