**UNIT 1.**

**LIVING IN A DIGITAL AGE.**

**Reading 1.**

**Task 2.**

1. Smart machine is a device embedded with machine-to-machine (M2M) and/or cognitive computing technologies such as artificial intelligence (AI), machine learning or deep learning, all of which it uses to reason, problem-solve, make decisions and even, ultimately, take action.
2. Smart machines include robots, self-driving cars and other cognitive computing systems that are designed to work through tasks without human intervention.
3. Smart machines could trace their roots back to early mechanization and the first Industrial Revolution, when, in the 18th century, rudimentary machines were used to automate some human tasks.
4. Many smart machines can replace humans in completing a task; robotic automation in manufacturing facilities, for instance, can and does replace human workers. But some smart machines, such as those used to diagnose diseases and recommend the best treatments, work for humans (i.e., doctors).

**Task 3.**

1. **T** (Smart machine is a device **embedded** with …. artificial intelligence (AI ….)
2. **F** (Smart machines include robots, self-driving cars and other cognitive computing systems that are designed to work through tasks without human intervention.)
3. **NG**
4. **T** (smart machines could **trace** their roots back to early mechanization and the first Industrial Revolution)
5. **T** (The **advent** of computers in the 20th century …)
6. **F** One of the earliest visible examples of smart machines was Deep Blue …. defeated world chess champion Garry Kasparov in 1996.)

**Vocabulary 1.**

**1.**

1. Cognitive
2. Device
3. Network
4. Advancement
5. Profit margin
6. Weapon
7. Disruptor

**2.**

1. To make decisions
2. Human intervention
3. Negative impact
4. To displace workers
5. Societal norms
6. Science fiction
7. Rudimentary machines
8. Data storage systems
9. Volume of data
10. Voice recognition

**Reading 2.**

**Task 2.**

1. Transport and energy
2. Smart city infrastructures
3. The bottom up
4. A program city
5. The infrastructure successfully
6. Demonstration 5G network

**Vocabulary 2.**

**1.**

1. Deployment
2. Fibre
3. Programmable
4. Machines/experimentation
5. Development
6. Network
7. Research/testbed
8. Capability
9. Systems
10. Progress

**2.**

1. Захватить
2. Технический директор/ технолог
3. Верная основа
4. Лучший в своем плане
5. Подходящий/ адаптирующийся
6. Программно-определяемый
7. Разнообразная инфраструктура
8. Принимать/ признавать
9. Испытание/ проба
10. Включать

**Vocabulary \***

**Task 1.**

Across: 3. Bluetooth 6. Interfaces 7. Wireless 9. Initiator

Down: 1. Automation 2. Robotics 4. Intelligent 5. Receiver 7. Wired 8. PAN

**Task 2.**

1. domestic appliances – бытовая техника
2. intelligent systems – система с элементами искусственного интеллекта
3. an embedded processor – встроенный процессор
4. microwave oven – микроволновая печь
5. washing machines – стиральная машина
6. computerized controls – автоматизированное управление
7. Intelligent homes – умные дома
8. central computer – центральная электронная вычислительная машина
9. to install - устанавливать
10. interfaces - интерфейс
11. facilitate communication – способствовать общению
12. touch screens – сенсорный экран
13. infrared - инфракрасный
14. remote control – пульт управления
15. brightness sensor – регулятор яркости
16. command receivers – приемник командных сигналов
17. Household appliances – бытовые приборы
18. optical and thermal sensors – светочувствительные
19. to be linked with wired and wireless systems – быть соединенными беспроводными и проводными системами
20. electrical wiring- система электропроводов
21. wireless networks – беспроводные сети
22. radio-frequency systems – системы частоты радиоволн
23. short-range radio system – радиосистема ближнего действия
24. portable devices – портативные устройства

**Listening.**

**Task 1.**

The Microchip that Changed the World.

**Task 2.**

1. To shrink further
2. Power hungry/ overheat
3. Cambridge, England/ cheaper processor
4. So power efficient/ components
5. Personal assistant
6. Another portable device

**Speaking.**

**Task 1.**

1. Gizmos and gadgets are unusual, useful things/devices that are not really necessary.

**Speaking 2. (an answer)**

I don’t own many gadgets... I have a PC, laptop and a smartphone and I can’t imagine my life without either of those... However, my laptop is the most important piece of technology for me... I got it as a birthday present from my parents a few years ago and I use it nearly every day now. Although at first using it was like rocket science for me, after a few weeks I was able to do everything I needed... From browsing websites to reinstalling the operating system... What's more, without my laptop I wouldn’t be able to do my homework for the university... Also, I use it for surfing the Internet and finding whatever I want, whether it is a piece of code for my project or a useful tip on how to cook a steak... Generally, my laptop became an essential device for me...

**Writing**

1. KEY: 1-T, 2-F (there is no ***the best*** way), 3-F (one idea), 4-F (three parts: topic sentence, supporting sentences, conclusion), 5-T

2. KEY: 1-title, 2-the introduction, 3-the main body, 4-the conclusion, 5-thesis, 6-paragraph, 7-indent, 8-topic sentence, 9-footnote, 10-supporting sentences, 11-cocluding sentence

3. KEY:

Comparison and contrast essay: 3, 4, 5

Problem and solution essay: 2 (optional), 6, 7

Argumentative essay: 1, 5

Opinion-Led essay: 1, 5

Cause and Effect essay: 2

**UNIT 2.**

**COMPUTER ESSENTIALS.**

**Reading 1.**

**1. Quiz.**

1. Abacus
2. ENIAC
3. UNIVAC
4. International Business Machine
5. ACORN

**2.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | *Year of creation* | *Country* | *Inventor* | *Functions* |
| **ZI machine** | **1)** \_\_1936\_\_\_\_\_ | **4)** \_\_\_Germany  \_\_\_\_ | **7)** \_\_\_\_\_Konrad Zuse\_\_ | **9)** \_calculations\_\_\_\_\_\_ |
| **The Mark I** | **2)** \_\_\_\_1944\_\_\_\_ | **5)** \_\_\_The USA\_\_\_\_ |  | **10)** wide variety of \_calculations/complex calculations\_\_\_\_\_  **11)** calculations of \_\_ballistics\_\_\_\_\_ |
| **The ENIAC** | **3)** \_\_\_1946\_\_\_\_ | **6)** \_The USA\_\_\_\_\_\_\_ | **8)** \_\_\_John Mauchly & J. Presper Eckert\_\_\_\_ | **12)** for \_ballistics\_\_\_\_\_  **13)** studies of \_weather\_\_\_\_ , **14)** random \_number studies\_\_\_\_\_\_, **15)** \_\_wind tunnel\_\_\_\_\_\_ design \_\_\_\_ |

**Vocabulary 1.**

**1.**

1. desktop - персональный компьютер
2. chips the size of grains of rice – чипы размером с зерна риса
3. cumbersome and slow device – громоздкое и медленное устройство
4. incredible processing power – невероятная вычислительная мощность
5. completing large calculations – выполнять сложные вычисления
6. slide rule or mechanical adding machine – логарифмическая линейка или механическая счетная машина
7. to store results – запоминать результаты
8. to perform calculations – выполнять вычисления
9. ways to keep up with the technology – следовать технологиям
10. advancing – продвижение, распространение
11. ballistics - баллистика
12. addition - сложение
13. subtraction - вычитание
14. multiplication - умножение
15. division - деление
16. decimal – десятичный, десятичная дробь
17. vacuum tubes – вакуумные трубки
18. to speed up calculations - ускорять вычисления
19. random number studies – изучение случайных чисел
20. wind tunnel design – дизайн аэродинамических труб

**2.**

1. desktop
2. folder
3. device
4. cumbersome
5. joints
6. calculation
7. programs
8. vacuum
9. achievement
10. mathematician
11. components
12. technology

**Reading 2.**

**Task1.**

1. **Supercomputers** are computers with supercomputing powers. Supercomputers can be said as bodybuilders of the high-end technologies taking all digital services to another level. They boost to ten thousand of times the computing strength of the normal computer and cost for more than 100 million dollars.
2. The normal computer takes a small space and can be easily adjusted in a small room where supercomputers take many rooms to be adjusted which leads to high-maintenance cost and more space.
3. The overall power and strength of these computers is unimaginable and cannot be compared with any of the normal or high-end computers.

**Task 2.**

1. F (the smallest, not normal, par. 1)
2. F (A supercomputer is not simply a fast or very large computer: it works in an entirely different way, typically using parallel processing instead of the serial processing that an ordinary computer uses., par. 2)
3. T (par.3)
4. T (par.3)
5. F (If you play computer games, you'll be aware that you need a computer with a fast processor chip and quite a lot of "working memory" (RAM), or things really slow down. Add a faster processor or double the memory and your computer will speed up dramatically—but there's still a limit to how fast it will go: one processor can generally only do one thing at a time., par. 4)

**Vocabulary 2.**

**Task 1.**

1. Vector processor
2. Integrated circuit
3. RAM
4. Microchip
5. Input
6. Parallel processing
7. Output
8. Web page
9. Upgrade
10. Mainframe computer

**Task 2.**

1. CPU - This stands for the Central Processing Unit of the computer. This is like the computer’s brain.
2. MAC - This is an abbreviation for Macintosh, which is a type of personal computer made by the Apple Computer company.
3. OS - This is the Operating System of the computer. It is the main program that runs on a computer and begins automatically when the computer is turned on.
4. PC - This is the abbreviation for personal computer. It refers to computers that are IBM compatible.
5. PDF - This represents the Portable Document Format which displays files in a format that is ready for the web.
6. RAM - This stands for Random Access Memory which is the space inside the computer that can be accessed at one time.  If you increase the amount of RAM, then you will increase the computer’s speed. This is because more of a particular program is able to be loaded at one time.
7. ROM - This is Read Only Memory which is the instruction for the computer and can not be altered.
8. VGA - The Video Graphics Array is a system for displaying graphics. It was developed by IBM.

**Vocabulary\*.**

**Task 1.**

1. PC (= personal computer)
2. components
3. base unit (we can also say hard drive or disc\* drive)
4. hardware
5. load (we can also say install)
6. software
7. monitor
8. printer
9. scanner
10. keyboard
11. mouse
12. wireless
13. logon
14. files
15. download
16. Internet
17. websites
18. gaming
19. stream
20. email (this word can also be a noun: send an email. It can also be written with a hyphen: e-mail\*\*)
21. chat rooms
22. crashed
23. virus
24. laptop (we can also say notebook. Smaller laptops are called netbooks. Small computers which you control using your fingers or a tool like a pen are called tablet PCs)

Also often spelt disk

\*\* The letter e in email means electronic, and is used as a prefix for many things connected with computers, the Internet and modern technology: e-book, e-commerce, e-learning, e-reader, e-shopping, e-ticket, etc.

**Task 2.**

1. CPU
2. Mouse
3. Monitor
4. Printer
5. Webcam
6. Keyboard

**Task 3.**

1. C
2. A
3. B
4. D

**Listening.**

**Task 1.**

1. China/ China, Wuxi
2. 4.2 billion people
3. (By) Shanghai University
4. Energy efficient

**Task 2.**

|  |  |
| --- | --- |
| Number of calculations per second | 1) \_\_\_**quadrillion (1015)\_\_\_\_\_\_\_\_\_** |
| 2) \_\_**processing capacity**\_\_\_\_  \_\_\_\_\_\_\_ | 125.436 peta FLOPS |
| Computing power | Provided by 3) \_\_\_\_**a CPU chip**\_\_\_\_\_\_\_ |
| Number of processors | 4) \_\_\_\_\_\_\_**40.000**\_\_\_\_\_ |
| It is used to support | * 5) \_\_\_\_\_\_**climate**\_\_\_\_\_\_\_, * Biology * 6) \_\_\_\_**new materials**\_\_\_\_\_\_\_\_\_ * Advanced manufacturing projects |

**Scenario.**

**Task 1.**

1. Silicon Valley is a nickname for the southern portion of the San Francisco Bay Area in the northern part of the U.S. state of California. The "valley" in its name refers to the Santa Clara Valley in Santa Clara County, which includes the city of San Jose and surrounding cities and towns, where the region has been traditionally centered.

The word "silicon" originally referred to the large number of silicon chip innovators and manufacturers in the region, but the area is now the home to many of the world's largest high-tech corporations, including the headquarters of 39 businesses in the Fortune 1000, and thousands of startup companies. Silicon Valley also accounts for one-third of all of the venture capital investment in the United States, which has helped it to become a leading hub and startup ecosystem for high-tech innovation and scientific development. It was in the Valley that the silicon-based integrated circuit, the microprocessor, and the microcomputer, among other key technologies, were developed. As of 2013, the region employed about a quarter of a million information technology workers.

As more high-tech companies were established across San Jose and the Santa Clara Valley, and then north towards the Bay Area's two other major cities, San Francisco and Oakland, the "Silicon Valley" has come to have two definitions: a geographic one, referring to Santa Clara County, and a metonymical one, referring to all high-tech businesses in the Bay Area or even in the United States.

1. The **Skolkovo Innovation Center** is a high technology business area that is being built at Mozhaysky District in Moscow, Russia. Although historically Russia has been successful with development of science and technology, its lack of entrepreneur spirit led to government intervention of patents and nonproliferation of Russian tech companies beyond the scope of regional service. As corporations and individuals become "residents" of the city, with proposed projects and ideas receiving financial assistance. Skolkovo was first announced on 12 November 2009 by then Russian Prime Minister Dmitry Medvedev. The complex is headed by Viktor Vekselberg and co-chaired by former Intel CEO Craig Barrett.
2. Some Silicon Valley companies: Adobe Systems, Apple Inc., eBay, HP Inc., Intel, Intuit, Symantec, Tesla, Inc., Visa Inc., Microsoft …
3. Some companies:The Skolkovo Foundation, Rusnano, Rostelecom, Russian Venture Company

**Task 2.**

1. Terry Gou, 1974
2. It deals with electronic products, parts.
3. They try to provide the lowest “total cost” to increase affordability of electronic products for all mankind.
4. Yes, they are known for their legendary green manufacturing execution.
5. Focusing on fields of nanotechnology, heat transfer, wireless connectivity, material sciences, and green manufacturing process, besides from cooperating with the establishment of the research institution for nanotech, new material, and optical electric, Hon Hai also sets up several research centers and testing laboratories for mechanism, material, electronics to conduct the services of science research and technology development worldwide.

**UNIT 3.**

**THE OPERATING SYSTEMS.**

**Reading 1.**

**Task 1.**

1. Process management
2. Memory storage and management
3. Device management
4. Application interface
5. User interface

**Task 2.**

1. To operate properly
2. Processor management
3. Drivers/ special programs
4. Electrical signals
5. User interface

**Vocabulary 1.**

**Task 1.**

1. Processor
2. Hardware
3. Adaptability
4. Allocation
5. Driver
6. Application

**Task 2.**

1. Оперативная память
2. Вторичная память
3. Дисковая память
4. Аппаратная платформа
5. Запускать процесс

**Reading 2.**

**Task 1.**

1. E
2. A
3. D
4. B
5. G
6. F
7. C

**Task 2.**

1. Have changed
2. Punch cards
3. Run one job
4. Run several jobs
5. Time-sharing technique
6. On-line terminal

**Vocabulary 2.**

**Task 1.**

1. Mechanical switch – механическое переключение
2. Plug board – коммутационная доска
3. Assembly language – язык ассемблера
4. Running several jobs at once – запуск нескольких процессов одновременно
5. Peripheral devices – периферийные устройства
6. Circuit – цепь, сеть, схема
7. Punch card - перфокарта
8. Single-stream patch-processing system – однопоточная система пакетной обработки данных

**Vocabulary 2.**

**Task 2**

1. Operating system
2. Processing
3. Microprocessor
4. User
5. Hardware
6. Printer
7. Mainframe
8. On-line
9. Capacity
10. Operations

**Vocabulary\***

1. Functions
2. Password
3. Rules/mercy
4. Living
5. Imagination
6. Man
7. Computer
8. Windows
9. Submarines
10. Danger
11. Binary
12. Network
13. Windows

**Listening.**

1. Ones and zeroes
2. Interact
3. Computer hardware
4. Microsoft Windows
5. Mac OS X
6. Mobile operating systems
7. With smaller touch-screens
8. Compatible with

**Speaking.**

**>80%; 10%; 5%**

1. Will work
2. Driver
3. Game
4. Viruses
5. Key loggers
6. Graphical
7. Command graph systems
8. Viruses
9. Was released
10. 600,000
11. Will run
12. Games
13. Free
14. Viruses
15. Full
16. A kernel
17. Complicated
18. Programming
19. Software
20. Games

**UNIT 4.**

**PROGRAM DESIGN AND COMPUTER LANGUAGES.**

**Reading 1.**

**Task 1.**

1. F
2. T
3. F
4. F
5. NG
6. F

**Vocabulary 1.**

**Task 2.**

1. Ambiguous
2. Networks/supercomputers
3. Functionality/environment
4. Programmer
5. Hardware/software

**Reading 2.**

|  |  |  |
| --- | --- | --- |
| **Date/ Period** | **Development** | **Developer** |
| **19th century** | **“programmable” looms**  **Player piano scrolls** |  |
| **Beginning of the 20th century** | **Punch cards** |  |
| **1930-1940** | **Lambda calculus**  **Turing machine** | **Alonzo Church**  **Alan Turing** |
| **1940`s** | **First electrically powered digital computer** |  |
| **1943-1945** | **Plankalkul** | **Konrad Zuse** |
| **1950`s** | **UNIVAC I**  **IBM 701**  **… FORTRAIN**  **LISP**  **COBOL**  **ALGOL 60** |  |
| **1960-1970** | **Major language paradigms** |  |

**Vocabulary 2.**

1. C
2. A
3. E
4. B
5. D
6. F

**Listening.**

1. Binary code (1s and 0s)
2. Source code is the instructions it is meant to be human readable
3. In one of many different programming languages
4. When the source code is turned into binary
5. the source code for the software is stored on a server ang each developer stores a copy of these files on their machines … they can make changes to one or more files and submit those changes to the server … the server stores a detailed list of what files were changed
6. different problems with the code
7. software is always fixed
8. when software is owned by a person or a company and sold to make money
9. a free program anyone can get access to the source code