

Q1 (1 mark)

Carbohydrates / fats / lipids

Q2 (1 mark)

Protein

Q3 (1 mark)

Helps movement of food through the gut / prevents constipation

Q4 (1 mark)

Mouth

Q5 (1 mark)

Biological catalysts that speed up reactions

Q6 (2 marks)

Any two:

- Provide energy
- Stored energy
- Used in respiration
- Fuel for the body

Q7 (2 marks)

Any two:

- Obesity
- Starvation
- Deficiency diseases
- Poor health / low energy

Q8 (2 marks)

Any two:

- Mouth
- Oesophagus
- Stomach
- Small intestine
- Large intestine

Q9 (2 marks)

Any two:

- Light
- Carbon dioxide
- Water
- Chlorophyll

Q10 (2 marks)

Any two:

- Helps digest food
- Helps break down fibre
- Produces vitamins (e.g. vitamin K)
- Helps keep gut healthy / prevents harmful bacteria growing

Q11 (3 marks)

- Needed for growth and repair (1)
- Builds muscles and tissues (1)
- Used to make enzymes/hormones (1)

Q12 (3 marks)

- Adds bulk to food (1)
- Helps food move through intestines (1)
- Prevents constipation (1)

Q13 (3 marks)

- Enzymes break down food (1)
- Speed up chemical reactions (1)
- Break large molecules into small soluble ones (1)

Q14 (3 marks)

- Muscles contract in gut walls (1)
- Peristalsis moves food along (1)
- Food is pushed through digestive system (1)

Q15 (2 marks)

- Roots absorb water from soil (1)
- Roots absorb mineral ions (1)

Q16 (3 marks)

- Lack of nutrients causes deficiency diseases (1)
- Examples such as scurvy or rickets (1)
- Poor diet affects growth and health (1)

Q17 (3 marks)

- Help digest food in the gut (1)
- Produce vitamins (e.g. vitamin K) (1)
- Help keep harmful bacteria under control / aid digestion (1)

Q18 (4 marks)

- Calculate energy values correctly (2)
- Identify highest energy source (1)
- Correct conclusion (carbohydrate provides the most energy, while fat is the most energy - dense nutrient) (1)
- Carbohydrate: $250 \times 17 = 4250$ kJ
- Protein: $70 \times 17 = 1190$ kJ
- Fat: $80 \times 37 = 2960$ kJ

Q19 (4 marks)

- Low activity reduces energy use (1)
- Excess energy stored as fat (1)
- Leads to obesity (1)
- Increased risk of disease e.g. heart disease (1)

Q20 (4 marks)

Any two points and explanations

- Large surface area (villi) (1) for fast absorption (1)
- Thin walls (1) for short diffusion pathway (1)
- Good blood supply to maintain concentration gradient (1)

Q21 (6 marks)

Levelled response:

1-2 marks:

Basic statements about digestion or organs

Little or unclear explanation of how system works

3-4 marks:

Some correct ideas about organs in digestion

Mentions several parts but explanation is incomplete

5-6 marks:

Clear, well-structured explanation of full digestive system

Correct scientific terminology (enzymes, digestion, absorption, peristalsis)

All key organs included in sequence

Expected content:

- Mouth begins digestion by chewing and by enzymes in saliva (1)
- Oesophagus moves food using peristalsis (1)
- Stomach uses acid and enzymes (1)
- Small intestine completes digestion and absorbs nutrients (1)
- Large intestine absorbs water (1)
- Enzymes act as biological catalysts (1)

Example full-mark answer:

"Food enters the body through the mouth where it is chewed and broken down by enzymes in the saliva to begin digestion. It then travels down the oesophagus using peristalsis to the stomach. In the stomach, acid and enzymes break down food further. The small intestine is where digestion is completed and nutrients are absorbed into the blood. The large intestine absorbs water from the remaining food. Enzymes act as biological catalysts that speed up digestion."

Q22 (6 marks)

Levelled response:

1-2 marks:

Basic statements about photosynthesis or plant needs
Little or unclear link to process

3-4 marks:

Some correct ideas about photosynthesis and plant nutrition
Mentions leaves or roots but explanation is incomplete

5-6 marks:

Clear, well-structured explanation including photosynthesis and nutrient uptake
Correct scientific terminology and links between ideas

Expected content:

- Photosynthesis happens in leaves (1)
- Light energy makes glucose/carbohydrates (1)
- Carbon dioxide enters leaves (1)
- Water absorbed by roots (1)
- Mineral nutrients absorbed from soil (1)
- Transport around plant for growth (1)

Example full-mark answer:

"Photosynthesis happens in the leaves of a plant where light energy is used to make glucose, which is a carbohydrate. Carbon dioxide is taken in from the air by diffusion. The plant also needs water, which is absorbed by the roots from the soil. The roots also absorb mineral nutrients from the soil. These substances are transported around the plant to support growth and development."

Q23 (6 marks)

Levelled response:

1-2 marks:

Basic statements about lack of nutrients
Little or unclear link to diseases or health effects

3-4 marks:

Some correct ideas about deficiency diseases and nutrients
Mentions at least one or two examples but explanation is incomplete or limited

5-6 marks:

Clear, well-structured explanation of deficiency diseases
Correct use of scientific terminology (macronutrients, micronutrients)
Several named examples linked to causes and effects on health

Expected content:

- Deficiency diseases are caused by a lack of essential nutrients over time (1)
- Macronutrients (e.g. protein) are needed in large amounts (1)
- Micronutrients (vitamins and minerals) are needed in small amounts (1)
- Lack of iron causes anaemia leading to tiredness (1)
- Lack of vitamin C causes scurvy (1)
- Lack of vitamin D causes rickets (1)
- Lack of protein causes kwashiorkor (1)
- Lack of iodine causes goitre (1)

Example full-mark answer:

"Deficiency diseases happen when a person does not get enough essential nutrients over a long period of time. Macronutrients such as protein are needed in large amounts, while micronutrients such as vitamins and minerals are needed in small amounts. A lack of iron can cause anaemia, which leads to tiredness. A lack of vitamin C causes scurvy, and a lack of vitamin D can lead to rickets. A lack of protein can cause kwashiorkor, and iodine deficiency can cause goitre. These diseases occur because the body cannot function properly without these nutrients."