

Respiration

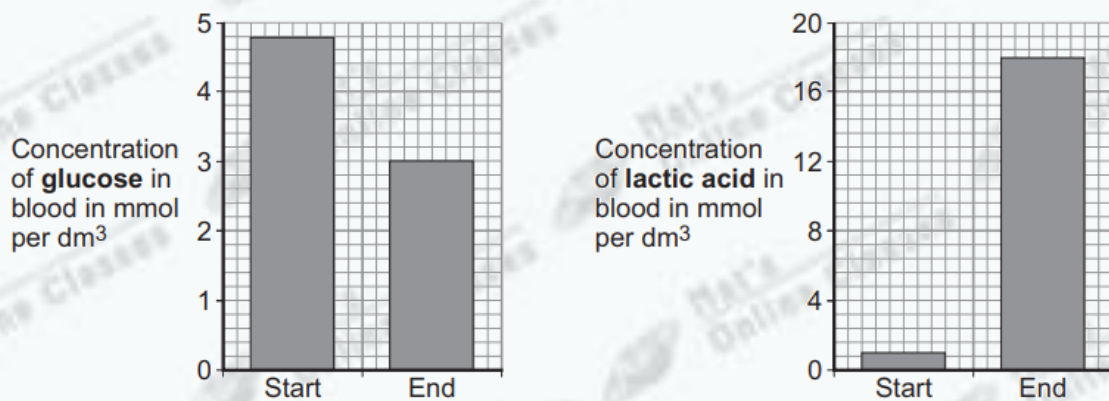
Total mark – 14

Question: 1

7 An athlete ran as fast as he could until he was exhausted.

7 (a) **Figure 7** shows the concentrations of glucose and of lactic acid in the athlete's blood at the start and at the end of the run.

Figure 7



7 (a) (i) Lactic acid is made during anaerobic respiration.

What does anaerobic mean?

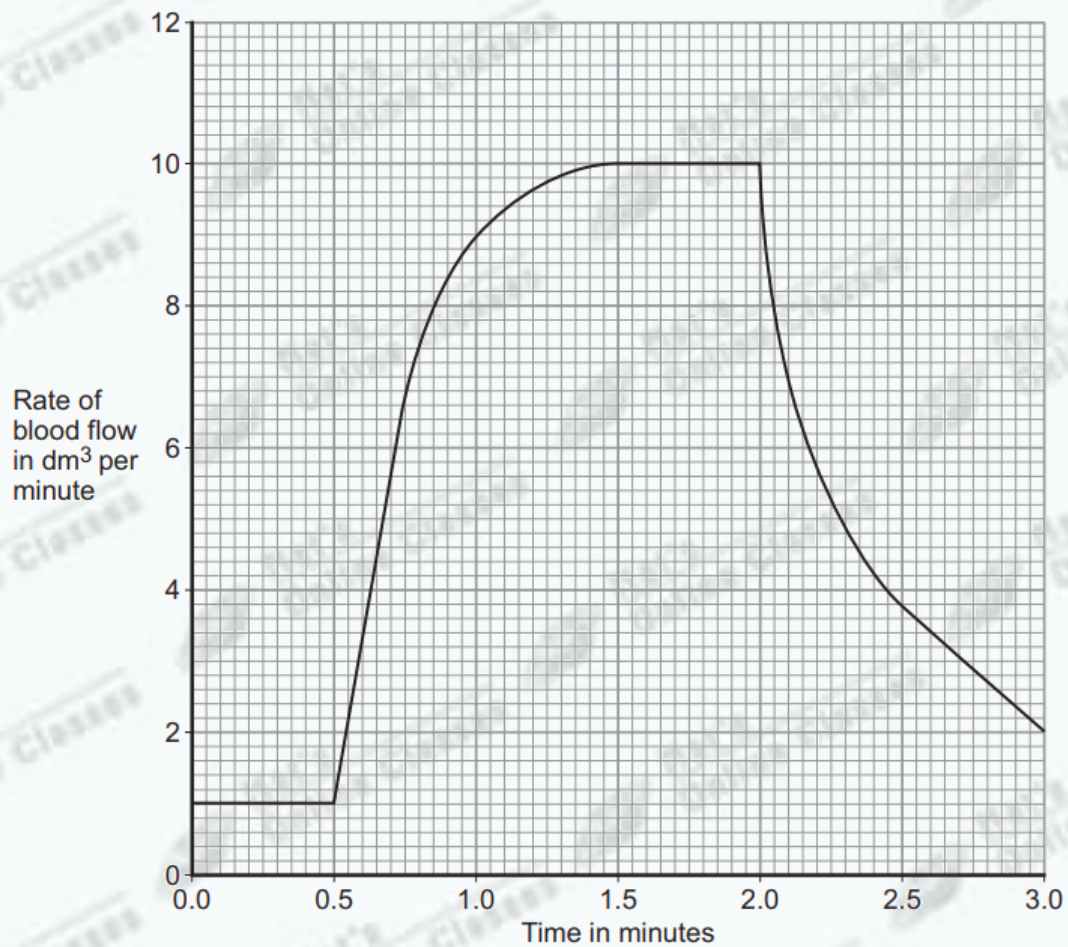
[1 mark]

7 (a) (ii) Give evidence from **Figure 7** that the athlete respired anaerobically during the run.

[1 mark]

- 7 (b) **Figure 8** shows the effect of running on the rate of blood flow through the athlete's muscles.

Figure 8



- 7 (b) (i) For how many minutes did the athlete run?

[1 mark]

Time = _____ minutes

- 7 (b) (ii) Describe what happens to the rate of blood flow through the athlete's muscles during the run.

Use data from **Figure 8** in your answer.

[2 marks]

7 (b) (iii) Explain how the change in blood flow to the athlete's muscles helps him to run.

[4 marks]

Question: 2

7 The world population is increasing and the need for food is increasing.

Mycoprotein is a high-protein food made in fermenters using the organism *Fusarium*.

The process takes only a few weeks to produce a large amount of food.

7 (a) (i) What type of organism is *Fusarium*?

Draw a ring around the correct answer.

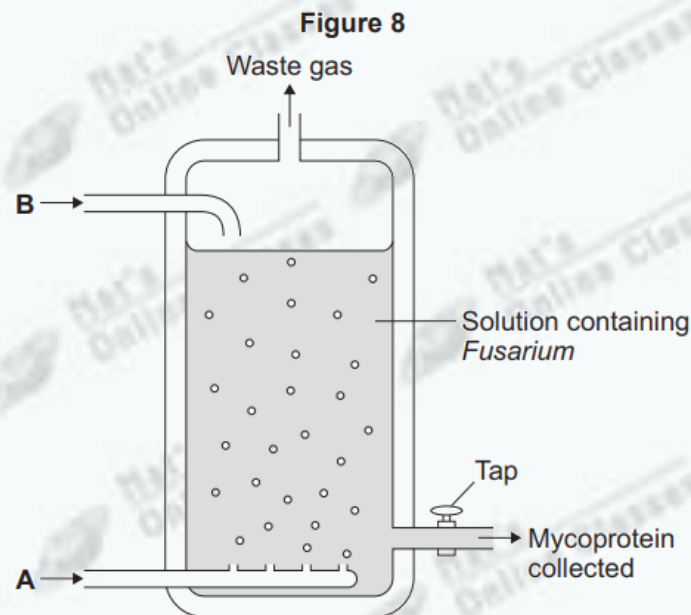
[1 mark]

bacterium

fungus

virus

Figure 8 shows a fermenter used in mycoprotein production.



7 (a) (ii) *Fusarium* makes mycoprotein. *Fusarium* respire aerobically.

Suggest which gas is added to the fermenter at point A.

[1 mark]

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- 7 (a) (iii) Another substance is added to the fermenter at point **B**. This substance is used in aerobic respiration.

Name this substance.

[1 mark]

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- 7 (b) People need to eat protein to grow and to be healthy.

Some people think that it would be an advantage to get more food from mycoprotein and less from farming animals.

Suggest **two** possible advantages of getting more food from mycoprotein.

[2 marks]

1

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2

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