

Adaptations (structural, behavioural, functional)

Q1. (2018)

03

Scientists have removed microorganisms from inside rocks in caves in Mexico.

The microorganisms have been trapped there for between 10 000 and 50 000 years.

The caves are dark, very hot, humid and acidic.

A)

03.1

Why are these microorganisms called extremophiles?

[2 marks]

Tick **two** boxes.

They are thousands of years old

☐

They survive in high humidity

☐

They survive in high temperatures

☐

They survive in the dark

☐

They survive inside rocks

☐

They survive where it is acidic

☐

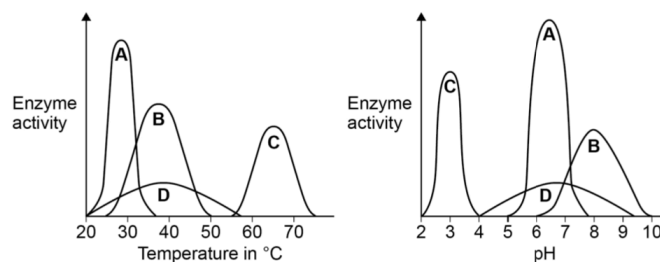
B)

The microorganisms have been inactive for thousands of years but the scientists have reactivated them.

Figure 2 shows the results of enzyme analysis on four enzymes, **A**, **B**, **C** and **D**.

Three of the enzymes were from microorganisms found in the soil near the caves.

One of the enzymes was from a reactivated microorganism from the caves.

Figure 2

03.2

Which enzyme comes from the microorganism from the caves?

[1 mark]

Tick **one** box.

A

☐

B

☐

C

☐

D

☐

C)

03.3

Give the reasons for your answer to question 03.2

[1 mark]

Q2. (2019)

0 4

Animals have adaptations to survive in their environment.

These adaptations may be structural, behavioural or functional.

0 4 . 1

Draw **one** line from each animal adaptation to the type of adaptation it is.

[2 marks]

Animal adaptation	Type of adaptation
 <p>Male palm cockatoos use sticks to beat on hollow branches to attract females.</p>	<div>Structural</div>
 <p>The harmless hornet moth has black and yellow stripes to look like a bee or wasp.</p>	<div>Behavioural</div>
 <p>Sea spiders have automatic muscle contractions that move oxygen around their bodies.</p>	<div>Functional</div>

Q3. (2019)

Plants also have adaptations.

There are more than 28 000 known species of orchid plants.

0 4 . 2

Many orchid plants:

- grow attached to other types of plants
- have brightly coloured flowers
- produce large quantities of pollen
- produce thousands of tiny, light seeds.

Describe how these adaptations help orchid plants to survive and compete.

[4 marks]