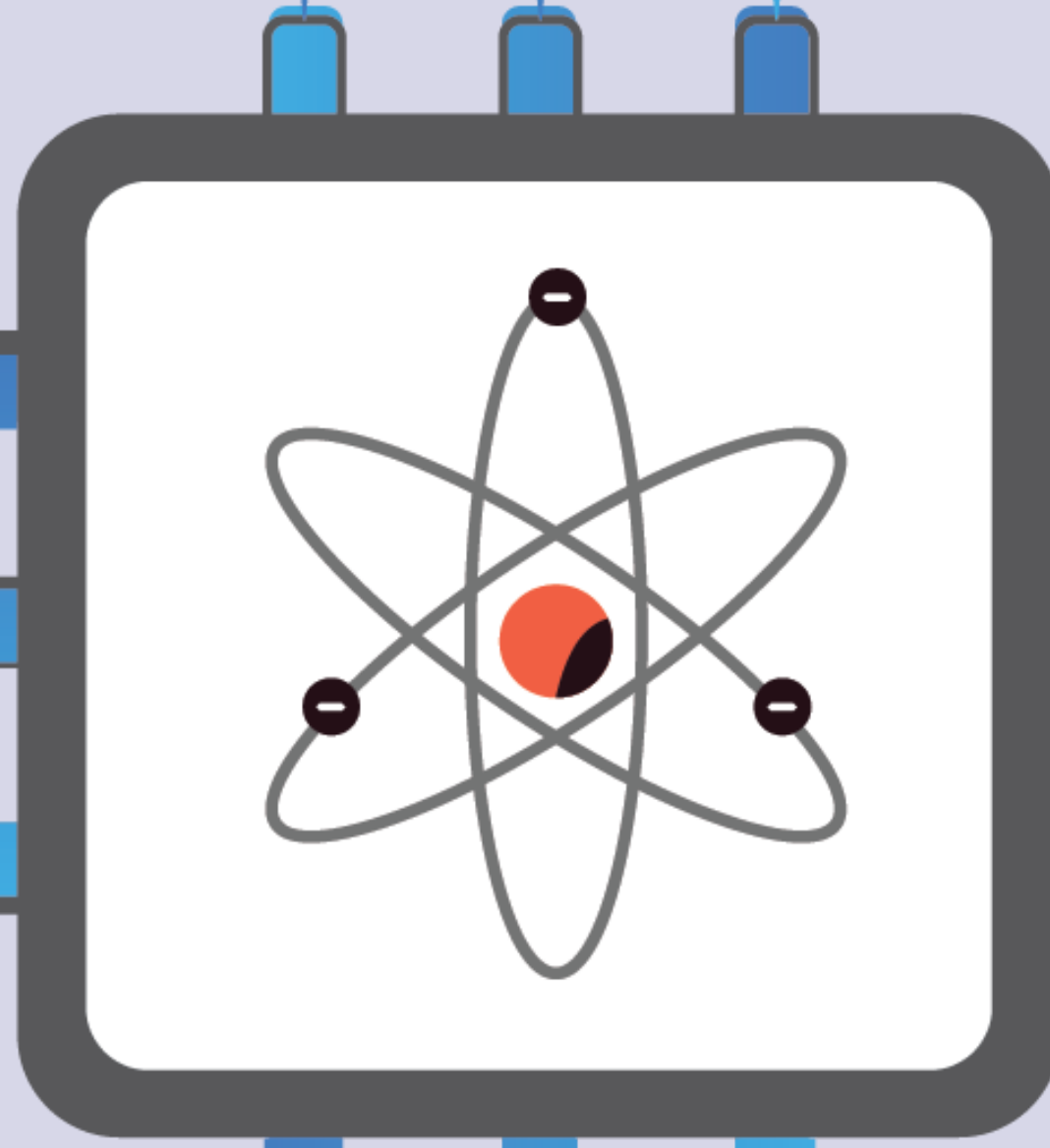
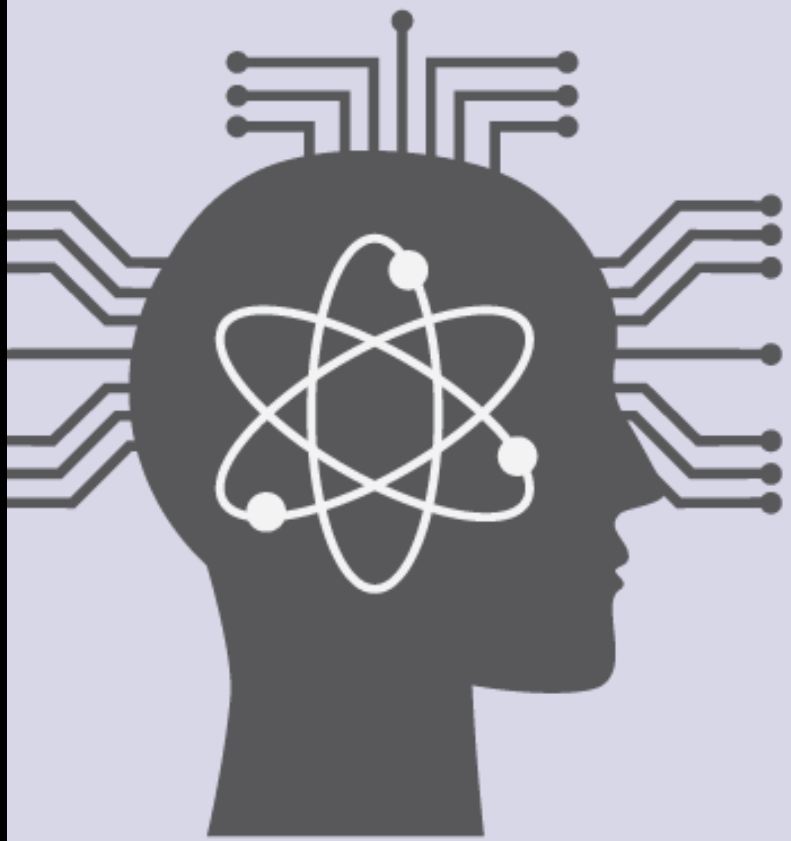


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## General Studies 1 : Modern Indian History

# CONSTITUENT ASSEMBLY

### 1. Background

The Constitution of India was drafted by the Constituent Assembly. The idea was initially proposed in December 1934 by M.N. Roy, a pioneer of the Communist movement in India and an advocate of radical democracy.

It became an official demand of the Indian National Congress in 1935 and was officially adopted in the Lucknow session in April 1936 presided by Jawaharlal Nehru, who also drafted the Objectives Resolution.

The proceedings of the Constituent Assembly show the richness of ideas that characterised it. The Drafting Committee was presided over by B.R. Ambedkar

### 2. Composition of the Council

It was constituted in 1946 ,Some of the important aspects related to this are:

1. Total strength of the assembly: 389
  2. 296 seats for British India and 93 seats to princely states
  3. 292 seats allocated for British India were to be from eleven governor's provinces and four from Chief commissioner's provinces
  4. Seats were allocated based in proportion to their respective population.
  5. Seats allocated to each British province were to be decided among the three principal communities- Muslims, Sikhs and general
  6. Representatives of each communities were to be elected by members of that community in the provincial legislative assembly and voting was to be by the method of proportional representation by means of single transferrable vote
  7. Representatives of princely states were to be nominated by head of these princely states
- Partly elected and partly nominated
  - Indirect election by provincial assemblies who themselves were elected on a limited franchise



- Though indirect mode of election, it included representatives from all sections of the society

### 3. Committees of the Constituent Assembly

Several committees were constituted to perform the various tasks associated with framing of the Constitution. Some of the major and minor constituent assembly committees are given below:

#### 3.1. Major committees

1. Union Powers committee: presided by J Nehru
2. Union Constitution Committee: president by j Nehru
3. Provincial constitution committee: Presided by S Patel
4. Drafting committee: president by Dr BR Ambedkar
5. Advisory Committee on Fundamental Rights, minorities and Tribal and excluded areas- Presided by S Patel. It had the following sub-committees:
  - - FR sub-committee: JB Kripalani
    - Minorities sub-committee: HC Mukherjee
    - North-East Frontier Tribal Areas and Assam excluded and partially excluded areas sub-committee- Gopinath Bardoloi
    - Excluded and partially excluded areas sub-committee: AV Thakkar
6. Rule procedure committee: Dr Rajendra Prasad
7. States committee for negotiating with states: J Nehru
8. Steering committee: Dr Rajendra Prasad

#### 3.2. Minor Committes

1. Committee on the functions of the constituent Assembly: GV Mavalankar
2. Order of Business committee: Dr KM Munshi
3. House committee: B Pattabhi Sitaramayya
4. Ad-hoc committee on the National flag: Dr Rajendra Prasad
5. Special committee to examine the draft constitution: Alladi Krishnaswami Ayyar

### 3.3. Drafting Committee

- It was considered to be the most important committee of the constituent assembly
- It was chaired by Dr BR Ambedkar
- He played a pivotal role in drafting the constitution and also in passage of the constitution in the assembly
- The committee published the first draft of the constitution in February 1948. The second draft was published after incorporating changes suggested by the public in October 1948

### 4. Drafting Committee Conclusions

- In the concluding session of the Committee, on November 25, 1949, B.R. Ambedkar drew attention to a lacuna in the draft
- **“The second thing we are wanting in is recognition of the principle of fraternity. What does fraternity mean? Fraternity means a sense of common brotherhood of all Indians — if Indians being one people. It is the principle which gives unity and solidarity to social life. It is a difficult thing to achieve....”**
- He added elsewhere that ‘without fraternity[,] equality and liberty will be no deeper than coats of paint’; that fraternity has been most forgotten in our Constitution and in our electoral process, that in turn are reproduced in our hearts and homes
- The idea of fraternity is closely linked to that of social solidarity, which is impossible to accomplish without public empathy
- So along with liberty, equality and justice, fraternity was added to the principles in the Preamble
- There was little discussion nor was it sufficiently clarified that a sense of fraternity enriches and strengthens the gains emanating from the other three
- Those in the audience(Representatives) familiar with the history of the French Revolution might have recalled with some disquiet the message of the 1792 Edict of Fraternity (‘All governments are our enemies, all people our friends’)

- Kripalani, on October 17, 1949, drew attention to some implications. He pointed out that the contents of the Preamble were not only legal and political principles but also had a moral, spiritual and mystical content
- **If we want to use democracy as only a legal, constitutional and formal device, I submit, we shall fail.... the whole country should understand the moral, the spiritual and the mystic implication of the word democracy... If we have not done that, we shall fail as they have failed in other countries**
- Democracy will be made into autocracy and it will be made into imperialism, and it will be made into fascism. But as a moral principle, it must be lived in life
- It is not lived in life, and the whole of it in all its departments, it becomes only a formal and a legal principle.

## 5. Enforcement of the Constitution

- Final draft of the constitution was introduced in the assembly in 1948
- After subsequent readings, the constituent assembly **adopted, enacted and gave to themselves the constitution on November 26, 1949**
- Some provisions of the constitution came into force on the above-mentioned date. However, most provisions came into force on January 26<sup>th</sup>, 1950. This date is referred to in the constitution as the **‘date of its commencement’**. This day is celebrated as ‘Republic day’ every year
- This day was chosen by the constitution-makers to pay homage to the ‘Purna Swaraj’ which started on January 26<sup>th</sup>, 1930.

## 6. Criticism on Constituent Assembly

1. Not a representative body since members were not directly elected
2. It was not a sovereign body since it was established based on British order
3. It consumed unduly long time to make the constitution
4. It was dominated predominantly by congress party.
5. It was dominated by lawyer-politician to a greater degree
6. It was dominated by Hindus predominantly

## General Studies 2: International relations

# LAUNDROMAT COUNTRIES

### 1. Context

The Ministry of Petroleum and Natural Gas, on Wednesday, has denied a report by the Centre for Research on Energy and Clean Air (CREA) on India purchasing cheap Russian crude oil, saying it is misleading and a deceptive effort to tarnish India's image, the 4th largest oil refining country globally.

### 2. About Laundromat Countries

- Laundromat Countries are countries that buy Russian oil and sell processed products to European countries, thus sidestepping European Sanctions against Russian oil
- India leads five countries named as the “Laundromat” countries that buy Russian oil and sell processed products to European countries, thus sidestepping European sanctions against Russia, says a Helsinki-based group that cited the latest figures for the first quarter of 2023
- India, China, Turkey, the UAE and Singapore are identified as 'Laundromat' countries by Centre for Research on Energy and Clean Air (CREA) for European countries
- The five countries are responsible for 70 percent of Russia's crude oil exports, the study highlighted

### 3. Findings of CREA report

- Report by international agency Bloomberg that showed how European Union (EU) countries, which are all part of the “price cap coalition” that bars trade and insurance for any oil purchased above a certain price from Russia, are in fact increasing their intake of oil from India, China, Turkey, the UAE and Singapore

- The report accused Indian sellers and European buyers of possibly “circumventing sanctions” by selling crude products from a refinery in Gujarat that is co-owned by Russian oil company Rosneft.



- Price cap coalition countries have increased imports of refined oil products from countries that have become the largest importers of Russian crude
- This is a major loophole that can undermine the impact of the sanctions on Russia
- European countries are simply substituting oil products they previously bought directly from Russia, with the same products now “whitewashed” in third countries and bought from them at a premium
- Of the so-called “laundromat” countries, India, which in April remained the highest global consumer of seaborne Russian crude for a fifth month, is ahead of all others in the export of crude products to the coalition countries, exporting nearly 3.8 million tonnes of oil products to price cap coalition countries, which include the EU, G-7 countries, Australia and Japan

Largest oil product importers of the price cap coalition buying from laundromat countries one year post Russia's invasion in millions of tonnes

EU	20.1
Australia	9.1
United States	8.5
Japan	6.0
United Kingdom	5.3
Netherlands	5.1
France	3.5

- India's exports of diesel, for example, tripled to about 1,60,000 barrels per day in March 2023, compared with the period before the Russian war in Ukraine, making diesel one of the largest components of India-EU trade at present
- The CREA report said the most oil products were being exported from two ports in Gujarat: the Sikka port that services the Reliance-owned Jamnagar refinery, and the Vadinar port that ships oil products from Nayara energies, which is partly owned (49.13%) by Rosneft, alleging that this could constitute "circumventing sanctions" imposed unilaterally by the U.S. and Europe
- From less than 1% of its total oil intake pre-February 2022, India imported about a third or 35% of its oil imports from Russia in March 2023, buying about 1.6 million barrels per day from Russia over the past year

## WASHINGTON DECLARATION

### 1. Context

Recently, South Korean President Yoon Suk Yeol arrived in the U.S. to commemorate the 70th anniversary of U.S.-South Korea bilateral relations. A highlight of the visit was the signing of the "Washington Declaration" as a nuclear deterrence strategy.

## 2. Washington Declaration

- The agreement outlines cooperation toward deterrence.
- According to the declaration, an American nuclear ballistic submarine would be deployed in the Korean peninsula; a nuclear consultative group would be formed to formulate principles of joint response tactics.
- South Korea would receive Intel from the U.S. regarding nuclear advancements, and the U.S. will strengthen South Korea's nuclear deterrence capabilities through joint military training programs and an annual intergovernmental simulation.
- The declaration reaffirmed the nonproliferation Treaty implying that South Korea would not venture into the creation of its own independent nuclear capabilities and would instead focus on deterrence measures through an alliance based approach.
- It also mandates the U.S. President as the only 'sole authority' to use the nuclear arsenal of the U.S. in the event of a nuclear confrontation.
- While the existence of the agreement is based on the security needs of South Korea, the policy reflects big power politics where the interests of the larger power (U.S.) take precedence.

## 3. Reasons behind the South Korean President's Visit to the U.S.

- The successful launch of North Korea's Hwasong8 solid-fuel intercontinental ballistic missile (ICBM), a vital component for nuclear weapons delivery, seems to have triggered the U.S. visit of the South Korean President.
- Mr. Yoon aimed to advance the strategic partnership, drawing an alliance over an extended nuclear deterrence plan against the regional aggression of North Korea.
- The Washington agreement will launch a new phase in the partnership between Seoul and Washington.

#### **4. Why is the U.S. not keen on S.Korea having a nuclear arsenal?**

- South Korea's nuclear development program supported by former president Park Chung Hee was hindered due to U.S. pressure.
- In the 1990s, the U.S. withdrew one hundred nuclear weapons from South Korea as part of their "Strategic Arms Reduction Treaty".
- The U.S. was hoping to make North Korea unarm itself. Washington made an erroneous assumption that it could deter the weapons production of North Korea by extracting South Korea's nuclear capacity.
- Secondly, the Nuclear Posture Review 2022 reflects a shift in the U.S. narrative where it is now concerned about the progressing nuclear capacities of North Korea.
- The report states that North Korea creates deterrence dilemmas for the United States and its Allies and partners and that a crisis or conflict on the Korean Peninsula could involve a number of nucleararmed actors, raising the risk of a broader conflict.
- Finally, the U.S. wants to control global nuclear arms production. It has been reluctant to allow South Korea to develop its own nuclear arsenal as it would hinder the prolonged efforts of controlling nuclear production in the world.
- The assurance that the U.S. and its nuclear weapons would protect its allies by being responsible for maintaining stability in the region aligns with the larger goal of nonproliferation.
- Washington plays a major influence in South Korea's foreign policy objectives, and Seoul would rather not disappoint the U.S. as they are a vital supporter of their cause.

#### **5. What has been the regional response?**

- The Washington Declaration advocates for nuclear deterrence policy in the region, aiming to balance power dynamics against North Korea.
- While the aim is to defuse the threat, physical deployment of the arsenal can be deemed as a direct threat by opposing actors and used as leverage to act aggressively.

## 6. What is the domestic response?

- The South Korean Public is skeptical about U.S. support. A poll by the Chicago Council on Foreign Relations reported that 71% of South Koreans want to build their own nuclear weapons.
- With an aggressive North Korea in the neighborhood, they would prefer their own deterrence.

# EU'S ARTIFICIAL INTELLIGENCE ACT

## 1. Context

After intense last-minute negotiations in the past few weeks on how to bring general-purpose artificial intelligence systems (GPAIS) like OpenAI's ChatGPT under the ambit of regulation, members of the European Parliament reached a Preliminary deal this week on a new draft of the European Union's ambitious Artificial Intelligence Act, first drafted two years ago.

## 2. What is the EU AI Act?

- The AI Act is a proposed European law on artificial intelligence (AI) – the first law on AI by a major regulator anywhere.
- The law assigns applications of AI to three risk categories. First, applications and systems that create an unacceptable risk, such as government-run social scoring of the type used in China, are banned. Second, high-risk applications, such as a CV-scanning tool that ranks job applicants, are subject to specific legal requirements.
- Lastly, applications not explicitly banned or listed as high-risk are largely left unregulated

## 3. Why should we regulate Artificial Intelligence?

- As artificial intelligence technologies become omnipresent and their algorithms more advanced capable of performing a wide variety of tasks

including voice assistance, recommending music, driving cars, detecting cancer, and even deciding whether you get shortlisted for a job the risks and uncertainties associated with them have also ballooned.

- Many AI tools are essentially black boxes, meaning even those who designed them cannot explain what goes on inside them to generate a particular output.
- Complex and unexplainable AI tools have already manifested in wrongful arrests due to AI-enabled facial recognition; discrimination and societal biases seeping into AI outputs; and most recently, in how chatbots based on large language models (LLMs) like Generative Pretrained Transformer<sup>3</sup> (GPT<sup>3</sup>) and <sup>4</sup> can generate versatile, human competitive and genuine looking content, which may be inaccurate or copyrighted material.

#### **4. How was the AI Act formed?**

- The legislation was drafted in 2021 to bring transparency, trust, and accountability to AI and create a framework to mitigate risks to the safety, health, fundamental rights, and democratic values of the EU.
- It also aims to address ethical questions and implementation challenges in various sectors ranging from healthcare and education to finance and energy.
- The legislation seeks to strike a balance between promoting “the uptake of AI while mitigating or preventing harms associated with certain uses of the technology”.
- Similar to how the EU’s 2018 General Data Protection Regulation (GDPR) made it an industry leader in the global data protection regime, the AI law aims to “strengthen Europe’s position as a global hub of excellence in AI from the lab to the market” and ensure that AI in Europe respects the 27-country bloc’s values and rules.

#### **5. What does the draft document entail?**

- The draft of the AI Act broadly defines AI as “software that is developed with one or more of the techniques that can, for a given set of human defined objectives, generate outputs such as content, predictions, recommendations, or decisions influencing the environments they interact with”.

- It identifies AI tools based on machine learning, deep learning, and knowledge as well as logicbased and statistical approaches.
- The Act's central approach is the classification of AI tech based on the level of risk they pose to the "health and safety or fundamental rights" of a person.
- There are four risk categories in the Act unacceptable, high, limited, and minimal.
- The Act prohibits using technologies in the unacceptable risk category with little exception.
- These include the use of realtime facial and biometric identification systems in public spaces; systems of social scoring of citizens by governments leading to "unjustified and disproportionate detrimental treatment"; subliminal techniques to distort a person's behavior; and technologies that can exploit vulnerabilities of the young or elderly, or persons with disabilities.
- The Act lays substantial focus on AI in the highrisk category, prescribing several preand postmarket requirements for developers and users of such systems.
- Some systems that fall under this category include biometric identification and categorization of natural persons.
- AI is used in healthcare, education, employment (recruitment), law enforcement, justice delivery systems, and tools that provide access to essential private and public services (including access to financial services such as loan approval systems).
- The Act envisages establishing a EU wide database of highrisk AI systems and setting parameters so that future technologies or those under development can be included if they meet the high risk criteria.

## **6. What is the recent proposal on general-purpose AI like ChatGPT?**

- As recently as February this year, general-purpose AI such as the language model based ChatGPT, used for a plethora of tasks from summarising concepts on the internet to serving up poems, news reports, and even a Colombian court judgment did not feature in the EU lawmakers' Plans for regulating AI technologies.
- The bloc's 108page proposal for the AI Act published two years earlier, included only one mention of the word "chatbot."

- By midApril, however, members of the European Parliament were racing to update those rules to catch up with an explosion of interest in generative AI, which has provoked awe and anxiety since OpenAI unveiled ChatGPT six months ago.
- Lawmakers now target the use of copyrighted material by companies deploying generative AI tools such as OpenAI's ChatGPT or image generator Midjourney, as these tools train themselves from large sets of text and visual data on the internet.
- They will have to disclose any copyrighted material used to develop their systems.

## 7. AI Governance in the USA and China

- The rapidly evolving pace of AI development has led to diverging global views on how to regulate these technologies.
- The U.S. currently does not have comprehensive AI regulation and has taken a fairly hands-off approach.
- The Biden administration released a blueprint for an AI Bill of Rights (AIBoR).
- Developed by the White House Office of Science and Technology Policy (OSTP), the AIBoR outlines the harms of AI to economic and civil rights and lays down five principles for mitigating these harms.
- The blueprint, instead of a horizontal approach like the EU endorses a sector-specific approach to AI governance, with policy interventions for individual sectors such as health, labor, and education, leaving it to sectoral federal agencies to come out with their plans.
- On the other end of the spectrum, China over the last year came out with some of the world's first nationally binding regulations targeting specific types of algorithms and AI.
- It enacted a law to regulate recommendation algorithms with a focus on how they disseminate information.

# CHINA'S ANTI-ESPIONAGE LAW

## 1. Context

- On April 26, 2023, China's legislature approved sweeping amendments to **China's anti-espionage law**, broadening the scope of what may be defined as activities related to spying and national security.
- The amendments come amid a string of high-profile cases involving journalists, foreign executives, as well as international companies in China, who have come under the lens of authorities on national security grounds.
- The expanded law follows the Xi Jinping government's increasing focus on Security and a recent policy shift that now emphasises the dual importance of development and security, rather than a focus solely on economic development.

## 2. About China's anti-espionage law

- Article 1 of the law says the idea behind the legislation is "to prevent, stop and punish espionage conduct and maintain national security".
- The broad ambit of what constitutes national security as well as the law's focus on involving a whole-of-society approach to counter-espionage, including from Chinese enterprises and organisations, evoked concerns among both rights groups and foreign enterprises in China.
- Foreign governments are especially concerned whether Chinese companies, particularly in the tech sector would be mandated to offer their vast amounts of data to the authorities.
- For instance, one article of the law mandates that "all state organs, armed forces, political parties and public groups and all enterprises and organisations, must prevent and stop espionage activities and maintain national security.
- Another article encourages ordinary citizens to take part in national anti-espionage efforts by reporting to the authorities any activity deemed to be suspicious and endangering national security.
- The latest amendments are the first changes since 2014 and will take effect on July 1, 2023.
- They have further broadened the law's scope, with one of the changes declaring that "all documents, data, materials and items related to national

security and interests will be protected on par with what is deemed state secrets.

- The definition of espionage has also been expanded to include cyber-attacks.
- Essentially the transfer of any information deemed by authorities to be in the interest of what they define to be national security will now be considered an act of espionage.

### **3. The prompted changes**

- The latest change "improves the regulations on cyber espionage and clearly defines cyberattacks, intrusions, interference, control and destruction as espionage.
- Other changes, would include clarifying the responsibility of national security organs in guiding and arranging publicity as well as provisions to strengthen the protection of personal information in counter-espionage work.
- The amendments have also coincided with several recent high-profile cases which observers have seen to reflect a broadening scope for anti-espionage activities as well as a widening definition of national security. The cases of three journalists were arrested on the charges of spying

### **4. The impact of the amended law**

- The amended law is likely to have a chilling impact both within China and beyond.
- Chinese journalists, academics and executives who frequently engage with foreign counterparts are likely to think twice before doing so, at least without explicit government sanction, particularly in the wake of the arrest of Dong Yuyu.
- Unrestricted engagement between Chinese and foreign scholars, which has already become limited in the Xi Jinping era is likely to become even rarer.
- Indian companies with a presence in China, particularly in sectors deemed to be sensitive such as pharma and IT, will likely need to review their exposure to risks under the expanded law and broadened definitions of national security, particularly amid deteriorating relations between the neighbours.
- An increasing number of espionage cases against China have been found since 2014, requiring amendments.

- This fully demonstrates the necessity and urgency for China to update its anti-espionage law to protect its national security.

## STONE OF SCONE

### 1. Context

With Britain's King Charles III set to have his coronation ceremony later this week on May 6 2023 (Saturday), preparations are afoot for a day associated with specific objects and traditions as part of the world's few remaining monarchies.

The event is expected to draw a significant audience from across the world. The interest here may also be because of the fact that the last time a coronation happened in the UK royal family was in 1953, after Charles's mother Queen Elizabeth II was crowned Queen following the death of her father, King George VI, around a year prior. The Queen passed away on September 8, 2022. Given the scale of the coronation ceremonies, they take place some months after the monarch's death. Although, the proclamation of Charles as King happened soon after the Queen's death **in a small ceremony**



## 2. What is Stone Scone?

- The 150kg red sandstone slab has some marks on it, along with two attached metal rings
- Also known as the Stone of Destiny, the stone has long resided in Scotland and is seen as a sacred, historic symbol of its monarchy and nationhood
- It was believed to have been used in the inauguration of Scottish kings as far back as the early 9th century
- Many of these inaugurations took place at the Scone Palace in the city of Perth in Scotland, hence the name of the stone
- The monarchs would have their inauguration as kings while sitting on it
- The stone, as one of the few objects present in the inauguration, therefore became an important symbol of the Scottish royals, representing a solid foundation to the kingdom

- In 1296, King Edward I of England seized the stone from the Scots, and had it built into a new throne at Westminster
- It was incorporated into a small section underneath the wooden Coronation Chair, ordered in 1308 for London's Westminster Abbey
- That chair has since been used in the coronation ceremonies of English and British monarchs since Henry IV in 1399. It was used in Elizabeth II's coronation as well.
- There have also been instances of the stone disappearing or suffering damage. Suffragettes, or women activists campaigning for voting rights in the country, once set off a bomb near the chair in the early 20th century, and as a result, both the chair and the stone sustained some damage
- On Christmas Day in 1950, four nationalist Scottish students removed the stone from Westminster Abbey
- Three months later it turned up nearly 800 kilometres away, in the Arbroath Abbey in Scotland, a building long associated with Scottish independence, as Scottish nobles swore their independence from England here in the 14th century
- The stone, therefore, also became embroiled in the cause of Scottish nationalism
- In 1996, the stone was officially returned to Scotland. Today, it is on display in the Crown Room of the Castle and is only "borrowed" for coronations

### 3. Significance of Stone Scone

- It was believed to be the same stone used by the biblical figure of Jacob (the father of the Israelites) as a pillow when he dreamed of a ladder reaching up to heaven
- From here, one of Jacob's sons is said to have taken it to Egypt, from where it travelled to Spain and later to Ireland when the Spanish king's son, Simon Brech, invaded the island in 700 BCE
- There it was placed upon the sacred Hill of Tara, and called "Lia-Fail", the "fatal" stone, or "stone of destiny"
- The Westminster Abbey website states that Fergus Mor MacEirc, the founder of the Scottish monarchy, and one of the Blood Royal of Ireland, received it in Scotland

- King Edward seizing the stone, monks at the Scone Palace hid the “real stone” in a nearby river and gave English soldiers a replica.

## CHINA AS PEACEMAKER IN MIDDLE EAST

### 1. Context

China has been upping its diplomatic charm offensive in the Middle East in recent weeks, framing itself as a peacemaker between longstanding rivals in the region. After brokering a landmark deal, helping Iran and Saudi Arabia to re-establish diplomatic ties on April 6, 2023 Beijing is now trying to facilitate peace talks between Israelis and Palestinians.

### 2. China’s focus on ‘acquiring resources and markets

- Beijing views longstanding disputes between different countries as “destabilizing” and potentially risky to its long-term business interests.
- China’s most important interests in the Middle East are acquiring resources and markets, which include economic and political interests.
- China has an incentive to resolve these disputes, as it can benefit from stability in the region.
- Additionally, serving as a mediator allows China to demonstrate that it’s a great power that wants to contribute to peace and stability in the Middle East.
- Before the groundbreaking deal between Iran and Saudi Arabia, China has long been a top trading partner for countries in the Middle East, purchasing oil and investing more than \$273 billion (€250 billion) in the region between 2005 and 2022.
- The Belt and Road initiative, China’s flagship global infrastructure project that started in 2013, has also allowed Beijing to expand its influence across the region.

### 3. What is New Saudi-Iran Deal?

- Iran and Saudi Arabia, two of the largest oil-producing states in the Middle East have agreed to restore ties and reopen embassies which have been closed since relations between the two broke down in 2016 following the execution of a Shia cleric by Saudi Arabia.
- The agreement was negotiated by China and signed in Beijing after a series of secret negotiations.
- The agreement could potentially lead to peace in Yemen where the two countries had been waging a proxy war and also affect the Iran nuclear deal.
- The deal has been welcomed by the United Nations, France, Jordan, and other West Asian countries but Chinese involvement and concerns over whether it could be counter to the USA -Led Abraham accords have worried Israel, the UAE, and the USA.
- The successful agreement would boost China's efforts to project itself as a peacemaker as previous efforts by Oman and Iraq to reach a solution had failed.
- The trilateral statement issued by the three countries following the agreement affirmed their respect for the sovereignty of states and non-interference in the internal affairs of other countries.

### 4. How is it beneficial to China?

- In contrast, China has enjoyed warmer ties with Saudi Arabia and Iran.
- In December 2022, China and Saudi Arabia signed more than twelve agreements related to energy and infrastructure.
- Tehran and Beijing have also coordinated on the Belt and Road Initiative with talks being held on a 25-year MoU on oil and infrastructure projects worth around \$400 billion.
- China has stated that it would continue to play a constructive role in handling hotspot issues across the world and demonstrate its responsibility as a major nation.

## 5. India's Response to this Deal

- India has not officially released any announcement in reaction to the agreement but experts have expressed concern about Beijing's potential influence on two of India's largest partners in the region, given the tensions between India and China.
- While the normalization of ties between Saudi Arabia and Iran was good news for India, China's role was a concern but this also provided India with an opportunity to rework its priorities and focus on regional developments in the Middle East.
- Some experts have claimed that India's recent focus on the I2U2 quadrilateral involving Israel, the USA, and UAE might have shifted the focus away from Iran and Saudi Arabia.
- A visit to India by the Saudi Arabian crown prince Mohammad Bin Salman was postponed in 2022 while the Iranian prime minister's visit as part of the Raisina Dialogue 2023 was also canceled.
- India will also pay close attention to China's response to the success of the deal and whether China will extend its peacemaker role to other global conflicts.

## 6. Can China challenge US dominance in the Middle East?

- As China looks to grow its influence in the Middle East, the international community is also closely following how it might challenge a regional order that has long been dominated by the United States.
- Murphy from the US War College told DW that China puts emphasis on its ability to maintain balanced relations with every country in the Middle East and that there are no signs that Beijing would start picking sides amid its ongoing attempt to present itself as a "peacemaker."
- Even though some US policymakers view China's growing influence in the Middle East with concern, Gering from INSS thinks top US officials like Secretary of State Antony Blinken view Beijing's attempt to be a mediator in regional conflicts as a positive change.

# SUDAN CONFLICT

## 1. Context

Around 530 Indians have been evacuated from Sudan so far with 250 people taken to Jeddah in Saudi Arabia via an Indian Air Force (IAF) aircraft and 278 on an Indian Navy Ship Sumedha.

## 2. About Sudan Conflict

- Sudan's military and its paramilitary forces have been involved in a fierce battle against each other since April 15, leaving at least 420 people dead and more than 3, 700 wounded.
- The clashes follow months of heightened tension between the Army Chief Lt Gen Abdel Fattah al-Burhan and the Rapid Support Force (RSF) head Gen Mohamed Hamdan Dagalo, also known as Hemetti.
- Both generals are at loggerheads as they fight for control of Sudan's major institutions.
- But this was not always the case. Burhan and Hamdan joined forces to oust authoritarian President Omar al-Bashir in 2019.
- One reason, according to experts, for their fallout is the growing ambitions of Hamdan to lead Sudan.
- In recent years, he has amassed vast amounts of wealth, making his RSF stronger and a significant challenger to Burhan's army.

## 3. Rapid Support Forces in Sudan

- Although formally established in 2013, the RSF can trace its roots to the Janjaweed militias a group of Arab tribes primarily based in western Sudan, including the contentious region of Darfur.
- They were first armed and organised in the early 1980s to help government expand its influence in neighbouring civil-war-torn Chad.
- Janjaweed militias, who called themselves horsemen, came into global prominence in 2003 when they helped the Sudanese government quell a rebellion by peasants in Darfur.
- While the military attacked by using air force and heavy weapons, Janjaweed perpetrated violence against the rebels and civilians in isolated areas.

- Men were mutilated and murdered, women raped and children kidnapped. Fields and houses were destroyed, wells poisoned and valuable goods seized.
- According to the United Nations, an estimated 300, 000 people were killed in the conflict between 2003 and 2008 and 2.5 million more were displaced.
- In 2007, the United States government led by President George Bush declared that violence in Darfur was "genocide" perpetrated by the government and its allied forces, including the Janjaweed militias.
- Subsequently, the **International Criminal Court** opened investigations into the genocidal violence, indicting Sudan's then-President Bashir, on charges of genocide and crimes against humanity in 2009.
- Despite the backlash, Janjaweed continued to grow, helping Bashir rule the country with an iron fist.
- The President gave the group an institutional veneer, as per NYT, in 2013, when it became the Rapid Support Forces (RSF) and Hamdan was appointed as its head.
- In the following years, RSF carried out brutal violence across Sudan, including committing war crimes in Darfur in 2014 and 2015 when civilians were displaced, raped, looted and killed.
- In 2019, the forces killed more than 100 people in the country's capital, Khartoum, during a protest against al-Bashir.
- Hundreds of unarmed civilians were injured and many more were sent to jail.

#### 4. Strength of RSF

- RSF soon after its formal constitution began to expand owing to its proximity to Bashir.
- It became his praetorian guard, tasked with protecting the president from any coup attempt by the army.
- Then, in 2015, the paramilitary forces along with Sudan's Army began supplying troops to fight in the war in Yemen to support Saudi Arabia and the United Arab Emirates troops.
- In return, Hamadan received money and weapons.
- Two years later, the forces partnered with the Russian mercenary Wagner Group to mine the vast gold reserves in Sudan.

- This further helped RSF and Hammad expand their political, economic and political influence resulting in a conflict with the country's army chief Burhan.
- The estimated RSF numbers between 70, 000 and 1, 50, 000 fighters and its members include former military and intelligence officers.
- The forces have also recruited more fighters from Sudan's east and north in an attempt to widen their support.

## General Studies 2: Polity

# COLLEGIUM VS NJAC

## 1. Context

The Supreme Court and the Centre are at odds over how judges should be appointed in the higher judiciary. In recent, the government has reiterated the need for a National Judicial Appointments Commission (NJAC), prompting the apex court to defend the present Collegium system. Union Minister for Law and Justice Kiren Rijiju reignited the debate at the beginning of November when he commented that the Collegium system of appointments was “opaque” and needed to be reconsidered. His sentiment was echoed shortly after by Vice President and Rajya Sabha Chairman Jagdeep Dhankar in Parliament on December 7, when he remarked that it was “never too late to reflect” on the NJAC.

## 2. Collegium System

- The Collegium system is not rooted in the Constitution. Instead, it has evolved through judgments of the Supreme Court.
- Under the system, the Chief Justice of India along with four senior-most Supreme Court judges recommend appointments and transfers of judges.
- A High Court Collegium, meanwhile, is led by the incumbent Chief Justice and the two senior-most judges of that court.

- In this system, the government's role is limited to getting an inquiry conducted by the Intelligence Bureau (IB) if a lawyer is to be elevated as a judge in a High Court or the Supreme Court.
- The government can also raise objections and seek clarifications regarding the Collegium's choices, but, if the Collegium reiterates the same names, the government is bound, under Constitution Bench judgments, to appoint them to the post.

### 3. Evolution of Collegium System

The system evolved in the three Judge's cases:

- In the First Judges case, the court held that the consultation with the CJI should be "full and effective".
- The Second Judges Case introduced the collegium system in 1993, as they ordered the CJI to consult a collegium of his two senior judges in the apex court on judicial appointments, such a "collective opinion" of the collegium would have primacy over the government.
- The Third Judges case in 1998, expanded the judicial collegium to its present composition of the CJI and four of its senior-most judges.

### 4. Constitutional Provisions for Appointment of Judges

#### Article 124(2)

Every Judge of the Supreme Court shall be appointed by the President by warrant under his hand and seal after consultation with such of the Judges of the Supreme Court and the High Courts in the States as the President may deem necessary for the purpose and shall hold office until he attains the age of sixty-five years.

#### Article 217

Every Judge of a High Court shall be appointed by the President by warrant under his hand and seal after consultation with the Chief Justice of India, the Governor of the state, and, in the case of appointment of a Judge other than the Chief Justice, the Chief Justice of the High court, and shall hold office, in the case of an

additional or acting Judge, as provided in Article 224, and in any other case, until he attains the age of sixty-two years.

## 5. Procedure for replacement of Collegium System

- Replacing the Collegium system calls for a Constitutional Amendment Bill.
- It requires a majority of not less than two-thirds of MPs (Members of Parliament) present and voting in Lok Sabha as well as Rajya Sabha.
- It also needs the ratification of legislatures of not less than one-half of the states.

## 6. What are the concerns associated with the Collegium system?

- **Constitutional Status:** The Collegium is not prescribed in the Constitution. Article 124 mentions consultation, which the SC interpreted as ‘concurrence’ in Second Judges Case (1993). During the hearing against the NJAC, the then SC Bar President had argued that the Constituent Assembly had considered a proposal for making Judges’ appointment ‘in concurrence’ with the CJI but had eventually rejected it.
- **Transparency:** There is no official procedure for selection or any written manual for the functioning of the Collegium. The parameters considered for selection (or rejection) are not available in the public domain.
- **Accountability:** The selection of Judges by the Judges is considered undemocratic. Judges are not accountable to the people or any other organ of the State (Legislature or Executive). It can add an element of arbitrariness in functioning.
- **Criticism by Judges:** Many retired Judges have criticized the working of the Collegium, especially the lack of transparency. Several controversial appointments have been made despite objections by the member-Judges of the Collegium.
- **No Checks:** There are no checks on the process. Nor has there been any review regarding the effectiveness of the process. Critics of the system argue the phenomena of ‘Uncle Judges’ wherein near relatives, kith, and kin of sitting Judges are appointed to the higher judiciary leading to nepotism. Law Commission in its 230<sup>th</sup> Report (2012) recommended that that the Judges, whose kith and kin are practicing in a High Court, should not be appointed

in the same High Court. The absence of transparency, accountability, and external checks creates space for subjectivity and individual bias in appointments. In some cases, the principle of seniority has been ignored.

- **No Reforms:** The Supreme Court did not amend the contentious provisions of the NJAC Act or added safeguards to the Act. Instead, it struck down the whole Act. The Supreme Court reverted to the old Collegium System. However, the Court did not take any steps to address the concerns associated with the Collegium System.

## 7. What is National Judicial Appointments Commission (NJAC)

- The Constitution (99th Amendment) Act, which established the NJAC and the NJAC Act, was passed by Parliament in 2014 to set up a commission for appointing judges, replacing the Collegium system.
- This would essentially increase the government's role in the appointment of judges.
- The laws were repealed in October 2015 after the Supreme Court struck them down.

### 7.1 Composition of NJAC

- The Chief Justice of India as the ex officio Chairperson.
- Two senior-most Supreme Court Judges as ex officio members.
- The Union Minister of Law and Justice as ex officio members.
- Two eminent persons from civil society (one of whom would be nominated by a committee consisting of the CJI, Prime Minister, and the Leader of Opposition in the Lok Sabha, and the other would be nominated from the SC/ST/OBC/minority communities or women).

## PoSH ACT

## 1. Context

Recently, An investigation revealed that more than half of 16 of India's 30 national sports federations do not have an **Internal Complaints Committee (ICC)**, a legal requirement under the Prevention of Sexual Harassment (POSH) Act, 2013.

## 2. The law against sexual harassment of women in the workplace

- The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, commonly known as the PoSH Act, was passed in 2013.
- It defined sexual harassment, lay down the procedures for complaint and inquiry and the action to be taken in cases of sexual harassment.

## 3. Vishaka Guidelines

- The 2013 law broadened and gave legislative backing to what is known as the **Vishaka Guidelines**, which were laid down by the Supreme Court in a judgment passed in 1997.
- The case in question was filed by women's rights groups, including one called Vishaka, over the alleged gangrape of a social worker from Rajasthan named Bhanwari Devi.
- Bhanwari had fought against the marriage of a one-year-old baby girl in 1992 and had been allegedly gang-raped as retribution.
- The Vishaka Guidelines defined sexual harassment and imposed **three key obligations** on institutions **Prohibition, Prevention and Redress**.
- The Supreme Court directed that they should establish a Complaints Committee, which would look into matters of sexual harassment of women in the workplace. The court made the guidelines **legally binding**.

## 4. PoSH Act about the complaints committee

- The PoSH Act subsequently mandated that every employer must constitute an Internal Complaints Committee (ICC) at each office or branch that had 10 or more employees.
- It defined various aspects of sexual harassment and lay down procedures for action in case of a complaint.

- The aggrieved victim under the Act can be a woman "of any age whether employed (at the workplace) or not, who **"alleges to have been subjected to any act of sexual harassment"** .
- In effect, the Act protects the rights of all women who are working or visiting any workplace, in any capacity.

### 5. Sexual Harassment under the PoSH Act

Under the 2013 law, sexual harassment includes **"any one or more"** of the following **"unwelcome acts or behaviour"** committed directly or by implication:

1. Physical contact and advances
2. A demand or request for sexual favours
3. Sexually coloured remarks
4. Showing pornography
5. Any other unwelcome physical, verbal or non-verbal conduct of sexual nature.

A **"Handbook on Sexual Harassment of Women at Workplace"** published by the **Ministry of Women & Child Development** contains more detailed instances of behaviour that constitute sexual harassment in the workplace. These circumstances include, broadly:

1. Sexually suggestive remarks or innuendo  
Serious or repeated offensive remarks
2. Inappropriate questions or remarks about a person's sex life
3. Display of sexist or offensive pictures, posters, MMS, SMS, WhatsApp, or Emails
4. Intimidation, threats, blackmail around sexual favours
5. Threats, intimidation or retaliation against an employee who speaks up about these
6. Unwelcome social invitations with sexual overtones, commonly seen as flirting
7. Unwelcome sexual advances

8. The Handbook Says "**Unwelcome behaviour**" is experienced when the victim feels bad or powerless and when it causes anger/sadness or negative self-esteem.
9. Unwelcome behaviour is "illegal, demeaning, invading, one-sided and power based".

In addition, the **PoSH Act** mentions **five circumstances** that amount to **sexual harassment**

1. Implied or explicit promise of preferential treatment in her employment
2. The implied or explicit threat of detrimental treatment
3. The implied or explicit threat about the complainant's present or future employment status
4. Interference with the complainant's work or creating an offensive or hostile work environment
5. Humiliating treatment of the complainant that is likely to affect her health or safety.

## 6. The procedure for a complaint under the Act

- The aggrieved victim does not need to file a complaint for the ICC to take action.  
The Act says that she "**may**" do so and if she cannot, any member of the ICC "shall" render "all reasonable assistance" to her to complain in writing.
- If the woman cannot complain because of "**physical or mental incapacity or death or otherwise**" her legal heir may do so.
- Under the Act, the complaint must be made within three months from the date of the incident.
- However, the ICC can "**extend the time limit**" if "it is satisfied that the circumstances were such which prevented the woman from filing a complaint within the said period".
- The ICC may before the inquiry and at the request of the aggrieved woman, take steps to settle the matter between her and the respondent through conciliation provided that "**no monetary settlement shall be made as a basis of conciliation**".

- The ICC may either forward the victim's complaint to the police or it can start an inquiry that has to be completed within 90 days.
- The ICC has powers similar to those of a civil court in respect of summoning and examining any person on oath and requiring the discovery and production of documents.
- When the inquiry is completed, the ICC must provide a report of its findings to the employer within 10 days. The report must also be made available to both parties.
- The identity of the woman, respondent, witness, and any information on the inquiry, recommendation and action taken, should not be made public.

## 7. ICC Action on the Complaint

- If the allegations of sexual harassment are proven, the ICC will recommend to the employer to take action "**by the provisions of the service rules**" of the company. These may vary from company to company.
- The ICC may also recommend that the company deduct the salary of the person found guilty, "**as it may consider appropriate**". The compensation is determined based on five aspects:
  1. Suffering and emotional distress caused to the woman
  2. Loss of career opportunity
  3. Her medical expenses
  4. Income and financial status of the respondent
  5. The feasibility of such payment

If either the aggrieved woman or the respondent is not satisfied, they may appeal in court within 90 days.

## 8. False complaint of sexual harassment

- Section 14 of the Act deals with punishment for false or malicious complaints and false evidence.
- In such a case, the ICC "**may recommend**" to the employer that it take action against the woman or the person who has made the complaint, in "**accordance with the provisions of the service rules**".

- The Act, however, makes it clear that action cannot be taken for "**mere inability**" to "**Substantiate the complaint or provide adequate proof**".

## MEITEI TRIBE

### 1. Context

Manipur has been restive since February when the BJP-led government launched an eviction drive seen as targeting a specific tribal group.

The drive led to protests but not on the scale of the one on May 3, 2023, triggered by the Manipur High Court's direction to the State to pursue a 10-year-old recommendation to grant Scheduled Tribe status to the nontribal **Meitei** community.

### 2. About Manipur's ethnic composition

- Geography has a lot to do with Manipur's problems. Four highways, two of them lifelines for the State, are the valley's access points to the world beyond.
- The valley, which comprises about 10 per cent of Manipur's landmass, is dominated by the **nontribal Meitei** who account for more than **64 per cent of the population** of the State and yields 40 of the State's 60 MLAs.
- The hills comprising 90 per cent of the geographical area are inhabited by more than 35 per cent recognised tribes but send only 20 MLAs to the Assembly.
- While a majority of the Meities are Hindus followed by Muslims, the **33 recognised tribes**, broadly classified into "**Any Naga Tribes**" and "**Any Kuki Tribes**" are **largely Christians**.

### 3. Meitei's arguments

- Hearing a petition by eight people representing the Meiti (Meitei) Tribe Union, the Manipur High Court directed the State government to submit,

within four weeks, a 10-year-old recommendation to the Union Tribal Affairs Ministry for the inclusion of the Meitei community in the ST list.

- The court referred to the Ministry's letter in May 2013 to the Manipur government seeking specific recommendations along with the latest socioeconomic survey and ethnographic report.
- The letter followed a representation submitted by the Scheduled Tribe Demand Committee of Manipur (STDCM), which began demanding ST status for the Meiteis in 2012.
- The petitioners told the High Court that the Meiteis were recognised as a tribe before the merger of the State with the Union of India in 1949.
- They argued that the ST status is needed to "preserve" the community and "save the ancestral land, tradition, culture and language" of the Meities.
- The STDCM also said the Meiteis needed constitutional safeguards against outsiders, stating that the community has been kept away from the hills while the tribal people can buy land in the "**shrinking**" **Imphal Valley**.

#### 4. Reasons for the tribal groups against ST status for Meiteis

- The tribal groups say the Meiteis have a demographic and political advantage besides being more advanced than them academically and in other aspects.
- They feel the ST status to the Meiteis would lead to loss of job opportunities and allow them to acquire land in the hills and push the tribals out.
- Groups such as the All Tribal Students Union of Manipur point out that the language of the Meitei people is included in the Eighth Schedule of the Constitution and many of them have access to benefits associated with the SC, OBC or EWS status.
- To the hill tribal people of Manipur, the demand for ST status is a ploy to attenuate the fervent political demands of the Kukis and Nagas as well as a tacit strategy of the dominant valley dwellers to make inroads into the hill areas of the State.

## 5. Factors that led to the unrest

- Pro-government groups in Manipur claim some tribal groups with vested interests are trying to scuttle Chief Minister Nongthombam Biren Singh's crusade against drugs.
- The anti-drug drive began with destroying poppy fields and the theory that "**illegal settlers**" from Myanmar ethnically related to the KukiZomi people of Manipur are behind clearing forests and government lands to grow **opium and cannabis**.
- The first violent protest was against the eviction of the residents of a Kuki village.
- This made the State government withdraw from the suspension of operations with two Kuki extremist groups accused of inciting the protesters.
- The large-scale arson and violence claiming the life of at least one person on May 3 and 4, 2023, following a "**Tribal solidarity rally**" against the reported move to include the Meiteis in the ST list.

# STANDING COMMITTEES

## 1.Introduction

- Each of the Standing Committees consists of not more than 31 members, 21 Members to be nominated by the Speaker from amongst the members of Lok Sabha and 10 members to be nominated by the Chairman, of Rajya Sabha from amongst the members of Rajya Sabha.
- A Minister is not nominated as a member of the Committee. If a member after nomination to the Committee is appointed a Minister, such member ceases to be a member of the Committee from the date of such appointment.
- The Chairpersons of Committees from Rajya Sabha are appointed by the Chairman, and the Chairpersons of Committees from Lok Sabha are appointed by the Speaker

- The term of office of the members of the Committees does not exceed one year
- The functioning of the Standing Committee is governed by the general rules relating to Parliamentary Committees

## 2.Functions

- To consider the Demands for Grants of the concerned Ministries/Departments and make a report on the same to the Houses. The report shall not suggest anything of the nature of cut motions
- To examine such Bills pertaining to the concerned Ministries/Departments as are referred to the Committee by the Chairman, Rajya Sabha or the Speaker, Lok Sabha as the case may be, and make reports thereon
- To consider annual reports of Ministries/Departments and make reports thereon
- To consider National basic long-term policy documents presented to the House, if referred to the Committee by the Chairman, Rajya Sabha or the Speaker, Lok Sabha as the case may be, and make reports thereon

# NATIONAL COMMISSION FOR SCHEDULED TRIBES (NCST)

## 1.Background

The National Commission for Scheduled Tribes (NCST) was established by amending Article 338 and inserting a new Article 338A in the Constitution through the Constitution (89th Amendment) Act, 2003.

By this amendment, the erstwhile National Commission for Scheduled Castes and Scheduled Tribes was replaced by two separate Commissions namely- (i) the National Commission for Scheduled Castes (NCSC), and (ii) the National Commission for Scheduled Tribes (NCST)

## 2. Office & Terms

- The term of office of Chairperson, Vice-Chairperson and each member is three years from the date of assumption of charge. The Chairperson has been given the rank of Union Cabinet Minister, and the Vice-Chairperson that of a Minister of State and other Members have the ranks of a Secretary to the Government of India
- These communities were notified as Scheduled Tribes as per provisions of Article 342(1) of the Indian Constitution

## 3. Functions

- To investigate & Monitor matters relating to Safeguards provided for STs under the Constitution or under other laws or under Govt. Order, to evaluate the working of such Safeguards
- To inquire into specific complaints relating to the Rights and Safeguards of STs
- To participate and Advise in the Planning Process relating to the socio-economic development of STs, and to Evaluate the progress of their development under the Union and any State
- To submit the report to the President annually and at such other times as the Commission may deem fit, upon/ working of Safeguards, Measures required for effective implementation of Programmers/ Schemes relating to Welfare and Socio-economic development of STs
- To discharge such other functions in relation to STs as the President may, subject to the provisions of any law made by Parliament, by rule specify
- The Commission would also discharge the following other functions in relation to the protection, welfare, development, and advancement of the Scheduled Tribes
- The Forest Right Act, of 2006 recognize the symbiotic relationship of the STs with the forests, reflected in their dependence on the forest as well as in their traditional wisdom regarding the conservation of the forests

# BAJRANG DAL

## 1. Context

Recently, Campaigning for the Karnataka Assembly elections, Prime Minister Narendra Modi chanted "**Jai Bajrang Bali**" at the three public meetings he addressed, in What is being seen as a counter to the Congress promising to ban the right-wing outfit Bajrang Dal in its election manifesto.

Before this, Modi had accused the Congress of "**trying to lock up those who worship Lord Hanuman**" in the same way as it had "earlier locked up Lord Ram" ( a reference to the Babri Masjid).

## 2. Key Points

- The Bajrang Dal usually makes news for protests that are often violent and organised over various causes.
- In the almost 40 years of its existence, it has been accused numerous times of harassing Christians and Muslims over issues of "**illegal conversion**" and "**love jihad**".
- The organisation, which has as its motto "**Services, Security and Sanskar**".

## 3. Formation of Bajrang Dal

- The Bajrang Dal is the right-wing organisation's youth wing, the Vishva Hindu Parishad (VHP).
- It was formed in 1984 to infuse young blood and muscle into the **Ram Janmabhoomi movement**, for building a Ram Temple at the site of the Babri Masjid in Ayodhya.
- The Bajrang Dal was born on October 8, 1984, when some Hindu saints were embarking on a Ram-Janaki Rath Yatra from Ayodhya.
- The then Uttar Pradesh government refused to provide security to the procession, and the VHP asked some youth to take up the job.
- Hundreds of Youth gathered in Ayodhya. They performed their duty very well.

- Thus Bajrang Dal was formed with a temporary and localised objective of awakening the youth of U.P. and getting their involvement in the Ram Janma Bhumi Movement.
- In a meeting held in Lucknow the same month, Vinay Katiyar, who had been Varanasi Mahanagr pracharak suggested to VHP head Ashok Singhal that VHP should have its youth organisation.
- Thus Bajrang Dal was formally created. Its name was chosen to highlight its association with the Ram Temple movement (Bajrangabali is one of the names of Lord Hanuman) and its slogan was "Ram kaaj keenhe bina, mohe kahan vishram (How can I rest without fulfilling the cause of lord Ram)".
- Up until December 1992, the Bajrang Dal played a prominent role in mobilising support for the Ram Temple cause and in the eventual demolition of the Babri Masjid.
- However, in the years immediately afterwards, as the Ayodhya issue went to court and the BJP started expanding its political footprint, organisations like the VHP and the Bajrang Dal faded out of the limelight and many of its members hold a grudge against the BJP for using and then letting them fall by the wayside.

#### 4. Structure and control of Bajrang Dal

- The Bajrang Dal did not have a uniform until 1993 and they recognised each other by one sign only: the saffron-coloured headband bearing the word "**RAM**" that they wore.
- After the ban on it was lifted in 1993, the Sangh Parivar decided the Bajrang Dal needed more structure and control.
- The Bajrang Dal was provided with a uniform (blue shorts, white shirt and saffron scarf) and a handbook aimed mainly at those in charge of training.
- This handbook emphasised the importance of discipline. "Whether it is an individual or a nation, the entire society or an organisation, only one who knows discipline can achieve success, awareness and excellence. Without discipline, there can be no success.
- Over the years, discipline has not been an attribute the Bajrang Dal has most made news for, hitting the headlines for harassing couples on Valentine's Day, storming pubs, staging violent protests against artists they believe are offending Hindu sentiments and more gravely for allegations of involvement

in murders like that of Australian missionary Graham Staines and his sons in Odisha in January 1999 and of 19-year-old Massod near Sullia, Karnataka, in July last year.

## 5. Functions of Bajrang Dal

- The Bajrang Dal says its functions involve "constructive activities" like managing and developing places of worship, collecting grass for cowsheds, maintaining order in religious congregations, and immediate relief activities during natural calamities, etc and also "**agitational activities**".
- A part from the Andolans decided upon by the Centre, this category includes the conduction of agitation on any of the following issues/matters (which are only suggestive) and preparing plans for associating the public opinion generated through these agitations and for the expansion of the organisation.

Apart from these agitations, some of the additional issues can be like this:

1. Renovation of Religious Places
2. Cow Protection
3. Social Evils like Dowry Untouchability etc
4. Protests against insults hurled at Hindu Maan-Bindus, Hindu Traditions, Hindu Conventions, beliefs, etc
5. Protests against vulgarity and obscenity displayed on television advertisements and Beauty Contests
6. Opposition to the illegal infiltration

# NATIONAL PANCHAYATI RAJ DAY

## 1. Context

Marking a landmark law that came into effect on April 24, 1993, the National Panchayati Raj Day was the day when the Constitution (73rd Amendment) Act, 1992, vested constitutional status on Panchayati Raj institutions. Prime Minister Narendra Modi will inaugurate a range of projects and schemes today under the

“Inclusive Development” theme of Azadi ka Amrit Mahotsav, celebrating 75 years of Indian independence.

## 2. What was the context of Gandhi's Quote?

- “Independence must mean that of the people of India, not of those who are today ruling over them... Independence must begin at the bottom. Thus, every village will be a republic or Panchayat having full powers. It follows, therefore, that every village has to be self-sustained and capable of managing its affairs even to the extent of defending itself against the whole world.”
- In his various experiments against colonial forces and creating an alternative to their model of governance, Gandhi put forth values like ahimsa (non-violence) and Satya (truth).
- But apart from ideology, he also gave practical steps for achieving true self-rule or swaraj. He said India must have panchayats, a set up where the adults of the village elect a council of five people and head among them, as local representatives.
- Although, Gandhi clarifies this does not mean not taking any help from the outside world, but simply that each person must be so capable as to take care of their own basic needs in life in harmony with nature and those around them.
- This would mean contributing labor for public work like sanitation, growing food locally, creating a rotational force for guarding the village, ensuring education for all, wearing hand-spun khadi to promote local artisans, shunning intoxicants, etc.

## 3. Gandhi's values and ideologies with respect to Village

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- Gandhi pressed for democratic decentralization. The idea also reflects his larger inclination towards preserving Indian traditions and resisting external forces.

#### 4. Importance of Democratic Decentralisation

- Gandhi's concept of democratic decentralization bears the stamp of his passionate belief in non-violence, truth, and individual freedom.
- He calls it Panchayati Raj or village Swaraj. He wants to see each village a little republic, self-sufficient in its vital wants, organically and non-hierarchically linked with the larger spatial bodies, and enjoying the maximum freedom of deciding the affairs of the locality.
- Gandhi wanted political power to be distributed among the villages in India. Gandhi preferred the 'Swaraj' to describe what he called true democracy.
- This democracy is based upon freedom. Individual freedom in Gandhi's view, could be maintained only in autonomous, self-reliant communities that offer opportunities to the people for fullest participation.

#### 5. Village Panchayats

- The vehicle that was most ideal to initiate both political and economic democracy at the grassroots level was the Panchayat Raj system.
- Mahatma Gandhi's tours all across the country reinforced his convictions that India would benefit if the villages were governed by Village Panchayats based on the principle of "simple living and high thinking".
- These were village republics that were self-contained and self-reliant and had all that people want.
- These were the institutions where a minimum standard of living could be accorded to all human beings.

- An individual had maximum freedom and opportunity to develop his personality to the greatest extent. In these republics, there would be a diminution of the state and the roots of democracy deepened.
- According to him, centralization cannot be sustained as a system without adequate force. The affairs are to be managed by Panchayats consisting of five persons elected annually.
- Gandhi aimed the individual at the center of the local administration.
- People are expected to take a personal interest and turn up in large numbers at the meeting to deliberate problems of common interest such as village industries, agricultural production, obligation, and planning.

## **6. What was the Constitution (73rd Amendment) Act of 1992?**

- Before the act, India's Constitution only mentioned a two-tier form of government and local institutions found a mention only in Directive Principles of State Policy which is not enforceable by courts or bound to be followed, only meant as a guiding document for governments.
- With a lack of focus here, absence of regular elections, insufficient representation of marginalized sections like Scheduled Castes, Scheduled Tribes, and women, inadequate devolution of powers (transfer from a higher level of government to the lower levels) and lack of financial resources from the state and the Centre were some issues plaguing village-level governance.
- Several committees were constituted for studying these issues, such as the Balwant Rai Mehta Committee and the Ashok Mehta Committee, which gave important recommendations.
- In the late 1980s, then Prime Minister Rajiv Gandhi Prioritised the issue and after cross-party support, the measure was finally passed.
- Being enshrined in law and an amendment to the Constitution meant these provisions could no longer be easily ignored.
- The 74th Amendment Act passed in the same year, sought to look at local governance in urban areas and constituting municipal bodies.

## **7. What did the Act Change?**

The Panchayati Raj Act not only institutionalized PRIs [Panchayati Raj Institutions] as

the mandatory third tier of governance, it transformed the dynamics of rural development by giving a say to a large section of the people significantly, women in the administration of their localities.

### **Key Changes**

- It said the state government may develop powers for such bodies to implement schemes for economic development and social Justice, authorize a Panchayat to levy, collect, and appropriate taxes, duties, and tolls, and provide for making such grants-in-aid to the Panchayats from the Consolidated Fund of the State a major move to help fund them.
- It mandated women's representation in one-third of the seats. Women now constitute more than 45 percent of the nearly three million panchayat and gram sabha representatives in the country, standing in contrast to their representation in the current Lok Sabha, at 14 percent. Scheduled Caste and Scheduled Tribes groups were also mandated to be assigned seats in proportion to their presence in the population.
- A five-year term was fixed for representatives, with a procedure given for conducting timely elections.
- It also noted that the Governor of a state would constitute a Finance Commission to review the financial position of the Panchayats and then recommend to her what their requirements are, how they can be met, etc.

### **8. Evaluation of the Act**

- The act has been instrumental in involving more and more people in the democratic processes at a grassroots level.
- Decentralization generally results in more transparency between the government and the people, better grievance redressal, and better information flow.
- Civil servants can gain timely news about developing health concerns or outbreaks in rural areas, for example, to suggest intervention.

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## General Studies 2: Governance

# LABOUR LAWS IN INDIA

## 1. Context

In the prioritization of a favourable investment climate to compete with China, there are clear signs of scant regard for the well-being and rights of India's workers.

## 2. Key takeaways

- In addition to being the starting point of the possible onset of another scorching summer, the month of April also witnessed two important happenings that are tied to the country's avowed economic-industrial transformation, demanding our attention.
- The first was the passage of a piece of legislation in the Tamil Nadu Assembly that amended the Factory Act of 1948, to extend the number of working hours in a day, from eight hours to 12 hours.
- A similar piece of legislation was passed in the Karnataka Assembly, a few months ago. However, in his address during the May Day celebrations in Chennai, the Tamil Nadu Chief Minister, M.K. Stalin, announced the withdrawal of the legislation.

- This announcement comes on the back of the temporary hold on further action on the Bill by the Tamil Nadu government, after strong opposition; this includes the State government's alliance partners and trade unions.

### **3. What are labour Laws?**

- Labour law is a body of laws and regulations which deals with the legal rights of, and restrictions on, working people and their organizations.
- It mediates multifaceted aspects of the relationship between the stakeholders: trade unions, employers, and employees.
- Labour law defines the rights and obligations of workers, union members, and employers in the workplace.
- Generally, labour law covers Industrial relations – certification of unions, labour-management relations, collective bargaining, and unfair labour practices; Workplace health and safety; Employment standards, including general holidays, annual leave, working hours, unfair dismissals, minimum wage, layoff procedures, and severance pay.

### **4. Why there is a need to have Labour Laws?**

- It brings in effect a legal system to facilitate organizations and collective employment relationships resulting in a productive economy;
- It provides a framework for the employers, workers and, their representatives to interact about work-related issues.
- It acts as a vehicle for achieving harmonious industrial relations based between the stakeholders;
- It provides a guarantee of fundamental principles and rights at work that have received broad social acceptance.
- It also establishes the processes through which these principles and rights can be enforced.

## **5. Evolution of Labour laws in India**

### **5.1 During British**

- The industrial/labour legislation enacted by the British was primarily intended to protect the interests of British employers.

- Considerations of British economic interests were the priorities in shaping some of these early laws.
- The Factories Acts, 1883 and 1893- It was the first labour law by the British which stipulated eight hours of work, the abolition of child labour, the restriction of women in night employment, and the introduction of overtime wages for work beyond eight hours.
- The earliest Indian statute to regulate the relationship between an employer and his workmen was the Trade Dispute Act, of 1929 (Act 7 of 1929).
- Provisions were made in this Act for restraining the rights of strike and lockout but no machinery was provided to take care of disputes.

## 5.2 Post-independence labour laws

- Free India's labour law framework began with the Industrial Disputes Act, 1947 as independent India called for a clear partnership between labour and capital.
- The base of this partnership was unanimously approved in a tripartite conference in December 1947.
- It was at this conference that labour would be given a fair wage and working conditions and in return, capital would receive the harmonious cooperation of labour for uninterrupted production and higher productivity as part of the strategy for national economic development.

There is an entire gamut of labour laws in India. Let us see some of the important ones.

**The Factories Act, 1948:** It deals with important provisions like working hours, Safety, facilities and convenience of the workers, Employment conditions for women, etc.

**The Minimum wages act, of 1948:** Stipulates minimum wages to be paid to skilled and unskilled labour.

**The Industrial Disputes Act, 1947:** The objective of the Industrial Disputes Act is to secure industrial peace and harmony. It seeks to achieve it through mechanisms and procedures for the investigation and settlement of industrial disputes by

conciliation, arbitration, and adjudication which is provided under the statute. This law applies only to the organized sector.

**Child Labour (Prohibition) Act:** The act prohibits employing children below 14 years of age in hazardous jobs.

**The Employment State Insurance Act:** It covers the employees' health protection facilities against potential injuries, sickness at work and other issues.

## 6. Changes in labour laws

- The eight-hour working day, adopted by the International Labour Organization in 1919, is a hard-won right by workers and trade unions, who have had to struggle over the years to keep capricious policy changes at bay.
- While appreciating the action initiated by the Tamil Nadu Chief Minister, the passage, in the first place, of these pieces of legislation (which has justifiably led to anger and outcry among trade unions and labour support groups) signals the intent of governments to house investments by transnational corporations (through their supply chains), by ramping up capacities and provisioning incentives.
- As a matter of fact, these legislative changes could trace their legacy to the four labour codes passed by the central government in 2019-20, which, in turn, have weakened the labour protection architecture, lowered thresholds and squeezed collective bargaining, thereby effectively curtailing their actual operability.
- The key missing component in all these changes in the labour ecosystem is social dialogue.
- Not only are sustained processes of consultations with workers being shortcircuited or ignored altogether but these are also being considered anathema by almost all ruling dispensations irrespective of political persuasions.

## 7. Apple opening two retail stores in India

- The second development in April which was widely publicised with much fanfare was Apple's opening of its first two retail stores in India, in Mumbai

and then Delhi in the presence of the Apple CEO who was in India for the events.

- Last year, expressed bullishness about the brand's business prospects in India, which was lapped up and trumpeted as a sign of India is well and truly in the race to run parallel with China, if not completely eclipse it in the long run.
- However, cutting through the hype, what is left unsaid is how Apple, and by extension, other transnational corporations too, thrive by tantalising a race between India and China.

## 8. Considering mainland China as a template

- The two happenings in April may seem separate, but from a labour-centric perspective, it is only rational to spot the connection.
- Already, under its 'Make in India initiative' and later with the Production Linked Incentives scheme, the central government aims to turn the country into a manufacturing hub, like China. In this larger design, the electronics industry has received top priority and, within it, Apple (entwined with Foxconn as the main supplier) has come to be considered, the gold standard.
- In line with this, the central government has been working in close coordination with various State governments, including Karnataka and Tamil Nadu, to work out common strategies to capitalise on the company's diversification plans away from China.
- For years, Foxconn has had a stable base in Tamil Nadu (encouraging other Taiwanese companies in other sectors as well).
- As a part of its corporate social responsibility obligations, it has even reciprocated by making massive financial contributions to the State government's educational initiatives.
- Such coordination and mobilising efforts by governments resemble the symbiotic relationship between Apple Foxconn and the Chinese Communist Party state.

# GUJARAT AND MAHARASHTRA

## 1. Context

Both Gujarat and Maharashtra celebrate their 63rd foundation day on May 1.

Public functions are being held across the two states to mark the day of their creation.

## 2. Key points

- The two states were created out of the bilingual Bombay State, which used to cover nearly one-sixth of all land in India.
- But Gujarati and Marathi linguistic sub-nationalism eventually won out, leading to the bifurcation of the Bombay State into a Gujarati-speaking and a Marathi-speaking state.
- The history of the two States' creation and how the city of Bombay came to be at the centre of the struggle for statehood.

## 3. The situation in 1947

- At the time of independence, present Gujarat comprised over half of India's 565 princely states and the centrally administered **Baroda, Western India and Gujarat States Agency**.
- In 1948, over 220 princely states in the Kathiawar region came together to form the Saurashtra state.
- Except for Junagadh, whose Nawab initially attempted to join Pakistan, the creation of the Saurashtra state largely went without a hitch.
- The northern Kutch region was given the status of a Part C state, remaining under the direct administration of the union government.
- However the eastern region of present-day Gujarat, again a patchwork of tiny princely states with **Baroda** being the largest, merged with the erstwhile Bombay State in 1949.
- Leading up to 1947, the Bombay Province was one of British India's three large administrative regions stretching from Mysore in the south beyond Karachi in the West.
- It enveloped the patchwork of princely states that would later become a part of Gujarat but did not include Marathi-speaking regions of Vidarbha (in Central Provinces) and Marathwada (Hyderabad State).

- Present-day Maharashtra would be formed via the integration of these Marathi-speaking regions with a large part of the erstwhile Bombay state.

The red outline marks the bilingual Bombay State created in 1956. In green are the Marathwada districts which were previously a part of Hyderabad State, in blue are the Vidarbha districts previously a part of the Central Provinces and in the two shades of yellow are the Kutch (north) and Saurashtra regions. In red is the erstwhile Bombay province unified with Baroda and other princely states in present-day eastern Gujarat. Outside the red outline, to the south, in pink are Kannada-speaking districts that were transferred from Bombay to what today is known as Karnataka.

#### 4. The Question of Bombay City

- Movements to unify Marathi-speaking regions into a single administrative unit went as far back as 1918.
- In 1953, the **Nagpur Pact** was signed by representatives of Bombay State, Vidarbha and Marathawada formally proposing the creation of a unified Marathi-speaking state. However, there was a fundamental problem with this plan.
- While Southern and Eastern regions of the proposed state were overwhelmingly Marathi-speaking, Bombay City and north-western regions of the proposed state (Baroda and surrounding territories) had a heavy Gujarati presence.
- The proposal to create a unified Marathi state saw bitter opposition from Gujaratis, especially around the question of the cosmopolitan Bombay City.
- While the city too consisted of a majority Marathi population and was surrounded by Marathi-speaking districts from which it drew much of its resources, Gujaratis argued that it was their contributions which gave Bombay much of its financial might.
- Instead of handing over the city of Bombay to Marathis, Gujaratis argued for a trifurcation of the region into a Gujarati state, a Marathi state and the union territory of Greater Bombay.
- However, the matter remained inconclusive until the **States Reorganisation Commission (SRC)** adjudicated upon the issue in its 1955 report.

## 5. A bilingual state fails to assuage any community

- Going against the principle of linguistic states, the SRC recommended the creation of a single, bilingual Bombay state which included all Marathi and Gujarati-speaking territories.
- At the time of its creation in 1956, it was by far the biggest state in India, covering roughly one-sixth of India's total landmass. But the compromise left both linguistic groups unsatisfied.
- From 1956 onwards, powerful linguistic sub-nationalist movements gathered steam in the state.
- On one hand, was the Mahagujarat Andolan, led by Indulal Yagnik, and on the other was the Samyukta Maharashtra Samiti, led by Keshavrao Jedhe.
- The movements were marked by massive demonstrations on the streets some of which even turned violent.
- Finally, in 1959, the ruling Congress government succumbed to political pressure and acknowledged that the creation of the bilingual state had been a failure.
- Finally, on May 1, 1960, the states of Gujarat and Maharashtra were carved out of the united Bombay State.
- Notably, while Gujarat was able to secure the region around Baroda for itself, Bombay City went on to become the capital of the new Marathi-speaking state.
- This was a major loss for Gujarat which set up its capital first in Ahmedabad and later in the newly built city of Gandhinagar.

# WOMEN RESERVATION BILL

## 1. Context

Even though women have been breaking the glass ceiling of patriarchy in every sector, politics is the arena where women find it the most challenging to find space. India may have achieved suffrage early, but women still face significant barriers to political participation and do not have the right to govern. It is disheartening to witness that even 75 years after Independence, Parliament lacks substantial

representation from half the population, with women holding just 14% of the seats.

## 2. Crucial Role of Women in Indian Independence

- Women played a crucial role in India's fight for independence, by organizing demonstrations, leading rallies, and raising awareness.
- There were numerous female representatives in the Constituent Assembly as well. Just a decade ago, three of India's largest states, West Bengal, Tamil Nadu, and Uttar Pradesh, were in the spotlight for being led by Women Chief Ministers.
- While Sushma Swaraj led the Opposition in the Lok Sabha, Sonia Gandhi served as both President of the Congress party and Chairperson of the United Progressive Alliance.
- Also, India had its first woman president, Prathibha Patil around the same time.
- Despite the presence of influential women in Indian Politics, we have regressed since the 1980s, and the patriarchal backlash has resulted in the status of women in India being far from ideal.
- Hence it will not be wrong to infer that the issue of political representation of women is a greater case, as opposed to having token representation.

## 3. Women's reservation status in India

- The discourse on women's reservation in India originates from the Pre-independence era when several women's organizations demanded political representation for women.
- It can be traced back to 1955 when a government-appointed committee recommended that 10% of seats in the Lok Sabha and state legislative assemblies should be reserved for women.
- However, it was not until the 1980s that the demand for women's reservations gained momentum.
- The National Perspective Plan for Women (1988) recommended that 30% of seats in all elected bodies should be reserved for women.
- This recommendation was reiterated in the National Policy for the Empowerment of Women, which was adopted in 2001.

#### 4. Women's Reservation in Local Bodies

- In 1993, the Panchayat Raj Act was amended to reserve 33% of all seats in local government bodies for women, which was a significant step towards women's political empowerment.
- The success of this reservation led to demands for similar reservations in other elected bodies; in 1996, the Women's Reservation Bill was introduced in the Lok Sabha.
- The Bill proposed to reserve one-third of seats in the Lok Sabha and state legislative Assemblies for Women.
- However, facing strong opposition from some political parties it lapsed but gained more momentum again in the early 2000s.
- On March 9, 2010, the Bill was approved in the Rajya Sabha. Sonia Gandhi, Sushma Swaraj, and Brinda Karat of the CPI(M) posed for photographs outside Parliament, smiling and holding hands, indicating that this was a fight much bigger than individual political affiliations.

#### 5. History of Women's Reservation Bill

- The Women's Reservation Bill was first introduced in 1996, however, it did not get approval in Lok Sabha.
- Women's Reservation Bill was then referred to a Joint Parliamentary Committee chaired by Geeta Mukherjee, which presented its report in December 1996. However, the Bill lapsed with the dissolution of the Lok Sabha and had to be reintroduced.
- It was then introduced in 1998, 1999, twice in 2003, and 2008 but it failed to get support and lapsed every time.
- The Bill, then reached the Lok Sabha, after passing in the Rajya Sabha in 2010, where it never saw the light of day. When the House was dissolved in 2014, it lapsed once again.

#### 6. Issues with the Women's Reservation Bill

- Women Reservation Bill opponents claim that due to the reservation, women would not be seen as competitors based on merit, this would perpetuate their inferior status.

- Additionally, they argue that this strategy serves to deflect attention from the more important aspects of electoral reform, such as the criminalization of politics and internal party democracy.
- Parliamentary seat reservations limit voters' options to female candidates. Therefore, some experts have suggested alternate methods such as reservation in political parties and dual-member constituencies.

## 7. Current Status of Women in Parliament

- **India's ranking:** India ranks 144 out of 193 countries in the representation of women in Parliament, according to the Inter-Parliamentary Union's latest report.
- **Lok Sabha & Rajya Sabha:** Currently, just 14% of Lok Sabha MPs are women (78 in total). Women make up roughly 11% of the Rajya Sabha.
- **Slow progress:** While the number has increased significantly since the first Lok Sabha, where women made about 5% of the total MPs, it is still far lower than in many countries.
- **Global comparison:** According to data from PRS, Rwanda (61%), South Africa (43%), and even Bangladesh (21%) are ahead of India in this matter.

## 8. Global examples

- Around the world, women leaders are outperforming their male counterparts.
- The Scandinavian countries have implemented policies and governance structures that support gender equality and women's empowerment, which includes women's representation in political and leadership positions.
- Moreover, countries led by women have shown to have some of the best policies and governance practices.
- The deep scars in Rwanda, a central African nation, from the genocide, are being healed by predominantly a leadership that comprises women; this has also resulted in key social reforms.
- Norway implemented a quota system in 2003 that required 40% of seats on corporate boards to be occupied by women.
- Now, it is time for the women in India, the 'mother of democracy', to lead the nation.

# NATIONAL HEALTH ACCOUNT

## 1. Context

There has been a consistent increase in government spending, coupled with declining out-of-pocket expenditure by people on their healthcare needs shows the National Health Account Estimates 2019-20 was released.

## 2. Key Points

- The government spent 1.35 per cent of the country's Gross Domestic Product (total value of the final goods and services in a year indicative of a country's economy) on healthcare during the year, bouncing back from a slight drop seen in 2018-19 as per the report.
- The health account estimates describe the country's total expenditure on healthcare whether by the government, private sector, NGOs or individuals and the flow of these funds.

## 3. Findings of the report

### 3.1. Rise in Government spending on Health care

- Government spending on healthcare has been on the rise. The money spent by the government on healthcare as a percentage of GDP has increased from 1.13 per cent in FY 2015 to 1.35 per cent in FY 2020.
- Even this small percentage increase in the government's health kitty has translated into nearly double the money spent on each person the per capita health spending of the government in this period has increased from Rs 1, 108 to Rs 2, 014.
- Although the number is still far from the target of 2.5 per cent investment in healthcare by 2025, the number is likely to shoot up in next year's report, with the increased government spending during the pandemic getting reflected.

- The government's share in the total money spent on healthcare in the country went up by 12.4 percentage points between FY 2015 and FY 2020, increasing from 29 per cent to 41.4 per cent

### **3.2. Money spent by people**

- Money spent by people from their pocket on health care has been going down.
- The report shows that 47/1 per cent of the total spending on health care in FY2020 came directly out of people's pockets.
- But this is a 15.5 percentage point drop from 62.6 per cent of the spending coming out of pocket in FY 2015.
- The aim is to bring this down as low as possible by investing in public health and insurance among others so that people do not have to shell out the money when they are sick.

### **3.3. National Health Policy**

- A major chunk of the government's health spend was in the primary sector.
- Out of the total spending by the government on healthcare in FY 2020, 55.9 per cent went to primary care, 29.6 per cent went to secondary care and 6.4 per cent went to tertiary care.
- To compare, the government spent 51.3 per cent on primary care, 21.9 per cent on secondary care and 14 per cent on tertiary care in FY 2015.
- It is heartening to see that there has been a consistent and fast increase in government spending on primary healthcare.
- This is important because it forms the basis for preventive healthcare.
- This has been articulated in the National Health policy that there will always be more spending on primary healthcare which is the backbone.
- Now, there has been the great achievement of 1.5 lakh health and wellness centres across the country that can also screen people for cancers, diabetes and eye disease.

### 3.4. Social Security expenditure

There has been a consistent increase in social security expenditure by the government, which increased from 5.7 per cent of the total spending on health in FY 2015 to 9.3 per cent in FY 2020.

### 4. India stands on Health expenditure

- The marginal increase in government spending while there is a significant drop in out-of-pocket spending bothers.
- The increase in government health expenditure as a percentage of GDP also takes into account capital spending (money spent on developing infrastructure).
- Other countries look at only the current health expenditure, which for India stands at 1.04 per cent calculated based on this report.
- This puts India in 164th place out of 184 countries in terms of government health spending.
- Also, the marginal increase in percentage could be a factor of a shrinking economy GDP growth was slow in FY 2020.
- This percentage is likely to go up further next year because the economy tanked as a result of Covid-19.

### 5. The reason for steadily dropping out-of-pocket expenditure

- If you look at the total spending on health (which includes health spending by the government, private players and individuals) it has been going down as a proportion of GDP from 3.9 per cent in FY 2015 to 3.3 per cent in FY 2020.
- This means that there is a decline in the consumption of healthcare services. And, our work with NSSO data supports this as we saw a decline in hospitalisations and out-patient services.
- The data might be hiding these facts, but the government's initiatives are on the right track to ensure that people's expenses on health go down.

- Health and Wellness Centres ensuring preventive care and the **Ayushman Bharat insurance scheme** offering free treatment is the way to go, but the implementation has to be strengthened so the poor people can access care.
- The out-of-pocket expenditure can also be reduced by improvement in the procurement of medicines that make up a significant proportion of health costs and improving services in the public sector hospitals too.

## 6. An increase in spending on insurance

- Along with an increase in government spending, the report shows that there has been an increase in spending on privately purchased health insurance as well.
- Privately purchased health insurance made up for only 3.9 per cent of the total health expenditure in FY 2015, which increased to 7.72 per cent in FY 2020.
- The government-financed health insurance spending also went up from 3.8 per cent of the total money spent on healthcare in FY 2015 to 6.37 per cent in FY 2020 as per the report.

## 7. Health spending by states

- The data from the detailed report could be meaningfully used by the states to design their policy and budget.
- There was a need for the states to increase their contribution towards healthcare and achieve the target set by the National Health Policy 2017, which says that 8 per cent of states' budgets should go towards healthcare.
- Only two big states and three of the smaller ones have crossed the 8 per cent target in FY 2020.
- Delhi contributed 18.7 per cent of its total spending on health and Kerala 8 per cent, Puducherry 10.5 per cent, Meghalaya 8.9 per cent and Goa 8.7 per cent.

## General Studies 3: Science & technology

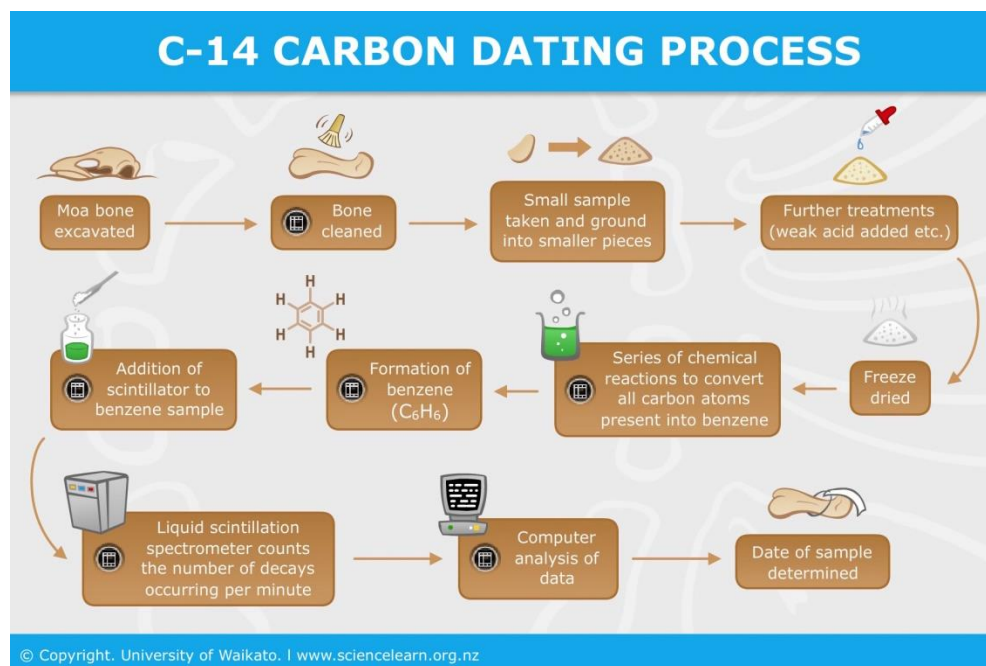
# CARBON DATING

## 1. Introduction

Carbon dating is a widely-used method to establish the age of organic materials, things that were once living. Living things have carbon in them in various forms. The dating method is based on the fact that Carbon-14 (C-14), an isotope of carbon with an atomic mass of 14, is radioactive, and decays at a well-known rate

## 2. How it works?

- The most abundant isotope of carbon in the atmosphere is C-12. A very small amount of C-14 is also present. The ratio of C-12 to C-14 in the atmosphere is almost static, and is known.
- Plants get their carbon through photosynthesis; animals get it mainly through food. Because plants and animals get their carbon from the atmosphere, they too acquire C-12 and C-14 in roughly the same proportion as is available in the atmosphere.
- When they die, their interactions with the atmosphere stops. While C-12 is stable, the radioactive C-14 reduces to one half of itself in about 5,730 years known as its 'half-life'. The changing ratio of C-12 to C-14 in the remains of a plant or animal after it dies can be measured, and can be used to deduce the approximate time when the organism died.



### 3. About non living things

- Though extremely effective, carbon dating cannot be applied in all circumstances. It cannot be used to determine the age of non-living things like rocks, for example
- Also, the age of things that are more than 40,000-50,000 years old cannot be arrived at through carbon dating. This is because after 8-10 cycles of half-lives, the amount of C-14 becomes almost very small and is almost undetectable
- But there are other methods to calculate the age of inanimate things, many of which are based on the same principle as carbon dating
- So, instead of carbon, decays of other radioactive elements that might be present in the material become the basis for the dating method.
- These are known as radiometric dating methods. Many of these involve elements with half-lives of billions of years, which enable scientists to reliably estimate the age of very old objects
- Two commonly employed methods for dating rocks are potassium-argon dating and uranium-thorium-lead dating
- The radioactive isotope of potassium decays into argon, and their ratios can give a clue about the age of rocks

- Uranium and thorium have several radioactive isotopes, and all of them decay into the stable lead atom. The ratios of these elements present in the material can be measured and used to make estimates about age.
- In some situations, carbon dating can be used indirectly as well. For example, a way in which the age of ice cores in glaciers and polar regions is determined by studying carbon dioxide molecules trapped inside large ice sheets
- The trapped molecules have no interaction with the outside atmosphere, and are found in the same state as when they were trapped
- Determining their age gives a rough estimate of the time when the ice sheets were formed.

## EUROPEAN SPACE AGENCY

### 1. Context

The **ESA** hopes to send the first of its new class of budding astronauts to the **International Space Station** by 2026

By 2030, the ESA hopes all 17 members of its new “Class of 2022” will have the chance either to fly to the International Space Station, or into space



## 2. About European Space Agency (ESA)

- The European Space Agency (ESA) is an intergovernmental organization established in 1975 with the goal of coordinating and promoting European cooperation in space research and technology. Its headquarters is located in Paris, France, and it currently has 22 member states.
- The European Space Agency (ESA) is Europe's gateway to space. Its mission is to shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe and the world
- ESA is an international organisation with 22 Member States. By coordinating the financial and intellectual resources of its members, it can undertake programmes and activities far beyond the scope of any single European country.
- ESA's programmes are designed to find out more about Earth, its immediate space environment, our Solar System and the Universe, as well as to develop satellite-based technologies and services, and to promote European industries. ESA also works closely with space organisations outside Europe.

## 3. Missions of ESA

- ESA's mission is to explore space, develop space technology, and promote European industries. It conducts space research, develops and launches satellites and other spacecraft, and collaborates with other space agencies around the world, including NASA and Roscosmos
- Some of ESA's notable achievements include the launch of the Huygens probe to Titan, the largest moon of Saturn, as part of the Cassini-Huygens mission, the development and operation of the Galileo navigation system, and the ongoing operation of the International Space Station (ISS) in collaboration with other space agencies
- ESA's current priorities include Earth observation, climate change research, exploration of the Solar System, and the development of advanced space technology.
- It also runs a range of educational and outreach programs to engage the public in space science and inspire the next generation of space explorers.

#### 4. Members of ESA

Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland and the United Kingdom. Slovakia, Slovenia, Latvia and Lithuania are Associate Members. Canada takes part in some projects under a cooperation agreement. Bulgaria, Croatia, Cyprus and Malta have cooperation agreements with ESA

## EXTRACTING DNA

### 1. Context

Inside a **Siberian cave** that has been an **archaeological treasure** trove, an elk's canine tooth pierced to become a pendant was unearthed by scientists with care to avoid contaminating this intriguing artefact made roughly 20, 000 years ago.

The Pristine collection of pendants from **Denisova Cave** paid dividends.

Scientists said a new method for extracting ancient DNA identified the object's long-ago owner as a Stone Age woman closely related to a population of hunter-gatherers known to have lived in a part of Siberia east of the cave site in the foothills of the **Altai Mountains in Russia**.

## 2. New Method of isolating DNA

- The method can isolate DNA that was present in skin cells, sweat or other bodily fluids and was absorbed by certain types of porous material including bones, teeth and tusks when handled by someone thousands of years ago.
- Objects used as tools or for personal adornment pendants, necklaces, bracelets rings and the like can offer insight into past behaviour and culture, though our understanding has been limited by an inability to tie a particular object to a particular person.
- These objects made in the deep past are extremely fascinating since they allow us to open a small window to travel back and have a glance into these people's lives.



**Image source: CNN**

### 3. Excavations

- The researchers who found the pendant which was determined to be 19, 000-25, 000 years old, used gloves and face masks when excavating and handling it, avoiding contamination with modern DNA.
- It became the first prehistoric artefact linked by genetic sleuthing to a specific person. It is unknown whether the woman made or merely wore it.
- In holding such an artefact in her own gloved hands, she felt "transported back in time, imagining the human hands that had been created and used thousands of years ago.
- The pendant's maker drilled a hole in the tooth to allow for some sort of now-lost cordage. The tooth alternatively could have been part of a headband or bracelet.

### 4. The oldest object located by humans

- Our species Homo sapiens first arose more than 300, 000 years ago in Africa, later spreading worldwide.
- The oldest-known objects used as personal adornments date to about 100, 000 years ago from Africa.
- Denisova Cave long ago was inhabited at different times by the extinct human species called Denisovans, Neanderthals and our species.
- The cave over the years has yielded remarkable finds, including the first-known remains of Denisovans and various tools and other artefacts.
- The **new non-destructive research technique** used at a "**clean room**" laboratory in Leipzig works much like a washing machine.
- In this case, an artefact is immersed in a liquid that works to release DNA from it much as a washing machine lifts dirt from a blouse.
- By linking objects with particular people, the technique could shed light on prehistoric social roles and the division of labour between the sexes or clarify whether or not an object was even made by our Species.
- Some artefacts have been found in places that are known to have been inhabited, for instance, by Homo Sapiens and Neanderthals simultaneously.
- This study opens huge opportunities to better reconstruct the role of individuals in the past according to their sex and ancestry.

# PSYCHEDELICS SUBSTANCES

## 1. About Psychedelics substances

- Psychedelics are a group of drugs that alter perception, mood and thought processing while a person is still clearly conscious. Usually, the person's insight also remains unimpaired.
- Psychedelics are non-addictive, non-toxic and compared to illicit drugs, they are less harmful to the end user.
- In India, the **Narcotic Drugs and Psychotropic Substances Act 1985** prohibits the use of psychedelic substances.
- Ketamine, a dissociative anaesthetic with psychedelic properties is used under strict medical supervision, for anaesthesia and treatment-resistant depression.

## 2. History of psychedelics

- A psychiatrist named **Humphrey Osmond** first used the term Psychedelic in 1957.
- The word is derived from the Greek words psyche, meaning "**mind**", and deloun, meaning "**to manifest**".
- Humans have used psilocybin and mescaline for ceremonies, healing and spiritual rituals for millennia.
- Temples built for mushroom "**deities**" in indigenous cultures in Mexico and Guatemala date back to 7000 BC.
- Records of the Greek "**Eleusinian Mysteries**" indicate that psychedelics were used in ceremonial rituals.

### 3. The modern-day use of psychedelics

- The modern-day use of psychedelics is commonly associated with the German chemist Arthur Heffter isolating mescaline from the peyote cactus in 1897.
- In 1938, while investigating compounds related to ergotamine (one of the ergot alkaloids) the Swiss chemist Albert Hofmann accidentally contaminated himself with a small dose of LSD, he experienced what was likely the world's first "acid trip".
- On a hunch, he synthesised LSD in 1943 and with further testing, found LSD to be extremely potent and physiologically relatively safe.

### 4. War on drugs

- Between 1947 and 1967, LSD was widely used as a therapeutic catalyst in psychotherapy.
- The Harvard Psilocybin Project, founded by psychologist Timothy Leary, further proselytised LSD and psilocybin which led to the increasing recreational use of these substances.
- Around this time, medical concerns and the **Vietnam War** prompted the conservative Richard Nixon administration to criminalise the use of psychedelics and other psychoactive drugs.
- This "**war on drugs**" stopped all medical use and pushed recreational use underground.
- Media campaigns in the 1960s and 1970s further stigmatised the use of all psychoactive drugs.

### 5. Drugs work in the body

- Users of psychedelic substances report changes in perception, somatic experience, and mood, through processing and entheogenic experiences.
- Perceptual distortions most commonly include the visual domain.
- An intriguing phenomenon called synaesthesia may occur, where the sensory modalities cross and the user may hear colour or see sounds.
- About half of the ingested psilocybin is absorbed via the digestive tract.

- In the body, psilocybin is converted to psilocin, which is then metabolised in the liver.
- LSD is completely absorbed in the digestive tract and then metabolised in the liver.
- Classical psychedelics boost brain serotonin levels.
- Psilocybin's therapeutic effects require a trip that is mediated by the activation of serotonin receptors.
- A recent case report published in the American Journal of Psychiatry demonstrated that robust and sustained antidepressant effects can occur even in the absence of psilocybin's psychedelic effects.
- This finding, if replicated in larger trials, will have major implications for people with treatment-resistant depression. They can then get better without having to endure a trip.
- Modern neuroimaging suggests that psychedelics are neither stimulants nor depressants of brain activity.
- Instead, they increase the crosstalk between different brain networks and this correlates with the subjective effects of psychedelics.

## 6. The harm of the substances

- Death due to direct toxicity of LSD, psilocybin or mescaline has not been reported despite 50-plus years of recreational use.
- An overdose requires cardiac monitoring and supportive management in a low-stimulus and reassuring environment.
- Synthetic psychedelics (such as 25INBOMe) have been associated with acute cardiac, central nervous system, limb ischaemia, as well as serotonin syndrome.
- There have also been reports of death attributed directly to synthetic psychedelic use.
- The psychological effects of psychedelics depend on the interaction between the drug and the user's mindset (together called a set) and the environmental setting.
- People with a personal or family history of psychosis are strongly discouraged from experimenting with psychedelics.
- There is also no evidence that psychedelics cause physiological or psychological dependence nor has any withdrawal syndrome been identified.

- Tension headaches are common in the 24 hours after use and offset by the use of simple analgesics.
- This said, brief and self-limiting psychotic episodes can occur when a user is intoxicated with psychedelics, particularly LSD.
- They are more common among first-time users and those with a personal or family history of psychiatric illness.
- Users describe these experiences as a bad trip and they are more likely to occur in unfavourable environments.

## **7. Psychedelics used to treat neuropsychiatric disorders**

- In November 2022, the results from a phase-II psilocybin trial were published in the New England Journal of Medicine.
- The trial found that a single 25 mg dose of psilocybin reduced depression scores over three weeks in people with treatment-resistant depression.
- Adverse events included headache, nausea, and dizziness which occurred in 77 per cent of the participants.
- Suicidal ideation, suicidal behaviour and self-injury occurred in all dose groups (1 mg, 10 mg and 25 mg).
- In 2017, the U.S. Food and Drug Administration (FDA) designated the use of 3, 4 methylenedioxy methamphetamine, also known as MDMA, to be the breakthrough therapy in the treatment of post-traumatic stress disorder (PTSD).
- Under its expanded access program the FDA has allowed a small number of people particularly those seriously ill with PTSD and who have not responded to other treatments to use MDMA.
- Recently, the U.S. non-profit Multidisciplinary Association for Psychedelic Studies (MAPS) also announced positive results from its observational study on MDMA-assisted therapy for patients with PTSD, echoing the findings of its phase III MDMA trial, published in Nature Medicine in May 2021.
- In 2018, the FDA granted breakthrough therapy status to psilocybin for treatment-resistant depression as well.

## 8. The usage of psychedelics

- Although recent findings are encouraging, there remains uncertainty about where the psychedelic renaissance will take us.
- Psychedelic substances provide an intriguing avenue through which one can probe the broader constructs of creativity, spirituality and consciousness aside from their therapeutic effects.
- While not a panacea, psychedelic substances have certainly reinvigorated clinical and research interests and have added to psychiatry's ever-expanding therapeutic armamentarium.
- If larger phase III trials establish their safety and therapeutic efficacy, the FDA and other regulatory bodies may clear these agents for routine clinical use.

# H5N1

## 1. Context

This year, the world has been witnessing one of the worst-ever documented outbreaks of the highly pathogenic avian influenza H5N1 killing millions of birds. The virus, known to cause severe disease and death in birds, has also been detected in mammalian species and humans. This has put health authorities on high alert regarding the implications of large outbreaks on public health.

## 2. Avian Influenza

- Avian Influenza, also known as Avian or Bird Flu, is a form of influenza caused by a virus found in birds.
- Avian Flu is similar to variants found in animals and humans – caused strains of influenza that have adapted to specific hosts.

## 3. Avian Influenza Type A viruses

- Type A viruses are classified based on two proteins on their surfaces – Hemagglutinin (HA) and Neuraminidase (NA). There are about 18 HA subtypes and 11 NA subtypes.

- Several combinations of these two proteins are possible e.g., H5N1, H7N2, H9N6, H17N10, H18N11, etc.
- All known subtypes of influenza A viruses can infect birds, except subtypes H17N10 and H18N11, which have only been found in bats.

### Deadly H5N1 outbreak continues unabated globally

Since 2022, H5N1 has infected over 100 million birds globally, killing over 50 million birds and millions of poultry have been culled



**Concerning:** In 2023 alone, H5N1 has killed over 3,000 sea lions in Peru.

**1** Unlike previous outbreaks of highly pathogenic subtypes of avian influenza, H5N1 is heavily impacting wild bird species

**2** In addition to poultry, eagles, pelicans, geese, waterfowl, gulls, falcons and shorebirds have been impacted significantly

**3** High mortality in wild birds could cause significant ecological consequences, including vulnerability of predators and alterations in species composition in affected ecosystems

**4** There have been several spillovers of H5N1 virus from birds to mammals globally

**5** When H5N1 spreads from birds to mammals, the virus could accumulate mutations and acquire the ability to initiate human outbreaks

**6** A few sporadic cases of human H5N1 infections have been reported from Ecuador, Cambodia, and Chile

**Image Source: The Hindu**

#### 4. Effect on Birds

- Although avian influenza has different subtypes, H5N1 is a highly pathogenic subtype that causes mortality in birds.
- Since 2022, the virus has infected over 100 million birds across the globe, resulting in the deaths of over 50 million and the culling of millions of poultry.
- Unlike previous outbreaks of highly pathogenic subtypes of avian influenza, H5N1 is heavily impacting wild bird species, including many which were on the verge of extinction.
- While it is difficult to ascertain how many wild birds have been affected by the virus, a significant impact has been seen in eagles, pelicans, geese,

waterfowl, gulls, falcons, and shorebirds, in addition to the highest possible impact on poultry seen till date, at least in the U.S.

- The impact of H5N1 on wild bird populations has varied depending on several factors, such as the level of exposure, geographical locations, and migratory patterns of the affected species.
- High mortality in wild birds due to the virus could lead to significant ecological consequences, including the vulnerability of predators and alterations in species composition in affected ecosystems, and therefore a possible impact on biodiversity not just limited to avian species.
- It has raised concerns regarding the spread of the virus among critically endangered avian populations.

## 5. Spreading to animals

- The highly contagious H5N1 virus can also occasionally spill over from birds to animals through direct or indirect contact with infected birds or their droppings.
- Worryingly, there have been several reports on the spillover of H5N1 to mammals during the current outbreak from different countries, infecting species such as sea lions, minks, foxes, wild bears, and skunks, apart from domestic animals such as dogs and cats.
- In 2023 alone, H5N1 caused the deaths of over 3,000 sea lions in Peru. In a recent yet to be peer reviewed study, scientists found that the virus could efficiently spread between ferrets in the laboratory.
- The only known cases of the virus spreading between mammals were reported in minks that were raised in close confinement on a farm in Spain.
- The transmission of H5N1 from birds to mammals is rare, but when it does occur, it can be a cause for concern, as the virus could accumulate mutations and acquire the ability to potentially initiate human outbreaks.
- H5N1 has a high mortality rate of over 60% in humans and is primarily transmitted to humans through close contact with infected birds or animals, either through handling infected poultry or exposure to contaminated environments.

## 6. Enhanced Measures

- As the current H5N1 outbreak continues unabated with devastating impact on the avian population globally, and with significant ecological and economic consequences, the time has never been better to initiate efforts for preparedness towards building better, more efficient vaccines for avians and humans.
- Genomic surveillance should be done to map the continued evolution of the virus.
- Moreover, enhanced biosecurity measures are required to protect both animal and public health.

# DEJA VU

## 1. Background



- In 1876, Emile Boirac, a French philosopher and researcher, coined the term, which means “already seen.”
- But intellectuals have tried to explain the phenomenon as far back as Plato, who saw it as evidence of past lives
- More recently, Sigmund Freud described this as a “recollection of unconscious fantasy coupled with a desire to improve the present situation.”

- Carl Jung thought it was related to the collective unconscious, while modern Hollywood describes it as a ‘glitch in the matrix’
- **Deja vu is literally a person’s subjective experience of repeating a particular set of events, activities, thoughts and feelings, even though that has never in reality occurred before**
- Around 90 percent of the population has experienced deja vu and the frequency of it decreases as we age

## 2. Science behind it

- Our brain basically works like a time and space machine, It takes everything in our present and relates it to something similar or dissimilar in our past
- This way, it will be able to essentially plan the future. But there’s a possibility that these signals could get mixed up
- The phenomenon could have to do with an area in the middle of the brain called the thalamus
- All information such as hearing, taste, touch etc. must pass through the thalamus to the brain’s cerebral cortex (the outermost layer) for further interpretation and processing
- And if the speed of those interactions is a bit different, it then feels to us as if we’re experiencing the present, as though we remember it
- So what our brain has done is literally confused the present with the past
- It’s also difficult for researchers to reach a conclusion, as deja vu is a difficult phenomenon to reproduce in a laboratory setting

## 3. Related to 'Parallel Universe'

- Over the decades, scientists have come up with various theories about why and how it happens
- One popular theory from a neurological perspective is dual processing – in which information is stored and retrieved through different processes in the brain
- For example, **you are sitting in your living room reading this article. The smell of your mom’s cooking is in the air, your pet is cuddled up on the sofa, you hear the notification sound on your mobile, and feel the**

**sunlight touching your skin. All these sensations add up during processing and are interpreted as a single event**

- According to the dual processing theory, when there is a slight delay in the brain while processing one of these inputs, it interprets the experience as two separate events, giving you the feeling of familiarity
- There are also studies linking déjà vu with a parallel universe. Theoretical physicist Dr. Michio Kaku believes that déjà vu is a form of memory glitch that happens when “fragments of memories stored in the brain... are elicited by moving into an environment that resembles something we’ve already experienced.”

# QUANTUM COMPUTING

## 1. Context

India decided to join in this global effort in a big way, by setting up a Rs 6,000 crore **National Mission on Quantum Technologies and Applications**.

The development of homegrown quantum computers is one of the major objectives of the mission.

## 2. About quantum computing

- Quantum computing is a rapidly-emerging technology that harnesses the laws of quantum mechanics to solve problems too complex for classical computers.
- IBM Quantum makes real quantum hardware a tool scientists only began to imagine three decades ago available to hundreds of thousands of developers.
- Engineers deliver ever-more-powerful superconducting quantum processors at regular intervals, alongside crucial advances in software and quantum-classical orchestration.

- This work drives toward the quantum computing speed and capacity necessary to change the world.
- These machines are very different from the classical computers that have been around for more than half a century.

### 3. Need for quantum computers

- For some problems, supercomputers aren't that super. When scientists and engineers encounter difficult problems, they turn to supercomputers.
- These are very large classical computers, often with thousands of classical CPU and GPU cores. However, even supercomputers struggle to solve certain kinds of problems.
- If a supercomputer gets stumped, that's probably because the big classical machine was asked to solve a problem with a high degree of complexity. When classical computers fail, it's often due to complexity
- Complex problems are problems with lots of variables interacting in complicated ways.
- Modelling the behaviour of individual atoms in a molecule is a complex problem, because of all the different electrons interacting with one another.
- Sorting out the ideal routes for a few hundred tankers in a global shipping network is complex too.

### 4. Quantum computers work

- Quantum computers are elegant machines, smaller and requiring less energy than supercomputers.
- An IBM Quantum processor is a wafer not much bigger than the one found in a laptop.
- And a quantum hardware system is about the size of a car, made up mostly of cooling systems to keep the superconducting processor at its ultra-cold operational temperature.
- A classical processor uses bits to perform its operations. A quantum computer uses qubits (CUE-bits) to run multidimensional quantum algorithms.

## 4.1. Superfluids

- A desktop computer likely uses a fan to get cold enough to work.
- Quantum processors need to be very cold about a hundredth of a degree above absolute zero.
- To achieve this, we use super-cooled superfluids to create superconductors.

## 4.2. Superconductors

- At those ultra-low temperatures, certain materials in our processors exhibit another important quantum mechanical effect: electrons move through them without resistance. This makes them "**superconductors.**"
- When electrons pass through superconductors they match up, forming "**Cooper pairs.**"
- These pairs can carry a charge across barriers, or insulators, through a process known as quantum tunnelling.
- Two superconductors placed on either side of an insulator form a Josephson junction.

## 4.3. Control

- Our quantum computers use Josephson junctions as superconducting qubits.
- By firing microwave photons at these qubits, we can control their behaviour and get them to hold, change, and read out individual units of quantum information.

## 4.4. Superposition

- A qubit itself isn't very useful. But it can perform an important trick: placing the quantum information it holds into a state of superposition, which represents a combination of all possible configurations of the qubit.
- Groups of qubits in superposition can create complex, multidimensional computational spaces. Complex problems can be represented in new ways in these spaces.

## 4.5. Entanglement

- Entanglement is a quantum mechanical effect that correlates the behaviour of two separate things.
- When two qubits are entangled, changes to one qubit directly impact the other.
- Quantum algorithms leverage those relationships to find solutions to complex problems.

## 5. Making quantum computers useful

- Right now, IBM Quantum leads the world in quantum computing hardware and software. It is a clear and detailed plan to scale quantum processors, overcomes the scaling problem, and build the hardware necessary for quantum advantage.
- Quantum advantage will not be achieved with hardware alone.
- IBM has also spent years advancing the software that will be necessary to do useful work using quantum computers.
- They developed the Qiskit quantum SDK. It is open-source, python-based, and by far the most widely-used quantum SDK in the world.
- The Qiskit Runtime is the most powerful quantum programming model in the world.
- Achieving quantum advantage will require new methods of suppressing errors, increasing speed, and orchestrating quantum and classical resources.

# DEOXYRIBONUCLEIC ACID (DNA)

## 1. Context

Seventy years ago, two male scientists, Francis Crick, and James Watson, proclaimed they had discovered the secret of life: The structure of DNA. Since then, history has acknowledged how Rosalind Franklin was sidelined. But new archive evidence has cast doubt on the widely accepted narrative that Franklin

collected an all-important image but didn't appreciate the meaning of what she was looking at.

## 2. Deoxyribonucleic Acid (DNA)

- Deoxyribonucleic acid (abbreviated DNA) is the molecule that carries genetic information for the development and functioning of an organism.
- DNA is made of two linked strands that wind around each other to resemble a twisted ladder a shape known as a double helix.
- Each strand has a backbone made of alternating sugar (deoxyribose) and phosphate groups.
- Attached to each sugar is one of four bases: adenine (A), cytosine (C), guanine (G), or thymine (T).
- The two strands are connected by chemical bonds between the bases: adenine bonds with thymine, and cytosine bonds with guanine.
- The sequence of the bases along DNA's backbone encodes biological information, such as the instructions for making a protein or RNA molecule.

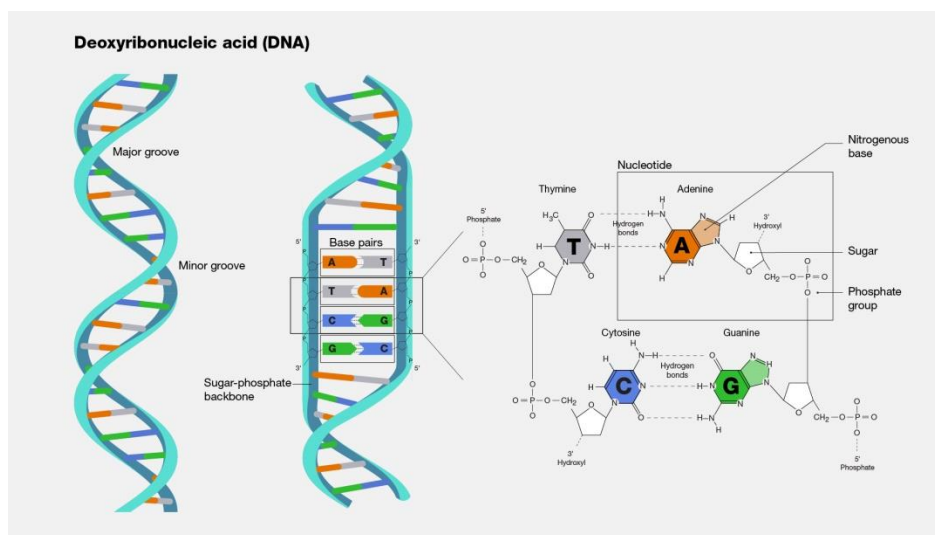


Image Source: National Human Genome Research Institute

## 3. DNA Structure and Function

- DNA is the information molecule. It stores instructions for making other large molecules, called proteins.

- These instructions are stored inside each of your cells, distributed among 46 long structures called chromosomes.
- These chromosomes are made up of thousands of shorter segments of DNA, called genes. Each gene stores the directions for making protein fragments, whole proteins, or multiple specific proteins.
- DNA is well-suited to perform this biological function because of its molecular structure, and because of the development of a series of high-performance enzymes that are fine-tuned to interact with this molecular structure in specific ways.
- The match between DNA structure and the activities of these enzymes is so effective and well-refined that DNA has become, over evolutionary time, the universal information-storage molecule for all forms of life.
- Nature has yet to find a better solution than DNA for storing, expressing, and passing along instructions for making proteins.

### 3.1 Molecular structure of DNA

- In order to understand the biological function of DNA, you first need to understand its molecular structure.
- This requires learning the vocabulary for talking about the building blocks of DNA, and how these building blocks are assembled to make DNA molecules.

### 3.2 DNA Molecules are Polymers

- Polymers are large molecules that are built up by repeatedly linking together smaller molecules, called monomers.
- Think of how a freight train is built by linking lots of individual boxcars together, or how this sentence is built by sticking together a specific sequence of individual letters (plus spaces and punctuation).
- In all three cases, the large structure of a train, a sentence, and a DNA molecule is composed of smaller structures that are linked together in non-random sequences boxcars, letters, and, in the biological case, DNA monomers.

### 3.3 DNA Monomers are called Nucleotides

- Just like the sentence “polymer” is composed of the letter “monomers,” a DNA polymer is composed of monomers called nucleotides.
- A molecule of DNA is a bunch of nucleotide monomers, joined one after another into a very long chain.

### 4. Four Nucleotide Monomers

- The English language has a 26-letter alphabet. In contrast, the DNA “alphabet” has only four “letters,” the four nucleotide monomers.
- They have short and easy-to-remember names: A, C, T, G. Each nucleotide monomer is built from three simple molecular parts: a sugar, a phosphate group, and a nucleobase. (Don’t confuse this use of “base” with the other one, which refers to a molecule that raises the pH of a solution; they’re two different things.)

### 5. The sugar and acid in all four monomers are the same

- All four nucleotides (A, T, G, and C) are made by sticking a phosphate group and a nucleobase to a sugar.
- The sugar in all four nucleotides is called deoxyribose. It’s a cyclical molecule most of its atoms are arranged in a ring structure.
- The ring contains one oxygen and four carbons. A fifth carbon atom is attached to the fourth carbon of the ring.
- Deoxyribose also contains a hydroxyl group (-OH) attached to the third carbon in the ring.

### 6. Four Nucleotide Monomers are distinguished by their bases

Each type of nucleotide has a different nucleobase stuck to its deoxyribose sugar.

- A nucleotide contains adenine
- A nucleotide contains thymine
- G nucleotide contains guanine
- C nucleotide contains cytosine

All four of these nucleobases are relatively complex molecules, with the unifying feature that they all tend to have multiple nitrogen atoms in their structures. For this reason, nucleobases are often also called nitrogenous bases.

## 7. DNA Fingerprinting

- It is known that every individual has unique fingerprints. These occur at the tips of the fingers and have been used for identification for a long time but these can be altered by surgery.
- A sequence of bases on DNA is also unique for a person and information regarding this is called DNA fingerprinting. It is the same for every cell and cannot be altered by any known treatment.
- DNA fingerprinting is now used (i) in forensic laboratories for the identification of criminals. (ii) to determine the paternity of an individual. (iii) to identify the dead bodies in any accident by comparing the DNAs of parents or children. (iv) to identify racial groups to rewrite biological evolution.

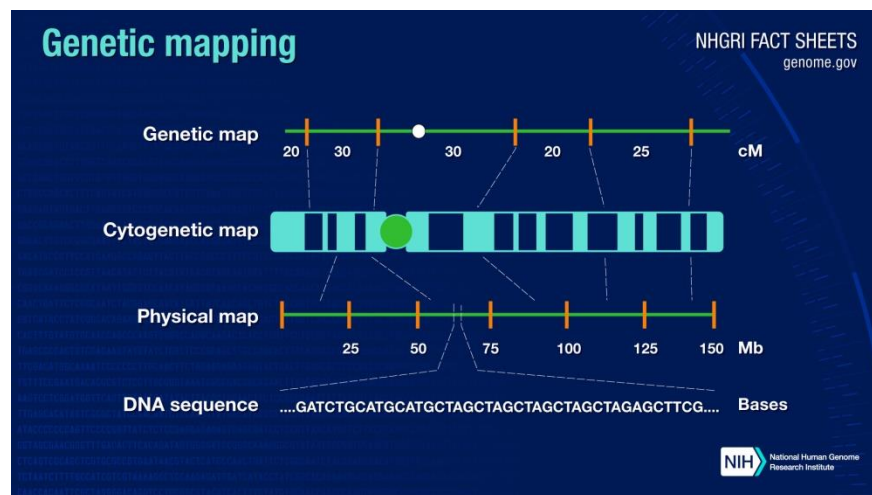
## 8. Recombinant DNA

- Recombinant DNA (rDNA) molecules are DNA molecules formed by laboratory methods of genetic recombination (such as molecular cloning) to bring together genetic material from multiple sources, creating sequences that would not otherwise be found in the genome.
- Recombinant DNA is possible because DNA molecules from all organisms share the same chemical structure. They differ only in the nucleotide sequence within that identical overall structure.
- In most cases, organisms containing recombinant DNA have apparently normal phenotypes. That is, their appearance, behavior, and metabolism are usually unchanged.

# GENOME MAPPING

## 1. Context

The government has given clearance to an ambitious gene-mapping project, estimated to be worth Rs 238 crore. The Genome India Project has been described by those involved as the “first scratching of the surface of the vast genetic diversity of India”, and involves over 20 scientists from institutions including the Indian Institute of Science (IISc) in Bengaluru and a few IITs.



## 2. Human Genome Project (HGP)

- One of the most comprehensive genome mapping projects in the world is the Human Genome Project (HGP), which began in 1990 and reached completion in 2003.
- The international project, which was coordinated by the National Institutes of Health and the US Department of Energy, was undertaken with the aim of sequencing the human genome and identifying the genes that contain it.
- The project was able to identify the locations of many human genes and provide information about their structure and organization.

## 3. Genome Mapping

- Gene mapping refers to the technique used to identify a gene's location and distance between genes.

- The distances between various sites inside a gene can also be described through gene mapping.
- Placing several molecular markers at specific locations on the genome is the fundamental element of all genome mapping.
- There are many types of molecular markers. When creating genome maps, genes can be observed as a particular class of genetic markers mapped similarly to other markers.

#### 4. Types of Gene Mapping

- Genetic linkage maps and physical maps are the two main categories of "Maps" used in gene mapping.
- Both maps consist of genetic markers and gene loci. While physical maps involve actual physical distances, often measured in a number of base pairs, distances of genetic maps are based on genetic linkage information.
- There are many gene mapping methods, including comparative, physical, and genetic-linkage mapping. However, physical, and genetic-linkage mapping are more common.

#### 5. What does genome mapping tell us?

- According to the Human Genome Project, there are estimated to be over 20,500 human genes.
- Genome refers to an organism's complete set of DNA, which includes all its genes, and mapping these genes simply means finding out the location of these genes in a chromosome.
- In humans, each cell consists of 23 pairs of chromosomes for a total of 46 chromosomes, which means that for 23 pairs of chromosomes in each cell, there are roughly 20,500 genes located on them.
- Some of the genes are lined up in a row on each chromosome, while others are lined up quite close to one another and this arrangement might affect the way they are inherited.
- For Example, if the genes are placed sufficiently close together, there is a probability that they get inherited as a pair.

- Genome mapping, therefore, essentially means figuring out the location of a specific gene on a particular region of the chromosome and also determining the location of relative distances between other genes on that chromosome.
- Significantly, genome mapping enables scientists to gather evidence if a disease transmitted from the parent to the child is linked to one or more genes.
- Furthermore, mapping also helps in determining the particular chromosome which contains that gene and the location of that gene in the chromosome.
- According to the National Human Genome Research Institute (NHGRI), genome maps have been used to find out genes that are responsible for relatively rare, single-gene inherited disorders such as cystic fibrosis and Duchenne muscular dystrophy.
- Genetic maps may also point out scientists to the genes that play a role in more common disorders and diseases such as asthma, cancer, and heart disease among others.

## 6. Why it is more important?

- A complete human genome makes it easier to study genetic variation between individuals or between populations.
- A genome refers to all of the genetic material in an organism, and the human genome is mostly the same in all people, but a very small part of the DNA does vary between one individual and another.
- By constructing a complete human genome, scientists can use it for reference while studying the genome of various individuals, which would help them understand which variations, if any, might be responsible for the disease.

## 7. What was missing?

- The genetic sequence made available in 2003 from the Human Genome Project, an international collaboration between 1990 and 2003, contained information from a region of the human genome known as the euchromatin.
- Here, the chromosome is rich in genes, and the DNA encodes for protein. The 8% that was left out was in the area called heterochromatin. This is a smaller portion of the genome and does not produce protein.

- There were at least two key reasons why heterochromatin was given lower priority. This part of the genome was thought to be “junk DNA” because it had no clear function.
- Besides, the euchromatin contained more genes that were simpler to sequence with the tools available at the time.
- Now, the fully sequenced genome is the result of the efforts of a global collaboration called the Telomere-2- Telomere (T2T) project.
- The invention of new methods of DNA sequencing and computational analysis helped complete the reading of the remaining 8% of the genome.

### 8. What is in the 8%?

- The new reference genome, called T2TCHM13, includes highly repetitive DNA sequences found in and around the telomeres (structures at the ends of chromosomes) and the centromeres (at the middle section of each chromosome).
- The new sequence also reveals long stretches of DNA that are duplicated in the genome and are known to play important roles in evolution and disease.
- The fact that the sequences are repetitive is enlightening. The findings have revealed a large number of genetic variations, and these variations appear in large part within these repeated sequences.
- A significant amount of human genetic material turns out to be long, repetitive sections that occur over and over.
- Although every human has some repeats, not everyone has the same number of them. And the difference in the number of repeats is where most of the human genetic variation is found,” the University of Connecticut said in a press release.
- Many of the newly revealed regions have important functions in the genome even if they do not include active genes.

## QUASARS

## 1. Context

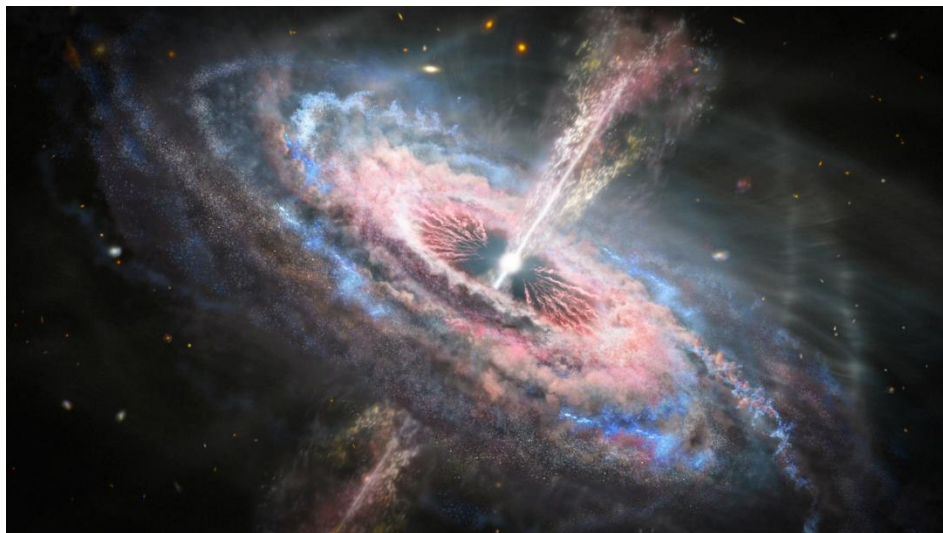
Quasars the brightest and the most powerful objects in the universe have a violent origin story, according to a new study.

The celestial bodies shine as brightly as a trillion stars but are a fraction of the size, concentrated in a region as small as our solar system.

The Collision of two galaxies likely ignites quasars, the new study published in the journal Monthly Notices of the **Royal Astronomical Society** highlighted.

## 2. About Quasars

- Quasars short for "**quasi-stellar radio sources**" were first discovered six decades ago.
- They are located in supermassive **black holes**, which sit in the centre of galaxies.
- As a supermassive black hole feed on gas and dust, it releases extraordinary amounts of energy in the form of radiation, resulting in a quasar.
- The mechanisms that trigger quasars have been hotly debated. Some studies suggest galaxy mergers are responsible, while others found little evidence to support the theory.



**Image Source: NASA**

### 3. Findings of the Study

- The mixed results are because the images used in many studies were not sensitive enough to detect them.
- To tackle this issue, the image is a large sample of quasars with the appropriate depth to identify these signatures.
- To do this, researchers relied on the **Isaac Newton Telescope** in La Palma in the **Canary Islands**. They compared 48 galaxies that host quasars with over 100 non-quasar galaxies.
- Galaxies that host a quasar showed morphological features that are consistent with galaxy mergers, the researchers noted.
- When galaxies collide, it pushes the gas from the outer reaches of galaxies to the centre. And as the supermassive black hole gorges on the gas, it releases ferocious fountains of energy in the form of radiation, leading to the quasar.
- These results present strong evidence that galaxy interactions are the dominant trigger for quasars in the local universe.
- However, they are unlikely to be the sole factor, the researchers wrote in their study.

### 4. Significance of quasars

- When a quasar is ignited, it can drive the rest of the gas out of the galaxy.
- The radiation from these objects is so intense that intervening gas within the galaxy feels a pressure that moves it away from the quasar in the nucleus, driving "**outflows**" of material.
- In extreme cases, a significant fraction of the total gas in a galaxy gets displaced. This has drastic consequences on star formation.
- Also, the collision of the Milky Way galaxy with the Andromeda galaxy could likely trigger a quasar, the scientists predict in their study.
- Quasars are one of the most extreme phenomena in the universe and what we see is likely to represent the future of our own Milky Way galaxy when it collides with the Andromeda galaxy in about five billion years.
- It's exciting to observe these events and finally understand why they occur but thankfully, Earth won't be anywhere near one of these apocalyptic episodes for quite some time.

- Further, quasars act as "**cosmic lighthouses**" allowing researchers to see the outer reaches of the universe.
- NASA's James Webb Space Telescope will study the earliest galaxies in the universe.
- The telescope is capable of detecting light from even the most distant quasars, emitted nearly 13 billion years ago.
- The galaxy collisions are very important for triggering this activity in galaxies closer to us, we can consider whether these events were also important for igniting quasars in earlier epochs of the universe.

## PARIS AGREEMENT

### 1. Context

The last eight years, 2015-2022, have consecutively been the warmest years on record globally, according to the recent State of the Global Climate 2022 report by the World Meteorological Organization (WMO) released in Geneva.

#### PM MAKES FIVE PLEDGES

- 1 India will increase its non-fossil energy capacity to 500GW by 2030
- 2 India will meet 50% of its energy requirements from renewable energy by 2030
- 3 India will reduce the total projected carbon emissions by one billion tonnes from now to 2030
- 4 By 2030, India will reduce the carbon intensity of its economy by 45% (from a previous target of 35%)
- 5 By 2070, India will achieve the target of net zero

#### WHAT IS NET ZERO?

Net zero refers to a balance where emissions of greenhouse gases are offset by the absorption of an equivalent amount from the atmosphere. Experts see net zero targets as a critical measure to successfully tackle climate change and its devastating consequences

#### PLEDGES BY TOP THREE EMITTERS

-  **CHINA:** Beijing announced no new pledges on Monday. It previously pledged net zero by 2060.
-  **UNITED STATES:** The US touted domestic legislation to spend \$555bn to boost renewable power and electric vehicles. It has pledged net zero by 2050.
-  **INDIA:** The country's economy will become carbon neutral by the year 2070

## 2. What is Paris Agreement?

- Paris Agreement is a multinational agreement that was signed as part of the UNFCCC with the intention of reducing and mitigating greenhouse gas emissions.
- 196 nations ratified the climate change agreement at the Conference of the Parties (COP 21) in Paris in December 2015. It is an international agreement that is binding on all parties involved.
- Achieving the long-term temperature goal was the purpose of the Paris Climate Accord. To attain a world without greenhouse gas emissions by the middle of the century, nations strive to peak global greenhouse gas emissions as soon as possible.
- The Paris Climate Accord's major objective is to keep global warming well below 2° Celsius and ideally below 1.5° Celsius in comparison to pre-industrial levels.
- The Paris Agreement is a watershed moment in the multilateral climate change process because it brings all nations together for the first time in a binding agreement to undertake ambitious efforts to combat climate change and adapt to its effects.

## 3. COP21

- To keep the rise in the average world temperature to well under 2°C above pre-industrial levels. To continue making efforts to keep global warming to 1.5°C over pre-industrial levels, knowing that doing so would greatly lessen the dangers and effects of climate change.
- The Agreement also mentions achieving the global peaking of emissions by the middle of the century while taking into account the fact that developing nation Parties will have a longer peaking period.

## 4. What are NDCs

- At the Conference of the Parties (COP21) of the U.N. Framework Convention on Climate Change (UNFCCC), which took place in Paris in December 2015, nations from all over the world pledged to establish a new global climate agreement by that time.

- In advance of a new international agreement, nations have committed to publicly state their Intended Nationally Determined Contributions or the climate activities they plan to take after 2020.
- The 2015 agreement's ambitious goals and whether the world is put on a course toward a low-carbon, climate-resilient future will be largely determined by the INDCs.
- The Intended Nationally Determined Contribution (INDC) of India has also been submitted to the United Nations Framework Convention on Climate Change.
- Countries communicate actions they will take to reduce greenhouse gas emissions to meet the Paris Agreement's goals in their NDCs.
- Countries also communicate actions they will take to build resilience to adapt to the effects of rising temperatures in their NDCs.

## 5. Highlights of the report on the performance of the Paris Agreement

- After the signing of the Agreement, the last eight years (2015-2022) have consecutively been the warmest years on record globally.
- The situation could have been far worse if the La Nina weather event had not occurred in the past three years, which has a cooling effect on the weather system.
- Globally updated Nationally Determined Contributions (NDCs) to limit global warming to 1.5 degrees Celsius have failed even to achieve a 2-degree Celsius target.
- The Paris Agreement has not been able to equitably phase out fossil fuels predominantly responsible for the climate crisis.
- Neither the NDCs nor the disaster risk reduction and climate risk management plans are in place to combat climate-induced extreme weather phenomena.

## 6. A series of climate records fell over in 2022, the report showed.

- **Global mean temperature rising:** The global mean temperature in 2022 was 1.15°C, ranging from 1.02°C to 1.28°C above the 1850–1900

average. This was the highest on record for the past eight years. The value is about 0.2°C higher than the statistic before 2015. The pre-industrialisation era is considered a benchmark as there was no significant anthropogenic emission at the time.

- **Record melting of Antarctica ice:** Sea ice in Antarctica dropped to an all-time low, 1.92 million square kilometres, on February 25, 2022. This was almost a million sq km below the mean of the last three decades till 2020.
- **Greenhouse gases surged:** The levels of three major greenhouse gases — carbon dioxide, methane, and nitrous oxide — continued to increase in 2022. The data shows that growth rates of all three gases have increased around 20 per cent compared to 2011-15 levels.
- **Sea level rise doubled:** Global mean sea level continued to rise in 2022. It has doubled to 4.62 millimetres per year during 2013–2022 from 2.27 mm recorded in the first decade of the satellite record (1993–2002). The rate of increase quickened after 2015. Ocean heat content, which measures this gain in energy, reached a new observed record.
- **Record thinning of glaciers:** Long-term observational data is available for glaciers, which were found to have thinned over 1.3 metres between October 2021 and October 2022. The loss is much larger than before. The cumulative thickness loss since 1970 amounts to almost 30 metres.
- **More than half of the oceans saw marine heatwaves in 2022:** Despite continuing La Nina conditions, 58 per cent of the ocean surface experienced at least one marine heatwave during 2022.
- **Heatwaves killed 15,000 in Europe:** Record-breaking heatwaves affected China and Europe during the summer, with excess deaths associated with the heat in Europe exceeding 15000. Casualties were reported across Spain, Germany, the United Kingdom, France and Portugal.
- **1,600 suffered deaths from weather extremes in India:** India suffered from significant flooding at various stages during monsoon, particularly in the northeast in June, with over 700 deaths reported from flooding and landslides and a further 900 from lightning.

### General Studies 3: Environment & ecology

## CLEAN ENERGY

## 1. Context

In light of its high import dependence on China, India is planning to bring out a policy framework and action plan for the exploration, processing, use and recycling of critical minerals in the country.

## 2. Key points

- Critical minerals, both primary and processed are key inputs in the production process of an economy.
- The framework aims at self-sufficiency across several sectors and achieving the objective of India's clean energy transition.
- The recent surge in demand for critical minerals across the world, owing to their strategic use in renewable and e-mobility has been threatening developing countries with clean energy transition projects on the anvil.
- The demand for these minerals will increase by two to three times the current trends by 2030, according to the **International Energy Agency**.
- Unequal distribution, potential supply disruptions, price volatility resulting from overseas dependency and the lack of alternatives for these resources intensify the stress on the global mineral market.
- It is furthered by insufficient investment in the entire value chain and a lack of efficient industrial practices for recycling and recovery.

## 3. India's green energy transition

- Critical minerals such as copper, lithium, nickel, cobalt and rare earth elements are key to clean energy technologies.
- China currently dominates the sector in terms of the concentration of deposits and processing industries.
- India is on track to becoming the next global leader in the green energy transition.
- The country has been projected to be the world's second-largest economy by 2050.
- India needs to actively engage and incorporate aspects of building a secured and resilient critical minerals supply chain.
- Scaling up the manufacturing of green technologies, including solar panels, wind turbines and batteries for electric vehicles, will result in significant

demand and dependency on the supply of a range of critical minerals in future.

- Since these minerals, especially rare earth minerals are key to a low-carbon economy, stronger regulations on this front are vital to addressing the environmental and social impacts of mining and processing these minerals.

#### 4. Disruption of the supply chains

- The **Covid-19 pandemic**, coupled with **Russia's war on Ukraine**, disrupted the supply chains of critical minerals.
- China, the most dominant player in the critical mineral supply chains, is still struggling with the Covid-19 lockdowns.
- As a result, the extraction, processing and exports of critical minerals are at risk of slowdown.
- On the other hand, **Russia** is a major producer of **nickel, palladium, titanium, sponge metal and the rare earth element scandium**.
- **Ukraine**, one of the major producers of **titanium**, also has reserves of **lithium, cobalt, graphite and rare earth elements**, including **tantalum, niobium and beryllium**.
- But the war between the two countries has disrupted global critical mineral supply chains.
- As the balance of power shifts across the continents, the critical mineral supply chains may get affected due to growing partnerships between China and Russia.
- Supply chain security for the minerals and materials needed in clean energy technologies has become a strategic issue in the past few years.
- Despite their potential to delay the pace of clean tech deployment, these minerals have now become the latest frontier for geo-economic rivalries.
- To ensure the mineral security of the country and to attain self-sufficiency, the **Ministry of Mines** has created a joint venture company, Khanji Bidesh India Ltd (KABIL).
- But the present policy regime reserves these minerals only for public sector undertakings.
- The country needs to encourage and incentivise the private players in the sector to venture globally in parallel with KABIL.

## 5. India's engagement with other countries

- India is currently a member of The Intergovernmental Forum on Mining, Minerals, Metals and Sustainable Development, which supports the advancement of good mining governance.
- Recently, India and Australia decided to strengthen their partnership in clean energy transition and create resilient supply chains for critical minerals.
- Australia committed \$ 5.8 million to the three-year India-Australia Critical Minerals Investment Partnership.
- India must proactively engage with global players to secure its place in international partnerships on critical minerals.
- Last year, the United States formed the Minerals Security Partnership (MSP), a global alliance to reduce dependence on China.
- MSP is an ambitious new alliance comprising Australia, Canada, Finland, France, Germany, Japan, the Republic of Korea, Sweden, the United Kingdom, the US and the European Commission.
- The alliance intends to ensure that critical minerals are produced, processed and recycled in a manner that supports the ability of countries to realise the full economic and sustainable development benefit of their geological endowments.

## 6. The Way Forward

- India needs to actively engage with global players to secure its seat in MSP
- The processing technologies required for utilising critical and strategic minerals are not widely available in India.
- The country needs to use the vast network of scientific and technical Institutions to identify the necessary technologies and work on developing the same domestically.
- It can be achieved by partnering with global alliances and strengthening its case for becoming an active member of the MSP.

# GREEN ENERGY OPEN ACCESS

## 1. Context

Ministry of Power has notified Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022 to further accelerate our ambitious renewable energy programmes, to ensure access to affordable, reliable, sustainable and green energy for all.

## 2. Key Takeaways

The salient features and benefits to common consumers from ‘Green Energy Open Access’ are as follows:

- These rules are notified for promoting the generation, purchase and consumption of green energy including the energy from Waste-to-Energy plants.
- Green Open Access is allowed to any consumer and the limit of Open Access Transaction has been reduced from 1 MW to 100 kW for green energy, enabling small consumers to purchase renewable power through open access.
- Consumers are entitled to demand supply of Green Power from Discoms. The Discoms would be obligated to procure and supply green power to eligible consumers.
- Time-bound processing by bringing uniformity and transparency in the application and approval of open access through a national portal has been mandated.
- Approval for Green Open Access is to be granted in 15 days or else it will be deemed to have been granted.
- Commercial and Industrial consumers are allowed to purchase green power on a voluntary basis.
- There shall be a uniform Renewable Purchase Obligation (RPO), on all obligated entities in the area of a distribution licensee. Green Hydrogen/Green Ammonia has also been included to fulfil its RPO.
- Consumers will be given Green Certificates if they consume green power.

## 3. Way Forward

As per the Electricity Act 2003, the tariff is determined by the Appropriate Commission. Accordingly, the tariff for the green energy shall be determined by Appropriate Commission and shall comprise of the average pooled power purchase cost of the renewable energy, cross-subsidy charges, if any, and service charges covering the prudent cost of the distribution licensee for providing green energy to the consumers

Ministry of Power vide notification dated 08th July, 2022 notified Power System Operation Corporation (POSOCO) as Central Nodal Agency to set up and operate a single window green energy open access system for renewable energy under these Rules. National Portal will serve the consumers from all over the country

## WETLANDS

### 1. What are Wetlands?

The Ramsar Convention on Wetlands defines wetlands as “areas of marsh, fen, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters”.

Wetlands are vital for human survival. They are among the world’s most productive environments; cradles of biological diversity that provide the water and productivity upon which countless species of plants and animals depend for survival.

The Ramsar Convention, which came into existence in 1971, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources

### 2. Newly added Wetlands

The five new wetlands added to the list are the Karikili Bird Sanctuary, Pallikaranai Marsh Reserve Forest, Pichavaram Mangrove, Sakhya Sagar, and Pala Wetland.

Wetland	State	Description
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<b>Karikili Bird Sanctuary</b>	<b>Tamil Nadu</b>	<p>The Karikili Bird Sanctuary comprises two rain-fed non-perennial irrigation tanks spreading over more than 58 hectares. The Site is gently undulating and lies near low ridged, rocky hillocks. The near-threatened oriental darter (<i>Anhinga melanogaster</i>) and spot-billed pelican (<i>Pelecanus philippensis</i>) breed here. The Site was declared a Birds Sanctuary in 1972.</p>
<b>Sakhya Sagar</b>	<b>Madhya Pradesh</b>	<p>Sakhya Sagar is a human-made reservoir on the outskirts of Shivpuri town within the Madhav National Park. The Site features a mosaic of landforms including open water and surrounding marshes, plantations, and a small patch of agricultural land. This wetland provides a permanent source of water for wildlife, and habitats for animals including thousands of migratory waterfowl and also mugger crocodiles (<i>Crocodylus palustris</i>), whose presence attracts tourists.</p>
<b>Pichavaram Mangrove</b>	<b>Tamil Nadu</b>	<p>The Pichavaram Mangrove Forest near Chidambaram is the world's second-largest mangrove forest. It is located between two prominent estuaries, the Vellar Estuary in the north and the Coleroon Estuary in the south. The Vellar-Coleroon estuarine complex forms the Killai backwater and Pichavaram mangroves. The backwaters are interconnected by the Vellar and Coleroon river systems and offer abundant scope for water sports such as rowing, kayaking, and canoeing.</p>
<b>Pala Wetland</b>	<b>Mizoram</b>	<p>The geographical location of Palak Dil/Pala Wetland falls under the Indo-Burma biodiversity hotspot and is therefore rich in animal and plant species. The lake is a major component of the Palak Wildlife Sanctuary and supports the sanctuary's major biodiversity. The wetland falls under the Phura Forests Range.</p>
<b>Pallikaranai Marsh Reserve Forest</b>	<b>Tamil Nadu</b>	<p>This freshwater marsh and partly saline wetland support some bird species, mammals, reptiles, amphibians, fish, and butterfly species. These include</p>

notable species such as Russell's viper (*Daboia siamensis*) and birds such as the glossy ibis (*Plegadis falcinellus*), grey-headed lapwings (*Vanellus cinereus*), and Pheasant-tailed jacana (*Hydrophasianus chirurgus*).

### 3. Ramsar Convention

- The Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat is an international treaty for the conservation and sustainable use of Ramsar sites. It is also known as the Convention on Wetlands. It is named after the city of Ramsar in Iran, where the convention was signed in 1971
- The Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world"
- Wetlands are among the most diverse and productive ecosystems. They provide essential services and supply all our fresh water. However they continue to be degraded and converted to other uses
- The Convention uses a broad definition of wetlands. It includes all lakes and rivers, underground aquifers, swamps and marshes, wet grasslands, peatlands, oases, estuaries, deltas and tidal flats, mangroves and other coastal areas, coral reefs, and all human-made sites such as fish ponds, rice paddies, reservoirs and salt pans

Under the "three pillars" of the Convention, the Contracting Parties commit to:

- work towards the wise use of all their wetlands;
- designate suitable wetlands for the list of Wetlands of International Importance (the "Ramsar List") and ensure their effective management;
- cooperate internationally on transboundary wetlands, shared wetland systems and shared species.

## General Studies : Ethics & Integrity

# VALUES PROMOTE BETTER THAN ORGANISATION VALUES

## 1. Context

What gives more satisfaction and happiness to a government servant? When do values and ethics take over organisational processes? What does the DG want to convey to the IG and the constable in this caselet? The knowledge of the ethical principles you gained in the last article might help

## 2. Case Study

He was the Director General of the Railway force. But one morning, DG was feeling uneasy as he had read terrible news of child trafficking. He was worried about the pain these children underwent but could also understand the pain of their parents. What bothered him the most was the possibility of exploitation of those kids. As a leader, he felt that everyone in his department should have a moral understanding of this issue and empathise with it. He called his IG immediately and proposed an intervention on ethics and values for the Railway force. But the IG believed that if the system is robust, human trafficking can be checked through railways or any other means of transportation. IG was not convinced about such training on Ethics and Values. IG was in a hurry that day. He said, “Sir, today I was discussing the same thing with my parents, and there was a spark in my father’s eyes. The first time he accepted my profile as a police officer, as till now he felt I am not doing good things.” DG smiled and so did IG.

In one of the review meetings, the department awarded a railway constable for returning a mobile phone to an elderly couple by contacting them. It was a great

gesture. The constable even shared that the couple blessed and hugged him. While he was leaving the conference hall, the DG said, “Tell me, *jawan*. Suppose you found a missing child on the train and later you would have been successful in returning to their parents, how would you feel? Whether your happiness and satisfaction with your duty would have been the same as returning that mobile phone?” The constable was looking at him with awe. He was not finding any answer from his side. But his body language was certainly preparing him for the higher sense of sensitivity and larger consciousness in society. He returned quietly.

That was the last day of DG in the office. He was surrounded by his officers. When he was returning with farewell garlands and getting ready to board his personal car, he saw someone. That person was that constable. He was looking emotional and in tears. “Sir, I found a few kids a day before yesterday. I took them to their home and it was a highly satisfying effort, sir. Please let me touch your feet. You will never retire for all of us. You are the epitome of values. Hope the training in values and ethics will be refining us day by day, ” he said. Listening to this, the DG hugged him and put those garlands around the constable’s shoulders.

Later, he asked, “Why have you not informed the department? You would have been appreciated and awarded.” The constable replied, “My happiness was more to see that reunion. And trust me, sir, it was like becoming an inspector when I saw the happiness of their parents. Values promote us better than other processes of the organisation.”

### **Mains corner**

- 1. What are the two systems of the appointment of Judges that has triggered the fresh debate on the Judicial system in India? (250 Words)**
- 2. What is the Washington Declaration and discuss the features of the Strategic Arms Reduction Treaty (START)? (250 Words)**

**3. What are Labour laws? Why there is a need to have Labour Laws? Discuss the Evolution of Labour laws in India. (250 Words)**

**4. What are Critical Minerals? Discuss the need for India to deepen its global partnerships on critical minerals. (250 Words)**

**5. What is the States Reorganisation Commission report said about the Bifurcation of states? Discuss the pros and cons of bifurcations of states (250 Words)**

### **Prelims corner**

1. With reference to the Emissions Trading System (ETS), consider the following statements:

1. It is an initiative of the United Nations Environment Programme and International Union for Conservation of Nature to discourage carbon dioxide emissions in the industrial sector.

2. This system does not apply to the aviation sector.

Select the correct answer using the codes given below:

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

Answer (D)

The Emission Trading System is a cornerstone of the EU's policy to combat climate change and its key tool for reducing greenhouse gas emissions cost-effectively. It is the world's first major carbon market and remains the biggest one. Hence, statement 1 is not correct.

It is also known as the bloc's carbon market. The 27 member states in the European Union approved a revamp to the carbon market.

Carbon Market

Since 2005, European factories and power plants have had to purchase permits to cover their CO<sub>2</sub> emissions, with the prices becoming more prohibitive as their usage increases against norms for their sectors.

The idea is to create financial incentives for keeping emissions in check, and penalties for failing to and to generate funds for climate-related projects.

It applies to power-generation industries, energy-intensive industries and the aviation sector. Eventually, it will be expanded to cover greenhouse gases other than CO<sub>2</sub>, such as methane and nitrogen oxides. Hence, statement 2 is not correct. The new rules increase the overall ambition of emissions reductions by 2030 in the sectors covered by the EU ETS to 62% compared to 2005 levels.

2. Consider the following statements about the National Quantum Mission of India:

1. It is based on the principles of Quantum mechanics to describe nature at the scale of atoms and elementary particles.
2. The mission will be implemented for the period of 2023 to 2033.
3. The mission will entail the development of satellite-based secure communications.

Select the correct answer using the codes given below:

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

Answer (B)



The Union Cabinet approved the National Quantum Mission (NQM) which will be implemented for the period of 2023 to 2031. Hence, statement 2 is not correct.

Quantum Technology is based on the principles of Quantum mechanics to describe nature at the scale of atoms and elementary particles. Hence, statement 1 is correct.

NQM will entail the development of satellite-based secure communications between a ground station and a receiver located at 3,000 km during the first three years. Hence, statement 3 is correct.

3. With reference to the TeLEOS-2, consider the following statements:

1. It is a dedicated commercial mission through New Space India Limited.
2. It aims to augment Singapore's e-navigation maritime safety and benefit the global shipping community.
3. It will be used to support the satellite imagery requirements of various agencies within the Government of Singapore.

Select the correct answer using the codes given below:

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

Answer (A)

PSLV-C55/TeLEOS-2 was launched successfully on April 22, 2023, from SDSC-SHAR, Sriharikota. This is a dedicated commercial mission through NSIL with TeLEOS-2 as the primary satellite and Lumelite-4 as a co-passenger satellite. Hence, statement 1 is correct.

TeLEOS-2

The TeLEOS-2 satellite is developed under a partnership between DSTA (representing the Government of Singapore) and ST Engineering.

It will be used to support the satellite imagery requirements of various agencies within the Government of Singapore. Hence, statement 3 is correct.

TeLEOS-2 carries a Synthetic Aperture Radar (SAR) payload. It will be able to provide all-weather day and night coverage, and capable of imaging at 1m full-polarimetric resolution.

#### LUMILITE-4

The LUMELITE-4 satellite is co-developed by the Institute for Infocomm Research (I 2 R) of A\*STAR and the Satellite Technology and Research Centre (STAR) of the National University of Singapore.

It is an advanced 12U satellite developed for the technology demonstration of the High-Performance Space-borne VHF Data Exchange System (VDES).

It aims to augment Singapore's e-navigation maritime safety and benefit the global shipping community. Hence, statement 3 is not correct.

#### POEM-2

— The mission has the PSLV Orbital Experimental Module (POEM), where the spent PS4 stage of the launch vehicle would be utilized as an orbital platform to carry out scientific experiments through non-separating payloads.

— The payloads belong to ISRO/Department of Space, Bellatrix, Dhruva Space, and the Indian Institute of Astrophysics.

4. He was born into an aristocratic family in the 19th century in the erstwhile princely state of Travancore. He was a master painter at handling the oil medium and achieved magical ease with European naturalism. He represented the Hindu mythological stories so loved by the Indian imagination, with an illusionistic flair that mirrored the society of his time. His paintings influenced the pioneers of Indian cinema like Dadasaheb Phalke.

The above lines refer to:

- A. Pestonji Bomanji
- B. Jyotirindranath Tagore
- C. Raja Ravi Varma
- D. Mangala Bayi

Answer (C)

Raja Ravi Varma was born into an aristocratic family in Kerala. Raja Ravi Varma was largely a self-taught artist as European techniques go.

He was a master at handling the oil medium and achieved magical ease with European naturalism.

He stood at the transitional stage between Indian painting tradition and the emergence of the Salon artist well versed in European academic naturalism he reconciled the aesthetic principles of both in his style.

He represented the Hindu mythological stories so loved by the Indian imagination, with an illusionistic flair that mirrored the society of his time.

According to art historians, Raja Ravi Varma's dramatic history paintings influenced the pioneers of Indian cinema like Dadasaheb Phadke and Baburao Painter.

Raja Ravi Varma excelled as a portrait painter as well as a painter of various other genres like history painting, painting of female figures and so on.

This series of ten paintings in oil colors by Ravi Varma, court painter to several presidencies of India, is of much ethnological value; not only do the faces of the high caste ladies which are portrayed give the various types of localities, but the artist's careful attention to the details of the costume and articles used in the social and ceremonial life he has depicted render the paintings worthy of special commendation

5. Which of the following statement is *not* correct about the water bodies census of India?

- A. The Ministry of Jal Shakti has released the report of India's first water bodies census, a comprehensive database of ponds, tanks, lakes, and reservoirs in the country
- B. Maximum water bodies have been enumerated from the rural areas.
- C. Maharashtra has topped the list having the maximum number of water bodies.
- D. Karnataka has the highest number of lakes

Answer (D)

The Ministry of Jal Shakti has released the report of India's first water bodies census, a comprehensive database of ponds, tanks, lakes, and reservoirs in the country.

All natural or man-made units bounded on all sides with some or no masonry work used for storing water for irrigation or other purposes (e.g. industrial, pisciculture, domestic/drinking, recreation, religious, groundwater recharge, etc.) will be treated as water bodies in this Census.

These are usually of various types known by different names like tanks, reservoirs, ponds, etc.

A structure where water from ice melt, streams, springs, rain or drainage of water from residential or other areas is accumulated or water is stored by diversion from a stream, Nala or river will also be treated as a water body.

The objective of the Census of Water Bodies is to develop a national database for all water bodies by collecting information on all important aspects of the subject including their size, condition, status of encroachments, use, storage capacity, status of filling up of storage etc.



As per the report, 24,24,540 water bodies have been enumerated in the country, out of which 97.1 per cent (23,55,055) are in rural areas and only 2.9 per cent (69,485) are in urban areas.

In 1st census of water bodies, 97,062 water bodies have been enumerated in the State of Maharashtra, out of which 99.3 per cent (96,343) are in rural areas and the remaining 0.7 per cent (719) are in urban areas.

West Bengal has the highest number of ponds and reservoirs, whereas Andhra Pradesh has the highest number of tanks, and Tamil Nadu has the highest number of lakes.

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