

Feeding the Human Race (H)

1. In food chains, biomass is lost between different trophic levels.

One reason for this is the release of undigested food from the body.

Which term is used to describe this release?

- A Decomposition
- B Egestion
- C Excretion
- D Peristalsis

Your answer

[1]

2. Which of these is an **advantage** of using hydroponics for crop production?

- A Fertilisers are not required for crop growth.
- B The crops can be grown in areas where the soil is poor.
- C The crop plants do not need extra support.
- D The crops will not be eaten by pests.

Your answer

[1]

3. Which of these is a **similarity** between selective breeding and natural selection?

- A Cause a change in organisms' genotypes but not phenotypes.
- B Humans decide which organisms will reproduce.
- C Only some organisms reproduce.
- D Take place over many thousands of years.

Your answer

[1]

4. Which of these is used to **cut DNA molecules** in genetic engineering?

- A Ligase enzymes
- B Plasmids
- C Restriction enzymes
- D Sticky ends

Your answer

[1]

5. Which is an advantage of growing crop plants by hydroponics?

- A The plants can be grown where there is poor soil.
- B The plants can support themselves more securely.
- C The plants do not require minerals.
- D The plants require less sunlight.

Your answer

[1]

6. Two farmers grow barley in their fields.

They both have a problem with barley powdery mildew infecting their crops.

The farmers want to prevent their crops from getting powdery mildew.

- i. Explain how burning plants after the barley has been harvested can protect the crops.

----- [1]

- ii. Explain how growing barley in the fields one year, then wheat the next year can protect the crops.

[2]

7. Scientists think that they might be able to reduce rat populations by using genetic engineering. They want to insert a gene into male rats that destroys all sperm that contain an X chromosome.

- i. Name the enzyme used to join two sections of DNA together in genetic engineering.

[1]

- ii. Explain how this method of genetic engineering would rapidly reduce the rat population.

You may use a diagram in your answer.

[3]

8. Large quantities of one type of antibody can be made by the process shown in **Fig. 20.2**.

These antibodies are called monoclonal antibodies.

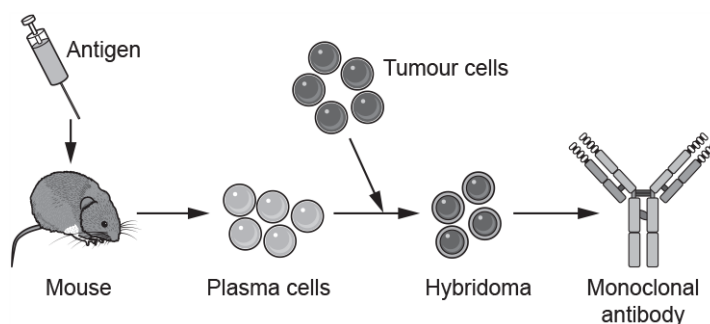


Fig. 20.2

Two scientists discovered a different method of making monoclonal antibodies.

They put genes that code for many different antibodies into viruses. The viruses then make the antibodies on their surfaces.

If an antigen attaches to an antibody, the scientists use the gene for this antibody to genetically engineer bacteria. The bacteria are then used to make large quantities of the antibody.

