

www.vishnuias.com



DECEMBER

12.12.2021

CURRENT AFFAIRS

A MAGAZINE FOR CIVIL SERVICES PREPARATION

JOIN OUR TELEGRAM: <https://t.me/vishnuiasmentor>

Articles of the day
THE HINDU & INDIAN EXPRESS

UPSC

General Studies

Test Series

Online &
Offline
classes

One-Stop
Solution

Free daily
materials

GS 2 : Polity, Governance, International Relations

1. Men in India take 82% of labor income: Report

- The World Inequality Report 2022 released its findings.

Findings of World Inequality Report 2022:-

- In India, men capture 82% of labor income, while women earn just 18%.
- The female share of the total labor income is the national aggregate labor income earned by women relative to the total aggregate of labor income within a country.
- The female labor income share would be 50%.
- Female labor income in India of 18.3% is lower than the average for Asia.
- Among the neighbors that performed worse than India were Bhutan (17.5%), Bangladesh (16.9%), Pakistan (7.4%), and Afghanistan (4.2%); and those with a higher share were Nepal (23.2%), Sri Lanka (23.3%) and China (33.4%).

Impact of Pandemic: -

- After the pandemic, there was a worsening of female labor participation rate.
- Eastern Europe has the highest female labor income shares, with the average female share near 41%.
- Moldova has the highest female labor income in the world at 45%.

Issue with unpaid Work: -

- Unpaid care work is likely to prevent women from participating in the labor market, and to prevent them from attaining high-paying positions.
- When paid and unpaid work are combined, women's contribution to work increases substantially and thus makes the female labor income share appear even more unfair.

About World Inequality Report 2022: -

- World Inequality Lab, based in France, has released the World Inequality Report 2022.
- Lucas Chancel, co-director of the World Inequality Lab, authored it.
- Several specialists, notably French economist Thomas Piketty, are coordinating it.

2. NC undecided on attending delimitation panel meeting

- This article discusses the issue with the delimitation exercise for Jammu and Kashmir.

Delimitation is the process of fixing limits or boundaries of territorial constituencies in a country to represent changes in population.

- As a result of the delimitation process, the number of seats allocated to different states in the Lok Sabha and the total number seats in a Legislative Assembly of a state can also alter.
- The redrawing of boundaries is based on a recent census.
- The body that does the delimitation exercise is called the Delimitation Commission.

Why is delimitation of constituencies done?

Delimitation is conducted for the following reasons:

1. To have equal representation for equal segments of a population.
2. To have a fair division of geographical areas so that no political party has an undue advantage over the others.
3. To adhere to the principle: **“One Vote One Value”**.

How is delimitation done?

- After every census, the Parliament will enact a Delimitation Act, as per Article 82.
- As per Article 170, the states also get classified into territorial constituencies after every census, according to the said Act.
- Once the Act is enacted, the Central Government sets up a Delimitation Commission.
- The Commission then exercises the delimitation.

Delimitation Commission

The Delimitation Commission is a high-level body set up by an act of the Parliament.

- It is appointed by the country's President.
- It works in tandem with the Election Commission of India.
- **Delimitation Commission Members:**

- A retired judge of the Supreme Court
- The Chief Election Commissioner
- State Election Commissioners (of the respective states)

GS 3 : Economy, Science and Technology, Environment

3. How the idea of vaccine protection changed in one year

This article focuses on the development of vaccination and herd Immunity related aspects.

Herd immunity

1. What is a Herd Immunity?

- “Herd immunity” assures that even if a small number of individuals are unvaccinated, they are protected against a certain infectious illness.
- Herd immunity is the resistance to the transmission of a contagious illness within a community that occurs when a sufficiently large enough proportion of the population is immune to the disease, typically by vaccination.

2. Vaccination and Herd Immunity: -

- Herd immunity occurs when a substantial proportion of the population is infected or vaccinated, causing viral spread to be greatly slowed or stopped.
- The pandemic’s ultimate objective was to achieve herd immunity.
- It was portrayed as though we could vaccine our way out of the epidemic and return to normalcy.
- The approximately 90% efficiency of both mRNA vaccines against symptomatic sickness made the objective of stopping the epidemic appear simple and straightforward.

3. Major Issues: -

- Besides substantial challenges with vaccine availability in most countries, vaccination hesitancy and approvals initially confined to adults meant that obtaining this necessary proportion was required for achieving herd immunity.
- The efficacy of mRNA vaccines to keep people from becoming sick remained unknown, posing a challenge to attaining herd immunity.

Waning immunity

- Based on vaccine research, Pfizer began voicing concerns about decreasing protection despite complete immunization.
- However, the steeply diminishing protection referred to by Pfizer was based on neutralizing antibodies, which protect vaccinated patients from new illnesses.
- Even while the Delta variation produced more breakthrough infections in patients who had been completely vaccinated, the vaccines were very effective against severe illness, hospitalization, and death.

4. MSP is key to diversify crops: farmers

This article discusses the need for guaranteed MSP for crops in Punjab and Haryana.

Why Guaranteed MSP is necessary in Punjab and Haryana: -

- Guaranteed minimum support prices (MSP) for all crops may be the best way for Punjab and Haryana to diversify their crop portfolios.
- Because of the high levels of purchase, farmers in these two states already benefit from MSP rates for paddy and wheat.
- Input prices are also lower in areas with more water availability and less demand for fertilizers and pesticides than in Punjab.
- Punjab is experiencing fast groundwater depletion at a rate of up to 120 centimeters per year.
- Paddy and sugarcane consume half of the country's water resources, owing to procurement regulations that skew profitability and distort cropping patterns.
- Maize, for example, takes one-fifth the irrigation water that rice does, but farmers are hesitant of switching to a crop where remunerative prices are not assured.

How Guaranteed MSP will ensure Crop Diversity in Punjab and Haryana?

- Crop diversification is unachievable in the absence of a fixed MSP.
- If all crops were procured, rather than just rice and wheat, the ordinary Punjab farmer would abandon paddy in favor of safflower, moong, or chana dal.
- According to Agriculture Ministry figures, Punjab and Haryana have accounted for more than half of the government's acquisition of wheat and paddy during the previous five years.
- The government buys at MSP more than 85 percent of the wheat and paddy grown in Punjab and 75 percent of the paddy grown in Haryana.

- The assistance might also aid in resolving the issue of stubble burning, which has clouded the sky of northern India.

Conclusion: -

The agriculture-related subsidy should be turned into a Direct Benefit Transfer (DBT) system for farmers based on landholdings. Small and marginal farmers should benefit from DBT, whereas large farmers can afford to pay for these amenities. The economic diversification of crops is necessary for Punjab and Haryana to tackle this crisis.

5. Will U.S. directives on 5G use impact flights?

In 2021, U.S. Federal Aviation Administration (FAA) issued two directives to create a framework and gather more information about the potential effects of 5G on crucial aviation safety equipment.

Background: -

- The FAA released a Special Airworthiness Information Bulletin in 2021 that contained “early information regarding probable interference from 5G C-band wireless signals.”
- These efforts are crucial as American wireless communications providers prepare to transmit in the “C-band.”
- This will be in addition to the existing 5G frequencies.

What is the Significance of the FAA directives?

- The directives apply to two types of air transportation: transport and commuter aircraft and helicopters.
- 5G poses a “threat of probable radar altimeter interference,” according to the directives.
- The directions will also necessitate highlighting in flight/flight operation manuals limiting flying activities when such interference is encountered.
- Some aircraft operations may be restricted from utilizing certain landing and navigation systems in areas where new 5G cellular networks may cause interference.
- Smaller planes and helicopters may face significant constraints. Flights may be canceled, delayed, or diverted as a result of these factors.

- The FAA has also asked for particular data on the locations of 5G towers, as well as their power supply and angles, in order to assess how they may interfere with aircraft approaches.
- This might result in “more customized alerts that are less disruptive,” according to researchers.
- The radio altimeter is a critical instrument in contemporary commercial aircraft for accurate approaches and landings.
- Other systems that rely on radio altimeter inputs include forecast windshear, ground proximity warning systems, traffic collision avoidance systems, and auto landing.

What is the aircraft equipment that can be affected?

- The radio altimeter is a critical instrument in contemporary commercial aircraft for accurate approaches and landings.
- Other systems that rely on radio altimeter inputs include forecast windshear, ground proximity warning systems, traffic collision avoidance systems, and auto landing.
- Any disruption to internal radio altimeter measurements caused by 5G or other technology transmitting in nearby frequency bands might have severe consequences on critical systems during approach/landing.
- The problem can be exacerbated because the radio altimeter is required for any form of precision approach, which is nearly always employed at big airports nowadays.

What are the takeaways from the directives?

- Instrument landing system approaches (ILS), required navigation performance (RNP), autonomous landing operations, and certain usage of advanced flight vision systems and other flight control systems are all prohibited operations.
- In 5G-affected locations, the FAA’s separate directive for helicopters also forbids autonomous flying that involves the use of radio altimeter data.
- There is a warning about potential interference from both 5G base station transmissions and passenger portable phones. This is the most dangerous risk since the majority of passengers do not turn off their cell phones.
- The danger is confined to “particular situations” for big commercial aircraft, but it can have “severe” implications in some instances, such as when aircraft undertake low-visibility instrument approaches.

What about the implications for India?

- India was aware of the ramifications of 5G technology in the country, but there had been no official communication on the matter thus far.
- According to an analyst, 5G might be put out in India in the 3.2 GHz-3.6 GHz range, which may not interfere with aviation operations.
- In India, the DGCA should prohibit 5G towers from being built within a 15 nautical mile radius of any airfield having precision approaches such as ILS.

Way forward: -

- There has to be a lot more study done to fully understand the ramifications of 5G on radio altimeters and other aviation systems.
- Expensive defensive countermeasures for mitigation operations may be required.
- Wireless carriers might potentially operate in select frequencies inside the C-band, creating a buffer between 5G communications and aviation frequencies.
- With heavily built-up areas in many upcoming cities or near airports, interference to navigation signals might be disastrous.

6. Which States in the N.E. are under AFSPA?

The killing of 14 civilians in Nagaland has led to fresh calls for repealing The Armed Forces (Special Powers) Act (AFSPA).

Origin of AFSPA: -

- In May 1958, the President issued the Armed Forces (Assam and Manipur) Special Powers Ordinance. This was later repealed by Parliamentary legislation.
- Originally called as the Armed Forces (Assam and Manipur) Special Powers Act, 1958, it was later renamed Arunachal Pradesh, Meghalaya, Mizoram, Nagaland, and Tripura.
- This legislation allows an area to be proclaimed a 'disturbed area,' putting into effect the protection it provides to the armed forces for the use of force in the notified region.

Which parts of the country come under AFSPA?

- The AFSPA has been in effect in most of the Northeastern states for decades. The notice is renewed on a regular basis, usually for six months at a time.

- As of today, the whole states of Assam and Nagaland are classified as 'disturbed zones.'
- **Manipur:** - The State administration has declared a one-year state of emergency across Manipur, with the exception of the Imphal metropolitan area, beginning in 2020.
- **Arunachal Pradesh:** - The 'disturbed area' notice in Arunachal Pradesh is limited to the districts of Tirap, Changlang, and Longding, as well as the territories under the Namsai and Mahadevpur police stations, which border Assam.
- **Tripura:** - After being in effect since February 1997, the AFSPA was repealed in Tripura in 2015.
- **Meghalaya:** - Meghalaya was subject to AFSPA for 27 years till it was repealed in 2018.
- **Assam:** - The Act was applied over a 20-kilometer stretch of border with Assam.
- **Jammu and Kashmir :** - Jammu and Kashmir has its own J&K Armed Forces (Special Powers) Act, enacted in 1990.

What are the Provisions of the Act?

- The Act authorizes the Governor of any State, the Administrator of a Union Territory, or the Central Government to declare a portion or the entire state or union territory to be a "disturbed region."
- In such a notified region, any officer of the armed forces may fire upon or use force against any individual, even if it results in death, in order to maintain public order.
- This must be done after providing enough notice, and the target must be a person who is in violation of any statute or order forbidding the assembly of five or more people while carrying weapons, firearms, or ammunition.
- The Act authorizes the arrest and search of any properties in a notified region without a warrant, as well as the seizure of any confined person or any illegally kept weaponry and ammunition.
- The armed forces may also demolish any hideaway, arms depot, fortified place, or shelter from which armed attacks are launched, or from which arms training is conducted.
- Without the prior permission of the Central Government, no one can be punished or subjected to legal procedures for actions committed under the Act.

Why do many demand its repeal?

- Detractors and human rights groups, as well as various elements of civil society, say that the Act fosters impunity and is responsible for numerous

instances of abuses and atrocities perpetrated by the military forces while under its protection.

- Irom Chanu Sharmila, a Manipur activist, became a symbol of the fight against AFSPA after she went on an indefinite fast in 2000, seeking its repeal.
- In 2005, a five-member committee constituted by the government and chaired by former Supreme Court judge B. P. Jeevan Reddy recommended that AFSPA be abolished. It advised that the Unlawful Activities (Prevention) Act be revised to address terrorism.

THE INDIAN EXPRESS

GS 2 : Polity, Governance, International Relations

1. Protests in Balochistan

Over the last few weeks, there have been continuous protests in **Gwadar, Balochistan** against mega development plans of the port city as part of the **China-Pakistan Economic Corridor**.

- The protesters have sought to draw attention to **marginalisation of the local people in the development of the port**.
- Pakistan claims that India has been supporting these protests.
- **About Balochistan:**
 - Balochistan is one of the **four provinces of Pakistan**.
 - It is least populated even though it is the **largest province** in terms of land size.
 - It is populated in **ethnic Baloch people** which can be found in modern day Iran and Afghanistan though the majority of Baloch can be found in Balochistan.
 - Balochistan is rich in **natural gas and oil** and is one of the most important regions of Pakistan.
- **Uprising in Balochistan:**
 - During the **withdrawal of the British** from the Indian subcontinent, the Kingdom of Balochistan was offered the same offer, either to join India, join Pakistan or remain independent.

- The **king of Balochistan chose to remain independent** and it did remain independent for nearly a year.
- In the year 1948, the Pakistan government, with a **combination of military and diplomacy**, took control of the region and made it into a part of Pakistan.
- Due to lack of **development and human rights violations** in the region done by the Pakistan military and terror groups, the **insurgency in Balochistan** has been active since 1948.
- Pakistan claims that India has been **supporting these rebel fighters** with arms and intelligence.
- **India's Stand on Balochistan:**
 - India has long **maintained a political stance of not interfering** in the internal matters of Pakistan or any other country.
 - Despite Pakistan repeatedly bringing up the **Kashmir issue** over the years, India had maintained silence on Balochistan.
 - However, in 2016, remarks on Balochistan came in the immediate aftermath of the Independence Day celebration in Pakistan that was dedicated to the independence of Kashmir.
 - India's response was quick with **India's Prime Minister referring to atrocities of Baloch people** in his Independence speech in 2016.

CPEC & India's Concerns

- **About CPEC:**
 - The CPEC is a **bilateral project between Pakistan and China**.
 - It aims to link the **Western part of China (Xinjiang province) to the Gwadar Port in Balochistan**, Pakistan via Khunjerab Pass in the Northern Parts of Pakistan.
 - It is intended to promote connectivity across Pakistan with a **network of highways, railways, and pipelines** accompanied by energy, industrial, and other infrastructure development projects.
 - It will pave the way for China to access the **Middle East and Africa from Gwadar Port**, enabling China to access the Indian Ocean.
 - CPEC is a part of the **Belt and Road Initiative**.
 - The BRI, launched in 2013, aims to link Southeast Asia, Central Asia, the Gulf region, Africa and Europe with a network of land and sea routes.

□ **India's Concerns:**

- **Sovereignty Issue:** Some of the proposed infrastructure that the Chinese have been developing for Pakistan are passing through the disputed region of **Pakistan Occupied Kashmir (POK)**.

- India considers it to be a part of its own territory.
- **Dual Purpose of Gwadar Port:** India has been concerned about Gwadar, which gives **China strategic access to the Arabian Sea and the Indian Ocean.**
 - It is not just being developed as a trade entrepot but as a dual purpose port for use by the Chinese Navy.
 - It is part of **String of pearls theory**, under which China is building state of the art gigantic modern ports all along the Indian Ocean and to the south of it, in **Gwadar (Pakistan), Chittagong (Bangladesh, Kyauk Phru (Myanmar) and Hambantota (Sri Lanka).**
 - The string of pearls is a strategic threat to India, as it aims to **encircle India to establish Chinese dominance** in the Indian Ocean.

2. RATS-SCO

Recently, India assumed the Chairmanship of Council of **Regional Anti-Terrorist Structure of Shanghai Cooperation Organization (RATS-SCO)** in 2021 for a **period of one year.**

- In pursuance of this, the **National Security Council Secretariat (NSCS)** in association with **Data Security Council of India (DSCI)**, organized a Seminar on **Securing Cyberspace in the Contemporary Threat Environment.**

Key Points

- **About RATS-SCO:**
 - SCO-RATS is a permanent body of the SCO and is intended to **facilitate coordination and interaction** between the SCO member states in the fight **against terrorism, extremism and separatism.**
 - The main functions of SCO-RATS are **coordination and information sharing.**
 - As a member, India has actively participated in the activities of SCO-RATS.
 - **India's permanent membership** would enable it to generate greater understanding among members for its perspective.
- **About Shanghai Cooperation Organization(SCO):**
 - The **Shanghai Cooperation Organization (SCO)** was established as a multilateral association to ensure security and **maintain stability across the vast Eurasian region.**

- It envisages joining forces to counteract emerging challenges and threats, and enhance trade, as well as cultural and humanitarian cooperation. It was **created in 2001**.
- Prior to the creation of SCO in 2001, **Kazakhstan, China, Kyrgyzstan, Russia and Tajikistan were members of the Shanghai Five**.
 - **Shanghai Five** (1996) emerged from a series of border demarcation and demilitarization talks which the four former Soviet republics held with China to ensure stability along the borders.
- Following the accession of Uzbekistan to the organisation in **2001, the Shanghai Five was renamed the SCO**.
- The SCO Charter was signed in 2002, and entered into force in 2003. The SCO's **official languages are Russian and Chinese**.
- SCO has two Permanent Bodies:
 - **SCO Secretariat in Beijing**,
 - Executive Committee of the **Regional Anti-Terrorist Structure (RATS) in Tashkent**.
- The Chairmanship of SCO is by rotation for a year by Member States.
- India and Pakistan became members in 2017.
- **Member countries:** Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan, Uzbekistan, India, Pakistan, Iran.

India & SCO

- **Advantages for India:**
 - **Regional Security:** SCO will enable India, as an integral part of the Eurasian security grouping, to neutralise centrifugal forces arising from religious extremism and terrorism in the region.
 - **Embracing Regionalism:** The SCO is one of the few regional structures India is a part of now, given a decline in its engagement with **SAARC, Bangladesh, Bhutan, India, Nepal (BBIN) Initiative**.
 - More importantly, cooperation in three critical areas – energy, building trade and transportation links, and dealing with traditional and non-traditional security threats.
 - **Connect With Central Asia:** The SCO provides India with a convenient channel for its outreach – trade and strategic ties – to Central Asian countries.
 - SCO is also a potential platform to advance India's **Connect Central Asia policy**.
 - The foundation of India's economic outreach to Central Asia is based on its 2012 Connect Central Asia Policy with its focus on the **4 C's - Commerce, Connectivity, Consular and Community**.

- **Foundational Dimensions of SECURE:** Acknowledging the strategic importance emanating from the region and SCO, the Indian Prime Minister had articulated the foundational dimension of Eurasia being 'SECURE'. The letters in the word SECURE are:
 - S for Security of our citizens,
 - E for Economic development for all,
 - C for Connecting the region,
 - U for Unite our people,
 - R for Respect for Sovereignty and Integrity, and
 - E for Environment protection.
- **Dealing With Pakistan & China:** SCO provides India with a forum where it can constructively engage both China and Pakistan in a regional context and project India's security interests.
- **Challenges That India Needs to Navigate:**
 - **Absence of Direct Land Connectivity:** A major impediment in India's expanded engagement with Eurasia remains the **strategic denial of direct land connectivity between India and Afghanistan and beyond by Pakistan**.
 - The lack of connectivity has also hampered the development of energy ties between the hydrocarbon-rich region and India
 - **Growing Russia-China Convergence:** One of the major factors for Russia pushing India's inclusion into the SCO was to **balance China's power**.
 - **Difference Over BRI:** While India has made its opposition to **Belt and Road Initiative(BRI)** clear, all other SCO members have embraced the Chinese project.
 - **India-Pakistan Rivalry:** SCO members have, in the past, expressed fears of the organisation being held hostage to India's and Pakistan's adversarial relationship, and their fears would likely have worsened in recent times.

Way Forward

- **Improving Connectivity With Central Asia:** The opening of **Chabahar port** and India's entry into the **Ashgabat agreement** should be utilized for a stronger presence in Eurasia.
 - Besides this, a clear focus on operationalising **International North-South Transport Corridor (INSTC)**.
- **Improving Relations With China:** It is imperative that **India and China set up a modus vivendi** (agreement allowing conflicting parties to coexist peacefully) for the 21st century to be viewed through the lens of an Asia century.

- **Strengthening Military Corporation:** In the context of increasing terrorism in the region, it is **imperative for SCO countries to develop a 'cooperative and sustainable security' framework** and make the Regional Anti-Terrorist Structure more effective.

GS 3 : Economy, Science and Technology, Environment

3. Protecting wildlife: 2,054 cases registered in three years

Recent Central Government statistics observed an increase in registered cases of killing or illegal trafficking of wild animals in India.

Important Operations Against illegal trade: -

1. **Operation Save Kurma:** - The operation was carried out to curb the expanding illegal trade of live turtles and their components from the country to foreign destinations. The effort also attempted to draw the attention of law enforcement to such unlawful trade.
2. **Operation Turtshield:** - Operation "Operation Turtshield" is a Central programme taken up to tackle the illegal trade of live turtles.
3. **Operation Softgold:** - This is an operation to draw the attention of the country's law enforcement officials to the illicit wildlife trafficking in Tibetan antelope (Shahtoosh) species.

Wildlife Crime Control Bureau (WCCB)

- It is a multidisciplinary statutory body which reports to the Ministry of Environment and Forests. Its tasks include combatting the country's organized wildlife crime.
- It is obliged under the Wild Life (Protection) Act of 1972 to gather intelligence relating to organized wildlife crime operations.

4. Right to climate justice

India's President has expressed concern that time was running out for preserving nature for future generations and called for a debate on the **right to climate justice**.

What is Climate justice?

- Climate justice is a term used for framing global warming as an ethical and political issue, rather than one that is purely environmental or physical in nature.

Relevance of Climate Justice in present times

- **Development vs. environment degradation:** Measures taken for development largely have negative impact on the environment. IPCC reports have given strict warning about the devastating impacts of rising global temperature beyond 1.5 degree Celsius.
- **Prioritising investment:** Developing countries particularly lack funds for investment for implementing climate change actions. Climate justice helps to prioritise investment around the vulnerabilities of the communities worst affected by climate change.
- **Lobbying by businesses and industrial groups:** Big industrialists in fossil fuel based businesses pressurize governments not to take decisions for quick transition to renewable based solutions. Climate justice shifts the focus of policy planning to the suffering communities.
- **Resistance shown by developed countries:** Climate justice focuses on inequitable nature of impact of climate change and brings into the picture accountability for actions done by some countries over the other countries.

5. Stubble as biofuel

The Union Government is working on a plan to use stubble as a biofuel and manure as part of an effort to deal with stubble burning that was often cited as a source of pollution in northern India

What is Stubble Burning?

- Stubble burning is the act of setting fire to crop residue to remove them from the field to sow the next crop
- It is a traditional practice in Punjab and Haryana to clean off the rice chaff to prepare the fields for winter sowing
- It begins around October and peaks in November, coinciding with the withdrawal of southwest monsoon.
- On December 10, 2015, the National Green Tribunal (NGT) had banned crop residue burning in the states of Rajasthan, Uttar Pradesh, Haryana and Punjab

What are biofuels?

- Biofuels are liquid or gaseous fuels primarily produced from biomass.
- Can be used to replace or can be used in addition to diesel, petrol or other fossil fuels for transport, stationary, portable and other applications.

6. Gaganyaan Mission

Recently, the **Union Minister of Atomic Energy and Space** informed that the crewed **Gaganyaan mission** will finally be launched in 2023.

- The **country's first space station** is likely to come up by 2030.

Key Points

▪ About:

- Gaganyaan is a mission by the **Indian Space Research Organisation (ISRO)**.
- Under the Gaganyaan schedule:
 - Three flights will be **sent into orbit**.
 - There will be **two unmanned flights and one human spaceflight**.
- The Gaganyaan system module, called the **Orbital Module** will have three Indian astronauts, including a woman.
- It will circle Earth at a **low-earth-orbit** at an altitude of 300-400 km from earth for 5-7 days.
- With that launch, India will be in the **elite club of nations (America, China and Russia)**.

□ Payloads:

- The payload will consist of:
 - **Crew module** - spacecraft carrying human beings.
 - **Service module** - powered by two liquid propellant engines.
- It will be equipped with **emergency escape and emergency mission abort**.

□ Launch:

- **GSLV Mk III**, also called the **LVM-3 (Launch Vehicle Mark-3)**, the three-stage heavy lift launch vehicle, will be used to launch Gaganyaan as it has the necessary payload capability.
 - Gaganyaan's major missions like the **test vehicle flight** for the validation of crew escape system performance and first uncrewed mission of Gaganyaan (G1) are scheduled during the beginning of the **second half of next year (2022)**.
 - This will be followed by the **second uncrewed mission at the end of 2022** carrying 'Vyommitra', a spacefaring human robot developed by Isro, and finally the **first crewed Gaganyaan mission in 2023**.

□ **Significance:**

- It will **help in enhancement of science and technology levels** in the country and help inspire youth.
 - Gaganyaan will **involve numerous agencies, laboratories, disciplines, industries and departments**.
- It will **help in the improvement of industrial growth**.
 - A new organisation, **IN-SPACE**, part of reforms to increase **private participation in the space sector** was announced last year (2021).
- It will **help in the development of technology for social benefits**.
- It will **help in improving international collaboration**.
 - One **International Space Station (ISS)** put up by multiple countries may not be enough. Regional ecosystems will be needed and Gaganyaan will focus on regional needs: food, water and energy security.

□ **Other Upcoming Mission:**

- **Shukrayaan Venus Mission (For 2023):**
 - The **Shukrayaan orbiter** will be the **first mission to Venus** by the **ISRO** and will study the planet for four years
- **L-1 Aditya Solar (For 2022-23):**
 - It is **India's first scientific expedition to study the Sun**.
 - It will be **ISRO's second space-based astronomy mission** after **AstroSat**, which was launched in 2015.
- **Chandrayaan-3 Missions (For 2022-23):**
 - The **Chandrayaan-3, a follow-up of the Chandrayaan-2 mission**, involves "various processes, including finalisation of configuration, subsystems realisation, integration, spacecraft level detailed testing and a number of special tests to evaluate the system performance on earth.

7. Earth's Black Box

Australian scientists and artists are going to **make black box of the planet** to hold the world accountable for their actions by creating a black box of the planet.

- **About:**
 - The box will be constructed in **Tasmania, an Australian island state** off the south coast.
 - It will be made with **3-inch thick steel and covered with solar panels**.
 - It will **operate much like a plane's flight recorder**, which records an aircraft's final moments before crashing.
 - The storage drives **inside Earth's Black Box** are designed to **last for around 30 to 50 years**.
 - The black box will be **around the size of a city-bus**, and inside there will be **storage drives that record climate change conversations** and also atmospheric carbon dioxide levels and average temperatures.
- **Types of Data Collection by the Box:**
 - Two different types of data will be collected and stored inside the monolith.
 - It will collect **climate-change-related data** like land and sea temperature measurements, **species extinction**, energy consumption, human population, **ocean acidification**, and atmospheric CO₂ levels.
 - It will collect contextual data, like newspaper headlines and trending stories, key news stories and social media posts.
- **Reason for choosing the Tasmania:**
 - Tasmania was chosen for its **relative geopolitical and environmental safety**, and the monolith will be designed to be **resilient against threats** including **cyclones, earthquakes** and, with its sloped walls, attacks by vandals.
- **Significance:**
 - Black box will **actually help in preventing a major climate change catastrophe**.
 - **Climate change is one of the gravest threats humanity faces and is exacerbating economic and health inequalities**, increasing the frequency and intensity of natural disasters and threatening the world's food supply.

Prelims Practice Questions

1. Consider the following statements:

1. Gaganyaan is an unmanned mission to the moon.
2. GSLV Mk III will be used to launch Gaganyaan mission.

Which of the statements given above is/are correct?

- A 1 only
- B 2 only
- C Both 1 and 2
- D Neither 1 nor 2

Answer : B

Explanation

- **Gaganyaan** is a mission by the **Indian Space Research Organisation (ISRO)**.
 - Under the Gaganyaan schedule:
 - Three flights will be **sent into orbit**.
 - There will be **two unmanned flights and one human spaceflight**. **Hence, statement 1 is not correct.**
 - The Gaganyaan system module, called the **Orbital Module** will have three Indian astronauts, including a woman.
 - It will circle Earth at a **low-earth-orbit** at an altitude of 300-400 km from earth for 5-7 days.
 - With that launch, India will be in the **elite club of nations (America, China and Russia)**.
- **GSLV Mk III**, also called the **LVM-3 (Launch Vehicle Mark-3)**, the three-stage heavy lift launch vehicle, will be used to launch Gaganyaan as it has the necessary payload capability. **Hence, statement 2 is correct.**
 - Gaganyaan's major missions like the **test vehicle flight** for the validation of crew escape system performance and first uncrewed mission of Gaganyaan (G1) are scheduled during the beginning of the **second half of next year (2022)**.
 - This will be followed by the **second uncrewed mission at the end of 2022** carrying '**Vyommitra**', a spacefaring human robot developed by Isro, and finally the **first crewed Gaganyaan mission in 2023**.

2. Consider the following statements with regards to the Air Quality Index:

1. It measures a total of 10 major air pollutants.
2. AQI reading from 401-500 is considered as 'severe'.
3. PM 2.5 refers to the concentration of microscopic particles less than 2.5 microns in radius.

Which of these statements are incorrect?

- a. 1 & 2 only
- b. 2 & 3 only
- c. 1 & 3 only
- d. All of the above

Answer: c

Explanation:

- Air Quality is measured using a metric called Air Quality Index (AQI). AQI keeps a tab on **8 major air pollutants** in the atmosphere. **Hence Statement 1 is incorrect.**
- The 8 major air pollutants measured by AQI are:
 - a. Particulate Matter (PM10)
 - b. Particulate Matter (PM2.5)
 - c. Nitrogen Dioxide (NO₂)
 - d. Sulphur Dioxide (SO₂)
 - e. Carbon Monoxide (CO)
 - f. Ozone (O₃)
 - g. Ammonia (NH₃)
 - h. Lead (Pb)
- An AQI between 0 and 50 is considered "good", 51 and 100 "satisfactory", 101 and 200 "moderate", 201 and 300 "poor", 301 and 400 "very poor", and **401 and 500 "severe"**. **Hence Statement 2 is correct.**
- PM 2.5 refers to the concentration of microscopic particles less than 2.5 microns in **diameter (NOT Radius)**. **Hence Statement 3 is incorrect.**

3. The 'SAMPANN Project' recently seen in the news is related to?

- A Facilitate online payments to all public and private banks.
- B Computerisation of Land Records.
- C Seamless online pension processing and payment system.
- D Facilitates payment of utility bills, issuance of certificates, licenses and permits.

Answer : C

Explanation

- **SAMPANN (System for Accounting and Management of Pension)** project was **launched in 2018**. It is a seamless online pension processing and payment system for Department of Telecommunications pensioners.
 - It **provides direct credit of pension** into the bank accounts of pensioners.
 - It is an ambitious project being **implemented by the Ministry of Communications**.
 - It has helped the Department **in faster settlement of pension cases, improved reconciliation/auditing and ease of accounting**.
 - It has also been instrumental in settling close to 76000 BSNL Voluntary Retirement Scheme 2019 cases in a short span of 6 months.
 - It is a system with a flexible design which enables it to accommodate ever expanding requirements.
- **Hence, option C is correct.**

4. Arrange the following in a chronological order as per their annexation by the Doctrine of Lapse?

1. Satara
2. Sambalpur
3. Udaipur
4. Jhansi
5. Jaitpur
6. Nagpur
7. Baghat

Options:

- a. 1, 2, 3, 4, 5, 6, 7

- b. 1, 5, 2, 7, 3, 4, 6
- c. 2, 7, 6, 4, 1, 5, 3
- d. 7, 6, 5, 1, 2, 4, 3

Answer: b

Explanation:

- The doctrine of lapse was a policy of annexation initiated by the East India Company in the Indian subcontinent against the princely states.
- The policy is most commonly associated with Lord Dalhousie, who was the Governor General of the East India Company in India between 1848 and 1856.
- According to the doctrine, any Indian princely state under the suzerainty of the East India Company (EIC) (the dominant imperial power in the Indian subsidiary system), would have its princely status abolished (and therefore be annexed into British India) if the ruler was either “manifestly incompetent or died without a male heir”.

5. With respect to Major Dhyan Chand Khel Ratna Award, which of the following statements is/are correct?

1. It is the highest sporting honour of India.
2. The Khel Ratna award was instituted in 1991-1992
3. The first recipient was Chess legend Viswanathan Anand.

Options:

- a. 1 and 2 only
- b. 2 and 3 only
- c. 1 and 3 only
- d. 1, 2 and 3

Answer: d

Explanation:

- The Khel Ratna Award, officially known as the Major Dhyan Chand Khel Ratna Award, formerly known as the Rajiv Gandhi Khel Ratna Award in Sports and Games, is the highest sporting honour of India.
- It is awarded annually by the Ministry of Youth Affairs and Sports.

- The recipient(s) is/are honoured for their “spectacular and most outstanding performance in the field of sports over a period of four years” at international level.
- The award was first instituted in 1991–1992 and the the first recipient of the award was Chess Grandmaster Viswanathan Anand, who was honoured for the performance in the year 1991–92.

6. With reference to the Shanghai Cooperation Organization(SCO), consider the following statements:

1. It was earlier called Shanghai Five.
2. Regional Anti-Terrorist Structure (RATS) is permanent body of the SCO.
3. India and Pakistan became members in 2019.

Which of the above statements are correct?

- A 1 and 3 only
- B 1 and 2 only
- C 2 and 3 only
- D 1, 2 and 3

Answer : B

Explanation

- The **Shanghai Cooperation Organization (SCO)** was established as a multilateral association to ensure security and **maintain stability across the vast Eurasian region**.
 - Prior to the creation of SCO in 2001, **Kazakhstan, China, Kyrgyzstan, Russia and Tajikistan were collectively called the Shanghai Five**. Hence, **statement 1 is correct**.
- SCO-RATS is a permanent body of the SCO and is intended to **facilitate coordination and interaction** between the SCO member states in the fight **against terrorism, extremism and separatism**. Hence, **statement 2 is correct**.
- India and Pakistan became members in 2017. Hence, **statement 3 is not correct**.
 - **Member countries:** Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan, Uzbekistan, India, Pakistan.

Mains Practice Questions

1Q. Himalaya may be entering a phase of irreversible decline because of losses to its ecology. Discuss in the light of frequent disasters in the region. (250 Words)

Approach

- Introduce by giving some examples of frequent disasters taking place in the region.
- Discuss the threat/ losses to the Himalayan ecology.
- Enumerate some of the steps taken to save the ecology and reduce the occurrence of frequent natural disasters.

2Q. Examine the contribution of Ambedkar in awakening Dalit consciousness. (150 words)

Approach

- Briefly introduce about Ambedkar and his works.
- Elaborate the contribution of Ambedkar in awakening Dalit consciousness.
- Give conclusions.