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?

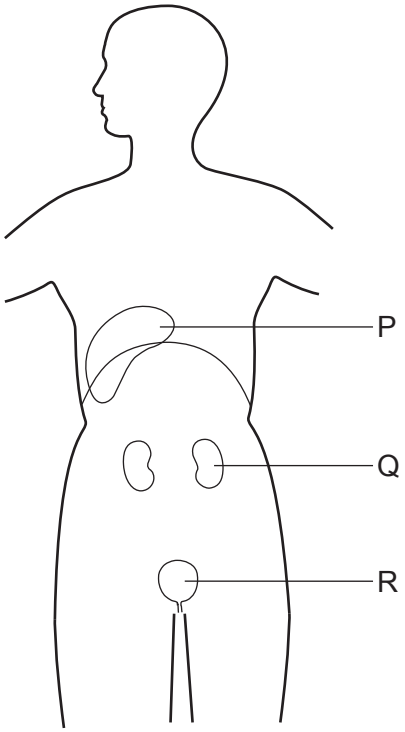
A carbon dioxide

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
A	P	Q
B	Q	Q
C	Q	R
D	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

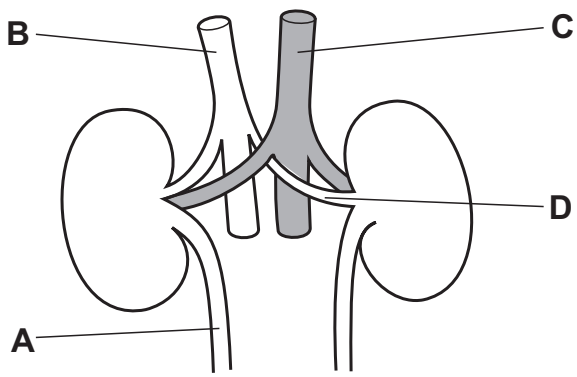
8 Where is urea produced in the human body and from which chemicals is it produced?

	produced	chemical
A	intestine	proteins
B	kidneys	amino acids
C	kidneys	fatty acids
D	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
A	1.00	4.00	0.03
B	0.00	4.00	0.00
C	0.00	0.00	2.00
D	0.10	8.00	2.00

16 Which organs remove excretory products from the blood?

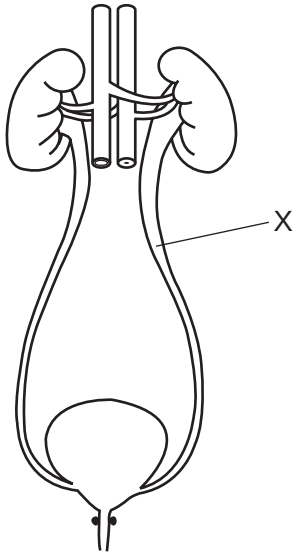
A bladder and liver

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
A	high	high
B	high	low
C	low	high
D	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?

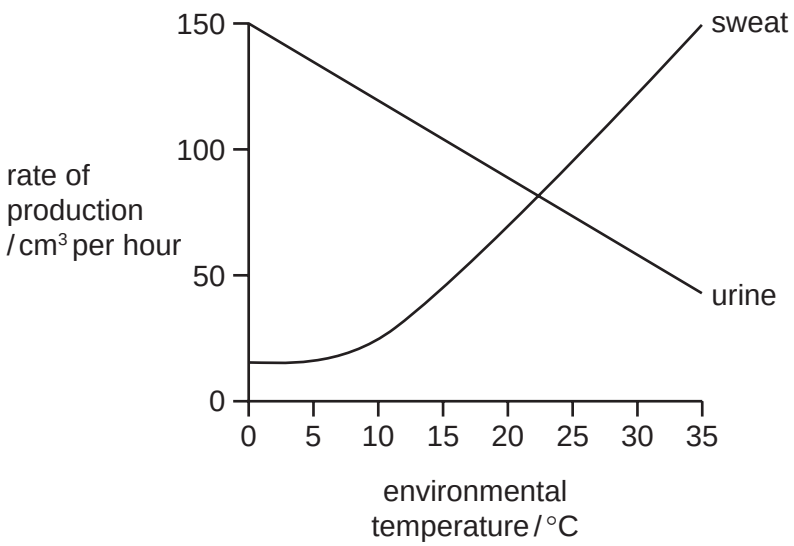
A It will contain amino acids.

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.

1 The lungs and the kidneys are excretory organs of the human body.

(a) **(i)** Define the term *excretion*.

.....

.....

.....

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.....

.....

.....[3]

(ii) State an excretory product that is passed out through the lungs.

.....[1]

(iii) Outline the role of the liver in excretion.

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.....[3]

(b) Fig. 4.1 is a vertical section of the kidney.

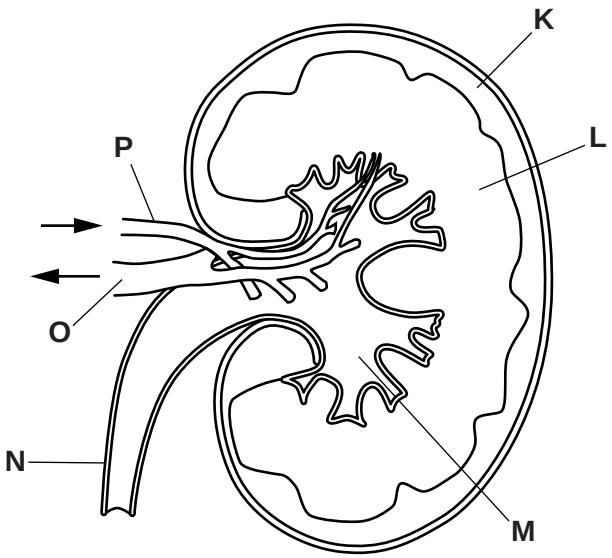

Fig. 4.1

Table 4.1 shows the functions of parts of the kidney.

Complete the table by:

- naming the part of the kidney that carries out each function
- using letters from Fig. 4.1 to identify the part of the kidney named.

One row has been completed for you.

Table 4.1

function	name of part	letter from Fig. 4.1
blood is filtered		
concentration of urine is determined	medulla	**L**
urine flows to the bladder		
blood is carried into the kidney		
blood flows out of the kidney		

[4]

3 **(a)** Define the term *excretion*.

.....

.....

.....

.....

.....

.....[3]

Fig. 2.1 is a diagram of a kidney tubule and its blood supply.

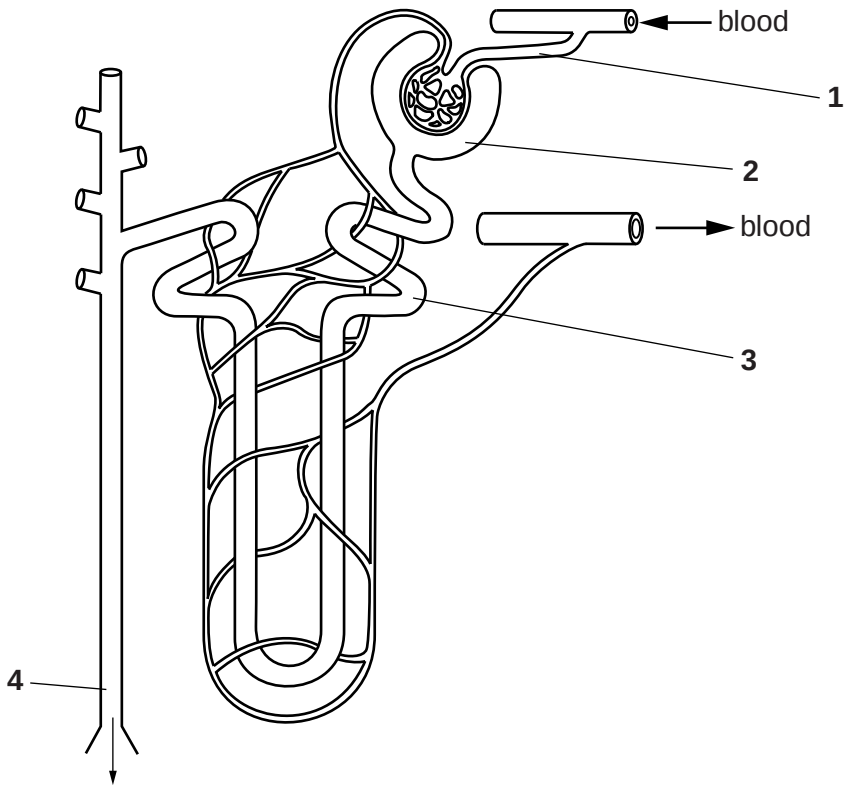

Fig. 2.1

(b) The concentrations of solutes in the fluids at regions **1**, **2**, **3** and **4** were determined. The results are shown in Table 2.1.

Table 2.1

substance	concentration / g dm^{-3}			
	region **1**	region **2**	region **3**	region **4**
glucose	0.9	0.9	0.2	0.0
protein	82.0	0.0	0.0	0.0
salts	8.0	8.0	9.6	16.5
urea	0.2	0.2	0.2	20.0

State the substance or substances in Table 2.1 which:

(i) has molecules which are too large to be filtered;

.....[1]

(ii) has molecules which are small enough to be filtered but is completely reabsorbed from the fluid in the kidney tubule;

.....[1]

(iii) increases in concentration as fluid moves along the kidney tubule.

1 .....

2 .....[1]

(c) State **three** structures through which the fluid from region **4** passes as it leaves the body.

1 .....

2 .....

3 .....[3]

(d) One role of the kidney is to maintain the concentration of the blood plasma.

Name the process of maintaining constant conditions within the body.

.....[1]

[Total: 10]

2 Fig. 5.1 shows a cross-section of a kidney.

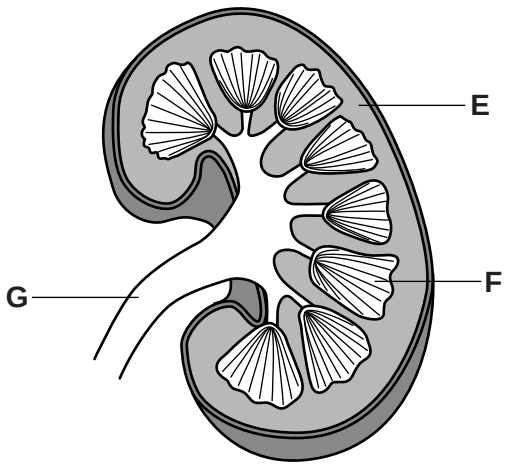

Fig. 5.1

(a) Name the structures labelled, **E**, **F** and **G** as shown in Fig. 5.1.

E .....

F .....

G .....

[3]

(b) Explain the function of the renal capsule in the kidney.

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.....[3]

(c) Glucose is reabsorbed, back into the blood, by active transport.

Define *active transport.*

.....

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.....[2]

(d) Give **one** example, other than glucose, of a substance that is reabsorbed into the blood from the renal tubule.

.....[1]