

GCSE Biology B (Twenty First Century Science)
J257/01 Breadth in Biology (Foundation)

Question Set 18

Multiple Choice Questions

1. Bacterial cells are used in a process called genetic engineering to make human insulin.

(a) Define the term 'genetic engineering'
transfer of a gene for a desirable characteristic from one species to another to produce genetically modified products [2]

(b) What condition could the insulin produced in this process be used to treat?
diabetes type 1 [2]

(c) Bacteria were first used to produce human insulin in 1978. Before that, pig insulin was used to treat people who did not make their own insulin.

Suggest **two** reasons why it is better to use insulin produced by bacteria rather than pigs.
- no risk of transmitting animal disease to humans
- more easily grown & controlled, greater supply. [2]

(d) Insulin is a protein.

What is a protein made from?

Tick (✓) **one** box.

- | | |
|-------------|-------------------------------------|
| Amino acids | <input checked="" type="checkbox"/> |
| Fatty acids | <input type="checkbox"/> |
| Glucose | <input type="checkbox"/> |
| Glycerol | <input type="checkbox"/> |

[1]

Total Marks for Question Set 18: 7

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