

Respiration

Question paper 2

Level	IGCSE(9-1)
Subject	Biology
Exam Board	Edexcel IGCSE
Module	Single Award (Paper 2B)
Topic	Structure and Functions in Living Organisms
Sub-Topic	Respiration
Booklet	Question paper 2

Time Allowed: 20 minutes

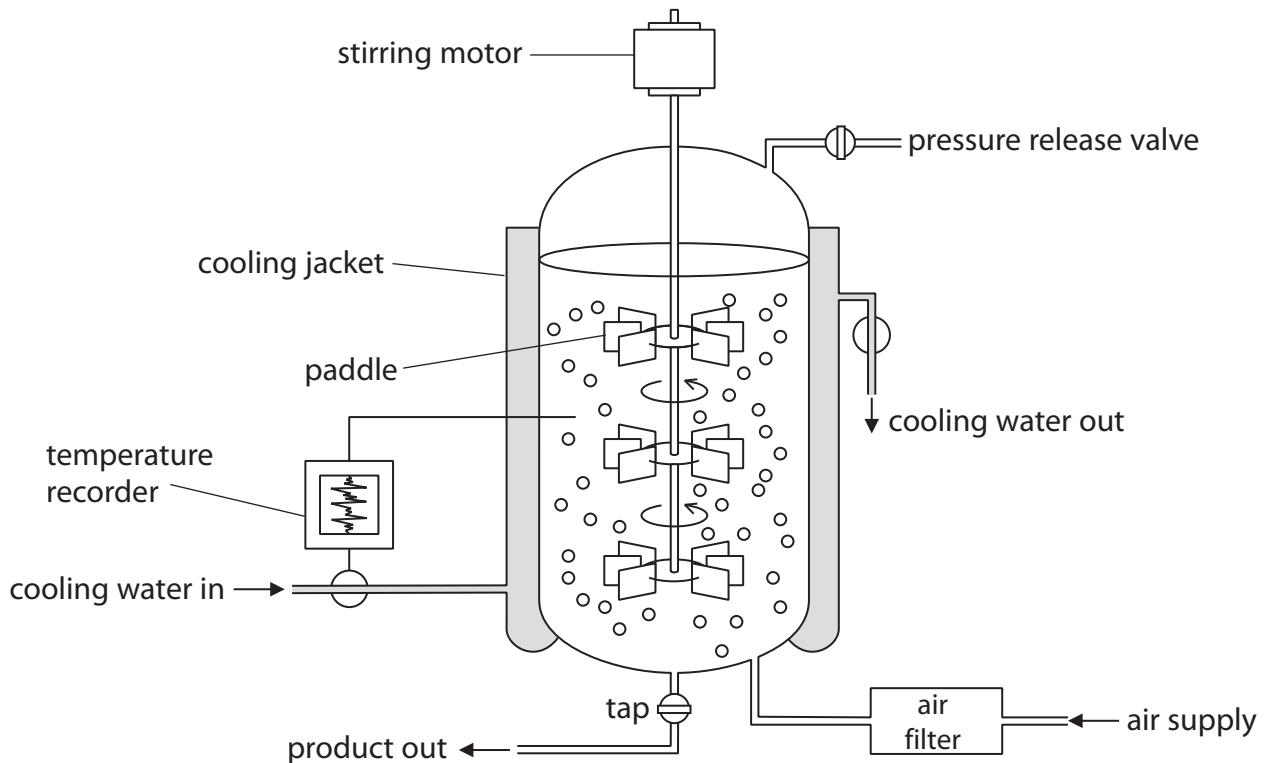
Score: /16

Percentage: /100

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>90%	80%	70%	60%	50%	40%	30%	20%	10%

1 The diagram shows a fermenter used for growing micro-organisms.



(a) (i) Explain the function of the paddles in the fermenter.

(2)

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(ii) Explain why the pH in the fermenter needs to be controlled.

(2)

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(iii) Name one useful product that can be made in this fermenter.

(1)

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(b) Some micro-organisms grown in anaerobic conditions will produce a fuel called biogas.

Explain two changes that need to be made to the design of the fermenter so it can be used to produce biogas by anaerobic fermentation.

(2)

1

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2

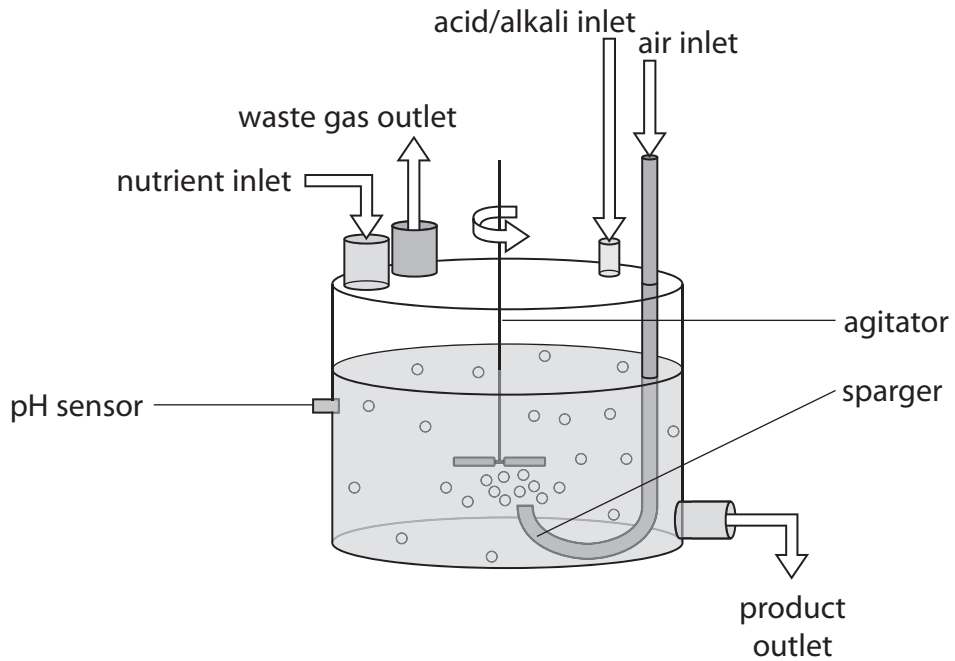
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(Total for Question = 7 marks)

- 2 The diagram shows a model of an industrial fermenter used to study how changes in conditions can affect the yield of products.



- (a) An acid or alkali can flow through the acid/alkali inlet to maintain a constant pH within the fermenter.

Explain why the pH needs to be kept within a narrow range.

(3)

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(b) Parts of the fermenter responsible for regulating the temperature are not shown in the diagram.

Name two of these parts.

(2)

1

2

(c) This fermenter uses a sparger to introduce air into the fermenter.

Suggest why it is important to introduce air into the fermenter.

(2)

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(d) Before being used the empty fermenter is cleaned using steam.

Suggest why.

(2)

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(Total for Question = 9 marks)