

GCSE Biology B (Twenty First Century Science)
J257/01 Breadth in Biology (Foundation)

Question Set 23

Multiple Choice Questions

1. Many diseases are caused by bacteria. Antibiotics are used to kill bacteria.

A scientist grows bacteria on three agar plates. He then tests the effectiveness of three different antibiotics, **A**, **B** and **C**.

The results are shown in **Fig. 3.1**.

- The black circle in the centre of each plate is the antibiotic.
- The grey areas are where bacteria have grown.
- The white areas are the zones of inhibition, where the bacteria have been killed.

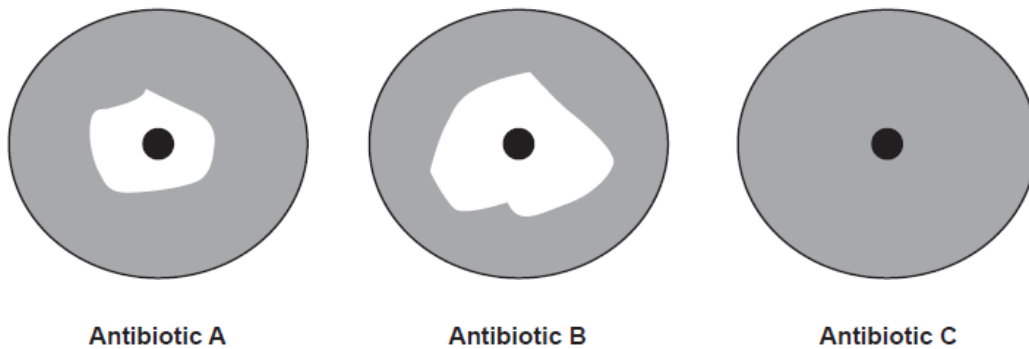


Fig. 3.1

(a) The scientist concludes that **Antibiotic B** is the most effective.

Explain how the scientist reached this conclusion

largest clear zone so more bacteria were killed.

[1]

(b) The bacteria are resistant to one antibiotic.
Which antibiotic are the bacteria resistant to?

Tick (✓) **one** box.

Antibiotic A

Antibiotic B

Antibiotic C

Explain your answer.

antibiotic C wasn't able to kill any bacteria

[2]

(c) The statements **A**, **B**, **C** and **D** explain how bacteria become resistant to antibiotics but they are in the wrong order.

- A** The bacterium reproduces.
- B** The bacterium survives.
- C** The bacteria passes on its resistance.
- D** There is a mutation in the DNA of the bacteria.

Put the statements in the correct order by writing a letter in each box.

D	B	A	C
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[3]

(d) The theory of evolution by natural selection was developed by which two scientists?

Tick (✓) **one** box.

- | | |
|--------------------|-------------------------------------|
| Darwin and Wallace | <input checked="" type="checkbox"/> |
| Mendel and Darwin | <input type="checkbox"/> |
| Wallace and Mendel | <input type="checkbox"/> |

[1]

(e) Fig. 3.2 shows the evolution of humans using fossils.

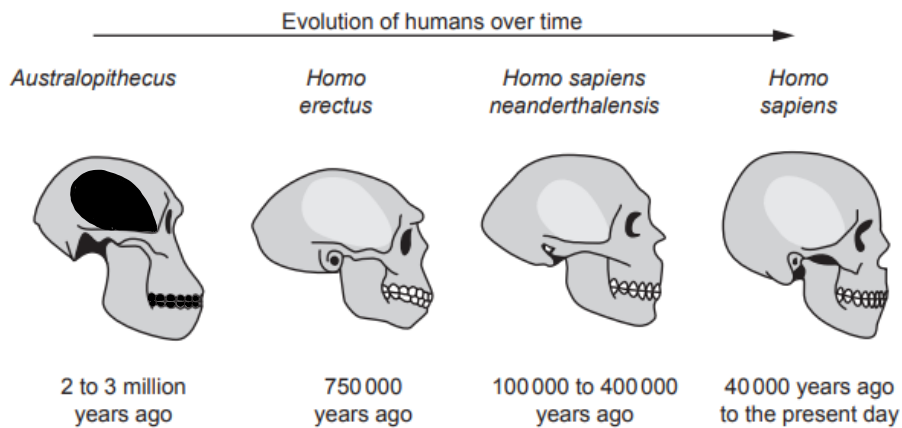


Fig. 3.2

Describe how the fossils in Fig. 3.2 provide evidence for evolution.

- show each change in human skulls' shape over a very long time
- size gets bigger over time but the basic shape is the same
- similarity in shape indicates a common ancestor

[3]

Total Marks for Question Set 23: 10

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