

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

**Q1. Describe the carbon cycle. Which process removes CO<sub>2</sub> from the atmosphere? Name THREE processes that return it.**

[4 marks]

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★ HIGHER TIER

**Q2. ★ Describe the nitrogen cycle. Name four types of bacteria and their roles.**

[4 marks]

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**Q3. Describe the stages of eutrophication. What causes it?**

[3 marks]

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Total: 11 marks

**Q1 (4 marks)**

*Describe the carbon cycle. Which process removes CO<sub>2</sub> from the atmosphere? Name THREE processes.*

- Only PHOTOSYNTHESIS removes CO<sub>2</sub> [1]
- Respiration [1]
- Decomposition [1]
- Combustion [1]

**Q2 (4 marks) [★ HT]**

*★ Describe the nitrogen cycle. Name four types of bacteria and their roles.*

- Nitrogen-fixing bacteria: N<sub>2</sub> → ammonia/nitrates [1]
- Nitrifying bacteria: ammonia → nitrates [1]
- Decomposers: dead matter → ammonia [1]
- Denitrifying bacteria: nitrates → N<sub>2</sub> [1]

**Q3 (3 marks)**

*Describe the stages of eutrophication. What causes it?*

- Fertiliser run-off → algal bloom on water surface [1]
- Algae block light → aquatic plants die → decomposing bacteria use O<sub>2</sub> [1]
- O<sub>2</sub> depleted → fish and aquatic organisms suffocate [1]