InkBiology

QUESTION WORKBOOK

Inhibition: how cells, poisons and medicines all turn enzymes down

Enzymes and metabolic control · Unit B03

AQA 3.1.4.2 · OCR A 2.1.4 (i)-(k) · Edexcel A Topic 1.8 · CAIE 3.2

6 questions · 20 marks

PRINT EDITION

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SECTION A · Short, 1 to 2 marks

A1 State the effect a non-competitive inhibitor has on the Vmax of an enzyme, and state its effect on the Km. [2]

SECTION B · Standard, 3 to 5 marks

B1 Compare a competitive inhibitor with a non-competitive inhibitor, referring to where each one binds and what each does to the enzyme. [4]

B2 Explain how end-product inhibition controls the rate of a metabolic pathway, and explain why it is the first enzyme of the pathway that is inhibited. [4]

B3 A dairy producing lactose-free milk must decide whether to immobilise its lactase on a column or to add the free enzyme to each batch. Evaluate the case for immobilising it. [4]

B4 Explain why penicillin kills growing bacteria but does no harm to human cells. [3]

B5 Mercury ions inhibit many enzymes, and washing the mercury away does not restore activity. Suggest how mercury ions inhibit an enzyme, and suggest why the effect cannot be reversed. [3]