

AQA, OCR, Edexcel

A Level

A Level Biology

The Kidney Answers

Name:

M M E

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Total Marks: /34

<p>b)</p> <p>i) - Longest part of the nephron/ convoluted - Large surface area for maximum reabsorption .</p> <p>ii) Active transport of glucose/ amino acids.</p> <p>iii) Urea can pass directly through the membrane by diffusion</p> <p>c)</p> <p>i) Increases water reabsorption/ reduces water loss</p> <p>ii)</p> <p>Water leaves the descending limb of the Loop of Henle by osmosis</p> <ul style="list-style-type: none">- Na^+ and Cl^- ions diffuse into the loop- Ion concentration gets higher towards the base of the loop- Na^+ and Cl^- ions are then actively pumped out of the ascending limb- Lowers water potential in the medulla- so more water leaves the descending limb and collecting duct by osmosis- ascending limb is impermeable to water. <p>d)</p> <p>i) Antidiuretic hormone (ADH) - Alters the membrane permeability of the collecting duct</p>	<p>2 marks</p> <p>1 mark</p> <p>1 mark</p> <p>1 mark</p> <p>6 marks</p> <p>2 marks</p>
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<p>ii) – water potential of blood rises</p> <ul style="list-style-type: none">- Detected by osmoreceptors in the hypothalamus- Stimulates the pituitary to release less ADH- Collecting ducts become less permeable to water, so less water is reabsorbed by osmosis- More water is lost in urine	<p>5 marks</p>
<p>3.</p> <p>a)</p> <p>i)</p> <ul style="list-style-type: none">- B Kangaroo rat- Longer loop of Henle means the loop goes deeper into the medulla- Medulla would then have a lower water potential so water can be reabsorbed into the blood- Urine is more concentrated and less water is lost in a hot environment	<p>4 marks</p>