

Question 20 (Answer: **D**)

- Glucose is small, so it **is** filtered out at the glomerulus – so the fluid there does contain glucose.
- It is then completely reabsorbed further along the tubule.
- So the blood leaving still has the same glucose concentration as the blood entering.

Question 14 (Answer: **B**)

- Urea is made in the liver, so the blood leaving the liver carries the most.
- The kidney removes it, so the blood leaving the kidney carries the least.
- So the highest is the hepatic vein and the lowest the renal vein.

Question 19 (Answer: **D**)

- Urea is made in the liver and enters the blood there.
- It travels in the blood to the kidney, arriving through the renal artery.
- The kidney filters it out into the urine, which passes to the bladder – so the renal artery comes before the kidney.

Question 20 (Answer: **B**)

- The glomerulus is a knot of capillaries inside the renal capsule.
- High pressure there forces small molecules out of the blood.
- So it carries out filtration; reabsorption happens later, along the tubule.

Question 23 (Answer: **C**)

- Excess amino acids are deaminated, and the amino group is converted into urea.
- That happens in the liver.
- The kidney **removes** urea from the blood, and the bladder only stores the urine.

Question 21 (Answer: **A**)

- The glomerulus filters by size, so small molecules pass through and large ones do not.
- Both glucose and urea are small enough to be filtered out.
- Glucose is then reabsorbed further along the tubule, but it **is** filtered first.

Question 22 (Answer: **A**)

- Urea is made from the nitrogen-containing part of a molecule.
- Amino acids contain an amino group, which is removed by deamination.
- That amino group becomes urea; fatty acids, sugars and vitamins have no amino group.

4(a)	removal of waste products of metabolism ; and substances in excess (of requirements) ;
4(b)	carbon dioxide ;
4(c)	P - cortex ; Q - ureter ; R - medulla ;
4(d)	<i>any six from:</i> 1 X contains blood ; 2 <i>ref. to</i> filtration (between X and Y) ; 3 proteins / blood cells / large molecules, too big to, be filtered / enter Y ; 4 Y contains, glucose, water, urea and ions ; 5 Z contains <u>no</u> glucose ; 6 (all) glucose has been reabsorbed (into the blood) ; 7 Z contains excess, water / ions ; 8 (some) water / ions, reabsorbed (into the blood) ; 9 Z contains high(er), concentration / AW, of urea ; 10 Z contains urine ;
4(e)	deamination / removal of nitrogen-containing part (to form urea) ; assimilation / conversion to or synthesis of proteins ; AVP ;

Question 20 (Answer: **D**)

- Urea is made in the liver and removed by the kidneys.
- So the blood leaving the kidney has had its urea filtered out.
- The renal *vein* therefore carries the lowest concentration of urea.