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Q55

In which of the following areas can GPS technology be used? 1. Mobile phone operations 2. Banking operations 3. Controlling the power grids Select the correct answer using the code given below: (a) 1 only (b) 2 and 3 only (c) 1 and 3 only (d) 1, 2 and 3 Official key: D.

UPSC Civil Services Prelims 2018 · General Studies · 2 marks · Science and Technology
Science, technology, space, defence, IT - Prelims GS Paper I.

Explanation**(a)**

(a) 1 only. Mobile phones do use GPS/GNSS for location, maps and time, but banking timestamps and power-grid synchrophasors also rely on the same satellite clocks. Stopping at mobiles understates the spread. This option is not the key.

(b)

(b) 2 and 3 only. Banking (secure time-stamping, ATM/network sync) and grid control (PMUs, load dispatch) use GPS, yet phones are the most familiar civilian use. Dropping statement 1 is therefore wrong. This option is not the key.

(c)

(c) 1 and 3 only. Mobiles and grids are genuine uses, but so is banking. This option is not the key.

(d) Official key

(d) 1, 2 and 3. GPS supplies position and a precise time signal. Handsets navigate with it; banks and payment rails use GPS-disciplined clocks; power grids synchronise phasor measurement units to the same time. All three areas therefore apply. This option is the official key.

Summary

Official key is (d) 1, 2 and 3. GPS is a dual position-and-time utility. Mobile operations need location; banking operations need authenticated time; power grids need microsecond sync for protection and PMUs. None of the three listed areas is outside that utility. Partial codes that omit any one use are incomplete. The Set A key is therefore all three.

Related possible facts

These can be asked in a future Prelims paper.

GNSS

GPS, GLONASS, Galileo, BeiDou, NavIC as a family

PPS / UTC time

GPS pulse-per-second used to discipline clocks

PMU

Phasor Measurement Unit on the grid, GPS-synchronised

A-GPS

Assisted GPS on mobile networks

NavIC

India's regional navigation system (IRNSS)

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