InkBiology

QUESTION WORKBOOK

Enzymes: what a catalyst can and cannot do

Enzymes and metabolic control · Unit B03

AQA 3.1.4.2 · OCR A 2.1.4 (a)-(d) · Edexcel A Topic 1.7-1.8 · CAIE 3.1

5 questions · 16 marks

PRINT EDITION

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SECTION A · Short, 1 to 2 marks

A1 State what an enzyme does to the activation energy of a reaction, and state one quantity that an enzyme does not change. [2]

SECTION B · Standard, 3 to 5 marks

B1 Explain why a given enzyme catalyses only one reaction, using the terms active site, complementary and enzyme-substrate complex in your answer. [4]

B2 Compare the lock-and-key model of enzyme action with the induced fit model. [4]

B3 Explain why every enzyme is a globular protein, and why a fibrous protein such as collagen cannot be one. [3]

B4 A molecule built to resemble the strained, half-reacted form of a substrate binds to its enzyme far more tightly than the substrate itself does. Suggest what this tells us about the shape of the active site, and suggest why such a molecule would slow the enzyme down. [3]