

Food Production

Question paper 4

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|-------------------|-----------------------------|
| Level | IGCSE(9-1) |
| Subject | Biology |
| Exam Board | Edexcel IGCSE |
| Module | Single Award (Paper 2B) |
| Topic | Use of Biological Resources |
| Sub-Topic | Food Production |
| Booklet | Question paper 4 |

Time Allowed: 56 minutes

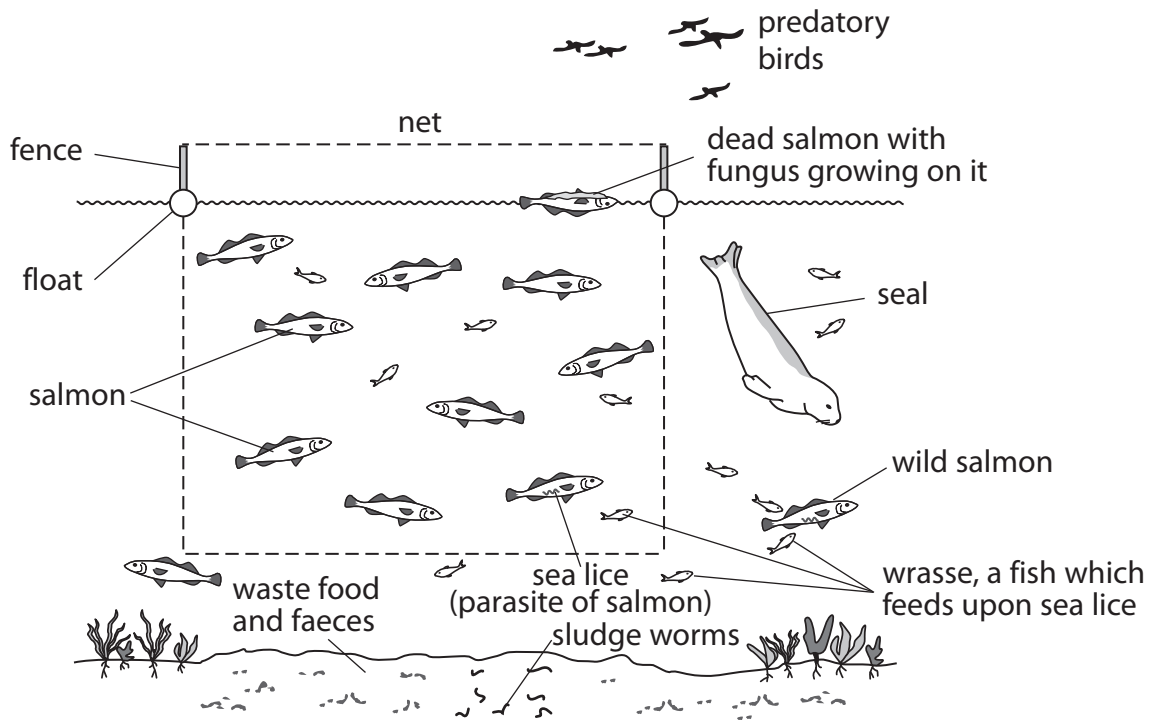
Score: /46

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 salmon fish farm in the sea.



(a) Suggest three ways in which the net protects the salmon.

(3)

- 1.....
- 2.....
- 3.....

(b) Waste food and faeces can collect in the mud beneath the fish farm.

Suggest how this could affect the growth of the salmon.

(3)

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(c) Suggest what should be done with the dead salmon with fungus growing on it.

(2)

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(d) Give the example of biological control shown in the diagram of the fish farm.

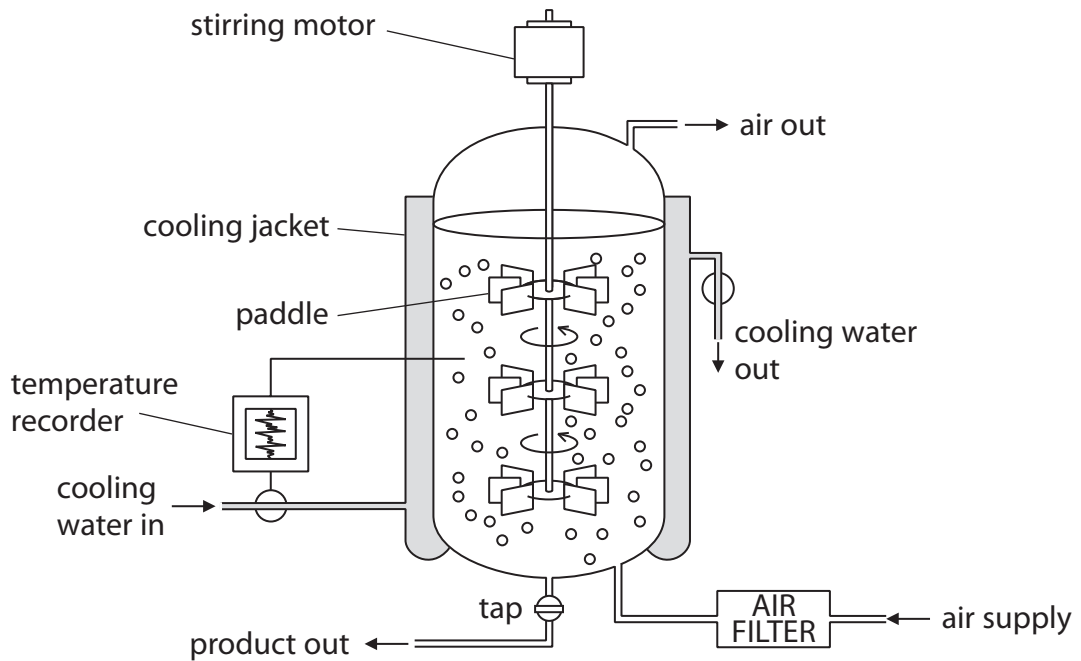
(1)

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(Total for Question = 9 marks)

2 The diagram shows a fermenter used to grow microorganisms.



(a) Explain how temperature is controlled in the fermenter.

(2)

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(b) Explain why temperature must be controlled in the fermenter.

(2)

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(c) Explain the purpose of the paddles in the fermenter.

(2)

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(d) Other than temperature, name **one** condition that needs to be controlled in a fermenter and state why it needs to be controlled.

(2)

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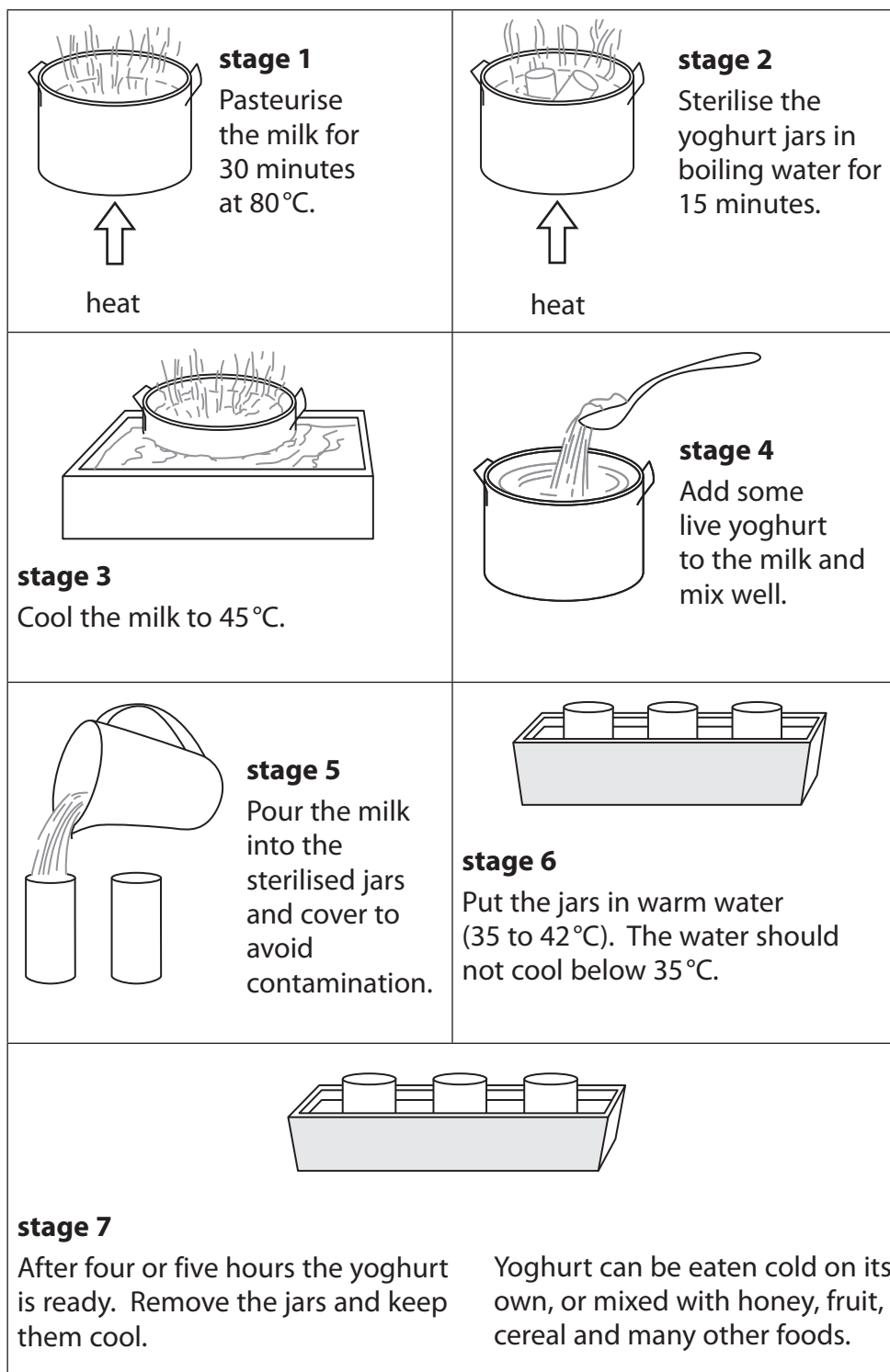
(e) Name a product that could be produced in this type of fermenter.

(1)

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(Total for Question = 9 marks)

3 A student wants to make yoghurt. The diagram shows what she did.



(a) Which two stages help to improve the production of yoghurt by killing bacteria that compete with *Lactobacillus*?

(2)

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(b) Explain why the milk needed to be cooled to 45 °C in stage 3.

(2)

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(c) Explain what could happen to the production of yoghurt if the jars used in stage 5 had not been sterilised in stage 2.

(2)

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(d) Explain what would happen to the production of yoghurt if the water cooled below 35 °C in stage 6.

(2)

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(e) The student added fruit to her yoghurt to improve the taste.

Suggest how adding fruit to yoghurt also helps to maintain healthy skin.

(1)

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4 Some food products are made using microorganisms.

The table gives information about the production of two of these food products.

(a) Complete the table by giving the missing information.

(5)

| Food product | Name of organism used | Group organism belongs to | Substrate used | Type of respiration | Chemical product |
|--------------|---------------------------------|---------------------------|----------------|---------------------|------------------|
| | <i>Saccharomyces</i> (yeast) | fungus | glucose | | ethanol |
| yoghurt | | bacteria | | aerobic | |

(b) Explain one precaution that should be taken when making yoghurt so that it is safe for humans to eat.

(2)

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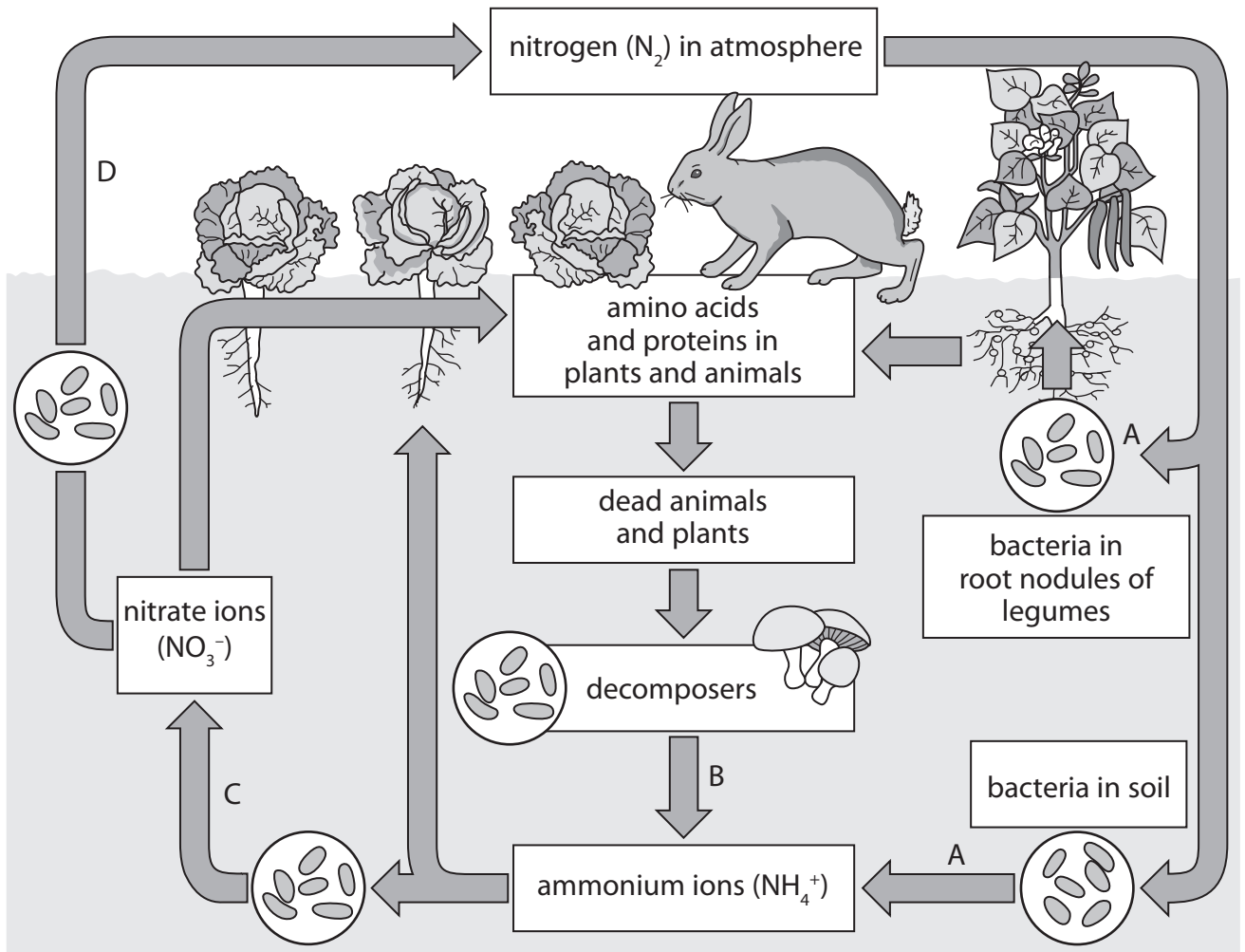
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(Total for Question = 7 marks)

5 The diagram shows the nitrogen cycle with four different stages labelled A, B, C and D.



(a) Name the processes A, B, C and D.

(4)

A

B

C

D

(b) Name two different groups of organisms that act as decomposers.

(2)

1

2

(c) The nitrogen in a nitrate ion in the soil can become the nitrogen in a protein molecule in an animal.

Explain how this happens.

(4)

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(d) Farmers sometimes add fertiliser to the fields in which they grow their crops.

Suggest two advantages of using animal waste as a fertiliser rather than using a chemical fertiliser.

(2)

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2

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(Total for Question = 12 marks)
