

**13. Excretion**

*(Past Year Topical Questions 2010-2015)*

May/June 2010 (11)

**21** Which organ produces urea?

- A** bladder
- B** kidney
- C** liver
- D** pancreas

**22** What happens when the body temperature rises above normal?

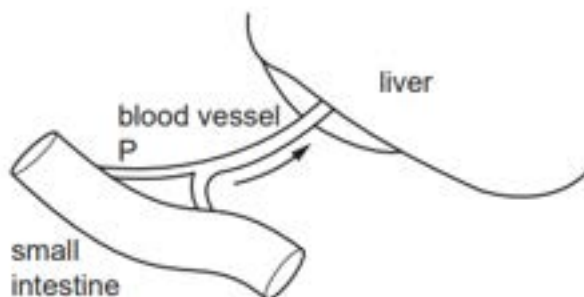
	blood vessels in the surface of skin	sweat production
<b>A</b>	constrict	decreases
<b>B</b>	constrict	increases
<b>C</b>	dilate	decreases
<b>D</b>	dilate	increases

Oct/Nov 2010 (11)

**16** Which substance is lost from the body by the kidneys, lungs and skin?

- A** carbon dioxide
- B** excess ions
- C** urea
- D** water

- 18** The diagram shows blood vessel P which carries digested food from the small intestine to the liver.



Which row describes the level of glucose in blood vessel P and the level of glycogen in the liver, shortly after a meal containing carbohydrates?

	glucose in blood vessel P	glycogen in liver
<b>A</b>	high	decreasing
<b>B</b>	high	increasing
<b>C</b>	low	decreasing
<b>D</b>	low	increasing

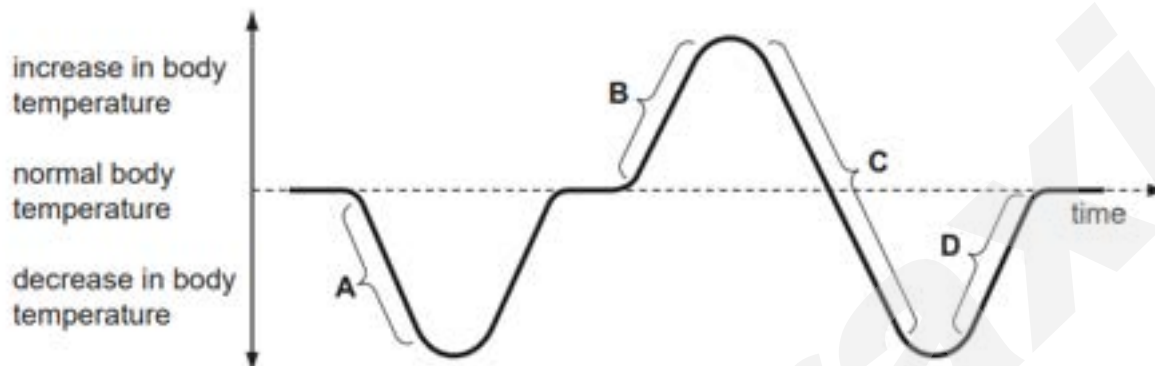
Oct/Nov 2011 (11)

- 22** Which materials are excreted by kidneys and lungs?

	kidneys	lungs
<b>A</b>	carbon dioxide	carbon dioxide
<b>B</b>	carbon dioxide	urea
<b>C</b>	urea	carbon dioxide
<b>D</b>	urea	urea

**23** The graph shows the variation in a person's body temperature over a period of time.

Which temperature change is likely to cause most sweating?

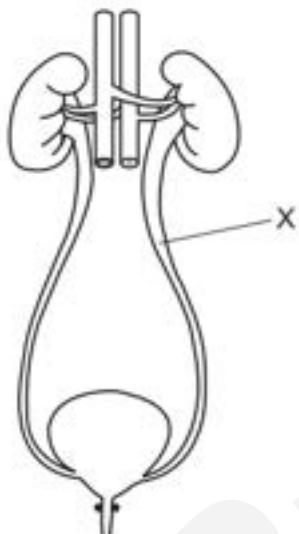


May/June 2012 (11)

**21** Which set of conditions would make the percentage of water in urine decrease the most?

	conditions	
	temperature of the surroundings	amount of activity
<b>A</b>	low	low
<b>B</b>	low	high
<b>C</b>	high	low
<b>D</b>	high	high

22 The diagram shows the human urinary system.



Which substance is **not** found in the liquid at X in a healthy person?

- A glucose
- B salt
- C toxins
- D urea

May/June 2012 (12)

22 During a long-distance race, the body temperature of an athlete begins to rise.

Which changes occur to help return the body temperature to normal?

	sweating	blood vessels in the skin
A	decreases	constrict
B	decreases	dilate
C	increases	constrict
D	increases	dilate

Oct/Nov 2012 (11)

17 What shows the sequence of organs through which urea passes as it travels from where it is produced to where it is removed from the blood?

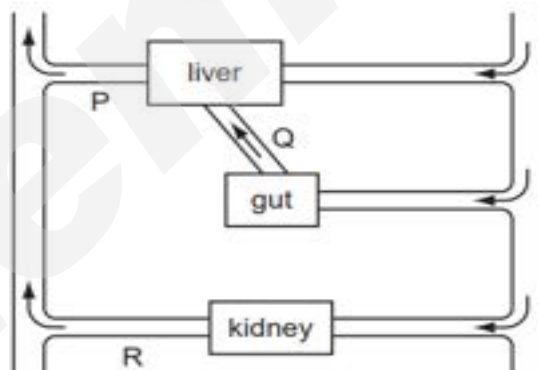
- A kidneys → heart → lungs → heart → liver
- B kidneys → heart → liver → lungs → heart
- C liver → heart → lungs → heart → kidneys
- D liver → lungs → heart → kidneys → heart

22 A healthy person eats a very high-protein diet.

What effect will this have on their urine?

- A It will contain amino acids.
- B It will contain glucose.
- C It will contain more urea.
- D It will contain more water.

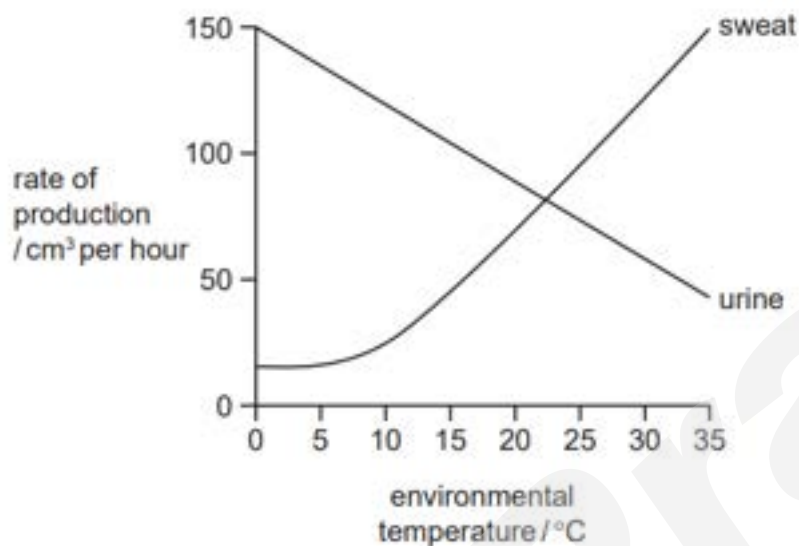
23 The diagram represents some human organs and their blood vessels.



Immediately after taking an alcoholic drink, how would the levels of alcohol compare in blood vessels P, Q and R?

	P	Q	R
<b>A</b>	high	medium	high
<b>B</b>	medium	high	low
<b>C</b>	low	low	medium
<b>D</b>	high	low	low

- 24 The graph shows the rates of sweat production and urine production at different environmental temperatures.



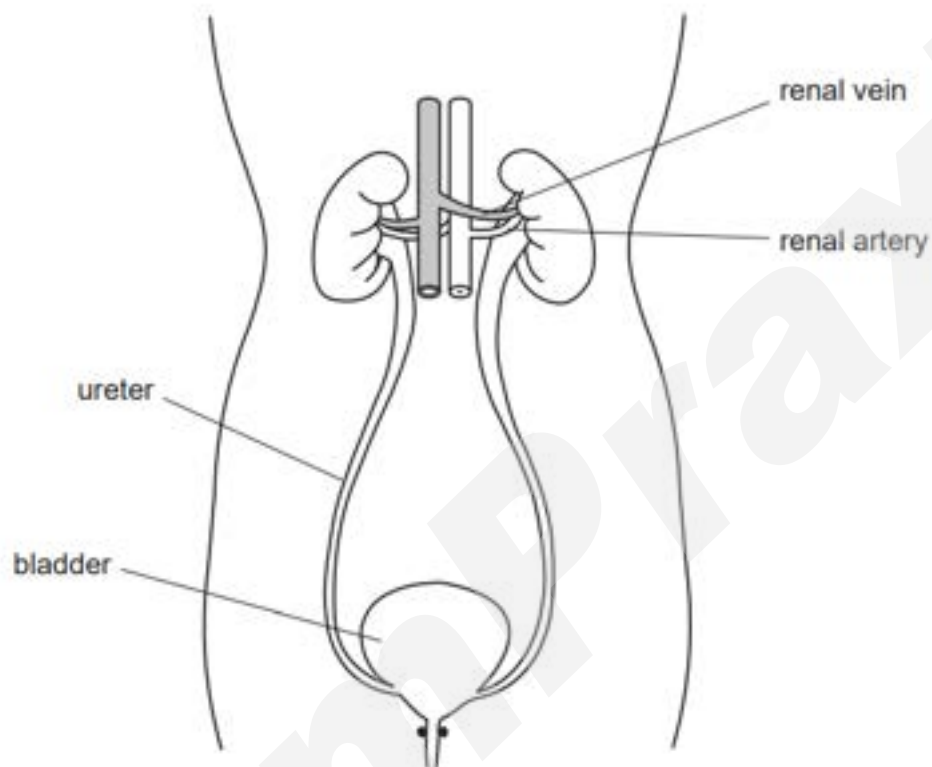
Which statement is correct?

- A As the temperature increases, the rate of sweat production decreases.
- B At 22 °C the rates of sweat and urine production are the same.
- C Urine and sweat production are directly proportional to environmental temperature.
- D When the urine production decreases, the sweat production decreases.



Oct/Nov 2012 (13)

22 The diagram shows the human urinary system.



Which row shows substances that are present in each of these structures in a healthy person?

	renal artery	renal vein	ureter	bladder
<b>A</b>	glucose	glucose	salts	urea
<b>B</b>	protein	salts	water	protein
<b>C</b>	salts	water	protein	water
<b>D</b>	urea	glucose	protein	salts

25 When the body temperature rises above 37 °C, which changes help to return the temperature to normal?

	activity of sweat glands	blood vessels near skin surface
<b>A</b>	decreased	constricted
<b>B</b>	decreased	dilated
<b>C</b>	increased	constricted
<b>D</b>	increased	dilated

May/June 2013 (11)

23 Which food type, when eaten in excess, will cause a rise in the urea content of urine?

- A carbohydrate
- B fat
- C mineral salts
- D protein

24 Where is urea made?

- A intestines
- B kidney
- C liver
- D muscles



Oct/Nov 2013 (11)

**24** A person has a high-protein diet.

What describes the level of urea in the blood leaving the liver and in the urine leaving the kidneys?

	urea in blood leaving liver	urea in urine leaving kidneys
<b>A</b>	high	high
<b>B</b>	high	low
<b>C</b>	low	high
<b>D</b>	low	low

**26** How does sweating cool the body?

- A** Sweating causes vasodilation.
- B** Sweating decreases the water content of the blood.
- C** Urea and salt are lost from the body in sweat.
- D** Water in sweat evaporates from the skin.

May/June 2014 (11)

**17** How does insulin move from the pancreas, where it is produced, to the cell where it acts?

- A** along nerves
- B** in the blood
- C** through the digestive system
- D** through the pancreatic duct

21 Which organs remove excretory products from the blood?

- A bladder and liver
- B bladder and lungs
- C kidneys and bladder
- D lungs and kidneys

May/June 2014 (12)

22 The diagram shows the human urinary system.



What is the part labelled X?

- A renal artery
- B renal vein
- C ureter
- D urethra

23 Which responses occur when a person is too hot?

	sweat produced	shivering	blood vessels supplying skin capillaries
<b>A</b>	no	yes	constricted
<b>B</b>	no	yes	dilated
<b>C</b>	yes	no	constricted
<b>D</b>	yes	no	dilated

Oct/Nov 2014 (11)

12 What is the function of the anus?

- A** assimilation
- B** digestion
- C** egestion
- D** excretion

21 The table shows a student's water losses on a cool day.

	water loss /cm <sup>3</sup>
in urine	1500
in faeces	100
in expired air	400
in sweat	800
total	2800

On a hot day the student's water intake was the same as on the cool day.

On the hot day, which water losses would increase and which would decrease?

	increase	decrease
<b>A</b>	in sweat	in expired air
<b>B</b>	in sweat	in urine
<b>C</b>	in urine	in faeces
<b>D</b>	in urine	in sweat

22 After a meal containing carbohydrates, which row shows the changes in concentration of glucose and urea in the blood as it passes through the liver?

	glucose	urea
<b>A</b>	less	less
<b>B</b>	less	more
<b>C</b>	more	less
<b>D</b>	more	more

Oct/Nov 2014 (13)

- 21 The table shows the percentage composition of some chemicals found in blood entering the kidney of a healthy person.

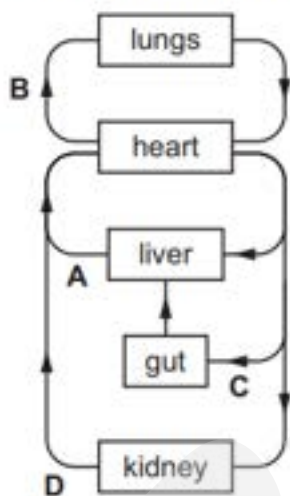
chemical	composition in blood entering kidney / %
glucose	0.10
protein	8.00
urea	0.03

What is the percentage composition of the same chemicals in the urine of a healthy person?

	composition in urine / %		
	glucose	protein	urea
<b>A</b>	1.00	4.00	0.03
<b>B</b>	0.00	4.00	0.00
<b>C</b>	0.00	0.00	2.00
<b>D</b>	0.10	8.00	2.00

22 The diagram shows part of the human circulatory system.

In which vessel do the break-down products of hormones first appear?



23 Which target organ releases glucose into the blood-stream as a result of the action of adrenaline?

- A adrenal gland
- B kidney
- C liver
- D pancreas



May/June 2015 (11)

**23** Which function does **not** occur in the kidneys?

- A breakdown of alcohol
- B removal of excess salts from the blood
- C removal of excess water from the blood
- D removal of urea from the blood

**24** What is urea formed from?

- A amino acids
- B fatty acids
- C glucose
- D glycerol

May/June 2015 (12)

**22** Which two substances are both reabsorbed in the kidneys?

- A glucose and salts
- B glucose and starch
- C glycogen and salts
- D glycogen and starch

May/June 2015 (13)

22 What is the function of the kidney?

- A making glucose and reabsorbing urea
- B making urea and removing salts
- C removing glucose and reabsorbing salts
- D removing urea and reabsorbing glucose

23 How does the skin react when the body becomes very warm?

	blood vessels	sweat production
A	dilate	almost stops
B	dilate	increases
C	move towards skin surface	almost stops
D	move towards skin surface	increases

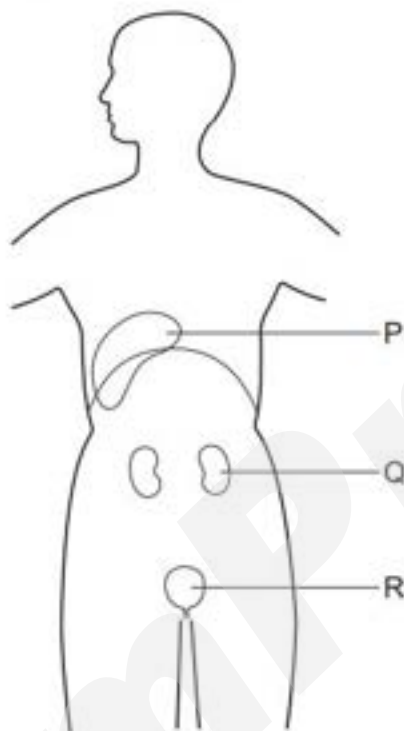
Oct/Nov 2015 (11)

21 Why do mammals sweat?

- A to cool the body
- B to lose water vapour through the skin surface
- C to release energy through the oxidation of glucose
- D to remove glucose from the blood

Oct/Nov 2015 (12)

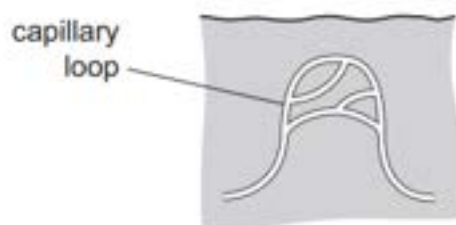
21 The diagram shows some organs in which urea is found.



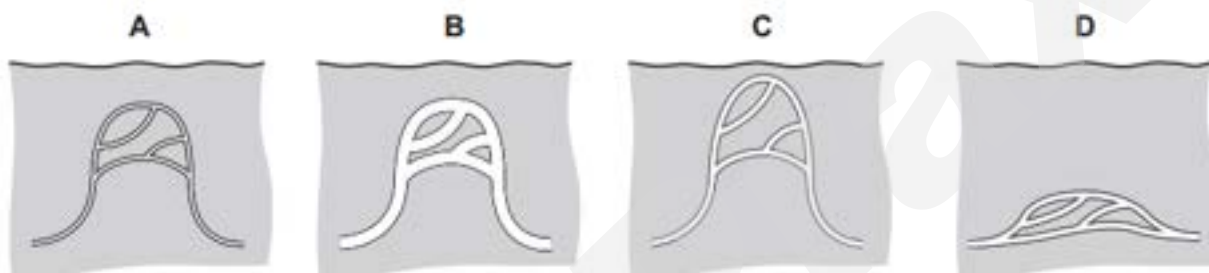
Which organ makes urea, and which organ removes it from the blood?

	makes urea	removes urea from blood
<b>A</b>	P	Q
<b>B</b>	Q	Q
<b>C</b>	Q	R
<b>D</b>	R	P

23 The diagram shows a capillary loop in the skin of a mammal.



What will the capillary loop look like if the mammal becomes cold?



Oct/Nov 2015 (13)

17 Where are hormones removed from the blood and broken down in the human body?

- A gall bladder
- B kidneys
- C liver
- D stomach

21 Where is urea produced in the human body and from which chemicals is it produced?

	produced	chemical
<b>A</b>	intestine	proteins
<b>B</b>	kidneys	amino acids
<b>C</b>	kidneys	fatty acids
<b>D</b>	liver	amino acids

22 The table shows the composition of a liquid found in the human body.

component	concentration / arbitrary units
amino acids	0.00
glucose	0.00
proteins	0.00
salts	1.50
urea	2.00

In a healthy person, which structure contains this liquid?

