## <u>AQA – Organisms respond to changes in their internal and external environments – A2 Biology</u> <u>P3</u>

1. June/2019/Paper\_3/No.1 Describe how ultrafiltration occurs in a glomerulus. [3 marks] Glucose and water are reabsorbed by the proximal convoluted tubule of a nephron. 1 2 Put a tick (✓) in the box next to the correct ways in which glucose and water are reabsorbed. [1 mark] Glucose by active transport and water against a water potential gradient Glucose by diffusion and water down a water potential gradient Glucose by facilitated diffusion and active transport and water against a water potential gradient Glucose by facilitated diffusion and active transport and water down a water potential gradient

0 1 . 3

The equation shows the relationship between urine concentration in arbitrary units (y) and mean length of the loop of Henle in mm (x).

$$y = 0.72x + 4$$

Calculate the mean length of the loop of Henle in an organism that produces urine with a concentration of 16.56 arbitrary units.

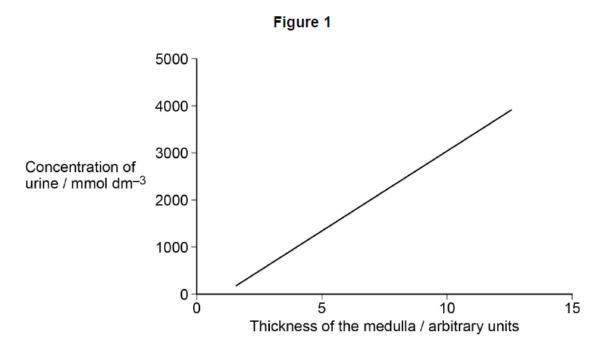
[1 mark]

nswer	=	mm

0 1 . 4

Scientists investigated the relationship between the thickness of the kidney medulla of different species of mammals and the concentration of their urine.

Figure 1 shows their results.



Explain the pattern shown by the results in Figure 1.

[3 marks]