6 **(a)** In the kidney, various molecules move between the blood and the kidney nephron.

Table 6.1 describes the movements of molecules at three regions of the nephron, **P**, **Q** and **R**.

Table 6.1

region of nephron	molecule(s)	direction of movement
P	amino acids, glucose and water	from nephron to blood
Q	water	from nephron to blood in the presence of antidiuretic hormone (ADH)
R	water and molecules with a molecular mass of less than 68,000	from blood to nephron

(i) Name the processes, **other than** diffusion, osmosis and active transport, that are occurring at **P**, **Q** and **R**.

P .....

Q .....

R .....

[3]

(ii) Identify the regions of the nephron represented by **P**, **Q** and **R**.

P .....

Q .....

R .....

[3]

(b) A student cut a fresh kidney lengthways and placed one half in the freezer. After 24 hours, the student examined the kidney section and tested its firmness with a mounted needle.

Sodium chloride concentration affects the freezing point of a solution.

The student drew the diagram in Fig. 6.1 to show an area that had frozen hard and an area that was softer and less frozen.

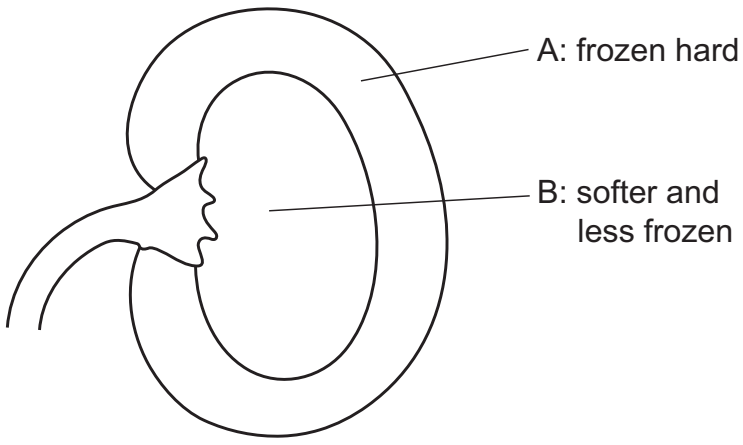

Fig. 6.1

Suggest an explanation for the observations in Fig. 6.1 made by the student.

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..... [2]

[Total: 8]