

Questions

Q1.

Answer the question with a cross in the box you think is correct . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

(i) Which row of the table shows the endocrine gland and hormone involved in the control of blood glucose concentration?

(1)

	endocrine gland	hormone
<input type="checkbox"/> A	ovary	oestrogen
<input checked="" type="checkbox"/> B	ovary	insulin
<input type="checkbox"/> C	pancreas	oestrogen
<input type="checkbox"/> D	pancreas	insulin

(ii) State a target organ for the hormone that controls blood glucose concentration.

(1)

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(Total for question = 2 marks)

Q2.

A woman had unexplained weight loss and fatigue.
She had blood tests to investigate the cause of these symptoms.
Figure 10 shows the results.

blood test	woman's result	normal range
TSH level	5.6 mU/l	0.4 to 4.9 mU/l
thyroxine level	27.5 pmol/l	9.0 to 21.0 pmol/l
red blood cell count	5.2×10^6 cells/ μ l	4.2 to 5.4×10^6 cells/ μ l
glucose level	82.0 mg/dl	72.0 to 99.0 mg/dl

Figure 10

Comment on the results of these blood tests and the possible causes of the woman's weight loss and fatigue.

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(Total for question = 4 marks)

Q3.

Figure 3 shows the positions of the endocrine glands in a woman and a man.

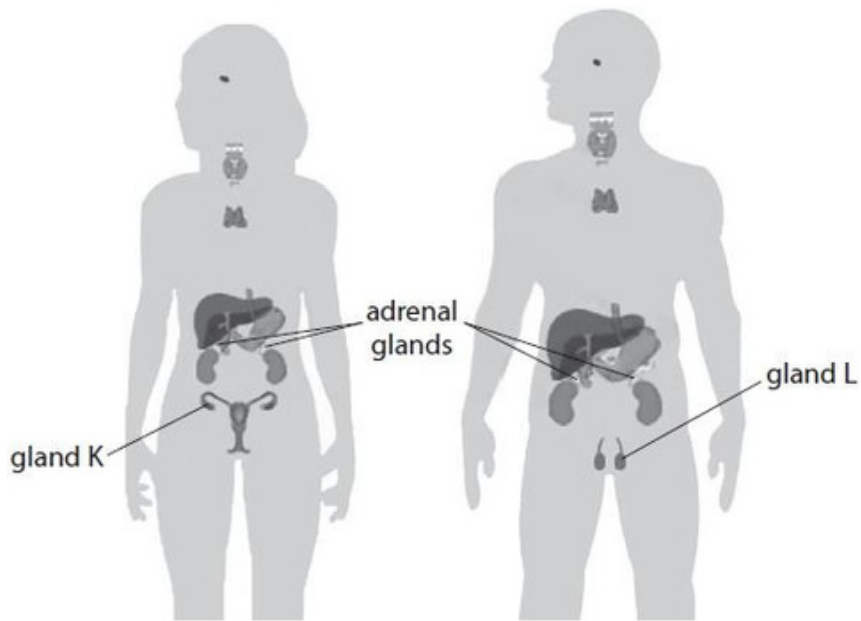


Figure 3

Draw one straight line from each hormone to the effect of the hormone on the body.

(2)

hormone	effect of hormone
hormone from gland K in the woman	increases glucose levels
hormone from gland L in the man	prepares the uterus lining for a fertilised egg
	causes facial hair to grow
	controls the water content of the body
	decreases sweating

(Total for question = 2 marks)

Q4.

Exercise increases adrenalin levels.

(i) State which endocrine gland secretes adrenalin.

(1)

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(ii) Explain the effect of adrenalin on liver cells during exercise.

(3)

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(Total for question = 4 marks)

Q5.

Explain how negative feedback, involving the thyroid gland, controls metabolic rate.

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(Total for question = 4 marks)

Q6.

Explain how the release of adrenalin can result in the improved performance of an athlete.

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(Total for question = 4 marks)

Q7.

How is adrenalin transported from the adrenal glands to its target organs?

(1)

- A by transpiration
- B by osmosis
- C dissolved in blood plasma
- D carried by red blood cells

(Total for question = 1 mark)

Q8.

Insulin is produced by an endocrine gland and is transported in the blood.

(i) Which row shows the endocrine gland and the target organs for insulin?

(1)

	endocrine gland	target organs
<input type="checkbox"/> A	adrenal	liver and muscles
<input type="checkbox"/> B	adrenal	small and large intestines
<input checked="" type="checkbox"/> C	pancreas	liver and muscles
<input type="checkbox"/> D	pancreas	small and large intestines

(ii) Which part of the blood transports insulin to its target organs?

(1)

- A plasma
- B red blood cells
- C white blood cells
- D platelets

(Total for question = 2 marks)

Q9.

Answer the question with a cross in the box you think is correct . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

Endocrine glands make hormones.

Which endocrine gland is situated in the head and is attached to the brain?

(1)

- A adrenal
- B pancreas
- C pituitary
- D thyroid

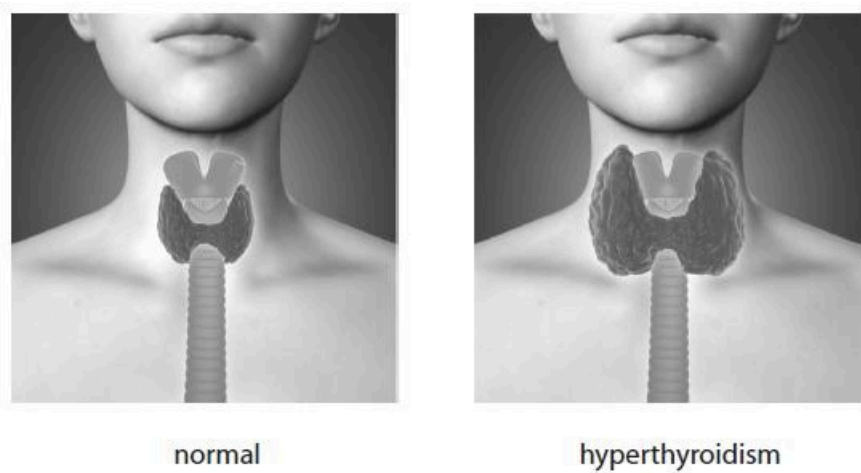
(Total for question = 1 mark)

Q10.

Answer the question with a cross in the box you think is correct . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

Hyperthyroidism is caused by an overactive thyroid gland.

Figure 14 shows a person with a normal thyroid gland and a person with hyperthyroidism.



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Figure 14

(i) State one effect of hyperthyroidism on the thyroid gland.

(1)

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(ii) The thyroid gland is part of the

(1)

- A circulatory system
- B digestive system
- C endocrine system
- D urinary system

(Total for question = 2 marks)

Mark Scheme

Q1.

Question number	Answer	Mark
(i)	<p>D pancreas insulin</p> <p>The only correct answer is D pancreas insulin</p> <p>A is incorrect because the ovary does not produce a hormone that controls blood glucose concentration.</p> <p>B is incorrect because the ovary does not produce a hormone that controls blood glucose concentration.</p> <p>C is incorrect because oestrogen does not control blood glucose concentration.</p>	(1) AO1.1
Question number	Answer	Mark
(ii)	Liver / muscles / named muscle	(1) AO1.1

Q2.

Question Number	Answer	Additional Guidance	Mark
	<p>An answer including four from:</p> <ul style="list-style-type: none"> • {TSH / thyroxine} levels are higher than normal (1) • TSH stimulates the thyroid gland / TSH stimulates the release of thyroxine (1) • increases metabolic rate (1) • {red blood cells / glucose} are within the normal range (1) • suggesting oxygen is carried as normal (1) • the symptoms are not due to diabetes (1) 	<p>accept the hormones levels are high / above average</p> <p>accept digests / breaks down food faster accept hyperthyroidism / overactive thyroid</p> <p>accept RBC / glucose are not high</p> <p>accept is not anaemic</p>	<p>(4) AO3 1a, 1b, 2a, 2b</p>

Q3.

Question number	Answer	Mark
	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>hormone</p> <div style="border: 1px solid black; padding: 2px; width: 80px; margin: 10px auto;">hormone from gland K</div> <div style="border: 1px solid black; padding: 2px; width: 80px; margin: 10px auto;">hormone from gland L</div> </div> <div style="text-align: center;"> <p>effect of hormone</p> <div style="border: 1px solid black; padding: 2px; width: 150px; margin: 10px auto;">increases glucose levels</div> <div style="border: 1px solid black; padding: 2px; width: 150px; margin: 10px auto;">prepares the uterus lining for a fertilised egg</div> <div style="border: 1px solid black; padding: 2px; width: 150px; margin: 10px auto;">causes facial hair to grow</div> <div style="border: 1px solid black; padding: 2px; width: 150px; margin: 10px auto;">controls the water content of the body</div> <div style="border: 1px solid black; padding: 2px; width: 150px; margin: 10px auto;">decreases sweating</div> </div> </div> <p style="margin-top: 20px;">Do not award mark if two lines are drawn from hormone box K</p> <p>Do not award mark if two lines are drawn from hormone box L</p>	<p>(2)</p> <p style="text-align: right; margin-top: 100px;">CS 7.1 AO2.1</p>

Q4.

Question Number	Answer	Additional Guidance	Mark
(i)	adrenal (glands)	ignore kidney / adrenalin glands	(1) AO1

Question Number	Answer	Additional Guidance	Mark
(ii)	<p>An explanation linking three from:</p> <ul style="list-style-type: none"> • binds to receptors (on the liver) (1) • (triggers liver cells to) convert glycogen (1) • into glucose (1) • increasing the concentration (of glucose) in the blood / which is released into the blood (1) 	<p>ignore sugar</p> <p>accept blood sugar</p>	(3) AO2

Q5.

Question number	Answer	Mark
	<p>An explanation including four of the following:</p> <ul style="list-style-type: none"> • Low levels of thyroxine cause TRH to be produced (1) • (TRH is produced) in the hypothalamus (1) • this causes TSH to be released (1) • (TSH is released) from the pituitary (1) • (TSH causes the) thyroid gland to produce thyroxine (1) • As thyroxine levels increase it inhibits the {release of TRH / production of TSH} (1) 	(4) AO1.1

Q6.

Question number	Answer	Additional guidance	Mark
	<p>An explanation linking four of the following:</p> <ul style="list-style-type: none"> • adrenalin acts to increase heart rate / blood pressure (1) • so there is increased blood flow (1) • causes the release of glucose from glycogen (1) • so increased {oxygen/glucose} (1) • increased the rate of respiration (1) • to release energy (for the working muscles/body) (1) 	<p>accept more glucose released from liver/muscles</p> <p>accept ATP for energy</p>	<p>(4)</p> <p>AO 1 2</p>

Q7.

Question number	Answer	Mark
	<p>C dissolved in blood plasma (1)</p> <p>The only correct answer is C</p> <p><i>A is not correct because adrenalin is not transported by transpiration.</i></p> <p><i>B is not correct because the adrenalin is not transported by osmosis</i></p> <p><i>D is not correct because the adrenalin is not transported by red blood cells</i></p>	<p>(1)</p> <p>AO1.1</p>

Q8.

Question number	Answer	Mark
(i)	C pancreas liver and muscles 1. The only correct answer is C <i>A is not correct because the adrenal glands do not produce insulin</i> <i>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</i> <i>D is not correct because the small and large intestines are not the target organs for insulin</i>	(1) AO 1 1

Question number	Answer	Mark
(ii)	A plasma 1. The only correct answer is A <i>B is not correct because red blood cells do not transport insulin</i> <i>C is not correct because white blood cells do not transport insulin</i> <i>D is not correct because platelets do not transport insulin</i>	(1) AO 1 1

Q9.

Question Number	Answer	Mark
	C pituitary The only correct answer is C <i>A is not correct because the adrenal glands is situated in the abdomen.</i> <i>B is not correct because the pancreas is situated in the abdomen.</i> <i>D is not correct because the thyroid gland is situated in the neck.</i>	(1) AO1.1

Q10.

Question number	Answer	Additional guidance	Mark
(i)	causes the thyroid gland to enlarge / swell / increase thyroxine production (1)		(1) A02.1

Question number	Answer	Mark
(ii)	C endocrine system The only correct answer is C endocrine system A is incorrect because the circulation involves the movement of blood around the body B is incorrect because the digestive system involves the breakdown of food D is incorrect because the urinary system deals with the removal of excretory products	(1) A01.1