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Q37

Which one of the following is the exhaust pipe emission from Fuel Cell Electric Vehicles, powered by hydrogen? (a) Hydrogen peroxide (b) Hydronium (c) Oxygen (d) Water vapour Official key: D.

UPSC Civil Services Prelims 2024 · General Studies · 2 marks · Environment and Ecology
Environment, ecology, climate, biodiversity - Prelims GS Paper I.

Explanation

(a)

Hydrogen peroxide. Not the FCEV tailpipe product.

(b)

Hydronium. Aqueous H_3O^+ , not the exhaust gas.

(c)

Oxygen. The cell consumes oxygen from air, it does not exhaust it as the product.

(d) Official key

Water vapour. $H_2 + O_2$ in a fuel cell $\rightarrow$ electricity + H_2O .

Summary

Official key is (d) water vapour. A hydrogen fuel-cell electric vehicle combines hydrogen with oxygen; the exhaust is water (vapour). Not peroxide, hydronium or oxygen.

Related possible facts

These can be asked in a future Prelims paper.

PEM fuel cell

Proton-exchange membrane; common in FCEV cars.

FCEV vs BEV

FCEV makes electricity on board from H_2 ; BEV stores it in a battery.

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