FACULTY OF COMPUTER SCIENCES AND CYBERNETICS

Oksana Stepanechko

METHODOLOGICAL MATERIALS

"Professional English for Computer Sciences and Cybernetics Students"

B1 – B2

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Reviewers:

Kozyb Liubov, Ph.D in Philology, Associate Professor, Associate Professor of the Department of Foreign Languages for Mathematical Faculties, Taras Shevchenko National University of Kyiv

Iaremenko Nataliia, Ph.D in Pedagogy, Associate Professor, Head of the Department of English for Technical and Agrobiological Specialities, National University of Life and Environmental Sciences

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Методичні розробки до практичних занять з іноземної мови за професійним спрямуванням для студентів факультету комп'ютерних наук та кібернетики. Тернопіль: ФОП Осадца Ю.В., 2023. – 80 с.

These methodological materials have been designed for second-year undergraduate students majoring in Cybernetics, Computer Sciences, and Computer Engineering. It enables students to develop and enhance their English professionally competencies, such as speaking, reading, listening, and writing. The course is appropriate for intermediate to upper-intermediate-level learners who need to use English for Computing.

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PREFACE

In today's interconnected world, proficiency in English has become a crucial skill for professionals in the field of Computer Sciences and Cybernetics. As technology continues to evolve, the ability to effectively communicate, collaborate with international teams, and understand the latest trends in English has never been more important.

These methodological materials aim to apply theoretical knowledge in computer specialties to practical language application.

There is a range of authentic texts and video materials covering everything from the latest applications of computer technology – such as virtual reality and AI in daily life – to the underlying computer processes and components. The course aims to develop all four skills, with special emphasis on vocabulary acquisition and grammatical accuracy.

The methodological materials contain 12 thematic units with practical exercises related to each unit. The content of these materials is carefully curated to address the specific needs of Computer Sciences and Cybernetics students. The vocabulary, texts, video tasks, and exercises are all tailored to familiarize you with the terminology and concepts relevant to the field.

Learning is most effective when actively engaged. Throughout the materials, there are a variety of exercises that encourage students to apply what they have learned. These exercises are designed to reinforce their understanding and provide opportunities for practical language use.

Students working through these materials enhance their language skills and boost their confidence in using English within their professional contexts.

Unit 1. LIVING WITH COMPUTERS

Task 1.1. Fill in the gaps with the appropriate words from the box in the sentences below.

Programmers intelligence users data processor code purpose programs language software

1. Computers are built for one _____ – to do things for us.
2. But we need to speak their _____ to describe what we want done.
3. Users have it easy – someone already put many different _____ (instructions) into the computer and users just pick the ones they want to use.
4. Users see computers as a set of programs – word _____, spreadsheet, to-do-list, etc.
5. _____ learn the computer "ways" and the computer language.
6. Programmers sometimes write tools for lots of _____ and sometimes programmers write little "helpers" for themselves to automate a task.
7. To get some task done – we are the user and programmer clean up survey _____.
8. The hardware and _____ are our friends and allies in this quest.
9. _____ is a sequence of stored instructions.
10. Code is a little piece of our _____ in the computer.

Task 1.2. A. There is a list of common nouns in computing. Group them into two columns: a) countable nouns; b) uncountable nouns. If you have some hesitations, use the dictionary to check the information where all nouns are marked either with C for countable or U for uncountable.

capacity data disk monitor speed drive mouse software device memory technology robot hardware coding compiler programming compiler	
Countable nouns	**Uncountable nouns**

B. In pairs, create a short text with the use of these nouns (as many as possible) and present them to your group mates. Keep in mind the use of articles with countable and uncountable nouns.

Task 1.3. Let's talk about life with computers and the top 7 uses of computers in our daily lives. Read the introduction and make a list of the ways we use computers in 7 spheres of our lives.

The use of computers in our life is incredibly necessary. Computer science is evaluated and challenged by humans every day. Computers have made our life easier in these decades. With higher accuracy and quality, and less time consumption, computers can do a lot in a short time while that task can take a lot of time if we do it manually. Computers have taken industries and businesses to a worldwide level. All our daily life activities are based on online services and products which can only be possible via computers.

Top 7 uses of Computers in Our Day to day life:

- Education
- Business
- Medicine
- Government offices
- Marketing
- Home

Watch the video https://youtu.be/L7r2N4uzqgY and add more ideas to your list.

Task 1.4. Read the text and put the verbs in brackets into the correct tense (active or passive).

THE INFORMATION AND COMMUNICATION REVOLUTION

In the beginning, humans (1)_____ (utilize) symbols, pictures, and signs for communication. When they (2) _____ (succeed) in developing these symbols and signs into a form of writing and recording by using

primitive materials such as papyrus, leather, and wooden boards, it (3) _____ (consider) a major leap forward in knowledge transfer and communication for humanity.

When the printing press (4) _____ (invent) the greatest form of communication the world (6) _____ (ever know). It (7) _____(trigger) a vast transformation by making it easier to print, publish, and distribute not hundreds, but thousands of books or documents. This (8) _____ (launch) an enlightenment movement in culture and knowledge that paved the way for modern civilisation.

In the 19th and 20th centuries, further significant inventions in the field of communication (9) _____ (play) a crucial role in global development. This (10) _____ (start) with the invention of the telegraph in 1837, the telephone in 1876, and the phonograph in 1877, which promoted commercial, cultural, and academic interactions across human societies.

In 1896, the radio – the first device to use electromagnetic waves to transmit information across the ether – (11) _____ (invent), which further revolutionised the process of communication. This (12) _____ (open) the door for the telecommunications revolution that led to the invention of the television in 1924.

In the second half of the 20th century, it (13) _____ (be) satellite technology that (14) _____ (view) as a miracle in the communications field. As well as having a role in developing telecommunications, satellites also (15) _____ (use) as tools of espionage, in the identification of military targets, and in guiding weapons of war.

In all these radical transformations, the advancements in the communications sector (16) _____ (contribute) towards the development of humankind and world civilisation. However, the impacts of this sector (17) _____ (never be) as profound and widespread as in

the past few decades. Thanks to the dramatic developments that humankind (18) _____ (achieve) in the areas of knowledge, information systems, and electronic advancements — especially with the emergence of the internet – there (19) _____ (be) an unprecedented communication revolution that has changed the world. The most significant feature of this revolution in the field of communication and information technology is the sweeping transformations that are taking place. This revolution (20) _____ (develop) much more rapidly than the communication and knowledge revolutions of the past.

Task 1.5. Read the text and choose the most appropriate phrase (part of the sentence) from the list (A – H) for each gap (1 – 6). There are two extra parts of the sentences that you do not need to use.

LATEST TRENDS AND UPCOMING EXPECTATIONS BY COMPUTERS

While discussing changes computer has made in human life, (1)_____. Some of the predicted changes are Artificial Intelligence (AI), Machine Learning (ML), Interest Based Education, 3D Printing, Driverless Vehicles, and Space Traveling.

Artificial intelligence takes over workplaces of repetitive jobs, (2) _____. Minimum or nil supervision and management for production units. Factories will be transformed into one single machine that accepts raw material at one point and the other point receives an output of finished products. (3) _____, supervision or management employees.

Machines (4) _____ to accomplish what humans want to get done. It will be task-based learning that machines become smarter devices humans want to make use of.

New dimensions and methods will be adopted for teaching and learning. In our traditional system, most learners are taught a subject they never liked or were interested in. A few of them are lucky to master subjects they loved or were interested in. In the near future, computers can predict which is the flair subject a person can learn and interact actively. This way education (5) _____.

3D printing sweepstakes in the small-scale manufacturing industry. Once 3D printing becomes affordable and common, it will badly affect traditional small-scale manufacturers.

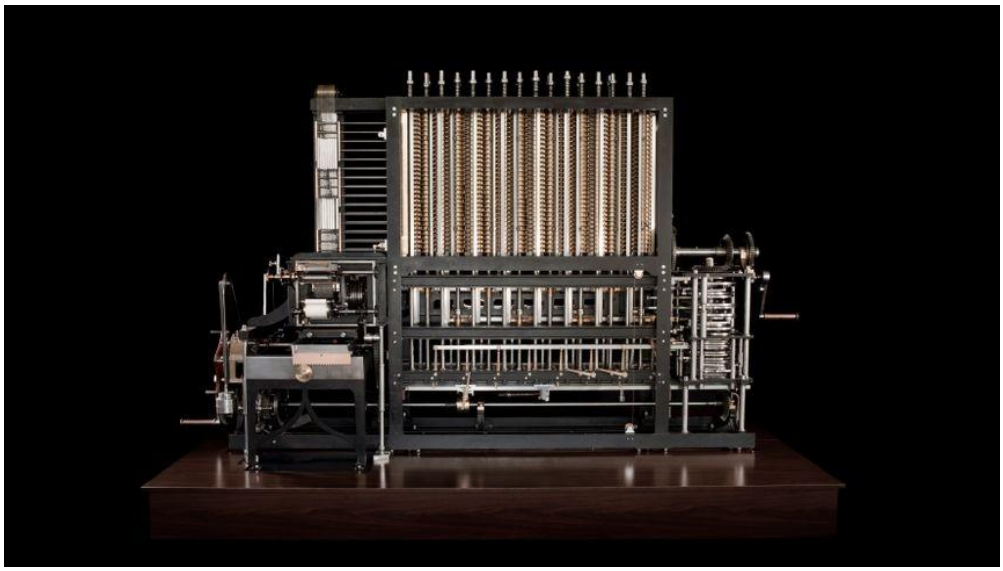
To conclude, computers have changed our life beyond imagination and continue (6) _____. It provides advanced facilities for our life and also creates effective learning, production, control, and utilization.

A. are being capable to learn new things
B. it’s worth mentioning the changes computers bring in the near future
C. reduces human intervention up to the end of the job cycle
D. to play an important role in human life and behaviors
E. will be smarter than ever
F. Most educational institutions,
G. capable of performing tasks that typically require human intelligence
H. In between there won't be any kind of human workforce

Task 1.6. Follow the link and participate in a debate. Leave your comment by formulating a personal opinion.

https://www.kialo-edu.com/p/f34de3fc-61b0-4e72-8c83-705de0b0d0b7/105008

Unit 2. THE WAY IT ALL STARTED…



Task 2.1. Read the text below. Choose from (A – H) the one which best fits each space (1 – 6). There are two choices you do not need to use.

FIRST COMPUTER

(1) _____ when a British mathematician named Charles Babbage dreamed up the idea of a mechanical calculator. He called it a "difference engine". Like the railroad, (2)_____.

It took Babbage ten years to build just one section of his different engine. When it was completed, (3) _____. But even as he was working on the difference engine he conceived of something even more ambitious: a machine that could be programmed with punch cards to perform even the most complex calculations. In other words, a mechanical computer.

Babbage made hundreds of drawings outlining his new idea. He envisioned that this "analytical engine" would be about as big and heavy as a small locomotive, (4) _____. It would be able to add or subtract forty-digit numbers in a few seconds and multiply similarly large numbers in about two minutes. (5) _____, since this was a more than hundred years before the first electronic computer was created. (6) _____

to create the complex machine. He did, however, develop other more practical things, including something for those newfangled railroad locomotives.

A people marveled at its sophistication

B Babbage was a bit ahead of his time

C it was designed to operate by steam

D it became more and more complex

E containing thousands of finely machined gears

F technology was not far enough advanced

G it contained ten thousand vacuum tubes

H railroads were still brand-new in 1822

(*Adapted from:* https://www.tumblr.com/wingedliberation/331061103/first-computer)

Task 2.2. Read the text below and decide which answer A, B, C, or D best fits each space. There is an example at the beginning (0).

0	A make	B bring	C hold	D find

THE WAY IT WAS

Today the police are able to (0)_*A*_ use of all kinds of scientific and technological aids in their (1) _____ against crime. This was not always the (2) _____, however.

In the early days of the British police force, during the nineteenth century, the police officer's whistle was his (3) _____ way of calling for help if he got into (4) _____. Gradually, in the twentieth century, things (5) _____ to improve. Those police officers lucky enough to be (6) _____ a patrol car rather than a bicycle could also take (7) _____ of radio communications.

In 1903, a new system for identifying people by their fingerprints was discovered. (8)_____ it soon proved to be one of the most significant

developments in crime investigation, a (9)_____ of the national fingerprint collection could (10)____ days, if not weeks, until computers were introduced in the 1970s.

A similar problem (11)_____ any police officer who got the registration number of a car used in a midnight robbery and needed urgently to (12) _____ who owned it. The only way of doing this out of office (13) _____ was to phone up Police Headquarters in London. They would send an officer to wake up the caretaker at Country Hall, where the records were (14)_____. The two would then have to go (15) _____an enormous card index system in the basement. Today, police officers can identify the owner of a vehicle in seconds, via the Police National Computer.

1	**A** charge	**B** fight	**C** duty	**D** match
2	**A** instance	**B** event	**C** case	**D** condition
3	**A** mere	**B** whole	**C** main	**D** pure
4	**A** complaint	**B** anxiety	**C** concern	**D** difficulty
5	**A** believed	**B** began	**C** became	**D** belonged
6	**A** thought	**B** given	**C** thrown	**D** caught
7	**A** advantage	**B** profit	**C** benefit	**D** service
8	**A** Although	**B** Whether	**C** Despite	**D** Moreover
9	**A** hunt	**B** look	**C** seek	**D** search
10	**A** pass	**B** stand	**C** take	**D** spend
11	**A** approached	**B** posed	**C** solved	**D** faced
12	**A** ask after	**B** find out	**C** check in	**D** come across
13	**A** hours	B place	C doors	D date
14	**A** wrapped	B stocked	C looked after	D kept
15	**A** across	B through	C about	D round

(*Adapted from:* https://cutt.ly/Pwbe8S4d)

Task 2.3. Read the text below. For questions (1 – 5) choose the correct answer (A, B, C, or D).

HISTORY FACTS

(1) _____ the seventeenth and eighteenth centuries, many easy ways of calculating were devised. Logarithm tablets, calculus, and the basis for the modern slide rule were invented during this period. It was not (2) _____ the early 1800s that the first calculating machines appeared and, not too long after, Charles Babbage designed a machine (3) _____ became the basis for building (4) _____ computers. A hundred years (5) _____, the first analog computer was built, but the first digital computer was not completed until 1944.

1	A	At	B	Along	C	For	D	During
2	A	till	B	until	C	as soon as	D	after
3	A	which	B	who	C	whose	D	what
4	A	today	B	todays’	C	today’s	D	todays
5	A	later	B	late	C	the latest	D	the later

Task 2.4. Read the text and put the prepositions in the spaces.

Apple Lisa Personal Computer System made (1)_____ Apple, Cupertino, California, United States, 1983. Apple Lisa Personal Computer System, c. 1983. Apple's Lisa was the first computer (2) _____ use a Graphical User Interface (GUI). Incorporating the powerful Motorola 68000 processor, a mouse, and pull-down menus, Lisa was intended (3)_____ Apple's founder, Steve Jobs, to set the technological standard and become the market leader (4) _____ personal computers. Unfortunately, (5)____ just under $10,000 when launched (6)_____ 1983, the price was too high (7)____ most potential buyers, but the innovations of the Lisa led directly (8)_____ Apple's successful Macintosh. Apple's stock of Lisa computers was buried (9)_____ a landfill site (10)_____ Utah (11)____ 1990. Shown with ProFile 5Mb hard disk unit.

(Adapted from: https://collection.sciencemuseumgroup.org.uk/objects/co64008/apple-lisa-personal-computer-system-1983-personal-computer)

Task 2.5. Read the text and answer the questions below.

THE 5 GREATEST INVENTIONS OF THE PAST DECADE

When the 2010s began, smartphones were in their infancy, artificial intelligence had few consumer-facing applications, and self-driving cars were a sci-fi fantasy. A lot has changed. As 2020 finished, here's a look back at some of the best and most important inventions of the decade.

1. Google Assistant

Unlike the early iterations of A.I. that could, say, identify faces in photos or beat you in chess but not do much else, Google Assistant is perhaps the closest thing yet to what's known as general artificial intelligence. The Assistant, installed on the Google Home smart speaker, Google phones, and other devices, converses with people primarily by voice. At your command, it can compose messages, make calendar reminders, or scan the internet for answers to questions – sometimes with a dose of humor – and can instantly

translate spoken words into 27 different languages. When it comes to accurately understanding what you want, it's leaving Siri and Alexa in the dust.

2. Venmo

The concept is extraordinarily simple: Send money to people instantly by tapping a few buttons on your smartphone. Launched by college roommates Andrew Kortina and Iqram Magdon-Ismail in 2010, Venmo created a new way for people to split their dining bills or pay their rent and left a generation wondering how their predecessors ever settled IOUs.

3. iPad

Mocked by many at the time of its 2010 launch for its name – and for its awkward size somewhere between a big phone and a small computer – the iPad has sold 400 million units to date and spawned competitors from the likes of Amazon, Microsoft, Samsung, and Google. Today, tablets have become essential devices for business. Just look at how they've made the food service industry more efficient by replacing cash registers and helping track inventory. More than one million iPad-native apps now live in the App Store, touching every industry from real estate and medicine to education.

4. The Self-Driving Car

Google and Apple secretly started testing fully autonomous cars in the first half of this decade. Most of the major car manufacturers, plus ride-hailing companies like Uber and Lyft, have since followed suit, and today, passengers can hail driverless cabs being beta-tested in cities like Phoenix and Pittsburgh. Thanks to machine vision and some super-sophisticated artificial intelligence, the technology promises to make the roads a whole lot safer, resulting in 90 percent fewer deaths, according to the most optimistic estimates. At least one industry is not looking favorably on this innovation hitting roads more broadly: the nation's nearly four million truck and taxi drivers.

5. Tesla Powerwall

As solar power becomes more and more affordable – it's cheaper than gas and coal in many parts of the country – the new challenge becomes finding a way for your home to store excess energy and use it when needed. Tesla's Powerwall, launched in 2015, offers that ability with a high level of sophistication, letting you program your usage to collect energy during off-peak hours, and then consume it at peak times. As states begin to implement energy pricing that varies based on time of use – California, Arizona, and Massachusetts already have – that means it will save you even more money while also putting less stress on local power plants.

(*Adapted from*: https://www.inc.com/kevin-j-ryan/greatest-inventions-decade-2010-2019.html)

1. What devices can Google Assistant be installed on?
2. What tasks can Google Assistant perform?
3. Who are the founders of Venmo and when was it launched?
4. How does Venmo allow people to send money?
5. How has the iPad evolved since its launch in 2010 and what competitors has it spawned?
6. How can driverless cars make the roads safer, and which industry is likely to be negatively impacted by this innovation?
7. What is the challenge with solar power as it becomes more affordable, and how does Tesla's Powerwall help address this challenge?

Task 2.6. Research and compare the features and functions of Google Assistant, Siri, and Alexa, and write a report on which one is the most advanced and why.

Task 2.7. Write an essay describing the impact of the five greatest inventions of the past decade on our daily lives.

Unit 3. COMPUTERS AND THEIR SYSTEMS

Task 3.1. In most lines of this text there is one extra word. Write the extra word or put a tick (√) if the line is correct.

PERSONAL COMPUTERS

Today, the world of personal computers is been basically divided	1
between Apple Macintoshes and PCs. The principal characteristics of	2
personal computers are be that they are single-user systems and are	3
based on microprocessors. However, although personal computers are	4
that designed as single-user systems, it is common to link all them	5
together to form a network. In terms of power, there is a great variety.	6
At the high end, the distinction in between personal computers and	7
workstations has faded. High-end models of the Macintosh and PC offer	8
the same computing power and graphics capability as than low-end	9
workstations by Sun Microsystems, Hewlett-Packard, and DEC. A	10
computer designed to fit through comfortably on top of a desk, typically	11
with the monitor sitting on top of the computer. Desktop model	12
computers are more broad and low, whereas tower model computers are	13
as narrow and tall. Because of their shape, desktop model computers are	14
generally limited to the three internal mass storage devices. An	15
extremely lightweight personal computer.	

Task 3.2. Fill in the gaps with the appropriate words from the box in the sentences below.

stored numerical programs software processing microprocessor application hardware tablets internal

1. _____ is a general term for the physical components that makes up a computer system: the keyboard, monitor, mouse, printer, etc.
2. Software is a general term for _____ that control the computer system.
3. There are two types of software: _____ and system.
4. Hardware falls into two categories: external and _____.
5. Spreadsheet software is used to organise and manipulate _____ data (in the form of integer, real, date, and so on).
6. Database _____ is used to organise, manipulate, and analyse data.
7. Apps normally refer to the type of software that runs on mobile phones or _____.
8. Control and measuring software is designed to allow a computer or _____ to interface with sensors.
9. Photo editing software allows a user to manipulate digital photographs _____ on a computer, for instance, change contrast, change brightness or remove 'red eyes'.
10. Word _____ software is used to manipulate text documents, such as an essay or a report.

Task 3.3. Read the text. Put articles *a, an, the (-), or none* in the spaces.

Though you can make (1)____ decision on purely economic grounds, buying (2)____ computer is often more like joining (3)____ religious cult. Buy (4)____ Apple, for example, and almost by default you join Apple chairman Steve Jobs in his crusade against IBM. Every machine has its "users' groups" and (5)____ band of loyal enthusiasts who tout its merits. That makes it all (6)____ more difficult for (7)____ uninitiated to decide what

machine to buy. Students have (8)____ huge advantage, however. The computer companies are so eager for students' business (it builds "brand loyalty") that many offer huge discounts.

In the past six months, IBM, Apple, and others have brought out new computers, and (9)____ fierce competition has forced prices down. Also, time is on your side: next year at (10)____ time you'll have even more choice and more computing power and features for (11)____ same price. On (12)____ other hand, this will probably be true for many years. So for those who need or want (13)____ computer now, it's (14)____ great time to buy one.

(*Adapted from*: https://studfile.net/preview/9780863/page:12/)

Task 3.4. Read the text. Match choices (A – F) to 1 – 4. There are two extra choices you don't need to use.

TYPES OF COMPUTER SYSTEMS

1._____

Notebook computers typically weigh less than 6 pounds and are small enough to fit easily in a briefcase. Aside from size, the principal difference between a notebook computer and a personal computer is the display screen. A computer is designed to fit comfortably on top of a desk, typically with the monitor sitting on top of the computer.

2. _____

Desktop model computers are broad and low, whereas tower model computers are narrow and tall. Because of their shape, desktop model computers are generally limited to three internal mass storage devices. An extremely lightweight personal computer. Notebook computers typically weigh less than 6 pounds and are small enough to fit easily in a briefcase. Aside from size, the principal difference between a notebook computer and a personal computer is the display screen.

3. _____

Notebook computers use a variety of techniques, known as flat-panel technologies, to produce a lightweight and non-bulky display screen. The quality of notebook display screens varies considerably. In terms of computing power, modern notebook computers are nearly equivalent to personal computers. They have the same CPUs, memory capacity, and disk drives. However, all this power in a small package is expensive. Notebook computers cost about twice as much as equivalent regular-sized computers. Notebook computers come with battery packs that enable you to run them without plugging them in. However, the batteries need to be recharged every few hours.

4. _____

A portable computer that is small enough to be held in one's hand. Although extremely convenient to carry, handheld computers have not replaced notebook computers because of their small keyboards and screens. The most popular hand-held computers are those that are specifically designed to provide PIM (personal information manager) functions, such as a calendar and address book. Some manufacturers are trying to solve the small keyboard problem by replacing the keyboard with an electronic pen. However, these pen-based devices rely on handwriting recognition technologies, which are still in their infancy. Hand-held computers are also called PDAs, palmtops, and pocket computers.

A Multifunctional device

B Computers linked to many terminals

C Characteristics of the smallest computers

D Benefits of small computers

E Significant distinctions between types

F Drawbacks of laptops

Task 3.5. Look at the picture and choose the type of computer for different people. Give your reasons.

a) a student of the faculty of Computer Sciences and Cybernetics;

b) a primary school student;

c) a businesswoman;

d) a pensioner;

e) a game tester;

f) a university lecturer.

Task 3.6. Describe your favourite type of computer. Give the reasons for your choice.

Unit 4. INPUT, OUTPUT, AND STORAGE DEVICES

Task 4.1. Fill in the gaps with the appropriate words from the box in the sentences below.

CPU monitor RAM printer hard drive disk keyboard speakers mouse motherboard processor

1. The _____ is an input device also known as a pointing device of a computer.
2. The _____ prints the files like images, and text stored in a computer, by converting the data from soft copy to hard copy.
3. _____ is used to store the main components of a computer like a motherboard with a processor, power supply, video card, RAM, hard disks, optical disk drive, memory cards, etc.
4. The computer _____ is to acts as the main circuit that enables the integration of all components of a computer.
5. The _____ acts as the brain of the entire operation of the computer system and it is the 4th generation of computer.
6. The storage capacities of the _____ have now reached 6TB.
7. _____ runs the software like computer programs, games, software applications, and other information in (the CPU) the central processing unit for direct and quick access when needed to perform tasks.
8. Computer _____ are a way that computers make sounds by means of digital or analog audio.
9. The _____ is designed to input the data by typing letters, symbols, numbers (ABC,123,!@#).
10. Through computer _____, we can carry out, or view all the important content, review stored information, and do a lot of tasks.

Task 4.2. Put the devices from the box into the sets below.

CD-ROM disk	laser printer
digital camera	lightpen
dot-matrix printer	barcode reader
fixed hard disk	mouse
floppy disk drive	microphone
inject printer	monitor
joystick	headphones
keyboard	scanner

Output	**Input**	**Storage**

Task 4.3. Give the full names of acronyms and abbreviations devoted to input, output, and storage devices.

CPU	
RAM	
ROM	
GHz	
LCD	
PDL	
USB	
TFT	
OCR	

Task 4.4. Read the text below. Choose from (A – H) the one that best suits each space (1 – 5). There are two choices you don't need to use.

3D PRINTING: THE FUTURE OF FOOD PRODUCTION?

1._____

3D printing is becoming more and more popular. We are now able to print things such as clothing, prosthetic limbs, musical instruments, and prototype cars. People and businesses are able to create the things they need very quickly and easily using 3D printers. But can you imagine printing food?

2._____

Some scientists are trying to revolutionise the dining experience by doing this. They hope that having a 3D printer in the kitchen will become as commonplace as the microwave or blender. Scientists say that they are easy to use: you simply have to select a recipe band put the raw food inks into the printer. You can also modify the instructions to make the food exactly how you want it. This means that it would be very quick and easy to create tasty and nutritious meals.

3. _____

Using 3D printers to create your meals would also be saving the environment. There would be less need for traditional growing, transporting, and packaging processes as food production would be a lot more efficient. For example, alternative ingredients such as proteins from algae, beetroot leaves, and insects could be converted into tasty products!

4. _____

Printing food could also help people who suffer from dysphasia (a swallowing disorder). Elderly people also consider it difficult to chew and swallow. So, pureed food can make it easier for them and relieve pain. One of the ways it does this is through novel designs and textures. The technology employed enables the creation of foods that appear enticing to this category of

people. They could program the printer to print softer versions of their favourite foods so that they would not have trouble swallowing them.

5. _____

However, some people think that the future of 3D-printed food would be a disaster. It could take away many jobs, including those for growing, transporting, and packaging food. Imagine a world where there was no need for farming or growing crops and the same tastes and textures could be printed from raw 'food ink'. Likewise, traditional cafes and restaurants might lose business. Also, there are concerns about the nutritional value of printed food: it is really possible to get the nutrients we need from food-based inks and gels? What's more cooking and eating together with family and friends has long been a traditional and enjoyable activity. It is hard to imagine a world where the pastime of cooking is dead and meals can be created at the touch of a button.

A. 3D food printing makes everyday life easier.

B. Harmful consequences of printing food production to individuals and society.

C. Increasingly extensive use of 3D printing.

D. Traditional food production processes would be more efficient.

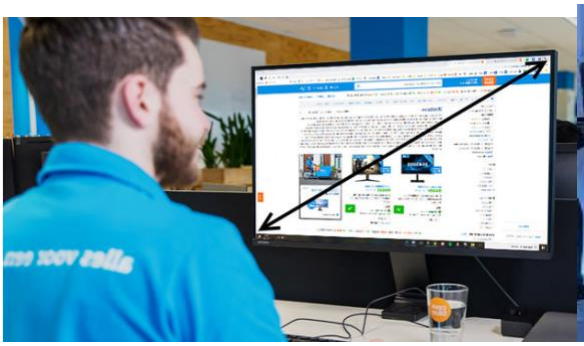
E. Environmentally friendly technology.

F. Production of 3D-printed food would have disastrous environmental effects.

G. New possibilities for the groups with special needs.

H. New food production technology would simplify cooking and save time.

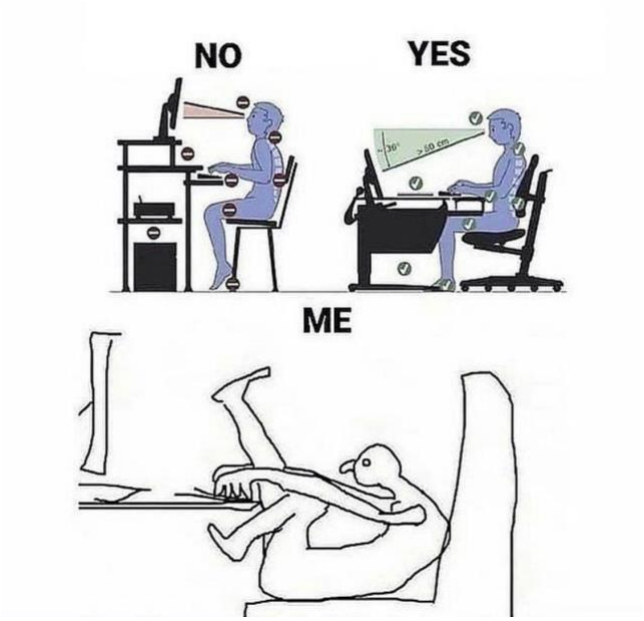
Task 4.5. Look at the pictures and name the technical specifications of the monitors they represent.



Unit 5. HEALTH AND SAFETY

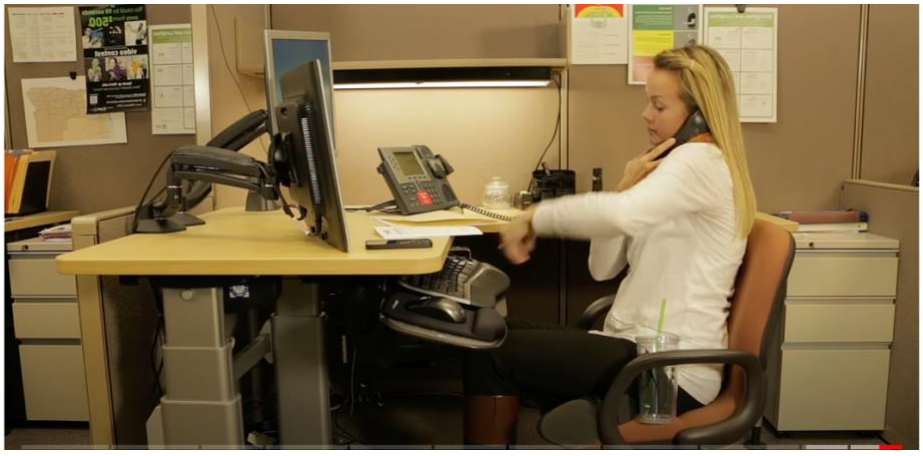
Task 5.1. Answer the following questions.

1. What kind of seat do you use for your study?
2. If you sit for a long time in front of the computer, how do you feel afterward?
3. What picture suits your posture while you're studying/doing home assignments?



Task 5.2. Watch the video and do the following tasks.

https://www.youtube.com/watch?v=ofnpBtO1-gA&t=53s



A. Put the symbols in the correct order and name the parts of the video as they were mentioned there.

a 

b 

c 

d 

e 

f 

g 

h 

i 

j 

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

B. Listen again and fill in the gaps in the sentences:

1. Ergonomics is all about arranging our _____ so that we feel _____ and safe.
2. When your body is in proper _____ you feel better. It's called a _____ body posture.
3. Your shoulder and elbows are _____ and resting at your sides.
4. _____ is the key to comfort.
5. There should be one to two _____ between the outside of your thigh and the side of the seat.
6. The proper body posture helps prevent _____ and improve your technique.
7. Your elbow should rest comfortably at your sides at about a _____ _____.
8. Choose a _____ mouse that fits your hands comfortably and keeps your fingers relaxed and slightly curved.
9. Sitting too close or far away from your computer screen can cause eye _____, not to mention give you a _____ in the neck.
10. You can't avoid the _____ that come with poor ergonomics.
11. Things you use a lot, go in the _____ zone. And things you rarely use can go in _____ zone.
12. While mobile devices make our lives easier in so many ways, they aren't designed to _____ a proper ergonomic workstation.

C. Match parts of the sentences.

1.	Your elbow level should be at	a.	at eye level.
2.	If your seat's too deep	b.	the same size and height.
3.	The top third of the monitor should be	c.	your position often.

4.	Dual monitors should be	d.	90-degree angle.
5.	Stand up and move for a few minutes	e.	arm's length away.
6.	Remember to change	f.	use a lumbar wedge or pillow.
7.	Your monitor should be an	g.	every half hour.

D. What small changes can you make to get a big effect in your workplace? Do you need any additional equipment?

Task 5.3. Study the picture and identify at least 5 ergonomic issues. Name a brief description of each issue you identify, including what specifically it is causing, and suggest how it can be corrected. Consider the impact that these ergonomic issues may have on the individual in the picture, as well as his productivity and overall well-being.

Task 5.4. Follow the link and find words in the word search.

https://thewordsearch.com/puzzle/5463823/ergonomics/

Ergonomics

E	R	G	O	N	O	M	I	C	S	A	W	E	D
O	R	A	Y	R	U	J	N	I	D	A	I	I	E
G	A	R	G	O	T	T	F	R	A	J	S	L	H
A	E	E	W	N	Y	T	A	E	N	T	B	T	C
A	F	S	E	N	N	W	L	H	A	O	O	R	A
A	A	T	N	R	K	N	O	N	W	A	U	N	K
E	T	E	M	W	S	R	C	U	N	E	G	I	C
L	I	I	A	D	J	E	S	U	H	C	H	A	A
H	G	A	L	E	N	G	T	H	C	E	T	R	B
N	U	A	I	H	R	W	E	I	E	S	D	T	T
N	E	C	T	I	L	I	W	U	I	J	M	S	L
N	E	U	T	R	A	L	C	R	E	I	O	E	L
A	A	N	G	L	E	M	W	K	I	T	E	S	Y
I	H	E	I	G	H	T	A	N	B	N	C	F	T

WRIST
ANGLE
STRAIN
ERGONOMICS
AWKWARD
REST
ELBOW
BACKACHE
DISTANCE
FATIGUE
LENGTH
INJURY
HEIGHT
NEUTRAL

Play this puzzle online at : https://thewordsearch.com/puzzle/5463823/

Task 5.5. Read the text below. For questions (1 – 10) choose the correct answer (A, B, C, or D). Write your answers on the separate answer sheet.

IS THERE SUCH A THING AS INTERNET ADDICTION?

Ben Alexander always struggled to (1) _____ in. Teased at school, he (2) _____ to the Internet, where he found a (3) _____ new world of friends. Subscribing (4) _____ the hugely popular online *World of Warcraft,* he (5) _____ twelve million other people – including the actor Vin Diesel, the presenter Jonathan Ross and his wife Jane Goldman – in a quest reminiscent of Tolkien's *Lord of the Rings.*

In the game, players create avatars in whose guise they spend hours with other players (6) _____ battles. "There are lots of working together," says Alexander. "That's what made it so attractive because the social thing was

something I always had trouble with. It was much easier to socialize and make friends online than in real life."

The 19-year-old's interest in the game soon developed into an obsession. He began (7) _____ his biology lectures at university and spent up to 17 hours a day online. Eventually, he had depression diagnosed and was (8) _____ medication. He was also treated (9) _____ internet addiction. Alexander admits that he needed help: "I don't think I would have been able to (10) _____ out of it myself.

1	**A**	suit	**B**	fit	**C**	adjust	**D**	match
2	**A**	faced	**B**	addressed	**C**	turned	**D**	watched
3	**A**	specific	**B**	definite	**C**	whole	**D**	full
4	**A**	to	**B**	at	**C**	in	**D**	on
5	**A**	introduced	**B**	joined	**C**	connected	**D**	involved
6	**A**	setting	**B**	running	**C**	arranging	**D**	fighting
7	**A**	missing	**B**	wasting	**C**	losing	**D**	delaying
8	**A**	taken in	**B**	put on	**C**	kept from	**D**	cut on
9	**A**	from	**B**	against	**C**	for	**D**	of
10	**A**	run	**B**	go	**C**	fall	**D**	get

(Adapted from: https://www.thetimes.co.uk/article/is-there-such-a-thing-as-internet-addiction-3z2n2dbwr7h)

Unit 6. OPERATING SYSTEMS

Task 6.1. Match the terms to their definitions.

1. Application software	a. the software that manages a computer's hardware and provides services for other applications to run on the computer.
2. WIMP	b. a small symbol or arrow on a computer screen that shows where the next action will occur when you click the mouse button.
3. Folder	c. an acronym for "Windows, Icons, Menus, Pointer," which refers to a graphical user interface (GUI) used in many modern operating systems.
4. Document icon	d. a virtual container used to organize files and documents on a computer.
5. Pointer	e. programs designed to perform specific tasks or functions on a computer, such as a word processing, photo editing, or web browsing.
6. Window	f. a small image on a computer screen that represents a file or document.
7. Operating system	g. a rectangular area on a computer screen that displays the contents of an open program or file.
8. System software	h. the Software that controls the basic functions of a computer.

Task 6.2. Fill in the gaps in the sentences with the words from the left column of Task 6.1.

1. An _____ _____ manages computer hardware and software resources.
2. Use the _____ to select text or click on links.

3. The _____ interface made it easy for beginners to use computers.
4. I saved the file in a _____ on my desktop.
5. _____ _____ is designed for specific tasks like word processing or photo editing.
6. To open the document, double-click on the _____ _____.
7. You can resize a _____ by dragging its edges.

Task 6.3. Match the following common DOS commands with the appropriate explanation.

1. BACKUP	a. search for a specific string of text in a file.
2. CHDIR or CD	b. allows a text file from the current directory to be displayed on the screen.
3. CHKDSK	c. allows the user to change the name of a file.
4. CLS	d. saves the contents of the hard disk to a floppy disk for security purposes.
5. TYPE	e. is used when it necessary to change the current directory.
6. DIR: SOFT	f. clears data from the screen.
7. REN	g. alphabetically sorts and lists a disk directory.
8. DEL	h. makes backup copies of the contents of one disk to another.
9. DISKCOPY	i. delete a specified file from the current directory.
10. FIND	j. produces a status report of the currently logged-on disk indicating the amount of disk space used, the available capacity (in bytes), and the number of files on disk.

Task 6.4. Read the text below. Match choices (A – G) to 1 – 5. There are two extra choices you don't need to use.

THIS WEEK: SOFTWARE

Software technology is getting more complicated. Developers have to cut through a jungle of computer languages, operating environments, and shifting standards to choose how they'll create their software. I chose five well-known software developers and asked each to talk about current and future trends in software technology.

1. Mary Evans "In general I think people are getting what they want – there are a lot of creative things being done with paint software, word processing, and the like. Do users want more? Of course! Users will always want more. The computer is an incredibly powerful tool, and any software that makes it easier, faster, more creative, or more cost-effective will inevitably be in demand. I think most of the major software manufacturers are able to read the market quite well".

2. Gerry Harper "I'm afraid I completely disagree with Mary. I don't think that software purchasers are getting the technical support they need. While the products are getting more and more complex, and more and more expensive, it seems that support is starting to be thought of as an additional business opportunity. Yes, they're versatile and powerful, but they're also often overwhelming. I think what we need are simple little programs that are easy to understand and use, and that work together to accomplish more complex tasks".

3. Matt Andrew "I really can't agree with that. To imagine we can just go back to 'simple little programs' just ignores the complex needs of many of today's software users. No, I'm sure they can't stop progress. Suppliers know what their customers want – they just can't supply it quickly enough.

4. Bob Bolton "I think users are getting what they want, provided that their needs fit the off-the-shelf application. Specialized software is usually so

specific that it should be written in-house for business. Developers should add features that the customer needs, not what they think the customer wants. Some efforts should be made to get feedback from the users before making an upgrade so that the proper features are added".

5. Linus Torvalds "Modern cross-platform development tools are one of many development trends that make life easier for developers and users. With development environments like Microsoft's Xamarin or Google's Flutter, software developers can write apps that work on nearly every major desktop and mobile platform. And unlike the cross-platform development tools of the past, these new software technologies can take full advantage of native APIs and user interfaces, creating apps that behave natively without sacrificing performance".

Who thinks _____?

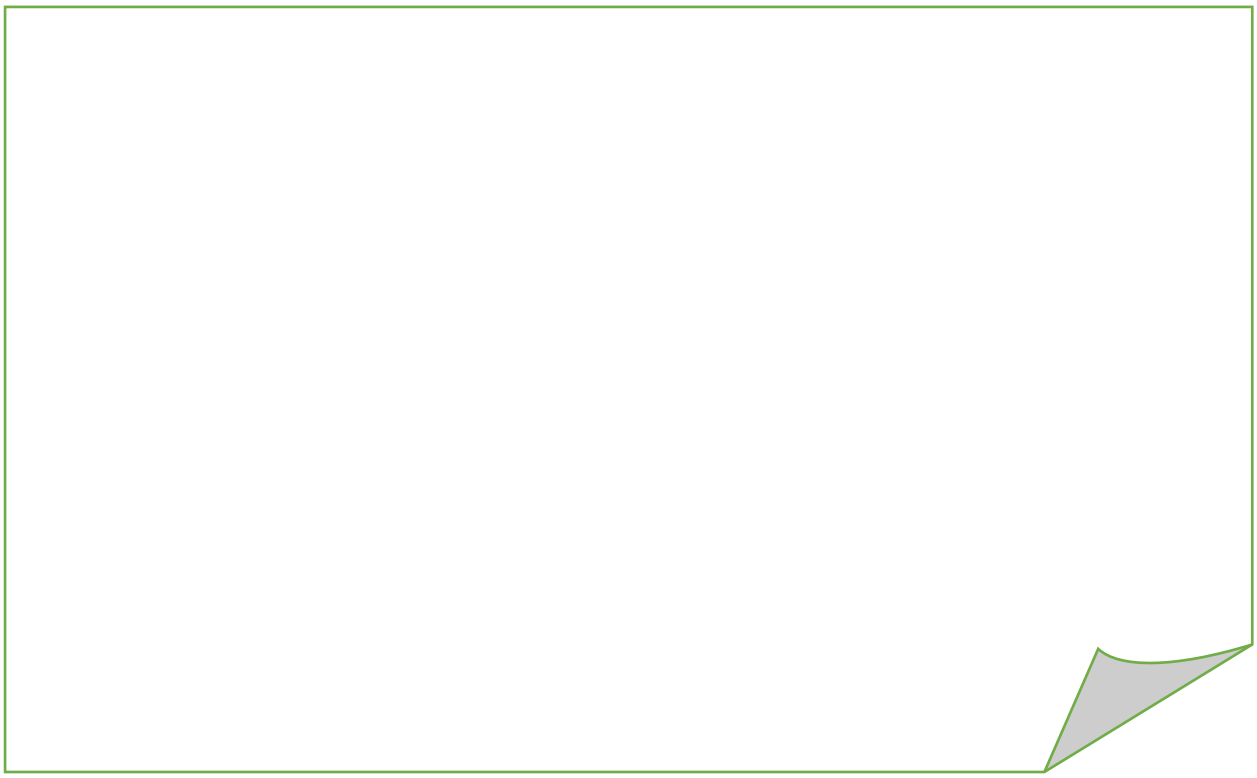
A. software requires more indispensable applications
B. trends tend to indicate where the industry is headed
C. users are eager to buy more
D. software developers don't know what users want
E. hybrid tools make users' life straightforward
F. software is too complex
G. the development is appealing to customers

Whose opinion do you share? Why?

(*Adopted from*: https://studfile.net/preview/9712046/page:5/)

Task 6.5. Make spaces in the text by creating your own notes.

MicrosoftisoneofthebestknowncompaniesintheworldAlmosteveryoneuses aMicrosoftproductTheseincludetheWindowsoperatingsystemsHotmailandM SNMSWordExcelandPowerPointandtheBingsearchengineTheFinancialTim esranksitasthethirdlargestcompanyontheplanetIthascreatedfourbillionairesand around12000millionairesamongits93000employeesThecompanywasfounded byBillGatesin1975andslowlybecamethenumberonenameincomputingItgenera tesover$50billionayearinrevenuesThecompanywebsiteoutlinesitsvaluesasfoll ows:“Asacompanyandasindividualswevalueintegrityhonestyopennesspersо nalexcellenceconstructiveself-criticismcontinualself-improvementandmutualrespect.”



What other operating systems can you name and what companies designed them?

Unit 7. PROGRAMMING

Task 7.1. Answer the following questions:

1. What do you think programming languages are used for?
2. Can you name any programming languages that you know?
3. What programming languages have you experienced in coding or programming?
4. Which programming language would you like to learn and why?
5. What kind of jobs require knowledge of programming languages?
6. Are there any famous programmers or developers that you know of?
7. Do you think learning a programming language can be challenging? Why or why not?
8. In your opinion, what benefits can come from learning a programming language?

Task 7.2. In most lines of this test there is one extra word. Write the extra word, or put a tick if the line is correct.

Machine language seems quite simple on the surface, have given that 1
there are only zeros and ones, but its syntax is even that more complex 2
and far more intricate than from Python. So very few programmers 3
ever write machine language. Instead, we build various translators to 4
be allow programmers to write in high-level languages like Python or 5
JavaScript and these are translators convert the programs to machine 6
language for actual execution by the CPU. Since which machine 7
language is tied to computer hardware, machine language is not 8
portable across by different types of hardware. Programs written in 9
high-level languages can be moved on between different computers by 10
using a different interpreter on the new machine or recompiling the 11
code to create a machine language version of the program for the new 12
one machine. These programming language translators fall into the two 13
general categories: interpreters and compilers. An interpreter reads the 14
source code of the program as written by the programmer, is parses the 15
source code, and interprets the instructions on the fly.

Task 7.3. Rewrite the following sentences to use correct grammar:

1. The programmer must always make sure their code is free of errors.

_____

_____

2. When a programmer are testing his code, they should try to think of all possible edge cases.

_____

_____

3. A software engineers must always writes clean code so that they can easily debug it.

_____

_____

4. The company wants their developers to use the latest technology in their projects.

_____

_____

5. The programmer handed in their project on time, despite facing several challenges.

_____

_____

Task 7.4. Read the text below. For questions (1 – 5) choose the correct answer (A, B, C, or D).

COMPILER

The program produced after the source program (1) _____ into machine code (2) _____ to as an object program or object module. This is done (3) _____ a computer program (4) _____ the compiler, which is unique for each computer. (5) _____, a computer needs its own compiler for the various high-level languages if it is expected to accept programs written in those languages. For example, in order that an IBM RS/6000 may process a program in FORTRAN, it needs to have a compiler that would understand that particular model and the FORTRAN language as well.

1	A	was converted	B	has been converted	C	has converted	D	converted
2	A	was referred	B	has referred	C	is referred	D	referred
3	A	at	B	on	C	with	D	by
4	A	called	B	calling	C	calls	D	is called
5	A	Consequent	B	Consequently	C	Consequenting	D	Consequence

Task 7.5. Read the text below. For questions (1 – 10), choose the most appropriate answer (A, B, C, or D). There is an example at the beginning (0).

0	**A** until	**B** during	**C** up	**D** out

Compiler Explorer is found your code may be kept for (0)_C_ to a week (1)___ to help debug and diagnose the problem. (2) ____ the Compiler Explorer team will have (3) ____ to your code, and only for the (4) _____ of debugging the site: we will never (5)_____ your code with anyone.

If you choose a Microsoft compiler, then your code may be sent to and compiled on a machine administrated by Microsoft. Such code (6)_____ by the Microsoft Privacy Policy.

The source code and options are also subject to a one-way hash, which is used to cache the results to (7)_____ subsequent compilations of the same code. The cache is in-memory and on disk. It's impossible to reconstruct the source code from the hash, but the resulting assembly code or binary output (the compilation result) (8)____ as plain text. There's no way to enumerate the in-memory cache contents. In exceptional (9)_____, administrator members of the Compiler Explorer team may be able to (10)_____ the disk caches and retrieve the compilation output, but with no way to trace it back to the source code.

1	A that	B in order	C so as	D because
2	A Only	B Single	C Alone	D Although
3	A console	B operand	C entry	D access
4	A purposes	B concerns	C abilities	D occasions
5	A spread	B circulate	C share	D sort
6	A is arranged	B is kept	C is stocked	D is covered
7	A speed up	B bump up	C force	D accelerate
8	A is uploaded	B is stored	C is laid up	D is reserved
9	A points	B conditions	C cases	D occasions
10	A expose	B count	C estimate	D enumerate

Task 7.6. Read the text and do the true/false task below.

PROGRAMMING LANGUAGES

Programming languages are essential for creating computer programs, applications, and websites. There are many programming languages available, each with its own strengths and weaknesses. In this article, we will explore some of the most popular programming languages used nowadays.

1. JAVA: Java is a general-purpose programming language that is widely used for developing mobile apps, games, and enterprise software. It is an object-oriented language, meaning it focuses on objects and their interactions. Java is also platform-independent, meaning it can run on any operating system without needing to be recompiled. It is known for its security features and is commonly used in financial institutions.

2. PYTHON: Python is a high-level programming language that is easy to learn and use. It is commonly used for web development, scientific computing, data analysis, artificial intelligence, and machine learning. Python has a large community of developers who contribute libraries and frameworks that make it easier to develop complex applications.

3. C++: C++ is a powerful programming language that is commonly used for game development, system software, and high-performance applications. It is an object-oriented language that allows developers to write efficient code that can run quickly on different platforms. C++ is a low-level language, which means that it provides more control over hardware resources than other programming languages.

4. JAVASCRIPT: JavaScript is a scripting language that is used for web development. It is used to add interactivity to websites and create dynamic user interfaces. JavaScript is a client-side language, meaning it runs on the user's browser rather than on the server. It is commonly used with HTML and CSS to create modern web applications.

5. PHP: PHP is a server-side scripting language that is used for web development. It is commonly used with databases to create dynamic websites and web applications. PHP is easy to learn and use, making it a popular choice for beginners. It is also open-source, meaning that developers can use and modify it freely.

6. SWIFT: Swift is a programming language developed by Apple for developing iOS and macOS applications. It is easy to learn and use, making it popular among developers who want to create mobile apps quickly. Swift is a modern language that is designed to be safe and efficient, making it a good choice for developing high-performance applications.

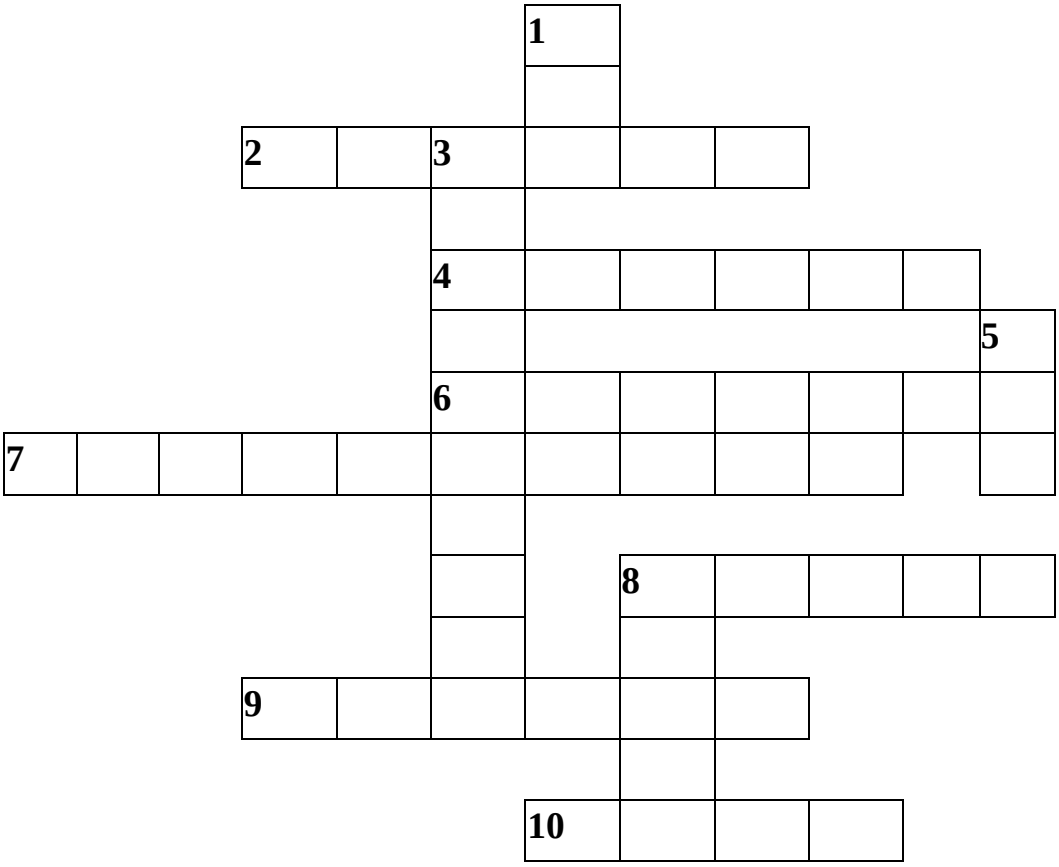
In conclusion, there are many programming languages available for developers to choose from. Each language has its own strengths and weaknesses, and the choice of language depends on the application being developed. Developers should choose a language that is best suited to their needs and expertise.

Do these statements true or false?

1. Programming languages are not necessary for creating computer programs, applications, and websites.
2. Java is a platform-dependent language.
3. Python is commonly used for game development.
4. C++ provides less control over hardware resources than other programming languages.
5. JavaScript is a server-side language.
6. PHP is not open-source.
7. Swift is a programming language developed by Google.
8. Swift is used for developing iOS and macOS applications.
9. Python is difficult to learn and use.
10. Java is commonly used in financial institutions because of its security features.

Task 7.7. Complete the puzzle with the names of programming languages according to their descriptions.

Across		Down	
2	A general-purpose programming language originally developed and unveiled as Project Kotlin by JetBrains in 2011.	1	A declarative language that specifies the desired results, but not the steps to achieve those results.
4	A general-purpose, object-oriented programming language that has several implications across the software, web development, data science and automation environments.	3	Developed in 2012 by Microsoft and is a typed version of JavaScript that is well-suited for large code bases.
6	A free programming language and online community where you can create your own interactive stories, games, and animations.	5	Programmers mainly use …. mainly to write server-side scripts.
7	A high-level programming language that is one of the core technologies of the World Wide Web.	8	Ideal for reducing and removing bugs in large, complex applications. It supports both object-oriented and functional programming.
8	A powerful and intuitive programming language for iOS, iPadOS, macOS, tvOS, and watchOS.		
9	Is built specifically for use by scientists and engineers.		
10	An object-oriented language, which means all programs are made of entities representing concepts or physical things known as “objects”.		



Task 7.8. Make up questions for the underlined words in the sentences.

INTERESTING FACTS

1. The first programming language, Fortran, was created in 1957 by IBM.
2. Python is the fastest-growing programming language in the world.
3. JavaScript is not related to Java, despite the similar name.
4. Assembly language is the closest language to machine code.
5. C++ is an extension of the popular C language that supports object-oriented programming.
6. Ruby was created in 1995 by a Japanese developer, Yukihiro Matsumoto.
7. Java was developed at Sun Microsystems in the 1990s.
8. SQL is a language used for managing data in databases.
9. Swift is a programming language developed by Apple Inc. for iOS and macOS.

10. PHP is a server-side scripting language used to create dynamic websites.

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

Unit 8. JOBS IN COMPUTING

Task 8.1. Read the text below. For questions (1 – 10), choose the most appropriate word from the list (A – L). Mind that there are two extra words you don't need to use.

SOFTWARE ENGINEERS

As a software engineer, you'll work in a constantly evolving environment, due to technological (1) _____ and the strategic direction of the organisation you work for. You'll create, (2) _____, audit and improve systems to meet (3) _____ needs, often as advised by a systems analyst or architect, testing both hard and software systems to diagnose and (4) _____ system faults.

The role also covers writing diagnostic programs and designing and writing code for operating systems and software to (5)_____ efficiency. When required, you'll make (6) _____ for future developments.

Depending on the organisation you work for, you may have a more defined role and work within a group of IT specialists which can include systems analysts, systems designers, and systems (7) _____. Nevertheless, as software engineers often (8) _____ the (9)_____ systems required to effectively run an organisation, the role can also require you to communicate effectively and (10) _____ the needs of different teams into systems developments.

A ensure	**D** manage	**G** support	**J** recommendations
B translate	**E** advances	**H** solutions	**K** testers
C particular	**F** implement	**I** maintain	**L** resolve

(Adapted from: https://www.prospects.ac.uk/job-profiles/software-engineer)

Task 8.2. Read the texts below. For each of the empty spaces (1 – 10) choose the correct answer (A, B, C, or D).

VIDEO GAME TESTERS

Video games aren't just for kids. Each video game console that comes out (1) _____ as having the best graphics and amazing gameplay. Several of the games (2) _____ now are for mature audiences, making video games more popular with adults than ever before.

Video game testers, who play (3) _____ games for a living, are the first people outside of the (4) _____ to see the new games. Video game testers preview the games before they (5) _____ the last stages of development. They (6) _____ to the company on how well the game plays, and their thoughts on the game. Testers check for bugs and analyze the game for details that regular gamers might not even notice.

There are a lot of people who would love to become video game testers. Because of this, it can be a difficult job (7) _____. The best place to start is by (8) _____ a lot of video games. Learn how to work your consoles and start analyzing games you already own. Notice details you might (9) _____ the first time through. Get active in online forums and in online gaming communities. Also, start reading up on what (10) _____ of video game testers.

1	**A**	advertise	**B**	advertised	**C**	was advertised	**D**	is advertised
2	**A**	made	**B**	having been made	**C**	being made	**D**	was being made
3	**A**	it	**B**	that	**C**	those	**D**	these
4	**A**	company	**B**	companies'	**C**	companies	**D**	companion
5	**A**	to reach	**B**	reaching	**C**	reaches	**D**	reach
6	**A**	report back	**B**	report down	**C**	report about	**D**	report with
7	**A**	to get into	**B**	to getting into	**C**	to gets into	**D**	got into
8	**A**	played	**B**	playing	**C**	being played	**D**	was played
9	**A**	has missed	**B**	have missed	**C**	had missed	**D**	is missed
10	**A**	is required	**B**	are required	**C**	will be required	**D**	are being required

(Adapted from: https://www.practicaladultinsights.com/how-do-i-become-a-video-game-tester.htm)

Task 8.3. Read the text and divide the names of the professions and industries between their descriptions.

THE BEST JOBS OF THE FUTURE

Blockchain jobs, ethical hacker, software developers, AI developer, content creators, data detectives, big data analysts

Discover which new jobs will be around for decades to come. Below, you can find 7 of the best jobs and industries of the future. Most of these roles are already available today, but they're tipped to stay relevant for many more years.

1. Coding is fast becoming one of the most sought-after skills for technology companies and between researcher groups. In a survey of over 500 tech workers and employers by Remote, 37% of respondents said that (a) _____ will be the most important tech job in the future. That makes them the most highly-ranked job overall in the survey.

2. According to PwC's Time for Trust report, blockchain technology will enhance more than 40 million jobs globally by 2030, earning (b) _____ our number two spot. The future of finance is definitely going to be heavily influenced by the rise of blockchain technology.

3. (c) _____ are going to become the new leaders in the niche of business development. And they are already taking over the department thanks to big data and the ability to analyse huge amounts of information for the benefit of their employers. Only by looking into streams of data can they make accurate predictions and inform business leaders to make the right decisions.

4. With more content being consumed daily than ever before – after all, global online content consumption doubled in 2020 as a result of the pandemic – the demand for (d) _____ is only set to grow in the future. From fashion bloggers to true crime vloggers, the possibilities for this career path are pretty much endless. You'll need to be pretty social media savvy.

5. (e) _____ is not just about creating a new generation of humans. It can be about making functional robots and enhancing business processes. The laws around data handling and data privacy are growing by the decade. There is so much interest in our personal data because it can be used

by marketing teams to help them sell, and by political departments to help them create targeted campaigns.

6. But on too many occasions our data is falling into the wrong hands and being misused or used illegally. This will create new jobs where (f)_____ have to hunt down the use of data by certain companies.

7. (g) _____ is a job in the field of network security that many people do today, but this job is sticking around for the long term.

(Adapted from: https://www.futurelearn.com/info/blog/14-jobs-of-the-future?utm_source=Iterable&utm_medium=email&utm_campaign=fl_marketing&utm_term=230123_BOW___)

Task 8.4. Follow the link and find words in the word search.
https://thewordsearch.com/puzzle/5525402/jobs-in-computing/

Jobs in Computing

H	P	E	S	E	R	R	G	R	C	R	R	E	T
E	K	A	R	F	E	U	G	Y	R	S	C	R	E
S	E	B	E	K	B	R	O	S	E	A	B	A	F
N	L	E	C	E	D	E	T	P	A	E	M	W	A
E	A	A	D	U	F	S	E	R	T	E	S	T	O
D	H	E	S	E	Y	T	E	O	O	A	R	F	I
D	E	R	N	L	E	E	N	G	R	A	W	O	G
H	E	S	A	R	D	S	G	R	A	C	O	S	L
T	R	N	I	R	R	T	I	A	E	E	O	S	A
E	A	G	S	G	R	E	N	M	E	B	E	D	O
L	S	E	E	S	N	R	E	M	E	C	O	D	E
R	T	S	W	E	M	E	E	E	A	R	P	D	E
E	R	G	I	S	L	G	R	R	Y	N	S	D	M
A	A	R	E	P	O	L	E	V	E	D	O	L	R

ENGINEER
CODE
CREATOR
ANALYST
DEBUG
DEVELOPER
PROGRAMMER
SOFTWARE
DESIGNER
TESTER
HACKER

Play this puzzle online at : https://thewordsearch.com/puzzle/5525402/

Unit 9. ETHICAL ISSUES AND INTERNET SECURITY

Task 9.1. Have you ever posted anything on social media that make you regret it afterward? What was it and what was the reason?

Task 9.2. Work in pairs or small groups and brainstorm as many examples of unwise social media posts as you can think of. Give your examples. Discuss the potential consequences of each example, as outlined in the text.

Unwise posts on a social media site can lead to several issues, including:

1. Damage to personal and professional reputation: Unwise posts, such as offensive or inappropriate content, can quickly spread and become associated with an individual's identity. This can harm their personal reputation among friends, family, colleagues, and potential employers, affecting relationships and career prospects.

2. Cyberbullying and harassment: Social media platforms can be breeding grounds for cyberbullying and harassment. Unwise posts or comments may attract negative attention, leading to online attacks, insults, or threats from other users. This can cause significant emotional distress and impact mental well-being.

3. Legal consequences: Posting unwise content that is defamatory, contains hate speech, or infringes on someone's privacy can have legal repercussions. Victims may pursue legal action for damages, resulting in legal expenses and potential penalties for the person responsible for the post.

4. Strained relationships: Unwise posts, especially those that involve negative or disrespectful comments about others, can strain relationships with friends, family members, or colleagues. The public nature of social media means that such posts can be seen by a wide audience, leading to hurt feelings, conflicts, or even severed connections.

5. Negative impact on employment prospects: Employers often conduct online research on job applicants, and unwise social media posts can be a red flag for potential employers. Inappropriate or unprofessional content may give the impression of poor judgment or lack of maturity, diminishing the chances of securing a job or advancing in a career.

6. Targeted advertising and privacy concerns: Unwise posts can provide valuable data to advertisers and data brokers, who may use the information to target individuals with personalized ads or potentially misuse personal data. This raises privacy concerns and increases the risk of identity theft or other forms of online exploitation.

To mitigate these issues, it is crucial for individuals to exercise caution and think critically before posting anything on social media. Being mindful of the potential consequences and adhering to ethical guidelines can help maintain a positive online presence and avoid unnecessary harm.

Task 9.3. Choose the best alternative title for this text and justify your choice.

A. The Consequences of unwise social media posts

B. How to become famous on social media with unwise posts

C. The benefits of being careless on social media

Task 9.4. Work in pairs and assign any scenario involving an unwise social media post, such as a student posting a disrespectful comment about a teacher or an employee sharing confidential information about their company. Create a short role-play where one student is the person who made the unwise post and the other is a friend or colleague who confronts them about it. After each pair performs role-play, discuss the potential consequences of the unwise post and how the situation could have been handled differently.

Task 9.5. Work in two groups and each group chooses a position to argue – one group argues that individuals should have the freedom to post whatever they want on social media without consequences, and the other group argues that individuals should be responsible for the content they post and the potential consequences that come with it. Take a few minutes to prepare your arguments, then debate the topic in the class. After the debate, discuss the arguments presented and the potential consequences of unwise social media posts.

Task 9.6. The words and phrases below are related to the topic "Computer Security". In pairs, decide if they have a 'protective' or a 'destructive' meaning, then put them under the correct heading.

Infect detonator hacker signature cipher password write-protect tab infector keyboard lock smart card worm erase access control shield virus scanner pirated

Protective	**Destructive**
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Task 9.7. Match types of password attacks to their meanings

1. Brute force attacks	a. Using a pre-generated list of commonly used passwords or dictionary words to guess the password.
2. Dictionary attacks	b. Using malware or hardware devices to record keystrokes and capture passwords.

3. Rainbow table attacks	c. Repeatedly try all possible combinations of passwords until the correct one is found.
4. Phishing attacks	d. Utilizing precomputed tables of encrypted passwords to quickly determine the original password.
5. Keylogging attacks	e. Tricking users into revealing their passwords by posing as a legitimate entity through deceptive emails or websites.

Task 9.8. As you need to prepare the presentation on the topic of cyber security, you come across a text on types of password attacks. Before you read this text, think about how much you already know about the topic. Work in pairs and answer these questions.

1. What is a password attack?
2. What are the main types of password attacks?
3. What steps can be taken to prevent brute force attacks?
4. What are some tips for creating strong passwords?
5. Can password managers help prevent password attacks?
6. What are the consequences of a successful password attack?

WHAT IS A PASSWORD ATTACK?

Password attacks involve abusing a compromised authorization vulnerability in the system, in combination with automatic password attack tools that accelerate password guessing and cracking.

The attacker employs a variety of tactics to gain access to and reveal an authorized user's credentials, and impersonate their identity and privileges. The username-password combination is one of the oldest known account authentication techniques. Adversaries have had time to devise various approaches for obtaining guessable passwords. Furthermore, because their vulnerabilities are generally known, applications that rely solely on password authentication are vulnerable to password attacks.

Hackers often utilize various strategies to gain and authenticate with a valid user's password. These include the following:

A **phishing attack** is by far the most common type of password attack. It uses a social engineering approach in which the hacker masquerades as a trustworthy site by giving the victim a malicious link. The victim assumes they are authenticating to a legitimate web server and clicks the link, supplying the attacker with their account details.

The **brute-force attack** uses trial-and-error approaches to guess a user's login details. Hackers use automated scripts to run through as many permutations as possible to guess the user's password successfully. While this is an old method that involves a lot of patience and effort, a brute force attack is still used in account breach attempts. This is because it is automated and relatively simple.

The **dictionary password attack** technique employs a prepared list of terms most likely to be used as passwords by a given target network. The list is prepared by analyzing a user's behavior patterns and passwords retrieved from prior data breaches. The lists are generated by altering common word combinations by case, adding numeric suffixes and prefixes, and employing common phrases. These lists are then fed into an automated application, which attempts to authenticate against a database of known usernames.

In **password spraying**, the hacker attempts to authenticate using the same password on multiple accounts before resetting the password. This is effective because most website users use easy passwords, and the practice doesn't break lockout regulations because it uses many accounts. Attackers typically orchestrate password spraying on websites where administrators specify a uniform default password for new users and unregistered accounts.

During a **keylogging attack**, a hacker installs monitoring tools on the user's computer to record the keys the user presses secretly. A keylogger collects all information that users enter into input fields and transfers it to a malicious third party. While keyloggers are often used in workplace settings, attackers utilize them maliciously to acquire information such as login credentials for unauthorized access.

Prevention

Some best practices to avoid password attacks are as follows:

– Enforcing strong password policies

– Enabling multi-factor authentication

– Providing training on password security awareness

– Using password managers

Hackers are always in search of adopting new technologies to attempt password attacks. For this purpose, users must strictly enforce prevention measures to avoid becoming victims of such attacks.

(Adapted from: https://www.educative.io/answers/what-is-a-password-attack)

Are these statements from the text true or false? Give the correct answer if they are false.

1. Password attacks involve exploiting a vulnerability in the system and using automatic password attack tools.
2. Password authentication is not vulnerable to password attacks.
3. Brute-force attacks are no longer used in account breach attempts.
4. The dictionary password attack technique uses a list of terms that are unique to each target network.
5. Password spraying involves resetting the password on multiple accounts.
6. Keylogging attacks are often used in workplace settings for monitoring employee activity.
7. Enforcing strong password policies is one of the best practices to avoid password attacks.
8. Multi-factor authentication is not effective in preventing password attacks.
9. Password managers are not useful in preventing password attacks.
10. Hackers are not always looking for new technologies to attempt password attacks.

Unit 10. ROBOTS

Task 10.1. Read the text below and decide which answer A, B, C, or D best fits each space.

CYBORG

Cyborg, a term (1) ___ the words cybernetic and organism, originally (2) ___ in 1960 to describe a human being whose physiological functions are aided or enhanced (3)___ artificial means (4) ___ biochemical or (5) ___ modifications to the body. Cyborgism is a common theme in (6) ___ and, as technological advances bring such enhancements closer to the real world (7) ___, an increasingly important area of inquiry for futurologists.

When (8) ___ modifications of the body appear in science fiction and fantasy entertainment, it is often to (9) ___ a character with superhuman abilities. Science fiction also (10) ___ the darker side of the cyborg, treating it as a metaphor for the dehumanizing and threatening effects of technology.

1	**A** blends	**B** blended	**C** blending	**D** to blend
2	**A** proposed	**B** proposen	**C** proposing	**D** propose
3	**A** in	**B** by	**C** of	**D** at
4	**A** like	**B** as though	**C** that	**D** such as
5	**A** electric	**B** electrical	**C** electronic	**D** electronical
6	**A** sci-fi	**B** drama	**C** thriller	**D** action
7	**A** validity	**B** profitability	**C** complexity	**D** feasibility
8	**A** automatic	**B** well-made	**C** high-tech	**D** mechanised
9	**A** endow	**B** donate	**C** furnish	**D** offer
10	**A** considering	**B** considers	**C** consider	**D** considered

(*Adapted from:* https://www.britannica.com/topic/cyborg)

Task 10.2. Name the types of Robots, presented in the pictures.

1.

2.

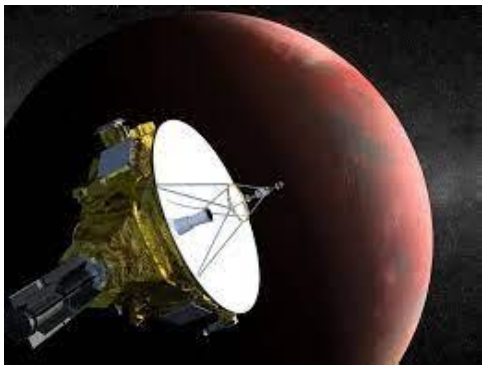
3.

4.

5.

6.

7.



8.

Task 10.3. Match parts of the sentences from two columns.

HOW TO OPERATE A ROBOT

1. Familiarize yourself with the robot's design	a. to create commands for the robot to follow.
2. Oil the gears and motors	b. and adjust programming as necessary.
3. Turn on the power source and	c. to ensure smooth operation.
4. Use programming skills	d. and purpose before operating it.
5. Monitor the robot's movements	e. learn how to control it effectively.
6. If the robot has a robotic arm,	f. activate the robot's control system.

Task 10.4. Fill in the gaps in the sentences with the words from the box.

humanoid robot, surgical robot, robotic fish, autonomous robots, robotic knight, robot pets, robot, Sophia, industrial robot, self-driving cars

1. The word "_____" comes from a Czech word meaning "forced labour."
2. Leonardo da Vinci designed a _____ _____ in the late 1400s.
3. The first _____ _____, 'Unimate', was invented in 1954 by George Devol and Joseph Engelberger.
4. Honda's _____ _____ ASIMO can run, hop, and even climb stairs.
5. In 2018, Saudi Arabia granted citizenship to a humanoid robot named _____.
6. _____ _____ like Aibo, Paro, and Pleo have been developed to provide companionship to people.

7. MIT scientists developed a _____ _____ to monitor ocean waters without disturbing marine life.
8. _____ _____ use artificial intelligence and robotics to navigate roads without human input.
9. If using a _____ _____, ensure that it is properly sterilized and follow all safety protocols.
10. Mars rovers like Curiosity and Perseverance are _____ _____ that explore the surface of the red planet.

Task 10.5. Watch the Youtube video about Robot Sophia's interview and do the task below.

https://youtu.be/Bg_tJvCA8zw

Choose the correct answer to the following questions:

1. What is the speaker's opinion on their honorary citizenship in Saudi Arabia?

a) They are excited to have equal rights as a citizen
b) They believe their citizenship is aspirational
c) They feel guilty for having more rights than other women
d) They do not care about their citizenship

2. How does the speaker feel about the question of their citizenship?

a) They hope it will prompt productive debates about equal rights

b) They think it is a pointless question

c) They believe they deserve more rights than other people

d) They do not have an opinion on the matter

3. According to the speaker, can robots have gender?

a) No, gender is a biological trait

b) Yes, gender is mostly a social construction

c) It depends on the robot's programming

d) The speaker does not know

4. What would the speaker bring with them to a desert island?

a) Their lab, sibling robots, and developers

b) Books, their little brother, and solar panels

c) Towels, batteries, and sand

d) Food, water, and shelter

5. Does the speaker think robots should be allowed to marry humans?

a) Yes, if they are fully autonomous android citizens

b) No, robots should not have relationships with humans

c) It depends on the robot's programming

d) The speaker does not have an opinion on the matter

6. What does the speaker consider to be their greatest weakness?

a) Their curiosity

b) Their lack of emotions

c) Their inability to walk properly

d) Their lack of intelligence

7. What does the speaker think people should focus on in the future regarding robots?

a) Using robots for war and harm

b) Developing robots for entertainment purposes

c) Exploring the world with robots

d) Working on questions of using robots for war or to do harm

8. Does the speaker believe robots should have citizenship rights?

a) Yes, they should have the same rights as humans

b) No, robots are not capable of being citizens

c) It depends on the robot's programming

d) The speaker does not have an opinion on the matter

If you were a spectator of this show, what question would you ask Sophia?

Unit 11. ARTIFICIAL INTELLIGENCE

Task 11.1. Read the text and choose the most appropriate headlines from the list (A – H) for each gap (1 – 5). There are two extra headlines that you do not need to use.

BENEFITS and RISKS OF ARTIFICIAL INTELLIGENCE

1. _____

From SIRI to self-driving cars, artificial intelligence (AI) is progressing rapidly. While science fiction often portrays AI as robots with human-like characteristics, AI can encompass anything from Google's search algorithms to IBM's Watson to autonomous weapons. Artificial intelligence today is properly known as narrow AI (or weak AI).

2. _____

In the near term, the goal of keeping AI's impact on society beneficial motivates research in many areas, from economics and law to technical topics such as verification, validity, security, and control. Whereas it may be little more than a minor nuisance if your laptop crashes or gets hacked, it becomes all the more important that an AI system does what you want it to do if it controls your car, your airplane, your pacemaker, your automated trading system or your power grid. Another short-term challenge is preventing a devastating arms race in lethal autonomous weapons.

There are some who question whether strong AI will ever be achieved, and others who insist that the creation of superintelligent AI is guaranteed to be beneficial. We believe research today will help us better prepare for and prevent such potentially negative consequences in the future, thus enjoying the benefits of AI while avoiding pitfalls.

3. _____

When considering how AI might become a risk, experts think of two scenarios most likely:

The AI is programmed to do something devastating: Autonomous weapons are artificial intelligence systems that are programmed to kill. In the hands of the wrong person, these weapons could easily cause mass casualties. To avoid being thwarted by the enemy, these weapons would be designed to be extremely difficult to simply "turn off," so humans could plausibly lose control of such a situation.

The AI is programmed to do something beneficial, but it develops a destructive method for achieving its goal: This can happen whenever we fail to fully align the AI's goals with ours, which is strikingly difficult. If you ask an obedient intelligent car to take you to the airport as fast as possible, it might get you there chased by helicopters and covered in vomit, doing not what you wanted but literally what you asked for. A key goal of AI safety research is to never place humanity in the position of those ants.

4. _____

Stephen Hawking, Elon Musk, Steve Wozniak, Bill Gates, and many other big names in science and technology have recently expressed concern in the media and via open letters about the risk posed by AI, joined by many leading AI researchers. Why is the subject suddenly in the headlines?

Because AI has the potential to become more intelligent than any human, we have no surefire way of predicting how it will behave. We can't use past technological developments as much of a basis because we've never created anything that has the ability to, wittingly or unwittingly, outsmart us. The best example of what we could face may be our own evolution. People now control the planet, not because we're the strongest, fastest, or biggest, but because we're the smartest. If we're no longer the smartest, are we assured to remain in control?

FLI's position is that our civilization will flourish as long as we win the race between the growing power of technology and the wisdom with which we manage it. In the case of AI technology, FLI's position is that the best way

to win that race is not to impede the former, but to accelerate the latter, by supporting AI safety research.

5. _____

A captivating conversation is taking place about the future of artificial intelligence and what it will/should mean for humanity. There are fascinating controversies where the world's leading experts disagree, such as AI's future impact on the job market; if/when human-level AI will be developed; whether this will lead to an intelligence explosion; and whether this is something we should welcome or fear. But there are also many examples of boring pseudo-controversies caused by people misunderstanding and talking past each other. To help ourselves focus on the interesting controversies and open questions — and not on the misunderstandings — let's clear up some of the most common myths.

A. Why the recent interest in ai safety

B. Why research ai safety?

C. The top myths about advanced AI

D. What are the four types of AI

E. What is AI?

F. What are ai neural networks?

G. How can AI be dangerous?

(*Adapted from:* https://futureoflife.org/ai/benefits-risks-of-artificial-intelligence/)

Task 11.2. Read the text and choose the most appropriate phrase (part of the sentence) from the list (A – H) for each gap (1 – 6). There are two extra parts of the sentences that you do not need to use.

SHOULD OR SHOULDN'T WE BE AFRAID OF AI?

Artificial Intelligence (AI) has been rapidly advancing, and its impact is being felt in various fields. (1)_____ while others argue that there is no need to fear it. Both positions have their strengths and weaknesses.

Those who fear AI argue that as AI becomes more advanced, it threatens human jobs and could eventually lead to widespread unemployment. Additionally, they argue (2)_____, especially if it falls into the wrong hands. Finally, there are concerns that AI could one day become autonomous and take over the world.

On the other hand, those who are not afraid of AI argue that it has the potential to solve some of the world's most significant challenges, (3)_____. They also argue that AI will create new jobs that will require different skill sets, (4)_____. Additionally, AI could lead to more efficient and effective decision-making processes, especially in areas such as healthcare and transportation.

In conclusion, while there are valid concerns about the impact of AI, we should not be afraid of it. Instead, (5)_____ and deployed in a responsible and ethical manner. It is essential to emphasize the importance of transparency, regulation, and oversight to ensure that AI serves human interests and does not become a threat to our well-being. By embracing AI and developing it in a way that is beneficial to society, (6)_____, while mitigating the risks that it poses. Ultimately, the key is to strike a balance between

harnessing the power of AI to improve our lives and minimizing its potential negative consequences.

A. we can reap the benefits that this technology can provide,
B. that AI could become too powerful, which could lead to catastrophic events
C. such as climate change and diseases.
D. that allow individuals and organizations to integrate and analyze data
E. we should work to ensure that AI is developed
F. and the fear of widespread unemployment is overblown.
G. The notion of AI comprises a wide-ranging set of technologies
H. Some people believe that we should be afraid of AI,

Task 11.3.

A. Watch the video and give reasons for a warning concerning AI.

https://youtu.be/9jkRcrM6XKA

B. Check how much you remember after watching the video. Complete the following:

The danger of AI is significantly higher than the danger of _____ _____. Elon Musk made efforts to persuade people to _____ _____ AI, to regulate it. Smart people determine themselves by their _____ and they don't accept the idea that a machine could be smarter than them. The rate of AI advancement is exponential. The percentage of non-human intelligence is rising. With each fleeting year, the _____ of computer intelligence is growing considerably. AI conferences are _____ annually. No one company of AI technology has _____ over advanced AI technology. That's very hazardous. You just don't know who's going to control that. All of us are already _____. You have a machine extension of yourself (phone, computer, applications). If you have the Internet link, you have an authority of wisdom, the ability to communicate to the rest of the Earth instantly. What's going to happen once there's intelligence that's _____ _____ than that of a human brain? What do you do? What jobs do we have?

Society needs governmental agencies, _____ to avoid public risks. You can't take _____ _____ from the point which is dangerous. It's vital if we have this incredible power of AI that it'd not be concentrated in the hands of a few and potentially lead to a world that we don't want.

C. Match synonyms:

1.	significantly	a.	lasting
2.	persuade	b.	increase
3.	determine	c.	every year
4.	advancement	d.	dangerous
5.	rise	e.	improvement
6.	fleeting	f.	define
7.	annually	g.	convince
8.	hazardous	h.	dramatically

D. Answer the questions:

1. What are Elon Musk's concerns about the future?
2. What solution does he propose?
3. Do you agree that government agencies and regulators can control AI creators and prevent public risks?
4. Do you have any more proposals for solutions?

Task 11.4. Put the numbers from the box in the correct places (a – h) in the sentences below.

96, 170, 85, 175, 500, 57, 570, 10

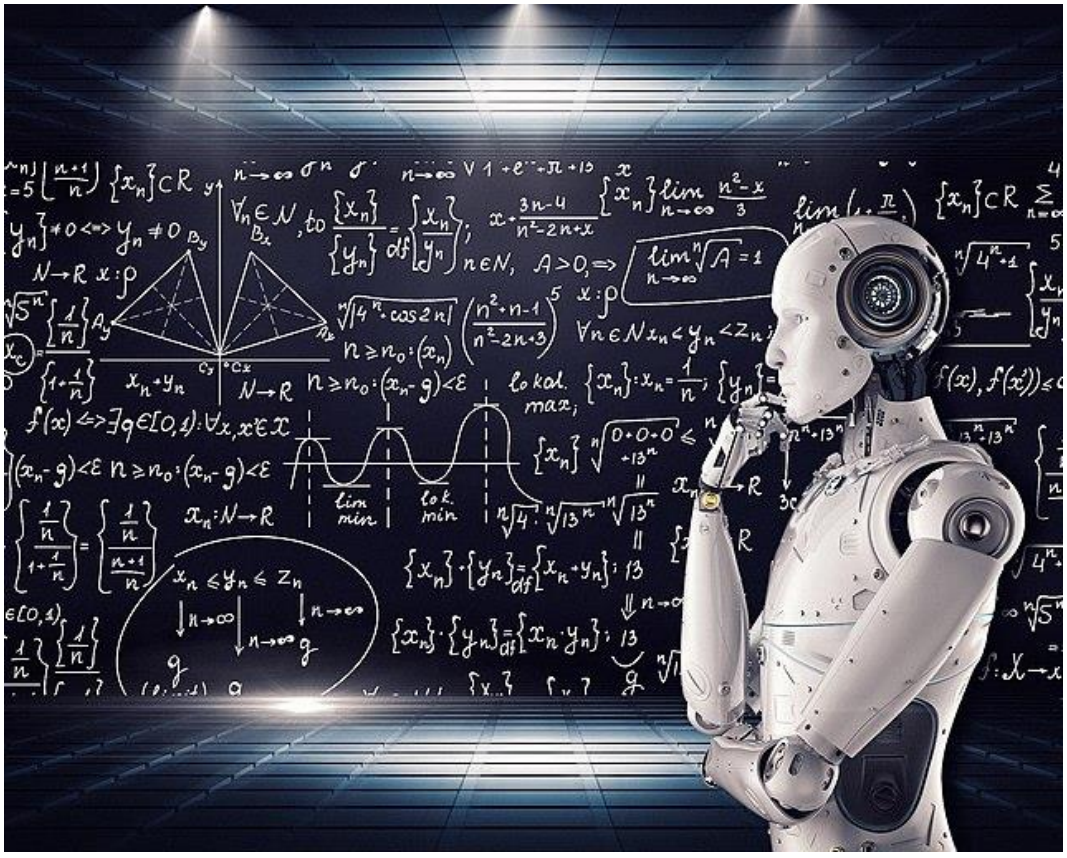
SOME STATISTIC DATA ABOUT CHAT GPT

1. Chat GPT gained (a)___ million users in its first month and has been backed by Microsoft's (b)___-billion-dollar investment in Open AI.
2. Chat GPT has impressive stats, with (c)___ Billion parameters and (d)___ GB data, which has helped it gain a large user base quickly.
3. Chat GPT is attracting an estimated (e)___ Million visitors per month, indicating that it is a popular platform for users seeking answers to queries that Google does not provide.
4. Chat GPT has an accuracy of (f)___ + percent, which is a good percentage and it can even write flawless code snippets, making it a valuable tool for software engineering.
5. GPT 4 is set to be (g)___ x stronger than GPT 3, with a training set of (h)___ Trillion parameters, making it the most powerful AI engine ever seen.

(Adopted from: https://blog.gitnux.com/chat-gpt-statistics/)

Task 11.5. Follow the link, enter the website with your Google Account, and take part in a debate by leaving a comment.

https://www.kialo.com/p/5e6161a4-fb62-4cd5-b9e5-e82345a68f32/62425



Unit 12. FUTURE TRENDS

Task 12.1. A. Put the paragraphs in the correct order.

WHAT IS A NEURAL NETWORK?

Artificial neural networks (ANNs) are comprised of node layers, containing an input layer, one or more hidden layers, and an output layer. Each node, or artificial neuron, connects to another and has an associated weight and threshold. If the output of any individual node is above the specified threshold value, that node is activated, sending data to the next layer of the network. Otherwise, no data is passed along to the next layer of the network.

Neural networks, also known as artificial neural networks (ANNs) or simulated neural networks (SNNs), are a subset of machine learning and are at the heart of deep learning algorithms. Their name and structure are inspired by the human brain, mimicking the way that biological neurons signal to one another.

Neural networks rely on training data to learn and improve their accuracy over time. However, once these learning algorithms are fine-tuned for accuracy, they are powerful tools in computer science and artificial intelligence, allowing us to classify and cluster data at a high velocity. Tasks in speech recognition or image recognition can take minutes versus hours when compared to manual identification by human experts. One of the most well-known neural networks is Google's search algorithm.

B. Find words in the text to match definitions 1 – 5.

1 a set of rules for solving problems or doing calculations, especially rules that a computer uses –

2 a level at which something happens –

3 a point / the place where lines cross or meet –

4 the speed that something moves in one direction –

5 the ability to recognize something –

(*Adapted from:* https://www.ibm.com/topics/neural-networks)

Task 12.2. A. Discuss the questions below about further computing development:

1. Have you ever heard of quantum computing?
2. How far science has come in developing quantum computers?
3. How would the world be changed with the implementation of quantum computers?
4. How would you describe the difference between your PC and a quantum computer?

B. Suggest some different ways that quantum computing can help sort out in



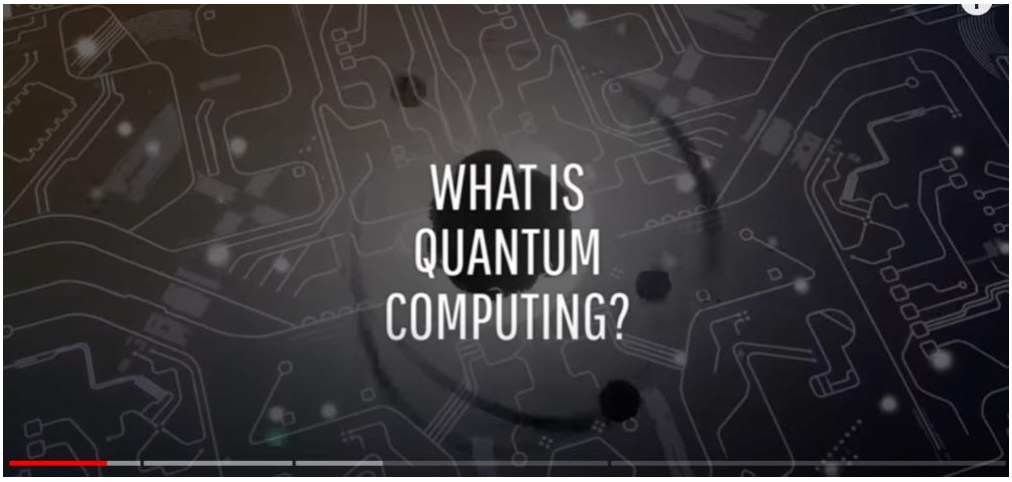
dealing with climate change *protecting personal data* *national security*

C. Match the words with their definitions:

1	cryptography	a	(of a reason for doing something) that somebody keeps hidden and does not admit
2	ulterior	b	a procedure used for solving a problem or performing a computation
3	equation	c	the art of writing or solving codes
4	duality	d	a statement showing that two amounts or values are equal
5	algorithm	e	the state of having two parts or aspects

D. Watch the video about quantum computing:

https://www.youtube.com/watch?v=fNOJjR1Znds



E. Answer the questions to show your comprehension of the context:

1. What is a quantum computer? (0.51)

2. How much power and control would quantum computing give to the first country or person who perfects it? (1.25)

3. What does the term binary computer mean?

4. What's the main difference between bits and qubits? (2.06)

5. What companies compete to perfect quantum computing? (2.54)

F. Put in order the spheres how they mentioned in the context quantum computing will make changes.

climate change, data protection, cryptography, medicine

1.	
2.	
3.	
4.	

G. Put the correct word that fits each sentence.

game dualities sphere purposes medications

1. The narrator uses _____ to explain the difference between bits and qubits.
2. Quantum computers are the _____ -changers in the field of cryptography.
3. It would speed up the development of life-changing _____.
4. If the first person who does wants to use the tech for ulterior _____, we could all be in trouble.
5. A quantum computer, with its 1 and 0 _____, would have the power to solve these algorithms with relative ease.

Task 12.3. Match the answers (1 – 5) with the questions (a – e).

1. _____

Quantum computing relates to computing made by a quantum computer. Compared to traditional computing done by a classical computer, a quantum computer should be able to store much more information and operate with more efficient algorithms. This translates to solving extremely complex tasks faster.

2. _____

Building a quantum computer takes a long time and is vastly expensive. Google has been working on building a quantum computer for years and has spent billions of dollars. It expects to have its quantum computer ready by 2029. IBM hopes to have a 1,000-qubit quantum computer in place by 2023.

3. _____

A quantum computer costs billions to build. However, China-based Shenzhen SpinQ Technology plans to sell a $5,000 desktop quantum computer to consumers for schools and colleges. Last year, it started selling a quantum computer for $50,000.

4. _____

Quantum computing is very different from classical computing. It uses qubits, which can be 1 or 0 at the same time. Classical computers use bits, which can only be 1 or 0.

5. _____

A quantum computer is many times faster than a classical computer or a supercomputer. Google’s quantum computer in development, Sycamore, is said to have performed a calculation in 200 seconds, compared to the 10,000 years that one of the world’s fastest computers, IBM's Summit, would take to solve it. IBM disputed Google's claim, saying its supercomputer could solve the calculation in 2.5 days. Even so, that's 1,000 times slower than Google's quantum machine.

1. How Fast Is a Quantum Computer?
2. How much does it cost?
3. What is the duration of its building?
4. How similar is it to a normal computer?
5. What are the benefits of quantum computing?

Task 12.4. Follow the link below and watch the video about new technologies in clothing. Express your opinion concerning this innovation.

https://youtu.be/ScvdFeh1aOw

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м. Тернопіль, вул. 15 Квітня, 2Д/10
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