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

Q1. State the substrate and products of (a) amylase, (b) protease, (c) lipase.

[3 marks]

Q2. Explain the role of bile in the digestion of fats.

[2 marks]

Q3. Describe the role of the stomach in digestion.

[3 marks]

Q4. Explain how villi are adapted for absorption of nutrients in the small intestine.

[3 marks]

Total: 11 marks

Digestive System

Q1 (3 marks)

State the substrate and products of (a) amylase, (b) protease, (c) lipase.

- (a) Starch → sugars [1]
- (b) Proteins → amino acids [1]
- (c) Fats/lipids → fatty acids and glycerol [1]

Q2 (2 marks)

Explain the role of bile in the digestion of fats.

- Bile emulsifies fats — breaks large fat globules into tiny droplets [1]
- Greatly increases the surface area for lipase to act on → faster digestion [1]

Q3 (3 marks)

Describe the role of the stomach in digestion.

- Muscular walls churn food into a liquid (chyme) — mechanical digestion [1]
- Hydrochloric acid (pH 2): kills bacteria; provides acidic environment for pepsin [1]
- Pepsin (protease): begins digestion of proteins → peptides [1]

Q4 (3 marks)

Explain how villi are adapted for absorption of nutrients in the small intestine.

- Large surface area — many finger-like villi with microvilli [1]
- Thin walls (one cell thick) — short diffusion distance [1]
- Dense blood capillary network — maintains steep concentration gradient [1]