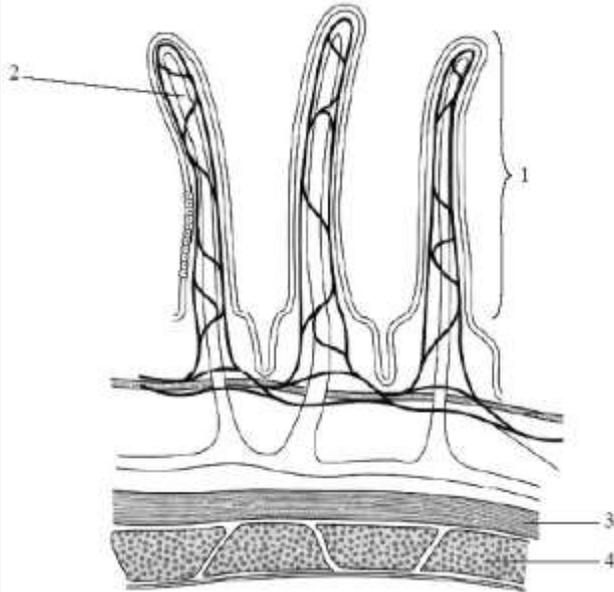


### H3 Absorption of digested foods – *summary of mark schemes*

H.3.1 Draw and label a diagram showing a transverse section of the ileum as seen under a light microscope.

*Mark Schemes*



H.3.2 Explain the structural features of an epithelial cell of a villus as seen in electron micrographs, including microvilli, mitochondria, pinocytotic vesicles and tight junctions.

*Mark Schemes*

- A. microvilli increase surface area of plasma membrane exposed for absorption;
- B. channel proteins for (facilitated) diffusion;
- C. tight junctions act as barriers / keep digestive fluids in intestine separate from tissue fluid / maintain concentration gradients / ensure one way flow of absorbed materials;
- D. large numbers of mitochondria provide ATP / energy for active uptake / transport / processes;
- E. large amount of rER / sER / Golgi Apparatus for secretion of enzymes;
- F. pinocytotic vesicles (near microvilli) take in / contain fluid from lumen of small intestine / ileum;

H.3.3 Explain the mechanisms used by the ileum to absorb and transport food, including facilitated diffusion, active transport and endocytosis.

*Mark Schemes*

- A. microvilli increase the surface of the plasma membrane exposed to the digested food;
- B. increased surface area allows for increased absorption of foods (by diffusion);
- C. lipids are absorbed by simple diffusion;
- D. hydrophilic food substances / eg fructose are absorbed by facilitated diffusion;
- E. channel proteins help hydrophilic food substances to pass through the hydrophobic core of plasma membrane;
- F. mitochondria produce the ATP required for active transport;
- G. pump proteins in the plasma membrane actively transport glucose / amino acids / mineral ions;
- H. pinocytotic vesicles are formed by endocytosis;
- I. each vesicle contain small droplets of fluid from the lumen of the ileum;
- J. membranes from these vesicles originate from plasma membrane;
- K. these vesicles contain channels for facilitated diffusion and pumps for active transport;
- L. digested foods can be absorbed from these vesicles into the cytoplasm;