

Endocrine system & hormones (e.g., blood glucose control)

Q1.a(2018)

C pancreas liver and muscles

1. The only correct answer is C

A is not correct because the adrenal glands do not produce insulin

B is not correct because the adrenal glands do not produce insulin and the small and large intestines are not the target organs for insulin

D is not correct because the small and large intestines are not the target organs for insulin

Q1.b(2018)

A plasma

1. The only correct answer is A

B is not correct because red blood cells do not transport insulin

C is not correct because white blood cells do not transport insulin

D is not correct because platelets do not transport insulin

Q2.a(2018)

An explanation that includes **two** from:

- (more) insulin (is released / produced) (1)
- causes glucose to be converted to glycogen (1)
- glucose is used for respiration (1)

Q2.b(2018)

Any **one** from:

- (pancreas / body) {does not make insulin / makes very little insulin} (1)
- {pancreatic /beta} cells are absent / destroyed (by immune system) (1)
- (condition is) {inherited / genetic} / (can be) born with the condition (1)

Q2.c(2018)

An explanation that includes the following:

- reduce the levels of carbohydrate / sugars / glucose in the diet (1)
- to ensure that blood glucose levels do not rise too high / too quickly / so that the insulin can cope. (1)

OR

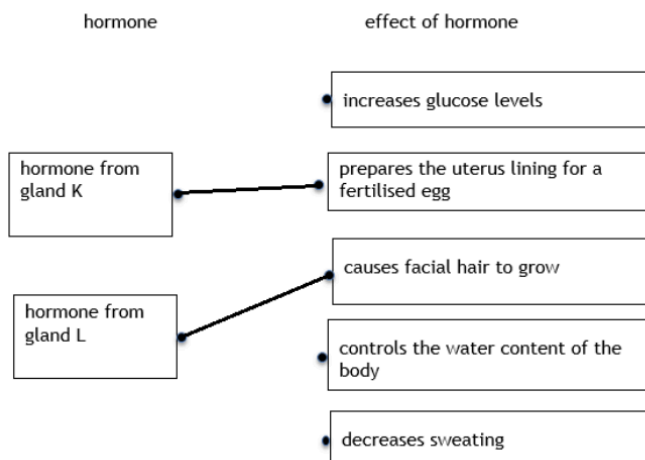
- lose weight (1)
- insulin resistance reduced / body will produce more insulin / cells respond to insulin (1)

Q2.d(2018)

Any **two** from:

- gender (1)
- age (1)
- life style / exercise / diet (1)
- size / weight / BMI (1)

Q3.a(2019,4)



Q3.b(2019,4)

C dissolved in blood plasma (1)

The only correct answer is C

A is not correct because adrenalin is not transported by transpiration.

B is not correct because the adrenalin is not transported by osmosis

D is not correct because the adrenalin is not transported by red blood cells

Q3.c(2019,4)

D homeostasis (1)

The only correct answer is D

A is not correct because respiration is not the name given to the process of maintaining the internal body conditions.

B is not correct because diffusion is not the name given to the process of maintaining the internal body conditions.

C is not correct because digestion is not the name given to the process of maintaining the internal body conditions.

Q4.a(2019,4)

A description including two from:

- fluctuates / stays roughly the same (1)
- and then increases (1)
- correct reference to data from the graph (1)

Q4.a(2019,4)

An explanation including two
from the following:

- (more) insulin (is released)
(1)
- which makes the {cells / tissues
/ liver / muscles} absorb
glucose (1)
- to be {stored as /changed into}
glycogen (1)
- (glucose is) used to supply
energy / in respiration / during
exercise (1)

Q5.a(2020,4)

D pancreas insulin

The only correct answer is **D** pancreas insulin

A is incorrect because the ovary does not produce a hormone that controls blood glucose concentration.

B is incorrect because the ovary does not produce a hormone that controls blood glucose concentration.

C is incorrect because oestrogen does not control blood glucose concentration.

Q5.b(2020,4)

Liver / muscles / named muscle

Q6.a(2020,4)

Substitution

$$110 \div 2.0^2 (1)$$

Evaluation

$$= 27.5$$

Q6.b(2020,4)

A description that includes **two** from:

- lose weight (1)
- control diet / eat less sugary food (1)
- exercise **more** (1)

Q7.(2021,4)

C pituitary

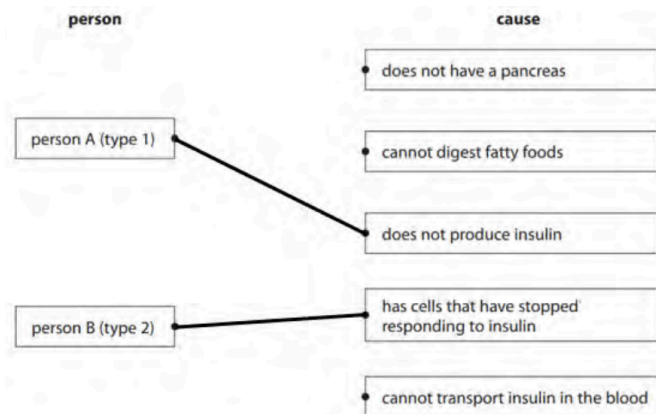
The only correct answer is C

A is not correct because the adrenal glands is situated in the abdomen.

B is not correct because the pancreas is situated in the abdomen.

D is not correct because the thyroid gland is situated in the neck.

Q8.(2021,4)



Q9.a(2021,4)

A description including:

- as the waist to hip ratio increases the probability of developing type 2 diabetes increases (1)
- accurate data from the results is used in the answer (1)

Q9.b(2021,4)

evaluation

- $(78.3 \div 90.0) = 0.87$ (1)

probability

- 21(%)

Q9.c(2021,4)

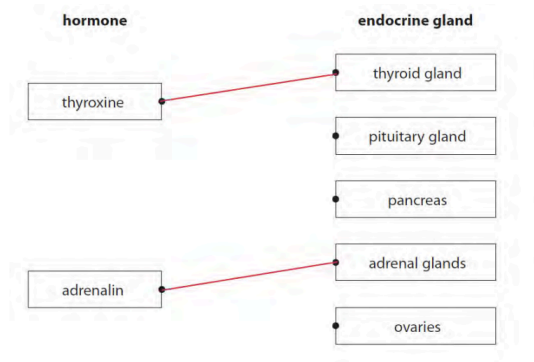
Any **two** from:

- age (1)
- diet (1)
- exercise regime (1)
- ethnicity (1)
- genetic makeup (1)

Q9.d(2021,4)

their high BMI is due to a high % of muscle (instead of fat)

Q10.(2023,4)



Do not award mark if more than one line is drawn from the thyroxine box.

Do not award mark if more than one line is drawn from the adrenalin box.

Q11.a(2023,4)

A description including two from:

The blood glucose concentration for the person with diabetes (compared with the person who does not have diabetes) is

- always higher (1)
- reduces at a slower rate (1)
- does not return to pre meal levels (in the six-hour period) (1)
- does not get lower than pre meal levels (1)

Q11.b(2023,4)

9 (mmol per dm³)

Q11.c(2023,4)

An explanation including:

- (water moves out) by osmosis (1)
- because the concentration of glucose is higher in the blood (plasma) (1)
- across a partially permeable membrane (1)

Q11.d(2023,4)

insulin

Q11.e(2023,4)

in the blood / plasma

Q11.f(2023,4)

The only correct answer is

C liver

A is incorrect because the target organ is not the kidney

B is incorrect because the pancreas produces insulin

D is incorrect because the target organ is not the lungs

Q11.g(2023,4)

An explanation including three from:

- exercise (1)
- control diet / lose weight (1)
- to {reduce / control} **blood glucose** (1)

Q12.a(2024,4)

B pancreas

The only correct answer is B

A is incorrect because the thyroid gland does not make insulin

C is incorrect because the adrenal glands do not make insulin

D is incorrect because the pituitary gland does not make insulin

Q12.b(2024,4)

in the blood / plasma

Q12.c(2024,4)

liver

Q13.a(2024,4)

A description including:

the concentration of glucose in the blood

- decreases (1)
- then decreases at a faster rate (between 12.30pm and 1pm) (1)

Q13.b(2024,4)

eaten a meal / eaten food

Q13.c(2024,4)

An answer including two from:

- reduce {carbohydrate / sugar / glucose} in their diet (1)
- exercise (1)
- lose weight (1)