

20 Which statements are correct for a healthy person?

- 1 Blood leaving a glomerulus has the same concentration of glucose as blood entering a glomerulus.
- 2 There is no glucose in the fluid leaving a nephron.
- 3 A nephron reabsorbs all of the water and some of the ions filtered out of the blood by a glomerulus.

A 1 and 3 **B** 1 only **C** 2 and 3 **D** 2 only

IGCSE Biology: w25 22

14 Which row names the blood vessel containing the highest blood urea concentration and the blood vessel containing the lowest blood urea concentration?

	highest blood urea concentration	lowest blood urea concentration
A	hepatic artery	hepatic vein
B	hepatic vein	renal vein
C	hepatic portal vein	renal artery
D	renal vein	hepatic portal vein

IGCSE Biology: w25 23

19 What shows the pathway of urea from where it is produced to where it is excreted?

- A** kidney → renal artery → heart → lungs → heart → renal vein → bladder
- B** kidney → renal vein → heart → lungs → heart → renal artery → bladder
- C** liver → hepatic artery → heart → lungs → heart → renal artery → kidney
- D** liver → hepatic vein → heart → lungs → heart → renal artery → kidney

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20 What is a role of the glomerulus?

- A** assembling amino acids into proteins
- B** filtration of water, glucose, urea and ions from the blood
- C** reabsorption of glucose, ions and water back into the blood
- D** removal of the nitrogen-containing part of amino acids to form urea

23 Which organ produces urea?

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

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21 What is filtered out of the blood in the glomerulus and into the nephron?

	glucose	urea
A	yes	yes
B	yes	no
C	no	yes
D	no	no

22 What can be broken down to form urea?

- A** amino acids
- B** fatty acids
- C** sugars
- D** vitamins

4 The kidney is an organ in the excretory system.

(a) Describe what is meant by the term excretion.

[2]

(b) State the name of the substance excreted by the lungs.

[1]

(c) Fig. 4.1 shows a simplified diagram of a cross-section of a kidney.

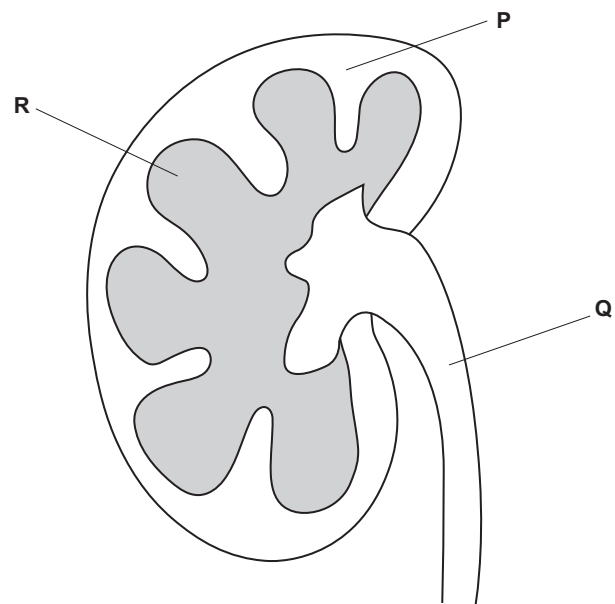


Fig. 4.1

State the names of the parts labelled **P**, **Q** and **R** in Fig. 4.1.

P

Q

R

(d) Fig. 4.2 shows the structure of a kidney nephron.

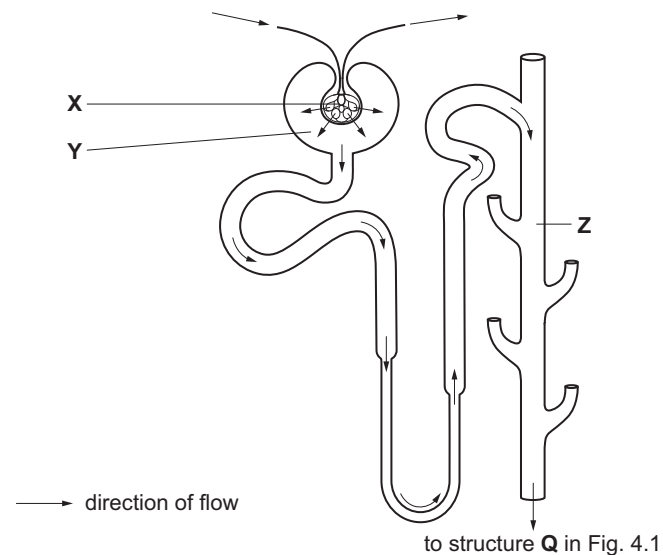


Fig. 4.2

Describe **and** explain the difference in the composition of the fluids in structures **X**, **Y** and **Z** in Fig. 4.2.

[illegible]

(e) The liver is also involved in excretion.

Describe **two** ways that amino acids are processed in the liver.

1

2

[2]

[Total: 14]

20 In a healthy human, in which blood vessel would you find the **lowest** concentration of urea?

- A hepatic artery
- B hepatic vein
- C renal artery
- D renal vein