

Excretion in humans

Read online at pastopic.com/cambridge/biology-0610/notes/excretion-in-humans

Last checked 30 September 2026

Read first: [Characteristics and classification of living organisms](#), [Chemical digestion and absorption](#), [Blood vessels and blood](#)

© 2026 Pastopic. Free for personal study. Please share the link, not the file.

What you need to know

Excretion comes up on almost every paper. Papers 1 and 2 ask one-mark multiple choice (which organ makes urea, which excretes it, which label is the ureter, what is filtered); Papers 3 and 4 build longer questions around a diagram of the kidneys, a nephron or a table of fluids. Outcomes marked **Extended only** are tested on Papers 2 and 4 only. By the end of this topic you should be able to:

Core

1. **State that carbon dioxide is excreted through the lungs.**
2. **State that the kidneys excrete urea, excess water and excess ions.**
3. **Identify the kidneys, ureters, bladder and urethra** in diagrams and photographs.

Extended only

4. **Identify the cortex and medulla** of the kidney in diagrams and photographs.
5. **Outline the structure and function of a nephron and its blood vessels:** the glomerulus filters water, glucose, urea and ions out of the blood; the nephron reabsorbs all of the glucose, some of the ions and most of the water back into the blood; what is left is urine, containing urea, excess water and excess ions. You don't need the details of how filtration and reabsorption work.
6. **Describe how the liver assimilates amino acids** by converting them to proteins.
7. **State that urea is formed in the liver** from excess amino acids.
8. **Describe deamination:** removing the nitrogen-containing part of amino acids to form urea.
9. **Explain why excretion matters:** urea is toxic.

The meaning of excretion is from Characteristics and classification of living organisms; the renal artery and vein, hepatic vessels and the route of blood round the body are from Blood vessels and blood; amino acids reaching the liver is from Chemical digestion and absorption. This note uses them where questions on this topic do.

Understand it

What excretion is

Excretion is the **removal of the waste products of metabolism** (the chemical reactions in cells) **and of substances in excess of requirements** (more than the body needs).

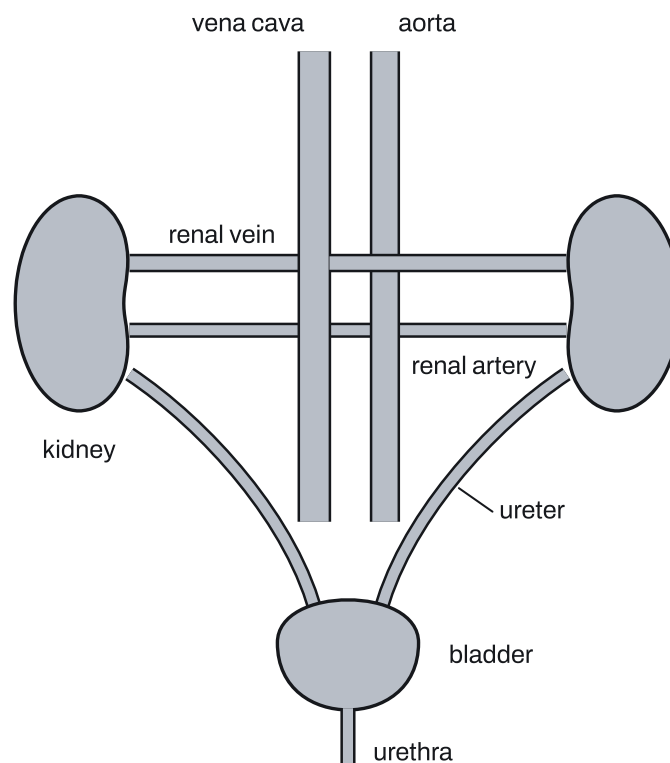
- **Carbon dioxide** is a waste product of **respiration**, made in every cell.
- **Urea** is a waste product made in the **liver** from **excess amino acids**.
- **Water** and **ions** (such as sodium and chloride) are needed, but we usually take in more than we need; the **excess** is excreted.

Excretion is not **egestion**. Egestion is getting rid of **undigested food** (faeces) through the anus. Undigested food was never absorbed into cells or made by metabolism, so removing it is not excretion.

Organ	What it excretes
Lungs	carbon dioxide (breathed out)
Kidneys	urea, excess water and excess ions (as urine)

The **liver makes** urea but does not excrete it; the **kidneys excrete** it. The **bladder only stores** urine; it excretes nothing.

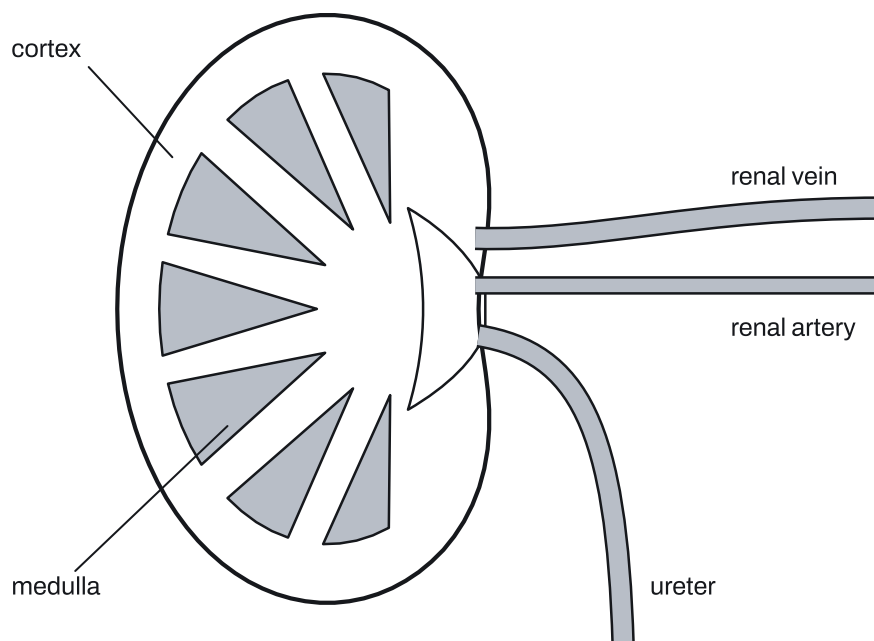
The urinary system



Structure	What it is	What it does
Kidneys	two bean-shaped organs at the back of the abdomen	filter the blood and make urine
Ureters	one tube from each kidney	carry urine from the kidney to the bladder
Bladder	a stretchy muscular bag low in the abdomen	stores urine
Urethra	one tube from the bladder to the outside	carries urine out of the body
Renal artery	branch of the aorta	brings blood to the kidney
Renal vein	joins the vena cava	takes blood away from the kidney

Urine flows **kidney** → **ureter** → **bladder** → **urethra**. To tell the two tubes apart: there are **two ureters**, each joined to a **kidney** at one end and the bladder at the other; there is **one urethra**, joined only to the **bladder**. The names are close, so spell them carefully: a misspelling that could be either one loses the mark. In a female, the urethra opens in front of the vagina; don't confuse the two.

Extended: inside the kidney

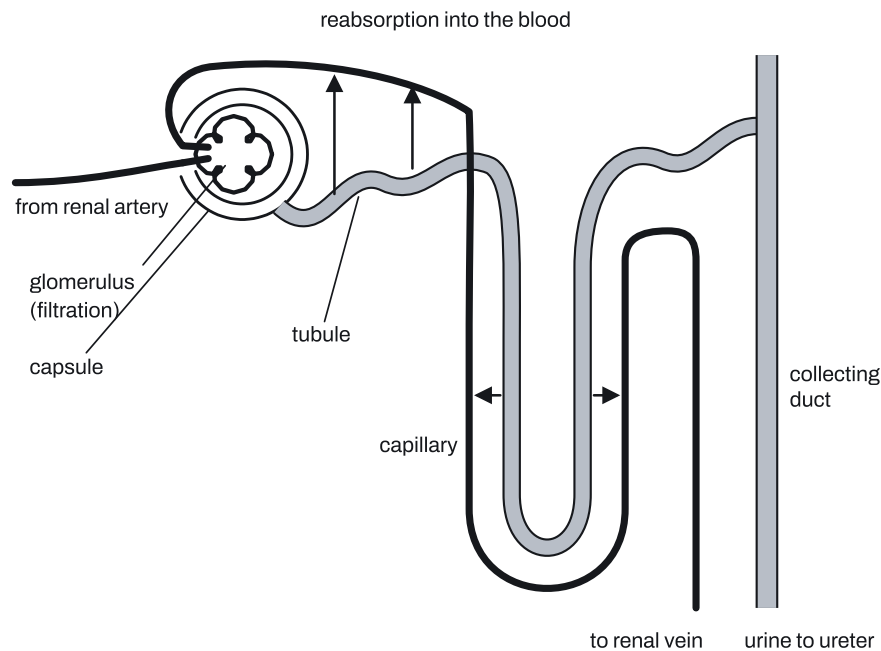


Cut a kidney in half lengthways and you see:

- the **cortex**: the **outer** layer, just under the surface;
- the **medulla**: the **inner** part, made of cone-shaped regions whose tips point inwards;
- a space in the middle where urine collects and drains into the **ureter**.

The renal artery, renal vein and ureter all join the kidney at the dent on its inner side. Each kidney contains about a million tiny tubes called **nephrons**, which run through the cortex and medulla.

Extended: the nephron



A nephron makes urine in three stages.

- 1. Filtration in the glomerulus.** Blood from the renal artery flows into the **glomerulus**, a knot of capillaries inside a cup-shaped **capsule**. The blood is under high pressure, so small molecules are **filtered** out of it into the capsule: **water, glucose, urea and ions**. **Proteins** and **blood cells** are **too large** to pass through, so they stay in the blood. The fluid in the capsule is called the **filtrate**.
- 2. Reabsorption along the nephron.** The filtrate flows along the tubule, which is wrapped in capillaries. Useful substances are taken back into the blood: **all of the glucose, most of the water** and **some of the ions**. Urea is not taken back.
- 3. Urine.** What is left, **urea, excess water and excess ions**, is **urine**. It flows from the nephrons down the collecting ducts to the ureter.

The blood leaving the kidney in the **renal vein** has had urea, excess water and excess ions removed, so it has **less urea** than blood anywhere else.

The table shows typical concentrations, in g per 100 cm³:

Substance	Blood plasma	Filtrate (in the capsule)	Urine
Protein	7.0	0	0
Glucose	0.10	0.10	0
Urea	0.03	0.03	2.0
Ions	0.8	0.8	1.5

Read it like this:

- **Protein:** in plasma but **not in filtrate**, because protein molecules are too large to be filtered.
- **Glucose:** the same in plasma and filtrate (it is filtered), but **none in urine**, because **all** of it is **reabsorbed**.
- **Urea:** filtered, then **much more concentrated** in urine (about 67 times here). No urea is added along the nephron: the concentration rises because **most of the water is reabsorbed**, leaving the urea in a smaller volume.
- **Ions:** filtered, and only **some** are reabsorbed, so urine still contains the **excess** ions.

The kidneys filter about 180 dm³ of fluid a day but make only about 1.5 dm³ of urine, so over 99% of the filtered water goes back into the blood.

Extended: the liver, amino acids and urea

Digestion breaks proteins into **amino acids**, which are absorbed in the small intestine and carried to the **liver** in the **hepatic portal vein**. The liver does two things with them.

- **Assimilation:** amino acids are **built into proteins** that the body needs (for example, proteins in the blood plasma). Assimilation means the digested molecules are moved into cells and **used**; it is not the same as absorption.
- **Deamination:** amino acids **in excess** can't be stored. The liver removes the **nitrogen-containing part** of each excess amino acid, and this part is turned into **urea**. The rest of the molecule can be used in respiration.

So **urea is made in the liver by deamination of excess amino acids**. The liver does not make urea from glucose or fatty acids: they contain no nitrogen.

Following urea through the body

Urea is made in the liver and must reach the kidneys in the blood, dissolved in the **plasma**:

liver → hepatic vein → vena cava → heart → lungs → heart → aorta → renal artery → kidney → ureter → bladder → urethra

This explains which blood vessel has the most or least urea:

- **Highest:** the **hepatic vein**, which carries blood straight **out of the liver**, where urea has just been added.
- **Lowest:** the **renal vein**, which carries blood **out of the kidney**, where urea has just been removed.
- The **hepatic portal vein** and **hepatic artery** bring blood **to** the liver, so they have less urea than the hepatic vein; the **renal artery** has more than the renal vein.

The kidney's own cells also respire, so the renal vein has **more carbon dioxide** and less oxygen than the renal artery.

Extended: why urea must be excreted

Urea is **toxic**. If the kidneys stop removing it, its concentration in the blood rises and it **damages cells** and can kill. Removing excess water and ions also keeps the blood at the right concentration.

Key facts and formulas

There is no formula list in the IGCSE Biology exam. Everything below must be learnt.

Formula	Status
Excretion = removal of waste products of metabolism and substances in excess of requirements	Learn it
Lungs excrete carbon dioxide; kidneys excrete urea, excess water and excess ions	Learn it
Path of urine: kidney → ureter → bladder → urethra	Learn it
Renal artery: blood to the kidney; renal vein: blood away from it	Learn it
Extended: cortex = outer layer of the kidney; medulla = inner part	Learn it
Extended: glomerulus filters water, glucose, urea and ions (not proteins or cells)	Learn it
Extended: nephron reabsorbs all the glucose, most of the water and some of the ions	Learn it
Extended: urine = urea + excess water + excess ions	Learn it
Extended: assimilation: liver converts amino acids to proteins	Learn it
Extended: deamination: removal of the nitrogen-containing part of excess amino acids to form urea, in the liver	Learn it
Extended: urea is toxic, so it must be excreted	Learn it
Percentage reabsorbed = (amount filtered – amount in urine) ÷ amount filtered × 100	Learn it

How to do it

We tagged 89 questions for this topic (2021–2025, Papers 1–4; some multiple-choice questions appear on more than one paper). 11 of them mix types, so the counts add up to 106.

Question type	Questions
Where and how urea is made (liver, deamination, assimilation)	27
Which organs excrete which substances, and what excretion is	25
Identify the parts of the excretory system and the kidney	25
The nephron: filtration, reabsorption and the fluids compared (Extended)	16
Urine volume and concentration (older syllabus)	8
Urea in named blood vessels	5

1. Where and how urea is made (27 questions)

1. **Organ:** the **liver** makes urea. Not the kidney, not the bladder.
2. **Raw material:** **excess amino acids** (from protein). Not glucose, fatty acids or vitamins.
3. **Process** (Extended): **deamination**, the removal of the **nitrogen-containing part** of the amino acid, which forms urea.

Variations you will meet:

- **"Describe how urea is formed"** (2–3 marks): excess amino acids → deaminated in the liver → nitrogen-containing part removed → forms urea. Each link is a mark.
- **"Two ways the liver processes amino acids":** **assimilation** (converted to proteins) and **deamination** (nitrogen-containing part removed to form urea).
- **Naming the process from a description:** "assembling amino acids into proteins" is assimilation; "removal of the nitrogen-containing part" is deamination. Distractors include absorption, digestion, denaturation, denitrification and nitrification.
- **Which part is removed?** The **nitrogen-containing** part (not carbon, oxygen or iron).
- **Sites of a chain of processes:** protein → amino acids (stomach and small intestine, digestion) → urea (liver) → urine (kidney).
- **Flow diagrams** with blanks: amino acids → liver → **deamination** → **urea** → **kidneys**; and respiration → carbon dioxide → **lungs**.
- **Labelled organ diagrams:** "the organ that produces urea" is the **liver**, the large organ on the right of the body just under the diaphragm.
- **Mixed with other topics:** urea in chicken waste or sewage (Pollution), or deamination in the nitrogen cycle; answer with the same three facts.

2. Which organs excrete which substances, and what excretion is (25 questions)

1. **Lungs:** carbon dioxide (**not** oxygen). Water vapour is also accepted.
2. **Kidneys:** urea, excess water, excess ions.
3. **Definition:** removal of **waste products of metabolism** and **substances in excess** of requirements.

Variations you will meet:

- **"Which organ excretes urea?"** **Kidney**. The bladder stores urine; the liver makes urea.
- **Rows of organ + substance:** check both halves: kidney–ions is right; lung–oxygen, bladder–water and urethra–urea are wrong.
- **"Which products are excreted by the kidneys?"** Excess ions, excess water and urea, **not** carbon dioxide.
- **Circle or choose substances humans excrete:** carbon dioxide, urea, water and ions. Not amino acids, glycerol, haemoglobin, mucus or starch.
- **A pie chart of urine:** the parts are water, urea and **ions**. Not platelets, starch or sucrose.
- **Completing the definition** from a word list: "Excretion is the **removal** of the waste products of **metabolism** ..."; "A kidney excretes **urea**, **ions** and excess water."
- **"Why must urea be excreted?"** (Extended) It is **toxic**.
- **"The component of blood that transports urea":** the **plasma**.

3. Identify the parts of the excretory system and the kidney (25 questions)

1. On a diagram, find the **bladder** first: the bag at the bottom, in the middle.
2. The two tubes coming **into** it from above are **ureters**; they lead up to the **kidneys**.
3. The single tube going **out** of it at the bottom is the **urethra**.
4. **Extended:** in a kidney section, the outer band is the **cortex**; the inner cone-shaped regions are the **medulla**; the tube leaving the dent is the ureter.

Variations you will meet:

- **Which of four labelled diagrams is correct:** check the ureter joins the kidney and the urethra leaves the bladder.
- **Comparing ureter and urethra:** both carry urine (water, urea and ions); both are attached to the bladder; **only the ureter** is attached to the kidney.
- **Order of structures** urea passes through: blood → kidney → ureter → bladder → urethra.
- **Renal vessels:** the **renal vein** takes blood **from** the kidney (a common wrong answer is artery); the renal artery brings it.
- **Female diagrams** also show the uterus and vagina: the urethra is the tube from the bladder, not the one from the uterus.
- **Draw an X on the bladder**, or **give the letter** of the structure that excretes excess water (the kidney) or of the urethra.

- **Cortex or medulla** (Extended): the cortex is outer; don't swap them.

4. The nephron: filtration, reabsorption and the fluids compared (16 questions, Extended)

1. **Filtration at the glomerulus:** water, glucose, urea and ions pass out of the blood into the capsule. Proteins and blood cells stay in the blood because they are **too large**.
2. **Reabsorption along the nephron:** **all** the glucose, **most** of the water, **some** of the ions go back into the blood.
3. **Urine:** urea, excess water, excess ions; **no glucose, no protein** in a healthy person.

Describing and explaining a table of fluids (5–6 marks), such as blood, filtrate and urine:

1. **Name the fluids:** fluid in the glomerulus or blood vessel = **blood** (plasma); in the capsule = **filtrate**; at the end of the tubule or collecting duct = **urine**.
2. **Protein:** present in blood only; **filtration**, protein molecules **too large** to be filtered.
3. **Glucose:** in blood and filtrate, **none in urine: all reabsorbed**.
4. **Water and ions:** only **some** ions and **most** water reabsorbed, so urine contains the **excess**.
5. **Urea:** **not reabsorbed**, so all of it passes into urine; its **concentration increases** because water is reabsorbed.
6. Quote figures from the table, with units, for each difference you describe.

Variations you will meet:

- **"Which substances are filtered?"** Glucose, ions, urea and water. Any option with protein is wrong.
- **"What is completely reabsorbed?"** Glucose (not salts, urea or water).
- **"Which process happens in the glomerulus?"** Filtration (not reabsorption, deamination or assimilation).
- **Where is glucose found?** In the renal artery, renal vein, glomerulus and the start of the nephron, but **not** in the ureter. Blood leaving the glomerulus has lost some glucose into the filtrate; it gets it back along the tubule.
- **Statements to judge:** "there is no glucose in the fluid leaving a nephron" is true; "the nephron reabsorbs **all** the water" is false (most).
- **Percentage reabsorbed:** $(\text{filtered} - \text{in urine}) \div \text{filtered} \times 100$. For example, an ion at 141 units in the filtrate and 127 units in the urine: $\frac{141-127}{141} \times 100 = 9.9\%$.
- **Older papers (2021–2022)** went further: glucose is taken back by **active transport** (not osmosis, which is only for water), and cells lining the tubule have **microvilli** that give a larger surface area for reabsorption. You won't be asked for these details now, but if a question gives them, use them.
- **Don't** mix up filtration with absorption or diffusion, or **urea** with **urine**.

5. Urine volume and concentration (older syllabus, 8 questions)

These came from the 2020–2022 syllabus, when students had to recall how urine changes. They are no longer an outcome of this topic, so a current question on them would give you what you need (data, or a statement to reason from). If it does, this table shows the reasoning, which follows from "the kidneys excrete **excess** water":

Change	Volume of urine	Concentration of urine
More water drunk	increases	decreases
Hotter weather	decreases (more water lost as sweat)	increases
More exercise	decreases (more sweat)	increases

With data, quote figures and units, and pick out the lowest value or the largest range (largest minus smallest) as asked.

6. Urea in named blood vessels (5 questions)

1. Find where urea is **added** (the liver) and where it is **removed** (the kidneys).
2. **Highest urea**: the vessel **leaving the liver**: the **hepatic vein**.
3. **Lowest urea**: the vessel **leaving the kidney**: the **renal vein**.
4. **Pathway** from where urea is made to where it is excreted: liver → **hepatic vein** → heart → lungs → heart → **renal artery** → kidney.

Variations you will meet:

- "Entering or leaving kidneys/liver": highest **leaving the liver**, lowest **leaving the kidneys**.
- "Which substance is higher in the renal vein than in the renal artery?" **Carbon dioxide**, made by the kidney's own respiring cells. Urea, glucose and oxygen are all lower in the renal vein.
- A common wrong answer is the hepatic artery for the lowest urea; it brings blood to the liver from the aorta, so it still carries urea that hasn't yet been through the kidneys.

Worked examples

The bold codes show where marks are earned, as in Cambridge mark schemes. The number is how many marks.

- **M1** method mark: for a correct method, even if the numbers slip.
 - **A1** accuracy mark: for a correct answer; it needs the M mark before it.
 - **B1** mark for a correct result on its own, with no method needed.
-

Example 1

Core. (a) State the name of the organ that:

(i) makes urea; (ii) excretes urea; (iii) stores urine. **[3]**

(b) State the name of the tube that carries urine from a kidney to the bladder. **[1]**

(c) State the name of the gas excreted by the lungs. **[1]**

(d) **Extended:** a person's kidneys filter 180 dm^3 of water out of the blood in one day, and the person makes 1.5 dm^3 of urine that day. Assume the urine is all water. Calculate the percentage of the filtered water that is taken back into the blood. Give your answer to one decimal place. **[2]**

(a) (i) Liver **B1**. (ii) Kidney **B1**. (iii) Bladder **B1**.

(b) Ureter (spelt so it can't be read as urethra) **B1**.

(c) Carbon dioxide **B1**.

(d) $180 - 1.5 = 178.5 \text{ dm}^3$ taken back; $\frac{178.5}{180} \times 100$ **M1** = 99.2% **A1**.

Example 2

Extended. The table shows the concentrations of some substances in blood plasma, in the filtrate in the capsule of a nephron, and in urine, in g per 100 cm^3 .

Substance	Blood plasma	Filtrate	Urine
Protein	7.00	0.00	0.00
Glucose	0.10	0.10	0.00
Urea	0.03	0.03	1.80
Ions	0.80	0.80	1.20

(a) State the name of the structure where the blood is filtered. **[1]**

(b) Describe and explain the differences between the three fluids shown in the table. **[6]**

(c) Calculate how many times more concentrated urea is in the urine than in the filtrate. **[1]**

(d) Urea is not added to the fluid as it passes along the nephron. Explain why its concentration still increases. **[2]**

(a) Glomerulus **B1**.

(b) Any six of:

- Protein: $7.00 \text{ g per } 100 \text{ cm}^3$ in the plasma but none in the filtrate **B1**, because protein molecules are too large to be filtered out of the blood **B1**.

- Glucose is the same in plasma and filtrate, 0.10 g per 100 cm³, because it is filtered **B1**, but there is none in urine **B1** because all the glucose is reabsorbed into the blood **B1**.
- Ions rise from 0.80 to 1.20 g per 100 cm³ in urine: only some ions are reabsorbed, so urine contains the excess **B1**.
- Urea is filtered and is not reabsorbed, so all of it passes into the urine **B1**, where its concentration is much higher, 1.80 g per 100 cm³ **B1**.

(c) $1.80 \div 0.03 = 60$ times **B1**.

(d) Most of the water is reabsorbed into the blood as the fluid passes along the nephron **B1**, so the same urea is left in a much smaller volume of water **B1**.

Example 3

Extended. A student eats a meal rich in protein.

- (a) State the name of the blood vessel that carries amino acids from the small intestine to the liver. **[1]**
- (b) Describe two ways in which the liver processes the amino acids. **[3]**
- (c) The table shows the concentration of urea in four blood vessels, in arbitrary units.

Blood vessel	Hepatic portal vein	Hepatic vein	Renal artery	Renal vein
Urea	0.30	0.34	0.30	0.24

- (i) Explain why the concentration of urea is highest in the hepatic vein and lowest in the renal vein. **[2]**
- (ii) Calculate the percentage decrease in urea concentration between the renal artery and the renal vein. **[2]**
- (d) Explain why urea must be excreted. **[1]**

(a) Hepatic portal vein **B1**.

(b) Assimilation: amino acids are converted into proteins **B1**. Deamination of excess amino acids **B1**: the nitrogen-containing part is removed and forms urea **B1**.

(c)(i) The hepatic vein carries blood out of the liver, where urea is made and added to the blood **B1**. The renal vein carries blood out of the kidney, where urea is filtered out of the blood and excreted in urine **B1**. (The renal artery has less than the hepatic vein because blood from the liver mixes with blood from the rest of the body in the heart.)

(c)(ii) $\frac{0.30 - 0.24}{0.30} \times 100$ **M1** = 20% **A1**.

(d) Urea is toxic; if it built up in the blood it would damage cells **B1**.

Common mistakes

- **Saying the bladder excretes urea.** The **kidney** excretes it; the bladder only stores urine. Many candidates chose it in 2025.
- **Saying the kidney makes urea, or the liver excretes it.** The **liver makes** urea (by deamination); the **kidney excretes** it. Examiners see this mix-up every year, in multiple choice and in written answers.
- **Mixing up ureter and urethra**, or spelling them so they could be either. Ureter: kidney to bladder (two of them). Urethra: bladder to outside (one).
- **Swapping cortex and medulla.** The cortex is the **outer** layer.
- **Writing "urine" when asked for a substance excreted.** Urine is the liquid; the substances are **urea**, water and ions. Don't confuse urea with urine either.
- **Confusing excretion with egestion.** Removing undigested food (faeces) is egestion.
- **Naming the nose or mouth** as the organ that excretes carbon dioxide. It is the **lungs**.
- **Thinking protein is filtered, or that no glucose reaches the nephron.** Glucose **is** filtered and then **all** reabsorbed; protein is **not** filtered.
- **Mixing up filtration with absorption or diffusion** in nephron answers. Filtration happens at the glomerulus; reabsorption happens along the tubule.
- **Choosing the hepatic artery for the lowest urea.** The lowest is in the **renal vein**.
- **Confusing assimilation with absorption.** Absorption is into the blood from the gut; assimilation is the liver **using** amino acids to make proteins.
- **Vague deamination answers** ("breaking down amino acids", "deaminification"). Say "removal of the **nitrogen-containing part** of amino acids to form urea".
- **Describing a table without using it.** Answers that quoted no figures, or no units, missed the data marks.

How to get the marks

- **"State" or "name":** one word (liver, kidney, ureter, deamination). Give one answer only: a wrong second answer cancels a right one.
- **"Describe what is meant by excretion":** both halves: waste products **of metabolism**, and substances **in excess** of requirements.
- **"Describe how urea is formed":** **excess** amino acids, **deamination**, **in the liver**, nitrogen-containing part removed. Each is a separate mark.
- **"Describe and explain" a table of fluids:** for each substance, **describe** the difference with figures and units, then **explain** it with filtration (size of molecules) or reabsorption (all, most or some). A 6-mark question needs six separate points.
- **Name the fluids** when asked: blood (plasma), filtrate, urine.
- **Spelling:** examiners said that ureter and urethra must be spelt so they can't be confused. Deamination, glomerulus and assimilation are also safest spelt exactly.
- **Percentages:** show the working ($\text{change} \div \text{original} \times 100$) and round as asked.

- **Use the exact terms:** excretion, metabolism, urea, deamination, assimilation, glomerulus, filtration, reabsorption, nephron, cortex, medulla, ureter, bladder, urethra, renal artery, renal vein, toxic.

Quick check

1. State the name of: (a) the organ that makes urea; (b) the organ that excretes urea; (c) the gas excreted by the lungs; (d) the tube that carries urine out of the body.
2. Put these in the order urine passes through them: bladder, kidney, urethra, ureter.
3. **Extended:** Which of these are filtered out of the blood in the glomerulus of a healthy person: red blood cells, glucose, protein, urea, water, ions?
4. **Extended:** The kidneys filter 600 g of ions from the blood in a day, and 9 g of ions leave in the urine. Calculate the percentage of the filtered ions that is reabsorbed.
5. **Extended:** Describe deamination, and explain why its product must be excreted.

Answers

1. (a) Liver. (b) Kidney. (c) Carbon dioxide. (d) Urethra.
2. Kidney → ureter → bladder → urethra.
3. Glucose, urea, water and ions. Red blood cells and protein are too large to be filtered.
4. $\frac{600 - 9}{600} \times 100 = 98.5\%$.
5. Deamination is the removal of the nitrogen-containing part of excess amino acids, in the liver, to form urea. Urea is toxic, so it must be removed from the blood by the kidneys.

Past questions to try

- **0610/42/O/N/24 Q3:** naming fluids A and C in a nephron, and describing and explaining a table of blood, filtrate and urine (Extended).
- **0610/43/M/J/23 Q4:** how urea is formed, why it is excreted, the renal vein and how a nephron makes urine (Extended).
- **0610/33/M/J/24 Q2:** completing the definition of excretion, and naming parts of the excretory system (Core).
- **0610/23/O/N/23 Q22:** where urea is highest and lowest in blood entering and leaving the kidneys and liver.