## 14.4 Homeostasis

01. 0610_s21_qp_22 Q: 27

A person's skin looks more red in a warm environment than it does in a cool environment.

Which explanation is correct?

**A** The arterioles supplying capillaries in the skin vasodilate and less blood flows to the skin surface.

**B** The arterioles supplying capillaries in the skin vasodilate and more blood flows to the skin surface.

**C** The arterioles supplying capillaries in the skin vasoconstrict and more blood flows to the skin surface.

**D** The arterioles supplying capillaries in the skin vasoconstrict and less blood flows to the skin surface.

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02. 0610_s21_qp_23 Q: 28

Which statement about the regulation of human body temperature is correct?

**A** Vasoconstriction of skin arterioles occurs when the body temperature is too low.

**B** Vasodilation of skin arterioles occurs when the body temperature is too low.

**C** Vasoconstriction of skin capillaries occurs when the body temperature is too high.

**D** Vasodilation of skin capillaries occurs when the body temperature is too low.

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03. 0610_w21_qp_22 Q: 26

Which process is a response of the body that is part of a negative feedback process?

**A** release of insulin in response to low blood glucose concentration

**B** vasoconstriction in response to an increase in blood temperature

**C** synthesis of glycogen in response to increase in blood glucose concentration

**D** sweating in response to a decrease in blood temperature

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04. 0610_w21_qp_23 Q: 26

What happens when someone has a low blood glucose concentration?

**A** Insulin is released from the pancreas.

**B** Glycogen is released from the pancreas.

**C** Glucagon is released from the liver.

**D** Glucose is released from the liver.

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05. 0610_s20_qp_21 Q: 26

The liver and the pancreas work together to control the concentration of glucose in the blood.

Which statement is correct?

**A** The liver converts the small molecule glucose to the large molecule glucagon.

**B** The liver releases the hormone insulin when blood glucose levels are too high.

**C** The pancreas does not respond to an increase in blood glucose levels.

**D** The pancreas responds to a fall in blood glucose by increasing the release of the hormone glucagon.

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06. 0610_s20_qp_23 Q: 25

What happens when a person enters a very hot room?

**A** Sweating decreases and vasoconstriction increases.

**B** Sweating decreases and vasodilation decreases.

**C** Sweating increases and vasoconstriction increases.

**D** Sweating increases and vasodilation increases.

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07. 0610_w20_qp_21 Q: 26

When the environment is hot, how do the arterioles in the skin and hair erector muscles react?

| | arterioles | hair erector muscles |
|---|---|---|
| **A** | dilate | relax |
| **B** | dilate | contract |
| **C** | constrict | relax |
| **D** | constrict | contract |



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08. 0610_w20_qp_22 Q: 25

How does the skin react when the body becomes cold?

| | arterioles supplying the skin surface | sweat production |
|---|---|---|
| **A** | constrict | decreases |
| **B** | dilate | increases |
| **C** | move towards skin surface | decreases |
| **D** | move away from skin surface | increases |

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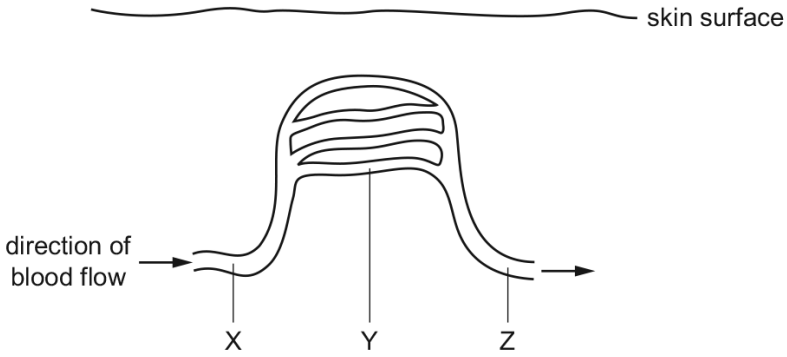
09. 0610_w20_qp_23 Q: 25

The diagram shows some blood vessels near the surface of the skin.




If vasodilation occurs at X, what happens to the blood flow at Y and Z?

| | Y | Z |
|---|---|---|
| **A** | decreases | decreases |
| **B** | decreases | stays constant |
| **C** | increases | increases |
| **D** | increases | stays constant |

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10. 0610_s19_qp_23 Q: 27

Where is glucagon secreted, and what is its effect on blood glucose concentration?

| | secreted by | effect on blood glucose concentration |
|---|---|---|
| **A** | liver | increases |
| **B** | liver | decreases |
| **C** | pancreas | increases |
| **D** | pancreas | decreases |

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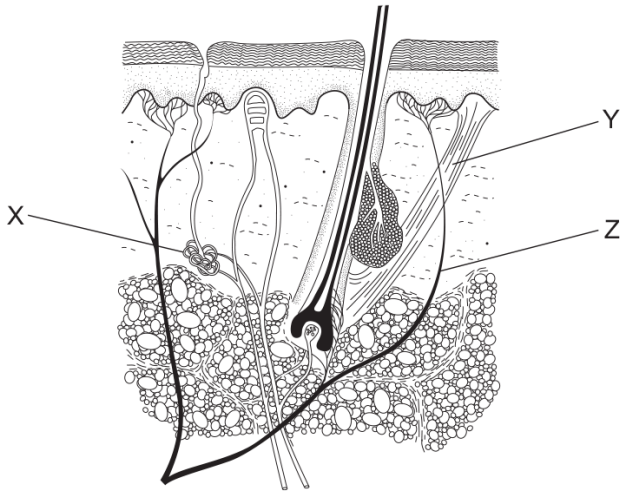
11. 0610_s18_qp_21 Q: 25

The diagram shows the structure of human skin.




What are X, Y and Z?

| | X | Y | Z |
|---|---|---|---|
| **A** | receptor | sensory neurone | sweat gland |
| **B** | sensory neurone | hair erector muscle | receptor |
| **C** | sweat gland | hair erector muscle | sensory neurone |
| **D** | sweat gland | receptor | blood vessel |

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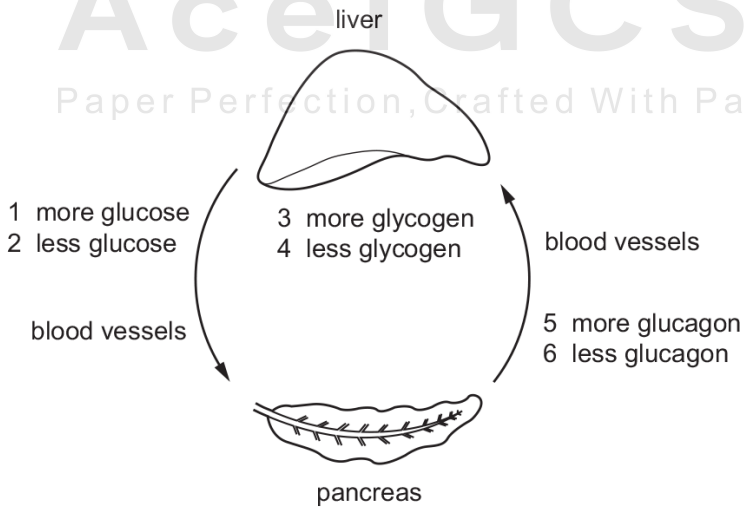
12. 0610_w18_qp_21 Q: 25

The diagram shows part of the mechanism that controls blood sugar concentration.






A person does one hour of exercise.

Starting with the pancreas, what is the sequence of events in which the hormone glucagon is involved?

**A** 5 → 3 → 2 **B** 5 → 4 → 1 **C** 6 → 3 → 1 **D** 6 → 4 → 2

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13. 0610_w18_qp_23 Q: 25

In a mammal, body temperature is regulated by negative feedback.

As a result of negative feedback, what happens in the mammal's body as the temperature of the external environment decreases?

**A** relaxation of hair erector muscles

**B** sweating

**C** vasoconstriction

**D** vasodilation

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14. 0610_w17_qp_21 Q: 23

What is the most important function of sweating?

**A** to remove excess heat from the body

**B** to remove excess salts from the body

**C** to remove excess urea from the body

**D** to remove excess water from the body

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15. 0610_w17_qp_21 Q: 25

The diagram shows a person sweating in hot weather.



What part is played by sweat glands during the process of sweating?

**A** effector

**B** receptor

**C** sense organ

**D** stimulus

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16. 0610_w17_qp_22 Q: 23

What is the most important function of sweating?

**A** to remove excess heat from the body

**B** to remove excess salts from the body

**C** to remove excess urea from the body

**D** to remove excess water from the body

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17. 0610_m16_qp_22 Q: 26

A person eats a large bowl of rice.

What happens to the amounts of insulin, glucagon and glycogen in their body?

| | insulin | glucagon | glycogen |
|---|---|---|---|
| **A** | decreases | decreases | increases |
| **B** | decreases | increases | decreases |
| **C** | increases | decreases | increases |
| **D** | increases | increases | decreases |

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18. 0610_s16_qp_21 Q: 27

What are the effects of insulin and glucagon on the concentration of blood glucose?

| | effect of insulin on blood glucose concentration | effect of glucagon on blood glucose concentration |
|---|---|---|
| **A** | decreases | decreases |
| **B** | decreases | increases |
| **C** | increases | decreases |
| **D** | increases | increases |

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19. 0610_w16_qp_23 Q: 26

When the blood glucose concentration is low, which hormone is released and which organ releases it?

| | hormone | organ |
|---|---|---|
| **A** | glucagon | liver |
| **B** | glucagon | pancreas |
| **C** | insulin | liver |
| **D** | insulin | pancreas |

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| SN | Paper | Q. No. | Answer |
|---|---|---|---|
| 01 | 0610_s21_qp_22 | 27 | B |
| 02 | 0610_s21_qp_23 | 28 | A |
| 03 | 0610_w21_qp_22 | 26 | C |
| 04 | 0610_w21_qp_23 | 26 | D |
| 05 | 0610_s20_qp_21 | 26 | D |
| 06 | 0610_s20_qp_23 | 25 | D |
| 07 | 0610_w20_qp_21 | 26 | A |
| 08 | 0610_w20_qp_22 | 25 | A |
| 09 | 0610_w20_qp_23 | 25 | C |
| 10 | 0610_s19_qp_23 | 27 | C |
| 11 | 0610_s18_qp_21 | 25 | C |
| 12 | 0610_w18_qp_21 | 25 | B |
| 13 | 0610_w18_qp_23 | 25 | C |
| 14 | 0610_w17_qp_21 | 23 | A |
| 15 | 0610_w17_qp_21 | 25 | A |
| 16 | 0610_w17_qp_22 | 23 | A |
| 17 | 0610_m16_qp_22 | 26 | C |
| 18 | 0610_s16_qp_21 | 27 | B |
| 19 | 0610_w16_qp_23 | 26 | B |