**Cl/w 13.03.25:**

**p. 35-36 -Text I** - Read and translate the text, write down all new words

Summary:

The text explores the concept of tools and technology, emphasizing that technology is simply the use of tools. It traces the history of tools from ancient times to modern developments, highlighting their evolution from aiding physical tasks to supporting mental processes. Early tools like the abacus and mechanical calculators laid the groundwork for modern information-processing machines such as computers. The Jacquard loom, an early example of a machine controlled by punched cards, is noted as a precursor to automated systems like machine tools and player pianos.

1. Fossils – окаменелости
2. Dexterity – Ловкость
3. Brute strength – Грубая сила
4. Virtue – Достоинство, добродетель
5. Forerunners – Предшественники
6. Descendants – Потомки
7. Punched cards – Перфокарты

**ex. I p. 36, p. 35** - using the vocabulary from the word list, make up your own sentences (5)

1. The strong will inherit the earth. - False.

The clever rather than the strong inherited the earth.

2. In the beginning was the abacus. - True

3. The forerunner of the computer is the mechanical calculator. - True.

4. The punched card is still very important for computers today. - False.

Punched cards were historically significant, they are no longer relevant in modern computing.

5. The calculators Pascal and Leibniz built were reliable. - False.

The calculators Pascal and Leibniz built were unreliable, since the mechanical technology of the time was not capable of manufacturing the parts with sufficient precision.

6. The mechanical calculator could multiply and divide as well as add and subtract. - False.

The calculators Pascal and Leibniz built were unreliable, since the mechanical technology of the time was not capable of manufacturing the parts with sufficient precision.

7. Babbage invented the Jacquard loom. - False.

The Jacquard loom was invented by Jacquard, not Babbage.

8. "Beware of programmers who carry screwdrivers." (L. Brandwein) - True

**p. 37-40** - Text II - Read and translate the text, write down all new words.

Summary:

The text discusses the life and contributions of Charles Babbage, a 19th-century mathematician and inventor who is often called the "father of the computer." Babbage designed two groundbreaking machines: the Difference Engine, intended to calculate and print mathematical tables without errors, and the Analytical Engine, a more advanced machine that could perform any calculation using punched cards. Although neither machine was completed during his lifetime due to technological limitations and Babbage's eccentric personality, his ideas laid the foundation for modern computing. Ada Lovelace, the world's first computer programmer, contributed significantly by writing a demonstration program for the Analytical Engine and documenting its potential in her extensive notes.

1. Vigorous – Энергичный, решительный
2. Offenders – Нарушители
3. Printers’ errors – Опечатки
4. Abrasive – Резкий, грубый
5. Liberated – Освобождённый, прогрессивный
6. Countess – Графиня
7. Aptly – Уместно, точно
8. Skeleton key — отмычка
9. Sufficiently — достаточно

**H/w 20.03.25:**

**p. 40-41 ex. I,**

1. гораздо привычнее – far more common
2. эксцентричный математик – eccentric mathematician
3. водить грузовик – drive trucks
4. держать магазин – run stores
5. винить за – blame for
6. развязать кампанию против – wage a campaign against
7. нарушитель – offender
8. отклонить(ся) – decline
9. оставаться постоянным – remain constant
10. подчеркнуть (усилить) – emphasize
11. достаточно хороший – good enough
12. несмотря на – despite
13. плодовитый изобретатель – prolific inventor
14. отмычка – skeleton key
15. член королевского общества – fellow of the Royal Society
16. сокрушаться об ошибках – lament about errors
17. выполнять при помощи пара – execute by steam
18. гений – genius
19. изобретательный – ingenious
20. столкнуться с трудностями – run into difficulties
21. забросить проект – abandon the project
22. далеко впереди – far ahead
23. начать сначала – start anew
24. по предположению – as usual / presumably
25. в два раза длиннее – twice as long
26. удачно сказано! – most aptly said indeed!

**p.41, ex.II.**

1. What irritated and bored Charles Babbage?  
   *"He blamed the noise they made for the loss of a quarter of his working power."* (The noise of London organ grinders irritated him.)
2. Prove that Babbage was a prolific inventor.  
   *"He was a prolific inventor, whose inventions include the ophthalmoscope for examining the retina of the eye, the skeleton key, the locomotive 'cow catcher,' and the speedometer."*
3. What kind of machine was the Difference Engine?  
   *"Babbage set out to build a machine that not only would calculate the entries in the tables but would print them automatically as well."*  
   *"The Difference Engine could only compute tables (and only those tables that could be computed by successive additions)."*
4. What was Babbage’s reason for abandoning the project?  
   *"One of Babbage’s reasons for abandoning the Difference Engine was that he had been struck by a much better idea."*  
   *"He ran into difficulties, however, and eventually abandoned the project."*
5. Contrast the Difference and the Analytical Engine.
   * Difference Engine: *"The Difference Engine could only compute tables (and only those tables that could be computed by successive additions)."*
   * Analytical Engine: *"But the Analytical Engine could carry out any calculation, just as Jacquard’s loom could weave any pattern."*
6. Who has the honor of being the world’s first computer programmer?  
   *"The author of that program has the honor of being the world’s first computer programmer. Her name was Augusta Ada Byron, later Countess of Lovelace."*
7. What do you know about Ada Lovelace (as a lady and as a programmer)?
   * As a Lady: *"Ada was a liberated woman at a time when this was hardly fashionable... She was also an excellent mathematician."*
   * As a Programmer: *"Lady Lovelace included in her notes a program for calculating a certain series of numbers that is of interest to mathematicians. This was the world’s first computer program."*
8. Charles Babbage is a computer Guru, isn’t he?  
   *"It is for the Analytical Engine he never completed that we honor him as 'father of the computer.'"*

**20.03.2025**

**Cl/w: p. 41 ex. III**

1. The famous philosophers Leibniz and Pascal both **constructed** somewhat primitive calculating **devices**.

2. After a great deal of time and **effort**, a working model of the Difference **Engine** was **constructed**.

3. Although the punched card is now becoming **obsolete**, it was of critical importance in the development of the computer.

4. An abacus is a **device** that allows the operator to keep **track** of numbers while doing the basic **arithmetic** operations.

5. A square-shaped wheel wouldn’t be **constructive** because it wouldn’t roll easily.

6. Charles Babbage disliked doing the great amount of **arithmetic** that **mathematicians** had to perform in the course of solving problems.

7. “Automating” means **constructing** machines to do jobs that people do.

**p. 42-45 Text III - Read and translate the text, write down all new words.**

1. obsolete – устарелый
2. conceived – задуманный
3. anticipated – ожидаемый
4. linkages – связи
5. column of mercury – столбик ртути
6. cumbersome – обременительный
7. strung – натянутые
8. an umbrella term – обобщающий термин

**27.03.25**

**H/w: p. 46 ex. I**

1. Задумать - conceive
2. Быть знакомым с - be familiar with
3. Предвкушать - anticipate
4. Лабораторный курьез - laboratory curiosity
5. Механические соединения - mechanical linkages
6. Телефонный коммутатор - telephone switchboard
7. Последовательность операций - sequence of operations
8. Потребовалась минута для решения - took one minute to solve
9. Под влиянием идей - influenced by the ideas
10. Акроним для названия - acronym for names
11. Тогда как - whereas
12. Играть решающую роль - play a crucial role
13. В честь кого-то - in honor of someone
14. Ртутный столбик - column of mercury
15. Энергоемкий - energy consuming
16. Вырабатывать большое количество тепла - generate large amounts of heat
17. Громоздкий - bulky / cumbersome
18. Стать доступным - become available
19. Извлекать из памяти - retrieve from memory
20. Поместиться на ладони (на кончике пальца) - fit in the palm of your hand / fit on the end of your finger
21. Скачок в технике - jump in technology
22. Включать – incorporate \ contain
23. Продолжающиеся исследования - ongoing research
24. Придумать термин - coin a term
25. Всеохватывающий термин (номинация) - umbrella term

**p. 47. ex. V.**

1. What was the main shortcoming of the Mark I and the other electromechanical computers?

"The electromechanical machines simply were not fast enough. Their speed was seriously limited by the time required for mechanical parts to move from one position to another."

"For instance, the Mark I took six seconds for a multiplication and twelve for a division; this was only five or six times faster than what a human with an old desk calculator could do."

2. What is an acronym? Give examples of acronyms.

"ENIAC was the first of many computers with acronyms for names."

Examples include: ENIAC (Electronic Numerical Integrator and Computer), EDVAC, UNIVAC, JOHNIAC, ILLIAC, and MANIAC.

3. What was the distinguishing feature of ENIAC?

"ENIAC used vacuum tubes for computing and memory... ENIAC was 500 times as fast as the best electromechanical computer."

"A problem that took one minute to solve on ENIAC would require eight to ten hours on an electromechanical machine."

4. What were the two distinguishing features of EDVAC?

"First, EDVAC used binary notation to represent numbers inside the machine."

"Second, EDVAC’s program was stored in the machine’s memory, just like the data."

5. What is a von Neumann machine?

"A stored-program computer—one whose program is stored in memory in the same form as its data—is usually called a von Neumann machine in honor of the originator of the stored-program concept."

6. Describe the technological features characteristic of each computer generation.

1. First Generation:
   1. "They used vacuum tubes for calculation, control, and sometimes for memory as well."
   2. "Vacuum tubes are bulky, unreliable, energy consuming, and generate large amounts of heat."
2. Second Generation:
   1. "In the late 1950s, the transistor became available to replace the vacuum tube."
   2. "At about the same time, the magnetic-core memory was introduced."
3. Third Generation:
   1. "The early 1960s saw the introduction of integrated circuits, which incorporated hundreds of transistors on a single silicon chip."
   2. "With integrated circuits, computers could be made even smaller, less expensive, and more reliable."
4. Fourth Generation:
   1. "It is the large-scale integrated circuits that make possible the microprocessors and microcomputers."
   2. "Computers today are hundred times smaller than those of the first generation, and a single chip is far more powerful than ENIAC."
5. Fifth Generation:
   1. "Key areas of ongoing research are artificial intelligence (AI), expert systems, and natural language."

7. What type of computer memory was once so widely used that its name became almost synonymous with "high-speed memory"?

"Core memory dominated the high-speed memory scene for much of the second and third generations. To programmers during this period, core and high-speed memory were synonymous."

8. What technological developments made (a) minicomputers and (b) microcomputers possible?

- (a) Minicomputers:

"Integrated circuits made possible minicomputers, tabletop computers small enough and inexpensive enough to find a place in the classroom and the scientific laboratory."

- (b) Microcomputers:

"It is the large-scale integrated circuits that make possible the microprocessors and microcomputers."

**03.04.25**

**H/w: p. 48-49 ex. VIII - find these sentences in the texts of unit 3**

1. Орудия - это любые предметы помимо частей нашего собственного тела, которые мы используем, чтобы помочь себе выполнить работу.
   1. Tools are any objects other than the parts of our own bodies that we use to help us do our work
2. Антропологи считают, что использование орудий могло бы помочь эволюции человекоподобных существ и превращению их в людей; в обществе, использующем орудия, ловкость рук и ум значат гораздо больше, чем грубая сила. Умные, а не сильные, унаследовали Землю.
   1. Anthropologists speculate that using tools may have helped these creatures evolve into human beings; in a tool-using society, manual dexterity and intelligence count for more than brute strength T. he clever rather than the strong inherited the earth.
3. Нас интересуют машины, которые классифицируют и модифицируют информацию, а не просто передают ее или хранят.
   1. Our interest lies with machines that classify and modify information rather than merely transmitting it or preserving it
4. Калькуляторы, сделанные Паскалем и Лейбницем, были ненадежны, так как технология того времени была не в состоянии производить детали с достаточной точностью.
   1. The calculators Pascal and Leibniz built were unreliable, since the mechanical technology of the time was not capable of manufacturing the parts with sufficient precision.
5. Компьютер, полностью современный по концепции, был задуман в 30х годах 19 века.
   1. A computer that was completely modern in conception was designed in the 1830s
6. Бэббидж был плодотворным изобретателем, его разработки включают такие, как офтальмоскоп, отмычки, спидометр, «скотосбрасыватель» и др. Несмотря на свою эксцентричность, он был гением.
   1. Yet, despite his eccentricities, Babbage was a genius. He was a prolific inventor, whose inventions include the ophthalmoscope for examining the retina of the eye, the skeleton key, the locomotive “cow catcher”, and the speedometer
7. Одной из причин, по которой Бэббидж забросил свою разностную машину, была гораздо лучшая идея, пришедшая ему в голову. Вдохновленный жаккардовым станком, управляемым перфокартами, Бэббидж захотел сделать калькулятор, управляемый перфокартами.
   1. One of Babbage’s reasons for abandoning the Difference Engine was that he had been struck by a much better idea. Inspired by Jacquard’s punched-card-controlled loom, Babbage wanted to build a punched-card-controlled calculator
8. Именно из-за аналитической машины, которую он никогда не завершил, Бэббидж имеет честь называться «отцом компьютера».
   1. It is for the Analytical Engine he never completed that we honor him as “father of the computer”.
9. Автор демонстрационной программы для аналитической машины Ада Ловлис стала первым в мире компьютерным программистом. По предложению Бэббиджа, переводя статью об аналитической машине, написанную итальянским инженером по-французски, она добавила собственные замечания, которые оказались в два раза длиннее самой статьи.
   1. The author of that program has the honor of being the world’s first computer programmer. Her name was Augusta Ada Byron, later Countess of Lovelace. At Babbage’s suggestion, she added her own notes, which turned out to be twice as long as the paper itself.
10. Аналитическая машина «ткет» алгебраические узоры точно так же, как станок Жаккарда ткет цветы и листья. Действительно удачно сказано!
    1. “That the Analytical Engine weaves algebraical patterns just as the Jacquard-loom weaves flowers and leaves” Most aptly said indeed!
11. Модель I - самая близкая к аналитической машина, которая когда-либо была или будет создана.
    1. The Mark I is the closest thing to the Analytical Engine that has ever been built or ever will be
12. Наряду с несколькими другими электромеханическими компьютерами, построенными приблизительно в то же время, Модель I устарела сразу же после того, как была завершена.
    1. But, along with several other electromechanical computers built at about the same time, the Mark I was scarcely finished before it was obsolete
13. Люди иногда говорят о различных поколениях компьютеров, причем каждое поколение использует разную технологию. Машины первого поколения использовали несколько хитроумных устройств для запоминания. Водном, например, информация хранилась в качестве звуковых волн, циркулирующих в столбике ртути.
    1. People sometimes speak of different generations of computers, with each generation using a different technology. First generation machines used several other ingenious devices for memory. In one, for instance, information was stored as sound waves circulating in a column of mercury
14. Вакуумные лампы были громоздкими, ненадежными, энергоемкими и вырабатывали огромное количество тепла.
    1. Vacuum tubes are bulky, unreliable, energy consuming, and generate large amounts of heat
15. Транзистор размером чуть больше ядрышка хлебного зерна вырабатывает мало тепла и живет долго.
    1. A transistor, which is only slightly larger than a kernel of corn, generates little heat and enjoys long life.
16. Вначале 60х наблюдалось внедрение интегральных схем, которые включали сотни транзисторов на одном силиконовом чипе. Именно большие интегральные схемы сделали возможными микропроцессоры и микрокомпьютеры.
    1. The early 1960s saw the introduction of integrated circuits, which incorporated hundreds of transistors on a single silicon chip. It is the large-scale integrated circuits that make possible the microprocessors and microcomputers
17. Сегодняшние компьютеры раз в 100 меньше, чем компьютеры 1го поколения, а каждый отдельный чип гораздо мощнее ENIAC.
    1. Computers today are hundred times smaller than those of the first generation, and a single chip is far more powerful than ENIAC.

**p. 56 ex. I.**

1. рассматривать как – viewed as
2. слишком дорогая – too expensive
3. для личного пользования – for private use
4. существующая тогда технология – then current technology
5. сделать привлекательным – make attractive
6. предвидеть потенциал – foresee the potential
7. технические знания – technical knowledge
8. одеваться неформально – dressed informally
9. менее одной восьмой дюйма – less than an eighth of an inch
10. значительная роль – significant role
11. выполнять заказы – fill orders
12. испытывать недостаток в фондах – lacking funds
13. быть вынужденным – was forced to
14. самодельный (временный) конвейер – makeshift production line
15. приходить в голову – crossed my mind
16. чувствительный к нуждам – sensitive to the needs
17. убедить скептиков – convince a skeptical public
18. тем самым – thereby
19. дать возможность – gave them an opportunity
20. съемные платы – insertable boards
21. поддержать интерес к – encourage his interest in
22. немецкие беженцы – German refugees
23. ежегодная продажа – annual sales
24. тогда как – whereas
25. конкурентная среда – competitive environment
26. неизбежные неудачи – inevitable failure
27. вознагражденные славой и богатством – rewarded greatly with fame and fortune