

IGCSE Biology

Name: _____ Score: _____

1. Microbes are useful in biotechnology because they:
 - ☐ never make useful products
 - ☐ are large animals
 - ☐ cannot be controlled
 - ☐ reproduce very fast and are easy to grow
2. Yeast makes bread rise by producing:
 - ☐ water only
 - ☐ carbon dioxide
 - ☐ oxygen
 - ☐ nitrogen
3. A fermenter is used to:
 - ☐ kill all microbes
 - ☐ grow microbes in large amounts under controlled conditions
 - ☐ store finished medicine
 - ☐ filter water
4. In genetic modification, a useful gene is cut out using:
 - ☐ heat only
 - ☐ water
 - ☐ a microscope
 - ☐ enzymes
5. Genetic modification involves:
 - ☐ breeding the best parents
 - ☐ cloning by mitosis
 - ☐ inserting a gene from one organism into another
 - ☐ removing all genes
6. Which medicines are made using microbes? (Select all that apply.)
 - ☐ insulin
 - ☐ antibiotics

☐ penicillin

☐ sand

Tick every correct option.

7. Which conditions are controlled in a fermenter? (Select all that apply.)

☐ pH

☐ temperature

☐ the colour of the tank

☐ oxygen supply

Tick every correct option.

8. GM crops can be made to be: (Select all that apply.)

☐ unable to grow

☐ richer in vitamins

☐ higher-yielding

☐ pest-resistant

Tick every correct option.

9. Genetic modification raises ethical and environmental concerns as well as offering benefits.

☐ True ☐ False

10. Microbes can produce enzymes used in washing powders.

☐ True ☐ False

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1. **reproduce very fast and are easy to grow**

Fast reproduction and easy growth make microbes ideal.

2. **carbon dioxide**

CO₂ from yeast respiration makes dough rise.

3. **grow microbes in large amounts under controlled conditions**

Fermenters culture microbes to make products.

4. **enzymes**

Enzymes cut the gene from the DNA.

5. **inserting a gene from one organism into another**

GM transfers a gene between organisms.

6. **insulin; antibiotics; penicillin**

Antibiotics, penicillin and insulin are made using microbes.

7. **pH; temperature; oxygen supply**

Temperature, pH and oxygen matter; tank colour does not.

8. **richer in vitamins; higher-yielding; pest-resistant**

GM improves crops; it would not make them unable to grow.

9. **True**

Both benefits and concerns must be weighed.

10. **True**

These enzymes work at lower temperatures, saving energy.