General Studies-3; Topic- Awareness in the field of space

India's Space Economy

1) Introduction

- From a modest beginning in the 1960s, India's space programme has grown steadily, achieving significant milestones.
- India has emerged as a major space power with the technology and ability to launch satellites and other space products.
- But still Indian space industry is in need of some serious revolutions as it is lagging behind in the global space industry with its share in it being very minimal.

2) Background

- Since its establishment in 1969, ISRO's mission has covered both the societal objectives and the thrust areas.
- Communication satellites like INSAT and GSAT addressed the national needs for telecommunication, broadcasting and broadband infrastructure.
- Gradually, bigger satellites have been built carrying a larger array of transponders.
- About 200 transponders on Indian satellites provide services linked to areas like telecommunication, telemedicine, television, broadband, radio, disaster management and search and rescue services.
- Another area of focus was earth observation and space-based imagery for national demands.
- With higher resolution and precise positioning, Geographical Information Systems' applications today cover all aspects of rural and urban development and planning.
- More recent focus area is satellite-aided navigation with the Indian Regional Navigation Satellite System (IRNSS).

3) Present Status

- Today ISRO's annual budget has crossed ₹10,000 crore, growing steadily from ₹6,000 crore five years ago.
- With growing confidence, ISRO has started to undertake more ambitious space science and exploration missions.
- The most notable have been the Chandrayaan and the Mangalyaan missions, with a manned space mission, Gaganyaan, planned for its first test flight in 2021.
- India is planning to set up its own space station by 2030.
- These missions are not just for technology demonstration but also for expanding the frontiers of knowledge in space sciences.
- ISRO has developed and refined the Polar Satellite Launch Vehicle (PSLV) as its workhorse for placing satellites in low earth and sun synchronous orbits.
- With 46 successful missions, the PSLV has an enviable record.
- The GSLV programme is still developing with its MkIII variant and is capable of carrying a 3.5 MT payload into a geostationary orbit.
- Over the years, ISRO built a strong association with the industry, particularly with PSUs like HAL and BEL and large private sector entities like L&T and Godrej.
- Developments in Artificial Intelligence (AI) and big data analytics has led to the emergence of 'New Space'.
- New Space entrepreneurship has emerged in India with about two dozen start-ups.

4) Concerns / Challenges

- Today, the value of the global space industry is estimated to be $350 billion and is likely to exceed $550 billion by 2025.
- Despite ISRO's impressive capabilities, India's share is estimated at $7 billion (just 2% of the global market).
- Already, over a third of transponders used for Indian services are leased from foreign satellites and this proportion will rise as the demand grows.
- Years ago, ISRO launched the idea of Village Resource Centres to work in collaboration with local panchayats and NGOs but only 460 pilots have begun.
- Expanding this for rural areas is a formidable challenge but has the potential to transform rural India.

5) New Space India Limited (NSIL)

- A public sector enterprise called New Space India Limited (NSIL) will be set up "to tap the benefits of research and development" carried out by ISRO - as announced in Budge 2019-20.
- National Space India Limited will be the new commercial arm of the department of space.
- The NSIL will help boost commercialization of India's space research.
- The new arm will put India among major players in the space business.
- It will focus on productionisation and marketing of space-based products and services, including launch and applications
- It will coordinate with the industry for production and transfer of technologies developed by Isro.

6) Way Forward

- The demand for space-based services in India is far greater than what ISRO can supply.
- Private sector investment is critical, for which a suitable policy environment needs to be created.
- National legislation is needed to ensure overall growth of the space sector.
- The draft Space Activities Bill introduced in 2017 has lapsed and the government now has an opportunity to give priority to a new Bill.
- A new Space law for India should aim at facilitating growing India's share of global space economy to 10% within a decade.
- This requires a new kind of partnership between ISRO, the established private sector and the New Space entrepreneurs.