Higher Combined version — Higher Tier (★) included; Separate-only (◆) removed.

**Q1. Explain how the alveoli are adapted for efficient gas exchange.**

**[4 marks]**

**Q2. Describe how villi are adapted for absorption of nutrients.**

**[4 marks]**

**Q3. Explain the process of digestion for ONE named food molecule.**

**[3 marks]**

**Total: 11 marks**

**Q1 (4 marks)**

*Explain how the alveoli are adapted for efficient gas exchange.*

- Large total SA (millions of alveoli) [1]
- Thin walls (one cell thick) — short diffusion distance [1]
- Dense capillary network — maintains concentration gradient [1]
- Moist lining — gases dissolve before diffusing [1]

**Q2 (4 marks)**

*Describe how villi are adapted for absorption of nutrients.*

- Large SA — finger-like projections with microvilli [1]
- Thin walls — one cell thick [1]
- Rich blood capillary network — rapid removal of absorbed nutrients [1]
- Lacteals for fat absorption [1]

**Q3 (3 marks)**

*Explain the process of digestion for ONE named food molecule.*

- E.g. Starch: amylase (in mouth and small intestine) breaks glycosidic bonds [1]
- Starch → maltose → glucose [1]
- Glucose small enough to be absorbed through gut wall into blood by active transport and diffusion [1]