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Q71

Water can dissolve more substances than any other liquid because (a) it is dipolar in nature (b) it is a good conductor of heat (c) It has high value of specific heat (d) It is an oxide of hydrogen Official key: A.

UPSC Civil Services Prelims 2021 · General Studies · 2 marks · Science and Technology

Science, technology, space, defence, IT - Prelims GS Paper I.

Explanation**(a) Official key**

Dipolar. Water's polarity lets it solvate ions and polar molecules - the 'universal solvent' reason.

(b)

Heat conductor. Not why it dissolves salt.

(c)

High specific heat. A climate property, not solvent power.

(d)

Oxide of hydrogen. True chemistry, not the solvent explanation.

Summary

Official key is (a). Water dissolves more substances than most liquids because the molecule is polar (**dipole**) and hydrogen-bonded. Conductivity, specific heat and being H₂O do not explain that solvent range.

Related possible facts

These can be asked in a future Prelims paper.

Dipole

δ^- on O, δ^+ on H; hydrates ions.

Hydrogen bond

The network that also sets boiling point and specific heat.

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