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Q40

With reference to the planet Earth, consider the following statements: I. Rain forests produce more oxygen than that produced by oceans. II. Marine phytoplankton and photo-synthetic bacteria produce about 50% of world's oxygen. III. Well-oxygenated surface water contains several folds higher oxygen than that in atmospheric air. Which of the statements given above is/are correct? (a) I and II (b) II only (c) I and III (d) None of the above statements is correct Official key: B.

UPSC Civil Services Prelims 2025 · General Studies · 2 marks · Environment and Ecology

Environment, ecology, climate, biodiversity - Prelims GS Paper I.

Explanation

(a)

I and II. Rain forests producing more oxygen than oceans is the over-claim.

(b) Official key

II only. **Marine phytoplankton** and photosynthetic bacteria produce about half of Earth's oxygen. That is the scored line.

(c)

I and III. Both the rainforest-over-ocean line and the dissolved-oxygen line are the extras.

(d)

None. II holds.

Summary

Official Set A key is (b) II only. Oceans, via phytoplankton and related photosynthesizers, supply on the order of half of global oxygen - that is Statement II. Rain forests do not out-produce the oceans (I fails). Well-oxygenated surface water does not hold several-fold more oxygen than air (III fails). So only II is correct.

Related possible facts

These can be asked in a future Prelims paper.

Marine phytoplankton

Microscopic photosynthesizers. NOAA/UNESCO popular science often attributes about half of Earth's oxygen to the ocean.

Prochlorococcus

Tiny cyanobacterium; a large share of marine photosynthesis.

Dissolved oxygen

Surface seawater holds milligrams per litre - far less oxygen than the same volume of air (~210 mg/l).

Oxygen minimum zone

A mid-depth layer where dissolved oxygen crashes. Neighbour of Statement III.

Amazon vs ocean oxygen

Rainforests recycle a lot of the oxygen they make. Net new oxygen is dominated by the marine story in many explainers.

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