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ISRO Indian Satellites List - Study Notes for SSC & Bank Exams in PDF

ISRO (Indian Space Research Organisation) has successfully launched GSAT – 11 into space today i.e., on 5th December 2018. This satellite is also called as “Big Bird” was launched from French space port Kourou in South America at 2.07 am (IST). The main purpose of GSAT-11 is to provide satellite based internet to remote places and will aid in providing internet connectivity in flights in India. It weights 5,854 kg is heaviest Indian Satellites that ISRO lauched into the orbit. This launch was the second attempt by ISRO after the first attempt which failed in May.

GSAT – 11 is the latest, next generation high throughout communication satellite that will accelerate the broadband service across the nation. Moreover, this satellite will be a great platform for new generation applications. It has cost about Rs.600 crore, and its lifespan is of 15 years.

Indian Satellite GSAT - 29

The Indian Space Research Organisation (ISRO) on 14th November 2018 also accomplished its fifth launch for the year by launching the **GSLV Mark III** rocket carrying the **GSAT-29** communication satellite from the Satish Dhawan Space Centre at Sriharikota. The communication satellite carries high throughput communication transponders in the Ka and Ku bands and its mission is to expand high-speed data transfer in the remote areas of India.

Before we look into the list of Indian Satellites, let's quickly learn few trivia about Satellites.

1. What is a Satellite?

Anything that orbits something else like the moon orbits the earth, is known as a satellite. They are used for diverse purposes such as weather forecasting, television broadcast, radio communications, internet communications, GPS, etc.

Generally, there are two types of satellites

- **Natural** (Moon orbiting the Earth)
- **Artificial** (International Space Station orbiting the Earth)





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There are many natural and artificial satellites, out there in space, performing their functions and making our lives back on earth easy in some or the other way. The artificial satellites as the name suggests are man made satellites from different countries.

Let us look at the year - wise list of Indian Satellites with their purposes and also learn about the organisation responsible for the Indian Space programmes.

2. Types of Satellites

- **Geosynchronous**
 - It is placed in **geosynchronous** orbit.
 - It has an orbital period the same as the Earth's rotation period which means that it returns to the same position in the sky after each sidereal day.
- **Geostationary**
 - This is an earth-orbiting satellite.
 - It is placed at an altitude of approximately 35,800 kilometers (22,300 miles) directly over the equator.
 - It revolves in the same direction the earth rotates (west to east).

3. List of Indian Satellites

India has launched **106 satellites** of various types since its first in **1975**. The organisation responsible for Indian satellites is the **Indian Space Research Organisation (ISRO)**. Run through the list of Indian satellites, listed year-wise along with their purposes.

| Indian Satellites | Launched Date | Purpose |
|---------------------------|------------------|--|
| Aryabhata | 19th April 1975 | - India's first satellite. - It was build to gain experience in building and operating a satellite in space. |
| Bhaskar | 7th June 1979 | - First experimental remote sensing satellite. - Carried TV and microwave cameras. |
| Rohini Technology Payload | 10th August 1979 | Intended for measuring in-flight performance of first experimental flight of SLV-3, the first Indian launch vehicle. |
| Rohini RS-1 | 18th July 1980 | India's first indigenous satellite launch. |

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| Rohini RS-D1 | 31st May 1981 | Conducts remote sensing technology studies using a landmark sensor payload. |
| Ariane Passenger Payload Experiment | 19th June 1981 | First experimental communication satellite. |
| Bhaskara - II | 20th November 1981 | Second experimental remote sensing satellite. |
| INSAT-1A | 10th April 1982 | First operational multi purpose communication and meteorology satellite. |
| Rohini RS-D2 | 17th April 1983 | Identical to RS-D1 |
| INSAT-1B | 30th August 1983 | Earth observation satellite. |
| Stretched Rohini Satellite Series (SROSS-1) | 24th March 1987 | Carried payload for launch vehicle performance monitoring and for gamma ray astronomy. |
| IRS-1A | 17th March 1988 | First operational remote sensing satellite |
| Stretched Rohini Satellite Series (SROSS-2) | 13th July 1988 | Carried remote sensing payload of German space agency in addition to Gamma Ray Astronomy payload. |
| INSAT- 1C | 21st July 1988 | Same as INSAT-1A. |
| INSAT- 1D | 12th June 1990 | Identical to INSAT-1A. |
| IRS-1B | 29th August 1991 | - Earth observation satellite. - Improved version of IRS-1A |
| INSAT- 2DT | 26th February 1992 | - It was a communications Satellite, earlier called as Arabsat. - After its retirement, it was placed in the Graveyard orbit |
| Stretched Rohini Satellite Series (SROSS-C) | 20th May 1992 | Carried gamma ray astronomy and astronomy payload. |





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| INSAT- 2A | 10th July 1992 | First satellite in the second-generation Indian-built INSAT-2 series. |
| INSAT- 2B | 23th July 1993 | Second satellite in INSAT-2 series. |
| IRS-1E | 20th September 1993 | Earth observation satellite |
| Stretched Rohini Satellite Series (SROSS-C2) | 4th May 1994 | Identical to SROSS-C. |
| IRS-P2 | 15th October 1994 | Earth observation satellite |
| INSAT-2C | 7th December 1995 | Has an additional capability such as mobile satellite service, business communication and television outreach beyond Indian boundaries. |
| IRS-1C | 28 th December 1995 | Earth observation satellite |
| IRS-P3 | 21st March 1996 | Carries remote sensing payload and an X-ray astronomy payload. |
| INSAT-2D | 4th June 1997 | Same as INSAT-2C. |
| IRS-1D | 29th September 1997 | Earth observation satellite. |
| INSAT-2E | 3rd April 1999 | Multipurpose communication and meteorological satellite. |
| Oceansat-1(IRS-P4) | 26th May- 1999 | - Carries an Ocean Color Monitor (OCM) and a Multi frequency Scanning Microwave Radiometer (MSMR).- Earth observation satellite. |
| INSAT-3B | 21st March 2000 | Multipurpose communication: business communication, developmental communication, and mobile communication. |
| GSAT-1 | 18th April 2001 | Experimental satellite for the first developmental flight of Geosynchronous Satellite. |

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| Technology Experiment Satellite (TES) | 22nd October 2001 | Experimental satellite to test technologies such as attitude and orbit control system, high-torque reaction wheels, new reaction control system, etc. |
| INSAT-3C | 23rd January 2002 | Designed to augment the existing INSAT capacity for communication and broadcasting and provide continuity of the services of INSAT-2C. |
| Kalpana-1 (METSAT) | 12th September 2002 | First meteorological satellite built by ISRO. Originally named METSAT. Renamed after Kalpana Chawla. |
| INSAT-3A | 9th April 2003 | Multipurpose satellite for communication, broadcasting, and meteorological services along with INSAT-2E and Kalpana-1. |
| GSAT-2 | 8th May 2003 | Experimental satellite for the second developmental test flight of Geosynchronous Satellite. |
| INSAT-3E | 27th September 2003 | Communication satellite to augment the existing INSAT System. |
| RESOURCE SAT-1 (IRS-P6) | 17th October 2003 | - Earth observation/remote sensing satellite. - Intended to supplement and replace IRS-1C and IRS-1D. |
| EDUSAT | 20th September 2004 | India's first exclusive educational satellite. |
| HAMSAT | 5th May 2005 | Micro satellite for providing satellite-based amateur radio services to the national as well as the international community. |
| CARTOSAT-1 | 5th May 2005 | Provides stereographic in-orbit images with a 2.5-meter resolution. |
| INSAT-4A | 21st December 2005 | Advanced satellite for direct-to-home television broadcasting services. |
| INSAT-4C | 10th July 2006 | Geosynchronous communications satellite. |
| CARTOSAT-2 | 10th January 2007 | Advanced remote sensing satellite carrying a panchromatic camera capable of providing scene-specific spot images. |
| Space Capsule Recovery Experiment (SRE-1) | 10th January 2007 | Experimental satellite intended to demonstrate the technology of an orbiting platform for performing experiments in micro gravity conditions. |



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| INSAT-4B | 12th March 2007 | Augments the INSAT capacity for direct-to-home (DTH) television services and other communications. |
| INSAT-4CR | 2nd September 2007 | It carried 12 high-power Ku-band transponders designed to provide direct-to-home (DTH) television services. |
| CARTOSAT-2A | 28th April 2008 | Earth observation/remote sensing satellite. |
| IMS-1 (Third World Satellite – TWsat) | 28th April 2008 | Low-cost micro satellite imaging mission. |
| Chandrayaan-1 | 22nd October 2008 | Carries 11 scientific instruments built in India, USA, UK, Germany, Sweden and Bulgaria. |
| RISAT-2 | 20th April 2009 | Radar imaging satellite used to monitor India's borders and as part of anti-infiltration and anti-terrorist operations. |
| ANUSAT | 20th April 2009 | - Carries an amateur radio and technology demonstration experiments. - Research micro satellite designed at Anna University. |
| Oceansat-2(IRS-P4) | 23th September 2009 | - Gathers data for oceanographic, coastal and atmospheric applications. - Continues mission of Oceansat-1. |
| GSAT-4 | 15th April 2010 | Communications satellite technology demonstrator. |
| CARTOSAT-2B | 12th July 2010 | Earth observation/remote sensing satellite. |
| StudSat | 12th July 2010 | - First Indian pico-satellite (weighing less than 1 kg). - Developed by a team from seven engineering colleges from Karnataka and Andhra Pradesh. |
| GSAT-5P /INSAT-4D | 25th December 2010 | C-band communication satellite. |
| RESOURCESAT-2 | 20th April 2011 | ISRO's eighteenth remote-sensing satellite |
| Youthsat | 20th April 2011 | Indo-Russian stellar and atmospheric satellite with the participation of university students. |

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| GSAT-8 /INSAT-4G | 21st May 2011 | Communications satellite carries 24 Ku-band transponders and 2 channel GAGAN payloads operating in L1 and L5 band. |
| GSAT-12 | 15th July 2011 | Extended C-band transponders to meet the country's growing demand for transponders in a short turn-around-time. |
| Megha-Tropiques | 12th October 2011 | Developed by India and France to track the weather. |
| Jugnu | 12th October 2011 | Nano-satellite weighing 3 kg developed by IIT Kanpur. |
| RISAT-1 | 26th April 2012 | First indigenous all-weather Radar Imaging Satellite (RISAT-1), whose images will facilitate agriculture and disaster management. |
| SRMSAT | 12th October 2011 | Nano-satellite developed by SRM University. |
| GSAT-10 | 29th September 2012 | India's advanced communication satellite is a high power satellite being inducted into the INSAT system. |
| SARAL | 25th February 2013 | The Satellite with ARGOS and ALTIKA (SARAL) is a joint Indo-French satellite mission for oceanographic studies. |
| IRNSS-1A | 1st July 2013 | It is one of the seven spacecraft constituting the IRNSS space segment. |
| INSAT-3D | 25th July 2013 | Meteorological Satellite with advanced weather monitoring payloads. |
| GSAT-7 | 30th August 2013 | Advanced multi-band communication satellite dedicated for military use. |
| Mars Orbiter Mission (MOM) | 5th November 2013 | Also known as Mangalyaan is India's first Mars orbiter. |
| GSAT-14 | 5th January 2014 | Twenty-third geostationary communication satellite of India to augment the In-orbit capacity of Extended C and Ku-band transponders. |



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| IRNSS-1B | 4th April 2014 | Second satellite of the IRNSS. |
| IRNSS-1C | 15th October 2014 | Third satellite of the IRNSS. |
| GSAT-16 | 7th December 2014 | Twenty-fourth communication satellite of India configured to carry a total of 48 communication transponders. |
| IRNSS-1D | 28th March 2015 | Fourth satellite of the IRNSS |
| GSAT-6 | 27th August 2015 | Communication satellite. |
| Astrosat | 28th September 2015 | India's first dedicated multi wavelength space Observatory. |
| GSAT-15 | 10th November 2015 | Communications satellite carries communication transponders in Ku-band and a GPS Aided GEO Augmented Navigation (GAGAN) payload operating in L1 and L5 bands. |
| IRNSS-1E | 20th January 2016 | Fifth satellite of the IRNSS. |
| IRNSS-1F | 10th March 2016 | Sixth satellite of the IRNSS. |
| IRNSS-1G | 28th April 2016 | Seventh and final satellite of the IRNSS. |
| Cartosat-2C | 22nd June 2016 | Earth observation/remote sensing satellite. |
| SCATSAT-1 | 26th September 2016 | Miniature satellite to provide weather forecasting, cyclone prediction, and tracking services to India. |
| RESOURCESAT-2A | 15th February 2017 | Remote Sensing satellite intended for resource monitoring. |
| CARTOSAT-2D | 15th February 2017 | Highest number of satellites launched by a single launch vehicle (104 satellites) |
| PSLV-C38 / Cartosat-2 Series Satellite | 23rd June 2017 | The Cartosat will provide remote sensing services for about five years. |

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| PSLV-C40/Cartosat-2 Series Satellite Mission | 12th June 2018 | Providing high resolution scene specific spot imageries. |
| PSLV-C41/IRNSS-1I | 12th April 2018 | Navigation satellite constellation |
| NovaSAR, S1-4 | 16th September 2018 | Intended for forest mapping, land use & ice cover monitoring, flood & disaster monitoring. |
| GSAT-29 | 14th November 2018 | Aims at providing high-speed bandwidth to Village Resource Centres (VRC) in rural areas. |
| HysIS(Hyper spectral Imaging Satellite) | 29th November 2018 | Aims at studying the earth's surface in the visible, near infrared and shortwave infrared regions of the electromagnetic spectrum. |

4. Indian Satellites - Important Facts

- ISRO was formed on the Independence Day, 1969 by Dr. Vikram Sarabhai.
- SLV-3 was India's first indigenous satellite launch vehicle. The director of this project was APJ Abdul Kalam.
- India is the only country to have reached Mars in the first attempt.
- The satellite Aryabhata got its name by Indira Gandhi and was launched by the Soviet Union.
- India has set a national record by successfully launching a rocket carrying 20 satellites, including 13 from the US, last year in June.

Try to remember list of Indian Satellites was helpful to you. For more such informative articles visit the links provided below!

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