Answers to Further Questions
in GCSE Biology for You (5th Edition)

On the following pages we show the detailed Answers and Mark Schemes for the Further Questions on Biotechnology.

The answers have been prepared by an Examiner using the mark schemes published by each Examination Board. They are laid out in the same way as the pages of Further Questions in the Students’ Book.

For the Student:

• It is very important that you are able to answer the questions on your own, using your own knowledge of Biology.
  So it is important that you have a go at the questions first, and then afterwards you can check your answers using these pages.
  If you get a question wrong, try to work out where you have made an error. Discuss it with your teacher if you are not sure.

• Be aware that in some answers the mark is for the idea in your own words (not necessarily the exact words shown), whereas in other answers the number and unit must be exactly correct.

For the Teacher:

• You will find these sheets useful when marking the students’ homework, or when going over the Further Questions in class.
  The Answer Sheet will also enable you to assess how much work is involved in answering the questions when planning how much homework to set.

• The PDFs are available for you to hand out to the students if you wish (perhaps as part of a Revision Programme).
  As with all mark schemes there may be alternative credit-worthy statements for qualitative answers (for the idea) and this may need to be explained to your students. Quantitative answers, however, are generally more prescriptive and your students may need to be encouraged to show the exact numerical value and the appropriate unit.

Gareth Williams
1 (a) (i) 1 mark for **anaerobic respiration** or **fermentation**.

(ii) 1 mark each for:
- oxygen is present; 
  (accept O₂)
- (do not accept O or O²)
- aerobic respiration occurs; 
  (ignore anaerobic)
- CO² from respiration. 
  (allow from fermentation)

(b) 1 mark for **high methane after this time**. 
  (ignore CO²)

(c) 1 mark for **organic matter / food / nutrients / named, e.g. used up / reactants**. 
  (allow too hot / accumulation of toxins / named)
  (do not allow products)
  (ignore energy)

  **Total 6 marks**

2 (a) 1 mark each for:
- A = cytoplasm;
- B = (cell) membrane.

(b) 1 mark for (yeast) **makes alcohol / makes CO₂ / does not make lactic acid**. 
  (’it’ equals yeast)
  (do not allow uses / involves alcohol / CO₂)

(c) (i) 1 mark **each** for any two from:
- volume of yeast / suspension;
- volume of sugar / solution;
- concentration of sugar;
- (amount of sugar = max 1 for sugar)
- temperature.
  (ignore concentration of yeast)

(ii) 1 mark each for:
- most / more CO₂ given off with fructose
- or faster CO₂ production or faster respiration;
  (’it’ equals fructose)
  (allow faster fermentation)
  (do not allow aerobic respiration
  so (rate of) alcohol production will be
greatest / more (with fructose).

  **Total 7 marks**