A2.1 origin of cells [4 marks]

1. [Maximum mark: 1]
How does the Miller-Urey experiment contribute to an explanation of the origin of life?

A. It shows how phospholipids form protocells in specific laboratory conditions.

B. It explains how organic molecules arise from inorganic ones under certain environmental conditions.

C. It explains the synthesis of RNA, recreating deep sea vent conditions in the laboratory.

D. It shows how the last universal common ancestor (LUCA) evolved from vesicles. [1]

. . . . . .

. . . . . .

. . . . . .

2. [Maximum mark: 1]
The Miller–Urey experiment carried out in 1952 tested the hypothesis of the chemical origin of life. What were the key findings?

A. Living cells could be produced from a mixture of chemicals.

B. Complex organic molecules could form under simulated primordial conditions.

C. Life could spontaneously emerge without external influence.

D. DNA and RNA could self-replicate in a prebiotic environment. [1]

3. [Maximum mark: 1]
How does the study of rock deposition provide evidence of when organisms first started to photosynthesise?

A. Fossils of leaves were found from the first plants to photosynthesise.

B. Analysis of the rocks for magnesium indicate when chlorophyll could be synthesised.

C. The carbon content of rock indicates the amount of carbon dioxide in the atmosphere.

D. Rocks of a different colour were deposited when oxygen was released by photosynthesis. [1]

4. [Maximum mark: 1]
A self-sustaining system is set up in a sterile, sealed, transparent glass bottle with damp, sterilized soil and a small garden plant. If the system remains sterile, what could be the reason that the plant fails to grow and dies?

A. Lack of soil nutrients

B. Lack of oxygen

C. Lack of space

D. Lack of water [1]

.....

.....

.....