Science & Technology · GS - III

Mention salient features of 'Mission Drishti'. Discuss the imaging techniques used in the satellite launched on 3rd May 2026. Why it is being considered world's first satellite of its kind?

EXAM YEAR	PAPER	SUBJECT
2026	GS - III	Science & Technology

MARKS	WORD LIMIT
15	~250 words

Answer Hint

GalaxEye, OptoSAR, optical imaging, SAR, MSI, X-band radar, all-weather imaging, day-night observation, Earth observation, private space sector

Model Answer

Mission Drishti is an Earth-observation satellite developed by Indian space start-up GalaxEye and launched on 3 May 2026 aboard SpaceX's Falcon 9. It is described as the world's first OptoSAR satellite and India's largest privately built Earth-observation satellite.

Salient features:

1. Approximately 190 kg satellite in a sun-synchronous low-Earth orbit.
2. Revisit frequency of about four days.
3. Designed to provide high-resolution, analysis-ready Earth imagery.
4. Intended for applications such as agriculture, disaster management, infrastructure monitoring and national security.

Imaging techniques:

1. Synthetic Aperture Radar (SAR): Uses microwave signals and can image Earth during both day and night, even through clouds and adverse weather.

2. Multispectral Imaging (MSI): Uses optical bands to capture information in visible and near-infrared wavelengths, enabling identification of vegetation, land-use and surface characteristics.
3. Data fusion: Combining SAR and optical imagery produces complementary information in a single aligned dataset.

Its uniqueness lies in integrating optical MSI and SAR on one satellite platform. Conventional optical satellites are constrained by cloud cover and illumination, whereas SAR provides all-weather, day-night capability. Their combination therefore seeks to provide more reliable and intuitive Earth observation.

Thus, Mission Drishti represents a convergence of advanced remote sensing, private-sector space capability and data-driven Earth observation, strengthening India’s commercial and strategic space ecosystem.

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