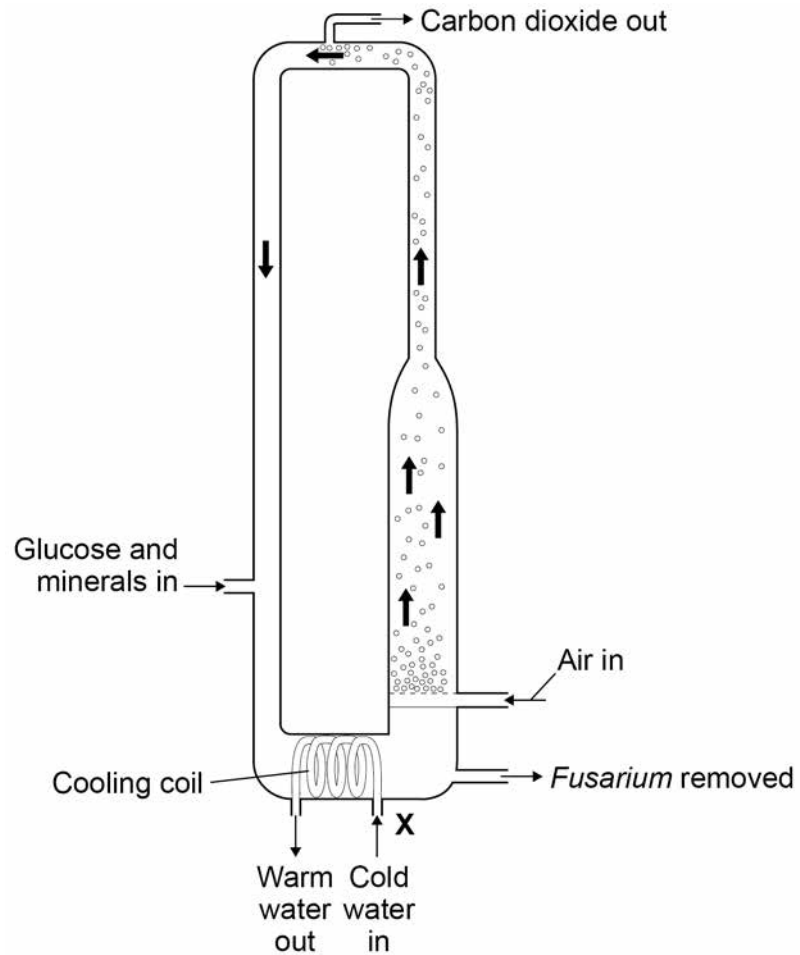**0 7**   Mycoprotein is a protein-rich food.

Mycoprotein is made from the fungus *Fusarium*.

Figure 9 shows a fermenter used for growing *Fusarium*.

Figure 9

0 7 . 1   Explain why the fermenter is sterilised before use.

[2 marks]

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_____

_____

0 7 . 2 Cold water is pumped through the cooling coil at point **X**.

This maintains a constant temperature inside the fermenter.

Suggest the temperature at which *Fusarium* grows fastest.

[1 mark]

Tick **one** box.

5 °C ☐

20 °C ☐

30 °C ☐

85 °C ☐

0 7 . 3 Glucose and bubbles of air enter the fermenter.

The bubbles of air supply oxygen.

Explain why *Fusarium* needs glucose and oxygen.

[2 marks]

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_____

_____

0 7 . 4 The bubbles of air also move materials around the fermenter.

Suggest why it is useful for bubbles of air and materials to move around inside the fermenter.

[2 marks]

_____

_____

_____

_____

Turn over ▶

0 7 . 5 100 grams of chicken meat contains 22 grams of protein.

100 grams of mycoprotein contains 11 grams of protein.

A man ate 100 grams of chicken in one meal.

How many grams of mycoprotein would the man need to eat to get the same mass of protein as in 100 grams of chicken?

[1 mark]

Tick **one** box.

100 grams ☐

110 grams ☐

200 grams ☐

220 grams ☐

8

IB/G/Jun18/8461/2F

Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.1	kills microorganisms / bacteria / fungi / viruses / microbes	allow to remove microorganisms / bacteria / fungi / viruses / microbes ignore germs allow so mycoprotein is not contaminated	1	AO2 4.7.5.4
	(which) compete for food / oxygen **or** which make toxins **or** which are pathogens **or** which might kill the fungus / *Fusarium*	allow so mycoprotein is safe to eat	1	
07.2	30 °C		1	AO2 4.1.1.6 4.2.2.1 4.7.5.4
07.3	for (aerobic) respiration	do **not** accept anaerobic	1	AO2 4.4.2.1 4.7.5.4
	(which) releases energy (for growth)	do **not** accept produces energy allow glucose is used to make other organic substances eg protein	1	AO1 4.4.2.1 4.7.5.4

Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.4	any **two** from: so *Fusarium* can • grow faster / better • get sufficient food / glucose / minerals • get sufficient oxygen • get rid of sufficient carbon dioxide • be kept at a (suitable) temperature	 allow more / enough allow more / enough allow more / enough allow waste allow to avoid 'clumping'	2	AO2 AO3 4.7.5.4
07.5	200 grams		1	AO2 4.7.5.4
Total			**8**	