Marks

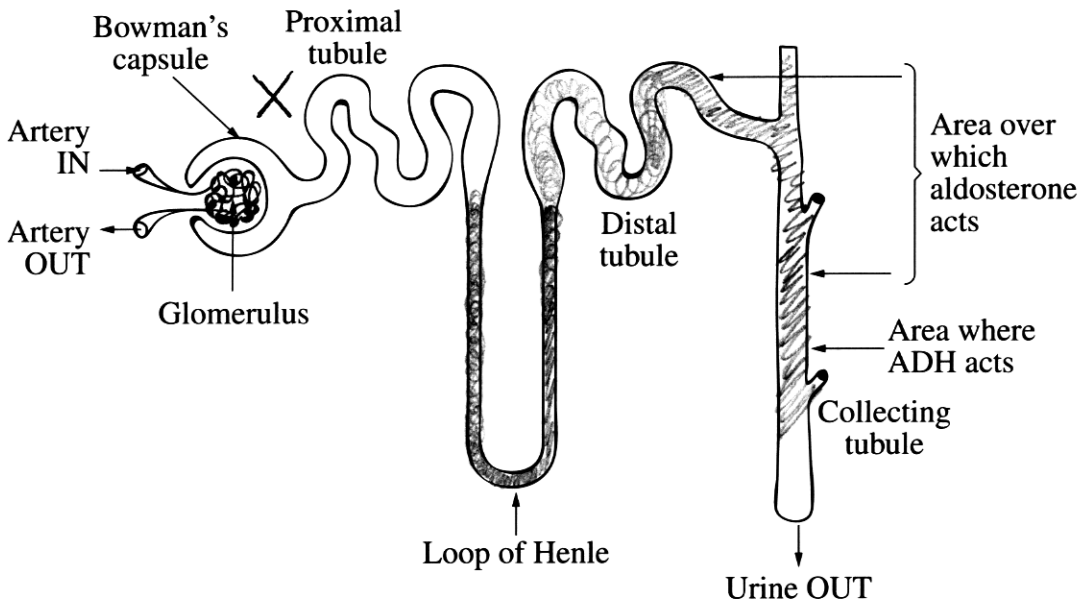
Question 23 (6 marks)

The diagram represents a nephron which is the functional unit of the kidney.

Nephrons make urine by:

- filtering small molecules and ions from the blood;
- reabsorbing the needed amounts of useful materials.

Surplus or waste molecules and ions flow out as urine.



(a) Identify the area where filtration occurs, by marking it with an *X* on the diagram. **1**

(b) Identify the area where reabsorption occurs, by shading it on the diagram. **1**

(c) Discuss the importance of hormone replacement therapy for people who cannot secrete aldosterone. **4**

Aldosterone is a hormone which ~~triggers~~ balances the ~~more~~ reabsorption of sodium in ~~the blood~~ the body. If the body detects low levels of sodium, the release of aldosterone is increased for more reabsorption of sodium, and is ~~increased~~ decreased when sodium levels are high. If a person does not have aldosterone, the reabsoption of sodium would not be stabilised, and therefore homeostasis could not be maintained. Hormone replacement therapy is important because it allows aldosterone to be replaced in the individual, and therefore allow sodium levels to be stable, and homeostasis to be maintained.