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Q40

If a major solar storm (solar-flare) reaches the Earth, which of the following are the possible effects on the Earth? 1. GPS and navigation systems could fail. 2. Tsunamis could occur at equatorial regions. 3. Power grids could be damaged. 4. Intense auroras could occur over much of the Earth. 5. Forest fires could take place over much of the planet. 6. Orbits of the satellites could be disturbed. 7. Shortwave radio communication of the aircraft flying over polar regions could be interrupted. Select the correct answer using the code given below: (a) 1, 2, 4 and 5 only (b) 2, 3, 5, 6 and 7 only (c) 1, 3, 4, 6 and 7 only (d) 1, 2, 3, 4, 5, 6 and 7 Official key: C.

UPSC Civil Services Prelims 2022 · General Studies · 2 marks · Art and Culture

Indian art, architecture, culture - Prelims GS Paper I.

Explanation

(a)

1, 2, 4 and 5 only. Tsunamis and planet-wide forest fires are not solar-flare effects.

(b)

2, 3, 5, 6 and 7 only. Keeps tsunami and fires; drops GPS.

(c) Official key

1, 3, 4, 6 and 7 only. GPS/nav, grids, auroras, satellite orbits, polar HF radio. Not tsunamis, not global forest fire.

(d)

All seven. 2 and 5 are the misses.

Summary

Official key is (c) 1, 3, 4, 6 and 7 only. A severe solar storm can blind GNSS, stress power grids, light auroras far from the poles, drag satellites, and black out polar HF radio. It does not launch equatorial tsunamis or set the planet's forests on fire.

Related possible facts

These can be asked in a future Prelims paper.

CME

Coronal mass ejection; the storm driver.

Carrington Event, 1859

The benchmark geomagnetic superstorm.

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