

WRAP Exams · wrapexams.com

Prelims PYQ, Mains model answers, and copy evaluation. Write to the desk for this paper, a doubt, or the AI waitlist.

ask@wrapexams.com · +91 85951 84903 · wrapexams.com

Q11

What do you understand by "Standard Positioning System" and "Precision positioning system" in the GPS era? Discuss the advantage India perceives from its ambitious IRNSS programme employing just seven satellites.

UPSC Civil Services Mains 2015 · GS III · 12 marks · Indian Economy

Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Core demand of the question

- Define Standard Positioning System and Precision Positioning System in the GPS era
- Discuss the advantages India expects from IRNSS with a seven-satellite regional constellation

Revision summary

GPS SPS is the open civil positioning service; PPS is the encrypted military service with better integrity.

India does not control GPS and can face denial, jamming, or a time outage in a crisis.

IRNSS uses seven GEO and geosynchronous satellites to cover India and a 1,500 km belt.

It offers an Indian open service and a **Restricted Service** for authorised users.

Gains are strategic autonomy, defence use, disaster and transport applications, and indigenous timing for critical infrastructure.

Flow diagram

GPS constellation -> SPS civil open

GPS constellation -> PPS military encrypted

IRNSS seven satellites -> Indian open SPS civil open

IRNSS seven satellites -> Restricted Service

Indian open SPS -> Sovereign PNT over India

Restricted Service -> Sovereign PNT over India

Conclusion

- Finish and replenish the seven-satellite fleet, keep spare launches, and harden ground stations against cyber and physical attack.
- Mandate NavIC in public vehicles, phones sold in India, and disaster sirens so the civil SPS is actually used, not only demonstrated.
- Pair NavIC with **GAGAN** and later multi-GNSS chipsets so users are not blind if one system fails.

SPS is the open civil GPS fix; PPS is the encrypted military fix. IRNSS copies that split on seven regional satellites that stay over India. The advantage is not beating GPS worldwide. It is an Indian signal, Indian time, and an Indian **restricted service** when a foreign owner could deny or degrade GPS.

Facts & figures

SPS and PPS

GPS Standard Positioning Service is civilian and open; Precise Positioning Service is encrypted for authorised military users.

IRNSS / NavIC

Indian Regional Navigation Satellite System, a seven-satellite regional constellation later branded NavIC.

Orbit mix

Three geostationary and four geosynchronous satellites give continuous regional coverage without a 24-satellite global fleet.

Coverage

Designed for India and a region of about 1,500 km around it, not for worldwide aviation as GPS is.

Restricted Service

Encrypted IRNSS service for authorised Indian users, analogous in purpose to GPS PPS.

WRAP Exams · Write. Read. Analyse. Practice. · <https://wrapexams.com/upsc/mains-answers/gs-3/2015/what-do-you-understand-by-standard-positioning-system-and-precision-positioning-system-in-the-gps-era-discuss-the-advantage-india-perceives-from-its-ambitious-irns-programme-employing-just-seven-satellites/> · ask@wrapexams.com · wrapexams.com