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# TRABAJOS PRÁCTICOS

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2022



APELLIDO Y NOMBRE: .....

LEGAJO: .....

CARRERA: .....

### **TRABAJO PRÁCTICO N° 1**

- **Frase Nominal:** El sustantivo, plurales, sustitutos del sustantivo, pre y posmodificación.

#### **A. Traduzca las siguientes frases nominales. Todas son títulos de trabajos de investigación.**

1. Free vibration analysis of thin plates: Bare versus Stiffened  
Bhargav Reddy Isanaka, M Abdul Akbar, Biraja Prasad Mishra and Vinod Kushvaha
2. Numerical study on flexural performance of RC beam with various confinement patterns  
Talapa Reddy Suman Kumar and I Yamini Sreevalli
3. Advances in Self-Healing Material Technology
4. Versatile high power pulse-laser source for pico- and nanosecond optical pulses  
Armin Liero, Andreas Klehr, Andrea Knigge and Wolfgang Heinrich
5. Supply chains of high-value low-volume products  
R.T. Sousa, N. Shah, L.G. Papageorgiou
6. Power Global Electric Vehicle Expansion  
Peter Weiss, Guy B. Marin, Kevin M. Van Geem
7. A non-contact swing-arm profilometer with the spectrally-resolved-interferometry distance sensor  
Quan Zheng, Lei Chen and Zhigang Han
8. Material Mechanical Properties Necessary for the Structural Intervention of Concrete Structures  
Tamon Ueda
9. Multiscale Homogenization Analysis of Alkali-Silica Reaction (ASR) Effect in Concrete  
Roozbeh Rezakhani, Mohammed Alnaggar, Gianluca Cusatis

### **❖ EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL (Frases nominales)**

#### **EL PLURAL DE LOS SUSTANTIVOS EN INGLÉS**

Algunos sustantivos tienen dos formas de plural cuyos significados son, a veces, diferentes.

SINGULAR	PLURAL
index	indices (algebraico)
	indexes (alfabético)
appendix	appendices (órgano)
	appendixes (en un libro)
focus	foci
	focuses

SINGULAR	PLURAL
medium	media
	mediums
mouse	mice (animal)
	mouses (de la computadora)
formula	formulae (matemáticas)
	formulas

Algunos sustantivos presentan la misma forma para el singular y para el plural.

#### **Inglés Técnico**

Prof. Gladys M. Barsotti – Prof. Corina G. Cepparo – Prof. Stella M. Pellicer

News, sheep, aircraft, deer, salmon, species, Japanese, series, apparatus.  
 A Chinese                      The Chinese

**B. Escriba el singular de los siguientes sustantivos y traduzca.**

1. properties			8. radii		
2. gates			9. businessmen		
3. indices			10. analyses		
4. strata			11. women		
5. formulae			12. industries		
6. searches			13. halves		
7. bubbles			14. energies		

**C. Indique a qué hacen referencia las palabras destacadas en las oraciones.**

**DIRAC NOTATION**

The physical state of a system is represented in quantum mechanics by elements of a Hilbert space; **these** elements are called state vectors. We can represent the state vector in different bases by means of function expansions. **This** is analogous to specifying an ordinary (Euclidean) vector by **its** components in various coordinate systems. For instance, we can represent equivalently a vector by **its** components in a Cartesian coordinate system, in a spherical coordinate system, or in a cylindrical coordinate system. *The meaning of a vector is, of course, independent of the coordinate system chosen to represent **its** components.* Similarly, the state of a microscopic system has a meaning independent of the basis in **which** **it** is expanded.

To free state vectors from coordinate meaning, Dirac introduced an invaluable notation in quantum mechanics; **He** introduced the concepts of kets, bras and bra-kets. Kets are elements of a vector space, bras are elements of a dual space while a bra-ket is the direct notation for the scalar product.

**Note:** When a ket (or bras) is multiplied by a complex number, **we** also get a ket

1.	These	
2.	This	
3.	Its (line 4)	
4.	Its (line 5)	del vector
5.	Its (line 8)	
6.	Which	
7.	It	
8.	He	
9.	We	

❖ **EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL  
 (Sustitutos del sustantivo)**

**APELLIDO Y NOMBRE:** .....**LEGAJO:** .....**CARRERA:** .....**TRABAJO PRÁCTICO N° 2**

- **Frase Nominal compleja:** “to infinitive”, forma-ing, forma –ed, cognados y falsos cognados, derivados, compuestos y cambio de función.

**A. Traduzca las siguientes frases nominales complejas. Todas son títulos de trabajos de investigación.**

1. Compliant bipolar electrostatic gripper using 3D-printed-layered elastic probes  
Pasomphone Hemthavy, Kenta Kudo, Kento Kawano, Kunio Takahashi and Shigeki Saito
2. Evaluating experimentally and numerically different scarf-repair methodologies of composite structures  
S. Psarras | T. Loutas | G. Galanopoulos | G. Karamadoulis | G. Sotiriadis | V. Kostopoulos
3. Optimal Antibody Purification Strategies Using Data-Driven Models  
Songsong Liu, Lazaros G. Papageorgiou
4. Opportunities and Challenges of Artificial Intelligence for Green Manufacturing in the Process Industry  
Shuai Mao, Bing Wang, Yang Tang, Feng Qian
5. Research and Implementations of Structural Monitoring for Bridges and Buildings in Japan  
Yozo Fujino, Dionysius M. Siringoringo, Yoshiki Ikeda, Tomonori Nagayama, Tsukasa Mizutani
6. Treating UHMWPE surface for enhancing the adhesion properties by cellulose grafting  
Tarek Dayyoub | Aleksey V. Maksimkin | Fedor S. Senatov | Sergey D. Kaloshkin | Anna Zimina | Evgeniy A. Kolesnikov
7. Interfacial adhesion in glass-fiber thermoplastic composites processed from acrylic reactive system: a multi-scale experimental analysis  
Q. Charlier | F. Lortie | J.-F. Gérard
8. Significance of Modules with Ascending Chain Condition Which Corresponds of Definite Sorts of Annihilator  
Rehana Parvin, Momotz Katun, Rashida Pervin.

**❖ EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL  
(Frases nominales complejas)****B. Traduzca las siguientes oraciones que contienen frases nominales complejas.**

1. Anarko's Ketchum Mountain field is a Clearfork formation marine turbidite sandstone reservoir.

2. Personnel overlooking the robotic weld cell then need to stop production to address rework or scrap the part.
3. The major change in the interpretation of the C sandstone correlation on the later cross section occurs in the producer Well B.
4. The wind turbine internal cabin transmission system and the layout of sensors are showed in Fig. 1.

**C. En la siguiente lista indique qué palabras son cognados (C) y cuáles falsos cognados (FC), o ninguno de los dos (-) y escriba el significado de todas las palabras de la lista.**

1. weight ( )	.....	6. space ( )	.....	11. diversion ( )	.....
2. library ( )	.....	7. analysis ( )	.....	12. debris ( )	.....
3. enhance ( )	.....	8. exit ( )	.....	13. system ( )	.....
4. attend ( )	.....	9. facility ( )	.....	14. remove ( )	.....
5. equation ( )	.....	10. reflect ( )	.....	15. actually ( )	.....

**D. Significados sugeridos por los afijos**

Ordene las siguientes palabras debajo de los títulos según indiquen superioridad, inferioridad, negación, anticipación o repetición.

Superioridad	Inferioridad	Negación	Anticipación	Repetición

Palabras: degas overestimate underline displace premature non negotiable redirect  
unintentional supernatural inaccurate microgrip independent forecast discomfort  
dimensionless

### **E. Funciones de palabras con afijos.**

#### **Ordene las siguientes palabras según su función:**

Palabras: enable detector greatly partnership harmful computer predictable  
seamlessly international heavy thickness economics interact recycler overexposure  
analytical encapsulate length seismic compliment wireless

Verbo	Sustantivo	Adjetivo	Adverbio

### **F. Lea el siguientes texto**

#### **ON-LINE LEAK SEALING & MECHANICAL REPAIR**

Leaks can cost industries millions of dollars in lost energy, while increasing emissions, creating safety hazards, and lowering the reliability of operations. Valves and piping systems can fail in a number of ways. The most commonly experienced failures, or threatened failures, are associated with either internal or external corrosion of the pipe wall. Other failures are often caused by erosion, fretting or gouging.

Shutting down to repair leaks means a loss in production. TEAM's leak sealing services allow repairs to be made without interruption to normal operations. All methods are non-destructive, helping preserve the integrity and useful life of the equipment.

Our team is uniquely qualified to assist with your repairs, as we invented the process of on-line leak sealing, and have spent nearly 100 years perfecting it. We've handled just about every imaginable leak-sealing application. Our in-house engineering and manufacturing capabilities further enhanced our offerings. We use the latest 3D CAD, calculation and engineering analysis software, with major engineering centers across the globe. Our engineers can, and often do, design wholly bespoke solutions to unusual problems.

#### **TEAM can help your company:**

- Prevent expensive shutdowns by providing safe, controlled on site and on stream leak repairs for any component or process
- Help preserve the integrity and useful life of the equipment
- Save time and product
- Minimize environmental impact
- Reduce administrative burden

#### **• Traduzca el primer y Segundo párrafos**

#### **• Responda las siguientes preguntas**

1. ¿Qué ventaja tiene TEAM como inventores de este sistema?
2. ¿Qué actuación destacada tiene el personal?
3. ¿Qué ventajas tecnológicas tiene la empresa y por qué es tan importante?
4. ¿Cómo evita TEAM un cierre oneroso de su empresa?
5. ¿Qué otras ventajas económicas y ecológicas ofrece la empresa TEAM?

**APELLIDO Y NOMBRE:** .....

**LEGAJO:** .....

**CARRERA:** .....

### **TRABAJO PRÁCTICO N° 3**

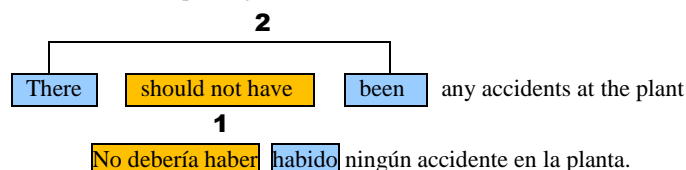
- **Tiempos verbales:** tiempos verbales simples, continuos y perfectos, futuro perifrástico *going to*, modales simples, continuos y perfectos, imperativo, voz activa y pasiva común.

#### **I. VOZ ACTIVA**

##### **A. Lea y traduzca las siguientes oraciones y sus variantes**

1. They were not wearing flame resistant clothing  
had worn  
are going to wear  
may have worn  
should wear
2. A welder can choose parameters and start welding with an optimized program.  
chose  
will have to choose  
is to choose  
has been choosing
3. The environmental risks include degradation of soils and pollution of surface water with heavy metals.  
  
are able to include  
have to include  
wouldn't include  
were including
4. Technology must play an important role to achieve quantum reductions in waste generation.  
  
is playing  
didn't play  
could play  
has played
5. There have not been reports of silica related disease in the oil and gas workforce.  
might have been  
were going to be  
had been  
are to be

La expresión **THERE + BE** significa **HABER**, es una expresión impersonal y, a pesar de que en inglés tiene un singular y un plural, como todas las expresiones impersonales en español se traduce **SÓLO** en singular *ha habido* y no ~~han habido~~. La traducción en los tiempos simples no presenta mayores dificultades, pero cuando se combinan con modales en tiempos perfectos, la traducción suele complicarse, por lo que sugerimos comenzar a traducir los verbos que están entre *there* y *be* primero y luego el verbo *haber* en la forma que exija la traducción anterior.



**B. Traduzca las siguientes oraciones.**

1. There has to be a critical mass (coalition) of leaders aligned and attuned to the vision.
2. There is about to be a direct conflict in some well test cases.
3. There are going to be occasional unexpected and often uncontrollable delays.

**❖ EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL  
(Expresión There + be)**

**C. Lea y traduzca el siguiente código de seguridad.**

Let's make our workplace safe.

- Wear personal protective equipment for the job.
- Always use equipment / tools / machinery safely and properly.
- Lift properly using your legs. Don't use your back.
- Keep your work area clean.
- Wear appropriate and safe clothes and footwear. Don't use loose clothes or loose jewelry.
- Report any unsafe conditions.
- Clean up spills immediately.
- Report all injuries
- Don't work under the influence of drugs or alcohol.

Be responsible for yourself and your workmates. Let's avoid accidents.

**II. VOZ PASIVA**

**A. Traduzca todas las variantes de la oración**

1. The pipes and the outlet manifold material are made from stainless
2. are to be made
3. would be made
4. has been made
5. won't be made
6. might not be made
7. are about to be made
8. had been made
9. are going to be made
10. will have been made
11. had to be made.

**B. Identifique la frase verbal en voz pasiva. Traduzca las oraciones**

1. This special type of sampling has been used for more than 60 years, mainly for sampling gas/condensate production.
2. DEA's laboratory and core storage facility will be relocated to Barnstorf.
3. A building should be constructed to serve purposes specified by the client.
4. This might be called material eco-efficiency.



**C. Traduzcan el segmento de texto correspondiente a cada grupo.**

Arquitectura y Civil	<p><b>Science News</b> <i>from research organizations</i></p> <p><b>Graphene-based wearables for health monitoring, food inspection and night vision</b></p> <p>Date: February 15, 2019 Source: Graphene Flagship Summary:</p> <p>Scientists have developed dozens of new graphene-based prototypes. These technologies aim to turn mobile phones into life saving devices.</p> <hr/> <p>ICFO's fitness band is being developed to measure heart rate, hydration, oxygen saturation, breathing rate and temperature.</p> <hr/> <p>The first of ICFO's devices on display will allow customers to monitor their level of exposure to sunlight through a UV sensor. Designed as a flexible, transparent and disposable patch, it connects to a mobile device and alerts the user once he or she has reached a defined threshold of sun exposure.</p> <p>Using the same core technology as the UV patch, ICFO's fitness band is being developed to measure heart rate, hydration, oxygen saturation, breathing rate and temperature, while monitoring the user when he or she is exercising, for example. However, the fitness band does more than simply measure physical activity.</p>
Industrial y Petróleos	<p>Consider the following scenario. A person is trekking in the remote amazon jungle with limited access to water. By measuring the skin hydration of their body with ICFO's fitness band, the user can optimize water intake, preventing any sort of dehydration. Similarly, an explorer hiking to the peak of mount Everest could use the band to accurately monitor oxygen saturation in blood. The high altitude can severely effect oxygen saturation in the body. Using the band, the hiker could monitor these levels and emit a warning if oxygen saturation in the blood decreases drastically below a certain level.</p> <p>In addition to these prototypes being exhibited at MWC 2019, ICFO will also showcase two other light-based graphene technologies. These include the world's smallest single pixel spectrometer and a graphene-enabled hyperspectral image sensor, both with broadband capabilities, beyond to what was once perceived possible without the use of costly and bulky photodetection systems.</p>
Mecatrónica y LCC	<p>By enabling spectroscopy in such small dimensions, consumers could now be equipped with tools that previously were only available to highly specialised laboratories. From the detection of counterfeit drugs to the identification of harmful substances within a product that we use or food that we eat, compact, low-cost spectrometers could become an indispensable accessory of our everyday life.</p> <p>"Built into a smart phone camera, the graphene-based camera sensor allows phones to see more than what's visible to the human eye," comments Frank Koppens, group leader at Graphene Flagship partner ICFO, and Chair of the Graphene Flagship MWC Committee. "Made up of hundreds of thousands of photodetectors, this incredibly small sensor is highly sensitive to UV and infrared light."</p> <p>"This technology would allow users in the supermarket to hold the camera to fruit and infer which is the freshest piece. Or, in a more extreme example, the camera could be used for driving in dangerously dense fog by providing augmented outlines of surrounding vehicles on the windscreen."</p> <p>To find out more about these technologies and to meet the team of experts that have developed these applications, visit the Graphene Pavilion at MWC in NEXTech Hall 8.0 Stand 8.0K31 on February 25-28.</p>

**APELLIDO Y NOMBRE:** .....  
**LEGAJO:** .....  
**CARRERA:** .....

### **TRABAJO PRÁCTICO N° 4**

- **Voz pasiva:** común y especial, todas las funciones del infinitivo y formas –ing.

#### **I. PASIVAS ESPECIALES**

##### **A. Lea y traduzca las siguientes oraciones que contienen frases en voz pasiva (especial)**

1. The point of origin was determined to be Foreman's office.
2. The sudden change in the flow pattern in the elbow is believed to be responsible for the turbulence.
3. The seal is considered to be a thick package of deep-marine shales deposited from the Late Cretaceous until recent times.
4. Since the UAV is intended to provide aid to dangerous locations, the most effective method of delivery was to drop the package over the target area.
5. The deposit was found to have high concentrations of zinc chloride ions consistent with the composition of plumber's flux.
6. A leak was found to form at the bottom of the elbow of the horizontal pipe.
7. Each rig is estimated to create roughly 125 new full-time jobs.

#### **❖ EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL (Voz pasiva especial)**

##### **B. Lea y traduzca las siguientes oraciones y diga qué tipo de pasiva es (común o especial).**

1. The detailed dates for the vibrations analysis will be given in the case studies below.
2. In this work, the value of the parameter  $r$  is chosen to be 0.2 times the standard deviation of the data.
3. Interviews were expected to yield more valuable insights about the use of models, since specific aspects can be investigated in greater detail.
4. The corrosion rate was found to be 61.75 mpy (1.57 mm/year) indicating the failed elbow material has a poor corrosion resistance.

#### **❖ EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL (Voz pasiva – común y especial)**

##### **C. Traduzca siguiente texto.**

Industrial y Data Science	<p><b>What are the main construction technology trends?</b></p> <p>The construction industry is under a significant paradigm shift. When we look back throughout this industry's history we notice some great advancements have taken place.</p> <p>As the end of the year approaches and we look ahead to 2020 there's no reason we shouldn't expect more of the same to occur. In fact, here are some of the most noteworthy trends experts believe you should expect to see in the construction industry next year.</p> <p>2019 is expected to be a breakthrough year for the construction industry. During last year, construction technology investment has grown by 30% and equals to \$1.05bn. The total value of the sector is expected to exceed \$10trn by 2020.</p>
Arquitectura y Civil	<p><b>01 Augmented reality</b></p> <p>AR is something that's bound to open many new opportunities for the construction industry even though it'll come with a cost.</p> <p><b>\$90B increase in global AR market by 2020</b></p> <p><b>02 Construction Software &amp; Data Ecosystem</b></p> <p>Real-time collaboration software is expected to function as the digital backbone for the construction process from start to finish.</p> <p><b>95% of data in construction is thrown away</b></p> <p><b>03 Building Information Modeling</b></p> <p>BIM technology will be the catalyst for a fundamental change in how we manage, design and develop a construction project.</p> <p><b>88% of construction stakeholders believe that BIM can enable better design insight</b></p> <p><b>04 Modular construction</b></p> <p>The use of standardized processes to assemble as much as possible off-site before they complete the construction project on site can cut down on costs and lead times.</p> <p><b>Construction projects can be completed 65x faster through modular construction</b></p> <p><b>05 Self-healing concrete</b></p> <p>Many of the industry's experts believe we'll start seeing self-healing concrete being used on roads, buildings and homes.</p> <p><b>5B metric tons of concrete will be used by 2030</b></p>
Mecatrónica y LCC	<p><b>06 Drones</b></p> <p>As drone technology continues rapidly developing in its accuracy and precision of its readings, even less human involvement will be necessary.</p> <p><b>Drone industry value will rise from \$2B to \$10B in the next decade</b></p> <p><b>07 Robotics</b></p> <p>Robotics are continuously growing more precise and accurate, and they'll soon become a commanding force in the construction industry.</p> <p><b>The industrial robotics market is expected to grow by 175% over the next decade</b></p> <p><b>08 Cloud and mobile technology</b></p> <p>Mobile devices can leverage cloud technology from anywhere, at any time. A must-have if you want your business to remain competitive.</p> <p><b>IT spends in construction &lt; 1% revenue</b></p> <p><b>09 Advanced uses for GPS</b></p> <p>GPS tracking solutions are now being used in more creative and resourceful ways facilitating the quick and accurate collection of data.</p> <p><b>120 positioning satellites ready to be used in the next 10 years</b></p> <p><b>10 Wearable technology</b></p> <p>Wearable technology is expected to play a substantial role in boosting safety on site and monitor efficiently the project progress.</p> <p><b>250 million smart wearables are predicted to be in use by the end of the year</b></p>

## II. FUNCIONES DE -ING E INFINITIVO CON TO

### A. Traduzca las siguientes oraciones.

1. The previous analysis confirms that the rolling bearing faults are developing

2. To analyse the failure mechanism of structures is generally essential.
3. Welding these metals effectively is impossible with the contact process of resistance welding.
4. Owing to the ever-changing weather conditions, the rotational speed could not always reach 1080 RPM, to ensure a consistent monitoring, the collection dates may be varied accordingly and we have to accept this reality.
5. Ventilation can also be used for temperature control by bringing outside air into a building.
6. In 1995 the Congress removed all funding for OTA, thus ending its existence. (OTA Office of Technology Assessment)
7. But we need your ongoing support to keep working as we do.
8. The ability to weld dissimilar metals creates a variety of efficiency advantages for EV batteries.
9. Thank you for choosing to join us on this journey, which we believe is about to take off shortly.
10. The connectors would have to work and be easy to detach as the batteries would be swappable.

**B. Lea el siguiente texto**

**Infranomics - Sustainability, Engineering Design and Governance**

**Abstract:**

We define Infranomics as a body of discipline supporting analysis and decision making regarding modern societal vexing issues of sustainability, asset management, energy and safety, ethics, education, and engineering design. While it is in its infancy, Infranomics is proposed as a thesis enabling better decision making in an increasing ambiguous, complex, emergent, interdependent, and uncertain world. As modern society contends with rapid technological changes, socioeconomic institutional changes, increased globalization, and scarcity of resources, decision makers (i.e., policymakers and private entity operators, and researchers) are faced with a daunting task of ensuring the well-being of public health, security, and economy. Since no nation has unlimited resources, the time is ripe for a discipline that supports analysis and decision making to increase anticipation in an increasingly uncertain world. In the 25 works contributing to this book, we illuminate Infranomics in different aspects of modern society. The paper by Gheorghe et al., serves as the introduction to this volume. It addresses the interdisciplinary format of Infranomics, highlighting some potential initial areas of applications, and the category of analytical instruments adequately empowered to deal with the complex domain of the new body of discipline.

**C. Responda en forma breve las siguientes preguntas sobre el texto**

1. ¿Dónde se podría encontrar este tipo de texto?
2. ¿Cuál es el objetivo de la infranómica?
3. ¿Qué cambios globales hacen que se desarrolle esta disciplina?
4. ¿Cuál es la consecuencia de la limitación en los recursos de las naciones?
5. ¿A qué sujetos está orientada o es útil esta disciplina?
6. ¿Por qué se considera que es interdisciplinaria?

**APELLIDO Y NOMBRE:** .....  
**LEGAJO:** .....  
**CARRERA:** .....

**TRABAJO PRÁCTICO N° 5**

- **Oraciones condicionales:** 1ro, 2do y 3er tipo, oraciones condicionales especiales.

**A. Traduzca las siguientes oraciones condicionales. Indique a qué tipo de condicional corresponden**

1. If there's anything you'd like to see in 2021, don't hesitate to reach out to us.
2. If the fabric is too hot, workers won't wear it compliantly.
3. If this battery had a capacity of 10 mAh, it could supply a current of 40 mA.
4. Propeller guards will absorb the impact if the UAV collides with an obstacle.
5. If a set of UAVs was mass produced and kept in dedicated bases, each base could provide aid to any GPS visible location within a radius of a few miles.

**❖ EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL  
(Oraciones condicionales)****B. Lea las siguientes oraciones. Identifique el caso (nexo "if", otros nexos, inversión). Traduzca.**

1. The sustainability review can enhance the ability to keep the material in the use system and/or enhance the break down of the material should it escape into the environment.
2. Adding stabilizers to the resin will enhance the pipe's UV resistance, but manufacturers do not always add stabilizers unless it is specified.
3. This method treats all costs as if they were variable.
4. They wondered whether they should modify the provisions they had already adopted.
5. These can be used directly as calibration points for temperature monitors as long as the substances are pure.

**❖ EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL  
(Oraciones condicionales – Otros nexos)****C. Lea el siguiente texto.**

**What Would Happen if Pollution Doesn't Stop?**

As concerns about the state of the environment continue to escalate, politicians, governments and businesses are all being encouraged to address the issue and reduce pollution levels. However, there are still many parties out there who try and play down the effects of climate change and pollution, whether it be because of misled beliefs or (more likely) vested financial interests.

What would happen if the climate change deniers succeeded? What would happen if we neglected the problem of pollution indefinitely? Our problems would be almost insurmountable, that's for certain. Here are just a handful of the issues that would face the Earth and its inhabitants if we don't check our polluting habits and start taking care of our planet.

#### **Air Pollution**

Concerns about the quality of the air we breathe have long been an issue in Britain. As far back as the 13<sup>th</sup> century, legislators outlawed the combustion of coal for fear of the frightful fumes it released. Of course, the economic benefits ostensibly outweighed the environmental and health concerns, and humanity has leapt from one pollutant practice to the next in the intervening near-millennium.

Should air pollution go unchecked, we can expect our skies to become foggier and our oxygen harder to breathe. Not only will this mean personal discomfort and hazard (as is already experienced by more than a billion people in China and other Asian countries), but could also play havoc with agriculture. Mounting levels of CO<sup>2</sup> in the Earth's atmosphere would raise temperatures, melting the polar icecaps and raising sea levels. Furthermore, over-pollution of the skies would eventually block out the sun, not only leaving us cold and dark, but without any way of growing crops and feeding livestock. As well as the direct threat to our survival this obviously poses, it would also threaten our economy - as the European Environment Agency (EEA) has already found.

#### **D. Elija la opción de traducción correcta, según la información del texto.**

1-As concerns...

- a. A medida que las preocupaciones...
- b. Como las preocupaciones...
- c. Ya que concierne...

2-...there are still many parties...

- a. ...allí hay todavía muchos partidos...
- b. ...hay todavía muchas fiestas...
- c. ...hay todavía muchas partes...

3- if we don't check our polluting habits.

- a. Si no controlamos nuestros hábitos contaminando.
- b. Si no controlamos nuestros hábitos contaminantes.
- c. Si no contaminamos y controlamos nuestros hábitos.

4-El texto trata de:

- a. Soluciones para controlar el cambio climático.
- b. Actitudes ante el problema del cambio climático.
- c. Soluciones para controlar la contaminación.

5- ¿Qué sectores no son mencionados en el texto?

- a. Empresarios
- b. Científicos
- c. Políticos

#### **E. Traduzca el párrafo 3**

**APELLIDO Y NOMBRE:** .....**LEGAJO:** .....**CARRERA:** .....**TRABAJO PRÁCTICO N° 6**

- **Traducciones con se:** pasivas, pasivas especiales, con elipsis, con sujeto consciente, verbos intransitivos, usos impersonales de *you* y *one*.

**I. TRADUCCIONES CON “SE”****A. Traduzca la oraciones con casos de traducción con “se”.**

1. Efforts have been made to define these windows and to expand them while still retaining regulatory permission.
2. Rolling bearing is one of the key components in rotating machinery and it is widely employed in wind turbines.
3. FeO is one of metastable corrosion product forms which can oxidize continuously to form stable corrosion products.
4. You should be constantly aware of hazards in your workplace.
5. Meanwhile, compared with these statistical indicators, the advantages of sample entropy in early fault detection is revealed.
6. He had been assigned to haul a load of crude oil.
7. The formation of chromium rich phases together with thermal fatigue stresses were found to be main causes of failure.

**❖ EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL  
(Traducciones con se)****II. ELIPSIS****A. Traduzca los siguientes casos de elipsis**

1. If necessary, pressure surges can be minimized by installing surge tanks and using valves that open and close slowly.
2. As expected, the development of this new market will come hand in hand with challenges that will need to be overcome.
3. Therefore, these reduced emissions and waste are considered when evaluating the costs of the alternative inspection techniques.
4. Where appropriate, the results are compared with those obtained for bentonite fluids by other investigators.

**❖ EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL  
(Elipsis)**

**B. Traduzca los segmentos resaltados en el siguiente texto.**

## Awareness of corrosion importance among engineering undergraduates in the United Arab Emirates

**Article (PDF Available)** in [Educational Research](#) 9(2):021-034 · March 2018  
[Hwee Lim - Khalifa University](#) [E. Gunister - Khalifa University](#)

Abstract

Engineers are ethically responsible for managing corrosion. **While applying corrosion control methods in the industry, it is as important to educate engineering undergraduates on aspects of corrosion and its management.** However, there is little research on corrosion awareness among undergraduate students. This qualitative study examined engineering undergraduates' awareness of corrosion importance in the petroleum industry. **20 sophomore and 44 senior undergraduates were interviewed on their preferred level of corrosion instruction;** understanding of corrosion importance in engineering work; and perceptions of own knowledge and ability to apply corrosion concepts in design. **They were asked to answer a quiz on corrosion concepts. Most participants were found to prefer to study corrosion as an elective at junior, and senior levels.** Compared to sophomores, more seniors reported awareness of corrosion importance in engineering work and had higher positive self-perceptions of their knowledge of corrosion and application ability that were consistent with their higher quiz scores. Interestingly, sophomore and senior participants were more confident of their ability to apply corrosion concepts in design than having theoretical knowledge in corrosion. The findings indicated that undergraduates need to develop greater awareness of corrosion importance in engineering work. **The recommendations provided could be used to improve corrosion engineering education pedagogy.**



**APELLIDO Y NOMBRE:** .....**LEGAJO:** .....**CARRERA:** .....**TRABAJO PRÁCTICO N° 7**

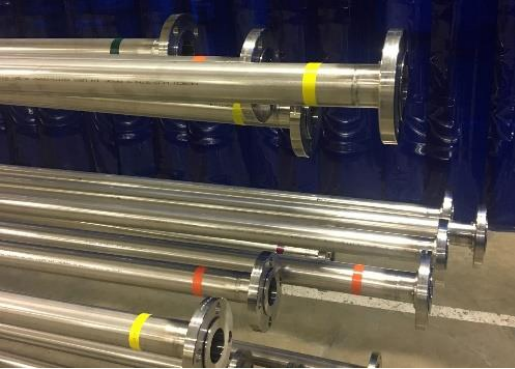
- **Traducciones con se II:** frases pasivas, acciones reflejas y reciprocas, y frases con *together*, verbos *get*, *become*, *grow*, *turn* y *make*.


**A. Traduzca las siguientes oraciones**

1. The utilization of proteins for the production of adhesives becomes interesting, when a considerable amount is produced that is preferably not used for human food consumption.
2. The federal government should make sure that state and local oversight efforts are properly evaluated.
3. Paris Reinvents Itself.
4. Both waste scenarios expose a unique challenge, how to selectively capture and discriminate metals from one another.
5. As a result the parts were soldered together with a strip of wire in between, as shown in Fig. 7.
6. The micrograph also shows that the polymer chains, although entangled with one another, appear to be rather stiff.
7. However, while attempting to fly the UAV a second time, the propellers got stuck onto one of the wires, and stopped after going through the wire, causing a crash.
8. Account should be taken that the tolerances of the components used in the practical circuit may not be true to the theoretical values required.

❖ **EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL  
(Traducciones con se II)**

**B. Traduzca la parte del siguiente texto que corresponda a su grupo.**

Arquitectura y Civil	<h1>The Hazards of Contamination in Stainless Steel Fabrication</h1> <p>Posted by <u>Bill Pollock</u> on Sep 25, 2018 12:46:03 PM</p> <p>Stainless steel contamination can be a real problem in applications that require clean corrosion free surfaces. This is frequently a requirement in labs as well as food and pharmaceutical plants. Stainless steel, when fabricated correctly, provides excellent corrosion resistance.</p>  <p>When misapplied, this will not be the case. Precautions must be taken to prevent contamination of stainless steel surfaces during fabrication. This is possible with the proper precautions, when done in a shop in controlled conditions, and more difficult when installation is carried out in a project field location.</p> <p>There are several ways that stainless steel can become contaminated during fabrication. The three major causes are contamination with carbon, chloride or mild steel. To have proven results, it is important to eliminate all of them.</p> <p>Contamination by mild steels occurs just by contact with the stainless steel. This might be caused by contact with tools such as screwdrivers, files, drills and polishing tools that have already been used on mild steel. Or it may be caused by grinding dust produced by using power tools or falling particles of welding and flame cutting on carbon steel in the general proximity.</p> <p>Contamination by chloride, while less common, can be caused by contact with hydrochloric acid, or even, in extreme cases, from salt in sweat if not cleaned appropriately.</p>
Mecatrónica y LCC	<p>Contamination by Carbon occurs due to welding of stainless steel to carbon steel, flakes from welding carbon steel in the general proximity, or even some pen or markers used to write on both carbon and the stainless. It's common to see rust on process equipment caused just from welding or grinding on carbon steel in the general proximity. Grinding stainless steel welds with mild steel brushes can also leave the pipe covered with polka dots of rust in short order. Once embedded in the stainless steel, it is very difficult to remove all of the rust spots permanently. Once the rust has bloomed, if left untreated, it can progress into pitting corrosion and will haunt the owner from that point on.</p> <p>I have heard of tanks that developed pinhole leaks in the weld zone, apparently from improper cleaning of the welds. In time, the weld zones can weaken to a point that there is very much a safety issue at stake, particularly with process safety management applications. This has been known to happen on welds that had been cleaned with type 302SS brushes. To prevent issues like this it is recommended to use brushes made with 316L, and nothing less.</p>

<p><b>Industrial y Petróleos</b></p>	<p>One of the sources of iron residue most difficult to avoid is the atmosphere itself. This can be especially true when fabrication is done in the industrial plant rather than in an isolated fabrication shop. Industrial areas have a surprising amount of iron in the air. This iron “falls out” onto exposed items, including previously cleaned stainless steel parts. Also, water which is used to “clean” the surfaces may itself contain iron which will be deposited onto the surfaces thought to be clean. Note that water may also contain other chemicals which may leave rust-colored deposits which may be mistaken for indications of the presence of free iron.</p> <p>At Optimization we fabricate a lot of systems built of stainless steel. We understand the need for clean, rust free systems and the methods that must be used to fabricate them. Because we perform work for several clients in the chemical, food and beverage, and pharmaceutical industries who have specific contamination concerns, we created a stainless-only welding area, free and clear of iron and carbon contaminates. We use stainless steel vises and tools to help ensure that iron won’t come in contact with the vessels, skids and systems being built.</p> <div>  </div> <p>Empresa de servicios variados con sede en Nueva York.</p>
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**APELLIDO Y NOMBRE:** .....

**LEGAJO:** .....

**CARRERA:** .....

### **TRABAJO PRÁCTICO N° 8**

- **Modo subjuntivo parte I:** oraciones con conectores, frases subjuntivas, expresiones con *wish*, verbos que requieren subjuntivo en español, uso de *should*, subjuntivo con *to-infinitive*, imperativos, cláusulas con referencia temporal futura.
- **Oraciones con conectores**

#### **I. Conectores**

**Cuadro resumen de las funciones de los nexos (ver página 67 del cuadernillo de teoría)**

Conectores <b>aditivos</b> o de <b>adición</b>	and, and also, also, as a matter of fact, further, furthermore, in addition, additionally, besides, moreover, nor, ... <b>de alternativa:</b> or, or else, alternatively, apart from this, as well as that, <b>de explicación o clarificación:</b> that is, I mean, in other words, that is to say, <b>de ejemplificación:</b> for instance, for example, thus, i.e, e.g, viz., such as <b>de comparación:</b> likewise, similarly, in the same way (añade algo similar), compared to on the other hand, by contrast, in contrast, in reality, as opposed to this (añade algo diferente) <b>de modo perspectiva y punto de vista:</b> in this way, considering this, in this sense, from this perspective, according to, etc.
Conectores <b>adversativos, o de oposición o contraste</b>	yet, though, but, however, on the other hand, as against that, only, <b>de concesión:</b> although, nevertheless, however, except for, even, even when <b>de corrección:</b> instead, rather, on the contrary,
Conectores <b>de causa y consecuencia</b>	so, then, for, for this reason, because, hence, therefore, consequently, because of this, as a result, in consequence, since, due to this, <b>de propósito:</b> for this purpose, for this reason, in order to, so as to, so that, <b>de condición:</b> in that case, in such an event, if, then, under the circumstances, otherwise, unless, even if, as long as,
Conectores <b>temporales o de orden textual</b>	<b>de secuencia:</b> first, at first, then, next, after that, soon, after a time, next time, on another occasion, next day, from now on, afterwards, since <b>de simultaneidad:</b> at the same time, meanwhile, at this moment, while, whereas <b>de anterioridad:</b> previously, before that, up to now, <b>conclusivas, de resumen y cierre:</b> finally, at last, in conclusion, to sum up, in short, briefly, to conclude,

#### **II. Subjuntivo**

##### **A. Traduzca las siguientes oraciones con conectores y modo subjuntivo**

1. You should not require workers to drive irregular hours or far beyond their normal working hours.

2. Maybe if all the empowered people were co-owners, they might see their responsibility in a way that minimizes adverse actions.
3. So we decided to ask them to be our collectors.
4. One reason for nervousness on the part of insurers and investors is the fear that some companies are not being transparent.
5. Many jurisdictions require that a permit be obtained by the client or tenant of a building
6. To be able to safely reach supply drop points for humanitarian aid, a controller was needed that could interface with a radio communicator, as well as the necessary sensors.
7. It would also be ideal to design and produce a perfect fitting protective shell, and moving landing gear, so that the UAV moves smoother and suffers minimal injury.
8. Develop alternative tank gauging procedures so workers do not have to routinely open hatches on the tops of the tanks and manually gauge the level of liquid.

❖ **EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL  
(Traducciones con subjuntivo)**

**B. Traduzca las siguientes oraciones con conectores.**

1. Boris Johnson promised a radical agenda in which “no community is left behind.” Yet what has emerged, in housing, is an unequal funding formula.
2. Moreover, 347H austenitic stainless steel is a well-known grade for its excellent resistance to intergranular corrosion and intergranular stress corrosion cracking (SCC).
3. In this regard, Sigma phase formation is a typical problem in welding of stainless steels and during working service at high temperatures (in the range of 450°C to 850 °C).
4. To round things out, check out the article on one fabricator’s training tactics that are giving his company a leg up in the marketplace.

❖ **EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL  
(Traducciones en subjuntivo y nexos)**

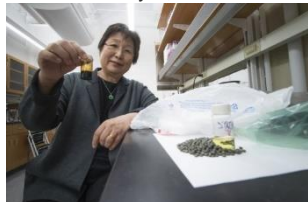
### C. Traduzca las secciones en negrita en el siguiente texto

#### Millions of tons of plastic waste could be turned into clean fuels, other products

Chemical conversion process could transform polyolefin waste

Date: February 6, 2019

Source: Purdue University



A chemical conversion process developed at Purdue University allows researchers to turn recycled shopping bags into pellets into oil as shown in the bottle being held by Linda Wang, the Maxine Spencer Nichols Professor in the Davidson School of Chemical Engineering. Using distillation, that oil is separated into a gasoline-like fuel in the bottle in the counter and a diesel-like fuel not shown.

Credit: Purdue Research Foundation/Vincent Walter

The United Nations estimates that more than 8 million tons of plastics flow into the oceans each year. A new chemical conversion process could transform the world's polyolefin waste, a form of plastic, into useful products, such as clean fuels and other items.

"Our strategy is to create a driving force for recycling by converting polyolefin waste into a wide range of valuable products, including polymers, naphtha (a mixture of hydrocarbons), or clean fuels," said Linda Wang, the Maxine Spencer Nichols Professor in the Davidson School of Chemical Engineering at Purdue University and leader of the research team developing this technology. "Our conversion technology has the potential to boost the profits of the recycling industry and shrink the world's plastic waste stock."

Wang, Kai Jin, a graduate student, and Wan-Ting (Grace) Chen, a postdoctoral researcher at Purdue, are the inventors of the technology, which can convert more than 90 percent of polyolefin waste into many different products, including pure polymers, naphtha, fuels, or monomers. The team is collaborating with Gozdem Kilaz, an assistant professor in the School of Engineering Technology, and her doctoral research assistant, Petr Vozka, in the Fuel Laboratory of Renewable Energy of the School of Engineering Technology, **they intend that the conversion process optimizes to produce high-quality gasoline or diesel fuels.**

The conversion process incorporates selective extraction and hydrothermal liquefaction. **Once the plastic is converted into naphtha, it can be used as a feedstock for other chemicals or further separated into specialty solvents or other products.** The clean fuels derived from the polyolefin waste generated each year can satisfy 4 percent of the annual demand for gasoline or diesel fuels. Some results of Wang's study were published Jan. 29 in *ACS Sustainable Chemistry and Engineering*.

Wang became inspired to create this technology after reading about the plastic waste pollution of the oceans, ground water, and the environment. Of all the plastics produced over the past 65 years (8.3 billion tons), about 12 percent have been incinerated and only 9 percent have been recycled. The remaining 79 percent have gone into landfills or the oceans. The World Economic Forum predicts that by 2050 the oceans will hold more plastic waste than fish if the waste continues to be dumped into bodies of water. Wang said the technology could convert up to 90 percent of the polyolefin plastic.

**"Plastic waste disposal, whether recycled or thrown away, does not mean the end of the story," Wang said. "These plastics degrade slowly and release toxic microplastics and chemicals into the land and the water. This is a catastrophe, because once these pollutants are in the oceans, they are impossible to retrieve completely."**

The work aligns with Purdue's Giant Leaps celebration, acknowledging the global advancements in sustainability as part of Purdue's 150th anniversary. This is one of the four themes of the yearlong celebration's Ideas Festival, designed to showcase Purdue as an intellectual center solving real-world issues.

**Wang said she hopes her technology should stimulate the recycling industry to reduce the rapidly rising amount of plastic waste. She and her team are looking for investors or partners to assist them with demonstrating this technology at a commercial scale.**

Wang's technology is patented through the Purdue Research Foundation's Office of Technology Commercialization.

**APELLIDO Y NOMBRE:** .....  
**LEGAJO:** .....  
**CARRERA:** .....

### **TRABAJO PRÁCTICO N° 9**

- **Modo subjuntivo parte II:** en oraciones condicionales, expresiones *keep from, prevent from, stop from, enable to, allow to, be likely to*, causativos. Introdutores *it y there*.

#### **A. Traduzca las siguientes oraciones**

1. Should a vacancy occur on a committee, a new member would be elected or selected prior to the next scheduled meeting.
2. In plain English this criterion should prevent valuable feedstock from being used in comparatively low value materials.
3. In order for the natural gas to remain a liquid, the LNG must be kept in a container with similar properties to a 'thermos'.
4. Automatic elevators require buttons that people could push to stop the doors from closing and to hold them open.
5. An ESEM was used because it does not require the specimen to be coated with a layer of conductive material as in a conventional SEM; the microstructure of the fluid is more likely to be preserved. (ESEM: environmental scanning electron microscope)
6. For a quadcopter to travel in the direction of a certain motor, that motor must decrease its RPM as the opposite motor increases its RPM, causing the motors to generate less and more upward thrust, respectively.
7. Perhaps there would not exist such a proliferation of management consultants and process improvement experts had industrial engineers in many organizations and the profession at large been more adept at recognizing opportunities.
8. Lacking the budget to hire out the welding, he invested in some low-end welding equipment and learned what he needed to know to get the job done.
9. In some cases, the designers choose to have the UAV landed with the cargo, and either release the package before flying off or have a receiver remove the package from the UAV.
10. Unfortunately, these tanks do not have the capability to withstand the pressure needed to control a BOG management system at a size below 4000 m<sup>3</sup>, although it is possible for some of these tanks to be as small as 2000 m<sup>3</sup>.
11. These tanks are not required to be surrounded by a dyke or bund wall.
12. It is size that makes nanomaterials behave differently, and perhaps more dangerously, than normal-size substances.

❖ **EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL  
(Traducciones con subjuntivo II)**



**B. Lea el texto que está a continuación. Tradúzcalo**

**Developable mechanisms can reside inside the surface of a structure**

*Date:* February 13, 2019  
University

*Source:* Brigham Young

It took just over 10 years, but real science has finally caught up to the science fiction of Iron Man's transforming exoskeleton suit.

In a paper published today in *Science Robotics*, engineers at Brigham Young University detail new technology that allows them to build complex mechanisms into the exterior of a structure without taking up any actual space below the surface.

This new class of mechanisms, called "developable mechanisms," get their name from developable surfaces, or materials that can take on 3-D shapes from flat conformations without tearing or stretching, like a sheet of paper or metal. They reside in a curved surface (like, say, the arms of Iron Man's suit) and can transform or morph when deployed to serve unique functions. When not in use, they can fold back into the surface of the structure seamlessly.

"These new discoveries make it possible for them to build complex machines that integrate with surfaces to be very compact, but can deploy and do complex tasks," said researcher Larry Howell, professor of mechanical engineering at BYU. "It opens up a whole new world of potential devices that have more functions, but are still very compact."

Making hyper-compact mechanisms is something increasingly important as manufacturers across medical, space and military industries are constantly working to get more complex functionality in less space. Potential applications of developable mechanisms include:

- Medical: Surgical instruments that can both cut materials and deploy lights simultaneously during minimally-invasive surgery
- Vehicles and airplanes: Storage components that could deploy from the inner surface of the fuselage and be completely out of the way when not in use
- Military: Quad-rotor drones that have adjustable wing spans for fitting in tight spaces
- Space: Wheels that could deploy claws for rock crawling, which could be especially useful to an interplanetary rover.

This new class of mechanical structures evolved from Howell and colleague Spencer Magleby's work on origami-based engineering, done in collaboration with origami artist Robert Lang. From solar arrays for NASA to bulletproof barriers for police officers, their work has generated national and international coverage. As the group of researchers moved to curved origami principles, the mathematics revealed a new way of doing more complex machines.

"Origami was a stepping stone to this," Magleby said. "The art of Origami has inspired us to do things that don't even look like Origami, yet it is the core of much of this new engineering."

The new line of research is sponsored by the National Science Foundation and includes researchers at BYU, the University of Southern Indiana and Lang Origami.

"It's pretty cool to accomplish things that have merely been science fiction in the past," Howell said. "These are discoveries that will enable us to do things that no one has ever been able to do before. And we hope that other engineers, as they build on these discoveries, will apply them in ways that will help make the world a better place."



**APELLIDO Y NOMBRE:** .....  
**LEGAJO:** .....  
**CARRERA:** .....

### **TRABAJO PRÁCTICO N° 10**

- **Comparación de adjetivos y adverbios:** comunes, irregulares, comparativos especiales.

#### **A. Traduzca las siguientes oraciones**

1. These processes require less equipment than those used on global export facilities and are far less complex which lead to a simplified operation.
2. Durability issues can drive up costs—the higher the FRC replacement rate, the higher the overall costs. (FRC: flame-resistant clothing)
3. "Standard culture conditions are like a five-star hotel for *Geobacter*," says Gemma Reguera of Michigan State University in East Lansing, who led the research. "We had to make life a little rougher for them."
4. The micro-hardness has increased from the outer side of tube towards the inner side of the tube in HAZ area of the failed pipe.
5. Of course, we also need an environment that connects people, is well-lit – the more daylight the better – well-ventilated, has good temperature controls, is connected to nature and where water is readily available to keep us hydrated.
6. Eight of my favorite green building experts were asked one question: "What notable trends ensure us to live a better and better life?"
7. The underlying framework needs to be as efficient as it can be, either managing the data, enabling the geophysical process, or both.
8. "This work ties a lot of things together," says Derek Lovley, a microbiologist at the University of Massachusetts Amherst and Reguera's former postdoctoral supervisor.
9. The materials intensity of products and processes is a good proxy for their environmental impacts, i.e. the more material is needed in a given product or service, the larger the environmental impact caused in the production stage of those materials.
10. Nonetheless, looking at the timeline of events in the management of Ghana's e-waste, a significant activity and intervention is the establishment of a legal framework.
11. In brief, these wearable suits help people to walk and lift heavy objects with minimal effort, reducing required muscle force by as much as 60%.
12. Materials that increase the life of existing building supplies such as self-healing concrete will also become a lot more popular.
13. Nanomaterials are usually defined as materials that have at least one dimension smaller than 100 nanometers.
14. In stabilized grades, Sigma phase precipitation is faster than other grades of stainless steel grades (for example as is shown in Fig. 2, precipitating in alloy 347 is slightly faster than that in alloy 321).

## ❖ EJERCICIO A RESOLVER EN LA PLATAFORMA DE AULA VIRTUAL (Comparativos y superlativos)

**B. 1) En el siguiente texto, subraye todos los casos de estructuras comparativas y superlativas (comunes y especiales), y 2) Traduzca dichas oraciones.**

### **6 of the lightest and strongest materials on earth**

The future of construction is getting more and more exciting thanks to huge technological developments in material innovation. Researchers are constantly developing new materials that are stronger and lighter than ever before, paving the way to a more energy-efficient and eco-friendly future in everything from transportation to medical technology. We've rounded up six cutting-edge materials that rank among some of the lightest and strongest ever discovered—keep reading to see them all.

#### **3D Graphene**

Made from pure carbon, ultra-thin graphene is thought to be one of the strongest materials on the planet. But earlier this year, researchers at MIT found a way to turn two-dimensional graphene into a three-dimensional structure by designing a new material with a sponge-like configuration that's 5 percent the density of steel and about 10 times as strong. The super-strong and lightweight 3D graphene has been shown to be stronger than its 2D counterpart and offers greater potential uses thanks to its building block form.

#### **Carbyne**

In the spring of 2016, a team of Austrian researchers revealed that they were able to successfully synthesize Carbyne, an exotic form of carbon that they say is the strongest of all known materials—even surpassing graphene. Considered the holy grail of carbon allotropes, Carbyne is made from a monodimensional chain of carbon atoms that's highly reactive, making it very tricky to synthesize. The stiff material is believed to be twice as strong as carbon nanotubes.

#### **Aerographite**

Created from a network of porous carbon tubes, aerographite is synthetic foam that's one of the lightest structural materials ever created. Developed by researchers at the University of Kiel and the Technical University of Hamburg, aerographite can be produced in a variety of shapes and boasts a density of just 180 grams per cubic meter, making it about 75 times lighter than styrofoam. The material could be used on the electrodes of lithium ion batteries to reduce their weight.

#### **Aerographene**

Aerographene, also known as graphene aerogel, is believed to be the world's lightest material with a density of just 0.16 milligram per cubic centimeter. Zhejiang University researchers developed the material, which is approximately 7.5 times less dense than air. The extremely elastic material can absorb up to 900 times their own weight in oil and water, making oil spill cleanups a potential application.

#### **Metallic microlattice**

Metallic microlattice is the world's lightest metal and one of the lightest structural materials. This synthetic porous material made from nickel phosphorous tubes has a density as low as 0.9 milligrams per cubic centimeter. Potential uses include applications in automotive engineering, aeronautical engineering, and more.

#### **Limpet teeth**

The teeth of limpets, the term for aquatic snails found clinging to rocky shores, are considered to be one of the strongest biological materials in the world. Made of a mineral-protein composite, limpet teeth have been revealed in a University of Portsmouth study to be much stronger than spider silk. Its strength is believed to be due to its tightly packed mineral fibers, which scientists could combine into man-made composites to create stronger planes, cars, and even dental fillings.

**APELLIDO Y NOMBRE:** .....  
**LEGAJO:** .....  
**CARRERA:** .....

### **TRABAJO PRÁCTICO N° 11**

- **Expresiones críticas para la traducción.**

#### **A. Traduzca las siguientes oraciones**

1. Studies purporting to identify accident-prone individuals have often employed incorrect statistical techniques that fail to compare distributions of accidents.
2. LCNG refueling stations have the ability to compress liquefied natural gas at a maximum pressure of 300 bars in order to fuel CNG appropriate vehicles.
3. One molecule of melamine is produced out of six molecules of urea (producing six molecules of ammonia and three molecules of CO<sub>2</sub> as side products).
4. The contact tips also have greater mass at the front compared to other designs, along with a taper that mates securely with the gas diffuser.
5. Even when the fuel gas suddenly stops, the supply of vaporizer gas will continue for a limited time because of the capacity of the heated water bath.
6. By designing a UAV that is specifically catered towards humanitarian purposes, the public can recognize that UAVs can have a positive impact on society rather than a negative one.
7. Once integrated, all functions will be ready to meet new demands and know how each change should be tailored to support the other functions.
8. On a mass basis, spider silk is five times stronger than steel.
9. The patch panels and fasteners should be coated with a sealing compound and fitted wet.
10. When opportunities for fuel conservation are to be assessed, it becomes necessary to use a measure other than energy.
11. If the repair is to a sandwiched construction, the inner coating and core are repaired in a first step.
12. When this approach is used, similar tasks from all over the facility are considered and standards are engineered to provide consistent methods and times.
13. The spine houses all critical functions necessary for the operations and control of the facility as a whole.
14. For that purpose it is necessary to promote standardization and qualification of distribution equipment which recognizes the mutual interrelationship of such equipment, even bridging different companies.

**B. Traduzca el siguiente texto.**

**Metal- to- metal wear**

Properly lubricated metal parts wear slowly, for a film of the lubricant keeps the metals from actually touching. Inadequate lubrication or excessive pressure will allow metal to make contact and then a gall or cold weld may result as one part slides over the other. Two pieces of aluminium may be cold welded by brushing the surfaces and then pressing or rolling the prepared surfaces together. In a similar manner, a steel part that slides over another steel member may rub off the separating film. With high enough contact pressure, the iron atoms of each surface may get close enough to each other to exert their potential atomic forces of attraction. Frequently the little weld thus formed is strong enough to hold and pull some of the parent metal. This bit of metal will plow into the surface of the other member, picking up more metal, and soon the parts will be keyed or frozen together. If this does not happen, they will certainly be chewed up to the extent that they must be replaced. Certain combinations of metal gall less readily than others: steel does not gall when working with brass or bronze. In general, hard metals gall less readily than soft ones.