

2025 Bi H1 Q16

Section: DNA and the Genome

Topic: Gene Expression

Question Summary:

You are asked which statement about **recombinant DNA technology** is **not correct**.

Worked Solution:

Evaluate each statement:

- **A:** Plasmids are examples of vectors → this is correct.
- **B:** Ligase does **not** cut DNA. Ligase joins DNA fragments together. It is **restriction enzymes** that cut open plasmids and cut genes out of chromosomes. Therefore, statement B is **not correct**. ✓
- **C:** Recombinant bacteria may indeed produce proteins that fold incorrectly because they may not have the correct post-translational modification systems → correct.
- **D:** Artificial chromosomes are used when larger fragments of DNA are inserted → correct.

Therefore, the only incorrect statement is B.

Final Answer: B

Revision Tips:

- Restriction enzymes cut DNA; ligase joins DNA fragments.
- Vectors include plasmids, viruses and artificial chromosomes.
- Recombinant proteins may not fold correctly in bacteria due to different cellular machinery.