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Q22

It is possible to produce algae-based biofuels, but what is/are the likely limitation(s) of developing countries in promoting this industry? 1. Production of algae-based biofuels is possible in seas only and not on continents. 2. Setting up and engineering the algae-based biofuels production requires high level of expertise/technology until the construction is complete. 3. Economically viable production necessitates the setting up of large-scale facilities which may raise ecological and social concerns. Select the correct answer using the code given below: (a) 1 and 2 only (b) 2 and 3 only (c) 3 only (d) 1, 2 and 3 Official key: B.

UPSC Civil Services Prelims 2017 · General Studies · 2 marks · Economy

Indian economy, budget, schemes - Prelims GS Paper I.

Explanation

(a)

(a) 1 and 2 only. Statement 1 is false: algae can be grown in inland ponds and photobioreactors, not only in the sea. Not the key.

(b) Official key

(b) 2 and 3 only. High technical skill is needed to engineer production, and viable plants tend to be large, with ecological and social costs. Statement 1 is wrong. This is the official key.

(c)

(c) 3 only. Scale and social-ecological concerns are real, but statement 2 is also a limitation. 3 only is incomplete.

(d)

(d) 1, 2 and 3. The seas-only claim is incorrect, so all three fails.

Summary

Official key is (b) 2 and 3 only. Algal biofuel is not confined to the ocean; raceway ponds and closed reactors work on land. Developing countries still face a high expertise barrier until facilities are built, and commercial scale can crowd land, water and coasts, raising ecological and social issues. Statement 1 is the trap. Third-generation biofuel is the neighbouring label for algal fuel.

Related possible facts

These can be asked in a future Prelims paper.

3G biofuel

Algae-based fuels

1G / 2G

Food crops / cellulosic residues

Photobioreactor

Closed algal growth system

Raceway pond

Open inland cultivation

Lipid yield

Some microalgae very oil-rich

Water/nutrient load

Scale-up constraint

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