

Pruebas para la obtención de títulos de Técnico y Técnico Superior

Convocatoria correspondiente al curso académico 2025-2026

Resolución de 12 de diciembre de 2025, de la Dirección General de Educación

Secundaria, Formación Profesional y Régimen Especial)

DATOS DEL ALUMNO			FIRMA
APELLIDOS:			
Nombre:	D.N.I. / N.I.E.	Fecha:	

Código del ciclo: IMAS03	Denominación completa del título: TÉCNICO SUPERIOR EN MECATRÓNICA INDUSTRIAL
Clave o código del módulo: CM14-0179	Denominación completa del módulo profesional: Ingles técnico para Grado Superior

INSTRUCCIONES GENERALES PARA LA REALIZACIÓN DE LA PRUEBA
- Duración del examen: Máximo 2 horas. - Cumplimentar los datos del aspirante antes del examen y firmar en todas las hojas que se entreguen. Si se necesitan hojas extra, se entregarán firmadas junto con el examen. - Tener disponible el DNI en la mesa. - Señalar y escribir con tinta indeleble, que no sea roja, las respuestas y su desarrollo. - Si se ha de rectificar una respuesta, trazar un aspa o tachar con una línea horizontal. No utilizar líquido corrector (Tippex) - Utilizar solamente el papel facilitado por el examinador (con el sello y formato correspondiente).

CRITERIOS DE CALIFICACIÓN Y VALORACIÓN
La calificación correspondiente a cada una de las cuestiones / ejercicios planteados está indicada en las instrucciones de cada pregunta. - La prueba se divide en cinco partes: • Vocabulario • Gramática • Comprensión lectora • Comprensión auditiva • Expresión escrita Hay un máximo de 100 puntos posibles entre todos los ejercicios. Para aprobar se necesita sacar un mínimo de 50 puntos sobre 100 en el cómputo global.

CALIFICACIÓN

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SECTION 1: VOCABULARY (30 MARKS)

1. Complete numbers 1-8 in the text below circling the correct word A, B, C or D from the list below.
(8x1=8 marks)

Nanomachines

Nanomachines are very small devices. Some are as small as MEMS devices, and others are made from single molecules. They are built from molecular 1 _____, and each one has a simple mechanical function.

Scientists are still looking for proper ways to 2 _____ nanomachines. The energy source must work at a very small molecular level. The 3 _____ of nanomachines is difficult because they are built one molecule at a time. Microscopes are used to study very small structures, but self-assembly, when parts come together by themselves, is a better method for mass production.

In a molecular device, a small number of molecules work together to form a 4 _____. Each molecule has one job. Together, they make the device move and work. These devices need energy to 5 _____, and this energy is usually chemical.

Chemical energy can come from reactions with hydrogen, oxygen, or light. It can also come from electricity. Two common energy 6 _____ are photochemical (light-based) and electrochemical (electricity-based). These are useful because they can both power and control the device. They can also send information about how the device is 7 _____.

Another reason these energy sources are useful is that the reactions can be 8 _____ many times, without creating extra unwanted materials, so they are applicable for nanodevices.

- | | | | | |
|----|-------------|--------------|----------------|--------------|
| 1. | A. tools | B. parts | C. components | D. groups |
| 2. | A. power | B. work | C. function | D. shape |
| 3. | A. doing | B. building | C. manufacture | D. cleaning |
| 4. | A. building | B. compound | C. technique | D. system |
| 5. | A. process | B. operate | C. switch on | D. go on |
| 6. | A. sources | B. resources | C. functions | D. batteries |
| 7. | A. doing | B. powering | C. resting | D. working |
| 8. | A. repeated | B. created | C. finished | D. signalled |

2. Match the following terms 1-10 below with their correct synonym from letters a-j. Write your answers in this table: (10x0.5=5 marks)

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

- | | |
|----------------|-----------------|
| 1. Outcome | a. steadiness |
| 2. Exploration | b. set of rules |
| 3. Optimal | c. evaluate |

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- | | |
|---------------|------------------|
| 4. Algorithms | d. best |
| 5. Stability | e. mistakes |
| 6. Measure | f. application |
| 7. Faults | g. investigation |
| 8. Use | h. decrease |
| 9. Analysis | i. review |
| 10. Reduction | j. result |

3. Complete the sentences 1-5 below with the correct suffix from the box below. There are two extra you don't need to use. (5x1=5 marks)

- ing -ment -ation -ion -ity -ist -ance

- Measure _____ of signals is of key importance for control tasks.
- Perform _____ of monitoring allows carrying out the operative control of mechatronics systems.
- Nanotechnology deals with objects of dimensions of less than 100 nanometers and the manipulat _____ of individual molecules and atoms.
- Information process _____ is of particular importance in mechatronics systems.
- Stabil _____ of system work is highly determined by the quality of control.

4. Complete sentences 1-10 below with the correct word from the box. There are two extra words you don't need to use. (10x1=10 points)

processes /implementing /development /lifespan /outputs /result /synergistic /foundations /sensor /perform /carry /supply

- A _____ is a device which detects or measures some condition, indicates, or responds to the information received.
- The effect of the coordinated interaction of parts of mechatronics system is called _____ integration.
- Nickel metal hydride batteries have a much longer _____ than lead-acid batteries and are widely used in hybrid and plug-in hybrid vehicles.
- Techniques of production management are also used in service industries, where they are called operations management. During production processes, inputs are converted into _____.
- Nanoengineering is the engineering field focused on the study, _____ and refinement of materials at a very small scale

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- 6 Tiny robots can _____ precise tasks like medical procedures or environmental monitoring.
- 7 There is a critical need to identify new directions in research and engineering education by addressing, pursuing, and _____ new meaningful and pioneering research initiatives.
- 8 The operational principles and basic _____ of conventional Mechatronic systems and MEMS are the same, while NEMS can be studied using different concepts and theories.
- 9 Mechatronics is defined as the combined integration of mechanical engineering, with electronics and intelligent computer control in the design and manufacturing of industrial products and _____.
- 10 Photochemical and electrochemical energy sources are preferred as they not only _____ energy.

SECTION 2: GRAMMAR / LANGUAGE (40 POINTS)

5. Complete the sentences with the verbs in brackets in the correct form. (8x1.25=10)

- 1 _____ (not / remove) the tab!
- 2 As the rollers turn, _____ the hot metal _____ (move) between them?
- 3 After that, the molten metal _____ (pour) into the chamber.
- 4 When the metal _____ (cool) down, it becomes hard.
- 5 You must heat the metal until it _____ (melt).
- 6 Lithium-ion batteries first _____ (appear) in EVs in the 1990s.
- 7 They _____ (definitely / not / return) to the boat in the next week.
- 8 Small pieces of metal _____ (usually / feed) into the hopper at this point.

6. Complete the second sentence so that it has a similar meaning to the first sentence. Use NO MORE THAN FIVE WORDS, including the word given. (6x1.5=9)

- 1 Don't enter before putting on a hard hat. **UNTIL**
Don't enter _____ a hard hat.
- 2 It's not necessary to install the equipment today. **NEED**
The equipment _____ be installed today.

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3. It's essential to check the brake lines every 15,000 km. **MUST**

You _____ every 15,000 km.

4 Put anti-freeze in your radiator before every winter. **SHOULD**

Anti- freeze _____ in the radiator before every winter.

5 These chemicals should not be handled without wearing protective gloves. **ONLY**

You should _____ you are wearing protective gloves.

6 Check all fluid levels before starting a long car journey. **DON'T**

_____ a long car journey without checking all fluid levels.

7. Circle or write the correct option (a–d) for numbers 1-15 below. (21x1=21)

1 A: What's the job of a technical supervisor?

B: He _____ the work of the technical team.

a) is monitoring b) monitors c) monitored d) has monitored

2 Currently, we _____ on a new project to be completed in two months' time.

a) work b) have worked c) are working d) will be working

3 If your smartphone has lost its signal, why _____ using it outside the tunnel?

a) you are not b) you don't c) don't you try d) don't you

4 When the plastic has cooled, it can _____ from the mould.

a) eject b) be ejecting c) be ejected d) have ejected

5 The engineer _____ come today to repair the machines. You'll have to wait.

a) will not definitely b) will definitely not c) will definitely d) is definitely

6 He worked for GD Holdings for two years before _____ to our company.

a) move b) to move c) moved d) moving

7 The construction of the tallest building _____ last week.

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- a) has completed b) is completed c) had been completed d) was completed
- 8 A: 'What's the ____ speed for cruising, if I want to consume the least amount of fuel?'
B: 'About 95 km/ h is the best speed for a long journey. You'll use much less petrol.'
a) efficienter b) more efficient c) efficientest d) most efficient
- 9 It was confirmed that the new power generator _____ operational by the end of next month.
a) was b) would be c) is d) could
- 10 He's in Warehouse B _____ all the goods are stored before shipment.
a) where b) which c) that d) who
- 11 This is _____ the best machine for our needs.
a) a lot b) much more c) by far d) a great deal
- 12 The oil platform was secured to the seabed by _____ nine very long cables.
a) use b) result c) purpose d) means of
- 13 This material has the _____ of resisting chemicals, so we should use it.
a) ability b) inability c) capability d) capacity
- 14 The world is working on reducing carbon emissions _____ global warming.
a) result of b) caused by c) because d) owing
- 15 The new solar-powered vehicle is _____ from earlier models.
a) similar b) much like c) just as d) different
- 16 The recent upgrading of fire safety must have _____ people to escape from the burning building.
a) to help b) helped c) be helping d) help
- 17 All the main repairs to the building _____ completed more than three months ago.
a) did b) have c) are d) were
- 18 During this stage, the piston moves upwards towards the valve, _____ compresses the fuel.
a) which b) when c) what d) where
- 19 If your computer needs to be repaired, why _____ send it to our IT specialists?
a) you don't b) aren't you c) don't you d) not you
- 20 When the heat is too high, _____ makes the steel beams in the building expand and bend.

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a) and it b) which c) it d) and

21 The piston becomes hotter _____ it moves up and down inside the cylinder.

a) than b) as c) that d) which

SECTION 3: READING (10 POINTS)

8. Read the following text and answer questions 1-8 below by writing your answer or circling the correct letter A, B, or C. (8x1.25=10)

Introduction to Microelectronics

The field of microelectronics has changed dramatically during the last two decades and digital technology has governed most of the application fields in electronics. The design of digital systems is supported by thousands of different integrated circuits supplied by many manufacturers across the world. This makes both the design and the production of electronic products much easier and cost effective. The permanent growth of integrated circuit speed, scale of integration, and reduction of costs have resulted in digital circuits being used instead of classical analog solutions of controllers, filters, and (de)modulators.

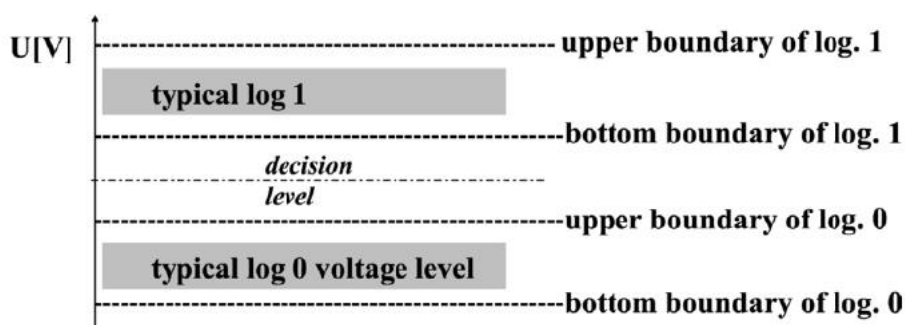
The growth in computational power can be demonstrated with the following example. One single chip microcontroller has the computational power equal to that of one 1992 vintage computer notebook.

This single-chip microcontroller has the computational power equal to four 1981 vintage IBM personal computers, or to two 1972 vintage IBM 370 mainframe computers.

Digital integrated circuits are designed to be universal and are produced in large numbers. Modern integrated circuits have many upgraded features from earlier designs, which allow for "user-friendlier" access and control. As the parameters of Integrated circuits (ICs) influence not only the individually designed IC, but all the circuits that must cooperate with it, a roadmap of the future development of IC technology is updated every year. From this roadmap we can estimate future parameters of the ICs, and adapt our designs to future demands. The relative growth of the number of integrated transistors on a chip is relatively stable. In the case of memory elements, it is equal to approximately 1.5 times the current amount. In the case of other digital ICs, it is equal to approximately 1.35 times the current amount.

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In digital electronics, we use quantities called logical values instead of the analog quantities of voltage and current. Logical variables usually correspond to the voltage of the signal, but they have only two values: log.1 and log.0. If a digital circuit processes a logical variable, a correct value is recognized because between the logical value voltages there is a gap. We can arbitrarily improve the resolution of signals by simply using more bits.



1. Which the following statements is correct?

- A. Electronics technology has controlled most of digital applications.
- B. Electronics technology has controlled most of the fields in digital applications.
- C. Most electronics applications are controlled by digital technology.

2. Different integrated circuits...

- A. ... make both the design and production of electronic products much easier and cost effective.
- B. ... which support the design of digital systems, do not affect the production of electronic products cost effectiveness.
- C. ... which are supplied by many manufacturers across the world is irrelevant to the design of digital systems.

3. Which of the following statements is correct?

- A. Reduction of costs, scale of integration, and growth of integrated circuit speed led to the replacement of digital circuits by classical analog solutions.
- B. Reduction of cost, scale of integration, and growth of integrated circuit speed led to the replacement of classical analog solutions by digital circuits.

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C. Classical analog solutions of controllers, filters, and (de)modulators have resulted in permanent growth of integrated circuit speed.

4. A computer notebook...

- A. ... is equal to computational power of one single chip microcontroller.
- B. ... is equal to one single chip microcontroller of 1992.
- C. ... of 1992 had the computational power equal to one modern single chip microcontroller.

5. Which of the following statements is correct?

- A. A modern single-chip microcontroller has the computational power equal to four 1972 vintage IBM 370 mainframe computers.
- B. Two 1972 vintage IBM 370 mainframe computers had the computational power equal to one single-chip microcontroller.
- C. A modern single-chip microcontroller has the computational power equal to one 1972 vintage IBM 370 mainframe computer.

6. Many...

- A. ... upgraded features from earlier designs are used in up-to-date integrated circuits, which allow "user-friendlier" access and control.
- B. ... earlier features from contemporary designs are used in up-to-date integrated circuits, which allow "user-friendlier" access and control.
- C. ... up-to-date features from earlier designs are used in modern integrated circuits, which allow "user-friendlier" access and control.

7. In digital electronics...

- A. ... logical values are used instead of voltage and current.
- B. ... voltage and current of logical values are used.
- C. ... logical values use analog quantities of voltage and current.

8. In a digital circuit...

- A. ... a correct value is recognized because there is a gap.
- B. ... a gap is recognized between logical variables.
- C. ... a correct value is recognized because a gap is between the logical value voltages.

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Section 4: LISTENING (10 points)

9 Listen to the conversation between Adam and Bob talking about security and write TRUE, FALSE OR NG (Not Given) in statements 1-10 below. You will listen to the recording twice. (10x1=10 points)

- | | | |
|----|--|-------|
| 1 | Bob has been investigating some security systems. | _____ |
| 2 | Bob isn't happy with his research so far. | _____ |
| 3 | Bob has decided that using PINs isn't a good idea. | _____ |
| 4 | Adam already knew about the types of fingerprint scanners. | _____ |
| 5 | Bob has used the optical scanning system. | _____ |
| 6 | Bob believes that it is easy to deceive optical scanners. | _____ |
| 7 | Bob is currently researching capacitive scanners. | _____ |
| 8 | Bob thinks that capacitive scanning is less secure. | _____ |
| 9 | Adam thinks that iris scanning is the best option. | _____ |
| 10 | Bob has finished his research into iris scanning. | _____ |

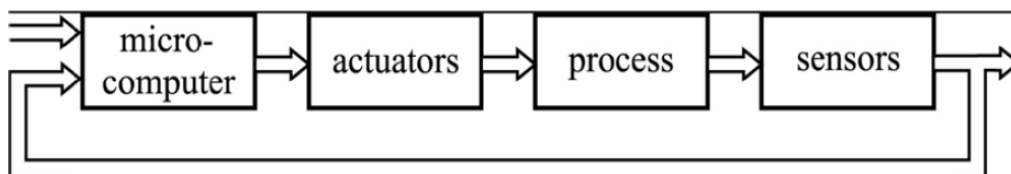
SECTION 5: WRITING (10 POINTS)

10 Choose one of the options either A or B below and write around 100-140 words on the topic given.

Rubric: Form: grammar/vocabulary/linkers/spelling and punctuation: 5 marks

Content: coherence/paragraphing/varied ideas/precision of concepts: 5 marks

A. Study the following scheme of a closed-loop control system. Then explain what it is, how it works and the function of each component. Write around 100-140 words



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B. Write an essay on the following topic: What are the benefits and risks of nanotechnology?

Include an introduction, a paragraph with the benefits, another paragraph with the risks and a final conclusion. Write around 100-140 words.