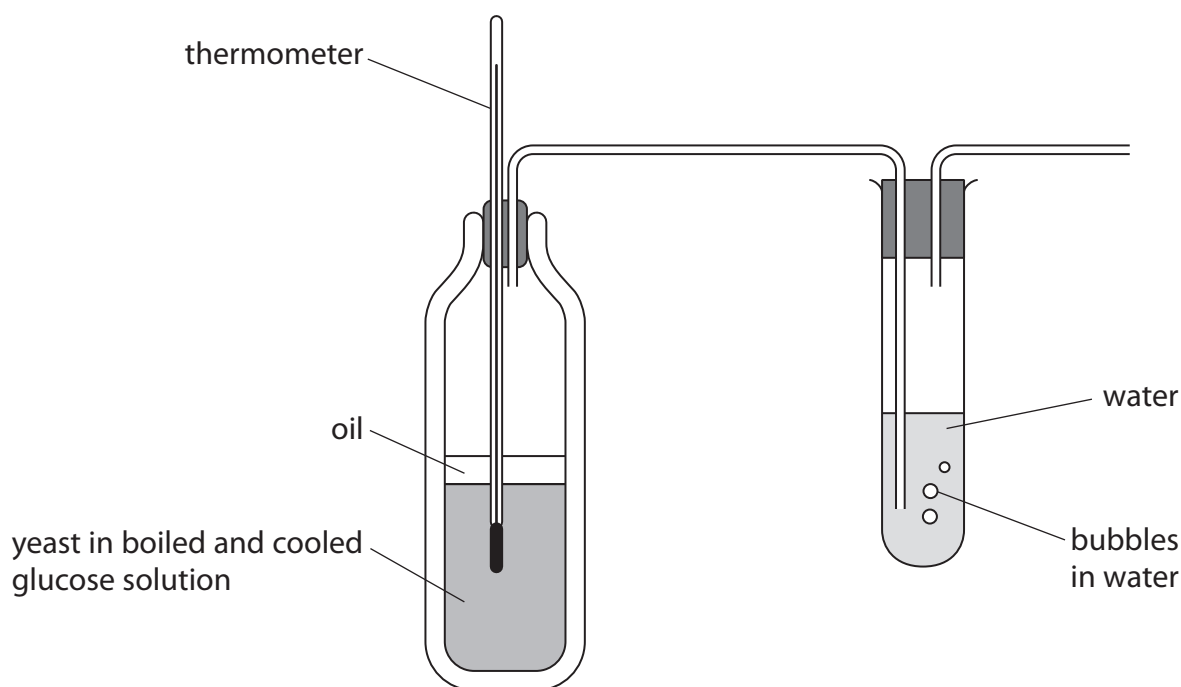


- 4 A student uses this apparatus to investigate anaerobic respiration by yeast.



- (a) Explain why the student boils and cools the glucose solution before the yeast is added. (2)

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- (b) The student measures the rate of anaerobic respiration by counting the number of bubbles produced per minute.

Explain how she could modify her apparatus to obtain a more accurate measurement of the rate of anaerobic respiration.

(2)

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- (c) (i) The student wants to compare the rate of anaerobic respiration with the rate of aerobic respiration by yeast.

How should the student modify the apparatus in order to measure the rate of aerobic respiration?

(1)

- ☐ **A** remove liquid oil to allow oxygen diffusion
- ☐ **B** remove liquid oil to allow carbon dioxide diffusion
- ☐ **C** add more liquid oil to prevent oxygen diffusion
- ☐ **D** add more liquid oil to prevent carbon dioxide diffusion

- (ii) The student found that more bubbles were produced during aerobic respiration than during anaerobic respiration.

Sketch a bar chart to show these results.

(2)

(Total for Question 4 = 7 marks)



P 6 0 2 5 3 A 0 1 1 2 0