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Q14

With reference to "Coriolis force", which of the following statements is/are correct ? 1. It increases with increase in wind velocity. 2. It is maximum at the poles and is absent at the equator. Select the answer using the code given below : (a) 1 only (b) 2 only (c) Both 1 and 2 (d) Neither 1 nor 2 Official key: C.

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

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

Explanation

(a)

1 only. The pole/equator pattern (2) is also keyed.

(b)

2 only. Magnitude also rises with wind speed (1).

(c) Official key

Both. Coriolis increases with velocity; max at poles, zero at equator.

(d)

Neither. Both textbook properties hold.

Summary

Official key is (c) both. Coriolis acceleration is $2\Omega v \sin\phi$. It therefore increases with wind speed and with latitude: maximum at the poles, zero at the equator. Both statements are correct.

Related possible facts

These can be asked in a future Prelims paper.

Coriolis parameter

$f = 2\Omega \sin\phi$; geostrophic balance uses f .

Geostrophic wind

Balance of pressure gradient and Coriolis; breaks down near the equator.

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