# Life Processes in Plants

Standard difficulty · 20 questions · 40 marks · Time: 36 minutes

Name: _____ Date: _____ Score: ____ / 40

Show your working for Sections B and C. Answers are on the last page — try every question first!

## Section A — Choose the correct answer — 8 × 1 = 8 marks

1. The process by which green plants make food is:
   **(a)** digestion **(b)** transpiration **(c)** respiration **(d)** photosynthesis

2. In which case will STARCH form in the leaf?
   **(a)** half a leaf inside a bottle with caustic soda, in sunlight
   **(b)** the part of a leaf covered with black paper in sunlight
   **(c)** the green part of a variegated leaf in sunlight
   **(d)** the white part of a variegated leaf in sunlight

3. In which case will NO starch form?
   **(a)** the green part of a variegated leaf in sunlight
   **(b)** a green leaf of a plant kept in sunlight
   **(c)** a leaf of a plant kept in the dark for two days
   **(d)** a red-coloured leaf of a plant in sunlight

4. Which process releases energy?
   **(a)** respiration **(b)** germination **(c)** photosynthesis **(d)** transpiration

5. Which tissue carries sugar to a growing fruit?
   **(a)** chlorophyll **(b)** petals **(c)** phloem **(d)** xylem

6. A water plant in sunlight gives out 14 bubbles of oxygen every minute. How many bubbles in 10 minutes?
   **(a)** 140 bubbles **(b)** 126 bubbles **(c)** 154 bubbles **(d)** 24 bubbles

7. Red ink rose 2 mm every minute up a twig. How far did it rise in 16 minutes?
   **(a)** 32 mm **(b)** 30 mm **(c)** 18 mm **(d)** 34 mm

8. A plant in sunlight with water was 4 cm tall and grew about 4 cm a week. How tall was it after two weeks?
   **(a)** 18 cm **(b)** 8 cm **(c)** 12 cm **(d)** 13 cm

## Section B — Short answer — 8 × 2 = 16 marks

9. Write the word equation for photosynthesis.

**10.** Will starch form? Write "yes" or "no": (a) a red-coloured leaf of a plant in sunlight (b) the white part of a variegated leaf in sunlight

**11.** Is it "photosynthesis" or "respiration" that (a) uses glucose and oxygen (b) uses carbon dioxide?

**12.** Is it the "xylem" or the "phloem" that carries (a) sugar to a growing fruit (b) minerals up to the leaves?

**13.** Fill in the missing word: (a) glucose + ____ → carbon dioxide + water + energy (b) glucose + oxygen → ____ + water + energy

**14.** Germinating moong seeds were kept in 6 flasks of 21 seeds each. How many seeds were used? What gas did they give out?

**15.** A water plant gave 17 bubbles a minute in bright sunlight, 7 in dim light and 0 in the dark. What does this show? How many bubbles in all in 5 minutes of bright sunlight?

**16.** What is the role of (a) the potato (b) the xylem in a plant's life?

## Section C — Word problems — 4 × 4 = 16 marks

**17.** Describe an experiment to show that sunlight is needed for photosynthesis.

**18.** Leaves from three set-ups are tested with iodine: (1) a leaf of a plant kept in the dark for two days; (2) half a leaf inside a bottle with caustic soda, in sunlight; (3) the part of a leaf covered with black paper in sunlight. Which turn blue-black? What do the results show about photosynthesis?

**19.** Make a table comparing photosynthesis and respiration using these points: goes on day and night; happens in all living cells; makes glucose; gives out oxygen.

**20.** A water plant under a funnel in sunlight gave 11 bubbles a minute. (a) How many bubbles in 3 minutes? (b) How could you show the gas is oxygen? (c) What would happen in the dark, and why?

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# Answer key

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| Q | Answer | Working |
|---|---|---|
| 1 | **(d) photosynthesis** | — |
| 2 | **(c) the green part of a variegated leaf in sunlight** | — |
| 3 | **(c) a leaf of a plant kept in the dark for two days** | — |
| 4 | **(a) respiration** | — |
| 5 | **(c) phloem** | — |
| 6 | **(a) 140 bubbles** | 14 × 10 = 140 |
| 7 | **(a) 32 mm** | 2 × 16 = 32 |
| 8 | **(c) 12 cm** | 4 + 2 × 4 |
| 9 | **Carbon dioxide + water → glucose + oxygen (in sunlight, with chlorophyll).** | — |
| 10 | **(a) yes (b) no** | — |
| 11 | **(a) respiration (b) photosynthesis** | — |
| 12 | **(a) phloem (b) xylem** | — |
| 13 | **(a) oxygen (b) carbon dioxide** | — |
| 14 | **126 seeds; carbon dioxide** | 21 × 6 |
| 15 | **More light, more oxygen (photosynthesis needs light); 85 bubbles** | 17 × 5 |
| 16 | **(a) food made in leaves, carried by phloem and stored (b) carries water up the stem** | — |
| 17 | **Keep a potted plant in the dark for 2–3 days to remove starch. Cover part of a leaf with black paper and put the plant in sunlight for a few hours. Test the leaf for starch: only the uncovered part turns blue-black, showing sunlight is needed.** | — |
| 18 | **(1) no blue-black; (2) no blue-black; (3) no blue-black. Photosynthesis needs sunlight, chlorophyll and carbon dioxide.** | — |
| 19 | **goes on day and night: respiration; happens in all living cells: respiration; makes glucose: photosynthesis; gives out oxygen: photosynthesis.** | — |

| Q | Answer | Working |
|---|---|---|
| 20 | **(a) 33 bubbles (b) A glowing or lit matchstick burns brighter in it. (c) No bubbles: there is no photosynthesis without light.** | 11 × 3 |