Biotechnology and genetic modification – 2022 June IGCSE 0610

1. June/2022/Paper_ 11/No.39

Which process makes use of a genetically engineered organism?

A using bacteria to produce insulin

B using enzymes in biological washing powders

C using pectinase in fruit juice production

D using yeast to produce ethanol

2. June/2022/Paper_ 12/No.39

Which process makes use of a genetically engineered organism?

A using bacteria to produce insulin

B using enzymes in biological washing powders

C using pectinase in fruit juice production

D using yeast to produce ethanol

3. June/2022/Paper_ 13/No.39

Which process makes use of a genetically engineered organism?

A using bacteria to produce insulin

B using enzymes in biological washing powders

C using pectinase in fruit juice production

D using yeast to produce ethanol

4. June/2022/Paper_ 23/No.38

Which process makes use of a genetically engineered organism?

A using bacteria to produce insulin

B using enzymes in biological washing powders

C using pectinase in fruit juice production

D using yeast to produce ethanol

5. June/2022/Paper_ 43/No.1(a_ b)

Penicillin is produced by biotechnology industries.

(a) (i) State the name of the type of pathogen penicillin is used to treat.

..... [1]

(ii) State the name of the group of medicinal drugs that includes penicillin.

..... [1]

(b) Fig. 1.1 is a flow diagram of some of the steps in the production of penicillin.

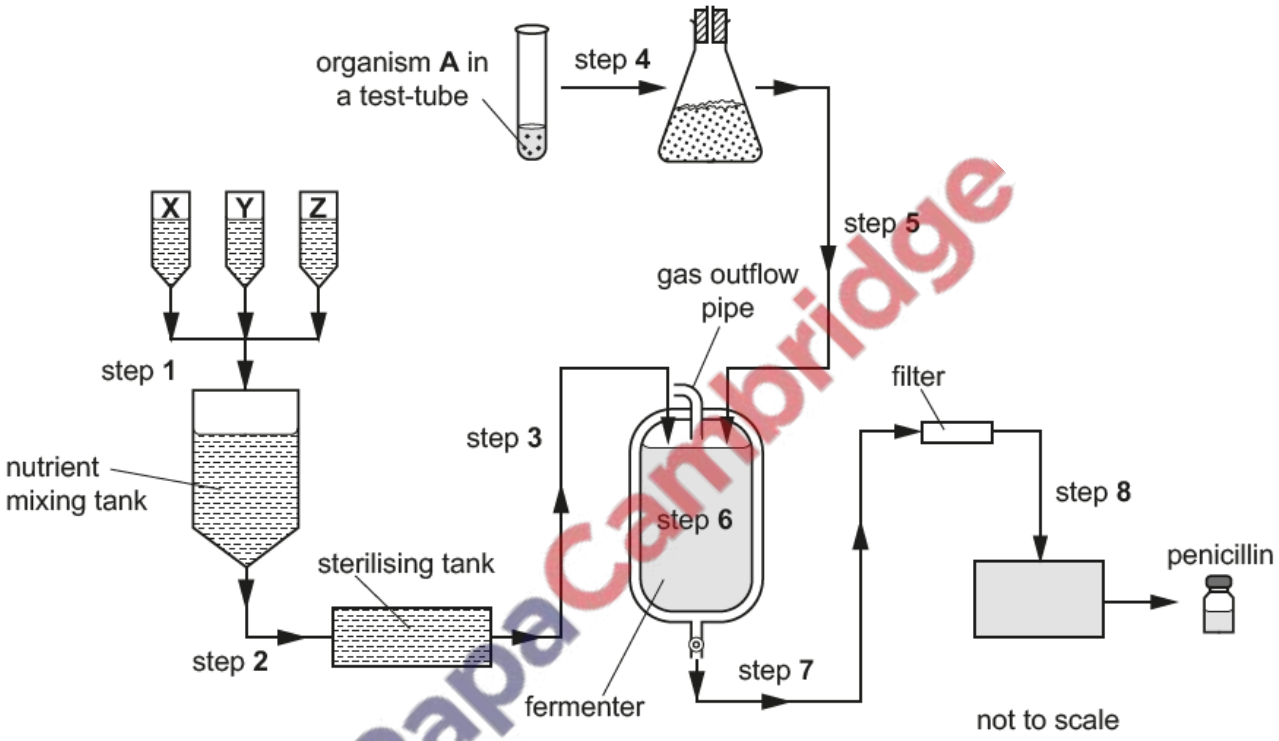

Fig. 1.1

(i) Organism **A** belongs to the fungus kingdom.

State **two** main features of fungal cells that are used to distinguish them from the cells of prokaryotes.

1 .....

2 .....

[2]

(ii) State the genus name of organism **A** in Fig. 1.1.

..... [1]

(iii) Penicillin is produced in the fermenter shown in Fig. 1.1. A variety of nutrients, **X**, **Y** and **Z**, are mixed together and added to the fermenter in step **1**.

List **two** nutrients that need to be added to a fermenter to produce penicillin.

1 .....

2 .....

[2]

(iv) Explain why the nutrients are sterilised (step **2**) before they are added to the fermenter (step **3**).

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..... [1]

(v) Explain why the fermenter has a gas outflow pipe.

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..... [2]

(vi) Using the information in Fig. 1.1, outline the events occurring from step **4** to step **8** during the production of penicillin.

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..... [4]