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

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

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

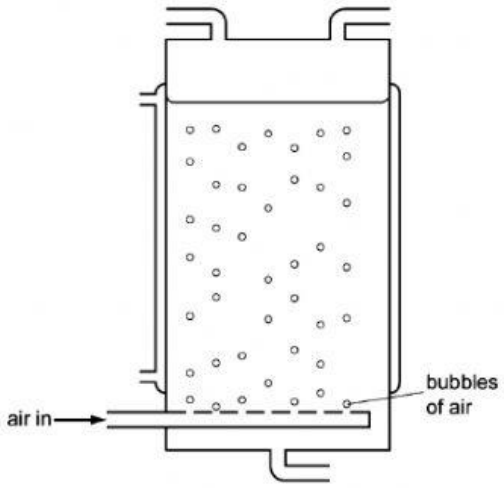
	closed	open
A	growth rate of culture remains at optimum	fermenting microorganisms must be added all the time
B	growth rate of culture remains at optimum	product can be removed all the time
C	vessel must be sterilised after each separate cycle	fermenting microorganisms must be added all the time
D	vessel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

LIVEWORKSHEETS

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	✓	✗
C	✗	✓
D	✗	✗

key
✓ = yes
✗ = no

LIVEWORKSHEETS

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

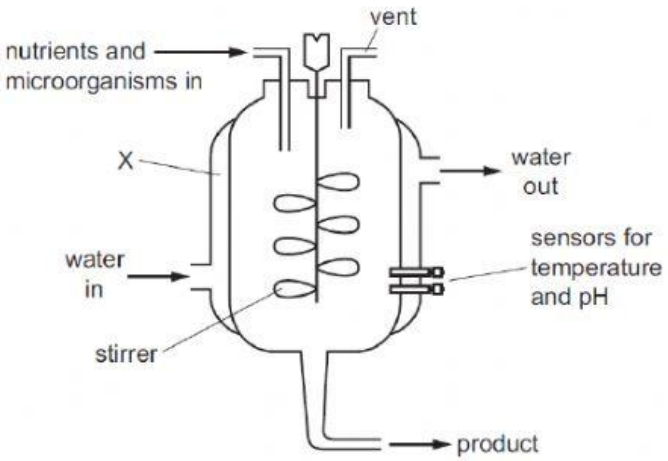
A to keep the *Penicillium* in contact with fresh oxygen and nutrients

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

LIVEWORKSHEETS

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	*Penicillium*	yeast
A	✓	✗	✓	✗	✓	✗
B	✓	✗	✗	✓	✗	✓
C	✗	✓	✓	✗	✓	✗
D	✗	✓	✗	✓	✗	✓

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

LIVEWORKSHEETS