



QUESTION WORKBOOK

Blood glucose: two hormones, one liver, and two different diabetes

Hormonal communication, plant responses and homeostasis · Unit B15

AQA 3.6.4.2 · OCR A 5.1.4 · Edexcel A Topic 7 (homeostasis) · CAIE 14.1

6 questions · 24 marks

PRINT EDITION

SECTION B · Standard, 3 to 5 marks

B1 Describe how a rise in blood glucose concentration causes a beta cell in an islet of Langerhans to secrete insulin. [5]

B2 Explain how insulin lowers the concentration of glucose in the blood, making clear why it is wrong to say that insulin converts glucose into glycogen. [4]

B3 Compare type 1 diabetes with type 2 diabetes, referring to the cause of each, the insulin present in the blood and how each is usually managed. [4]

- B4** In a glucose tolerance test a person's blood glucose concentration is 5.6 mmol per dm³ when fasting, rises to 9.8 mmol per dm³ at 30 minutes, and has returned to 5.6 mmol per dm³ at 120 minutes. Calculate the percentage increase in concentration between fasting and 30 minutes, and calculate the mean rate of fall between 30 and 120 minutes. [4]

- B5** Insulin has to be injected rather than swallowed. Suggest why, and suggest why a person with type 2 diabetes can often control their blood glucose by diet and exercise alone while a person with type 1 cannot. [4]

- B6** Name the cells that secrete insulin and the cells that secrete glucagon, and name the patches of tissue in the pancreas that contain both kinds of cell. [3]