

A Level Biology B

H422/01 Fundamentals of biology

Question Set 20

1. (a) (i) The photomicrograph in Fig. 36, shows a section of pancreatic tissue.

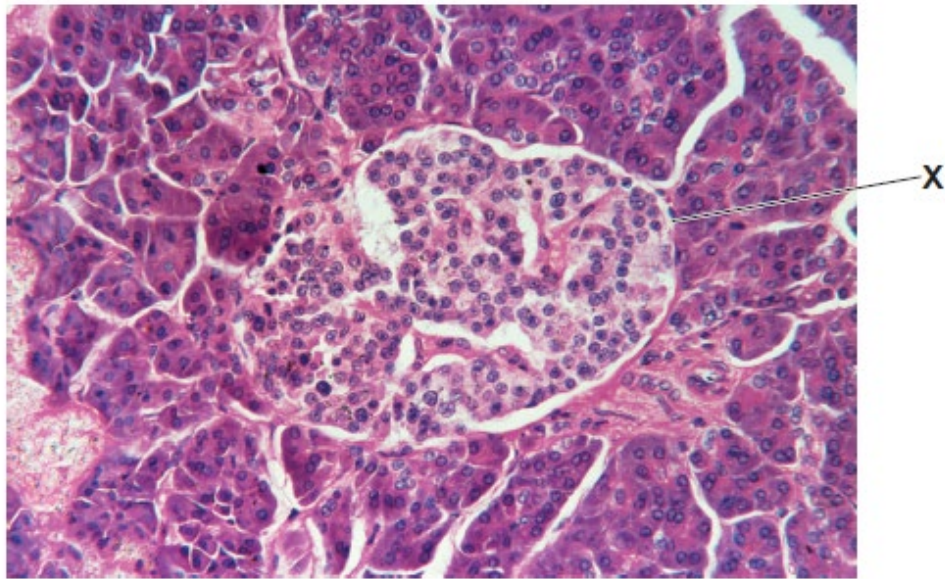


Fig. 36

An endocrine structure is labelled X.

Identify structure X.

[1]

- (a) (ii)* In a healthy individual, the concentration of blood glucose is maintained at around 80 to 90 mg per 100 cm³.

Discuss the mechanisms that control blood glucose concentration.

Your answer should include **named** cell types and biochemical pathways

[6]

- (b) (i) Impaired regulation of blood glucose concentration is a feature of diabetes.

Scientists are investigating new treatments for diabetes using mouse models. Diabetes can be induced in healthy mice by administering a compound called streptozotocin (STZ) and feeding the mice with a normal or high-fat diet.

STZ is toxic to pancreatic islet cells.

Two strategies for inducing diabetes in healthy mice are described below.

Strategy 1: High dose of STZ and a normal diet.

Strategy 2: Low dose of STZ and a high-fat diet.

For each strategy, suggest which **type** of diabetes would be induced **and** provide an explanation.

[2]

- (b) (ii) Both strategies are carried out over a period of five weeks. After this time, the mice are tested for diabetes.

Name **one** test that can be used to confirm that the mice are diabetic.

[1]

Total Marks for Question Set 20: 10

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