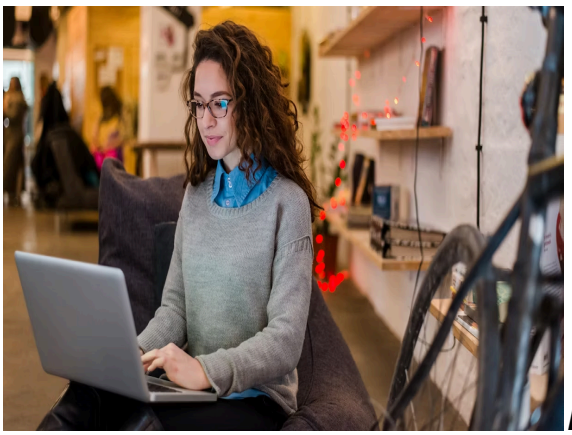
UNIT 1

1- READING

a- Read the following article about Python and answer the questions



Python is one of the most popular programming languages in the world . It's used in everything from machine learning to building websites and software testing. It can be used by developers and non-developers alike.

What is Python?

Python is a computer programming language often used to build websites and software, automate tasks, and conduct data analysis. Python is a general-purpose language, meaning it can be used to create a variety of different programs and isn't specialized for any specific problems. This versatility, along with its beginner-friendliness, has made it one of the most-used programming languages today.

What is Python used for?

Python is commonly used for developing websites and software, task automation, data analysis, and data visualization. Since it's relatively easy to learn, Python was adopted by many non-programmers such as accountants and scientists, for a variety of everyday tasks, like organizing finances.

"Writing programs is a very creative and rewarding activity," says University of Michigan and Coursera instructor Charles R Severance in his book Python for Everybody. "You can write programs for many reasons, ranging from making your living to solving a difficult data analysis problem to having fun to helping someone else solve a problem."

What can you do with python? Some things include:

- *Data analysis and machine learning*
- *Web development*
- *Automation or scripting*
- *Software testing and prototyping*
- *Everyday tasks*

Why is Python so popular?

Python is popular for a number of reasons. Here's a deeper look at what makes it so versatile and easy to use for coders.

- *It has a simple syntax that mimics natural language, so it's easier to read and understand. This makes it quicker to build projects, and faster to improve on them.*
- *It's versatile. Python can be used for many different tasks, from web development to machine learning.*
- *It's beginner friendly, making it popular for entry-level coders.*
- *It's open source, which means it's free to use and distribute, even for commercial purposes.*
- *Python's archive of modules and libraries—bundles of code that third-party users have created to expand Python's capabilities—is vast and growing.*
- *Python has a large and active community that contributes to Python's pool of modules and libraries, and acts as a helpful resource for other programmers. The vast support community means that if coders run into a stumbling block, finding a solution is relatively easy; somebody is bound to have encountered the same problem before.*

a- - What are some common uses of Python mentioned in the text ?

b- Why is Python considered popular?

c- Explain what is meant by Python being "open source."

d- How does the community contribute to Python's popularity and usefulness?

e- Can you think of a task not mentioned in the passage that could also be accomplished using Python? If yes, explain briefly.

***2- GRAMMAR :** Present simple and past simple: Active and passive voice*

a- Which verb tenses are used in the sentences underlined? Are they examples of Active or passive voice?

b- Complete the following sentences using the verbs in the box and taking into account the tense and the voice.

use (neg)- design-rely-work-create- have- run

a- Python …… on different platforms (Windows, Mac, Linux, Raspberry Pi, etc).Present-active

b- Python …… syntax that allows developers to write programs with fewer lines than some other programming languages. Present -active

c- Python ……. on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick. Present-active

e- It …….. by Guido van Rossum, and released in 1991.Past-passive

d- Python…… new lines to complete a command, as opposed to other programming languages which often use semicolons or parentheses.Present-active

f- Python …….. on indentation, using whitespace, to define scope; such as the scope of loops, functions and classes. Other programming languages often use curly-brackets for this purpose. Present -active

g- Python …….. for readability, and has some similarities to the English language with influence from mathematics. past- passive

3- VOCABULARY - JAVA SCRIPT

a- Complete the sentences with an appropriate word .

code- statements- instructions- keywords-user- brackets

a- A computer program is a list of ——---------- to be executed by a computer.

b- In a programming language, these programming instructions are called ——----------.

c- A JavaScript function is a block of JavaScript ——---------- that can be executed when "called" for.

d- For example, a function can be called when an event occurs, like when the ——---------- clicks a button.

e- JavaScript statements can be grouped together in code blocks, inside curly ——---------- {...}.

f- JavaScript ——---------- are used to identify actions to be performed.

4- READING

a- Read the company profiles and find words that match these definitions.

1 a company or companies that sell things (Futachiba) _____, _____
2 companies that make things to sell (Futachiba) _____
3 factories (Futachiba) _____
4 things a company sells (Futachiba) _____
5 using software that runs and stores information on the internet (IBGroup) _____
6 customers (IBGroup) _____
7 start selling a new product (Digital World) _____

Futachiba

Futachiba is a leading international provider of computer hardware. The company is among the top five suppliers internationally of servers and among the top ten manufacturers of laptop computers. We have production facilities in six countries and we sell our products to almost every country in the world. With service centres in all our major markets, we provide a very high level of customer service.

IBGroup

We are a fast-growing private company that supplies cloud computing services internationally. Our products include online office applications such as word processing, spreadsheet, presentation and database programs, which people can use on the internet anywhere and at any time. Our clients include major corporations, as well as many small and medium-sized companies.

Digital World

At Digital World we proudly design the most popular games in the world! We are excited every day by the great feedback we get from our favourite people: our game-playing customers. You can play our award-winning games on all the major computer operating systems, including Windows and Mac OS. Many of them are also available for Apple iOS and Android. Our wonderful staff started developing games in 2005 and continue to work on new, highly entertaining products. We expect to launch the next version of our biggest game, *War of the Suns*, next month.

b- Think of two important IT companies and write a description about them. You may take the following items into account:

- *Name of the company : Its name is……..*
- *Location- headquarter: It´s situated in ……./It´s headquarter is in…*
- *Branches: There are ……*
- *Number of employees worldwide: It has……..*
- *Main activities/ service*

5- READING

a- Read and decide whether the sentences are T (true) or F(false)

META: A Social Technology Company.

1 *The word "META" comes from the Greek word meaning "beyond", and for the company's founder, it symbolizes that "there is always more to build, and there is always a next chapter to the story".* ***2*** *This multinational technology conglomerate is based in Menlo Park, California and it has an annual income of US$23.20 billion (2022).*

On October 28, 2021, Facebook changed its name from Facebook, Inc. to META Inc. The company owns and operates the following popular platforms: Facebook, Instagram, Threads, and WhatsApp, among other products and services. In addition, Meta also has Oculus VR (which is integrated into Reality Labs).

3 *Meta is one of the world's most valuable companies and among the ten largest publicly traded corporations in the United States. In July 2023,* ***4*** *it was ranked one of the Big Five Information Technology companies together with Google, Amazon, Apple, and Microsoft. In 2022,* it had less th**an** *70,000 employees, this year,****5*** *it has 71,469 employees and 30 % of them work in offices around the world.* ***6*** *The largest one is in London with over 5,000 staff.*

Mark Zuckerberg is the Executive Chairman and CEO at Meta Inc. He is an American business magnate, a computer programmer, an internet entrepreneur, and a philanthropist. ***7*** *He grew up outside New York City and dropped out of Harvard after* ***8*** *Facebook was founded.*

*Zuckerberg's net worth is estimated to be around $108 billion.****9*** *His fortunes are larger now (with META) than with Facebook****.*** *Priscilla Chan met Zuckerberg at Harvard University and married in 2012.****10*** *Zuckerberg's wife spends most of her time on the Chan Zuckerberg Initiative, which is the couple's philanthropy project.*

The Zuckerberg family includes three kids, Maxima, 7; August, 5; and baby Aurelia, born in March 2023. There's a recurring theme that ties their three daughters' names together: ***11*** *all are linked to the names of Roman emperors, a part of history that fascinates Zuckerberg.*

There are many expectations for 2024. META wants to open new offices in other cities in Europe and in South America. Mark also plans to expand the "metaverse" that is a set of virtual spaces where people can create and explore with other people who aren't in the same physical space as them. In the metaverse, people can get together with friends and family, work, learn, play, exercise and shop!

a- Meta is not among the ten largest publicly traded corporations in the United States. (True/False)

b- In 2022, Meta had over 70,000 employees. (True/False)

c- The largest Meta office is located in London. (True/False)

d- Mark Zuckerberg's net worth is estimated to be around $108 billion. (True/False)

e- META plans to open new offices only in Europe. (True/False)

f- The metaverse is a set of virtual spaces where people can´t interact with others. (True/False)

g- Meta is ranked among the Big Five Information Technology companies. (True/False)

GRAMMAR

***a-* Which of the sentences underlined in the text are examples of** :

- Present simple (active voice)
- Present simple (passive voice)
- Past simple (active voice)
- Past simple (passive voice)
- Comparative form
- Superlative form

b- Complete the text with the adjectives in the comparative form.

great- wide- sophisticated- fast- complex- appealing-

Data analysis and machine learning

Python has become a staple in data science, allowing data analysts and other professionals to use the language to conduct 1 _____ statistical calculations, create 2 _____ data visualizations, build 3 _____machine learning algorithms, manipulate and analyze data effectively and complete other data-related tasks with 4 _____efficiency.Python can build a5 _____range of different data visualizations, such as line and bar graphs, pie charts, histograms, and 3D plots. Python also has a greater number of libraries that enable coders to write programs for data analysis and machine learning 6 _____ and very efficiently, such as TensorFlow and Keras

c- Complete the text with adjectives in the superlative or comparative form. Use the ones between bracket*s*

Python is widely regarded as one of _____ (good1) programming languages for artificial intelligence (AI) development. Its syntax is known for being intuitive and _____ (2 easy) to understand than any other language, making it top choice for AI projects. Python offers _____(large3) ecosystem of libraries and frameworks, providing developers with an unparalleled set of tools for AI development. Among these, TensorFlow, PyTorch, and Keras stand out as _____ (remarkable 4) machine learning

frameworks. Moreover, Python's community support is _____(strong5) than any other, with a vast number of developers contributing to open-source projects, making it _____ (extensive5) programming community for AI enthusiasts.

d- Complete with COMPARATIVE, SUPERLATIVE or AS….AS ADJECTIVES FORMS .

1. An electronic database is (fast) …… a card index system.

2. A mainframe computer is (powerful) ……..…… a PC.

3. Desktops PCs are (suitable) ……ones

for home use.

4. Firefox is (good) ……...than Internet Explorer.

5. Experts are not sure which is (dangerous) …….……... .computer virus.

6. Jobs in information technology are widely varied, although many do require some level of …….(high) education.

7. One of …… (important) factor in assessing a network´s backup needs is whether or not workstations need to be backed up , and if so, how often.

e- Fill in the blanks with the appropriate form of the verb in either present simple or past simple tense:

a- The program _____ (run) smoothly yesterday, but it _____ (crash) frequently.

b- Every morning, the developers _____ (check) the code for errors before starting new tasks.

c- Last week, our team _____ (release) a major update to the application.

d- The software engineer always _____ (write) clean and efficient code.

e- Yesterday, the team leader _____ (assign) tasks to each member during the morning meeting.

f- Bugs _____ (occur) occasionally in the previous version, but we _____ (fix) them promptly.

g- The system administrator _____ (update) the servers regularly to ensure security.

h- The software development process _____ (involve) several stages from planning to deployment.

i- Last month, the team _____ (conduct) a thorough review of the codebase to optimize performance.

j- Normally, the QA team _____ (test) new features before they are deployed to production.

***RELATIVE PRONOUNS – RELATIVE CLAUSES**:*

f- Which are the antecedents to the relative pronouns in the following sentences? .

*1. That's the CPU **which** I'd like to buy.*
*2- The microprocessor coordinates the activities **that** take place in the computer.*
*3- Last night I met someone **who** works for GM as a computer programmer*
*4- . A co-processor is a silicon chip **that** carries out mathematical operations at a very high speed.*
*5- Donkey is a really simple game in **which** a driver tries to avoid hitting donkeys that pop up in the middle of the road*
*6- Employers want to hire people **who** want a job with their company.*
*7- An application program (app or application for short) is a computer program **which** is designed to perform a group of coordinated functions, tasks, or activities for the benefit of the user.*
*8- In an academic context, the Association for Computing Machinery defines IT as "undergraduate degree programs **that** prepare students to meet the computer technology needs of business, government, healthcare, schools, and other kinds of organizations.*

g- Choose between "whose/where/which/who"

*. 1. A terminal is a device **whose/where** keyboard and display are used for sending and receiving data over a communication link.*

*2. That's the website **whose/whe**re you can find the information you need.*

*3. Non-volatile memory (NVRAM) is the random-access memory **whose/where** data is retained when power is turned off.*

*4. I recently went back to the office **where/ whose** I forgot my laptop.*

*5. This is Jane Stewart **whose/where** Company develops software.*

*6. The basic job of a computer is the processing of information. For this reason, computers can be defined as devices **whose/which** accept information.*

*7. The program **which/who** tells the computers what to do and the data where/which provides the information needed to solve, are kept inside the computer in a place called memory.*

*8. The engineer is an important professional **who / whose** designs the different parts which / where make up the computer equipment.*

6- READING

PREDICTIONS

a- Read the following paragraphs about the predictions for 2016. Did these predictions really fulfill?

"The cloud has introduced the biggest change to security in a decade. Fundamentally the same security principles apply. Organizations will continue to need to properly implement network, operating system, and database security. However, how these are implemented is significantly different. The cloud has characteristics that make the old methodologies and tools ineffective. The cloud is ephemeral, elastic, and auto-scaling. These defining characteristics make implementing everything from intrusion detection to vulnerability management to perimeter assessment very different." – Aaron Newman
"Get some freedom to build net new capabilities" – Brad Schulteis, Rackspace "The top types of business applications that will move to the cloud in 2016 will be brand new, socially focused and collaborative environments. IT will stop being asked to simply MIGRATE existing capabilities into the cloud, and instead, get some freedom to build net new capabilities that truly take advantage of the disruptive nature of the cloud." – Brad Schulteis, Rackspace
'Installing and managing infrastructure has been commoditized so that owning is no longer the better option" – Aaron Newman, CloudCheckr "Over the past few years, we have already seen everything from email to CRMs to ERPs move to the cloud. In 2016, we will see the largest movement in Infrastructure as a Service (IaaS). The underlying servers, databases and networks that made up your data center can be moved to the public cloud very effectively. Installing and managing infrastructure has been commoditized to the point that

owning your own is rarely a better option. We have even seen organizations such as the CIA adopting IaaS".

b- Which verb tense is used for future predictions? Underline examples

c- Recognize and translate:
a- *comparative and superlative structures.*
b- Prepositional verbs (multi-words verbs)
c- Passive voice structures
d- Contextual reference: "these" (l.3) "that" (l.4) "we" (l.14)
e- What do these acronyms stand for? CRM - ERP - IaaS

f- Complete the chart

	Characteristics
Cloud	
Business apps	

7- FUTURE TECHNOLOGY PREDICTIONS AND SCENARIOS

How far will technology advance in 20, 30, even 50 years from now? How will it affect our lives?

Here are some technologies and scenarios predicted by science fiction writers, futurists, technology experts, me and you. Tech trends that will transform the future . By Kati Townsley — Carroll Technology Council .

When you are a part of a group of tech savvy citizenry, technology leaders and innovators; tech trends are a part of the conversation. I asked members of the Carroll Technology Council to think about "what are the trends of the future and how can we prepare ourselves?" Here are some of our immediate thoughts:

Artificial intelligence*: Potentially set to transform business in ways we've not seen since the Industrial Revolution; fundamentally reinventing how businesses run, compete and thrive. When implemented holistically, these technologies help improve productivity and lower costs, unlocking more creative jobs and creating new growth opportunities.*

Healthcare*: No matter how difficult the regulations or the complexity of human biology*

makes breakthroughs in medicine, the pace of innovation in healthcare is amazingly fast and medicine and healthcare are improving with the digital revolution. What happens next depends on patients, physicians, researchers and developers to define the future of healthcare.

Autonomous vehicles: *There is speculation that fleets of autonomous vehicles will not be limited to urban areas. As vehicles become smarter and more automated, there will also be advances in data communication between cars on the road and between cars and roadside installations. In other words, there is a need to teach those "autonomous" cars to consider real-time data about their surroundings and other vehicles.*

Virtual and augmented reality*: Both stimulate conversations as they allow us to go beyond the limitations of physical tools to do anything that can be computed. Opportunities, education and experiences are endless.*

Robot automation*: It is estimated that technology could replace up to 375 million employees worldwide by 2030. In turn, displacing workers at every stage of their careers forcing employees to reeducate or retrain over time to find new employment opportunities.*

Drones: *Still in the infancy stage in terms of mass adoption and usage, drones have already broken through rigid traditional barriers in industries which otherwise seemed impenetrable by similar technological innovations. Drones have become central to the functions of various businesses and governmental organizations and will be vital tools of the future across every industry sector.*

"Internet of Everything." *This will overshadow the "Internet of Things," the existence of the internet through PCs, laptops, smartphones or tablets will soon be passé. In the future everything that you can imagine, from people to places, will be digitized and networked. This transformation will pointedly reshuffle the workings of sectors like transportation, healthcare, retail and analytics.*

Space exploration/Mission to Mars: *Thanks to programs funded by NASA, SpaceX and others, this is an event that we could witness during our lifetime. In reality, no one can really predict how the future will shake out, but we can make some educated guesses. If you'd like to be a part of the conversation, I invite you to attend meetings of the Carroll Technology Council or contact me to share your thoughts. Kati Townsley is the executive director of the Carroll Technology Council, Inc. She can be reached at kati@carrolltechcouncil.org. For more information about the Carroll Tech Council, visit www.carrolltechcouncil.org.*

a- Answer these questions

1- Who wrote the article? Who is she/he? Where does she/he work?

2- In which of the areas mentioned in the article would an analyst, a programmer or developer be needed?

3- Can you glimpse some advantages and disadvantages of these future technologies? Write about them in Spanish.