

EXERCISE: MICROORGANISM IN FOOD PRODUCTION

1. When yeast is used in bread-making, what type of respiration occurs and which product is useful?

	respiration	useful product
A	aerobic	carbon dioxide
B	aerobic	ethanol
C	anaerobic	carbon dioxide
D	anaerobic	ethanol

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2. In cheese production, which organisms is involved, what is a product of respiration and what effect does it have?

	micro organism	product	effect
A	bacteria	acids	solidifies
B	bacteria	alcohols	digests
C	yeast	acids	digests
D	yeast	alcohols	solidifies

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3. Fermenters that are used to produce single cell protein may be closed (batch) or open (continuous). Which set of fermenters properties is correct?

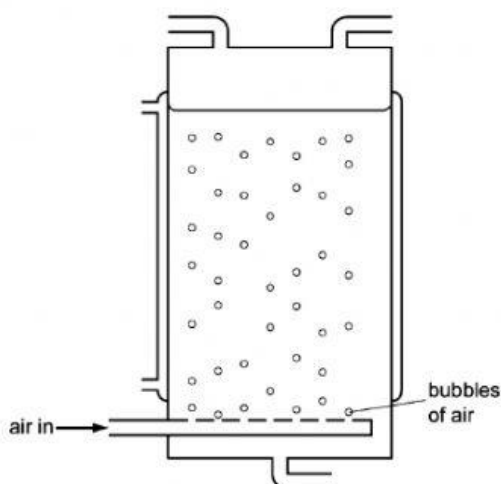
	closed	open
A	growth rate of culture remains at optimum	fermenting microorganisms must be added all the time
B	growth rate of culture remains at optimum	product can be removed all the time
C	vessel must be sterilised after each separate cycle	fermenting microorganisms must be added all the time
D	vessel must be sterilised after each separate cycle	product can be removed all the time

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4. Why must the milk used in the production of yoghurt be free from all traces of antibiotics?

- A Antibiotics cause artificial selection of the bacteria in the yoghurt
- B Antibiotics cause the yoghurt to decompose
- C Antibiotics kills the starter culture of bacteria
- D Antibiotics support growth of yeasts in the culture

5. The diagram shows a fermenter used to produce penicillin



Why is air pumped into the fermenter?

	to mix culture	to provide O ₂
A	✓	✓
B	✓	x
C	x	✓
D	x	x

key

✓ = yes

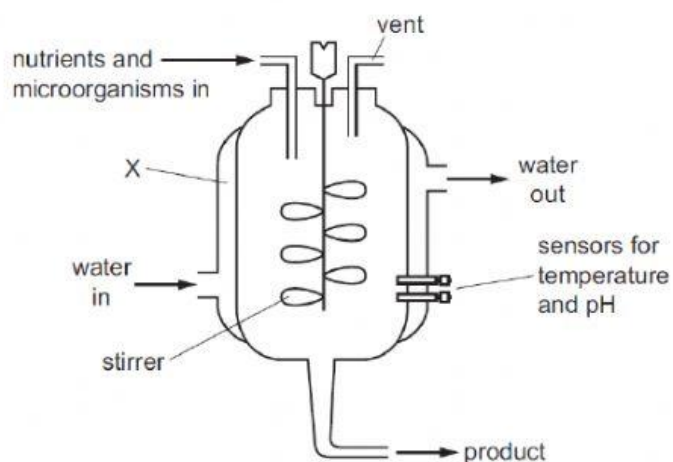
x = no

6. A fermenter is used to produce penicillin. Why is continuous stirring necessary during the process of fermentation?

- A to keep the *Penicillium* in contact with fresh oxygen and nutrients
- B to move the *Penicillium* to the bottom of the fermenter
- C to move the *Penicillium* to the top of the fermenter
- D to stop the *Penicillium* reacting with the wall of the fermenter



7. The diagram shows the equipment used in the industrial production of penicillin.



What is the purpose of the structure labelled X?

- A to insulate the fermentation vessel
- B to maintain the pressure of the fermentation vessel
- C to monitor the temperature of the fermentation vessel
- D to remove the heat produced by the fermentation process



8. Which are the best conditions in a fermenter for the large-scale production of penicillin?

	aerobic conditions	anaerobic conditions	carbohydrates and amino acids	fats and proteins	<i>Penicillium</i>	yeast
A	✓	x	✓	x	✓	x
B	✓	x	x	✓	x	✓
C	x	✓	✓	x	✓	x
D	x	✓	x	✓	x	✓

9. Waste products from microorganisms are used in the production of bread and yoghurt. Which waste products from microorganisms are used in these two processes?

	bread-making	yoghurt production
A	carbon dioxide	carbon dioxide
B	carbon dioxide	lactic acid
C	lactic acid	carbon dioxide
D	lactic acid	lactic acid

10. Which can be produced using bacteria?

- 1 alcohol
- 2 bread
- 3 cheese
- 4 yogurt

- A** 1, 2, 3 and 4
B 1, 3 and 4 only
C 3 and 4 only
D 4 only