



Attempt questions first; check the separate key afterward. Show all working. Draw accurate figures where required.

A. Very short answers - 1 mark each

1. Name the pigment that absorbs light in photosynthesis.
2. Write the overall simplified equation for photosynthesis.
3. Name the enzyme in saliva that acts on starch.
4. Explain the roles of mucus and HCl in the stomach.
5. Where is most nutrient absorption completed in humans?
6. Explain how villi increase absorption.
7. Does bile contain digestive enzymes?
8. Explain its roles in fat digestion.

B. Short answers / practice - 2 marks each

9. Name the site of glycolysis in a cell.
10. Compare aerobic and anaerobic breakdown of glucose.
11. What is the usual product of anaerobic respiration in human muscle?
12. Explain why yeast produces alcohol and CO₂ under anaerobic conditions.
13. Name the respiratory pigment in human blood.
14. Explain how alveoli are adapted for gas exchange.
15. How many chambers does a human heart have?
16. Explain why separation of oxygenated and deoxygenated blood is useful.
17. Which blood vessels carry blood away from the heart?
18. Compare arteries, veins and capillaries in structure and function.
19. Name the vessel carrying oxygenated blood from lungs to heart.
20. Trace one complete cycle of double circulation.

C. Application / reasoning - 3 marks each

21. Name the plant tissue carrying water from roots.
22. Explain transpiration pull.
23. Name the tissue transporting sugars in plants.
24. Explain why translocation may require energy.
25. Name the functional unit of the kidney.
26. Draw a nephron and explain filtration and selective reabsorption.
27. Which heart chamber pumps oxygenated blood to the body?
28. Explain why the left ventricle has a thicker wall than the right ventricle.
29. Name the enzyme that begins protein digestion in the stomach.
30. Does urine formation involve only filtration? Explain.
31. Compare gas exchange in a leaf with that in human lungs.
32. Are stomata involved in both gas exchange and water loss?
33. Explain the role of guard cells in stomatal opening.
34. Name the main nitrogenous waste excreted by humans.
35. Design a starch test to show that light is necessary for photosynthesis, with control and observations.

ANSWER KEY - Numerical / closed questions

- 1) Chlorophyll. 2) $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$; light and chlorophyll. 3) Salivary amylase. 5) Small intestine. 7) No. 9) Cytoplasm. 11) Lactic acid/lactate. 13) Haemoglobin. 15) Four. 17) Arteries. 19) Pulmonary vein. 21) Xylem. 23) Phloem. 25) Nephron. 27) Left ventricle. 29) Pepsin. 30) No; selective reabsorption and secretion also occur. 32) Yes. 34) Urea.