INGLÉS

INDICACIONES

Si contesta más preguntas de las necesarias para realizar este examen, solo se corregirán las primeras, según el orden en que aparezcan resueltas en el cuadernillo de examen.

PART 1. [7 POINTS] Choose **one of the two** options below and follow the instructions to answer the questions.

Option 1. Written understanding.

Australian Police Will Use DNA To Predict What Suspects Look Like

The Australian police have announced they plan to use next-generation DNA sequencing technology to predict the physical appearance of potential suspects. Based on DNA left at a crime scene, the technology –known as massively parallel sequencing (MPS) – can predict externally visible characteristics of a person even in the absence of matching profiles in police databases. MPS can already predict gender, biogeographical ancestry, eye colour and, in coming months, hair colour.

DNA is formed of two interlocked chains that form the basis of our genetic code. Each strand of DNA consists of four units known as nucleotide bases that repeat in patterns. The human genome comprises about 3 billion pairs of these bases, contained within 23 chromosomes. Human DNA is 99.9% identical, and forensic analysis is interested in the 0.1% of the genome that makes each of us genetically unique. Traditional DNA profiling focuses on 24 parts of the genome which are different enough to give a person a unique genetic fingerprint. DNA collected from crime scenes can be matched to DNA profiles on criminal databases. "If your person is not on the database, it's not very useful," said Professor Adrian Linacre, chair in forensic DNA technology at Flinders University.

Linacre describes MPS as a "massive gamechanger". The technology is capable of sequencing "tens of millions of bits of DNA in one go", he said. Rather than looking at the length of DNA sequences, MPS can look at single nucleotides and there are several single base changes that are major determinants of particular characteristics, such as eye colour. "They're dotted around your DNA but if you put them all together, you've got a real high likelihood of saying: this guy's got bluey-green eyes," Linacre said.

The new sequencing technology will allow investigators to gain information about the physical characteristics of a potential suspect even when there is no matching DNA profile on a law enforcement database. It could therefore be used in missing persons and unidentified human remains cases. There is, however, still work to be done to improve the technique. "Most things we find at crime scenes are mixtures of two or three people's DNA," Linacre said. While traditional DNA profiling techniques tend to work well even on degraded DNA, using MPS for a mixture of fragmented DNA could lead to inconclusive results.

The Guardian, 7 December 2021 (Adapted)

Question 1: [2 POINTS] Indicate whether the following statements are TRUE or FALSE and <u>write down the sentence or the part of the text</u> that justifies your answer. No points will be given if the evidence is not correct.

a) MPS can already tell us what colour hair the person in question has.
b) For the most part, everybody's DNA is very similar.
c) Linacre says the new technology will have a huge impact on police work.
d) The technique does not need any further development before being used by the police.

Question 2: [2 POINTS] Choose and <u>answer only TWO</u> of the following questions <u>in your own words</u> according to the text.

    a) What does the text tell us about DNA?

    b) How are traditional DNA sequencing and MPS different?

    c) Why are the Australian police particularly interested in MPS?

Question 3: [1,5 POINTS] Find words or phrases in the text that correspond to the words given. You only need to have five correct answers to get 1.5 points.

    a) possible (paragraph 1)

    b) instead of (paragraph 3)

    c) various (paragraph 3)

    d) for example (paragraph 3)

    e) to permit (paragraph 4)

    f) combinations (paragraph 4)

Question 4: [1,5 POINTS] Choose the correct option –a, b, c or d– for each question and COPY <u>both the letter and the sentence that follows</u> onto your answer sheet.

    1. The text explains that the nucleotides that determine eye colour…

        a) are all found together within a person's DNA.

        b) are found in different places within a person's DNA.

        c) are all identical to each other in a person's DNA.

        d) are all identical in everybody's DNA.

    2. The new MPS technology is useful…

        a) only if the police already have some previous record of a potential suspect.

        b) only when the police have no previous record of a potential suspect.

        c) even if the police have no previous record of a potential suspect.

        d) except when the police have no previous record of a potential suspect.

    3. The text explains that normally, DNA evidence found where a crime has been committed…

        a) does not belong to anybody.

        b) belongs to a single person.

        c) belongs to more than one person.

        d) belongs to somebody who is already in the police database.

[See part 2]

PART 1. Option 2 [7 POINTS] Written understanding

Italian Ski Resorts Get Ready To Open After Two Seasons Lost To Covid

Enrico Rossi, vice-president of Bardonecchia's tourism consortium, was among the protesters when the Italian government decided in February to maintain a Covid shutdown on ski resorts just hours before the slopes were due to reopen. Rossi described the decision as a tragedy for his small town, especially after the 2020 season had also been cut short. But as the resort prepares to reopen in early December, he is cautiously optimistic. "Three times last year we prepared the slopes and hired staff only for it all to get cancelled. It was very disappointing. But this year's prospects are looking good. Bookings are coming in, mainly from Italy, and the pandemic situation is different".

Some Italian ski slopes have already opened with the requirement to present the Covid-19 health pass when using ski lifts and social-distancing measures in place. Face masks must be worn in "common areas" as part of the protocols agreed by the Italian ski industry. "Customers aren't complaining – the desire to ski is greater than the annoyance of having to follow the rules", said Herbert Tovagliari, president of Cervinia Spa, a travel and tourism company. The ski season is a huge financial resource for Italy and many villages depend on it for survival. The economic cost to the sector of the shutdown last year was estimated at €10 billion.

Ski resorts in Piedmont's Lanzo valley are yet to see any snow. Livio Barello, president of the area's tourism operators, hopes that will change as resorts across the valley prepare to open in early December. "We'll need years to recuperate the economic losses from the last couple of seasons, but the signs are very positive". He works in Viù, a town of about 1,000 inhabitants, where businesses benefitted from a Piedmont region-wide holiday initiative that offered visitors three nights for the price of one. "Everything revolves around tourism, it's the soul of the economy", said Barello.

When the ski season was cancelled last year, the mayor of Sestriere feared the village of just over 900 inhabitants in the Susa valley would turn into a ghost town; before the pandemic the population would swell to 20,000 a day during the ski period. Today, the mayor is feeling happier. "The atmosphere is much better this year", he said. "Despite the numerous obstacles we face, we're working hard and we have a plan to reopen safely. The Covid rules are still there, but these must be respected so that the season can properly start".

The Guardian, 12 November 2021 (Adapted)

Question 1: [2 POINTS] Indicate whether the following statements are TRUE or FALSE and <u>write down the sentence or the part of the text</u> that justifies your answer. No points will be given if the evidence is not correct.
　　　a) The decision not to open the slopes in February was very last minute.
　　　b) Most of the tourists planning to visit Bardonecchia this year are foreigners.
　　　c) The conditions in the Lanzo valley are already perfect for skiing.
　　　d) The preparations to reopen in Sestriere are not seen by the mayor as a difficult task.

Question 2: [2 POINTS] Choose and <u>answer only TWO</u> of the following questions <u>in your own words</u> according to the text.
　　　a) How has the Covid pandemic affected the Italian towns mentioned in the text?

　　　b) What new measures must people going skiing in Italy follow?

　　　c) How are ski resorts trying to increase the number of tourists this year?

Question 3: [1,5 POINTS] Find words or phrases in the text that correspond to the words given. You only need to have five correct answers to get 1.5 points.

a) Employees (paragraph 1)

b) Reservations (paragraph 1)

c) Massive (paragraph 2)

d) Essence (paragraph 3)

e) To grow (paragraph 4)

f) Correctly (paragraph 4)

Question 4: [1,5 POINTS] Choose the correct option –a, b, c or d– for each question and COPY <u>both the letter and the sentence that follows</u> onto your answer sheet.

1. The text says that Italian skiers…

a) only have to wear masks on ski-lifts.

b) have to wear masks everywhere on the resort.

c) don't have to wear masks when they are social-distancing.

d) have to wear masks in certain places at the resort.

2. The text says that the fact that the skiers want to ski…

a) makes them accept the Covid rules.

b) makes them ignore the Covid rules.

c) makes them angry at the Covid rules.

d) makes them complain about the Covid rules.

3. The mayor of Sestriere was afraid that last season's cancellation…

a) would slightly decrease the number of people in the town.

b) would slightly increase the number of people in the town.

c) would hardly affect the number of people in the town.

d) would greatly affect the number of people in the town.

PART 2. [3 POINTS] Written production.Choose ONE of the two options below and write a short essay (120-150 words). Essays up to 200 words won't be penalized.

Option 1

What are the advantages and disadvantages of going abroad on holidays?

Option 2

"Money spent on scientific research is wasted. It would be better to spend it on other more important things". Do you agree or disagree with this statement? Give reasons to justify your opinion.