

SCIENCE & TECHNOLOGY

❖ **ISRO's successful LVM-3 launch**

➤ **CONTEXT:** On Sunday (March 26), the second commercial launch of the Indian Space Research Organisation's LVM-3 saw 36 OneWeb satellites placed in orbit. This was also the second launch that ISRO performed for OneWeb, a UK-based company supported by the UK government and India's Bharti Enterprises.

➤ It was the sixth launch for India's heaviest rocket LVM-3 – which includes the launch of Chandrayaan-2 in 2019 – and the second one where it demonstrated the capability of launching multiple satellites in low earth orbit (LEO).

➤ The eighteenth launch of OneWeb satellites brought the constellation's total number of satellites to 618. The company intends to use 588 active satellites in its first-generation constellation to provide global connectivity at high speed and low latency.

- OneWeb's high-speed, low-latency solutions will assist in connecting communities, businesses, and governments worldwide, demonstrating the unparalleled potential of LEO (low earth orbit) connectivity, it will also help India's towns, villages, municipalities, and schools, including the hardest-to-reach areas across the country.

➤ India has been concentrating on increasing its share of the global commercial space market ever since the country decided to open the space sector to private players in 2020. It is one of the world's major space-faring nations, but it only has 2% of the commercial market at the moment. With 36 OneWeb satellites launched in October 2022, the heavy launch vehicle entered the commercial market.

➤ **How ISRO's OneWeb launch happened?**

- OneWeb was initially supposed to launch its satellites through the Russian space agency. It cancelled the plan after the agency halted the launch amid the Russia-Ukraine war, seeking an assurance from the UK government-backed company that the satellites wouldn't be used against them and that the British government would sell its stake.
- Due to Russian Invasion of Ukraine, UK government supported the sanction imposed against Russia, as a result Russian space agency Roscosmos refused to launch One web's satellite . As Russian Space agency was out there were very few options left.
- SpaceX, despite developing a similar satellite-based network named Starlink, launched some of the OneWeb satellites. And India, through two LVM3 launches, has put in orbit 72 OneWeb satellites.

➤ **India's plans to increase commercial launches:**

- The launches not only established LVM3 as a commercial vehicle propelling ISRO's entry into the commercial heavier launch market, but it also earned the agency upwards of Rs 1,000 crore.
- The service provided to OneWeb, for which the space agency had to move around a few of its missions, ended up earning it one of the highest revenues. And, over the years, there has been an increase in funds that the space agency has generated.
- The government plans to increase India's 2% share in the commercial market to 10% by 2030 through commercial launches by ISRO and launches offered by private companies like Skyroot and Agnikul, which are in the process of developing their own launch vehicles.
- Keeping the commercial sector in mind, ISRO has also developed the Small Satellite Launch Vehicle (SSLV), which is meant to provide on-demand launch services commercially. It has a low turn-around time of days and costs much less than the current workhorse Polar Satellite Launch Vehicle (PSLV). Two development flights of the SSLV have been completed – one successful, one partially successful – and it has been inducted into the ISRO fleet.

➤ Till date, ISRO has launched 384 foreign satellites from at least 36 countries, with at least 10 dedicated commercial missions and several other Indian missions where they were carried as co-passenger satellites. The highest numbers of these commercial launches have been by companies from the United States.

➤ A report of the parliamentary standing committee on the budget of the space agency said that there has been an increase in the revenue generated by ISRO's commercial arm New Space India Limited, created in 2019. As per the report, revenue generated by NSIL has increased from Rs 1,731 crores in 2021-22 to a projected Rs 3,509 crores in 2023-24.

➤ **Launch Vehicle Mark 3 (LVM3)**

• The Launch Vehicle Mark 3 (LVM3) is ISRO's newest **medium-heavy lift launch vehicle**, the heaviest rocket currently in use by India. Formerly called the Geosynchronous Satellite Launch Vehicle Mark III (GSLV Mk III), the rocket is **designed to mainly launch satellites into geostationary orbit at 35,000km**.

• The LVM3 is capable of lifting much heavier satellites than the GSLV Mk II with a bigger cryogenic upper stage and a larger first stage. **Both GSLV Mk II and LVM3 are three-stage vehicles**, while the PSLV, which launches to low earth polar orbits, is a four-stage vehicle.

• The GSLV Mk-II can place up to 2,500kg in geosynchronous orbits and up to 5,000kg to low earth orbit. By comparison, the **LVM3 can lift 4,000kg to GTO(Geostationary Transfer Orbit) and up to 8,000 kg to**

LEO. Currently, America's SpaceX's non-human rated Falcon Heavy, a super-heavy lift vehicle, is the heaviest rocket that is operational.

- The LVM3 also has the human-rated variant which will be used for Gaganyaan missions.

ECONOMY

❖ **Understanding IMF bailouts**

❖ **CONTEXT:** The International Monetary Fund (IMF) last week confirmed a \$3 billion bailout plan for Sri Lanka's struggling economy. IMF officials are also in negotiations with Pakistan for a \$1.1 billion bailout plan as the country faces a severe economic crisis marked by a falling currency and price rise.

➤ **Why do nations seek an IMF bailout?**

- Countries seek help from the IMF usually when their economies face a major macroeconomic risk, mostly in the form of a currency crisis.
- For instance in the case of Sri Lanka and Pakistan, both countries have witnessed domestic prices rise rapidly and the exchange value of their currencies drop steeply against the U.S. dollar. Such currency crises are generally the result of gross mismanagement of the nation's currency by its central bank, often under the covert influence of the ruling government.
- Central banks may be forced by governments to create fresh money out of thin air to fund populist spending. Such spending eventually results in a rapid rise of the overall money supply, which in turn causes prices to rise across the economy and the exchange value of the currency to drop. A rapid, unpredictable fall in the value of a currency can destroy confidence in said currency and affect economic activity as people may turn hesitant to accept the currency in exchange for goods and services.
- Foreigners may also be unwilling to invest in an economy where the value of its currency gyrates in an unpredictable manner. In such a scenario, many countries are forced to seek help from the IMF to meet their external debt and other obligations, to purchase essential imports, and also to prop up the exchange value of their currencies.
- Meanwhile, a country's domestic economic policies can also have an adverse impact on its currency's exchange rate and foreign exchange reserves. For example, economic policy that imperils productivity can affect a country's ability to attract the necessary foreign exchange for its survival. Bad luck can also contribute to a crisis. In the case of Sri Lanka, a decrease in foreign tourists visiting the country led to a steep fall in the flow of U.S. dollars into the nation.

➤ **How does the IMF help countries?**

- The IMF basically lends money, often in the form of special drawing rights (SDRs), to troubled economies that seek the lender's assistance.
- SDRs simply represent a basket of five currencies, namely **the U.S. dollar, the euro, the Chinese yuan, the Japanese yen, and the British pound.**
- The IMF carries out its lending to troubled economies through a number of lending programs such as the extended credit facility, the flexible credit line, the stand-by agreement, etc. Countries receiving the bailout can use the SDRs for various purposes depending on their individual circumstances.
- Currently, both Sri Lanka and Pakistan are in urgent need for U.S. dollars to import essential items and also to pay their foreign debt. So any money that they receive from the IMF is likely to go towards addressing these urgent issues.

➤ **About IMF:**

- The IMF was set up in 1945 out of the Bretton Woods conference. The primary goal of the IMF back then was to bring about international economic coordination to prevent competing currency devaluation by countries trying to promote their own exports. Eventually, the IMF evolved to be a lender of last resort to governments of countries that had to deal with severe currency crises.

➤ **Condition for IMF Bailout:**

- The IMF usually imposes conditions on countries before it lends any money to them. For example, a country may have to agree to implement certain structural reforms as a condition to receive IMF loans.
- The IMF's conditional lending has been controversial as many believe that these reforms are too tough on the public. Some have also accused the IMF's lending decisions, which are taken by officials appointed by the governments of various countries, to be influenced by international politics.
- Countries that seek an IMF bailout are usually in a crisis due to certain policies adopted by their governments that turned out to be inimical to economic growth and stability. It may thus not make sense for the IMF to throw money at a country when the policies that caused its crisis remain untouched. So, for instance, the IMF may demand a country affected by high price inflation to ensure the independence of its central bank.

PRELIMS

1. **Abel Prize**

❖ **Context:** Luis Caffarelli has won the 2023 Abel Prize for his contributions to **regularity theory for nonlinear partial differential equations, including free-boundary problems and the Monge-Ampère equation.**

➤ The Abel Prize is a prestigious award in mathematics that recognizes pioneering **scientific achievements in mathematics.**

- It is named after Norwegian mathematician **Niels Henrik Abel**.
- The Norwegian Parliament established the prize in 2002, and it includes a monetary award of 7.5 million kroner (approximately \$720,000) and a glass plaque. It is awarded by the Norwegian Academy of Science and Letters on behalf of the Ministry of Education of Norway.

2. Marburg virus disease

- ❖ **Context:** Five people have died and three others are infected with the Marburg virus in Tanzania.
- Marburg virus disease (MVD), earlier known as **Marburg hemorrhagic fever**, is a severe, often **fatal hemorrhagic fever**.
- Marburg, like Ebola, is a **filovirus** and both diseases are **clinically similar**.
- Rousettus fruit bats are considered the natural hosts for the Marburg virus. However, African green monkeys imported from Uganda were the source of the first human infection.
- It was first detected in 1967 after simultaneous outbreaks in Marburg and Frankfurt in Germany; and in Belgrade, Serbia.
- According to WHO, The disease has an average fatality rate of around 50%. However, it can be as low as 24% or as high as 88% depending on virus strain and case management.
- **Symptoms:** high fever, muscle aches, severe headache, abdominal pain, vomiting, severe watery diarrhoea and cramping, bleeding from the nose and gums and blood appearing in vomit and faeces.
- **Treatment:** It is difficult to clinically distinguish MVD from diseases such as malaria, typhoid fever and other viral haemorrhagic fevers. However, it is confirmed by lab testing of samples, which like Coronavirus and Ebola are extreme biohazard risks. There is no approved antiviral treatment or vaccine for MVD as of now. It can be managed with supportive care. According to the WHO, rehydration with oral or intravenous fluids, and treatment of specific symptoms can help prevent death.

3. Earth Hour

- ❖ **Context:** On the last Saturday, March 25, India too participated in the Earth Hour movement and turn off non-essential electric lights for one hour between 08.30 pm to 09.30 pm.

➤ **About Earth Hour:**

- Earth Hour was **launched in 2007** by the **World Wildlife Fund** and its partners in Sydney, Australia.
- Earth Hour is described as the **largest global grassroots movement** for the environment.
- Earth Hour aims to **increase awareness** and spark global conversations on **protecting nature, tackling the climate crisis**, and working together to shape a brighter future for all.
- **Achievements:** In Uganda it created the first “**Earth Hour Forest**” in 2013 and Argentina used its 2013 Earth Hour campaign to **help pass a Senate bill** for 8.4 million acres of **marine protected area** in the country.
- To participate one has to **turn off the lights** in their home from **8:30 p.m. to 9:30 p.m.** in your local time zone.
- **How turning off the lights helps the environment?**
 - According to the WWF, turning off the lights is a **symbolic way to raise awareness about climate change**.
 - The planet is on track to **reach over 1.5 degrees Celsius** of warming, in doing so risking **irreversible environmental degradation** and runaway climate change that will affect all our societies and economies.
 - The organization encourages participants to use their **lights-off hour** “**doing something positive for our planet**.”

➤ **About WWF:**

- The World Wide Fund for Nature (WWF) is a Swiss-based **non-governmental organization**.
- It was **founded in 1961**.
- It works in the field of **wilderness preservation** and the **reduction of human impact on the environment**.
- It is the **world's largest conservation organization**.
- **Funding:** WWF is a foundation with:
 - **65%** of funding from **individuals and bequests**,
 - **17%** from **government sources** (such as the World Bank, DFID, and USAID) and
 - **8%** from **corporations**.
- **Publication:** The **Living Planet Report** is being published **every two years** by WWF since 1998. It is based on a **Living Planet Index** and **ecological footprint calculation**.
- WWF has launched several notable worldwide campaigns, including **Earth Hour** and **Debt-for-nature swap**.
- The **current presidency of WWF** lies with **India** since **2018**.

4. Exercise Konkan 2023

- ❖ **Context:** Konkan 2023 exercise was held recently.
- It is an **annual bilateral maritime exercise** between the **Indian Navy** and the **Royal Navy** (United Kingdom).
- It was held in the **Arabian Sea**.
- **INS Trishul**, a guided **missile frigate** participated in this edition.
- The exercises **covered all domains** of maritime operations, **air, surface** and **sub-surface**.

5. LaQshya Programme

- ❖ **Context:** 2,660 Labour Rooms and 1989 Maternity Operation Theatres have been certified facilities under the LaQshya programme.
- **About the LaQshya programme:**

- LaQshya is a **quality improvement initiative** which aims to ensure **Quality of Care** during **intrapartum** and **immediate post-partum period** in Labour Room and Maternity OT.
- It is launched by **Ministry of Health & Family Welfare**.
- **Aims:**
 - Reduce maternal and newborn morbidity and mortality
 - Improve quality of care during delivery and immediate post-partum period
 - Enhance satisfaction of beneficiaries, positive birthing experience and provide Respectful Maternity Care (RMC) to all pregnant women attending public health facilities.
- **Target Beneficiaries:** LaQshya program will benefit every pregnant woman and newborn delivering in **public health institutions**.

ANSWER WRITTING

Q. Fake news and disinformation give rise to many challenges in Indian society and there is a need for a multi-layered approach to deal with it. Analyse.

Fake news is referred to as false or misleading information presented as news and often aimed at damaging the reputation of an individual or entity or to make money through advertising revenue. **National Crime Records Bureau** data showed that incidents of fake news and rumour circulation saw nearly a **three-fold rise in 2020 over 2019**. A total of 1,527 cases of fake news were recorded in 2020, compared to 486 cases in 2019 and 280 cases in 2018. Clearly, fake news and disinformation are a growing menace in India.

Challenges created by fake news:

- **Social conflict:** Propaganda, misinformation, and fake news have the potential to polarise public opinion to promote violent extremism and hate speech. For example, recent migrants' crisis in Tamil Nadu was created because of fake news circulation.
- **Electoral manipulation:** News articles that are intentionally and verifiably false designed to manipulate people's perceptions of reality has been used to influence politics and promote advertising.
- **A means of warfare by foreign agents:** During and after the 2016 election, Russian agents created social media accounts to spread fake news that stirred protests and favoured presidential candidate Donald Trump while discrediting candidate Hillary Clinton and her associates.
- **Internal security challenges:** The drive for higher TRPs and viewership causes media companies to promote sensational news and false headlines. For e.g.: circulation of false videos of showing shocking attacks on the Army in Kashmir Valley.
- **Economic Challenges:** Many times, fake news is used to deceive people who are not digitally literate. E.g., fake news of electronic chip in the 2000-rupee notes after demonetisation created much confusion among the people.

Problems in tackling fake news in India:

- **Multilingual Population:** There are 22 official languages and only 10.67% of the population converse in English. The current fake news detection solutions are most effective for English and might fail to identify and process information in other languages.
- **Instant messaging platform:** Since internet messaging applications are end-to-end encrypted, identifying and quashing false stories is possible only with the support of the users.
- **Digital illiteracy:** Internet penetration in India has risen from 137 million internet users in 2012 to over 600 million in 2019. The surge in Internet penetration accompanied by digital illiteracy has resulted in the rise of fake news online.

Measures to deal with rising menace of fake news:

- **Learning from international practices:** The European Union (EU) has put out the Code of Practice on Disinformation 2022 and UK has proposed enacting an Online Safety Bill which will expect social media platforms to actively monitor problematic content. India should also come out with a robust framework to tackle the root causes of disinformation.
- **Creating awareness and education:** All the sections of the population should be made aware of the realities of fake news and propaganda.
- **Imposing disclosure requirements for targeted advertisements:** Fake news is often propagated using ads focused on polarising issues to amplify existing social divides and partisan conflict. Hence, there is a need to extend advertising disclosure provisions to all issues-based advertising and ads for political candidates or campaigns.
- **Verifying influential accounts and pages:** The issue of inauthentic accounts and pages can be an important driver for propagating fake news. Verification can help in tackling this issue.
- **Creating cyber ombudsman** who can deal with the credibility of sources of news and also handle complaints regarding misinformation.
- **Taking help from technology:** Tech firms should invest in technology to find fake news and identify it for users through algorithms and crowd sourcing.

Fake news has negative implications for all sections of society. Therefore, everyone has a responsibility to combat the scourge of fake news and disinformation. This ranges from reducing financial incentives for fake news to improving digital literacy among the general public.

MCQs

1. Recently ISRO successfully launched 36 satellites of UK based company OneWeb. Consider the following statements regarding ISRO .
 1. The satellite navigation programme known as NavIC consists of a constellation of seven Indian Regional Navigation Satellite System (IRNSS) satellites and an associated ground segment designed to deliver accurate positional and timing information.
 2. IN-SPACE is ISRO's commercial arm, and its major purpose is to enable Indian enterprises to engage in high-technology space-related operations.
 3. New Space India Limited (NSIL) serves as a single point of contact between the Indian Space Research Organization (ISRO) and anyone interested in participating in space-related activities or utilising India's space resources.
 4. Rohini was India's first satellite launched from Indian-made launch vehicle.

Select the correct statements using the codes below

- a) 1, 2 and 3 only
 - b) 1 and 3 only
 - c) 1 and 4 only**
 - d) 1, 2, 3 and 4
2. Consider the following statements regarding sarus crane:
 1. It is the world's tallest flying bird.
 2. One special adaptation ability of this bird is that it can live in association with humans.
 3. They are classified as endangered (EN) on the IUCN Red list.
 Which of the above statements is/are correct?
 - a) 1 only
 - b) 2 & 3 only
 - c) 1 & 2 only**
 - d) 1, 2 and 3
 3. Consider the following statements regarding the newly built Chenab bridge:
 1. Chenab bridge, which at the height of 359 meters is taller than the Eiffel Tower, is the world's highest railway bridge, is expected to have trains plying on it by January-February 2024.
 2. Chenab bridge will pave the way for trains to run seamlessly along the Udhampur- Srinagar- Baramulla Rail Link (USBRL) project, and prove to be a crucial connector between Kashmir and rest of India.
 3. Chenab bridge may soon lose this title to China, which is constructing the Daduhe railway bridge in Ludig along the Sichuan-Tibet Railway at a height of 380 m
 Which of the above statements is/are correct?
 - a) 1 and 2
 - b) 1, 2 and 3**
 - c) 1 and 3
 - d) 2 only
 4. The recently discovered *Gymnothorax tamilnaduensis* is a species of which of the following?
 - a) Bird
 - b) Amphibian
 - c) Fish**
 - d) Reptile
 5. Consider the following statements, with respect to The Launch Vehicle Mark-3 (LVM3)
 1. It is India's heaviest launching vehicle
 2. It is capable of placing the 4 tonne class satellites of the GSAT series into Geosynchronous transfer Orbits
 3. It has 4 number of Stages with alternative of liquid and solid stages
 Which of the above statements is/are correct?
 - a) 1 & 2 only**
 - b) 1 only
 - c) 2 & 3 only
 - d) 1, 2 & 3
 6. Consider the following statements, with respect to Marburg disease
 1. It is a bacterial disease which is recently detected in central America.
 2. It has higher fatality rate than chickenpox
 3. Currently, there is no approved antiviral treatment or vaccine for it
 Which of the statements given above is/are correct?
 - a) 1 only
 - b) 1 and 2 only

- c) **2 and 3 only**
d) 1, 3 and 3
7. Consider the following statement regarding UN 2023 Water Conference.
1. The UN 2023 Water Conference – formally known as the 2023 Conference for the Midterm Comprehensive Review of Implementation of the UN Decade for Action on Water and Sanitation (2018-2028) –took place recently at UN Headquarters in New York.
 2. The conference is co-hosted by Tajikistan and the Netherlands.
- Select the correct statements using the codes below.
- a) 1 only
b) Both 1 and 2
c) 2 only
d) Neither 1 nor 2
8. Recently Central government has released over two thousand 646 crore rupees to Special Window for Affordable and Mid-Income Housing (SWAMIH) fund. Consider the following statements regarding SWAMIH Fund.
1. It aims to provide financing to enable completion of stalled housing projects and ensure delivery of apartments to home buyers.
 2. It is a government backed fund, set up as a Category-II AIF (Alternate Investment Fund) debt fund registered with SEBI(Securities & Exchange Board of India), launched in 2019.
 3. The Fund is sponsored by the Ministry of Finance and is managed by SBICAP Ventures Ltd. (a State Bank Group company).
- Which of the statements given above is/are correct?
- a) 1 and 2 only
b) 2 and 3 only
c) 1 and 3 only
d) 1, 2 and 3
9. Recently Congress MP Rahul Gandhi disqualified from Lok Sabha following a conviction by a Court in Surat. Consider the following statements regarding the disqualification of members of parliament (MPs):
1. Representation of the People (RPA) Act of 1951 provides grounds for disqualification of MPs.
 2. MPs can be disqualified from membership of Parliament if they are convicted in a court of law of offences including promoting enmity between different groups on ground of religion, race, place of birth, residence, language, etc., and doing acts prejudicial to maintenance of harmony.
 3. Section 8(3) of the RPA, 1951 mandates that an MP can be disqualified if convicted and sentenced to at least 2 years of imprisonment.
- Which of the above statements are correct?
- a) 1 and 2 only
b) 2 and 3 only
c) 1 and 3 only
d) 1, 2 and 3
10. Recently people around the world observed 'Earth Hour'. Consider the following statement regarding Earth Hour.
1. Launched by the World Wildlife Fund(WWF), Earth Hour aims to increase awareness and spark global conversations on protecting nature, tackling the climate crisis, and working together to shape a brighter future for all.
 2. Earth Hour was launched by WWF in 2015 in the side line of Paris Climate Summit.
 3. To participate in Earth Hour one has to turn off the lights in their home from 8:30 p.m. to 9:30 p.m. according to Greenwich Mean Time.
- Which of the statements given above is/are correct?
- a) 1 and 2 only
b) 2 and 3 only
c) 1 and 3 only
d) 1 only