

A Level Biology B

H422/01 Fundamentals of biology

Question Set 2

1. (a)

This question is about the hormonal control of blood glucose concentration in health and disease.

Complete the missing words in the paragraph below to explain the role of insulin in blood glucose homeostasis.

When the concentration of blood glucose rises above a set point,

.....cells in the

..... of the pancreas are

stimulated to release insulin. Effector cells respond to insulin by increasing

the expression of proteins in the

cell surface membrane. This increases the uptake of glucose. Liver cells

store some excess glucose in a process known as.....

The concentration of blood glucose then falls.

[4]

- (b) (i) The oral glucose tolerance test (OGTT) is used to diagnose diabetes.

A result from an OGTT measuring blood glucose and insulin concentrations is shown in Fig. 32.

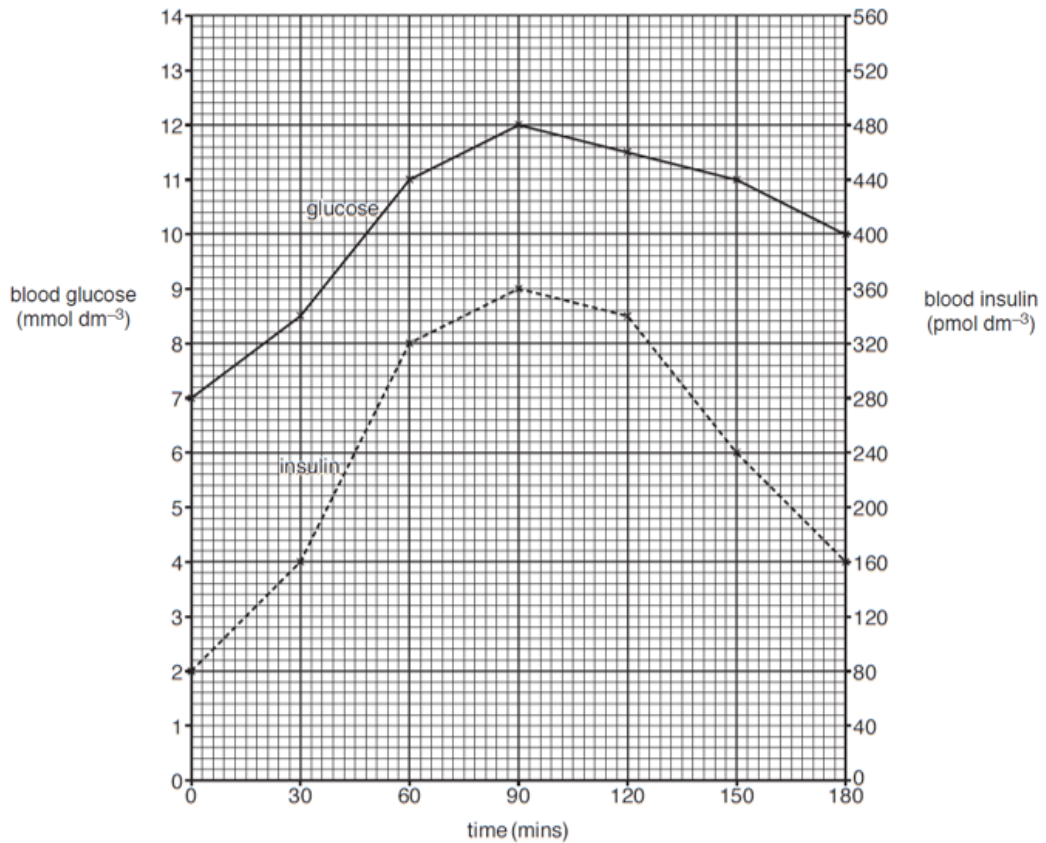


Fig. 32

The OGTT result in Fig. 32 shows evidence of diabetes.

State which type of diabetes the patient has **and** explain how this can be concluded.

[1]

- (b) (ii) Calculate the percentage increase in blood glucose concentration after 90 minutes compared to time 0.

Give your answer to **two** significant figures.

[2]

- (c)* Some patients with diabetes are treated with regular insulin injections.

Most insulin is now produced using recombinant DNA technology.

Outline this process.

You should refer to the role of specific enzymes in your answer.

[6]

Total Marks for Question Set 2: 13

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