UAM Universidad Autónoma de Madrid	**UNIVERSIDADES PÚBLICAS DE LA COMUNIDAD DE MADRID** PRUEBA DE ACCESO A LA UNIVERSIDAD Curso **2024-2025** **MATERIA: INGLÉS**	

INSTRUCCIONES GENERALES Y CALIFICACIÓN

Después de leer atentamente el texto y las cuestiones, responda EN INGLÉS a las cinco preguntas.

Las preguntas 1, 4 y 5 ofrecen optatividad: la pregunta 1 presenta 3 cuestiones para elegir 2, la pregunta 4 presenta 6 oraciones para elegir 4 y la pregunta 5 ofrece 2 opciones para elegir solo 1. En aquellos casos en los que se conteste a más opciones de las pedidas, se corregirán solo aquellas que estén en primer lugar, descartando el resto.

TIEMPO YCALIFICACIÓN: 90 minutos. Las preguntas 1, 2 y 4 se calificarán sobre 2 puntos cada una, la pregunta 3 sobre1 punto y la pregunta 5 sobre 3 puntos.

How “Eureka” Moments in Science Happen

A falling apple leads physicist Isaac Newton to formulate his laws of gravity. Greek wise Archimedes takes a bath and figures out how to calculate volume and density. These are iconic “light bulb” moments in the history of science. Or, as Archimedes said when an idea struck, *Eureka!* Today, the flash of knowledge is measurable using brain scans, which show how a part of the right hemisphere lights up at that moment. Anna Roos, a historian of science at the University of Lincoln, advises us to take some “eureka moments” with caution. She also thinks they do have much to say about the creative process.

The story of Newton and the falling apple is recorded in an 18th-century manuscript in the Royal Society in London. The author, William Stukeley, describes how Newton tells the story as an old man to a young disciple. They are having tea under apple trees in Newton’s garden in Kensington, so they get to talking, and Newton says, “Well, you know I first saw the idea of gravity sitting under the apple tree when I was a young man in my village.” Then, the story was embellished—the apple didn’t just fall; it fell on Newton’s head. It’s a nice visual story about inspiration. People remember it, tell it and it gets better with the retelling. Roos thinks he really did have a revelation. But she does not think the apple went *plonk* on his head, as he would have lost consciousness.

Another famous eureka moment is attributed to the Greek mathematician Archimedes and the story of how he solved a problem for the king of Syracuse by taking a bath. King Hiero II had ordered a new royal crown, for which he provided the gold. When the crown arrived, the king, suspicious that the gold craftsman had substituted silver for some of the gold and kept it for himself, asked Archimedes to determine if the crown was pure gold without harming it. How was he going to do this? He lowered himself into the bath and suddenly realized he could measure the crown’s volume by the amount of water displaced and solve the problem. He got out of the tub shouting *Eureka!*, the tale goes.

Both stories tell us that creativity needs some space to bloom. Also, many scientists get creative ideas when they let their imagination run away. These stories don’t give you any sense of the steps or preparatory stuff, but people love them because they simplify things and take away all the hard work. They’re an analogy everybody understands. Eureka stories are a compression of decades and decades of work into one inspirational moment.

Adapted from Cathy Newman’s “How ‘Eureka’ Moments in Science Happen.” *National Geographic,* 19 Oct. 2023. <https://education.nationalgeographic.org/resource/how-eureka-moments-science-happen/>

QUESTIONS

1.- Indicate whether TWO of the following statements are True, False or the information is Not Given in the text (T/F/NG). In true and false cases, copy the complete sentence that contains the evidence which justifies your answer. No marks are given for only TRUE or FALSE.

a) Nowadays, technology can identify the moment a brilliant idea comes to our minds.
b) The tale of Newton´s discovery of gravity, inspired by a falling apple, was only passed orally.
c) Archimedes gave the king the material for his new jewel.
(Puntuación máxima: **2 puntos**)

2.- In your own words and based on the ideas in the text, answer the following questions. Do not copy from the text.

a) What is Anna Roos's opinion about the process of Newton's discovery?
b) Why are the stories of Newton and Archimedes enjoyed by a lot of people?
(Puntuación máxima: **2 puntos**)

3.- Find the words in the text that mean:

a) reveal (paragraph 1)
b) pupil (paragraph 2)
c) decide (paragraph 3)
d) room (paragraph 4)
(Puntuación máxima: **1 punto**)

4.- Answer FOUR questions (from a to f) of your choice.

Write a new sentence that has the same meaning as the one given. Use the word or expression in brackets. Do not change the word(s) given.

a) She missed the opportunity because she didn't make the decision on time. *(would not)*
b) I prefer reading an adventure book at home to watching a film. *(rather)*
c) First, Sara betrayed her colleague at work, and then she publicly apologized. *(after)*

Complete the following sentences to report what was said.

d) "I won't drive the car in this weather."
Marta refused … .
e) "Where is she going to buy the fruit?"
Peter asked me … .

Rephrase the sentence beginning with the words given.

f) "They are opening a very modern bookstore in my town."
A very modern … .
(Puntuación máxima: **2 puntos**)

5.- Write between 150 and 200 words on ONE of the following questions.

a) Write about an important invention and explain why it is relevant for humankind.
b) Discuss the advantages and disadvantages of the advances in AI (Artificial Intelligence).
(Puntuación máxima: **3 puntos**)