Cell biology

Biology Paper 1 | 5 questions, 6 marks each

GCSE science 6-mark questions

This topic online

Name: _____ **Date:** _____ **Score:** _____ **/ 30**

Plan before you write: jot down the 6 or more ideas you need, then put them in a sensible order. For compare questions give both sides of each point; for evaluate questions use the information and finish with a conclusion.

1 Priya looks at two samples under a microscope. Sample A is a cell scraped from the inside of her cheek. Sample B is a bacterium from yoghurt.

Compare the structure of the cheek cell with the structure of the bacterial cell. (6 marks)

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

2 A research team is looking at ways to treat a condition in which cells in the pancreas stop working. They are considering three sources of stem cells.

Source	Information
Early embryo left over from fertility treatment	Can become any type of cell. Cells come from another person, so may be rejected.
Patient's own bone marrow	Can only become a few types of cell. No rejection.
Embryo made by therapeutic cloning using the patient's own body cell	Can become any type of cell. No rejection. Process is difficult and expensive.

Evaluate the use of each source of stem cells for this treatment. Give a justified conclusion. (6 marks)

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

3 Early scientists used light microscopes to study cells. Since the 1930s, electron microscopes have also been used.

Explain how the development of the electron microscope has improved our understanding of cells.

(6 marks)

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

4 **Higher tier | Separate science only**

Tomasz is studying a species of bacterium in a food safety lab. He grows it in a nutrient broth at two temperatures and records its mean division time.

Temperature in °C	Mean division time in minutes
20	60
37	20

He starts each culture with 500 bacteria.

Use the data to calculate the number of bacteria in each culture after 4 hours, giving your answers in standard form. Explain what the results show and why food should be kept in a fridge.

(6 marks)

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.

5 In hospital, fluid given into a vein through a drip is a salt solution with the same concentration as blood plasma. It is never pure water.

Explain why pure water would damage red blood cells but does not burst plant cells in a garden after heavy rain.

(6 marks)

End of questions | Total 30 marks

Free for classroom and home use: print, photocopy and share. Not for resale or re-hosting.