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Q44

Why are dewdrops not formed on a cloudy night? (a) Clouds absorb the radiation released from the Earth's surface. (b) Clouds reflect back the Earth's radiation. (c) The Earth's surface would have low temperature on cloudy nights. (d) Clouds deflect the blowing wind to ground level. Official key: B.

UPSC Civil Services Prelims 2019 · General Studies · 2 marks · Geography

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

Explanation**(a)**

(a) Clouds absorb the radiation released from the Earth's surface. Clouds do interact with terrestrial longwave, but the standard dew explanation keyed by UPSC is reflection/return of Earth's radiation that keeps the ground warmer, not this wording as the key.

(b) Official key

(b) Clouds reflect back the Earth's radiation. On a **clear night** the ground loses longwave heat to space and can cool below **dew point**; cloud cover returns (reflects/re-radiates) that outgoing radiation, so the surface stays warmer and dew does not form. That is the official key.

(c)

(c) Earth's surface would have low temperature on cloudy nights. Cloudy nights are warmer at the surface, not colder; this reverses the energy balance, so it is not the key.

(d)

(d) Clouds deflect the blowing **wind** to ground level. Dew is a radiative-cooling condensation story, not a **wind**-deflection story, so this is not the key.

Summary

Official key is (b). Dew needs nocturnal radiative cooling of the ground below **dew point**. Clouds act as a blanket by sending Earth's longwave radiation back, so droplets do not condense on grass. Cloudy nights are milder, not colder. Honour the stored letter (b).

Related possible facts

These can be asked in a future Prelims paper.

Dew point

Temperature at which air becomes saturated

Clear night

Strong terrestrial radiation to space

Cloud blanket

Downwelling longwave

Askable twin

Frost versus dew; hoar frost

Wind

Mixing can also inhibit dew, but that is not option (d)'s claim

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