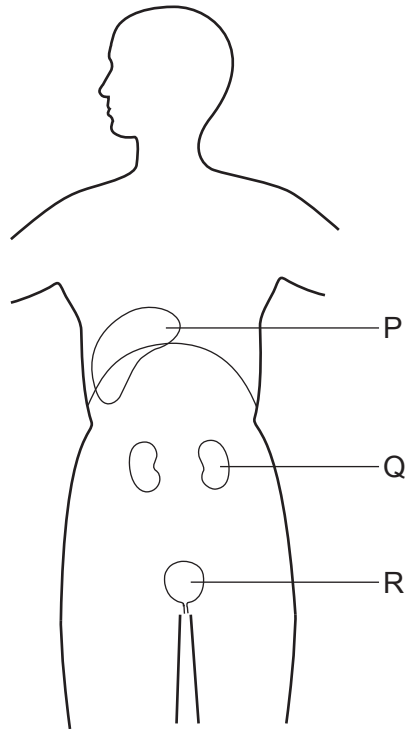


- 1 Which diet will cause the liver to produce the most urea?
  - A high carbohydrate, low fat
  - B high fat, high fibre
  - C high fat, low protein
  - D high protein, low carbohydrate
  
- 2 What is an example of excretion in mammals?
  - A the release of hormones from glands
  - B the release of saliva into the mouth
  - C the removal of undigested food through the anus
  - D the removal of urea by the kidneys
  
- 3 Where is urea formed?
  - A kidneys
  - B liver
  - C muscles
  - D small intestine
  
- 4 Which substance is lost from the body of a healthy person by the kidneys, but **not** by the lungs?
  - A carbon dioxide
  - B glucose
  - C urea
  - D water

5 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

6 What is a function of the kidneys of a healthy person?

- A break down toxins
- B eliminate all salts
- C reabsorb all glucose
- D retain all water

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

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

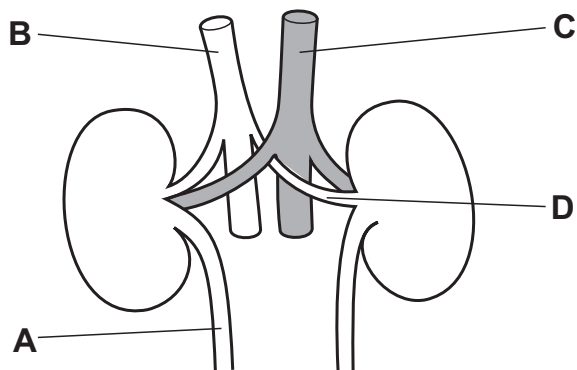
8 Where is urea produced in the human body and from which chemicals is it produced?

	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

9 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?



- 10 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
- 11 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
- 12 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
- 13 How is urea removed from the body?
- A as insoluble waste
  - B by being destroyed in the liver
  - C in expired air
  - D in solution
- 14 How does blood change as it passes through a kidney?
- A It gains glucose.
  - B It gains salts.
  - C It loses protein.
  - D It loses urea.

- 15 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

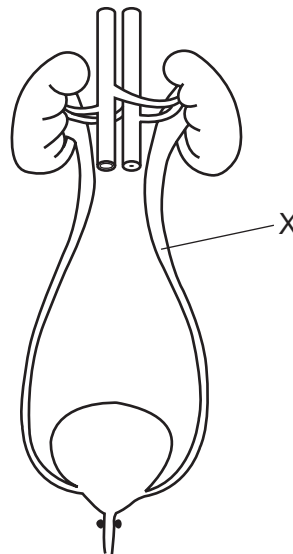
What is the percentage composition of the same chemicals in the urine of a healthy person?

	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

- 16 Which organs remove excretory products from the blood?

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

17 The diagram shows the human urinary system.



What is the part labelled X?

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

18 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

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

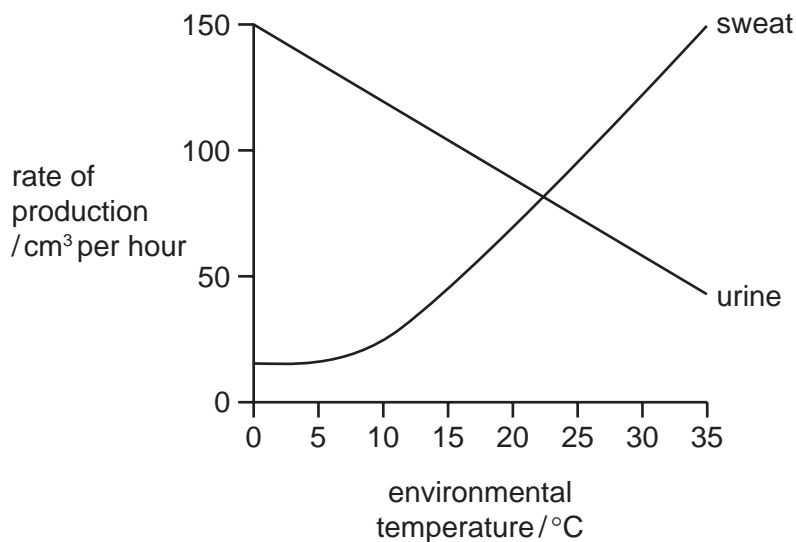
- A carbohydrate
- B fat
- C mineral salts
- D protein

20 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.

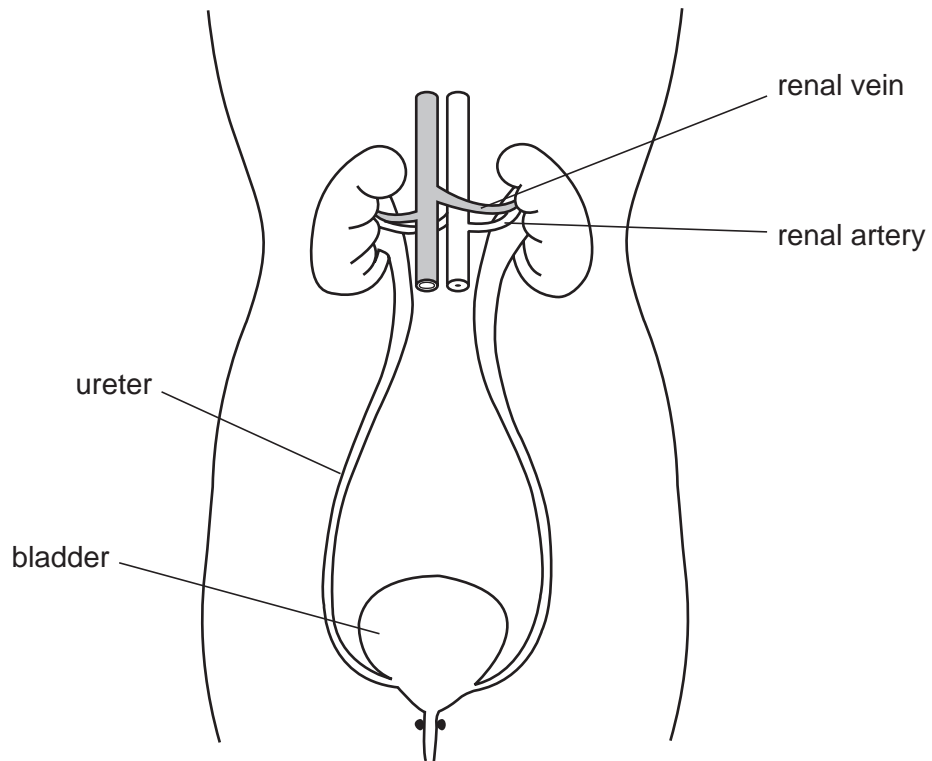
21 The graph shows the rates of sweat production and urine production at different environmental temperatures.



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.

22 The diagram shows the human urinary system.



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

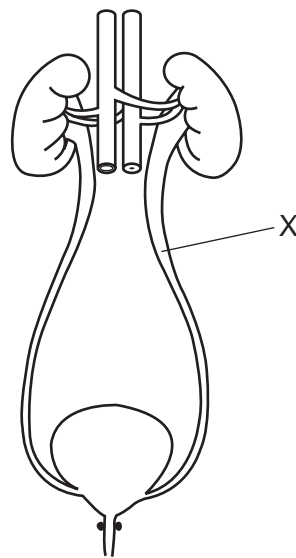
	renal artery	renal vein	ureter	bladder
<b>A</b>	glucose	glucose	salts	urea
<b>B</b>	protein	salts	water	protein
<b>C</b>	salts	water	protein	water
<b>D</b>	urea	glucose	protein	salts



23 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

24 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

25 In which order does urea pass through structures in the body?

- A kidney → ureter → liver → urethra
- B kidney → urethra → liver → ureter
- C liver → kidney → ureter → urethra
- D liver → urethra → kidney → ureter

26 Which materials are excreted by kidneys and lungs?

	kidneys	lungs
A	carbon dioxide	carbon dioxide
B	carbon dioxide	urea
C	urea	carbon dioxide
D	urea	urea

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

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

28 Which organ produces urea?

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

29 Blood passes through the kidney and some substances leave the blood as filtered liquid. From this liquid certain substances are reabsorbed back into the blood.

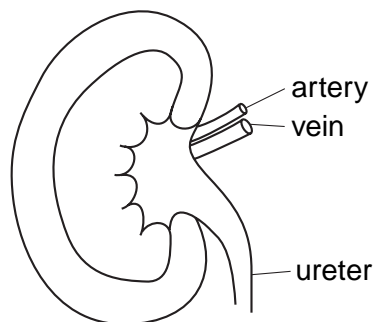
The table shows the percentage of four substances in the blood plasma, the filtered liquid and urine.

substance	percentage of substance		
	in the blood plasma	in the filtered liquid	in the urine
glucose	0.10	0.10	0.00
protein	9.00	0.00	0.00
urea	0.03	0.03	2.00
water	90.0	99.0	97.0

Which substances are reabsorbed from the filtered liquid?

- A glucose and water
- B protein and glucose
- C urea and protein
- D water and urea

30 The diagram shows a kidney and its blood vessels.

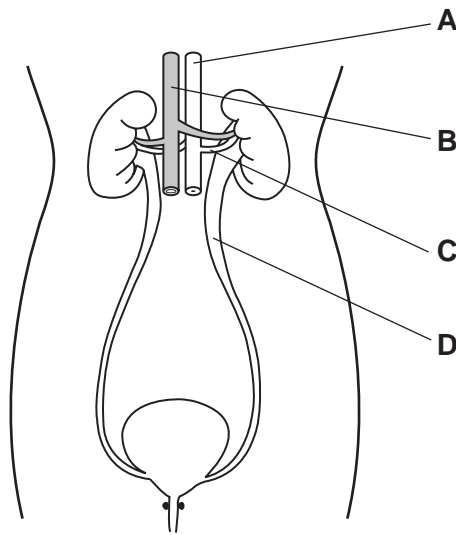


In a healthy person, which structures transport glucose?

- A artery only
- B artery and ureter
- C artery and vein
- D ureter and vein

31 The diagram shows the human excretory system and its main associated blood vessels.

Which labelled structure contains urine?



32 The table shows the amount of water and salt lost from the kidneys and skin on a hot day and on a cold day. Food and drink intake are the same on both days.

	water lost from kidneys / dm <sup>3</sup>	water lost from skin / dm <sup>3</sup>	salt lost from kidney / g	salt lost from skin / g
cold day	1.8	0.0	20.2	0.0
hot day	0.4	2.3	14.4	5.8

What do these results show?

- A Less water is lost from the kidneys on a cold day than on a hot day.
- B More salt is lost from the kidneys on a hot day than on a cold day.
- C The total amount of salt lost each day is the same.
- D Water is not lost from the kidneys on hot days.

- 33 Blood is filtered in the kidneys. After this filtration, some substances are reabsorbed into the blood and other substances pass out of the body in the urine.

Which line shows the correct movement of substances in a healthy person?

	substances reabsorbed into the blood	substances passed out of the body in the urine
<b>A</b>	glucose, some salts, urea	glucose, some salts, some water
<b>B</b>	glucose, some salts, some water	some salts, some water, urea
<b>C</b>	some salts, some water, urea	glucose, some water, urea
<b>D</b>	some salts, some water, urea	glucose, some salts, some water

- 34 Four urine samples were collected on different days from a person whose exercise and water intake was the same each day.

Which sample was collected on a cold day?

	volume of urine produced / dm <sup>3</sup>	volume of sweat produced / dm <sup>3</sup>
<b>A</b>	1.5	0.8
<b>B</b>	0.8	0.8
<b>C</b>	0.8	1.5
<b>D</b>	0.4	0.8

35 The table shows an analysis of urine and of blood after filtration in the kidney.

substance	percentage of substance in	
	blood	urine
glucose	0.10	0.00
salts	0.30	0.60
urea	0.03	2.00
water	90.00	97.00

Which substance is completely reabsorbed by the kidney?

- A glucose
- B salts
- C urea
- D water

36 What describes the excretion of urea?

	removal of undigested food	removal of metabolic wastes	removal of substances in excess	removal of toxic products
<b>A</b>	x	x	✓	✓
<b>B</b>	x	✓	✓	✓
<b>C</b>	✓	x	x	✓
<b>D</b>	✓	✓	✓	x

key  
 ✓ true  
 x not true

37 The average percentage of water in human urine is 96 %. This percentage changes when conditions change.

Which set of conditions will make the percentage of water in the urine decrease most?

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