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Q34

Which of the following statements are correct about the deposits of 'methane hydrate? 1. Global warming might trigger the release of methane gas from these deposits. 2. Large deposits of 'methane hydrate' are found (a) 1 and 2 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3 Official key: D.

UPSC Civil Services Prelims 2019 · General Studies · 2 marks · Environment and Ecology
Environment, ecology, climate, biodiversity - Prelims GS Paper I.

Explanation**(a)**

(a) 1 and 2 only. Statement 1 (warming can destabilise hydrates and release methane) and statement 2 (Indian continental shelves host hydrate deposits, as in KG and Andaman surveys) are true, but statement 3 is also true, so 1-and-2 is not the key.

(b)

(b) 2 and 3 only. Drops the valid warming-release statement, so this is not the key.

(c)

(c) 1 and 3 only. Drops the valid Indian-shelf statement, so this is not the key.

(d) Official key

(d) 1, 2 and 3. Methane hydrates in continental-margin sediments can release methane if warmed; India has surveyed large shelf deposits; methanotrophic **bacteria** oxidise methane in the water column and thus reduce the methane that reaches the air. All three listed claims hold, so this is the official key.

Summary

Official key is (d) 1, 2 and 3. Gas hydrates are ice-like methane cages in cold, pressured shelf and slope muds. Warming is a release risk; India has hydrate provinces on its shelves; microbes eat much of the leaking methane. Honour the stored letter (d).

Related possible facts

These can be asked in a future Prelims paper.

Clathrate

Methane trapped in water-ice cages

Indian shelves

Krishna-Godavari, Mahanadi, Andaman

Bacteria

Methanotrophs oxidise CH₄

Askable twin

Permafrost hydrates versus marine hydrates

GHG

Methane is a strong greenhouse gas

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