POLITÉCNICA	UNIVERSIDAD POLITÉCNICA DE MADRID PRUEBAS DE ACCESO PARA MAYORES DE 25 AÑOS MATERIA: LENGUA INGLESA	2025
	Duración 1 hora	

In 1928, Scottish bacteriologist Alexander Fleming was conducting routine experiments with bacteria at St. Mary's Hospital in London when he stumbled upon what would become one of the most significant discoveries in medical history. At the time, Fleming was studying cultures of staphylococcus bacteria, a common type of bacteria responsible for various infections. During his research, he observed something unusual: one of his culture plates had been contaminated by a mold. Rather than discarding the plate, Fleming examined it closely and noticed that the mold seemed to inhibit the growth of the surrounding bacteria. Fascinated by this phenomenon, Fleming identified the mold as belonging to the Penicillium genus.

This accidental discovery marked the beginning of a new era in medicine. Fleming quickly realized the potential implications of his findings. He hypothesized that the mold produced a substance capable of killing harmful bacteria without harming the human body. He named this substance "penicillin." However, Fleming soon encountered significant challenges. Fleming was able to demonstrate penicillin's antibacterial properties in the laboratory; however, isolating and producing the substance in sufficient quantities proved to be an incredibly difficult task. The technology and knowledge required to purify penicillin did not exist at the time, and Fleming lacked the resources to overcome these obstacles.

Despite these challenges, Fleming's work laid the foundation for future breakthroughs. In the 1940s, a team of researchers, including Howard Florey, Ernst Boris Chain, and Norman Heatley, took up the task of refining and mass-producing penicillin. Their work was supported by substantial funding from governments and private institutions, driven by the urgent need for effective treatments during World War II. Florey and his team devised methods to extract and stabilize penicillin, transforming it from a laboratory curiosity into a life-saving medicine. By the end of the war, penicillin was being produced on an industrial scale and was credited with saving countless lives on the battlefield by effectively treating infections that would otherwise have been fatal.

Penicillin revolutionized medicine by providing a powerful and effective treatment for bacterial infections. Diseases that had once been considered death sentences, such as pneumonia, syphilis, and sepsis, could now be cured quickly and reliably. Its introduction marked the beginning of the antibiotic era, fundamentally changing the way doctors approached infectious diseases. Penicillin became widely available to the general public after the war, further reducing mortality rates and improving public health.

Adapted from: "Alexander Fleming and the Discovery of Penicillin," History.com

Read carefully the text and answer the following questions

A.1.- Are the following statements TRUE or FALSE? Copy the evidence from the text. Use a complete sentence. No marks are given for only TRUE or FALSE.

a) Fleming discovered penicillin while actively searching for a new medicine.

b) Fleming was able to produce penicillin in large quantities on his own. (*Puntuación máxima: 2 puntos*)

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

a) Why was it difficult for Fleming to isolate and produce penicillin?

b) How did World War II contribute to the development of penicillin? (*Puntuación máxima: 2 puntos*)

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

a) Found by chance

b) Throwing away

c) Understand

d) Extensive (Puntuación máxima: 1 punto)

A.4.- Complete the following sentences. Use the appropriate form of the word in brackets when given.

a) If penicillin \_\_\_\_\_ (discover) in the 19th century, it \_\_\_\_\_ (save) even more lives.

b) Nowadays, scientists \_\_\_\_\_ (work) on new antibiotics to combat \_\_\_\_\_ (grow)

bacterial resistance.

c) \_\_\_\_\_\_ penicillin was a groundbreaking discovery, it had some limitations in its early

days.

d) Report this question: "Did Fleming conduct his research alone?" He asked me \_\_\_\_\_. (*Puntuación máxima: 2 puntos*)

## A.5.- Write about 150 to 200 words on one of the following topics.

- a) Reflect on what the story of penicillin teaches us about innovation, collaboration, and perseverance.
- b) Write about how penicillin addressed a global health crisis and what this teaches us about the power of science.

(Puntuación máxima: 3 puntos)