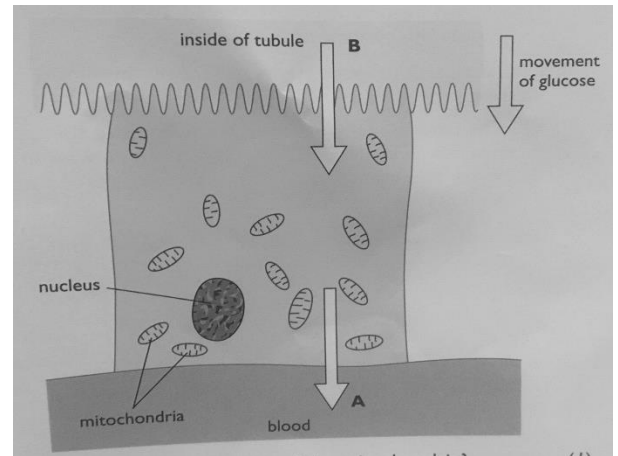


: Answer questions according to the points given.

1. The diagram shows a cell from the lining of a human kidney tubule. A Major role of the cell is to absorb salt from the fluid flowing along the tubule and pass it into the blood, as shown by the arrow on the diagram.



- a. What is the function of the mitochondria? 1pt
- b. The tubule cell contains large number of mitochondria. They are needed for the cell to transport glucose across the cell membrane into the blood at 'A'. Suggest a method that the cell uses to do this and explain your answer. (2pts)

C. The mitochondria are NOT needed to transport the glucose into the cell from the tubule at 'B'. Name the process by which the ions move across the membrane at 'B' and explain your answer. (2pts)

D. The surface membrane of the tubul cell at 'B' is greatly folded. Explain how this adaptation helps cell to carry out its function. (2pts)

2. A. Describe how you would prepare a specimen of onion bulb epidermis for viewing through a light microscope. Suggest a suitable stain to use with this tissue, and explain why it is sometimes necessary to use stains in a slide preparation. (6pts).

B. Why does onion bulb epidermis lack chloroplasts? 2pts

C. Explain the difference between a tissue, an organ and an organ system giving an example of each. 6pts.

3. Three 'chips' of about the same size and shape were cut from the same potato. Each was blotted, weighed and placed in a different sucrose solution (A, B or C). The chips were left in the solution for one hour, then removed, blotted and re-weighed. Here are the results:

	Starting mass (g)	Final mass (g)	Change in mass (%)
Solution A	7.4	6.5	-12.2
Solution B	8.2	8.0	
Solution C	7.7	8.5	+10.4

- a. Calculate the percentage change in mass for the chip in solution B. 2pts.
- b. Name the process that caused the chips to lose or gain mass. 1p
- c. Which solution was likely to have been the most concentrated? 1pt