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Q7

Consider the following statements : Statement-I: Rainfall is one of the reasons for weathering of rocks. Statement II: Rain water contains carbon dioxide in solution. Statement-III: Rain water contains atmospheric oxygen. Which one of the following is correct in respect of the above statements ? (a) Both Statement-II and Statement-III are correct and both of them explain Statement-I (b) Both Statement-II and Statement-III are correct, but only one of them explains Statement-I (c) Only one of the Statements II and III is correct and that explains Statement-I (d) Neither Statement- II nor Statement-III is correct Official key: A.

UPSC Civil Services Prelims 2024 · General Studies · 2 marks · Geography

Physical, Indian and world geography - Prelims GS Paper I.

Explanation**(a) Official key**

Both II and III correct and both explain I. Rain weathers rock via dissolved CO₂ (**carbonation**) and dissolved O₂ (**oxidation**).

(b)

Both II and III correct but only one explains I. Both processes are weathering routes.

(c)

Only one of II/III correct. Both chemical facts are true.

(d)

Neither II nor III correct. Rainwater does carry CO₂ and O₂.

Summary

Official key is (a). Rainfall weathers rocks. Rainwater dissolves atmospheric carbon dioxide to form weak carbonic acid (**carbonation** of limestone and silicates) and carries dissolved oxygen (**oxidation** of iron-bearing minerals). Both II and III are true and both explain I.

Related possible facts

These can be asked in a future Prelims paper.

Carbonation

CO₂ + H₂O → carbonic acid; attacks limestone and feldspars.

Oxidation

Oxygen in water rusts iron minerals; a common chemical weathering path.

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