

Characteristics and variety of living organisms: practice questions

7 questions • 21 marks • mark scheme at the back

For Pearson Edexcel International GCSE Biology 4BI1 and Science (Double Award) 4SD0. **Biology only** is not in the Double Award and is only examined on Paper 2.

Name

Total / 21

- 1** Which of these is an example of excretion? [1 mark]
- A. ☐ Removing carbon dioxide made by respiration
 - B. ☐ Removing undigested food from the gut
 - C. ☐ Taking in oxygen from the air
 - D. ☐ Releasing seeds from a plant
- 2** A student says that a car engine is alive because it uses fuel and releases waste gases. [3 marks]
Use the characteristics of living organisms to suggest why the student is wrong.
-
-
-
-
-
- 3** Describe four differences between a plant and an animal. [4 marks]
-
-
-
-
-
-
- 4** Which statement describes how a fungus such as Mucor feeds? [1 mark]
- A. ☐ It makes glucose by photosynthesis
 - B. ☐ It secretes enzymes onto food and absorbs the products
 - C. ☐ It engulfs food into a vacuole inside the cell
 - D. ☐ It takes in food through a mouth and digests it in a gut

- 5** Amoeba and Chlorella are both protocists. State what a protocist is, and explain why Chlorella is more like a plant than an animal. **[3 marks]**

[illegible]

- 6** Name two structures found in a bacterial cell. State one structure that is found in an animal cell but not in a bacterial cell. **[3 marks]**

[illegible]

- 7** Compare the structure of a bacterium with the structure of a virus. Explain why a virus is not classed as a living organism. **[6 marks]**

[illegible]

Mark scheme

One mark for each point unless a maximum is given. Words in brackets are not needed for the mark.

1. [1]

A A (1)

2. [3]

- a car does not grow or develop (1)
- a car does not reproduce (1)
- a car does not respond to its surroundings / control its internal conditions (1)
- burning fuel is not respiration in cells / a car does not respire (1)
- ignore movement, nutrition or excretion (the car appears to show these)
- Max 3

3. [4]

- plant cells contain chloroplasts, animal cells do not (1)
- plants can photosynthesise, animals cannot (1)
- plant cells have cellulose cell walls, animal cells have no cell walls (1)
- plants store carbohydrate as starch or sucrose, animals store it as glycogen (1)
- animals usually have nervous co-ordination, plants do not (1)
- animals can usually move from one place to another, plants cannot (1)
- Max 4

4. [1]

B B (1)

5. [3]

- a microscopic single-celled organism (1)
- Chlorella has chloroplasts (1)
- so can carry out photosynthesis / like a plant cell (1)

6. [3]

- first correct structure from: cell wall, cell membrane, cytoplasm, plasmid, circular chromosome (1)
- second correct structure from the same list (1)
- nucleus (1) allow mitochondria

7. [6]

Level 3 5-6	A detailed comparison covering the structure of both, with clear reasoning for why a virus is not living. Biological terms are used accurately throughout.
Level 2 3-4	Describes the structure of both with some comparison, and gives at least one reason why a virus is not living. Some detail may be missing.
Level 1 1-2	Gives a few simple facts about a bacterium or a virus, with little or no comparison or explanation.

Indicative content

- a bacterium is a single cell, a virus has no cellular structure
- a bacterium has a cell wall, cell membrane and cytoplasm; a virus has none of these, only a protein coat around its nucleic acid
- a bacterium has a circular chromosome of DNA and plasmids; a virus contains one type of nucleic acid, DNA or RNA
- bacteria are microscopic; viruses are smaller than bacteria
- bacteria can reproduce on their own; a virus can reproduce only inside living cells
- a virus is not living because it has no cellular structure and is parasitic, reproducing only inside host cells