

**Dalkeith High School**  
**N5 Biology**  
**Control and Communication (Task 2)**

1. a) What is a hormone?

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**1**

b) What type of glands produce hormones?

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**1**

c) How do hormones travel from the glands where they are produced to the place where they have an effect?

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**1**

2. A person with Type I diabetes lacks a key hormone involved in controlling blood sugar level.

a) Name this hormone.

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**1**

b) How is Type I diabetes treated?

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**1**

c) Another form of diabetes known as Type II diabetes can develop as a result of obesity. How does Type II diabetes differ from Type I diabetes?

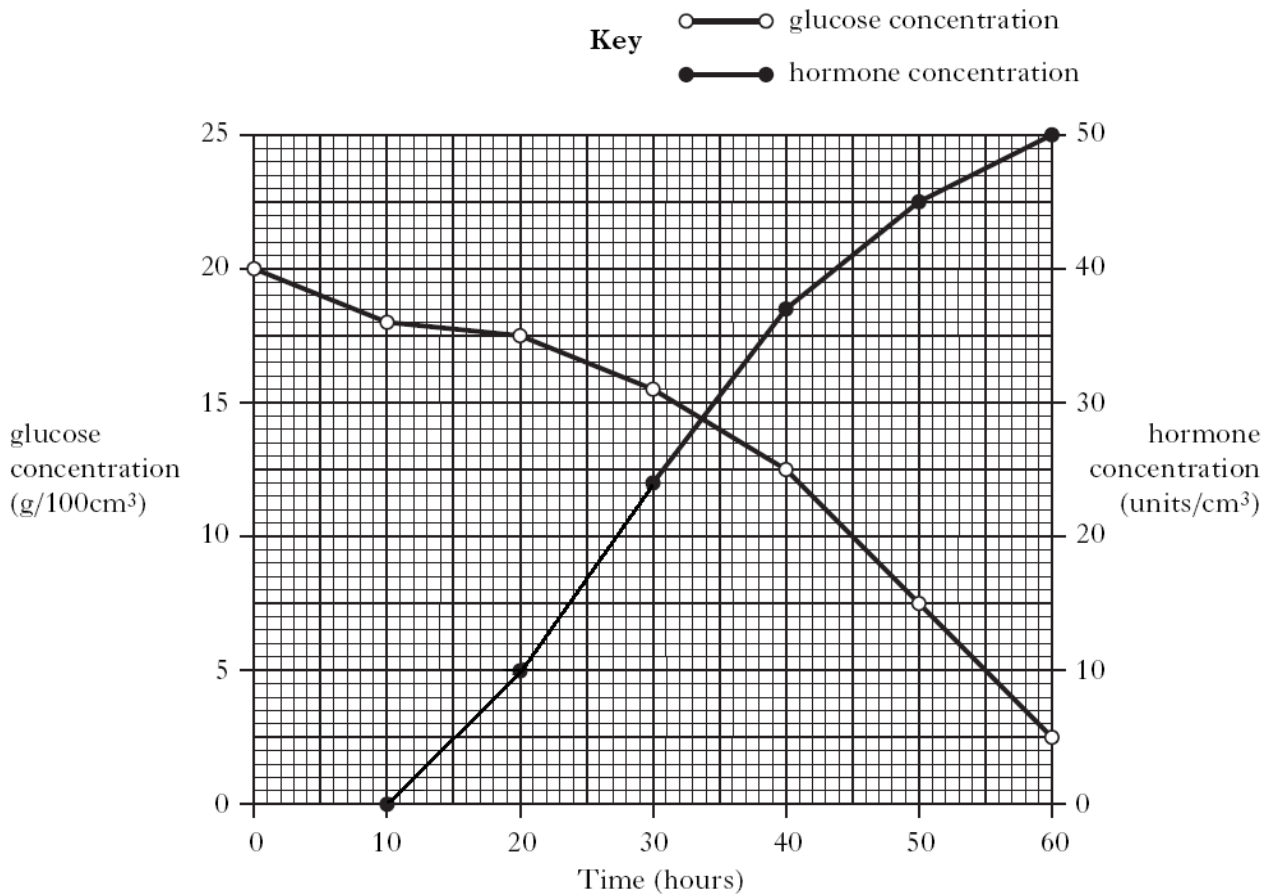
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**1**

3. A certain species of bacteria have been genetically engineered to produce a hormone when provided with glucose in a liquid culture medium. The graph below shows the change in glucose and hormone concentration in the surrounding liquid over a 60 hour period.



a) How long did it take the bacteria to use up 50% of the glucose?

\_\_\_\_\_ hours

1

b) Calculate the simple whole number ratio of the glucose concentration at 0 hours and 60 hours.

0 hours \_\_\_\_\_ : \_\_\_\_\_ 60 hours

1

c) Calculate the percentage increase in hormone concentration between 20 and 50 hours.

\_\_\_\_\_ %

1

d) The bacteria were grown in a flask containing 100 cm<sup>3</sup> of liquid culture. How many units of the hormone were present in the flask after 30 hours?

\_\_\_\_\_ units

1