Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

- movement of digested nutrients (small molecules) from the intestine **into the blood**

2.2

- the **small intestine**

2.3

- microvilli: increase the **surface area**
- one cell thick: **short distance** for diffusion
- capillaries: carry absorbed food away, keeping a **concentration gradient**
- lacteal: absorbs **fatty acids and glycerol**

2.4

- **lacteal**

3.1

C

3.2

B

3.3

(a)

- the **surface area** is smaller
- so **less** food is absorbed (more slowly)

(b) any one: weight loss; tiredness; diarrhoea; deficiency such as anaemia

3.4

(a)

- $\text{actual} = \dfrac{\text{image}}{\text{magnification}} = \dfrac{15}{25}$
- $= \mathbf{0.6}$ mm

(b)

- by **diffusion** down a concentration gradient
- and by **active transport** when the gut concentration is low

(c)

- blood carries glucose **away**
- keeping a steep **concentration gradient** for diffusion

(d) a larger **surface area** and more **time** for absorption

(e)

- $\dfrac{6.4}{8.0} \times 100$
- $= \mathbf{80}\%$