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Q20

On 21st June, the Sun (a) does not set below the horizon at the Arctic Circle (b) does not set below the horizon at Antarctic Circle (c) shines vertically overhead at noon on the Equator (d) shines vertically overhead at the Tropic of Capricorn Official key: A.

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

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

Explanation**(a) Official key**

(a) Does not set below the horizon at the **Arctic Circle**. On **21 June**, the June solstice, the North Pole is tilted toward the Sun; at the **Arctic Circle** the Sun stays on or above the horizon (midnight sun). That is the official key.

(b)

(b) Does not set at the Antarctic Circle. **21 June** is polar night beginning in the Antarctic, not midnight sun; the Sun does not stay up there, so this is not the key.

(c)

(c) Shines vertically overhead at noon on the Equator. Overhead sun at the Equator is **equinox** (23 March / 23 September), not **21 June**, so this is not the key.

(d)

(d) Vertically overhead at the Tropic of Capricorn. That is the December solstice. On **21 June** the **overhead ray** is at the Tropic of Cancer, so Capricorn is not the key.

Summary

- **Official key is (a). 21 June is the Northern Hemisphere summer solstice:** overhead sun at $23\frac{1}{2}^{\circ}$ N (Tropic of Cancer), midnight sun from the **Arctic Circle** poleward, and the opposite season in the Antarctic. Equator overhead and Capricorn overhead belong to other dates. Honour the stored letter (a).

Related possible facts

These can be asked in a future Prelims paper.

21 June

Summer solstice in the Northern Hemisphere

Overhead ray

Tropic of Cancer

Arctic Circle

66½° N; midnight sun on this date

22/23 December

Overhead at Tropic of Capricorn

Equinox

Overhead at Equator

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