

TOPIC: MICROORGANISM AND BIOTECHNOLOGY

Multiple Choice Questions:

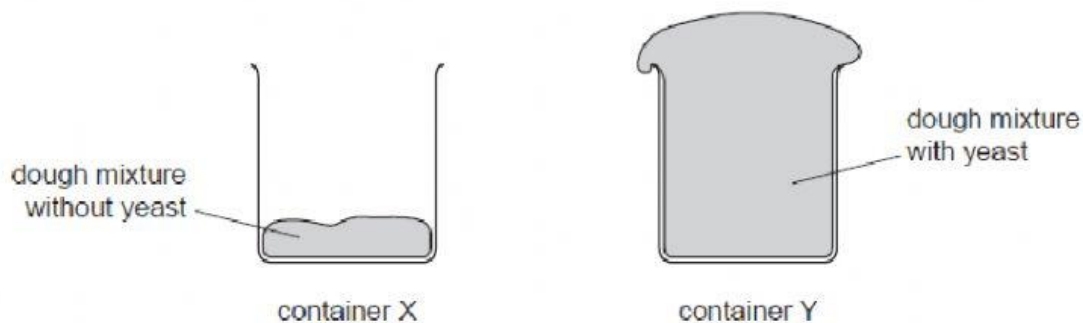
1. Foods can be made by treating milk in different ways. [Nov 2011, Q22]

- 1 Bacteria are added
- 2 The milk is acidified
- 3 The milk proteins are coagulated

Which processes occur in both cheese and yoghurt production?

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

2. Two containers, X and Y, were filled with equal amounts of dough mixture for making bread. The mixture in Y had yeast in it. The containers were then left in a warm place for two hours. The diagram shows their appearance after this time.



Which substance produced by the yeast causes the difference between containers X and Y? [Nov 2011, Q23]

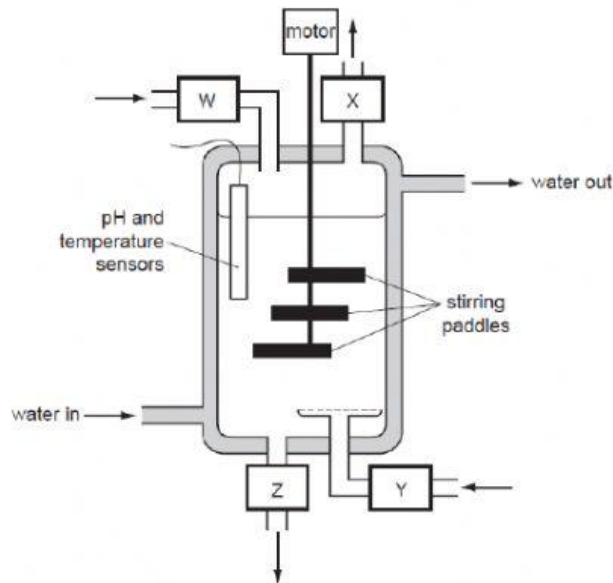
- A Alcohol
B Carbon dioxide
C Lactic acid
D Oxygen

3. Which process is used to produce insulin commercially? [Nov 2011, Q36]

- A Extracting glycogen from the liver to stimulate production of insulin
B Extracting insulin from the pancreas of human volunteers
C Inserting a bacterial gene into a person's pancreas cells
D Inserting the human insulin gene into a bacterium

4. The diagram shows a fermenter used for the production of antibiotics.

[Nov 2012, Q27]



Where do air and nutrients enter, and where do antibiotics and waste leave?

	Air in	Antibiotics out	Nutrients in	Wastes out
A	W	X	Y	Z
B	Y	Z	W	X
C	Y	X	W	Z
D	W	Z	Y	X

5. The table shows the characteristics of four microorganisms.

[Nov 2013, Q26]

Which one could be a virus?

	contains DNA	contains one or more cells	contains one or more cell nuclei	produces spores
A	x	x	x	x
B	✓	✓	x	x
C	✓	✓	✓	x
D	✓	✓	✓	✓

key

✓ = true

x = false

6. When cheese is being made, which organisms are used and what is their function?

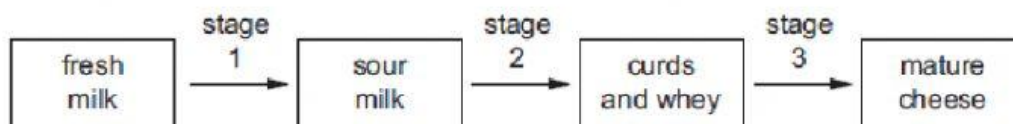
[Nov 2013, Q27]

	Organisms	Function
A	Bacteria	To lower the pH
B	Bacteria	To raise the pH
C	Fungi	To break down milk sugar
D	Fungi	To release carbon dioxide

7. Which type of organism produces penicillin, and which type of infection can be treated using penicillin?
[Nov 2014, Q26]

	Type of organism	Type of infection treated
A	Bacterium	Bacterial
B	Bacterium	Viral
C	Fungus	Bacterial
D	Fungus	Viral

8. The diagram shows three stages in the production of a blue cheese. [Nov 2014, Q27]



The three stages use micro-organisms and enzymes, as shown by P, Q, R and S.

- P bacterial culture added
- Q bacteria killed by pasteurisation
- R rennin added
- S fungal mould added

What is done at each of the stages?

	Stage 1	Stage 2	Stage 3
A	P and then Q	R	S
B	P and then Q	S	R
C	Q and then P	R	S
D	Q and then P	S	R

9. Bacteria can be genetically modified to produce human insulin. [Nov 2014, Q39]

What is a possible danger of this procedure?

- A Bacterial insulin is less effective in treating diabetes than animal insulin
- B The genetically modified bacteria may become insulin resistant
- C The genetically modified bacteria may produce too much insulin
- D The presence of a new gene in the bacteria may alter the way that existing genes work

10. What is the role of the bacteria used in cheese and yoghurt production? [June 2008, Q26]

- A To coagulate casein to form 'curds'
- B To convert lactose to lactic acid
- C To prevent the growth of pathogens
- D To produce enzymes

Structured Questions:

1. Fig. 5.1 shows a fermenter used for the large-scale production of antibiotics by microorganisms.

[June 2013, Q5]

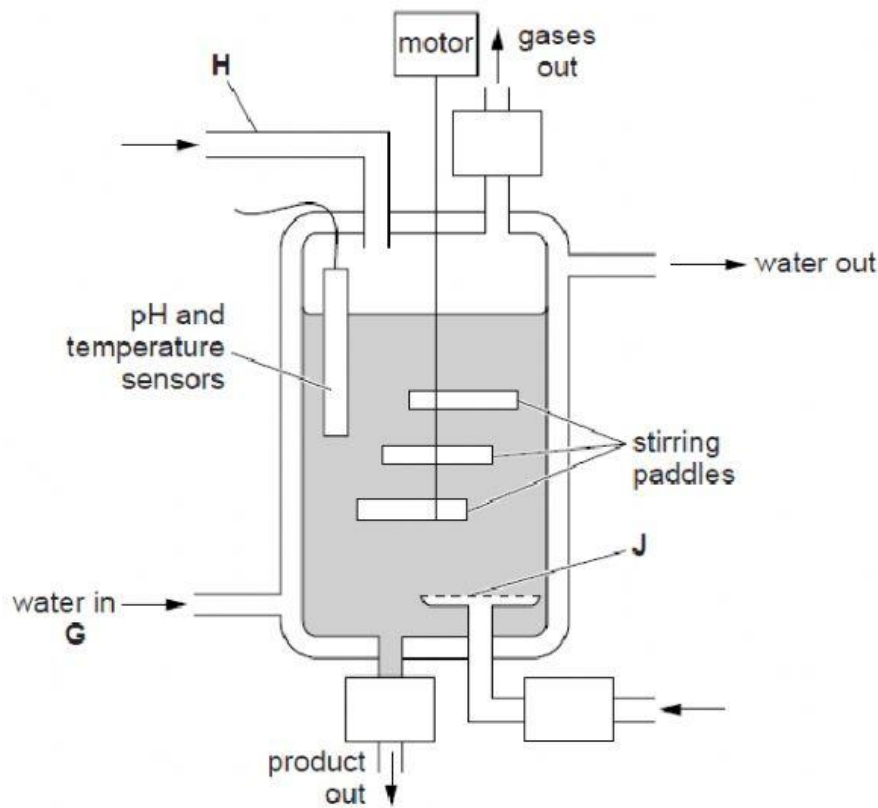


Fig. 5.1

- (a) State the term for the manufacture of antibiotics using a fermenter.

_____ [1]

- (b) State the purpose of the water which enters the fermenter at G.

_____ [1]

- (c) Explain the importance of controlling the pH and temperature of the contents of the fermenter.

_____ [2]

(d) Describe the function of part H and part J.

part H _____

part J _____

[5]

[Total: 9]

2. (a) Describe how a virus differs from a bacterium.

[June 2014, Q7]

[6]

(b) Explain how microorganisms are involved in the recycling of materials in dead organic matter.

[4]

[Total: 10]