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Level: SL IB in Biology
Subject: Biology
Topic: IB SL Biology
Type: Topic Question

2002



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All International Baccalaureate IB Topic Questions SL Biology

BIOLOGY

SL - IB

Key skills

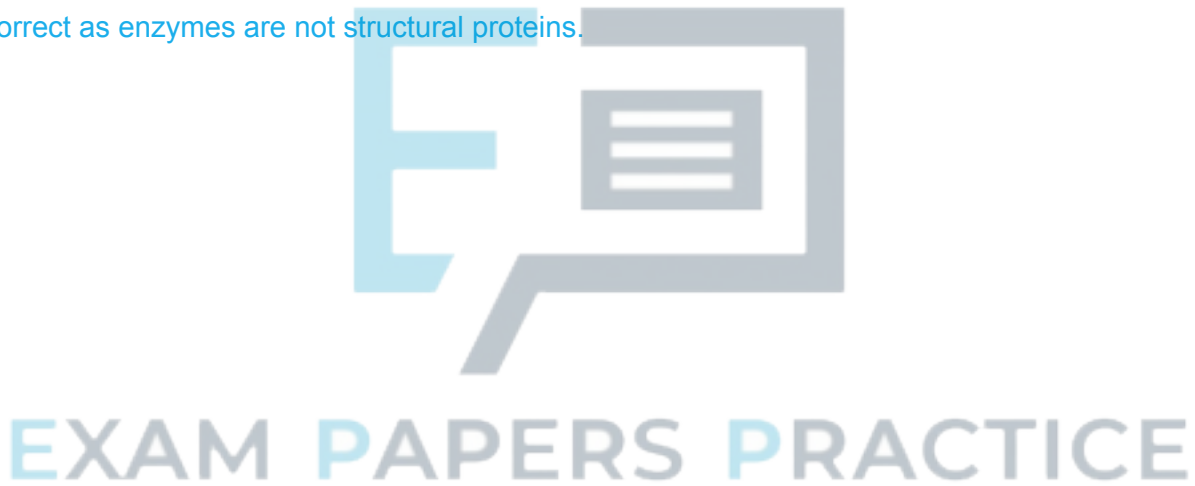
Mark Scheme

Answer 1

The correct answer is A. Enzymes are functional proteins which will be folded into a specific shape with hydrophilic R-groups facing towards the outside (watery) environment.

B and D are incorrect as hydrophobic R-groups will tend to face towards the inside of the protein, away from the watery surrounding environment, while hydrophilic R-groups will face towards the outside of the protein.

C is incorrect as enzymes are not structural proteins.



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Answer 2

The correct answer is D. Statement II, III and IV all describe changes that will occur when proteins denature due to the extremely low pH of the stomach contents.

Statement I is not correct for this example since body temperature is not high enough to cause the protein molecule to vibrate fast enough to break the intermolecular bonds.



Answer 3

The correct answer is B.

The more unfolded/denatured a protein is, the more unstable the molecule becomes. It is clear that protein R was less denatured (and therefore more stable) above 70°C compared to protein Q. The line representing protein R had a less steep gradient than that of protein Q, indicating a lower rate of denaturation (unfolding). It is clear that protein P was the least heat tolerant as it started to denature first and it was fully denatured before any of the other proteins.

Below 70°C protein R was more denatured (and therefore less stable) compared to protein Q. Since the line representing protein R had a less steep gradient than that of protein Q it indicated that protein R was denaturing at a lower rate than protein Q.