13. Excretion in humans

13.1 Excretion in humans

Paper 1 and 2

Question Paper

Paper 1

Questions are applicable for both core and extended candidates

1 Which organ excretes urea?

A bladder

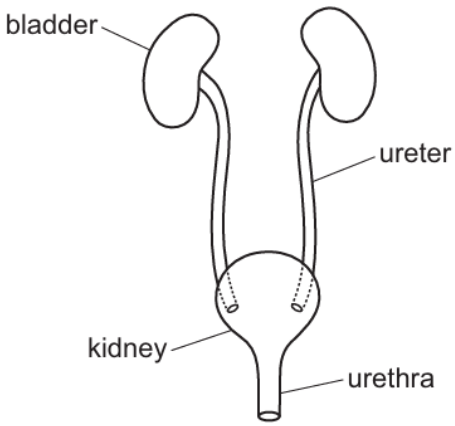
B kidney

C liver

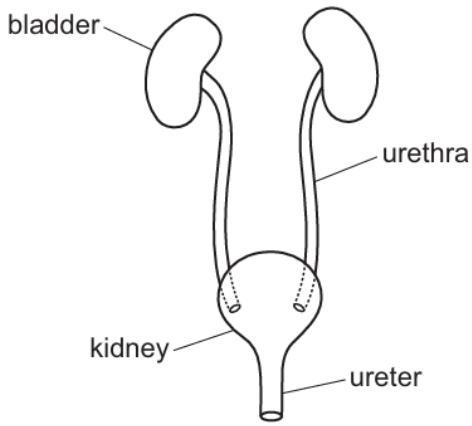
D lung

2 Which diagram of the excretory system is labelled correctly?

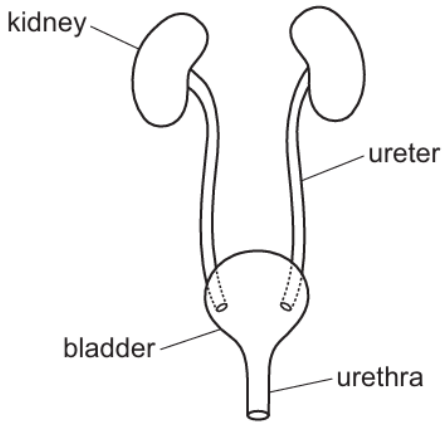
A



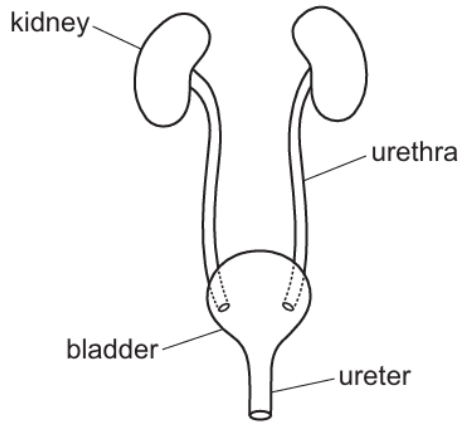
B



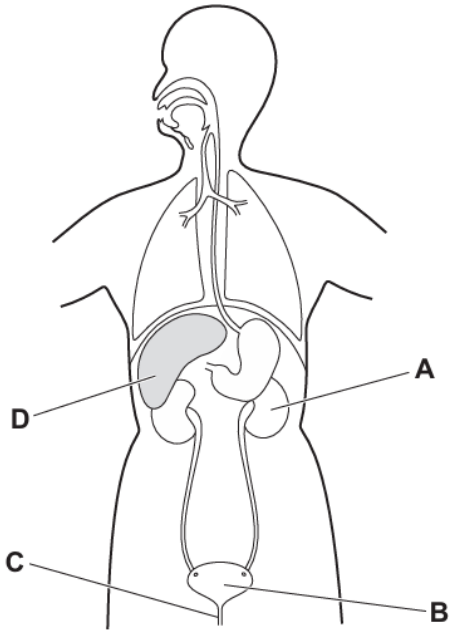
C



D

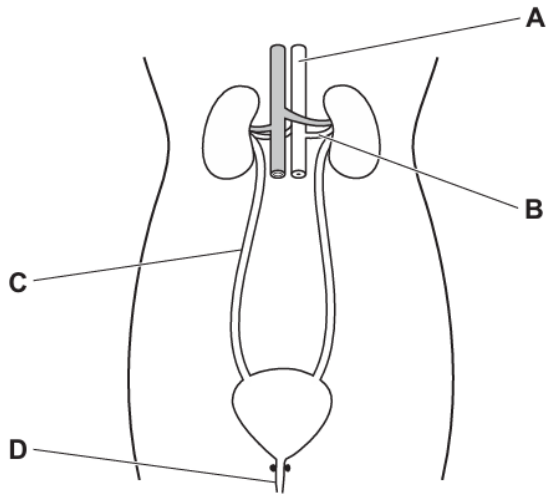


3 Which organ is responsible for the excretion of urea in the human body?



4 The diagram shows the human excretory system.

Which labelled structure is the urethra?



5 Which row shows an organ and the substance it excretes?

	organ	substance excreted
A	bladder	water
B	kidney	ions
C	lung	oxygen
D	urethra	urea

6 Which part of the body excretes urea, excess water and excess ions?

A gall bladder

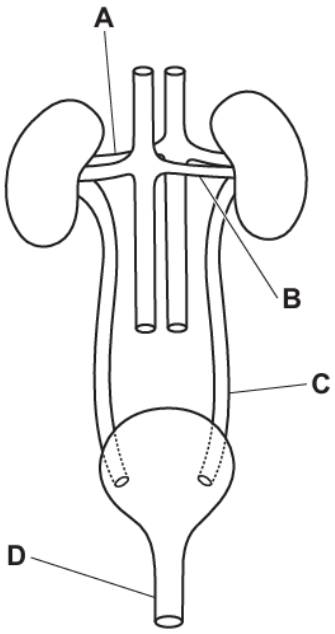
B heart

C kidney

D lungs

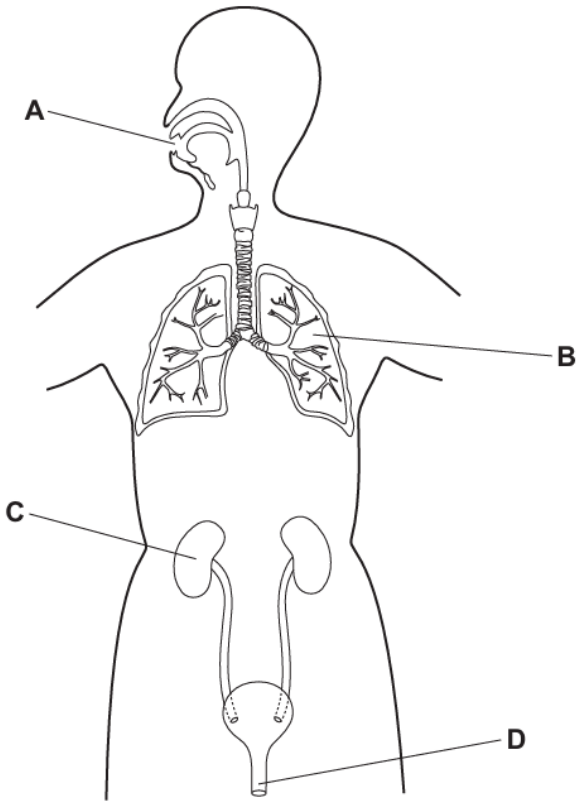
7 The diagram shows the kidneys and associated organs.

Which label is the ureter?



8 The diagram shows the human body and some of its organs.

Which structure removes urea from the blood?



9 Which substances are excreted from the human body?

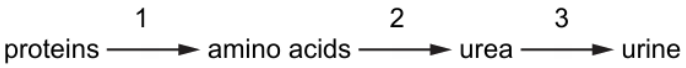
1 carbon dioxide

2 urea

3 water

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

10 A person eats foods containing proteins. Some of the amino acids in the proteins are converted to urea and excreted from the body.



Which row identifies the sites of processes 1, 2 and 3?

	site of process 1	site of process 2	site of process 3
A	stomach	liver	kidney
B	liver	kidney	bladder
C	stomach	kidney	liver
D	liver	stomach	kidney

11 A person produced 1.75 dm^3 of urine on a cool day.

How will the volume and concentration of urine change on a hot day, if fluid intake is the same as on the cool day?

	volume	concentration
A	increases	decreases
B	increases	increases
C	decreases	decreases
D	decreases	increases

12 Which organ excretes urea?

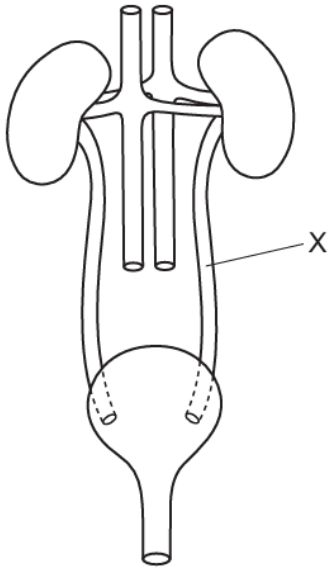
A kidney

B liver

C lungs

D pancreas

13 The diagram shows part of the excretory system of a female mammal.



What is tube X?

A ureter

B urethra

C uterus

D vein

14 Which statement about urea is correct?

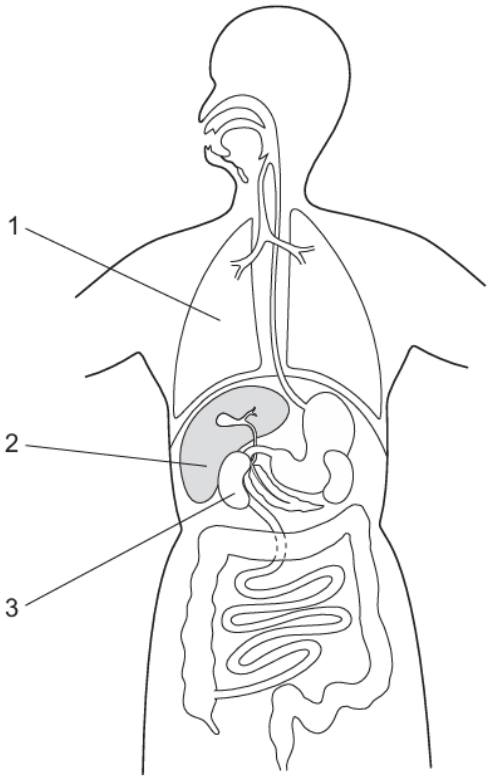
A Urea is formed from excess amino acids in the kidneys and excreted by the liver.

B Urea is formed from excess glucose in the liver and egested by the kidneys.

C Urea is formed from excess glucose in the kidneys and egested by the liver.

D Urea is formed from excess amino acids in the liver and excreted by the kidneys.

15 The diagram shows some of the organs in the human body.



Which row matches the function to the correct organ?

	excretes carbon dioxide	excretes urea	produces urea
A	1	2	3
B	1	3	2
C	2	3	1
D	2	1	3

16 The amount of urea in the blood increases as it passes through organ X.

What is organ X?

A heart

B kidney

C liver

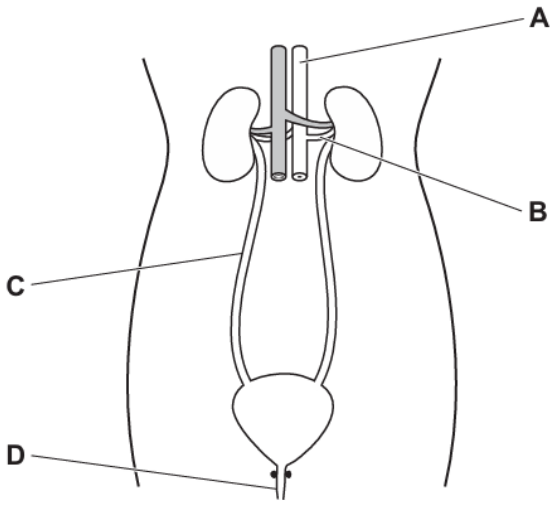
D pancreas

17 Which row describes the urine produced by a person who is exercising on a hot day?

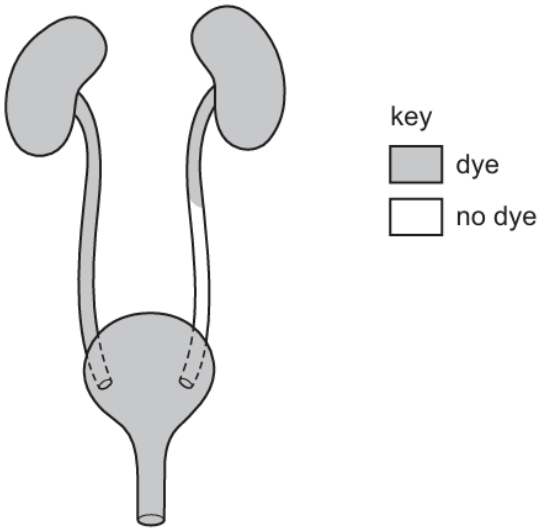
	concentration of urine	volume of urine
A	concentrated	large
B	concentrated	small
C	dilute	large
D	dilute	small

18 The diagram shows the human excretory system.

Which labelled structure is the ureter?



19 A patient has dye injected into the blood supply to his kidneys. The dye appears in his excretory system as shown.



Which part is blocked?

A the kidney

B the ureter

C the bladder

D the urethra

20 Which substances are excreted by humans?

	carbon dioxide	urea	urine
A	✓	✓	✓
B	✓	✗	✓
C	✓	✓	✗
D	✗	✓	✓

key
✓ = involved
✗ = not involved

21 Where is urea formed and excreted?

	formed	excreted
A	bladder	heart
B	heart	liver
C	kidney	bladder
D	liver	kidney

Paper 2

Questions are applicable for both core and extended candidates unless indicated in the question

22 In healthy people, which substance is completely reabsorbed into the blood from the kidney nephrons? **(extended only)**

A glucose

B salts

C urea

D water

23 Which substance has a higher concentration in the renal vein than in the renal artery? **(extended only)**

A carbon dioxide

B glucose

C oxygen

D urea

24 Where are amino acids deaminated and converted into urea? **(extended only)**

A bladder

B kidneys

C liver

D pancreas

25 Which part of an amino acid is removed during deamination? **(extended only)**

A the carbon-containing part

B the nitrogen-containing part

C the oxygen-containing part

D the iron-containing part

26 Which process happens in a glomerulus in the kidney? **(extended only)**

A assimilation

B deamination

C filtration

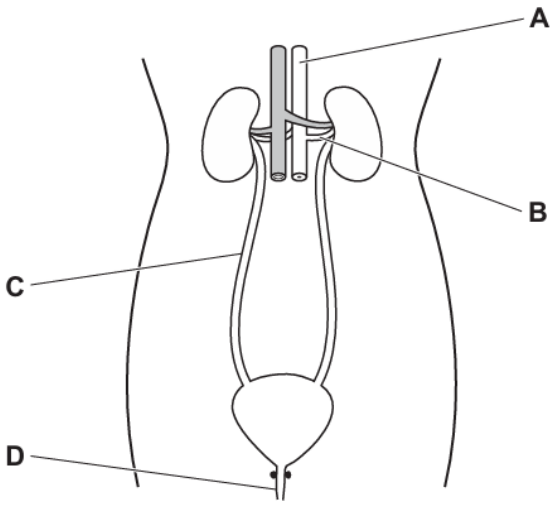
D reabsorption

27 Where is urea formed and excreted?

	formed	excreted
A	bladder	heart
B	heart	liver
C	kidney	bladder
D	liver	kidney

28 The diagram shows the human excretory system.

Which labelled structure is the urethra?



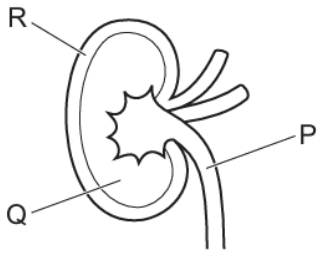
29 Which row shows an organ and the substance it excretes?

	organ	substance excreted
A	bladder	water
B	kidney	ions
C	lung	oxygen
D	urethra	urea

30 Which row shows where glucose will be found in the body of a healthy human after eating a meal? **(extended only)**

	renal artery	renal vein	glomerulus	nephron	ureter
A	yes	no	yes	yes	yes
B	yes	yes	no	no	no
C	yes	yes	yes	yes	no
D	no	yes	no	no	yes

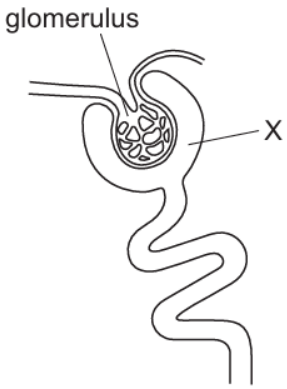
31 The diagram shows a cross-section of a kidney.



What are the correct names for structures P, Q and R? **(extended only)**

	P	Q	R
A	urethra	cortex	medulla
B	ureter	medulla	cortex
C	urethra	medulla	cortex
D	ureter	cortex	medulla

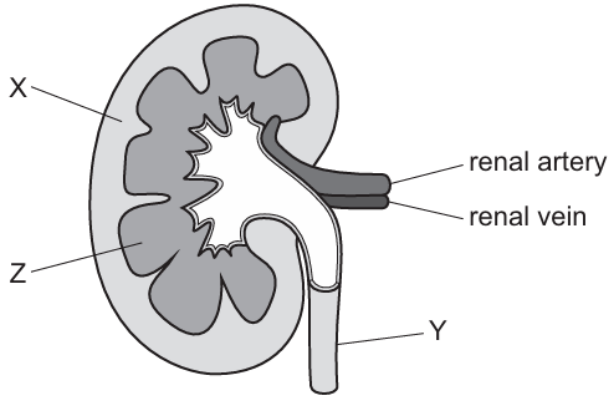
32 The diagram shows the structure of part of a kidney tubule and associated blood vessels.



Which substances are normally present in the filtrate at X? **(extended only)**

	glucose	urea
A	absent	absent
B	absent	present
C	present	absent
D	present	present

33 The diagram shows a mammalian kidney.



What are areas X, Y and Z? **(extended only)**

	X	Y	Z
A	cortex	medulla	ureter
B	cortex	ureter	medulla
C	medulla	cortex	ureter
D	medulla	ureter	medulla

34 Which statement about urea is correct? **(extended only)**

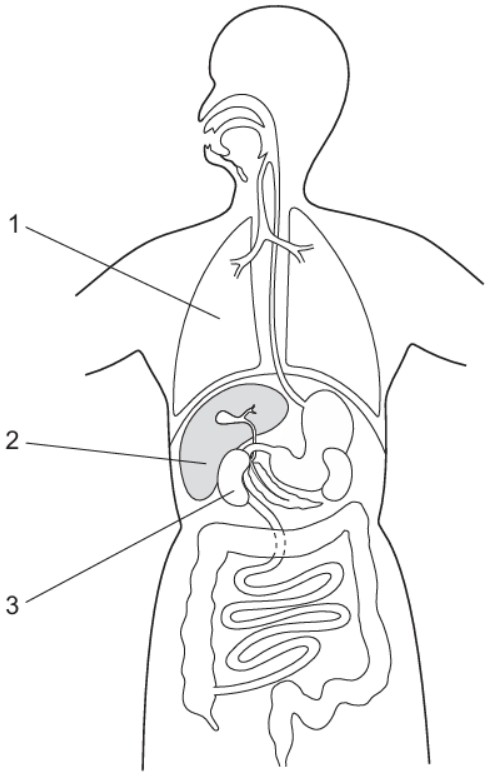
A Urea is formed from excess amino acids in the kidneys and excreted by the liver.

B Urea is formed from excess glucose in the liver and egested by the kidneys.

C Urea is formed from excess glucose in the kidneys and egested by the liver.

D Urea is formed from excess amino acids in the liver and excreted by the kidneys.

35 The diagram shows some of the organs in the human body.



Which row matches the function to the correct organ? **(extended only)**

	excretes carbon dioxide	excretes urea	produces urea
A	1	2	3
B	1	3	2
C	2	3	1
D	2	1	3

36 The table shows the composition of blood entering and leaving the liver and the kidneys.

Which row is correct? **(extended only)**

	highest concentration of urea in the blood	lowest concentration of urea in the blood
A	entering kidneys	leaving liver
B	entering kidneys	entering liver
C	leaving kidneys	entering liver
D	leaving kidneys	leaving liver

37 How do the concentrations of glucose and urea in urine compare to their concentrations in blood plasma? **(extended only)**

	glucose concentration in urine (compared to blood plasma)	urea concentration in urine (compared to blood plasma)
A	higher	lower
B	higher	same
C	same	same
D	lower	higher

38 What is filtered out of the blood in the glomerulus into the kidney tubule? **(extended only)**

	glucose	urea
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

key

✓ = yes

✗ = no

39 What is a function of the liver? **(extended only)**

A converting bile to urea

B converting urea to amino acids

C deamination of amino acids

D deamination of carbon dioxide