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Q28

Consider the following statements: Statement I: In the context of effect of water on rocks, chalk is known as a very permeable rock whereas clay is known as quite an impermeable or least permeable rock. Statement II: Chalk is porous and hence can absorb water. Statement III: Clay is not at all porous. 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: C.

UPSC Civil Services Prelims 2025 · General Studies · 2 marks · Geography

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

Explanation

(a)

- **Both II and III correct and both explain I. III fails:** clay has porosity; its permeability is low.

(b)

Both correct, only one explains. Still needs III to be true.

(c) Official key

- **Only one of II and III is correct and that explains I. II holds:** chalk is porous and can hold water, which is why it is permeable in Statement I. III's 'clay is not at all porous' is the absolute that fails. Clay can be porous and still impermeable.

(d)

Neither. Porous chalk is the explanation for I.

Summary

- **Official key is (c):** only one of II and III is correct, and that one explains I. Chalk is porous and permeable; clay is impermeable but it is not 'not at all porous' - clay can be porous yet impermeable because pores are tiny. So III fails, II holds and explains I. (a)(b) keep III; (d) drops II.

Related possible facts

These can be asked in a future Prelims paper.

Porosity vs permeability

Porosity is void space. Permeability is connectedness. Clay can have high porosity and tiny permeability.

Chalk aquifers

The English Chalk is a classic permeable limestone aquifer.

Aquiclude / aquitard

Clay layers that block flow. Neighbour of Statement I.

Primary vs secondary porosity

Fractures in chalk and limestone raise permeability.

Laterite

Another tropical weathering product with mixed porosity. A future neighbour.

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