

September 2023 EDITION



NEWS JUICE MONTHLY

1st August to 31st August, 2023

Summary of The Hindu & The Indian Express along with News
Background

GS Pre-cum-Mains Study Material for IAS Preparation

1. 10 Published Books for Pre cum Mains

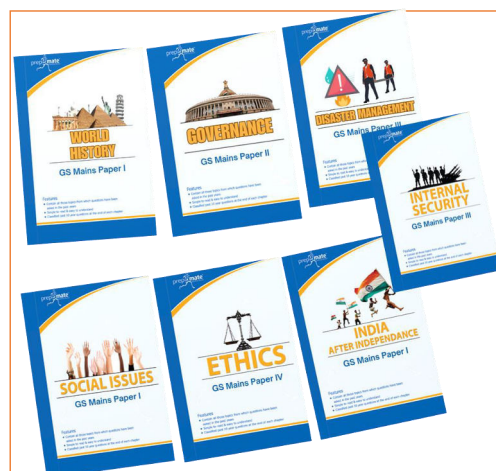


Rs. 10,000/-

2. Value Added Material



3. Mains Study Material



4. Guidance

To Order send 'Study material for IAS' on WhatsApp number 75979-00000

Table of Contents

Polity & Governance

1. SC extends ED chief's term till Sept 15 in 'national interest'	2
2. SC asks States to respond to a petition over alleged inaction on lynchings.....	3
3. New bill on greater govt control over IIMs raises concerns over their autonomy.....	4
4. A new category of Ayush visa for foreigners seeking treatment under Indian systems of medicine.....	6
5. Rohini panel submits long-awaited report on sub-categorization of OBCs.....	6
6. Jan Vishwas Bill gets Parliamentary approval, set to change drug laws.....	7
7. SC stays Rahul Gandhi's conviction in defamation case.....	9
8. Differences between Money Bills and Financial Bills.....	10
9. Lok Sabha passes Digital Personal Data Protection Bill, 2023.....	11
10. Govt revises manufacturing rules for drug firms.....	13
11. Centre introduces new Bill on Election Commission members' appointments.....	14
12. Govt proposes legislation to overhaul the criminal justice system.....	16
13. Key provisions and processes proposed in New Bill to replace CrPC.....	17
14. New rules make it mandatory for doctors to prescribe generic medicines.....	19
15. States unhappy with Centre over notified criteria in PM-USHA scheme.....	21
16. The importance of Rohini panel's findings.....	22

International Organisations & Bilateral Relations

1. Pak President denies signing controversial bills, begins political slugfest.....	23
2. Anwaar-ul-Haq Kakar takes over as the new caretaker Prime Minister of Pakistan.....	25
3. PM Modi urges Sri Lanka President to implement 13th Amendment.....	26
4. Hawkish China keeps a close watch on Kuril islands claimed by Japan and Russia.....	28
5. Citing worsening security situation, the military stages a coup in Niger.....	29
6. Imran Khan sentenced to three years in jail in the Toshakhana case.....	31
7. Jeddah conference calls for more efforts to end the Ukraine war.....	32
8. ECOWAS, the West African bloc plans to intervene in Niger's coup.....	33
9. T.N CM Stalin demands retrieval of Katchatheevu island from Sri Lanka.....	34
10. US Prez Joe Biden hosts Japan's and South Korea's leaders at Camp David.....	36

11. BRICS gets six new members.....	38
12. Western nations play down BRICS' expansion plans.....	40

Economics

1. Full-reserve banking: where banks act solely as custodians of customers' money.....	41
2. Credit rating agency Fitch downgrades US rating.....	43
3. Sebi announces online dispute resolution system.....	44
4. Critics label licensing of laptops as a further regression in India's trade stance.....	45
5. China's deflation causes concerns.....	47
6. Survey finds jobs, economic struggle as the top concerns of India's 15 to 34-yr-olds.....	49
7. RBI launches pilot project for "frictionless credit".....	51
8. Number of Jan Dhan Accounts Cross 50 Crore.....	53
9. Govt imposes a hefty export duty to check sharply rising onion prices.....	53
10. Raghuram Rajan raises questions over govt's 'Make in India' success claims in electronics sector.....	54
11. Panel set up to examine stalled real estate projects submits report.....	56

Environment & Biodiversity

1. El Nino becomes India's topmost economic and political risk.....	58
2. Govt notifies rules for battery waste management.....	60
3. Bill to amend Forest (Conservation) Act clears Lok Sabha.....	61
4. Ancient Peruvian whale may be the most massive creature recorded.....	62
5. In a historic first in the U.S, Montana's young plaintiffs win climate change lawsuit.....	63
6. U.S. West Coast witnesses the Fujiwhara effect.....	65
7. New report warns of plummeting bird species in India.....	66

Science & Technology

1. India gives green signal to human challenge studies.....	68
2. India keen to become a major player in semiconductors by overcoming challenges.....	69
3. Sam Altman reintroduces biometric project – Worldcoin.....	71
4. Govt issues a warning against Akira ransomware.....	72

5. NASA plans to use a nuclear-powered rocket to cut travel time to Mars by half.....	74
6. India takes first step to remove animals from drug-testing.....	75
7. Claims about new revolutionary superconductor material fail independent analysis.....	77
8. Small modular reactors' big potential to help India achieve net zero target.....	78
9. ISRO gears up to send Aditya-L1 space probe to study the Sun.....	80
10. Russia's Luna 25 could land on the moon days before Chandrayaan-3.....	81
11. Metagenome sequencing technology transforms pathogen surveillance.....	83
12. India's first 3D-printed post office inaugurated in Bengaluru.....	85
13. Russia's maiden attempt at moon landing ends up in failure with the crash of Luna-25.....	86
14. Aussie regulator warns of potential health risks caused by turmeric supplements.....	88
15. Indian scientists create less pungent, more useful Gene-edited mustard.....	89
16. Chandrayaan 3's rover Pragayan all set on its mission to explore the Moon's surface.....	91
17. Govt launches star-rating system to enhance car safety standards.....	93
18. Lessons learnt from Chandrayaan 2's failure helped ISRO achieve spectacular success this time around.....	94
19. PM Modi announces names of Chandrayaan missions landing sites.....	96
20. ISRO gears up for missions to the Sun, Venus as well as manned ones.....	98

Social Issues

1. Govt. proposes ST status for the Paharis and Paddaris in J&K.....	100
2. WHO report praises India's efforts to discourage tobacco use.....	101
3. Cabinet approves 'PM Vishwakarma' scheme to support traditional artisans.....	103
4. SC releases vocabulary to tackle gender stereotyping.....	103
5. Jadavpur University student's death brings back focus on the evil of ragging.....	105
6. Care protocol for babies in India.....	106

Disaster Management

1. Raigad landslide brings back focus on Madhav Gadgil report on Western Ghats.....	108
2. China's 'sponge cities' fail to serve their purpose of stopping floods.....	110

Internal Security

1. Centre to look into 'Havana Syndrome'	112
2. Defence Ministry ditches Microsoft Windows for Maya OS.....	114

Miscellaneous

1. Cinematograph (Amendment) Bill, 2023 passed in Rajya Sabha.....	116
2. D Gukesh becomes India's No.1 chess player, ends Anand's 36-year-long reign.....	117
3. Ukraine uses Sulina Channel to safely ship out its grains amid war with Russia.....	118
4. Revised NCF calls for twice-a-year Board exams and learning more Indian languages.....	119
5. Two Chhattisgarh men amass Rs 5000 cr. by running Mahadev online betting racket.....	121

Quiz.....	123
------------------	------------

September 2023 EDITION



NEWS JUICE MONTHLY

1st August to 31st August, 2023

Summary of The Hindu & The Indian Express along with News
Background



POLITY & GOVERNANCE

SC extends ED chief's term till Sept 15 in 'national interest'



Relevance: Prelims & Mains Paper II; Governance

Why in news?

- The Supreme Court has allowed Sanjay Kumar Mishra to continue as the director of the Enforcement Directorate (ED) till Sept 15, instead of the earlier July 31 deadline.
- A bench of Justices said it was granting the extension in "larger public and national interest" but that Mishra would cease to remain ED chief from the midnight of Sept. 15.
- Notably, the Centre had approached the Supreme Court seeking a tenure extension for Mishra till Oct. 15.
- Before this, the Supreme Court had declared the two tenure extensions granted to Mishra beyond Sept. 8, 2021 as "not valid in law".



Why did Centre seek another extension for Mishra?

- In its plea to the Supreme Court, the Centre reasoned that the court had earlier permitted Mishra an extension of tenure given the govt's concerns over the ongoing Financial Action Task Force (FATF) review.
- FATF is an inter-governmental body that makes recommendations to prevent and combat money laundering and terror financing.
- The Centre argued that Mishra is well-acquainted with the overall status of money laundering investigations and proceedings across the country and also the intricacies of the procedures, operations and activities of the investigating agency.
- As per the Centre, since the process of appointing the new Director of Enforcement is likely to take some time, Mishra needs to be given an extension.

Background of this case

- Initially, Mishra was appointed as the director of the Enforcement Directorate (ED) for two years in Nov. 2018.
- In Nov. 2020, the Centre extended Mishra's tenure by a year. This led the NGO Common Cause to file a PIL against this decision since Mishra's overall tenure of three years violated Section 25 of the CVC Act.
- In Nov. 2021, with the one-year extension to Mishra coming to an end, then President Ram Nath Kovind signed ordinances that amended the laws governing the CBI and ED, enabling the govt to keep the two chiefs in their posts for one year after the completion of their two-year terms and to keep giving these one-year extensions until they complete five years as chiefs.
- However, in May this year, SC ruled that the 2021 case had not been rightly decided, and required reconsideration.
- In 2021, the SC upheld the Centre's order extending the tenure of Mishra beyond two years. However, the Bench said that "extension of tenure to officers who have attained the age of superannuation should be done only in rare and exceptional cases", and that such extensions "should be for a short period".

SC asks States to respond to a petition over alleged inaction on lynchings



Relevance: Prelims & Mains Paper II; Governance

Why in news?

- The Supreme Court has asked the Ministry of Home Affairs and the govts of Maharashtra, Odisha, Rajasthan, Bihar, Madhya Pradesh and Haryana to respond to a petition by the National Federation of Indian Women (NFIW).
- The petition questions their inaction against mob violence and lynching of Muslims by cow vigilantes over the past five years, despite a previous Supreme Court judgment in the Tehseen Poonawala case in 2018 against vigilantism.

The Tehseen Poonawala judgment

- As per the aforesaid judgment it was the "sacrosanct duty" of the State to protect the lives of its citizens.
- It said spiralling incidents of lynchings, and the gruesome visuals aired through social media have compelled the court to take note of this issue. Bystander apathy, numbness of the mute spectators of the scene of the crime, the apathy of the law enforcing machinery to prevent such crimes and glorifying of the incident on social media by the perpetrators of the crimes aggravate the entire problem.
- The court declared that the authorities of the States have the "principal obligation" to see that vigilantism, be it cow vigilantism or any other vigilantism of any perception, does not take place.
- The judgment warned that vigilantes usher in anarchy, chaos, disorder and, eventually, there is an emergence of a violent society.

Cases highlighted in the NFIW petition

- The NFIW petition has highlighted several cases. Some of them are:
 - The alleged lynching of a 22-year-old Muslim man by Hindu "extremists" for transporting a cow in Haryana in January.
 - A 56-year-old man was allegedly lynched in Bihar's Saran district in March on the suspicion that he was carrying beef.
 - On June 24, two men, were allegedly intercepted by a mob on suspicion of smuggling beef and brutally assaulted. One of them died, while the other is currently undergoing treatment in Mumbai.

Remedial directions given by the SC

- The SC has asked for the appointment of a designated nodal officer, not below the rank of Superintendent of Police for taking measures to prevent prejudice-motivated crimes like mob violence and lynching.
- The immediate lodging of an FIR if an incident of lynching or mob violence comes to the notice of the local police.
- The investigation of the crime should be personally monitored by the nodal officer and the investigation and chargesheet are filed within the stipulated period in law.
- There should be a scheme to compensate victims of such prejudice-motivated violence. Any failure to comply with the court's directions by a police or district administration officer would be considered as an "act of deliberate negligence and/or misconduct for which appropriate action must be taken against him/her and not limited to departmental action under the service rules".
- The departmental action shall be taken to its logical conclusion preferably within six months. States should take disciplinary action against their officials if they did not prevent the incident of mob lynching, despite having prior knowledge of it, or where the incident has already occurred, such official(s) did not promptly apprehend and institute criminal proceedings against the culprits.



States' lax response!

- The Centre and States are also facing a **separate contempt petition** in the **Supreme Court** for **non-compliance** with the **Tehseen Poonawala judgment**.
- In that case, the apex court directed the State govts to file **by Sept 30 a status report** giving **year wise data** from **2018** as to the **number of complaints received, FIRs registered** and **chargesheets filed** in **lynching cases**.
- The status report, should also detail the **steps/measures, preventive and remedial, taken by the State govts** in terms of the **2018 judgment**.

New bill on greater govt control over IIMs raises concerns over their autonomy

Relevance: Prelims & Mains Paper II; Governance

Why in news?

- The govt has brought a **Bill in Parliament giving itself significant say** in the **appointment and removal of Directors of the Indian Institutes of Management (IIMs)**, and in **initiating inquiries**.
- The **Indian Institutes of Management (Amendment) Bill, 2023** seeks to make changes in the law that governs the administration and running of **20 existing IIMs**. The proposed changes have **triggered concern over their potential to erode the autonomy of the IIMs**.

Purpose

- The Bill seeks to **amend the Indian Institutes of Management Act, 2017** under which the **Director of an IIM** is appointed by a **Board of Governors**, and the govt has a **limited say** in the process.
- The proposed amendments **essentially seek to alter this situation**, and to **give the govt an expanded role** in the appointment of the **IIM Director**.

Current process of appointment of the Director

- Presently, an IIM Director is appointed out of the panel of names recommended by a search-cum-selection committee constituted by the Board. The Board chairperson heads the search-cum-selection committee, which also has three members chosen from amongst eminent administrators, industrialists, educationists, scientists, technocrats and management specialists.
- As per the Amendment Bill, the President of India shall be the Visitor of every Institute covered under the IIM Act.
- The Bill prescribes three primary roles for the Visitor: to make appointments, to audit the working of institutions, and to conduct an inquiry.

How does the Bill seek to change this process?

- The Bill requires the Board to obtain prior approval of the President before appointing a Director.
- Since the actions of the President are on the aid and advice of the Union Council of Ministers, this change essentially means the Ministry of Education can veto the choice of the Board.
- The proposed amendments seek to give the govt a say in the initial selection process as well.
- Thus, the four-member search-cum-selection committee described in the amendment Bill is proposed to have, apart from the chairperson of the Board, "one Member to be nominated by the Visitor", and only two other "eminent" members.
- Under the proposed amendments, the Board will be required to obtain prior approval of the Visitor to remove the Director as well.

The appointment of the chairperson of the Board

- The Amendment Bill seeks to take away the power of appointment of the Chairperson from the Board, and to instead make the Chairperson a nominee of the President.

Potential impact on the IIM's autonomy

- The Bill represents the govt's rethink on the autonomy of IIMs. Over the last four years, the govt and the IIMs have been at loggerheads on several key appointments.
- For example, the Director of IIM Rohtak, Dheeraj Sharma, was given a second term by the institute's Board of Governors despite objections from the govt.
- Earlier in 2019, a former Gujarat IPS officer was appointed assistant professor at IIM-A. The Ministry of HRD (as the Education Ministry was then known) had written to IIM-A, asking why he had been appointed despite him being under suspension, but the institute had defended the appointment.

A new category of Ayush visa for foreigners seeking treatment under Indian systems of medicine



Relevance: Prelims & Mains Paper II; Governance

Why in news?

- The Centre has notified the **creation of a new category of Ayush (AY) visa** for foreign nationals for treatment under Ayush systems/Indian systems of medicine like therapeutic care, wellness and Yoga.
- A new chapter i.e. **chapter 11A – Ayush Visa** has been incorporated after Chapter 11 - Medical visa of the Visa Manual, which deals with treatment under the Indian systems of medicine.

Objective

- Introduction of Ayush Visa category is **part of India's roadmap** for the govt's **Heal in India** initiative. It is intended at **promoting India as a medical value travel destination**.
- **Medical Value Travel** has seen **significant growth** in India in recent years. According to a report, the **Global Wellness economy** will **grow at 9.9% annually**.
- **Ayush based healthcare & Wellness economy** is estimated to grow to **\$70 billion by 2025**.
- **Ministry of Ayush** has been working on many fronts to promote Ayush system of treatment nationally and globally. Recently, a Memorandum of Understanding (MoU) with India Tourism Development Corporation (ITDC), Ministry of Tourism, GoI was signed to **work together** for the promotion of **Medical Value Travel in Ayurveda** and other traditional systems of medicine.

Rohini panel submits long-awaited report on sub-categorization of OBCs



Relevance: Prelims & Mains Paper II; Governance

Why in news?

- The **long-awaited report** of a commission, set up to examine the **sub-categorisation of Other Backward Classes (OBCs)** was **recently submitted** to President Droupadi Murmu.
- The **four-member commission** headed by Justice G Rohini, a retired Chief Justice of Delhi High Court, was appointed in **Oct. 2017** and received as many as **13 extensions** to its tenure.
- The commission was set up in recognition of the **perceived distortions** in the **affirmative action policy**, which was seen as leading to a **situation** in which **a few castes cornered the bulk of benefits** available under the **27% quota for OBCs**, and tasked with **suggesting corrective actions**.
- The report of the commission is widely expected to be **politically sensitive**, with a **direct bearing** on the **electoral calculations of parties** ahead of **Lok Sabha elections**. The contents of the report have **not been made public as yet**.

Need for sub-categorisation of OBCs

- OBCs get **27% reservation** in **central govt jobs** and **admission to educational institutions**.
- There are **more than 2,600 entries** in the **Central List of OBCs**, but over the years, a perception has taken root that **only a few affluent communities** among them have **benefited from the quota**.
- Therefore, there is an argument that a **"sub-categorisation" of OBCs — quotas within the 27% quota —** is needed in order to ensure **"equitable distribution" of the benefits of reservation**.
- Even as the Justice Rohini Commission was examining the matter, a **Constitution Bench of the Supreme Court** in **2020** intervened in the sub-categorisation debate, ruling that the **2005 decision of another Bench** in '**E V Chinnaiah vs State of Andhra Pradesh**' must be **revisited**.

(more ahead)

Cont'd

- 'Chinnaiah' had held that **no special sub-quota** can be introduced **within the quota for SCs and STs** for the **benefit of castes or tribes** that were **more backward than the others** on these lists.
- The 2020 verdict of the SC referring 'Chinnaiah' to a larger Bench was passed in '**State of Punjab vs Davinder Singh**'. In it, the court **examined the validity of a 2006 Punjab law** that created **sub-classification within the SCs**, and sought to **reserve half the SC quota** for **certain identified castes**.

Key Findings of Rohini Commission

- In **2018**, the govt. had announced that **Census 2021 would also collect data for OBCs**. But the census was **delayed by the pandemic**.
- Meanwhile, **OBC groups** and **almost all political parties** barring the **BJP central leadership** have continued to **demand a caste census**.
- In **2018**, the Rohini commission analysed the data of **1.3 lakh central govt jobs** under the **OBC quota** over the **preceding five years**, and **OBC admissions** to central higher education institutions, including **universities, IITs, NITs, IIMs and AIIMS**, over the **preceding three years**.
- The analysis showed **97% of all jobs and education seats** have **gone to 25% of OBC castes**, and **24.95% of these jobs and seats** have gone to **just 10 OBC communities**.
- As many as **983 OBC communities — 37% of the total —** were found to have **zero representation in jobs and educational institutions**, and **994 OBC sub-castes** had a **representation of only 2.68% in recruitments and admissions**. However, this analysis **suffered from limitations** due to the **absence of updated population data**.

Jan Vishwas Bill gets Parliamentary approval, set to change drug laws

Relevance: Prelims & Mains Paper II; Governance

Why in news?

- The **Jan Vishwas Bill** passed in the **Rajya Sabha** recently will **amend two provisions of the law governing manufacture, storage, and sale of medicines in India**.
- One of the amendments has led to a **debate on whether manufacturers of substandard medicines** would be let off easy — by **paying a fine** instead of **imprisonment**.
- The Jan Vishwas bill was brought to the parliament with an aim to **improve ease of doing business**. It will **amend 183 provisions across 42 laws** to do away with **imprisonment or fines** for **certain offences**.
- It was **passed** in the **Lok Sabha** earlier.

Alterations to the drug laws

- The **Jan Vishwas Bill** will make **two changes** to the **Drugs and Cosmetics Act, 1940**.
- The first amendment, which is **not contentious**, will do away with **imprisonment under section 30 (2) of the current law** for companies **repeatedly using govt analysis or test reports** for promoting their products.
- At present, companies face up to **two years imprisonment and a fine of not less than ten thousand rupees** for a repeated violation. This will change to **only a fine but not less than five lakh rupees** as per the amendment proposed in the Jan Vishwas bill.
- The second amendment — and **this is the contentious one** — will change **section 32B (1) of the existing law** to allow "compounding" of offences under **section 27 (d)**. Compounding is a legal provision that allows one to **pay a fine** instead of **undergoing criminal proceedings**.

(more ahead)

Cont'd

- What this essentially means is that companies violating the provisions of 27 (d) will continue to face imprisonment between one and two years and a fine not less than Rs. 20,000. But, now there will be an alternative mechanism where the company could agree to pay the fine instead of going through a criminal proceeding in court.
- While the existing drug law already allows for compounding other offences, the reason many have raised an issue with including section 27 (d) is because it also includes drugs that are not of standard quality (NSQ), colloquially referred to as substandard drugs.

Offences that could be compounded

- The provisions will be available to manufacturers whose drugs might be NSQ.
- A drug being NSQ means that it fails some of the requirements set for that particular product by the Indian Pharmaceutical official list.
- This would include drugs that fail dissolution test or those that do not contain the full dosage of medicine as mentioned on the medicine cover.
- As per an expert, NSQ drugs are not entirely without harm. Thus, in the case of any harm, its maker can get prosecuted under section 27 (d).
- As per critics, the provision can be used by companies to get away with manufacturing substandard products by paying a fine.
- The govt, however, maintains that the provision for compounding will be available to manufacturers who face imprisonment for charges with minor aberrations or quality control measures.

(more ahead)

Cont'd

- As per an official, sometimes companies with minor deficiencies are willing to correct are stuck in litigation for years. Compounding is an alternate mechanism in these cases.
- However, this route will not be available to companies that are repeat offenders. The govt does have a list of offenders and compounding will be decided based on that.

Impact on manufacturing practices

- The drug act in Schedule M lists all the requirements such as space or processes for drug manufacturers. The changes that were made to this schedule in 2018 to improve drug manufacturing in the country are yet to be adopted by a majority of drug manufacturers.
- As per the health ministry, bigger companies with a turnover of over 250 crores will need to implement these measures within six months and smaller companies within a year.

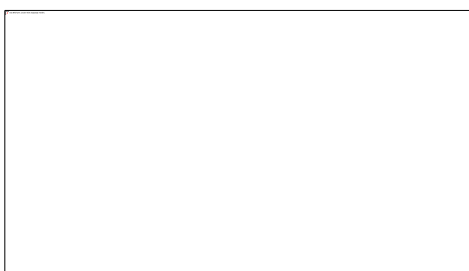
SC stays Rahul Gandhi's conviction in defamation case



Relevance: Prelims & Mains Paper II; Polity & Governance

Why in news?

- The Supreme Court recently stayed Rahul Gandhi's conviction in a defamation case by a Gujarat court in which he has been sentenced to two years in prison.
- A Bench ruled that the trial court judge did not justify why Rahul should have been awarded the maximum sentence of two years which attracted his disqualification as an MP.



Implications of this order

- The grant of stay by the SC essentially means that Rahul's conviction will be kept in abeyance — as though it did not exist.
- His disqualification from Parliament flowed from the conviction — and with the grant of stay, no grounds any longer exist for the disqualification.
- The disqualification is essentially nullified for now. A Surat Sessions court is currently hearing an appeal against the trial court judgment. Rahul's disqualification will remain in abeyance until that appeal process is concluded.
- In a 2018 ruling, the Supreme Court had clarified that the disqualification "will not operate from the date of the stay of conviction by the appellate court".
- As a consequence of the SC order, Rahul Gandhi's Lok Sabha membership has been restored.

Background of this case



- On April 13, 2019, Rahul was campaigning for the Lok Sabha elections, and at an election rally in Kolar, Karnataka, he said in Hindi: "Why do all thieves, be it Nirav Modi, Lalit Modi, or Narendra Modi, have the surname 'Modi'?"
- He was making a rhetorical reference to the fugitive jeweller Nirav Modi and the former cricket administrator Lalit Modi, both of whom face allegations of financial fraud.
- The day after Rahul's speech, a Gujarat BJP leader and former Gujarat state minister, Purnesh Modi, filed a private complaint before the Chief Judicial Magistrate, Surat, accusing the Congress leader of having defamed everyone with the name Modi.
- On March 23, 2023, a Magistrate found Rahul guilty of criminal defamation under IPC Section 500, and gave him the maximum sentence allowed under that section, which is two years in jail.
- This decision by the trial court triggered Section 8(3) of The Representation of the People Act, 1951, which states: "A person convicted of any offence and sentenced to imprisonment for not less than two years shall be disqualified from the date of such conviction and shall continue to be disqualified for a further period of six years since his release."
- In consequence, on March 24, the Lok Sabha Secretariat issued a notification saying that Rahul stood disqualified from the House with effect from March 23, the date of his conviction.
- On April 3, Rahul appealed in the Surat Sessions Court. He filed two applications, one for the suspension of the two-year sentence, and the other for the suspension of conviction.
- After both these applications got rejected, Rahul then moved the Gujarat High Court in appeal. The Gujarat High Court upheld the order of the sessions court.

Differences between Money Bills and Financial Bills



Relevance: Prelims & Mains Paper II; Governance

Why in news?

- The govt has clarified that the Digital Personal Data Protection (DPDP) Bill is a normal Bill and not a money bill.
- Earlier, it was reported that Bill was being introduced under Article 117 of the Constitution, which deals with special provisions for financial Bills.

What is a finance Bill?

- In a general sense, any Bill that relates to revenue or expenditure is a financial Bill. A money Bill is also a specific type of financial Bill, that must deal only with matters specified in Article 110 (1) (a) to (g).
- More specifically, Article 117 of the Constitution deals with the special provisions relating to financial Bills. Article 117 (1) indicates that a Bill that makes provision for any of the matters specified in clauses (a) to (f) of Article 110 (1) can be introduced or moved only on the President's recommendation and cannot be introduced in the Rajya Sabha. Examples of this first category of financial Bills are money Bills and other financial Bills originating solely in the Lok Sabha.
- The second category of finance Bills is dealt with under Article 117 (3) of the Constitution. Such Bills are more like ordinary Bills.
- The difference between this kind of financial Bill and an ordinary Bill is that if the former is enacted, it will involve expenditure from the Consolidated Fund of India and cannot be passed by either House unless the President has recommended its consideration.

(more ahead)

Cont'd

- In all other respects, such financial Bills are just like ordinary Bills, and can even be introduced in the Rajya Sabha, amended by it, or be subjected to deliberation by both Houses in a joint-sitting.
- A financial Bill becomes a money Bill when it exclusively falls under one of the seven heads listed under Article 110(1), which defines money Bills. Moreover, a money Bill is a financial Bill that is certified by the Speaker.

Difference between money Bills and financial Bills



- Article 110 defines a "money Bill" as one containing provisions dealing with taxes, regulation of the govt's borrowing of money, and expenditure or receipt of money from the Consolidated Fund of India, among others, whereas Article 109 delineates the procedure for the passage of such a Bill and confers an overriding authority on the Lok Sabha in the passage of money Bills.
- A major difference between money and financial Bills is that while the latter has the provision of including the Rajya Sabha's recommendations, the former does not make their inclusion mandatory. The Lok Sabha has the right to reject the Rajya Sabha's recommendations when it comes to money Bills.
- What differentiates a money Bill from any ordinary Bill or financial Bill is that while an ordinary Bill can originate in either house, a money Bill can only be introduced in the Lok Sabha. Additionally, no one can introduce or move money Bills in the Lok Sabha, except on the President's recommendation. Amendments relating to the reduction or abolition of any tax are exempt from the requirement of the President's recommendation.
- The two prerequisites for any financial Bill to become a money Bill are that first, it must only be introduced in the Lok Sabha and not the Rajya Sabha. Secondly, these bills can only be introduced on the President's recommendation.

How are money and financial Bills passed?

- The role of the Rajya Sabha in passing money Bills is restricted. Such Bills can originate only in the Lok Sabha. After being passed by the Lok Sabha, money Bills are sent to the Rajya Sabha for its recommendations. Within 14 days, the Upper House must submit the Bill back to the Lower House with its non-binding recommendations. If the Lok Sabha rejects the recommendations, the Bill is deemed to have passed by both Houses in the form in which it was passed by the Lok Sabha without the recommendations of the Rajya Sabha.
- Even if the Rajya Sabha doesn't respond with its recommendations within 14 days, the same consequences would follow. Thus, when it comes to money Bills, the Rajya Sabha only has a recommendatory role.
- Meanwhile, ordinary Bills and other financial Bills still require the agreement of both Houses of Parliament to ensure their passage. They can very well be rejected or amended by the Rajya Sabha, unlike money Bills.
- Also, all other financial Bills, separate from money Bills, must go through the rigours of all stages in the Rajya Sabha as ordinary Bills.
- This means that while the President can summon a joint sitting of both Houses to resolve differences over a deadlock in passing an ordinary Bill, there is no provision for a joint sitting for differences over a money Bill.
- Over the last seven years, the govt has introduced multiple legislations through the money Bill route, the most notable of which are the Aadhaar Act, 2016, and the Finance Act, 2017.

Lok Sabha passes Digital Personal Data Protection Bill, 2023

Relevance: Prelims & Mains Paper II; Governance

Why in news?

- The Digital Personal Data Protection Bill, 2023 was recently passed in Lok Sabha by a voice vote.
- The Bill has retained the contents of the original version of the legislation proposed last November, including those that were red-flagged by privacy experts, such as exemptions for the Centre.
- In its new avatar, the proposed law has also accorded virtual censorship powers to the Centre.
- This is India's second attempt at framing a privacy legislation, and comes after at least three previous iterations of a data protection law have been considered, and shelved, by the govt.
- Next, the Bill will have to be passed by the Rajya Sabha before it becomes law.

Concerns around the Bill!

- According to the Bill, the central govt will have the right to exempt "any instrumentality of the state" from adverse consequences citing national security, relations with foreign govts, and maintenance of public order, among other things.
- Notably, while the European Union's General Data Protection Regulation (GDPR) has 16 exemptions, but India's Bill has four exemptions.
- The Bill also states that if an entity is penalised on more than two instances, the central govt— after hearing the entity — can decide to block their platform in the country. This is a new addition to the measure, which was not present in the 2022 draft.

Cont'd

- Experts have said that the proposal could add to the pre-existing online censorship regime already administered under Section 69 (A) of the Information Technology Act, 2000.
- The highest prescribed penalty has been capped at Rs 250 crore for not having enough safeguards against data breaches.
- There is also concern that the law could dilute the Right to Information (RTI) Act, as personal data of govt functionaries is likely to be protected under it, making it difficult to be shared with an RTI applicant.
- The control of the Centre in appointing members of the Data Protection Board – an adjudicatory body that will deal with privacy-related grievances and disputes between two parties – is learnt to have been retained as well. The Chief Executive of the board will be appointed by the central govt, which will also determine the terms and conditions of their service.
- The decisions taken by the data protection board can be appealed before the Telecom Disputes Settlement and Appellate Tribunal (TDSAT), which is led by a judicial member.
- The Bill, while laying down consent norms for entities' collecting personal data of individuals, also allows for a leeway for certain "legitimate uses," both by the govt itself, and private entities.
- As per the final version, the Centre can process data of citizens without expressly seeking their consent for national security reasons and to offer other services such as subsidies, benefits, certificates, licence or permit.
- Private companies have been afforded the privilege to deal with employment-related matters, including corporate espionage.

Relief for industry on some counts

- The Bill gives powers to the central govt to prescribe a lower age of consent than 18 years for accessing Internet services without parental consent if the platform they are using can process their data in a "verifiably safe manner". This would essentially mean a white-listing approach for companies in the edtech sector, and for medical purposes, among other things.
- The Centre has proposed to significantly ease cross-border data flows to international jurisdictions. Now, data flows are allowed by default to all regions unless prohibited by the govt. This move is being seen as a measure to ensure business continuity.
- The govt could notify entities as "significant data fiduciaries," after considering factors such as the volume of personal data they possess, the risks they could pose to electoral democracy, and their impact on national security and public order etc. They'll have to maintain the accuracy of data, keep data secure, and delete data once their purpose has been met.
- Social media platforms like Facebook, YouTube and WhatsApp are likely to be clubbed under this category. These entities are required to appoint a data protection officer for grievance redressal and carry out periodic data protection impact assessments.
- The proposed law will apply to processing of digital personal data within India; and to data processing outside the country if it is done for offering goods or services, or for profiling individuals in India.

Govt revises manufacturing rules for drug firms

Relevance: Prelims & Mains Paper II; Governance



Why in news?

- The govt recently directed **all pharmaceutical companies** in the country to implement the revised Good Manufacturing Practices (GMP), bringing their processes at par with global standards.
- The implementation of these measures has begun from **August 1 onwards**. **Larger companies** with a turnover of over Rs 250 crore have been asked to implement the changes within six months, while **medium and small-scale enterprises** with a turnover of less than Rs 250 crore have been asked to do so within a year.
- This comes at a time when **India is promoting itself** as the **global manufacturing hub** for **generic medicines**.

Objectives

- One, implementation of the new norms will **bring the Indian industry on par with global standards**.
- Two, there have been **a string of incidents** where **other countries have reported alleged contamination** in India-manufactured syrups, eye-drops, and eye ointments. The **deaths of 70 children in Gambia, 18 children in Uzbekistan, three persons in the U.S, and six deaths in Cameroon** have been linked to these products.
- Three, a risk-based inspection of **162 manufacturing units** by the govt found **several deficiencies** — incoming raw materials not being tested before use, product quality not being reviewed, absence of quality failure investigation, infrastructure deficiency to prevent cross-contamination, faulty design of manufacturing and testing areas, missing qualified professionals, and poor documentation.
- This is also important, since only **2,000** of the **10,500 drug manufacturing units** in the country at present **meet global standards**, being WHO-GMP certified.

(more ahead)

Cont'd

- The improved standards will ensure that pharmaceutical companies **follow standard processes, quality control measures, and do not cut corners, improving quality of medicines** available in **India** as well as **sold in global market**.

The major changes

- The revised GMP guidelines **focus on quality control measures, proper documentation, and IT backing** to **maintain quality of medicines produced**.
- The new guideline introduces **pharmaceutical quality system, quality risk management, product quality review, and validation of equipment**. This will mean companies will have to **carry out regular quality reviews of all its products, verify consistency of the quality and the processes, thorough investigation of any deviation or suspected defect, and implementation of any preventive actions**. It also suggests **a change control system** to evaluate all changes that may **affect the production or quality of the product**.
- As per experts in drug regulation, while some of these processes were followed, **they weren't properly documented** as needed by **global regulators**.
- The companies will also have to **carry out stability studies** as per **the climate conditions**.
- The guidelines also state that companies **should have GMP-related computerised systems**, which ensure that there is **no tampering of data** related to the processes. Such GMP systems will **prevent unauthorised access and changes to the data**.



Cont'd

- There will also be **controls against omission of data**. In case sensitive data is entered manually to the system, **there will be additional checks to validate the accuracy of the data**. Backups would also be created to ensure **there is no loss of data**.
- In addition, **the new schedule M** also lists out **the requirements for additional types of products**, including biological products, agents with radioactive ingredients, or plant-derived products. The new schedule also lists the requirement for investigational products being manufactured for clinical trials.

Centre introduces new Bill on Election Commission members' appointments

Relevance: Prelims & Mains Paper II; Governance

Why in news?

- With the view of **overturning the effect of the Supreme Court verdict** on the appointment of the Chief Election Commissioner (CEC) and Election Commissioners (ECs), a Bill was recently introduced in the **Rajya Sabha**.

Details of the SC ruling

- On March 2, a five-judge bench of the Supreme Court unanimously ruled that a **high-power committee** consisting of the Prime Minister, Leader of Opposition in Lok Sabha, and the **Chief Justice of India** must pick the CEC and ECs.
- This judgement came **in a 2015 public interest litigation**, challenging the constitutional validity of the practice of the Centre-appointed members of the Election Commission. In 2018, a two-judge bench of the SC referred the case to a larger bench since it required a close examination of Article 324 of the Constitution, which deals with the role of a Chief Election Commissioner.
- Article 324(2) reads: "The Election Commission shall consist of the Chief Election Commissioner and such number of other Election Commissioners, if any, as the President may from time-to-time fix and the appointment of the Chief Election Commissioner and other Election Commissioners shall, subject to the provisions of any law made in that behalf by Parliament, be made by the President."

(more ahead)

Cont'd

- However, since there was **no law made by Parliament** as prescribed by **the Constitution**, the Court stepped in **to fill the "constitutional vacuum."**
- The Bill now seeks to **address this vacuum** and **set up a legislative process** to make appointments to the EC.

New process under the proposed Bill

- Currently, the Law Minister **suggests a pool of suitable candidates** to the **Prime Minister** for consideration. The President makes the appointment on the advice of the PM.
- As per the Bill, **a Search Committee** headed by the **Cabinet Secretary** and comprising two other members, not below the rank of Secretary to the govt, having knowledge and experience in matters relating to elections, **shall prepare a panel of five persons** who can be considered for appointment.
- Then, as per the Bill, **a Selection Committee** consisting of the **Prime Minister**, the **Leader of Opposition** in the Lok Sabha, and a **Union Cabinet Minister** to be nominated by the Prime Minister **will appoint the CEC and other ECs.**

Can the Parliament undo SC's decision?

- **Parliament has the power to nullify the effect of a Court ruling** by addressing the concerns flagged in the judgement. The law cannot simply be contradictory to the ruling.
- In this case, the arrangement prescribed by the Supreme Court was specifically because **the Court noted** that there was a **"legislative vacuum."** Filling that vacuum is well within the purview of the Parliament.
- However, **the idea of an independent body that conducts elections** permeates through the judgement. The Court **repeatedly stated** that to be the objective of the framers of the Constitution.
- The composition of the Selection Committee in the Bill raises questions on **whether the process is now independent or still rigged in favour of the Executive.** With the PM and a Cabinet Minister nominated by the PM in the three-member panel, **the LoP is outvoted even before the process begins.**

Govt proposes legislation to overhaul the criminal justice system



Relevance: Prelims & Mains Paper II; Governance

Why in news?

- Union Home Minister Amit Shah recently introduced 'Bharatiya Nyaya Sanhita' (BNS) Bill 2023 in Lok Sabha. They are aimed at replacing the Indian Penal Code (IPC), 1860, the Code of Criminal Procedure, 1973, and the Indian Evidence Act, 1872.
- As per critics, large parts of these three Bills simply reproduce existing provisions and it is difficult to see how these changes will have any real impact on the deep crisis within India's criminal justice system.

Process adopted to determine the content of the Bills

- During the pandemic in May 2020, an Expert Committee was constituted to undertake public consultations and make recommendations.
- Critics argue that there was no real information on the methodology that the Expert Committee adopted to process and analyse the submissions that were received.
- The Committee's recommendations to the Govt of India are not in the public domain — it is in fact, possible that there is a divergence between the Committee's recommendations and the contents of the Bills that have been tabled in Parliament.
- It is also not known whether the govt undertook other consultation mechanisms towards determining the contents of these Bills.

Changes that'll significantly impact the framework of Indian criminal law



- A significant change in the new bill is the introduction of new offences that were absent in the IPC like acts endangering sovereignty, organised crime, terrorism offences, mob lynching, sexual intercourse by deceitful means/ false promise to marry.
- Some of these offences borrow heavily from existing legislation on organised crime and the UAPA without clarifying the reasons for, or consequences of such borrowing.
- However, certain problematic IPC provisions do not find a place in the BNS Bill, 2023. There are no provisions similar to s. 377 (unnatural offences) and s. 309 (attempt to suicide).
- Sedition as an offence is not present, but the introduction of "acts endangering sovereignty" as an offence is perhaps the most draconian provision in these Bills. Not only is the provision vague, the manner in which it criminalises certain actions is bound to give the police unchecked powers of arrest.
- In the Bharatiya Nagarik Suraksha Sanhita, 2023 (that seeks to replace the Criminal Procedure Code), the period during which an arrested person can be sent to police custody has been expanded.
- Like in the CrPC, an arrested person can be sent to police custody for a maximum of 15 days after the date of arrest, but in the proposed law these 15 days of police custody can be spread over a 60- or 90-day period depending on the offence.
- However, the Nagarik Suraksha Bill has significant improvements for the rights of victims — perhaps the most important of those is the provision allowing registration of FIR in any police station irrespective of where the offence was committed.

(more ahead)

Cont'd	Addressal of previously identified problems
<ul style="list-style-type: none"> - The provision requiring mandatory video recording of search and seizure seeks to address fairness in police investigations. - The Nagarik Suraksha Bill also seeks to plug an important gap by making it the responsibility of a prison superintendent to ensure that an application is made to the court to release undertrials who have completed half or one-third of their maximum possible sentence. - There is also a clear push to expand the use of electronic evidence and to bring in forensics in a big way. 	<ul style="list-style-type: none"> - As per critics, not much attention has been paid to problems that have long plagued India's criminal justice system. Overcrowded prisons and the large proportion of undertrials is a escalating crisis. Reforms in bail adjudication are a crucial component of this, and the new Bills do very little to resolve the manner in which bail is adjudicated and accessed. - While under the new Bill, causing grievous hurt to extort confession might be read as an attempt to criminalise torture, there are significant limitations with the provision. - The approach to criminalisation and punishment and their relation to social problems continues in these laws. They continue the thinking that criminal law is the first and only response to social problems. However, solving social problems is a far more complex exercise and resorting to criminal law is just a populist measure.

Key provisions and processes proposed in New Bill to replace CrPC	
Relevance: Prelims & Mains Paper II; Governance	
Why in news?	Greater use of technology
<ul style="list-style-type: none"> - The Bharatiya Nagarik Suraksha Sanhita, 2023 proposes several important changes to the Criminal Procedure Code (CrPC) which guides the criminal justice system. - From technological changes to allow trials via video-conferencing to allowing handcuffs for the arrest of persons in some cases including murder, rape, and counterfeit currency — these are some of the main changes proposed in the CrPC. 	<ul style="list-style-type: none"> - Trials, appeal proceedings, recording of depositions including those of public servants and police officers, may be held in electronic mode, the Bill states. The statement of the accused too can be recorded through video-conferencing. Summons, warrants, documents, police reports, statements of evidence can be done in electronic form. - The search and seizure of articles and properties, the visit to a crime scene by a forensic expert, and the recording of the victim's statement shall be audio-videographed, preferably on a mobile phone. - The name and address of an arrested accused and the nature of the offence will be maintained by a designated officer in each police station and district, and shall be "prominently displayed" including in digital mode in every police station and district headquarters. - Information to police too can be sent electronically, and it shall be taken on record on being signed by the person sending it, within three days.

Other key provisions

➤ Communication devices

- The Bill adds electronic communication including “communication devices” to the provision on summons to produce a document. On the directions of a court or police officer, a person is required to produce any document — and now devices — that is likely to contain digital evidence for the purpose of an inquiry.

➤ Use of handcuffs

- A police officer may be permitted to use handcuffs while arresting a person if he is a habitual, repeat offender who escaped from custody, or has committed an organised crime, terrorist act, drug-related crime, illegal possession of arms, murder, rape, acid attack, counterfeit currency, human trafficking, sexual offence against children or offences against the state.

➤ Specific safeguards

- Section 41A of CrPC — which has a prominent safeguard against arrests — will get a new number, Section 35.
- It has an additional provision: no person can be arrested without prior permission of an officer, not below the rank of a deputy SP, in cases where the offence is punishable with less than three years, or if the person is infirm above 60 years of age.
- On receiving information in cognizable cases where the offence attracts 3-7 years, the police officer will conduct a preliminary inquiry to ascertain whether there exists a prima facie case to proceed within 14 days.

(more ahead)

Cont'd

▶ Mercy petitions

- There is a provision on procedures for the timeframe to file mercy petitions in death sentence cases. After being informed by jail authorities about the disposal of the petition of a convict sentenced to death, he, or his legal heir or relative can submit a mercy petition within 30 days to the Governor.
- If rejected, the person can petition the President within 60 days. No appeal against the order of the President shall lie in any court.

➤ Sanction to prosecute

- A decision to grant or reject sanction to prosecute a public servant must be reached by the govt within 120 days of receiving a request.
- If the govt fails to do so, the sanction will be deemed to have been accorded. No sanction is required in cases including sexual offences, trafficking, etc.

➤ Arms in procession

- Section 144A of the CrPC gives the district magistrate the power to prohibit the carrying of arms in any procession, mass drill or mass training, to preserve the public peace. While the provisions granting powers to the DM to pass orders in urgent cases of nuisance or apprehended danger remain as they are in Section 144 of the CrPC, the provision to prohibit carrying arms does not find a mention.

(more ahead)

Cont'd

> Samples without arrest

- The Bill has provisions for the magistrate to order any person to give samples of his signature, handwriting, voice or finger impressions for the purpose of investigation without being arrested.

> Detention by police

- There are provisions for police to detain or remove any person resisting, refusing or ignoring, or disregarding directions given as part of preventive action.

New rules make it mandatory for doctors to prescribe generic medicines


Relevance: Prelims & Mains Paper II; Governance


Why in news?

- Doctors may refuse treatment to abusive, unruly, or violent patients and relatives. Doctors must prescribe generic medicine. And, they may use social media only to educate and not solicit patients.
- These are some of the guidelines for the professional conduct of registered doctors of modern medicine recently notified by the ethics and medical registration board under the country's apex regulator National Medical Commission (NMC).
- The over 60-page guidelines have provisions ranging from what medical degrees a doctor can mention on their prescription pads to the kind of ads they can put out, the records they must keep, and the way they treat patients through teleconsultation.
- The comprehensive guidelines specifically mention that no doctor can deny birth control measures or abortions due based on religious beliefs.

Doctors get the right to refuse treatment

- Doctors have been asked to write prescriptions in legible, capital letters. And, they have been asked to generally prescribe only generic medicines.
- The guidelines also urge judicious use of fixed-dose combinations, with doctors being asked to prescribe only the approved, rational combinations. They further ask doctors to educate people on generics being equivalent to branded medicines, urge pharmacies to stock them, and encourage people to purchase drugs from Jan Aushadhi Kendras and other generic drug outlets.
- The telemedicine guidelines list the type of drugs by the type of consultation provided. For e.g. list O, with over-the-counter medicines such as cough suppressants, some pain medicines, and antacids etc, can be prescribed for any kind of online consultation whether through messages, telephone calls, or video calls. List A are drugs that can be prescribed only after video consultation, while List B are drugs that can be prescribed after any type of consultation but only for follow-up patients.

Scenarios under which doctors may refuse treatment	Continuous Professional Development (CPD)	
<ul style="list-style-type: none"> - The guidelines give doctors the right to refuse treatment when patients or their family members are abusive, unruly, or violent. Doctors can document and report the behaviour and refuse to treat the patient. Such patients should be referred for further treatment elsewhere. - The doctors have also been given the right to refuse treatment if the patient cannot pay them. Consultation fees should be made known to the patient before examination or treatment. A reasonable estimation of the cost of surgery or treatment should be provided to the patient to enable an informed decision. - The guidelines forbid doctors from refusing treatment, however, in cases of medical emergencies. They have been asked not to discriminate based on gender, race, religion, caste, social, economic or cultural grounds. 	<ul style="list-style-type: none"> - For the first time, the regulator has made it mandatory for doctors to continue to learn throughout their active years. - The guidelines say that doctors should have studied 30 credit points in their relevant fields at the time of renewal of their license every five years. The doctors have been asked to undertake these sessions every year, ideally for six credits a year but at least three credits. - And, not more than 50% of this training should be online. And, even professors at medical college hospitals have to undergo such training despite staying in touch with academics. There are guidelines for institutes that can provide these continuous training courses, which again have to be registered with NMC. - In fact, every degree, diploma, or recognised course undertaken by a doctor will keep getting added to their unique ID on the national medical register. The doctors have also been asked to only write these recognised degrees as suffixes on materials such as prescriptions and visiting cards. 	

Guidelines on doctors' participation in conferences	
<ul style="list-style-type: none"> - While the guidelines make it mandatory for doctors to undergo CPD, they say that none of these educational sessions or conferences can be sponsored by the pharmaceutical industry. - The guidelines say doctors or their families should not receive any gifts, travel facilities, hospitality, cash or monetary grants, consultancy fee or honorariums, or access to entertainment or recreation from pharmaceutical companies, their representatives, commercial healthcare establishments, medical device companies, or corporate hospitals under any pretext. This restriction does not apply to the salaries of doctors working for such companies. - The guidelines also forbid doctors from accepting commissions from diagnostic centres, medical or surgical equipment etc for referral and from endorsing particular products. 	

States unhappy with Centre over notified criteria in PM-USHA scheme



Relevance: Prelims & Mains Paper II; Governance

Why in news?

- The Ministry of Education (MoE) has mandated States and Union Territories to implement the National Education Policy (NEP) 2020 and adopt certain academic criteria in order to avail funds under the Pradhan Mantri Uchchatar Shiksha Abhiyan (PM-USHA).
- However, as per critics, some of the criteria is contentious and appears to have made the central scheme exclusivist.

Details

- The guidelines for the scheme — an improvised version of the Rashtriya Uchchatar Shiksha Abhiyan (RUSA 1 and 2) to ensure increased access, equity and excellence in the State higher education system with central funding — were released in June.
- Only 22 States and UTs have joined the PM-USHA, which requires a memorandum of understanding to be signed between the State and the Department of Higher Education (MoE). West Bengal, Tamil Nadu and Kerala are among 14 States and UTs which have refused to get on board.
- Apart from embracing the NEP 2020, the memorandum of understanding, includes, inter alia, commitment from States on adopting guidelines for the National Credit Framework and Choice Based Credit System for Four Year Undergraduate Programme.
- Without agreeing to these conditions, States cannot avail of a share in the funds, an outlay of ₹12,926.10 crore between 2023-24 and 2025-26, earmarked to improve State-run higher education. This despite the fact that 40% of funding has to be borne by the respective State govts.

Cont'd



- Over the past several years, a few States have strongly opposed NEP 2020, both at the draft and implementation stages. Some such as Tamil Nadu have initiated measures to draft their own State Education Policy. There are demands to restore 'education' to the State List from the Concurrent List, where it was moved without debate during the Emergency.
- Against this backdrop, it would appear that the conditions for the PM-USHA have been tailored to impose NEP 2020 through the backdoor.
- The scheme also requires adoption of the multiple entry and exit options in degree programmes and National Higher Education Qualifications Framework guidelines. This, when academic stakeholders and administrators have expressed serious concerns about the multiple entry and exit options possibly triggering more dropouts from the higher education system.
- The emphasis on a four-year undergraduate programme has also evoked concerns as to whether socially and economically backward students could afford the money and the time, to pursue an extra year in college to acquire a degree.
- As per critics, under these circumstances, it would be wise for the Ministry of Education to negotiate better terms with the dissenting States, respecting the essence of cooperative federalism.

The importance of Rohini panel's findings

Relevance: Prelims & Mains Paper II; Governance



Why in news?

- The Justice G. Rohini-led Commission on the sub-categorisation of Other Backward Classes groups, submitted its long-awaited report to the President of India recently, after having received 14 extensions in the last six years.
- The Commission was initially asked to finish its report in 12 weeks.

What has the Commission examined?

- The President had formed the Commission headed by former Delhi High Court Chief Justice G. Rohini in Oct. 2017, to examine the question of sub-categorising over 2,600 caste groups listed in the Central OBC list.
- The Commission was tasked with first examining how much of 27% reservation (jobs and education) and other government benefits meant for OBCs was dominated by which caste groups.
- The Commission had arrived at the conclusion that a small number of caste groups among all OBC groups, were dominating reservation and other govt benefits.
- Further, the Commission went on to explore ways of sub-categorising these existing OBC groups in order to make sure benefits can be redistributed equitably.
- This involved breaking up all OBC caste groups into further categories based on how dominant the communities have been in availing govt benefits meant for OBCs.

(more ahead)

Cont'd

- Subsequently, the Commission proceeded to work out a formula for breaking up the caste groups in a way that would make the highest share of the 27% reservation pie available to the groups that have historically been crowded out of them; and the least share of the pie going to caste groups that have so far dominated this sphere.
- While the Commission's report has now been submitted to the President, it has been learnt that the govt will not act on the recommendations in it without detailed deliberations with all concerned stakeholders.
- In addition to this, the Commission was also tasked with rationalising the Central OBC list by suggesting corrections and replacements in spellings, which will result in minor changes to the entries.

Significance of these findings

- With the Rohini Commission's findings expected to throw up exact numbers on OBC communities that have availed benefits since reservation for them began in 1992, this data set will for the first time show the changes, if any, in the socio-economic status of OBC communities that have historically been able to avail benefits.
- This is significant in light of the fact that the clamour for a caste census is growing louder among the Opposition and several State govts, including the ones run by the BJP.
- Further, the caste data, as envisioned in the Rohini Commission's report, will inevitably have a direct effect on the electoral mathematics of political parties, where communities that have been dominating benefits are also politically dominant.



INTERNATIONAL ORGANISATIONS & BILATERAL RELATIONS

Pak President denies signing controversial bills, begins political slugfest

Relevance: Prelims & Mains Paper II; Governance

Why in news?

- Pakistan President Arif Alvi has triggered one of the most absurd political controversies in his country by denying that he has signed Official Secrets Amendment Bill 2023 & Pakistan Army Amendment Bill 2023.
- The bills he was referring to, were approved by the Pakistan National Assembly and the Senate a few weeks ago and sent for presidential assent.
- Alvi was deemed to have given his assent to both of them – the Official Secrets (Amendment) Bill, 2023 with effect from August 17 and the Pakistan Army (Amendment) Bill, 2023 from August 11. But their legal status is now up in the air, in light of the President's latest comments.
- Hours after the President's statement, a gazette notification issued by the Senate Secretariat surfaced, stating that the two bills were "deemed to have been assented by the president".



Pak Constitution's say about Presidential assent

- Under Article 75(1) of the Pakistani Constitution, after a bill has passed through both the National Assembly and the Senate, it is presented to the President for his assent.
- The President, at this juncture, has two options – either to give assent within 10 days or to return the bill along with his objections to the legislature. If the legislature passes it again, with or without incorporating the president's objections, as per the Constitution, "the President shall give his assent within ten days, failing which such assent shall be deemed to have been given."
- However, there are two things to note over here. First, the concept of "deemed assent" only applies to bills that have already been sent back to the Parliament by the President one time. In case, the President, does not do anything within the stipulated time of ten days, he is still within his rights to send the bill back to the legislature, with his objections as per Article 254 of the Constitution.
- The second thing to note is this: what would the impact of the President sending back a bill with his objections be? While normally, the bill would simply be up for discussion once again in a joint sitting of both the houses of Parliament. However, in the current scenario, since the National Assembly has been dissolved, President Alvi was in an unusually "powerful" position. "If he returned the bills, he would essentially have killed them because there was no National Assembly to pass the bills,"

Current legal status of these laws

- As per legal experts from Pakistan, there are serious questions regarding the validity of both the passed bills which became laws after "presidential assent". As per them, "there now existed strong legal grounds for the court to declare that ... [the two laws] were not validly enacted acts."
- PTI (Pakistan Tehreek-e-Insaf) – Imran Khan's party under whose ticket Alvi contested elections in 2018, before being made president – has said it will reach out to Pakistan's apex court on this matter.

Reasons why they're so controversial

- Perhaps the primary reason for these laws courting so much controversy is their content. Widely criticised by the opposition as "undemocratic", both the amendments widen the ambit of the state to prosecute people for acts against the state and the military.
 - Official Secrets (Amendment) Bill, 2023
- Particularly controversial, in this law, is its broadening of the definition of "enemy". As per it, "Any person who is directly or indirectly, intentionally or unintentionally working for or engaged with a foreign power, foreign agent, non-state actor, organisation, entity, association or group guilty of a particular act ... prejudicial to the safety and interest of Pakistan".
- Section 6-A of the Act also creates a new offence of unauthorised disclosure of the identities of members of intelligence agencies, informants or sources, to be punishable by both jail term and a fine.

Cont'd

- Pakistan Army (Amendment) Act, 2023
- This bill paves the way for the punishment of up to five-year rigorous imprisonment to any person guilty of disclosing any information, acquired in an official capacity that is or may be prejudicial to the security and interest of Pakistan or the armed forces,
- Particularly controversial, are sections of the act which accord more powers to the army chief and bar ex-servicemen from engaging in politics as well as taking up ventures, which could come into conflict with the army's interest. The Act also proposes imprisonment for defamation of the army.
- These laws were passed swiftly (within a day) in the fag end of the Pakistani National Assembly's tenure, under questionable circumstances.
- According to critics of the govt, these laws will expand the power of the army and the state to persecute opponents and activists. A day before President Alvi released his statement, PTI Vice Chairman Shah Mehmood Qureshi was arrested in connection with a first information report under the Official Secrets Act.

Anwaar-ul-Haq Kakar takes over as the new caretaker Prime Minister of Pakistan

Relevance: Prelims & Mains Paper II; International Relations

Why in news?

- Anwaar-ul-Haq was recently sworn in as the new interim Prime Minister of Pakistan.
- His appointment came after the dissolution of Pakistan's Parliament, three days before the legislative body would have completed its five-year tenure.
- Then Prime Minister Shehbaz Sharif and opposition leader Raja Riaz agreed to name Senator Kakar as the caretaker premier.
- At the top of Kakar's list of agendas will be naming a cabinet for the caretaker government and ensuring free and fair elections.
- Under Pakistan's constitution, a neutral caretaker government oversees the national elections, which must be held within 90 days of the dissolution of the parliament's lower house. This means elections are ideally to be held around early November.



Who is Anwaar-ul-Haq Kakar?

- Kakar, 52, hails from the southwestern province of Balochistan, a region bordering Afghanistan that has witnessed internal turmoil at times in the country's history.
- Kakar studied in the city of Quetta and later went to London for his higher education, returning to Pakistan in 2005.
- Notably, Kakar is not particularly well-known even within the political circles of Pakistan.
- He has been serving a six-year term in Pakistan's Senate since 2018. He was a part of the Balochistan Awami Party, which is widely considered to be close to the military.

Why was Pakistan's Parliament dissolved?

- While the Parliament was close to completing its full term, continued political and economic turmoil may have been behind the decision. Days prior, on August 5, Imran Khan was arrested and convicted of corruption charges in the Toshkhana case and sentenced to three years in prison. He is now barred from contesting elections for five years.
- At the same time, a digital census of 2023 was approved in haste recently by a constitutional body. It has put Pakistan's population to be at 24 crore, up from 21 crore in the 2017 census.
- Now, the law mandates that there should be delimitation or drawing up of constituencies based on the changes in population before the next elections, and that process would officially take 120 days, leading to possible delays in the election.
- Further, since July 1 a series of legislative changes have been introduced that will now let the caretaker govt take far-reaching decisions beyond day-to-day affairs rather than play a nominal role.
- It is being speculated that through an Army-backed caretaker PM, the Pakistan Army will bring about some changes in the country's political and economic setup.

PM Modi urges Sri Lanka President to implement 13th Amendment

Relevance: Prelims & Mains Paper II; International Relations

Why in news?

- Sri Lanka President Ranil Wickremesinghe recently held an all-party meeting to discuss the issue of Tamil reconciliation and welfare. This comes days after his visit to India, during which PM Narendra Modi conveyed to him the need to "ensure a life of dignity" for the Tamil community in Sri Lanka.
- PM Modi also expressed the hope that Wickremesinghe would be committed to implementing the 13th Amendment to Sri Lanka's constitution — which flows from the Indo-Sri Lanka Accord of 1987 — and holding provincial council elections.
- Notably, last week, Wickremesinghe had said the 13th Amendment would be implemented, subject to agreement among political parties in Parliament.



The Indo-Sri Lanka Accord of 1987

- The 13th Amendment to Sri Lanka's constitution was made after the signing of the Indo-Sri Lanka Accord between PM Rajiv Gandhi and President J R Jayewardene, on July 29, 1987 in Colombo.
- Under the 1978 constitution, Sri Lanka had a unitary govt, with all powers in the hands of the Centre. The Tamil minority in Sri Lanka was concentrated in the Northern and Eastern provinces, and the struggle for rights and greater autonomy here had flared up into the long and bloody civil war between the Liberation Tigers of Tamil Eelam (LTTE) and the Sri Lankan govt.
- The 1987 Accord aimed at amending the constitution to transfer some powers to the govts of the country's nine provinces, thereby finding a constitutional solution to the civil war.
- After the Accord, the constitution underwent the 13th Amendment to allow devolution of power to provinces.
- The Accord had other clauses too, such as Tamil and English being adopted as official languages along with Sinhala, lifting of emergency on the "Eastern and Northern Provinces by August 15, 1987", surrender of arms by militant groups, and general amnesty to political and other prisoners held in custody.
- The Accord also says that "The Govt of India will underwrite and guarantee the resolutions, and co-operate in the implementation of these proposals".
- Thus, Tamil groups in Sri Lanka have appealed to India multiple times to make sure the Accord is implemented fully, including earlier this month, before Wickremesinghe's visit.

Why 13th Amendment hasn't been implemented yet?

- While the armed struggle had been in the Northern and Eastern regions, provinces across Sri Lanka were given greater autonomy after the amendment.
- However, the separation of powers was never done fully, and while some are unhappy over too little devolution, the hardline nationalists raise alarms over the "weakening" of the Central govt's authority. The Sinhala nationalists also oppose the 13th Amendment as they see it as imposed by India.
- Under the Accord, the North and Eastern provinces were to be merged into one, temporarily, and later, a referendum was to be held to decide if they should stay together or have two separate provincial councils.
- The aforesaid referendum was never held, and in 2006, Sri Lanka's Supreme Court ruled that the merger had been illegal. Thus, the Northern and Eastern provinces were separated again in 2007.
- Thus, while the Sinhala provinces saw regular elections, the North and Eastern regions stayed under the central govt's control for long.
- Since 2014, provincial elections are pending across Sri Lanka. This is because Parliament is yet to amend a 2017 Act in Parliament, for reforming the election process.

Hawkish China keeps a close watch on Kuril islands claimed by Japan and Russia



Relevance: Prelims & Mains Paper II; International Relations

Why in news?

- As Russia's invasion of Ukraine drags on, the country is forced to put more and more of its military and economic resources to its western border.
- Meanwhile in Japan, conservative voices are hinting the war could give Japan a chance to take control of what the Japanese call the Northern Territories. The strategically located islands are known as Kuril Islands in Russia, and were seized by Soviet forces in the closing days of WWII.
- Russia and Japan have held talks about these islands several times in the past but failed to agree on a solution. This led to the two sides never formally signing a peace treaty to end the war.
- Modern Japan has no plans of using military force to resolve the dispute. Still, there are those who hope that Vladimir Putin's regime might weaken enough that changes could be made possible with diplomatic and economic incentives.
- But even if the Ukraine conflict escalates to the point that it actually jeopardises the Kremlin's hold on this remote region, Russia's ally China might have plans of its own.



Echoes of the Yeltsin era

- As per a Japanese expert, when Boris Yeltsin was the Russian leader, Japan came very close to reaching an agreement with Russia. It would have seen at least some of the islands returned to Japanese control in return for economic assistance, but it fell through.
- However, he adds that any diplomatic initiative launched by Japan could very quickly be redundant should China decide to use military force to seize territory in the Russian Far East, something that Japan could simply not contemplate.

China's ticket to the Pacific?



- Much of what is today the Russian Far East was until the mid-1800s part of Chinese Manchuria and it is likely that the Chinese govt would be interested in accessing the reserves of energy and raw materials that lie beneath Russia's vast steppes.
- Japanese analysts note that China has recently started to refer to Russian Far East cities by their former Chinese names. This includes the port city of Vladivostok and the island of Sakhalin. The island, with its 7 million Russian inhabitants, would stand little chance of resisting a potential Chinese invasion on its own.
- China would also have strategic incentives to assume control of the territory. Notable, China is surrounded by Japan, Taiwan and the Philippines, all of which are hostile to its expansionist plans.
- According to experts, taking over the Kuril Islands would give China access to the Arctic region as well as naval ports directly in the North Pacific.

Citing worsening security situation, the military stages a coup in Niger



Relevance: Prelims & Mains Paper II; International Event

Why in news?

- Niger's military recently staged a coup, ousting President Mohamed Bazoum.
- The head of Niger's presidential guard, Abdourahmane Tchiani proclaimed himself as the head of the transitional govt.
- The military's spokesperson announced that it has decided to "put an end to the regime due to the deteriorating security situation and bad governance."

Military's justification behind this move

- The military has blamed worsening insecurity and economic crisis for ousting the President.
- Despite the presence of the U.S. and French troops, Niger was unable to address the insurgency situation that was worsening.
- Groups linked to al-Qaeda, the Islamic State and Boko Haram operate in Niger's border areas near Mali and Nigeria. Notably, out of nearly 200 deaths in insurgent attacks across the world in 2022, Niger had the 6th-highest civilian death toll.
- Niger also was facing inflation, corruption and food insecurity. Mr. Bazoum came to power in 2021 through Niger's first democratic elections, promising to address all the issues.

The global response

- The UN, the U.S., Germany and France have condemned the coup. The UN has suspended humanitarian operations in Niger, while the EU has halted all security cooperation.
- The U.S. has announced "unflagging support" for Mr. Bazoum calling for his immediate release.
- France called for an immediate reinstatement of "constitutional order and democratically elected civilian govt." Following an attack on the French embassy in Niger, Emmanuel Macron said that any attacks on France's interests in Niger would not be tolerated and France would take swift and uncompromising action.

External interests in Niger

- While insurgency in Mali and Burkina Faso led to military coups, Niger managed a democratic transfer of power in 2021, an odd one in the region. This had kept smooth relations with the West.
- Niger has been a key partner in U.S.'s fight against insurgency; nearly 1,100 U.S. troops are here.
- More than 4.4 million people are in need of immediate humanitarian assistance in Niger. France and ousted President Bazoum had a closer economic and security partnership. Nearly 1,500 French troops were fighting insurgency in Niger.
- Niger is rich in uranium and produces 7% of global supplies. The coup has raised a new uncertainty over Niger's uranium export.



Rising anti-French sentiments

- Following the coup, **thousands took part in protests** in the capital **Niamey**, with **some waving Russian flags** chanting **"Long live Russia", "Long live Putin" and "Down with France."**
- **Anti-French sentiments** in Niger have been going on **since mid-2022**. It followed when **Mr. Bazoum's govt approved the re-deployment of France's Barkhane force to Niger** after **initial withdrawal**.
- Notably, in **Mali and Burkina Faso**, after the **fallout of relations between military govts and the West**, **Russia was seen as the immediate alternative**. The raising of **pro-Russian slogans** would mean **Niger seeking a similar trajectory to Mali and Burkina Faso**.
- Unlike the **West**, which **stresses upon democratic norms**, **Russia's security partnership without conditions is preferable** for the **West African military govts**.



Why are there several coups in Niger?

- Since independence in 1960, Niger experienced **four coups** and **several attempted coups**.
- The **latest attempt** was in **2021** when a military group tried to **take over the presidential palace** days before **Mr. Bazoum** who had been elected, was **due to be sworn in**.
- All the coups were attributed to **frustrations on incompetent authorities' failure to stem insecurity in the Sahel region** and the **economic and humanitarian crisis that followed**. The coups are also against **alleged ties of unpopular authorities** and **corrupt elites** with Western partners.
- For the military, **crisis and popular discontent is an advantage to capturing power**.

Imran Khan sentenced to three years in jail in the Toshakhana case



Relevance: Prelims & Mains Paper II; International Events

Why in news?

- Former Pakistan Prime Minister Imran Khan was recently arrested from his residence in Lahore, shortly after an Islamabad trial court declared him guilty of "corrupt practices" in the Toshakhana case.
- The court sentenced Imran to three years in prison and imposed a fine of 100,000 Pakistani rupees on him for concealing details of Toshakhana gifts.



What is the Toshakhana case?

- The Toshakhana controversy came to the forefront in Aug. 2022, when the coalition govt — led by Pakistan Muslim League-Nawaz (PML-N) — filed a case against Imran, claiming that he did not disclose information on gifts presented to Toshakhana as well as the proceeds from the "illegal" sale of some of the gifts.
- Established in 1974, Toshakhana is a department under the administrative control of the Cabinet Division which stores gifts and other expensive items received by public officials.
- According to its rules, it's compulsory for officials to report the gifts and other such materials received by them to the Cabinet Division.
- However, when Imran came to power in 2018, he resisted disclosing details of the many presents he received during his time in office, saying that doing so would severely impact relations with other countries.
- Subsequently, he wrote a letter to the Election Commission of Pakistan (ECP) and admitted to selling at least four such presents but also said that he bought them from the govt by paying a percentage of their value.
- These included a Graff watch gifted to him by the Saudi Arabian crown prince, Rolex watches, expensive cufflinks, a valuable pen and a ring.

ECP's say about the case



- Almost two months after the case was filed against Imran, the ECP found that while the sales weren't illegal because the items belonged to Imran as he had paid for them, he did engage in unethical behaviour, making false assertions and erroneous declarations.
- Consequently, Pakistan's apex poll body barred Imran from holding public office for a period of five years.

Jeddah conference calls for more efforts to end the Ukraine war



Relevance: Prelims & Mains Paper II; International Relations

Why in news?

- The Jeddah conference on the Ukraine war, in which 42 nations participated, was one of the most serious global efforts in finding a way to end the conflict.
- While Russia was not invited to this peace conference, the main goal of Ukraine and its western partners was to build consensus among major powers, especially in the Global South, on working towards a fair and durable peace.
- After the talks, diplomats said there was broad acceptance about respecting Ukraine's sovereignty and territorial integrity, and that there was agreement to meet again.



A change of stance!

- In February, China called for a "political settlement" to this conflict. While it called for "sovereignty, independence and territorial integrity of all countries to be effectively upheld", it also backed Russia's security concerns.
- Western countries had slammed China's position, saying it could never be a neutral backer. But today, concerned parties appear to be more pragmatic and want China and India to play a bigger, constructive role in convincing Russia to take the path of talks.

War reaches a stalemate!



- Eighteen months after the war began, it is now evident that it has no military solution. Russia has made some advances since last year's humiliating retreat from Kherson and Kharkiv, but is still far from meeting its objectives, and is struggling to cope with the war's effects — from political and economic stability to security issues.
- Ukraine's much-awaited counteroffensive which started with advanced western weapons and training, has not achieved any major breakthrough.
- While Ukraine has shown its capability to strike deep inside Russia with drones, Russia keeps bombing Ukrainian cities and ports. But the stalemate does not push either side towards talks.
- According to Ukrainian President Volodymyr Zelenskyy's peace plan, Russia has to withdraw from all occupied territories for talks to begin. Russia demands recognition of the annexed Ukrainian territories, including regions its military does not control.
- Amid these positions, there is hardly any room for direct talks. This is where the international community could make a difference. It should work with Russia and Ukraine to build an agenda for future talks.

ECOWAS, the West African bloc plans to intervene in Niger's coup



Relevance: Prelims & Mains Paper II; International Relations

Why in news?

- In a July 26 coup, soldiers in the West African nation of Niger installed Gen. Abdourahmane Tchiani as head of state after ousting President Mohamed Bazoum.
- Along with the difficult economic conditions already prevailing in the country, what has added to the concern for some in the West are the Nigerien calls for assistance from Russia's Wagner Group.
- A mercenary organisation that was also active in the Ukraine war and maintained a footprint in Africa, the Group has fallen out of favour with Russian President Vladimir Putin after its leader Yevgeny Prigozhin attempted a coup in Moscow in late June this year. However, its presence in Africa pre-dates its involvement in Ukraine.
- Apart from the expected international players, such as Russia and the United States, the regional bloc ECOWAS or the Economic Community of West African States has been playing an active role.
- Its heads of state recently met to discuss their next steps, after Niger's military junta defied their August 6 deadline to reinstate the country's ousted president and the soldiers closed the country's airspace. There is also apprehension that ECOWAS may choose to intervene militarily.

What is ECOWAS?



- Also known as CEDEAO in French, the regional group was established in 1975 through the Lagos Treaty – with a mandate of promoting economic integration among its members.
- Today, ECOWAS has 15 members: Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal and Togo. Around 400 million people live in this region.
- Although, following coups in recent years in some of the biggest countries in the bloc – namely Mali, Guinea and Burkina Faso – it suspended the three members and refused to recognise their new govts.
- ECOWAS' larger aims are to have a single common currency and create a single, large trading bloc in areas of industry, transport, telecommunications, energy, financial issues, and social and cultural matters.



ECOWAS' actions in the past

- ECOWAS has attempted to **suppress military conflicts** in the region. It also operated a **regional peacekeeping operation** known as **ECOMOG** which has **intervened in Liberia, Sierra Leone and Gambia in the past** due to **internal conflicts and political crises**.
- However, ECOWAS has **never sent its troops to Niger**.

Potential moves in Niger!

- While its response so far has **indicated a military intervention**, even if it **ends up being limited in scope**, the grouping faces **many challenges**.
- For instance, **Mali** said it and **Burkina Faso**, both neighbours of **Niger** run by **military juntas**, were **sending a delegation of officials to Niger to show support** and **would consider an attack as an attack on them as well**.
- There is also the question of whether **longstanding measures of economic sanctions** – such as those imposed by **ECOWAS** – can work! **France**, a **former coloniser of Niger**, has **cut off aid following the coup**.
- Additionally, **the presence of more than 2,000 troops from France and the US** has also **irked some locals**, with **the coup seeing anti-France graffiti and slogans**.

T.N CM Stalin demands retrieval of Katchatheevu island from Sri Lanka

Relevance: Prelims & Mains Paper II; International Relations

Why in news?

- Tamil Nadu Chief Minister M. K. Stalin recently revived the **debate over Katchatheevu**, an **uninhabited and barren 285 acre islet about 14 nautical miles off Rameswaram**.
- He reiterated the demand for **retrieval of the islet from Sri Lanka**, which will, according to him, **put a permanent end to the problems of fishermen of the State**.
- He pointed out that **following his letters to PM Narendra Modi**, fishermen arrested by the **Sri Lankan authorities**, were released but the **boats and fish nets, essential to the livelihoods of the fishermen**, had not been returned.
- Last month, ahead of the **visit of Sri Lanka's President to New Delhi**, the CM urged Mr. Modi to **raise the issue with the dignitary**.



Sri Lanka getting hold of Katchatheevu

- During June 26-28, 1974, the then Prime Ministers of India and Sri Lanka, Indira Gandhi and Sirim R.D. Bandaranaike, signed an agreement to demarcate the boundary between the two countries in the historic waters from Palk Strait to Adam's Bridge.
- A joint statement pointed out that "this boundary falls one mile off the west coast of the uninhabited Katchatheevu."
- The present demand for the Katchatheevu retrieval traces its origin to the opposition to this very pact.

Importance of Kachatheevu

- Fisherfolk of the two countries have been traditionally using the islet for fishing.
- Though this feature was acknowledged in the 1974 agreement, the supplemental pact in March 1976 made it clear that fishermen of the two countries "shall not engage" in fishing in the historic waters, territorial sea and exclusive zone or exclusive economic zone of either of the countries "without the express permission of Sri Lanka or India."
- While certain sections of political parties and fisherfolk in Tamil Nadu believe that the retrieval of Katchatheevu would resolve the problem of fishermen having to illegally cross the International Maritime Boundary Line, fishermen of the Northern Province in Sri Lanka say that this would only add to their suffering from the adverse impact of T.N. fishermen using the fishing method of bottom trawling on their territorial waters.

Claims of India and Sri Lanka

- Sri Lanka claimed sovereignty over Kachatheevu on the ground that the Portuguese who had occupied the island during 1505-1658 CE had exercised jurisdiction over the islet.
- India's contention was that the erstwhile Raja of Ramnad [Ramanathapuram] had possession of it as part of his zamin.

Reignition of this issue

- The Katchatheevu issue was revived in August 1991 with the then CM Jayalalithaa demanding retrieval during her Independence Day address.
- She later modified her demand to one of getting the islet back through "a lease in perpetuity." In the last 15 years, both Jayalalithaa and Karunanidhi had approached the apex Court on the matter.

Centre's stance

- In Aug. 2013, the Union govt told the Supreme Court that the question of retrieval of Kachchatheevu from Sri Lanka did not arise as no territory belonging to India was ceded to Sri Lanka.
- It contended that the islet was a matter of dispute between British India and Ceylon (now Sri Lanka) and there was no agreed boundary, a matter of which was settled through 1974 and 1976 agreements.
- In Dec. 2022, the Centre, pointed out in its reply in the Rajya Sabha that Kachchatheevu "lies on the Sri Lankan side of the India-Sri Lanka International Maritime Boundary Line." It added that the matter was sub-judice in the Supreme Court.

US Prez Joe Biden hosts Japan's and South Korea's leaders at Camp David

Relevance: Prelims & Mains Paper II; International Relations

Why in news?

- US President Joe Biden recently hosted Japanese Prime Minister Fumio Kishida and South Korean President Yoon Suk Yeol for their first-ever joint summit at Camp David, a Presidential Retreat in the US state of Maryland.
- Camp David is a site that American Presidents have used historically to host foreign leaders.

What is Camp David?

- Camp David is located 96 km away from the USA's capital Washington DC. It was originally built as a camp for federal employees and their families, completed in 1938 as part of the New Deal. This was a programme meant to stimulate the economy during the Great Depression, a period of mass unemployment and poverty in the early 20th Century.
- Camp David began to be used by Presidents under Franklin Roosevelt. It has since hosted leaders such as UK PM Winston Churchill, Soviet Premier Nikita Khrushchev, Russian President Vladimir Putin and all of the G8 leaders during the 2012 Summit. Leaders have had informal interactions here, even watching films and football matches.



US President Franklin Roosevelt (right) with UK PM Winston Churchill at Camp David

Camp David Accords

- The most famous diplomatic event that took place at Camp David was the US-Egypt-Israel meetings of 1978. Under President Jimmy Carter, the US decided to call Egyptian President Anwar Sadat and Israeli Prime Minister Menachem Begin to broker an agreement. This followed the contestations in West Asia about the fate of Israel and Palestine.
- In Sept. 1978, the two leaders and Carter went to Camp David where they stayed for 13 days. Though the first few days, discussions would often escalate into heated arguments and it seemed the talks were about to fail. They then began to meet with Carter separately.
- Eventually, after these negotiations, Israel decided to withdraw from the Sinai Peninsula and from land acquired during the Six-Day War in West Bank. Also, Egypt, Israel, and Jordan agreed on the modalities for establishing elected self-governing authority in the West Bank and Gaza. The agreement further added that the solution must "recognize the legitimate right of the Palestinian peoples and their just requirements. In this way, the Palestinians will participate in the determination of their own future..."
- This historic Framework for Peace resulted in Anwar Sadat and Menachem Begin being jointly awarded the Nobel Peace Prize that year.



Israeli Prime Minister Menachem Begin (right), and Egyptian President Anwar Sadat (left) with US President Jimmy Carter at Camp David

BRICS gets six new members



Relevance: Prelims & Mains Paper II; International Organisations

Why in news?

- The five-member BRICS has invited six more countries to join the alliance in a move which can strengthen its claim of being a 'voice of the Global South' on one hand, while raising concerns about China's increasing dominance on the other.
- BRICS consists of Brazil, Russia, India, China, and South Africa. In its recent summit at Johannesburg, South Africa, it has invited Iran, the United Arab Emirates, Saudi Arabia, Argentina, Egypt, and Ethiopia. Their membership will begin in January.



'Spokesperson of the developing world'



- Adding new members strengthens the group's heft as a spokesperson of the developing world. BRICS currently represents around 40% of the world's population and more than a quarter of the world's GDP.
- With the additions, it will represent almost half the world's population, and will include three of the world's biggest oil producers, Saudi Arabia, the UAE and Iran.
- As per an expert, the rush towards BRICS is driven by two basic impulses: "First, there is considerable anti-US sentiment in the world, and all these countries are looking for a grouping where they can use that sentiment to gather together".
- "Second, there is a lot of appetite for multipolarity, for a platform where countries of the Global South can express their solidarity."
- The formation of BRICS in 2009 was driven by the idea that the four emerging markets of Brazil, Russia, India, and China would be the future economic powerhouses of the world. South Africa was added a year later.
- While the economic performance of BRICS has been mixed, the war in Ukraine — which has brought the West together on the one hand and strengthened the China-Russia partnership on the other — has turned it into an aspiring bloc that can challenge the western geopolitical view, and emerge as a counterweight to Western-led fora like the Group of 7 and the World Bank.

The new members of BRICS

- BRICS decisions are unanimous, that is, all members have to agree for any move to go ahead. Among its original members, while Russia finds itself facing a united West as adversary and China-US ties have dipped to a historic low, Brazil, South Africa, and India have important partners in the US and in Europe.
- China is driving the expansion of the group. The invitation to Iran, whose ties with the West are strained, seems to have a strong China-Russia imprint. The fact that regional rivals Saudi Arabia and Iran are part of the same grouping is in itself remarkable. China happens to be the biggest buyer of Saudi Arabia's oil, and had recently brokered a peace deal between Tehran and Riyadh.
- While Saudi Arabia has traditionally been a US ally, it has been increasingly striking out on its own, and the BRICS membership is in line with that.
- For Iran and Russia, this membership is a signal to the West that they still have friends globally.
- Both Egypt and Ethiopia have had longstanding ties with the US too.
- Argentina, facing a trying economic crisis, will hope for financial aid from BRICS.

Impact on India

- If India's presence at the recent G7 summit in Hiroshima, where PM Narendra Modi also participated in an informal Quad summit, was seen as a sign of New Delhi's US tilt, it continues to attach importance to the "anti-West" BRICS.
- Notably, India is also part of the Shanghai Cooperation Organisation (SCO), and despite problems, it has relations with Russia, and China. While China does want BRICS to be an anti-western group, the Indian view is that it is a "non-western" group and should stay that way.
- Among the new members, while India looks at all of them as partnerships worth developing, concerns have been raised that the group could become more pro-China and sideline India's voice and interests.

Western nations play down BRICS' expansion plans



Relevance: Prelims & Mains Paper II; International Relations

Why in news?

- The five-member BRICS recently invited six nations - Iran, the United Arab Emirates, Saudi Arabia, Argentina, Egypt, and Ethiopia to be its members.
- Responding to this development, a US official said that the BRICS bloc is not a geopolitical rival to the U.S. because their interests are too different.



"Primarily, an economic alliance"

- Many Western countries remain guarded about the possibility of BRICS becoming a new center of power. Only a few media outlets have ventured to break cover, expressing what many governments may well be thinking behind closed doors.
- As per a Norwegian newspaper, the BRICS group has "become a global club for authoritarian and reactionary leaders, with China and Russia at their head." It added that the people of these countries deserve better.
- Meanwhile, as per a Dutch newspaper "The fact that, in the end, only Argentina, Egypt, Ethiopia, Iran, Saudi Arabia, and the United Arab Emirates were invited to join is a setback for China." It added that "The group is not yet an alternative to the G7, as China would like it to be".
- This paper also wrote that, as long as the economic differences between the member countries remain considerable, the common currency to which Brazil aspires is unrealistic. "The symbolism of the cooperating global South should not be underestimated but the BRICS group is, and remains, first and foremost an economic alliance."

Mixed reaction in Germany



- As per the German foreign minister, this expansion is really not that big a deal, and perfectly legitimate for countries to be looking elsewhere for alliances in the globalized world of 2023. She also spoke strongly in favor of cooperating with the new members of this group of important emerging economies.
- As per a European Union parliamentarian, the EU now faces a tremendous challenge. "We don't have many years to prove that Europe wants to be a credible, reliable and fair partner for poor and developing countries," he said. "If we don't succeed, then many of these countries may turn to BRICS instead."

ECONOMICS

Full-reserve banking: where banks act solely as custodians of customers' money

Relevance: Prelims & Mains Paper III; Economics

What exactly is full-reserve banking?

- Full-reserve banking, also known as 100% reserve banking, refers to a system of banking where banks are not allowed to lend out money that they receive from customers in the form of demand deposits. Thus, banks are mandated to hold all money that they receive as demand deposits from customers in their vaults at all times.
- This is in contrast to today's banking system in which banks pay interest to customers on their demand deposits. In other words, under full-reserve banking, banks are expected to hold reserves backing 100% of their liabilities in the form of demand deposits.
- Under a full-reserve banking system, banks can only lend money that they receive as time deposits from their customers.
- Time deposits are deposits that customers can withdraw from the bank only after a certain period of time.
- This arrangement gives banks the time to lend these deposits to borrowers at a certain interest rate, collect repayments from the borrowers, and finally repay depositors their money along with a certain amount of interest.
- In the banking system that exists today, also known as the fractional-reserve banking system, banks predominantly do not lend money in the form of physical cash. So the cash deposits that they receive from their customers, whether as demand deposits or as time deposits, mostly stay in their vaults.

Cont'd

- Still, banks face the risk of a **depositor run** for a different reason — banks lend **more money** than **the cash they have in their vaults**. This is made possible because **most lending to various borrowers** happens in the form of **electronic money**.
- A bank that wants to lend money can **simply open a loan account in its books** under the **name of a certain borrower** and **credit the account with electronic money equivalent to the loan amount**.
- In fact, the **value of such electronic loans** created by banks **out of thin air** can turn out to be **many times the actual amount of cash in the banks' vaults**.
- So, if borrowers **decided to withdraw in the form of cash all the money** that was **loaned to them electronically** by the bank, the bank may be **forced to use all the cash deposits** that it received from depositors to **meet the demand for cash** and **still be unable to meet the demand for cash**.
- This can cause a **run on the bank** as the bank has created loans **far exceeding the amount of actual cash in its vaults**.
- However, **bank runs rarely happen** for a number of reasons. For one, **most transactions** in today's economies happen through **checks and other non-cash instruments** which ensure that the **demand for cash** remains **minimal**. Also, **central banks bail out banks** by providing them with **any emergency cash** that they may **need to meet a sudden rise in the cash demands of customers**.

The need to fuel growth

- Under a **full-reserve banking system**, banks are **prohibited from creating loans without actual cash in their vaults to back these loans**.
- In fact, some economists have argued that it should be considered **as fraudulent practice** if a **bank issues loans without the necessary cash in its vaults to back their loans**.
- **Supporters of fractional-reserve banking**, however, believe that **full-reserve banking unnecessarily restricts bank lending**. They believe that **fractional-reserve banking frees the economy from having to rely on real savings from depositors to finance the huge investments required to fuel growth**.
- On the other hand, **the supporters of full-reserve banking** argue that **it is the only natural form of banking and that it can prevent the various crises that affect today's fractional-reserve banking system**. As per them, **since banks will not be able to create money out of thin air in a full-reserve banking system**, their influence on the **economy's money supply** will become **severely restricted**.
- This, they argue, will prevent **artificial economic booms and busts**, believed to be a **consequence of changes in money supply**.

Credit rating agency Fitch downgrades US rating



Relevance: Prelims & Mains Paper III; Economics

Why in news?

- Global credit rating agency Fitch has downgraded US Sovereign rating from AAA to AA+.
- As expected, the White House and the US treasury have been highly critical of this downgrade.

Fitch's justification

- The rating downgrade of the US reflects the expected fiscal deterioration over the next three years, a high and growing general govt debt burden, and the erosion of governance relative to 'AA' and 'AAA' rated peers over the last two decades that has manifested in repeated debt limit standoffs and last-minute resolutions, according to Fitch.
- In Fitch's view, there has been a steady deterioration in standards of governance over the last 20 years, including on fiscal and debt matters, notwithstanding the June bipartisan agreement to suspend the debt limit until Jan. 2025. The repeated debt-limit political standoffs and last-minute resolutions have eroded confidence in fiscal management. In addition, the govt lacks a medium-term fiscal framework, unlike most peers, and has a complex budgeting process, Fitch says.
- These factors, along with several economic shocks as well as tax cuts and new spending initiatives, have contributed to successive debt increases over the last decade. Additionally, there has been only limited progress in tackling medium-term challenges related to rising social security and Medicare costs due to an aging population, Fitch says.

Not for the first time!

- In 2011, Standard & Poor's (S&P) downgraded, for the first time in 70 years, the US rating from AAA to AA+, saying the budget deal brokered in Washington didn't do enough to address the gloomy outlook for US finances.
- S&P downgraded US debt after the 2011 debt ceiling deal, primarily viewing the deal as insufficient in stabilising longer term US debt stability. S&P has not changed its US rating since then.

Impact on markets

- While the U.S. markets remained largely stable after the Fitch's announcement, the markets in India and the rest of Asia saw a noticeable fall.
- As per analysts, this impact would be just for a few days and the market may focus on other fundamental factors.



Is US moving towards recession?

- Tighter credit conditions, weakening business investment, and a slowdown in consumption will push the US economy into a mild recession in Q4 of FY23 and Q1 of 2024, according to Fitch projections. The agency sees US annual real GDP growth slowing to 1.2% this year from 2.1% in 2022 and overall growth of just 0.5% in 2024.
- This will be bad news for other countries and global investors as the US is the largest economy in the world and the performance of other economies depends to some extent on the US.

Sebi announces online dispute resolution system

Relevance: Prelims & Mains Paper III; Economics

Why in news?

- A new online dispute resolution (ODR) system involving institutions, conciliators and arbitrators for the capital market is on its way.
- The market regulator Securities and Exchange Board of India (Sebi) recently issued a circular, streamlining the existing dispute resolution mechanism in the securities market under the aegis of stock exchanges and depositories — Market Infrastructure Institutions — by establishing a common ODR portal.
- The new system will harness online conciliation and online arbitration for resolution of disputes arising in the securities market.

What are ODR institutions?

- According to Sebi, each MII will identify and empanel one or more independent ODR institutions. These institutions will have qualified conciliators and arbitrators.
- MIIs will, in consultation with their empanelled ODR institutions, establish and operate a common ODR portal.
- All listed companies, specified intermediaries and regulated entities in the securities market (referred to as market participants) will enrol on the ODR portal.
- Sebi has not specified so far, as to who will qualify as ODR institutions.

The procedure

- An investor or client should first take up the grievance with the market participant by lodging a complaint directly with the concerned market participant. If the grievance is not redressed satisfactorily, the investor or client may escalate the same through the SCORES Portal.
- After exhausting all available options, if the investor or the client is still not satisfied, he or she can initiate dispute resolution through the ODR Portal. The first step is conciliation. If this fails, the next step is arbitration.

Critics label licensing of laptops as a further regression in India's trade stance

Relevance: Prelims & Mains Paper III; Economics

Why in news?

- The Centre recently announced the "restriction" on the imports of personal computers, laptops, palmtops etc. It allowed these items only against a valid licence for restricted imports. However, amid a barrage of criticism, the Centre has now extended the dates by three months.
- Notably, this marks the reversal of the broadly consistent policy adhered followed by successive govts since the Rajaraman Committee. In 1981, a landmark report by a committee headed by Prof V Rajaraman of the Indian Institute of Science (IISc) proposed concessions for the import of computers against software exports. This report set the stage for the import of computers and their parts, eventually catalysing India's IT revolution.
- As per analysts, the govt's latest move marks a regression in the country's outlook on trade liberalisation.
- The last time the govt used licensing as a trade tool was in 2020, when the Commerce Ministry restricted 10 categories of TVs, the imports of which needed a licence from the Directorate General of Foreign Trade. But the licensing tool has been sparingly used so far.

Govt's justification

- Multiple justifications for the move have been offered, including hints about national security concerns, but the more likely reason could be that the Centre's revised production linked incentive (PLI) scheme for IT hardware was failing to find traction.

Progressively higher trade barriers

- The steady surge in instances of hikes in customs duties is clearly evident: tariff hikes have been undertaken multiple times covering well over 500 major item categories since 2016. It is a departure from the policy of reducing import duty that was consistently followed by successive govts over the last two decades.
- Prior to the large-scale hikes, India's peak customs duty — the highest of the normal tariff rates — on non-agriculture products had been coming down steeply from 150% in 1991-92 to 40% in 1997-98, to 20% in 2004-05, and to 10% in 2007-08.
- This has seen a progressive reversal since 2016. India's Trade Policy Review at the World Trade Organisation (WTO) in 2021 made a clear note of this trend.
- The simple average applied MFN (most favoured nation) tariff increased from 13% in 2014/15 to 14.3% in 2020-21.

CUSTOMS DUTY HIKES: MAJOR INSTANCES

<p>2016</p> <p>JAN: Concessional duties on 76 specified drugs withdrawn; restored for 3 drugs on Feb 17 after Health Ministry opposition</p> <p>FEB: Budget withdraws basic customs duty exemption on cashew nuts in shell; imposes 5%</p> <p>2017</p> <p>JUN: 10% basic customs duty on smartphones notified; parts like charger, battery, covered.</p> <p>SEPT: Implementation of 7.5% duty on solar panels, proposed in September 2016, implemented at some ports.</p> <p>DEC: Duty on push-button phones, mobile handsets raised to 15% from 10%; on TVs to 20% from 15%. Duty also raised on digital cameras, microwave ovens, LED bulbs, etc.</p> <p>2018</p> <p>FEB: Duties on 46 items, from fruit juices to mobile phones, raised mostly from 10% to 15% and 20%.</p> <p>MAY: Import duties raised up to 100% on five products including wheat, shelled almond, walnut, and protein concentrate, imported from US, other developed nations.</p> <p>JUN: Duty hiked on 29 US products in retaliation for steel and aluminium tariff hikes by US. Hike, set to be effective from Aug 4, postponed.</p> <p>AUG: Duties on 328 textiles products including innerwear, baby garments, more than doubled to 20%.</p>	<p>2019</p> <p>FEB: Customs duty on all goods imported from Pakistan hiked to 200%.</p> <p>JUL: Duty on gold, other precious metals hiked from 10% to 12.5%; on ACs, TV and plasma display panels hiked or tweaked.</p> <p>2020</p> <p>FEB: Duties hiked on fans, shavers, water heaters, shoes, fridge and AC compressors, etc; basic customs duty on toys hiked from 20% to 60%.</p> <p>JUL: Restrictions imposed on import of 10 categories of TVs; traders now needed DGFT licence.</p> <p>2021</p> <p>FEB: Duties up on smart speakers, laptops, tablets, "some mobile phone parts"</p> <p>2022</p> <p>FEB: Higher customs duties in Budget on items like umbrellas, headphones, earphones, imitation jewellery (mostly Chinese imports).</p> <p>APR: Basic customs duty hiked on solar PV cells and modules.</p> <p>2023</p> <p>FEB: Duty on toys and its components hiked to 70%; on bicycles to 35%.</p> <p>AUG: Licensing requirement for laptops, computer parts; implementation pushed to Nov 1.</p>
---	---

Drawbacks of discouraging imports



- The govt has consistently denied that these duty increases are "protectionist" in nature. As per it, India's stance on hiking tariffs mirrored the broader trend globally and that India had shown a renewed interest in signing bilateral Free Trade Agreements (FTAs) over the last 24 months.
- While the latter may have been true, India has chosen to stay out of important mega-regional trading arrangements, including the Regional Comprehensive Economic Partnership (RCEP).
- Analysts caution that in some cases where customs duty hikes have been proposed, duties are close to or have effectively crossed the WTO-mandated "bound rates". These are the customs duty rates that a country commits to all other members under the MFN principle. Breaching these rates could effectively put a country at risk of being branded as "protectionist" as per WTO norms that prohibit discrimination by the use of tariffs by its 164 members.
- WTO member countries have the flexibility to increase or decrease their tariffs so long as they do not raise them above their bound levels. If one WTO member raises applied tariffs above their bound level, other WTO members can take the country to the WTO's dispute settlement for resolving the issue.
- Incidentally, the hike in import duties does render India's exports uncompetitive too, given that a significant portion of exports are import-intensive. More importantly, trade barriers end up promoting the inefficiencies of domestic manufacturing, at the cost of hurting consumers.
- As per analysts, nearly eight years of protectionism have not pushed up the share of manufacturing in India's GDP — levels of around 14% have been steady for well over a decade, despite multiple sops that include unprecedented tax breaks.

Past domestic opposition to India's trade stance

- Some of the tariff hikes initiated over the last two years, incidentally, have come **despite protests from the industry and even within sections of the govt itself.**
- For instance, **in 2020, Indian toy traders, retailers, wholesalers, and manufacturers came together to form an umbrella body, the All India Toys Federation, to protest the hike of import duty on toys in that year's budget.**
- The **withdrawal of concessional customs duties on 76 specified drugs in 2016 had to be partly withdrawn as the Ministry of Health and Family Welfare cited an adverse impact of the move on the prices and availability of these drugs.**

China's deflation causes concerns

Relevance: Prelims & Mains Paper III; Economics

Why in news?

- **Consumer prices in China declined for the first time in over two years in July. The consumer price index declined 0.3% in July from a year earlier, leading to calls for steps to boost demand.**
- **Producer prices also dropped for the 10th consecutive month, contracting 4.4% in July. This is in contrast to the rest of the world where inflation has been the most pressing problem of late.**

What is deflation?

- **Deflation is a term that is used these days to refer to a general fall in the prices of goods and services in an economy.**
- The definition of deflation, however, has **not always remained constant.** In the past, **the terms inflation and deflation were used to refer to a rise or a fall, respectively, in the money supply rather than a rise or fall in prices.**
- **A rise in the money supply was expected to contribute to higher prices in the wider economy while a fall in the money supply was believed to lead to lower prices.**

Why is it a worry?

- Many economists believe that deflation is a sign of falling demand for goods and services which could lead to a slowdown in economic growth.
- According to them, the demand for goods and services is the driver of economic growth. Falling prices, can also push buyers to postpone their purchases expecting lower prices in the future; this in turn can further dampen demand in the economy.
- A certain degree of inflation is believed to be necessary for the full utilisation of the resources in an economy. Further, it is said that deflation can lead to business losses and lower growth as costs remain sticky.
- It can also mess up credit contracts as borrowers will have to pay back lenders more in real terms. Hence, these economists recommend that the Chinese govt and the Chinese central bank should take necessary steps to boost demand in the economy.
- Other economists point out that deflation per se may not be a problem. Many economies including the U.S. and China in the past, they note, have experienced deflation during times of rapid economic growth.
- Even Japan, which has been plagued by persistent deflation for years, actually witnessed a rise in per capita real income levels during the era of deflation.
- Deflation in such cases is the result of a rise in the supply of goods and services that outpaces the rate of money supply growth.

(more ahead)

Cont'd

- It should also be noted that it is not quite uncommon for countries experiencing high price inflation to suffer from low or even negative economic growth at the same time.
- However, deflation can also be a sign of economic turmoil. During times of economic crises, spending by individuals can drop temporarily as they become more cautious.
- Sometimes deflation in the official price indicators can also be a sign of a process of reallocation of resources. Spending on goods whose prices are captured by official indicators may drop while spending on other goods may even rise.
- These economists also argue that deflation need not cause consumers to postpone purchases as widely believed. It is not the prices that determine consumer demand for goods and services, but it is rather consumer demand that determines prices.
- The direction of causation runs from consumer demand to prices rather than the reverse. Moreover, deflation need not cause sustained business losses since businesses can adjust what they pay for their inputs according to what their customers are willing to pay for their goods and services.

Why is China experiencing deflation?

- China is experiencing deflation at a time when the People's Bank of China, or the Chinese central bank, continues to keep interest rates low to boost demand in the economy.
- This is in contrast to other central banks which have been tightening policy to fight high inflation after the Covid-19 pandemic.
- The likely reason behind Chinese deflation may not be the lack of liquidity but rather something more fundamental.
- It should be noted that the Chinese economy has been experiencing turmoil even before the pandemic, in the property sector which contributes to a share of Chinese GDP.
- The Chinese policymakers have been trying to bring about a soft landing of their economy. Credit booms like the one witnessed in China can cause the misallocation of resources and the bust can involve a fall in broader prices.

Survey finds jobs, economic struggle as the top concerns of India's 15 to 34-yr-olds



Relevance: Prelims & Mains Paper III; Economics

Why in news?

- More than one in three (36%) Indians between the ages of 15 and 34 believe unemployment is the biggest problem before the country. About one in six (16%) think it is poverty, and 13% think it is inflation.
- These findings, which are part of a report released by Lokniti-CSDS earlier this month, suggest that the youth identify challenges relating to the economy as the most significant facing the nation. The report offers insights into career aspirations, job preferences, and expectations of younger Indians.
- About 6% of respondents identified corruption as the most significant challenge; 4% each identified problems in education and high population.

Concerns over jobs

- The proportion of youth identifying unemployment as the biggest problem has increased by 18 percentage points from the results of a similar survey in 2016. The share of those identifying price rise as the primary concern has increased by 7 percentage points.
- While the data from the 2023 survey — conducted in 18 states with a sample of 9,316 respondents — show unemployment as a significant concern across all economic classes, it is particularly pronounced among middle-class youth.
- Also, as many as 40% of highly educated respondents (graduate and above) identified unemployment as the most pressing concern. In contrast, only 27% of non-literate individuals cited unemployment as their primary concern, likely due to their greater willingness to take on a range of jobs.
- Forty-two per cent of men said unemployment was the most significant problem; among young women, this number was 31%.

(more ahead)

Cont'd

- Poverty and price rise emerged as a more prominent problem for youth from lower economic backgrounds. A larger proportion of women (across economic classes) expressed concerns about price rise and poverty.



TABLE 1: THE BIGGEST CONCERN (IN %)

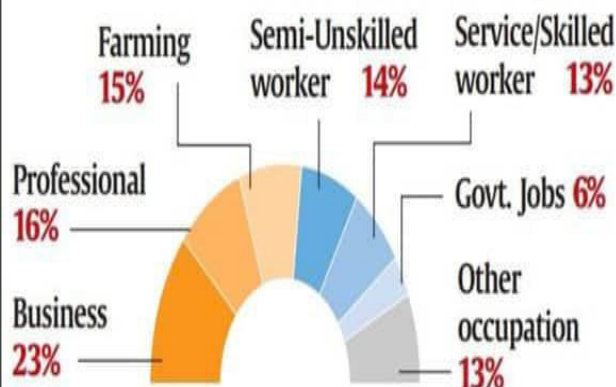
	Unemployment	Poverty	Price rise
Overall	36 (18)	16 (0)	13 (7)
Poor	29	25	20
Lower	37	18	12
Middle	39	14	12
Rich	35	12	12
Non-Literate	27	22	25
Up to Primary	32	22	20
Middle Class	31	22	12
Matric Pass	37	17	16
12th Pass	34	16	13
Graduate and Above	40	13	11
Men	42	15	10
Women	31	18	16

Note: Only top three problems have been reported. Figures in parentheses refers to the change from 2016. **Question asked:** What is the biggest problem in India today?

Occupational status

- Almost half of respondents (49%) said they were engaged in some form of work — 40% had full-time jobs; 9% were working part-time.
- Almost a fourth (23%) of youth with jobs were self-employed. Sixteen per cent were professionals such as doctors or engineers, 15% were involved in agriculture, and semi-unskilled and skilled workers made up 27% of the total. Only 6% were in govt jobs.
- About 20% of working youth chose their job out of an interest; an almost equal proportion (18%) took the only option they had.

TABLE 2: EMPLOYMENT PROFILE



Job aspirations

- Asked what their ideal occupation would be if they had the freedom to choose, almost 16% of youth mentioned jobs in the health sector, such as doctors, nurses, and other medical staff.
- The education sector was the second most preferred (14%), followed by science and technology-related jobs and starting their own businesses (10% each). Six per cent wanted to be in a govt job. Interestingly, only 2% of respondents said they would like to continue in their current jobs.

TABLE 3: GIVEN A CHOICE, WHAT JOB WOULD YOU TAKE UP?

Health Sector	16%
Teaching jobs	14%
Science & Technology	10%
Business	10%
Police and Defence Services	8%
Government Jobs	6%
Banking and Accounting	5%
Law	4%
Administrative Services	3%
Other Jobs	16%
Current Job	2%
Don't Want to Work	2%

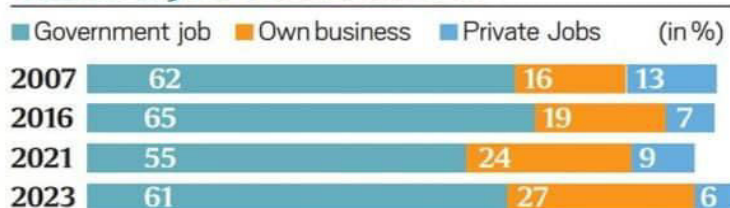
Note: The rest did not respond.

Question asked: If you had the complete freedom to choose your occupation, which occupation would you have chosen?

Govt job vs Private jobs

- Asked to choose from a govt job, a private job, or setting up their own business, three out of five respondents chose govt jobs, and more than one out of four opted for own business.
- Time series data from previous rounds of youth studies show the consistent appeal of govt jobs over the last decade and a half.
- The preference for setting up an own business has grown consistently over this period — from 16% in 2007 to 27% in 2023.

TABLE 4: JOB PREFERENCES



Source: Youth studies conducted by Lokniti-CSDS in 2007, 2016, 2021 and 2023. Rest did not respond. **Question asked:** If you had to choose from the following, what kind of a job would you choose?

RBI launches pilot project for “frictionless credit”

Relevance: Prelims & Mains Paper III; Economics


Why in news?


- The RBI recently commenced a pilot programme in a bid to evaluate the feasibility and functionality of the ‘Public Tech Platform for Frictionless Credit’.
- The suggested platform would strive to “enable delivery of frictionless credit by facilitating seamless flow of required digital information to lenders.”

Details

- Digital delivery of credit (delivering credit/loans through digital means) or any loan is preceded by a process of scrutiny known as credit appraisal.
- The process attempts to evaluate and accordingly predict the prospective borrowers’ ability for repayment of credit/loan and adhering to the credit agreement.
- This pre-disbursal process is particularly important for banks since it would in turn determine their interest income and impact on the balance sheet.
- The RBI has observed that the data required for the process rests with different entities like central and state govts, account aggregators, banks, credit information companies, and digital identity authorities. Thus, being in separate systems, it creates “hindrances in frictionless and timely delivery of rule-based lending,”

(more ahead)

Cont'd	What is this pilot about?	
<ul style="list-style-type: none"> - This new platform would bring all of it together in a single place. To facilitate “frictionless” and “timely delivery” of loans, the RBI had instituted a pilot project for the digitalisation of Kisan Credit Card (KCC) loans, of less than ₹1.6 lakh, in Sep. 2022. - It tested “end-to-end digitalisation of the lending process in a paperless and hassle-free manner”. The pilot is currently ongoing in select districts of Madhya Pradesh, Tamil Nadu, Karnataka, Uttar Pradesh and Maharashtra. - It provides for “doorstep disbursement of loans in assisted or self-service mode without any paperwork.” 	<ul style="list-style-type: none"> - The platform is premised around the learnings from all the ongoing programmes and further expands the scope to all types of digital loans. - The public platform will be developed by its wholly-owned subsidiary, the Reserve Bank Innovation Hub (RBIH). All financial sector players would be able to connect with it seamlessly in a ‘plug and play’ model. - With the participation from certain banks, the platform would extend its focus also towards dairy loans, MSME loans (without collateral), personal loans and home loans. It would cover all aspects of farming operations alongside those necessary for ascertaining financial profiles. - Based on the learnings from this project, the scope and coverage would be further expanded to include more information providers and lenders. 	

Making things smoother and faster	
<ul style="list-style-type: none"> - Experts, including the World Bank, point out that improved access to information provides the basis for fact-based and quick credit assessments. - It ensures that credit is extended to a larger set of borrowers with good credit history. The borrowers too would benefit by the resulting lower cost of accessing capital, which would translate into productive investment spending. - An RBI survey indicated that processing of farm loans used to take two to four weeks and cost about 6% of the loan's total value. - All in all, this lending platform would bring about “reduction of costs, quicker disbursement and scalability”. 	

Number of Jan Dhan Accounts Cross 50 Crore



Relevance: Prelims & Mains Paper III; Economics

Why in news?

- The national Mission on Financial Inclusion popularly known as Pradhan Mantri Jan Dhan Yojana (PMJDY) was launched on 28th august 2014 and it has completed almost 9 years.
- As per the latest reports submitted by banks the total number of Jan Dhan accounts have crossed 50 crore as on 9th August 2023.

Details

- Out of these 50 crore accounts, 56% accounts belong to women and 67% accounts have been opened in Rural / Semi-urban areas. The deposits in these accounts are above Rs. 2.03 lakh crore and about 34 crore RuPay cards have been issued in these accounts free of cost.
- The average balance in PMJDY accounts is Rs. 4,076 and more than 5.5 crore PMJDY accounts are receiving DBT benefits.
- PMJDY scheme has been successful in changing the financial landscape of the country and has brought near saturation in bank accounts for adults.
- PMJDY offers multiple advantages to account holders such as a bank account without requirement of minimum balance, free of cost RuPay debit cards with inbuilt accident insurance of Rs. 2 lakh and overdraft facility of up to Rs. 10,000.

Govt imposes a hefty export duty to check sharply rising onion prices



Relevance: Prelims & Mains Paper III; Economics

Why in news?

- After a long slump, onion prices are again on the rise, causing concern for the central govt. As a result, the Ministry of Finance has imposed a 40% export duty on onions. This led traders to close onion auctions indefinitely in Nashik district, Maharashtra.

Why are onion prices on the rise?

- Prices of onions have seen a steep rise since the start of August. At Lasalgaon's wholesale market in Nashik, the average price of the bulb has risen from Rs 1,370/quintal on August 1 to Rs 2,050/quintal on August 19. In contrast, back in March-May, onion growers faced financial distress, when their produce was sold between Rs 500/quintal and Rs 700/quintal.
- The present price rise has two aspects to it: first is the shortage in stored produce; the second has to do with lower-than-expected acreage of the bulb itself. Unlike other vegetables such as okra or beans, onions are not grown around the year.
- Farmers take three crops of which the last one feeds the market for the longest duration. Of the three crops Rabi is most amenable to storage given its lower moisture content and is stored in on-field storage structures called kanda chawls. Farmers offload the stored onions in tranches to ensure better realisation.

(more ahead)

Cont'd

- The fallout began **last year** when the country saw a dip in onion acreage. As against the 3.76 lakh hectares target for onion, the country had seen sowing over 3.29 lakh hectares.
- The situation **worsened** due to the **damage to the Rabi crop** in **March–April**, when most onion-growing states, including **Maharashtra**, saw **unseasonal rain and hailstorm**. For instance, **Nashik** reported **multiple days of hailstorms** in **March**, just when farmers had **started their harvest**.
- Rough estimates say that **this affected around 40% of onion crops**, of which **around 20% had to be ploughed back in** due to **quality concerns**.

A curb down on exports

- The **domestic price rise** comes at a time when **demand for Indian onion in the international market** has been quite high. In fiscal 2022-23, India exported 25.25 lakh tonnes of onion as compared to 15.37 lakh tonnes in 2021-22 and 15.78 lakh tonnes in 2020-21.
- With a **40% export duty**, the **price parity of the trade** will be destroyed.
- Increased export duty, the govt feels **would stem the bulb from leaving the country** and **would allow more availability in the local market** and thus ensure **smoother supply and lower prices**.

Raghuram Rajan raises questions over govt's 'Make in India' success claims in electronics sector

Relevance: Prelims & Mains Paper III; Economics

Why in news?

- Over the last few months, **former RBI governor Raghuram Rajan** and the **Minister of State for Electronics Rajevee Chandrasekhar** have sparred over how well a Central govt scheme to boost electronics manufacturing has been **faring**.
- It started **when Mr. Rajan**, along with two other **economists**, released a brief discussion paper **arguing that the programme isn't really pushing India towards becoming a self-sufficient manufacturing powerhouse**.
- Instead, the govt is using taxpayer money to create an ecosystem of low-level assembly jobs that **will still depend heavily on imports**. The Minister responded sharply, calling the paper a concoction of "half-truths" built on "shoddy comparisons".

What is the PLI scheme?

- **Around five years ago**, the Govt of India decided **it wanted more companies to make things in India**.
- **Manufacturing is a key ingredient to economic growth** and also comes with what economists call a **multiplier effect** — **every job created and every rupee invested in manufacturing has a positive cascading effect on other sectors in the economy**.
- However, the problem was that **many industries didn't want to set up shop in the country**. India's infrastructure isn't great, the country's labour laws are **archaic**, and the workforce isn't very skilled.
- To solve this, the govt used, and uses, a **carrot-and-stick approach**. The 'stick' is raising import duties, thus making it more expensive for companies to import stuff from somewhere else and sell it in India.

(more ahead)

Cont'd

- The 'carrot' is to provide subsidies and incentives. One key set of incentives is the production-linked incentives (PLI) scheme. Here, the govt gives money to foreign or domestic companies that manufacture goods here. The annual payout is based on a percentage of revenue generated for up to five years.
- The industry that has shown the most enthusiasm for the scheme is smartphone manufacturing. Companies like Micromax, Samsung, and Foxconn (which makes phones for Apple) can get up to 6% of their incremental sales income through the PLI programme.
- And with the scheme, mobile phone exports jumped from \$300 million in FY2018 to an astounding \$11 billion in FY23. And while India imported mobile phones worth \$3.6 billion in FY2018, it dropped to \$1.6 billion in FY23.
- Central govt Ministers, including Mr. Chandrasekhar, have regularly cited this data as proof of the PLI's scheme's success.

Mr. Rajan's arguments

- In his paper, the former Central bank governor Raghuram Rajan argued that the export boom hides more than it reveals.
- Specifically, Mr. Rajan contended that while imports of fully put-together mobile phones have come down, the imports of mobile phone components — including display screens, cameras, batteries, printed circuit boards — shot up between FY21 and FY23.
- Incidentally, these are the same two years when mobile phone exports jumped the most. This matters because manufacturers aren't really making mobile phones in India in the traditional sense.
- That would involve their supply chain also moving to India and making most of the components here as well. All that the companies are doing, Mr. Rajan said, is importing all of the necessary parts and assembling them in India to create a 'Made in India' product.
- This is important as low-level assembly work doesn't produce well-paying jobs and doesn't nearly have anywhere the same multiplier effect that actual manufacturing might provide.

The Minister's response

- As Rajeev Chandrasekhar, Mr. Rajan wrongly assumed that all imports of screens, batteries, etc. are used to make mobile phones.
- It is possible these items are used also for computer monitors, DSLR cameras, electric vehicles etc. He also argued that not all mobile phone production in India is supported by the PLI scheme, only around 22% so far.
- However, the Minister has admitted that the 'value-addition' — how much work an Indian mobile production plant is actually doing in creating the finished product — for mobile manufacturing is probably low. But as per him, it will go up as the broader supply and assembly chain settles in India.

Who is right?

- In a reply to the Minister recently, Mr. Rajan argued that even if only 60% of imports are used for production, India's net exports will still be negative.
- That is, even if only 60% of screens, batteries, etc. are used to make mobile phones, the final import tally would still beat the final export tally.
- The main divide is over whether the PLI programme will be able to create long-lasting jobs and firmly establish India as a manufacturing and supply hub that adds value to the production process.
- The Minister believes that it will take time for the project's results to show. On the other hand, Mr. Rajan believes that without proof of PLI's success, there is an opportunity cost.

Panel set up to examine stalled real estate projects submits report



Relevance: Prelims & Mains Paper III; Economics

Why in news?

- A 14-member committee chaired by former NITI Aayog CEO and India's G20 Sherpa Amitabh Kant, which was constituted to examine stalled real estate projects and recommend ways to complete them, recently submitted its report.

Report's findings

- The first question before the committee was how many and where are the legacy stalled projects located. It was told that 60% of the stalled projects had already been bought, with a capital commitment of Rs.1.9 lakh crore.
- The committee's report estimated that 4.12 lakh dwelling units of Rs.4.08 lakh crore were "stressed" and about 2.40 lakh (44%) of these were in the National Capital Region. Another 21% of the units were in the Mumbai Metropolitan Region.
- The committee concluded that the main reason for the stress in these projects was the "lack of financial viability", which had led to cost overruns and time delays. As per it, the way to solve the problem would be to improve the Internal Rate of Return of the projects in order to attract funding.
- Judicial interventions, like the use of the Insolvency and Bankruptcy Code, should be "the last resort", it said. In order to make the projects viable, all stakeholders — that is the developers, financiers, land authorities etc. — would have to take a "haircut" or accept less than what is due to them, it said.

Committee's recommendations



- The committee began its list of recommendations by reiterating provisions of the Real Estate (Regulation and Development) Act, 2016, which mandates that all projects where the land is over 500 sq. m or the number of apartments to be constructed are more than eight are registered with the respective state RERA. This, the committee said, must be "enforced". Registration of the projects would lead to greater transparency.
- The committee recommended de-linking the grant of registration or sub-lease by the land authorities to the homebuyers from the recovery of dues from developers. According to the committee, about 1 lakh homebuyers would benefit from this.
- Similarly, there were many projects where the homebuyers were not being given no-objection and completion certificates in projects that were substantially complete due to "administrative hurdles". The committee recommended that the RERAs identify such projects and expedite the process to grant certificates, irrespective of the developers' paying their dues to the authorities.
- One of the main recommendations of the committee was for state govts to set up a rehabilitation package to get the stalled projects running again. Those developers who sign up for the package would have to commit to completing the projects in three years.
- The committee gave the example of a model package for Noida and Greater Noida. This includes a "Zero Period" for two years starting with the onset of the COVID-19 pandemic in 2020 where interest and penalties on developers by the authorities would be waived.
- Developers would be allowed to get a "co-developer" on board to complete the work. The committee proposed a "partial surrender policy", in which developers can give back some of the unused lands to the authority in exchange for a waiver on the dues for that land.

Implement of recommendations

- Being a state subject, most of the recommendations of the committee fall within the purview of the respective state govts. According to Housing and Urban Affairs Ministry officials, the report has been sent to all states, who will decide on if and what they want to implement.
- In the case of UP, the NOIDA and Greater Noida authorities have already moved towards implementing the model package envisaged in the report.
- The report also said the MoHUA should prepare a detailed scheme for using the Special Window for Affordable and Mid-Income Housing (SWAMIH) Fund to "proactively" finance the stalled projects and sent it to the Finance Ministry.

ENVIRONMENT & BIODIVERSITY

El Nino becomes India's topmost economic and political risk



Relevance: Prelims & Mains Paper III; Environment

Why in news?

- It's clear that El Niño is now emerging as a major economic as well as political risk in India, ahead of national elections scheduled in April-May 2024.
- The effects of the abnormal warming of the central and eastern equatorial Pacific Ocean waters towards Ecuador and Peru – generally known to suppress rain in India – are already beginning to be felt.
- August so far has seen the country as a whole register 30.7% below-normal rainfall. As a result, the overall 4.2% surplus during the first two months of the southwest monsoon season (June-September) has turned into a cumulative 7.6% deficit as of August 27.
- The India Meteorological Department anticipates no significant monsoon revival during the next few days, putting this month on course to end up as the driest ever August.

Why things can worsen?

- In July, the Oceanic Niño Index (ONI) – which measures the average sea surface temperature deviation from the normal in the east-central equatorial Pacific region – touched 1 degree Celsius. This was twice the El Niño threshold of 0.5 degrees.
- Experts have predicted a 66% probability of the ONI exceeding 1.5 degrees Celsius during Oct-Dec. and a 75% chance of it remaining above 1 degree in Jan-March 2024. El Niño is, thus, projected to not only persist but strengthen during 2023-24 winter.
- That, in a worst-case scenario, could lead to an intensification of the current dry conditions in September (when the southwest monsoon season ends) and beyond. It would also mean subpar rainfall during the northeast monsoon (October-December) and winter (January-February) seasons.
- The southwest monsoon rain is crucial for not just the kharif season crops, mostly sown in June-July and harvested over September-October. It is required also to fill up dam reservoirs and recharge groundwater tables that, in turn, provide water for the crops cultivated during the rabi (winter-spring) season.

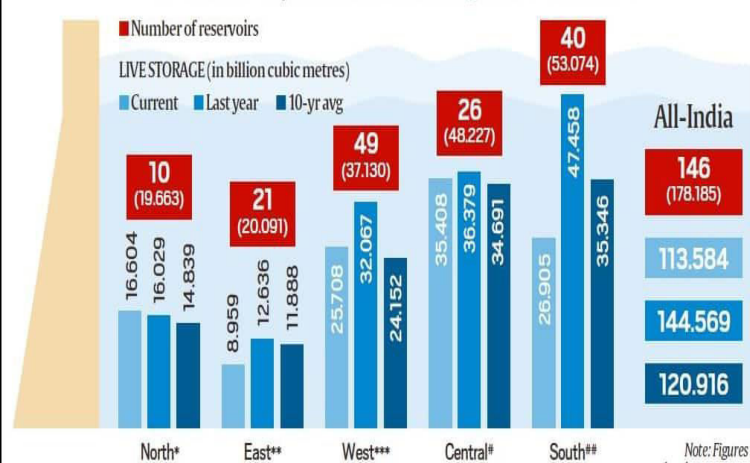
Falling reservoir levels...

- The adjoining chart shows water levels in 146 major reservoirs as on August 24 to be 21.4% lower than a year ago and 6.1% below the last 10 years average for this date.
- The dry weather in August can affect yields of the already-planted crops now in vegetative growth stage. However, the real issue would be the upcoming rabi season crops that are largely dependent on water in the underground aquifers and reservoirs. That's where El Niño's impact might be most felt.



Monsoon, inflation causes for worry

Water levels in major reservoirs as on August 24 (Billion cubic metres)



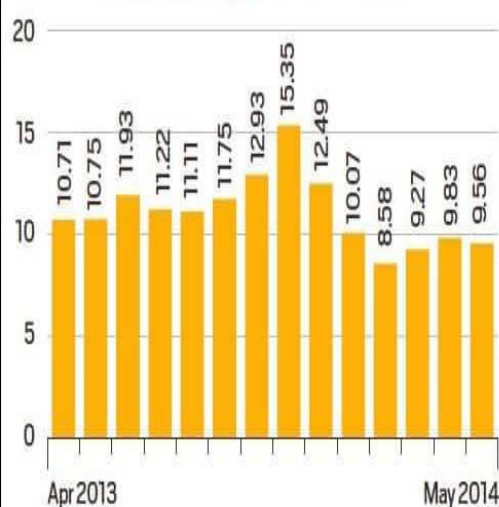
*HP, Punjab, Rajasthan; **Odisha, W. Bengal, Jharkhand, Bihar, Tripura, Nagaland; ***Maharashtra, Gujarat; #UP, Uttarakhand, MP, Chhattisgarh; ##Karnataka, AP, Telangana, TN, Kerala; Source: Central Water Commission

Note: Figures in brackets are storage levels at full capacity in BCM

Economic risk

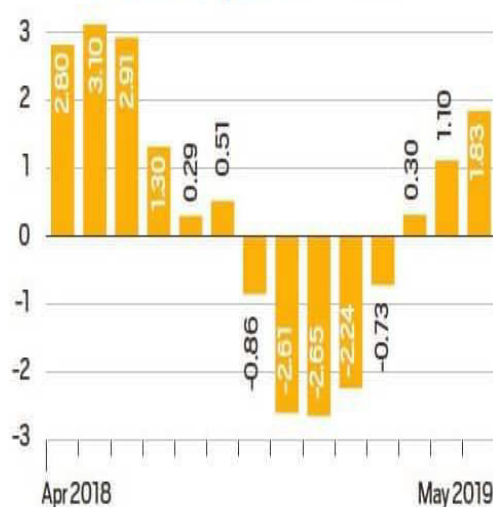
- Reservoir water levels are precarious in Karnataka, Maharashtra, Odisha and much of southern and eastern India, which have also recorded substantially below-average/deficient rain.
- With rice and wheat stocks in govt warehouses at 65.5 million tonnes (mt) on August 1, a six-year-low for this date, and retail food inflation in July at 11.5% year-on-year, there is cause for worry. For policymakers, food inflation turns into a serious problem when it becomes persistent and broad-based.
- Last year, public wheat stocks fell to their lowest since 2008, but there was enough of rice to keep the overall cereals inflation in check. The scenario is different today, when there's pressure on both rice and wheat stocks, besides El Niño whose effects are still unfolding.
- Wholesale prices of chana have risen by near a fifth in the past one month, not due to low stocks with govt agencies, but because inflation in arhar and other pulses is rubbing off on it. When scarcity in one vegetable or dal starts influencing the prices of others, it's then that the threat of generalised food inflation arises.

Food inflation before and during 2014
Lok Sabha polls (% year-on-year)



Source: National Statistical Office

Food inflation before and during 2019
Lok Sabha polls (% year-on-year)



Political risks

- The previous chart shows **consumer food price inflation rates** for two periods – the 12 months leading to the Lok Sabha elections of April-May 2014 and that of April-May 2019. The annual retail food price increase averaged 11.1% in the former period and a mere 0.4% in the latter.
- While not the only factor, the difference between the two numbers played a significant part in the **then-ruling UPA's massive defeat in 2014** and the **Narendra Modi-led BJP's spectacular return to power in 2019**. Relatively benign food inflation and free grain rations – 10 kg per person per month – also helped the BJP in the Feb-March 2022 Uttar Pradesh assembly polls.
- Alarmed over the current rising food inflation, the Modi govt. has taken **the following “supply-side” actions** since last year:
 - In May 2022, **exports of wheat were banned**. Also, **sugar exports moved from “free” to “restricted” category**. No exports have taken place after May 2023. In Sept, 2022, **exports of broken rice were prohibited**. Then in August 2023, **20% duty was imposed on exports of parboiled non-basmati rice**.
 - In June 2023, **stock limits were put on arhar and urad**, with **wholesale traders, big retailers, small stores and dal millers not permitted to hold more than stipulated quantities**. During the same month, **stockholding limits were imposed on wheat**. In August, **40% duty was slapped on exports of onion**.

Govt notifies rules for battery waste management

Relevance: Prelims & Mains Paper III; Environment

Why in news?

- The govt. has notified **Battery Waste Management Rules, 2022** to **ensure environmentally sound management of waste batteries**.
- These rules **mandate recyclers and refurbishers to register with concerned State Pollution Control Boards/Pollution Control Committees**. The former have been mandated to **ensure that the recycling/refurbishment process is carried out in accordance with the guidelines prescribed by Central Pollution Control Board**.
- Recyclers and refurbishers must also **ensure that hazardous waste generated from their activities is managed as per the provisions under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016**.
- They shall file **quarterly returns** regarding the **information on quantity of waste batteries collected or received from various producers or entities, recycled/refurbished quantities, quantity of hazardous and/or other waste including solid waste or plastic waste generated after recycling/refurbishment and disposal of such quantity**. Thus **return shall be filed by the end of the month succeeding the end of the quarter**.
- The **environmental compensation** collected under the new rule shall be utilised in **collection and refurbishing or recycling of uncollected and non-recycled or non-refurbished waste batteries**.

Bill to amend Forest (Conservation) Act clears Lok Sabha



Relevance: Prelims & Mains Paper III; Environment

Why in news?

- The Bill to amend the Forest (Conservation) Act recently cleared the Lok Sabha test.
- The FC Act was legislated in 1980 to regulate the diversion of forests for construction and mining. After more than four decades, the govt proposes to “broaden the horizons of the Act to keep its provisions in tandem with the dynamic changes in the ecological, strategic and economic aspirations” of the country.
- At just four pages, the original Act itself is brief. Even the proposed amendments do not run beyond five pages.
- But the number of requests for re-drafting the Bill in explicit and specific terms that adequately reflect the various assurances offered by the Environment Ministry show that the amendments are open to too many interpretations.

Restricting applicability

- In 1996, the Supreme Court ruled that the FC Act would apply to all land parcels that were either recorded as ‘forest’ or resembled the dictionary meaning of forest. Until then, the FC Act applied to areas notified as forests under the Indian Forest Act, 1927.
- This blanket order made the FC Act applicable to all land recorded as forest and to all standing forests irrespective of their land status, restraining “development or utility-related work.” Further, notes the Bill’s statement of reasons, “apprehensions prevailed regarding applicability” of the FC Act in the plantations raised on private and non-forest land.
- As a remedy, the Bill proposes that the Act will be applicable only on notified forest land and land identified as forest on govt records except such forests that were already put to other use prior to the 1996 SC order.

States’ objections!

- The Bill’s other primary goal is to satisfy the “need to fast track” projects of strategic importance, national security, and public utility within 100 km of the international borders and in “Left Wing Extremism affected areas”.
- While Himachal Pradesh wanted the Act to define ‘National importance and National Security’ and Chhattisgarh wanted it to “mention explicitly” the types of security-related infrastructure and the user agencies.
- As per Mizoram, any work in the states having international borders can be termed by the working agencies as of “national security.”
- Meanwhile, Sikkim pointed out that exempting 100 km from the borders would “subsume the entire state and open up pristine forest areas” and wanted the proposed exemption limits to be reduced to 2 km.
- On the other hand, BRO and Arunachal Pradesh, wanted the exemption range of 100 km to be increased to 150 km in order to reduce the “infrastructure differential” with China.

Focus on plantations

- An essential condition for forest clearance is that a developer must carry out compensatory afforestation on equivalent non-forest land or, if non-forest land is not available, on degraded forest land twice the extent of the forest area diverted.
- In June 2022, the govt amended the Forest Conservation Rules to allow developers to raise plantations over land on which the [FC] Act is not applicable and to swap such plots against subsequent requirements of compensatory afforestation.
- To a submission that the Bill potentially excludes 28% of India’s forests— 1,97,159 sq km of 5,16,630 sq km of the forests lie outside Recorded Forest Areas — from the purview of the FC Act, the govt has assured that the amended Act will apply to revenue forest land, private forest land and other recorded forests.



Ancient Peruvian whale may be the most massive creature recorded



Relevance: Prelims & Mains Paper III; Environment

Why in news?

- Scientists have described fossils that are believed to have belonged to an extinct whale that may have been heavier than any other creature, including the largest dinosaurs.
- The giant bones were discovered more than a decade ago in southern Peru. After years of analysis, researchers finally named the creature *Perucetus colossus*, or “the colossal whale from Peru.”
- The title of heaviest known animal, living or extinct, previously belonged to the blue whale.



Comparison with Blue Whale

- *Perucetus* is believed to have been around 20 meters (66 feet) long and to have weighed up to 340 metric tons.
- In comparison, the heaviest blue whale ever recorded weighed 180 metric tons, according to Guinness World Records.
- Although the researchers could only issue a very broad estimate range for the animal's weight with the information at hand — somewhere between 85 and 340 tons — they noted that the mid-point of this range was heavier than any blue whale.
- They also said they had no reason to believe the fossil remains hailed from the largest *Perucetus colossus* ever to have lived.

Other features of *Perucetus colossus*

- The researchers had only a few fossilized bones to go by: 13 vertebrae, four ribs and one hip bone, all estimated to be 39 million years old.
- Each vertebra weighs more than 100 kg (220 pounds) and the rib bones measure nearly 1.4 meters (5 feet) long.
- The heavy skeleton is believed to have been necessary to counter the buoyancy of its vast blubber-filled body and air-filled lungs, so that it would not be stuck floating on the surface unable to submerge.
- Because no cranial or tooth remains were uncovered, it is difficult to determine what *Perucetus* ate.
- However, some of the researchers believe *Perucetus* was not an active predator but fed near the seabed of shallow coastal waters like sirenians — the family of animals including dugongs and manatees.



In a historic first in the U.S, Montana's young plaintiffs win climate change lawsuit



Relevance: Prelims & Mains Paper III; Environment

Why in news?

- Recently, a judge in the U.S. state of Montana favoured 16 young plaintiffs who had sued their own state, accusing it of violating their constitutional right to a clean and healthful environment.
- It is the first time that a US court has held a govt responsible for breaching the constitution based on climate change.



Details



- This case revolved around a provision of the Montana Environmental Policy Act that bars officials from evaluating "greenhouse gas emissions and corresponding impacts to the climate in the state or beyond the state's borders" when deciding whether to approve new energy projects.
- In their lawsuit, the young plaintiffs said the law enabled the govt to promote and support fossil fuel extraction and burning, which is accelerating climate change and severely impacting their health and well-being. Furthermore, the law violated the Montana Constitution, which guarantees residents "the right to a clean and healthful environment," and specifies that the state and individuals are responsible for maintaining and improving the environment "for present and future generations", they argued.
- Montana has a long history of mining oil, gas and coal, and it currently has 5,000 gas wells, 4,000 oil wells, four oil refineries and six coal mines. Notably, annual average temperatures, including daily minimums, maximums, and averages, have spiked across the state between 1950 and 2015. The increases range between 2.0-3.0°F (1.1-1.7°C) during this period.
- The plaintiffs, represented by non-profit law firm Our Children's Trust and other law firms, sued their state in 2020 when they were aged 2 to 18. The trial — the first-ever constitutional climate trial in US history — began in June this year, during which 10 climate experts and 12 out of 16 petitioners gave their testimonies.

What did the ruling say?

- The Judge in this case rejected the state govt's defence that Montana's emissions are negligible in comparison to the rest of the world's. She said the state is a "major emitter of greenhouse gas emissions in the world, in absolute terms, in per person terms, and historically" and noted that it releases carbon dioxide as much as produced by Argentina, the Netherlands or Pakistan.
- The judge added that Montana authorised new fossil fuel projects without evaluating their greenhouse gas emissions or climate impact, which has caused and contributed "to climate change and Plaintiffs' injuries and reduce the opportunity to alleviate Plaintiffs' injuries". Therefore, she held the previously mentioned provision of the Montana Environmental Policy Act unconstitutional.

What's next?

- The ruling mandates Montana to consider climate change before approving any new energy projects. But experts anticipate the state to soon challenge the decision, which would send the case to the Montana Supreme Court.
- Regardless of the ultimate result, this judgement is expected to have a ripple effect across America. It may encourage similar rulings in pending climate change lawsuits in states such as Hawaii, Utah and Virginia — they all provide constitutional guarantees of a clean and healthful environment to their residents like Montana.

Climate litigation on the rise around the world

- The Montana climate change lawsuit is just one of numerous such litigations around the world. More and more people have, in recent years, sued govts, fossil fuel companies and other greenhouse gas emitters to hold them accountable for causing climate harm.
- As of Dec. 2022, there have been 2,180 climate-related cases filed across the globe — a significant rise from 884 cases in 2017. While most of the lawsuits were filed in the US, 17% of the total cases have reached courts in developing countries. In India, 11 such lawsuits have been filed.

U.S. West Coast witnesses the Fujiwhara effect

Relevance: Prelims & Mains Paper III; Environment



Why in news?

- The U.S. west coast recently witnessed Hurricane Hilary (a sub-tropical storm by the time it hit the US), prompting the National Hurricane Centre (NHC) to issue its first ever tropical storm watch for parts of Southern California.
- In one of these storms, two small areas of low pressure were drawn together in a 'dance': instead of merging together, the stronger low pressure area became the dominant one in the system – displaying, for a brief moment, what is known as the 'Fujiwhara effect'.



What is the Fujiwhara effect?

- As per the U.S. National Weather Service (NWS), when two hurricanes (or cyclones), spinning in the same direction, are brought close together, they begin 'an intense dance around their common center' – this interaction between two cyclones is called the Fujiwhara effect.
- If one hurricane's intensity overpowers the other, then the smaller one will orbit it and eventually crash into its vortex to be absorbed.
- On the other hand, if two storms of similar strengths pass by each other, they may gravitate towards each other until they reach a common center and merge, or merely spin each other around for a while before shooting off on their own paths.
- In rare instances, the two 'dancing' cyclones, if they are intense enough, may merge with one another, leading to the formation of a mega cyclone capable of wreaking havoc along coastlines.
- Identified by Sakuhei Fujiwhara, a Japanese meteorologist, this phenomenon first found mention in a paper published in 1921. Decades after the paper was published, it was observed for the first time over the western Pacific ocean, when typhoons Marie and Kathy merged in 1964.

The 'dance' and its damage

- In March 2023, powerful winds tormented the Bay Area and other parts of Central and Southern California, uprooting trees, shattering window glass, and disrupting the power supply. As per meteorologists, the Fujiwhara effect was contributing to peak gusts upward of 60 to 75 mph in these areas.
- South Korea too, bore the brunt of these systems, and 7 people were killed from drowning.
- Additionally, the occurrence of the Fujiwhara effect also makes cyclonic systems harder to predict, as every interaction between two storm systems is unique and difficult to assess within the present climate models.



Relation to today's climate



- Experts have noted the rising frequency of this unusual effect, attributing it to a rapidly warming world and the subsequent heating of ocean waters. They have found that between 2013 and 2017, there were 10 cases of the Fujiwhara Effect in the northwest Pacific Ocean.
- They add that a warming climate is giving rise to stronger cyclones, thus increasing the possibility of the Fujiwhara effect. For e.g. there has been a 35% increase in the strength of typhoons that have hit Taiwan between 1977 and 2016. This happened due to a 0.4 to 0.7°C rise in the sea surface temperature during these 40 years in the northwest Pacific.

New report warns of plummeting bird species in India



Relevance: Prelims & Mains Paper III; Environment

Why in news?

- A large number of bird species in India are either currently declining or projected to decline in the long term, according to a report based on data from about 30,000 birdwatchers. Out of the 942 bird species that were assessed, 142 are diminishing and only 28 are increasing.
- While raptors, migratory shorebirds, and ducks have declined the most, birds living in habitats like open ecosystems, rivers, and coasts are among the worst affected.



Key factors responsible for this decline:



Climate change

- The average global temperature has risen by over 1 degree Celsius since pre-industrial times, resulting in catastrophic consequences not only for humans but also for other living beings, like birds.
- Climate change affects bird reproduction and survival through the disruption of species interactions by phenological mismatches — it occurs when the timing of annual events like breeding, nesting and migration become out of sync.
- Soaring temperatures force sedentary birds to go through rapid adaptive changes. For instance, Amazonian birds over 50 years lost body weight to lose heat more efficiently. Extreme heat also compels birds to change their behaviour. They tend to spend more time looking for shade instead of searching for food. This can have an adverse effect on their survival and reproduction.
- Climate change leads to new and dangerous interactions between different species. A case in point is Hawaii, where with rising temperatures, mosquitoes have colonised higher altitudes. This has given rise to malaria among mountain birds.

Urbanisation

- The most urbanised regions in India have the least number of bird species, the least number of rare species, and the fewest insectivorous species, according to the report. It's because urbanisation results in loss of natural habitat for birds and it exposes them to more air pollution and high temperatures.
- Also, the noise pollution in the cities forces birds to sing louder, or at different frequencies, or, in the worst case, to abandon otherwise suitable habitat. Meanwhile, light pollution may confuse and disorient them, causing them to collide with buildings.
- Ultimately, due to lack of food supplies in urban areas, only behaviourally dominant species such as House Crows and feral Rock Pigeons are able to survive.

Monocultures

- Monoculture is the practice of growing one type of seed in a field at a time. In India, commercial monoculture plantations of rubber, coffee, and tea have been rapidly expanding in recent years.
- However, such plantations are detrimental to the well-being of birds. The report mentioned: "Commercial monocultures are known to harbour fewer bird species than natural forests within the same biome." For e.g., oil palm plantations in Mizoram support only 14% of the bird species found in comparable rainforests.

Energy infrastructure

- In the context of the looming climate crisis, countries have started to generate power using renewable resources instead of depending on conventional methods like coal-fired power plants. It has led to an increase of wind turbines in a country like India, where they have been installed in coastal areas, Western Ghats mountaintops, open arid lands, agricultural lands, and grasslands.
- Although wind turbines are eco-friendly, they have emerged as a threat to birds. A wide range of species are known to have been killed due to collisions with wind turbines. Several of them have migrated to regions where there aren't such giant devices.
- The report said the transmission lines have also led to the death of many large-bodies species because of collision and numerous small-bodies species have been electrocuted.



SCIENCE & TECHNOLOGY

India gives green signal to human challenge studies

Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- With the Bioethics Unit of the ICMR placing a consensus policy statement on Controlled Human Infection Studies (CHIS) for comments, India has taken the first step in clearing the deck for such studies to be undertaken here.

What is CHIS?

- CHIS, also called human challenge studies, where healthy volunteers are intentionally exposed to a disease-causing microbe in a highly controlled and monitored environment.
- It has been carried out for hundreds of years, an example being the yellow fever study in the early 1900s to establish that mosquitoes transmit the virus.
- Typically, a less virulent strain of the microbe is used to study less deadly diseases that have proven drugs for treatment. They are more often undertaken on a small number of volunteers to understand the various facets of infection and disease, and, occasionally, to accelerate the development process of a medical intervention.
- When used as part of vaccine development, these studies are initiated only when safety and immune responses of the candidate vaccines are known through early phases of clinical testing.
- Importantly, human challenge studies are not done as an alternative to phase-3 efficacy trials, but to help select the best candidate for testing in a conventional phase-3 clinical trial.

Cont'd

- Phase-3 clinical trials that follow human challenge studies often require fewer volunteers, speeding up the development process.
- In the last 50 years, CHIS studies have been carried out with thousands to accelerate vaccine development against typhoid and cholera.
- During the COVID-19 pandemic, 36 volunteers were used to study facets of the SARS-CoV-2 infection. In 2020, WHO approved using CHIS for accelerating COVID-19 vaccine development.

Challenges

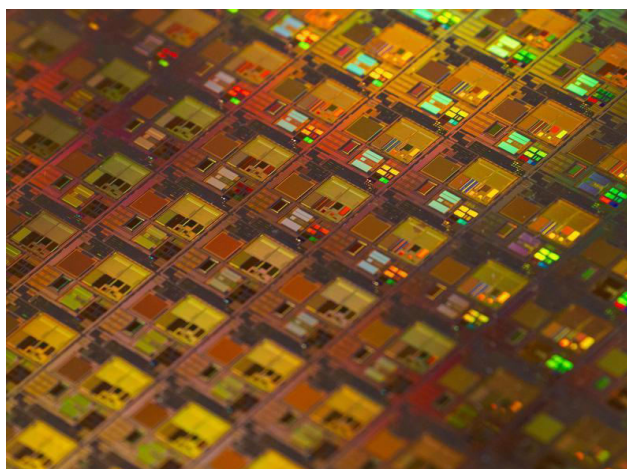
- There are several ethical challenges with human challenge studies. Several clinical trials, including those by or involving the ICMR, have been mired in ethical violations, such as the HPV vaccine trial in Andhra Pradesh, in 2010.
- As per experts, there is potential for exploitation, given the monetary dimension involving volunteers. If it becomes a reality, India should use CHIS only to study diseases with safe and effective treatment.
- Using CHIS to study novel microbes/disease with limited medical intervention should wait till Indian scientists gain expertise, and robust institutional structures and mechanisms are in place.

India keen to become a major player in semiconductors by overcoming challenges

Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- India is currently waking up to its opportunities in the field of semiconductors: access to the underlying technologies has been its long-standing dream.
- Success on this front would place India among a small, elite group of nations that have access to the tech as well as provide thousands of highly skilled jobs.
- In a major setback, however, Foxconn Technology Group recently withdrew its support from its joint venture with Vedanta to establish a semiconductor manufacturing plant in Gujarat.
- Notably, the Indian govt has also introduced incentives to catalyse this sector.



What is a semiconductor chip?

- At its core, a **semiconductor chip** is composed of **transistors**, which in turn are **meticulously crafted** from a **specially selected material**, typically **silicon**.
- One major function of a transistor is to **encode information** in the form of **0s** and **1s**, and **to manipulate them** to **produce new information**.
- These transistors have three parts: **the source**, **the gate**, and **the drain (or the sink)**.
- The **semiconductor stores information** in the **form of bits**. Each bit is a **logical state** that can have **one of two values** (represented by voltage levels) at a **time**.
- The **more bits a semiconductor can store** and **the more quickly it can manipulate them**, the **more data transistors can process**.

What does node number mean?

- Throughout history, the names of semiconductor nodes have been based on two numbers: **the length of the gate** and the **distance between adjacent metal strips connected to the gate**; the **latter** is called **the pitch**.
- The **size of transistors** has **progressively shrunk** over the years. The **smaller a transistor becomes**, the **more of them can be fit on a semiconductor chip**, the **more data the chip can store**, the **more computing power there will be**. For a sense of scale: in the **early 1970s**, the **transistor density per sq. mm** on a chip was **around 200** – whereas a chip within an iPhone has **around 100 million transistors per sq. mm**.
- From a **technical standpoint**, **node names hold no significance** in comparison to **the actual physical dimensions**. Instead, marketers use them to **mean one node is better than a previous iteration**.

Does India need legacy nodes?

- While **advanced nodes** range from **10 nm** to **5 nm**, India's current focus is **around 28 nm** or **higher**. Starting with legacy nodes can offer **numerous advantages**, including **long-term success**.
- While the **most advanced nodes** are used in **smartphones** and **laptops**, many **applications** require legacy nodes, including **robotics**, **defence**, **aerospace**, **industry automation tools**, **automobiles**, **Internet of Things** – because they are **more cost-effective**.
- As the **demand for electric cars** – together with **complementary electronics** in the car, like **music players** – **increases**, the **demand for legacy nodes** will also **increase**. According to a 2022 report, the **value of semiconductor technologies** in **automobiles** in the “**user experience and infotainment**” category could increase from **\$11 billion** in 2019 to **\$30 billion** in 2030.
- Given these facts, the Indian govt and **private players** are **sensible** to begin their semiconductor journey with the **legacy nodes**.

Sam Altman reintroduces biometric project - Worldcoin



Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- OpenAI CEO Sam Altman has formally re-introduced Worldcoin, a project of his that was eclipsed by the popularity of ChatGPT.
- The Worldcoin venture runs on a simple model: allow your eyes to be scanned in order to prove your human uniqueness, and receive some crypto and an ID (called a World ID) in exchange.
- Worldcoin claims it is building the "world's largest identity and financial public network" open to people worldwide.

What is Worldcoin?

- Worldcoin is an initiative to create a digital network in which everyone can claim some kind of stake, and join the digital economy.
- Using a device called "Orb," Worldcoin volunteers known as 'Orb operators' scan a person's iris pattern to collect their biometric data and help them get a World ID through the World app.

How does Worldcoin work?

- The users need to be willing to scan irises and/or get their own irises scanned.
- Those who have their irises scanned and collect a World ID can use this to claim the WLD crypto, which they may use for transactions or hold on to the asset in the hope that its price might rise, as it did after launching.
- However, users can also buy or sell WLD without getting scanned or using the app. In return for signing up more people to the Worldcoin network, Orb operators get WLD, which is a token based on the Ethereum blockchain.

Why it scans irises?

- As per Worldcoin, it wanted to include everyone in its network and that using biometric information to avoid duplication was a valid method for this.
- The company claimed that India had "proven the effectiveness of biometrics" through its Aadhaar system. Worldcoin notes that Aadhaar IDs stopped people from signing up multiple times to benefit from social welfare schemes.
- Worldcoin claims to be using a technology known as zero-knowledge proofs (ZKPs) to maintain users' privacy.
- Individuals who want to receive a World ID are not required to share their name, phone number, email address, or home address. Images collected by the Orb are used to generate a unique iris code. By default, these images are immediately deleted once the iris code is created, unless the user opts into Data Custody.



Criticism

- Worldcoin was criticised long before its re-launch.
- NSA whistleblower Edward Snowden pointed out that even if a person's biometric scans were deleted for privacy reasons — as Worldcoin said it would do — the unique identifier for the scan would match future scans of the same person's eyes.

Presence in India

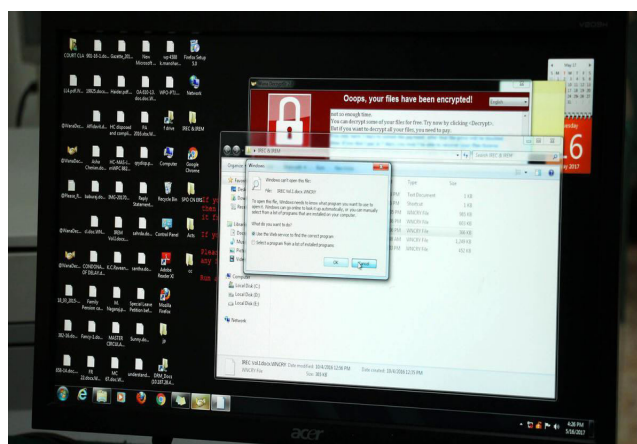
- Worldcoin has started operating in 18 locations in India including Delhi, Noida, and Bangalore. There, Orb operators are scanning people's eyes at popular malls and metro stations in these cities.

Govt issues a warning against Akira ransomware

Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- The Computer Emergency Response Team of India has issued an alert for the ransomware dubbed "Akira."
- The ransomware, found to target both Windows and Linux devices, steals and encrypts data, forcing victims to pay double ransom for decryption and recovery.
- The group behind the ransomware has already targeted multiple victims, mainly those located in the U.S., and has an active Akira ransomware leak site with information, including their most recent data leaks.



What is the Akira ransomware?

- The Akira ransomware is designed to **encrypt data**, **create a ransomware note** and **delete Windows Shadow Volume copies** on affected devices. These files are **instrumental** in **ensuring** that **organisations can back up data** used in their applications for **day-to-day functioning**.
- Akira ransomware gets its name **due to its ability to modify filenames** of **all encrypted files** by appending them with the **".akira"** extension.
- Akira is designed to **close processes** or **shut down Windows services** that may keep it **from encrypting files on the affected system**. It uses **VPN services**, especially when users have **not enabled two-factor authentication**, to trick users **into downloading malicious files**.
- Once this ransomware **infects a device** and **steals/encrypts sensitive data**, the group behind the attack **extorts the victims** into **paying a ransom**, threatening to release the data on their dark web blog if their demands are not met.

How does ransomware infect devices?

- Ransomware is typically spread through **spear phishing emails** that contain **malicious attachments** in the form of **archived content (zip/rar) files**.
- Other methods used to infect devices include **drive-by-download**, a **cyber-attack** that **unintentionally downloads malicious code** onto a device, and **specially crafted web links in emails**, clicking on which **downloads malicious code**.
- The ransomware reportedly also spreads through **insecure Remote Desktop connections**.
- In use since March 2023, Akira has steadily built up a list of victims, targetting **corporate networks** in various domains **including education, finance, real estate, manufacturing, and consulting**.
- Once it breaches a corporate network, the ransomware spreads **laterally to other devices** after **gaining Windows domain admin credentials**.
- The threat actors also steal **sensitive corporate data** for **leverage** in their **extortion attempts**.

Protective measures

- CERT-In has advised users to **follow basic internet hygiene** and **protection protocols** to ensure **their security** against ransomware. These include **maintaining up to date offline backups of critical data**, to **prevent data loss** in the event of an attack.
- Additionally, users are advised to ensure **all operating systems and networks** are **updated regularly**, with **virtual patching** for **legacy systems and networks**.
- There should also be **a strict external device usage policy** in place and **data-at-rest** and **data-in-transit encryption** along with **blocking attachment file types** like **.exe, .pif, or .url** to **avoid downloading malicious code**.
- The agency has also advised **periodic security audits** of **critical networks/systems**, especially **database servers**.

NASA plans to use a nuclear-powered rocket to cut travel time to Mars by half



Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- In less than three years, NASA could be testing a nuclear rocket in space.
- NASA and the Defense Advanced Research Projects Agency, or DARPA, recently announced that Lockheed Martin had been selected to design, build and test a propulsion system that could one day speed astronauts on a trip to Mars.
- The \$499 million program is named DRACO, short for the Demonstration Rocket for Agile Cislunar Operations.



Details



- Every 26 months or so, Mars and Earth are close enough for a shorter journey between the worlds. But even then it is a pretty long trip, lasting seven to nine months. For most of the time, the spacecraft is just coasting through space.
- But if the spacecraft could continue accelerating through the first half of the journey and then start slowing down again, the travel time could be slashed.
- Current rocket engines, which typically rely on the combustion of a fuel like hydrogen or methane with oxygen, are not efficient enough to accomplish that; there is not enough room in the spacecraft to carry that much propellant.
- But nuclear reactions, generating energy from the splitting of uranium atoms, are much more efficient.
- The DRACO engine would consist of a nuclear reactor that would heat hydrogen from a chilly minus 420 degrees Fahrenheit to a toasty 4,400 degrees, with the hot gas shooting from a nozzle to generate thrust.
- Greater fuel efficiency could speed up journeys to Mars, reducing the amount of time astronauts spend exposed to the treacherous environment of deep space.
- Nuclear propulsion could also have uses closer to home, which is why DARPA is investing in the project. The technology may allow rapid manoeuvres of military satellites in orbit around Earth.

Past technology comes in handy!



- Nuclear propulsion for space is not a new idea. In the 1950s and 1960s, Project Orion — financed by NASA, the Air Force and the Advanced Research Projects Agency — contemplated using the explosions of atomic bombs to accelerate spacecraft.
- At the same time, NASA and other agencies also undertook Project Rover and Project NERVA, efforts that aimed to develop nuclear-thermal engines similar in concept to those now being pursued by the DRACO program. A series of 23 reactors were built and tested, but none were ever launched into space.
- Notably, the technical capabilities, including early safety protocols, remain viable today.
- A key difference between NERVA and DRACO is that NERVA used weapons-grade uranium for its reactors, while DRACO will use a less-enriched form of uranium.
- The reactor would not be turned on until it reached space, part of the precautions to minimize the possibility of a radioactive accident on Earth.

India takes first step to remove animals from drug-testing



Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- An amendment to the New Drugs and Clinical Trial Rules (2023), recently passed by the Govt of India, aims at stopping the use of animals in research, especially in drug testing.
- The amendment authorises researchers to instead use non-animal and human-relevant methods, including technologies like 3D organoids, organs-on-chip, and advanced computational methods, to test the safety and efficacy of new drugs.



Current drug-development pipeline

- Every drug in the market goes through **a long journey of tests**, each designed to check **whether it can treat the disease** for which it was created and **whether it has any unintended harmful effects**. For a long time, the first step of this process has been to **test the candidate molecule** in **at least two animal species**: a rodent (mouse or rat) and a non-rodent, such as canines and primates.
- However, **humans are more complex creatures**, and **biological processes and their responses often vary from person to person** as well, based on factors such as **age, sex, pre-existing diseases, genetics, diet, etc.** – and **a lab-bred animal species reared in controlled conditions may not fully capture** the human response to a drug.
- This **'mismatch'** between **the two species** is reflected in the **famously high failure-rate** of the drug development process. Despite **increasing investment** in the pharma sector, **most drugs that cleared the animal-testing stage fail at the stage of human clinical trials**, which come towards the end of the pipeline.

Alternative testing modes

- An increasing number of researchers are now focussing on systems that do **a better job of capturing the intricacies of human biology** and **predicting humans' responses**.
- In the last few decades, several technologies have been developed using **human cells** or **stem cells**. These include **millimetre-sized three-dimensional cellular structures** that **mimic specific organs of the body**, called **"organoids"** or **"mini-organs"**.
- Another popular technology is the **"organ-on-a-chip"**: they are **AA-battery-sized chips lined with human cells** connected to **microchannels**, to **mimic blood flow inside the body**. These systems capture **several aspects of human physiology**, including **tissue-tissue interactions** and **physical and chemical signals** inside the **body**.
- Researchers have also been using **additive manufacturing techniques**. In 2003, they developed the first inkjet bioprinter by **modifying a standard inkjet printer**. Innovations now **allow a 3D bioprinter to 'print' biological tissues** using **human cells and fluids** as **'bio-ink'**.

Cont'd

- Such technologies, researchers say, are **bringing us closer to recreating a human tissue or organ system** in the laboratory.
- These systems promise to **reshape drug-design and development**. Since they can be built using **patient-specific cells**, they can also be used to **personalise drug-tests**.

Status of regulations worldwide

- How global regulatory frameworks are designed will play **an important role** in determining **whether researchers will adopt non-animal methods to test the effect and potential side-effects of new drug candidates**.
- In 2021, the **European Union passed a resolution** on an action plan to facilitate transition towards technologies that **don't use animals in research, regulatory testing, and education**. The U.S. passed the **FDA Modernization Act 2.0** in 2022, allowing researchers to use these systems to **test the safety and efficacy of new drugs**. **South Korea and Canada** have also taken similar steps.
- In **March 2023**, the **Indian govt embraced these systems** in the drug-development pipeline by **amending the New Drugs and Clinical Trials Rules 2019**.

Claims about new revolutionary superconductor material fail independent analysis



Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- Unlike most other developments in the field of condensed-matter physics, every new claim of room-temperature superconductivity makes headlines worldwide and kicks up tremendous hype.
- Late last month, researchers in South Korea announced — via two preprint papers that they had found a material they called LK-99 to be a superconductor at room temperature and ambient pressure.



What are superconductors?

- Conventional superconductors are distinguished by four features, one of which has implications for industrial research, and diagnostic applications that are impossible to overstate: they can transport an electric current with zero loss.
- Scientists have been looking for a material that can superconduct without having to be cooled to very low temperatures and which does not require the application of extreme pressure.
- According to the new claim, LK-99 fits the bill. It is copper-substituted lead apatite.
- While there have been several previous claims of scientists having discovered room-temperature superconductors, LK-99 has triggered more excitement, presumably because the group's preprint papers are free to access, include some data pointing in the right direction, and contain instructions to synthesise it and test its properties.

Hollow claims!



- All the claims of scientists having found a room-temperature (and ambient pressure) superconductor so far have failed to withstand independent scrutiny.
- A room-temperature and pressure superconductor is an immensely valuable thing, attached to significant material as well as scientific prestige. This could prompt scientists to rush to publish their results before proper data verification. Thus, independent verification by qualified scientists becomes crucial — for which the South Korean group must share all the data.
- Checking if a material is a superconductor is difficult, requiring sophisticated equipment as well as information about how precisely to create the material in question.
- For another claim this year, of a material that reportedly superconducts near room temperature and under much less pressure than others of its kind, its originators shared instructions to synthesise it but refused to share samples, claiming they constituted intellectual property.
- While this may be, their refusal vitiated the proper process of science in the face of such an extraordinary claim.
- Thus, non-experts should wait for independent verification, even if it is slow to come, from a qualified research group before making up their mind about it.

Small modular reactors' big potential to help India achieve net zero target



Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- Since the world still depends on fossil fuels for 82% of its energy supply, decarbonising the power sector is critical; the share of electricity in final energy consumption will also increase by 80%-150% by 2050.
- The recent uptick in coal consumption in Europe, despite the increase in solar and wind power, suggests that reliable, 24/7 low-carbon electricity resources are critical to ensure the deep decarbonisation of power generation, along with grid stability and energy security.
- Small modular reactors — a type of nuclear reactor — can be helpful to India in this regard.

The challenges of decarbonisation

- The transition from coal-fired power generation to clean energy poses major challenges, and there is a widespread consensus among policymakers in several countries that solar and wind energy alone will not be sufficient to provide affordable energy for everyone.
- In decarbonised electricity systems with a significant share of renewable energy, the addition of at least one firm power-generating technology can improve grid reliability and reduce costs.
- According to the International Energy Agency, the demand for critical minerals like lithium, nickel, cobalt, and rare earth elements, required for clean-energy production technologies, is likely to increase by up to 3.5 times by 2030.
- This jump poses several global challenges, including the large capital investments to develop new mines and processing facilities.

Issues with nuclear power

- Nuclear power plants (NPPs) generate 10% of the world's electricity and help it avoid 180 billion cubic metres of natural gas demand and 1.5 billion tonnes of CO₂ emissions every year. Any less nuclear power could make the world's journey towards net-zero more challenging and more expensive.
- NPPs are efficient users of land and their grid integration costs are lower than those associated with variable renewable energy (VRE) sources because NPPs generate power 24x7 in all kinds of weather.
- However, conventional NPPs have generally suffered from time and cost overruns. As an alternative, several countries are developing small modular reactors (SMRs) — nuclear reactors with a maximum capacity of 300 MW — to complement conventional NPPs.
- SMRs can be installed in decommissioned thermal power plant sites by repurposing existing infrastructure, thus sparing the host country from having to acquire more land and/or displace people beyond the existing site boundary.

Advantages of SMRs

- SMRs are designed with a smaller core damage frequency (the likelihood that an accident will damage the nuclear fuel) and source term (a measure of radioactive contamination) compared to conventional NPPs.
- They also include enhanced seismic isolation for more safety. SMR designs are also simpler than those of conventional NPPs and include several passive safety features, resulting in a lower potential for the uncontrolled release of radioactive materials into the environment.
- The amount of spent nuclear fuel stored in an SMR project will also be lower than that in a conventional NPP.
- Studies have found that SMRs can be safely installed and operated at several brownfield sites that may not meet the more stringent zoning requirements for conventional NPPs.

(more ahead)

Cont'd

- Implementing a coal-to-nuclear transition at existing thermal power-plant sites, will take India closer to net-zero and improve energy security because uranium resources are not as concentrated as reserves of critical minerals.
- Most land-based SMR designs require low-enriched uranium, which can be supplied by all countries that possess uranium mines and facilities for such enrichment if the recipient facility is operating according to international standards.
- Since SMRs are mostly manufactured in a factory and assembled on site, the potential for time and cost overruns is also lower. Designed to operate for more than 40 years, their levelised cost of electricity is \$60-90 per MWh. This figure is expected to drop rapidly after 2035, by when the SMRs ordered by a number of east-European countries are expected to come online.
- The costs will decline steepest for India when reputed companies manufacture SMRs. This at least was the reason SMRs were included in the U.S.-India joint statement after PM Narendra Modi recently met U.S. President Joe Biden.

Integration with the national grid



- India's Central Electricity Authority (CEA) projects that the generation capacity of coal-based thermal power plants (TPPs) in India must be increased to 259,000 MW by 2032 from the current 212,000 MW, while enhancing the generation capacity of Variable renewable energy (VRE sources) to 486,000 MW from 130,000 MW.
- The CEA also projects that TPPs will provide more than half of the electricity generated in India by 2031-2032 while VRE sources and NPPs will contribute 35% and 4.4%, respectively. Since India has committed to become net-zero by 2070, the country's nuclear power output needs a quantum jump.
- Since the large investments required for NPP expansion can't come from the govt alone, attracting investments from the private sector (in PPP mode) is important to decarbonise India's energy sector.

NUSCALE POWER MODULE™

NATURAL CIRCULATION OF REACTOR COOLANT FLOW



CONDUCTION

Heat is transferred from the primary coolant through the walls of the tubes in the steam generator, heating the water (secondary coolant) inside them to turn it to steam.



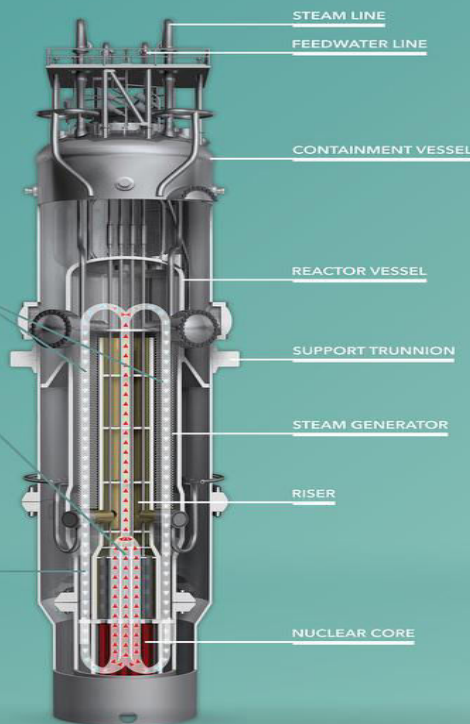
CONVECTION

Energy from nuclear reaction heats the primary reactor coolant causing it to rise by convection and natural buoyancy through the riser, much like a chimney effect.



GRAVITY

Colder (denser) primary coolant "falls" to bottom of reactor pressure vessel, cycle continues.



ISRO gears up to send Aditya-L1 space probe to study the Sun



Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- The Indian Space Research Organisation (ISRO) recently released images of the Aditya-L1 mission — the space agency's first attempt to study the Sun.
- Although the launch date of the mission has not been announced, the satellite has reached the Satish Dhawan Space Center (SDSC) in Sriharikota, Andhra Pradesh, for its integration with the launch vehicle, PSLV.



Details

- The Aditya-L1 will observe the Sun from a close distance, and try to obtain information about its atmosphere and magnetic field.
- It's equipped with seven payloads (instruments) on board to study the Sun's corona, solar emissions, solar winds and flares, and Coronal Mass Ejections (CMEs), and will carry out round-the-clock imaging of the Sun.

Importance of studying the Sun

- Every planet, including Earth and the exoplanets beyond the Solar System, evolves — and this evolution is governed by its parent star.
- The solar weather and environment affect the weather of the entire system. Variations in this weather can change the orbits of satellites or shorten their lives, interfere with or damage onboard electronics, and cause power blackouts and other disturbances on Earth.
- Knowledge of solar events is key to understanding space weather.
- To learn about and track Earth-directed storms, and to predict their impact, continuous solar observations are needed. Every storm that emerges from the Sun and heads towards Earth passes through L1, and a satellite placed in the halo orbit around L1 of the Sun-Earth system has the major advantage of continuously viewing the Sun without any occultation/eclipses.
- L1 refers to Lagrangian/Lagrange Point 1, one of five points in the orbital plane of the Earth-Sun system. Lagrange Points, named after Italian-French mathematician Joseph-Louis Lagrange, are positions in space where the gravitational forces of a two-body system (like the Sun and the Earth) balance each other.

(more ahead)



Cont'd

- These can be used by spacecraft to **reduce fuel consumption** needed to **remain in position**. The L1 point is **home to the Solar and Heliospheric Observatory Satellite (SOHO)**, an international collaboration project of **NASA** and the **European Space Agency (ESA)**.
- The L1 point is **about 1.5 million km from Earth**, or **about one-hundredth of the way to the Sun**. **Aditya L1** will perform **continuous observations** looking directly at the Sun. **NASA's Parker Solar Probe**, launched in 2018, has already gone far closer — but it will be looking away from the Sun.
- The earlier **Helios 2** solar probe, a joint venture between **NASA** and the space agency of erstwhile West Germany, went within 43 million km of the Sun's surface in 1976.

The heat factor



- The **Parker Solar Probe** during its flyby of the Sun has faced **blisteringly hot temperatures of more than one thousand degree Celsius** and **remained fully operational**.
- The **Aditya-L1**, however, **will not face such heat** as it is slated to **stay much further away from the Sun** in comparison with **NASA's** mission. But there are other challenges.
- **Many of the instruments and their components** for this mission are being manufactured **for the first time in India**, presenting **as much of a challenge as an opportunity** for the country's scientific, engineering, and space communities.

Russia's Luna 25 could land on the moon days before Chandrayaan-3

Relevance: Prelims & Mains Paper III; Science & Technology



Why in news?

- **Russia's mission to the moon, Luna 25**, is generating interest in **India too**. This is because the Russian lander is likely to touch down close to the **lunar South Pole** a couple of days before India, taking away the title of the first country to **soft-land** close to the **South Pole**.
- The Russian mission was launched on **August 10**. It is likely to **attempt the soft landing** by **August 21 or 22**. **India's mission to the moon** cannot land before **August 23**, when it will be **lunar dawn** at the landing site.

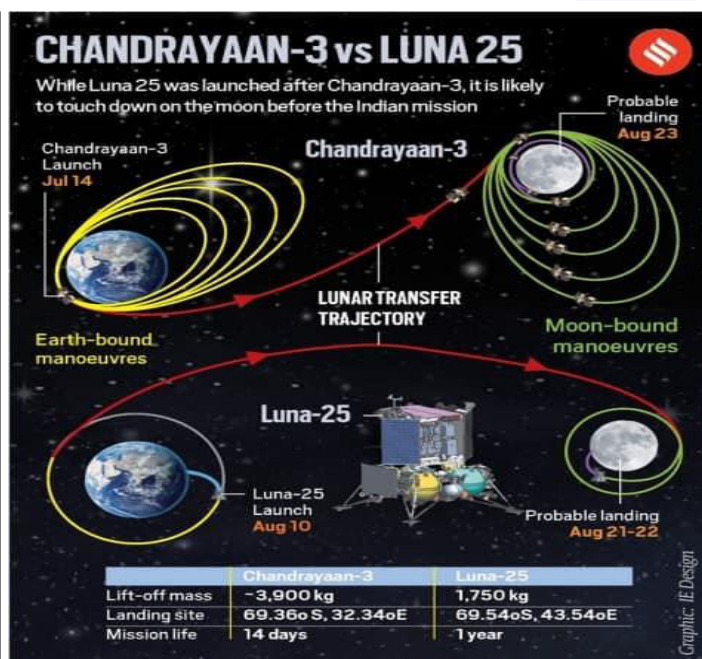


Reasons why Russia will reach the moon earlier than India

- Although Luna-25 was launched aboard its Soyuz rocket — almost a month after the launch of Chandrayaan-3 on July 14 — it will cover the 3.84-lakh-km journey within days.
- This is because the Russian mission was able to follow a more direct trajectory towards the moon, owing to its lighter payload and more fuel storage. The lift-off mass for Luna 25 is just 1,750 kg as compared with the 3,900 kg of Chandrayaan-3. Chandrayaan's Lander-Rover alone weighs 1,752 kg, with the propulsion module weighing another 2,148 kg.
- To make up for the lower fuel reserve available on the LVM3 vehicle that launched India's mission, a more circuitous route was taken. After being launched around the Earth, the orbit of the spacecraft was increased in a series of manoeuvres to help it gain velocity.
- The spacecraft was then slingshot towards the moon, reaching the lunar orbit nearly 22 days after it was launched. Over the next few days, Chandrayaan-3 will reduce its orbit and velocity around the moon in preparation for the soft landing.
- Another reason Luna-25 can land a couple of days before India is because lunar dawn at its landing site will happen earlier. One lunar day is equal to 14 Earth days. With the payloads being powered by solar panels, landing at the beginning of a lunar day ensures that the experiments get the full 14 earth days.

Difference between the two missions

- Apart from being lighter than the Indian mission, Luna-25 does not carry a rover. Chandrayaan-3 has a rover capable of moving around 500 m. The Russian lander has eight payloads mainly to study the soil composition, dust particles in the polar exosphere, and most importantly, detect surface water.
- The Indian mission also has scientific instruments to study the lunar soil as well as water-ice. The location near the southern pole was chosen because of the presence of craters that remain in permanent shadow, increasing the likelihood of finding water-ice.
- The main difference, however, is that the India mission is built to last only one lunar day or 14 earth days. This is because it does not have a heating mechanism to keep the electronics safe from extreme cold temperatures during the lunar night.
- The Russian mission, on the other hand, will work for a year, meaning it has heating mechanism as well as a power source other than just solar panels.



India revives the race to land humans on the moon

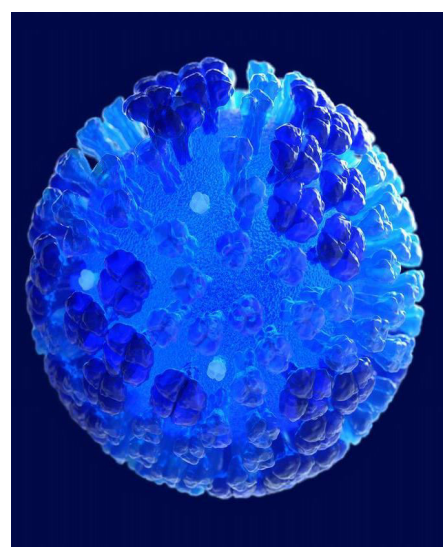
- It was the discovery of water molecules by India's Chandrayaan-1 mission in 2008 that has propelled another race to the moon. The U.S and China now have plans to take humans to moon again; a first after the cold war era. To date, only 12 men aboard US' Apollo Missions have set foot on the lunar surface.
- Although India with its limited resources has been able to catch up with countries with more advanced and older space agencies, there is still a long way to go before humans can be sent to the moon.
- As per experts, India is at par with countries such as Japan and Israel that are also attempting moon missions now.
- At least four more lunar missions are in the offing this year from U.S., China, and Japan.

Metagenome sequencing technology transforms pathogen surveillance

Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- COVID-19 was one global life-altering event of our generation. One of the initial breakthroughs in the definitive identification of SARS-CoV-2 as the causative agent of COVID-19 came from the application of unbiased genome sequencing technologies to infected patient samples.
- Scientists did not go the more time-consuming microbiology route with these samples; instead, and in a break from tradition, they were directly subjected to genome-sequencing and bioinformatic analysis, which helped the scientists quickly identify the virus.
- This new approach – called metagenomics – was not only rapid but could also be deployed directly on patient samples, without any a priori knowledge of the infectious agent.
- Indeed the scale of sequencing during the pandemic rendered SARS-CoV-2 one of the most sequenced organisms in global history.
- The technique and its adoption also drastically changed the way pathogen identification would be undertaken thereafter.



Genomic tech to the frontline

- Scientists in countries worldwide have since developed scores of technologies based on genome-sequencing – including the very popular CovidSeq assay – spawning several national and international SARS-CoV-2 genome surveillance activities.
- GISAID, a popular repository on the Internet to which SARS-CoV-2 genome-sequence data could be submitted, is a testimony to such high-throughput genome surveillance activities.
- The importance and impact of the way SARS-CoV-2 was being surveilled also became evident when national and international organisations started implementing public health policies based on the genomic data.
- India also initiated a national SARS-CoV-2 genome-sequencing and surveillance programme supplemented by several State govt and private initiatives.
- The success has provided a template for applying sophisticated genomic technologies as frontline tools to surveil known and unknown organisms and to tracking emerging pathogens in an unbiased and high-throughput manner.

The Nigerian study

- Recently, scientists from the Nigerian Centre for Disease Control applied metagenomic sequencing for pathogen surveillance and detection in three cohorts of patients. They investigated 593 febrile Nigerian individuals with unbiased sequencing.
- The scientists were able to identify 13 distinct viruses afflicting the individuals. The metagenome-sequencing approach also allowed the scientists to rule out viral infections in some individuals and link their symptoms to pesticide poisoning instead.
- The study demonstrated the power of metagenomic sequencing investigations for pathogen detection and disease diagnosis, and to inform public health outbreak responses.

Tracking avian influenza

- In 2022, the world witnessed a global mpox virus outbreak. It was attributed to a super-spreader event and threatened the planet with another epidemic, but which fortunately 'fizzled' out.
- One reason is that scientists were able to apply genome-sequencing technologies perfected during the COVID-19 pandemic to understand the origin and spread of the mpox virus.
- Avian influenza viruses are another prime candidate for genome surveillance as they trigger seasonal outbreaks of avian influenza, or bird flu. In the past decade, avian influenza viruses have also spread rapidly to humans.
- While rapid detection kits and vaccines for these viruses are widely available, they need to be complemented by a well-organised genomic surveillance programme so that scientists can identify which virus strains are circulating, as well as monitor the impact of vaccination.

Key to early response

- Such initiatives have also been mooted for other seasonal pathogenic viruses, including Zika and dengue.
- More recently, experts have used genome sequencing technologies as frontline tools to motivate the detection and surveillance of lumpy skin disease in cattle and the emergence of drug-resistant tuberculosis, among the use-cases.
- Several initiatives worldwide are now taking advantage of the speed, accuracy, and high-throughput nature of advanced genome sequencing technologies to detect pathogens from diverse environmental sources, such as wastewater, air, soil, and animals.

India's first 3D-printed post office inaugurated in Bengaluru



Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- India's first 3D-printed post office was recently inaugurated. Located in Bengaluru's Cambridge Layout, its construction was completed in just 43 days — two days ahead of the deadline.
- Multinational company Larsen & Toubro Ltd built this post office with technological support from IIT Madras.
- Invented in the 1980s, 3D printing burst into the mainstream around the 2010s, when many thought it would take over the world. The technology, however, at the time was expensive, slow and prone to making errors.
- In recent years, some of these flaws have been done away with, making 3D printing more prevalent than ever before.



What is 3D printing?

- 3D printing, also known as additive manufacturing, is a process that uses computer-created design to make three-dimensional objects layer by layer.
- It is an additive process, in which layers of a material like plastic, composites or bio-materials are built up to construct objects that range in shape, size, rigidity and colour.

Working process



- To carry out 3D printing, one needs a personal computer connected to a 3D printer. All they need to do is design a 3D model of the required object on computer-aid design (CAD) software and press 'print'. The 3D printer does the rest of the job.
- 3D printers construct the desired object by using a layering method, which is the complete opposite of the subtractive manufacturing processes.
- 3D printers, on the other hand, build from the bottom up by piling on layer after layer until the object looks exactly like it was envisioned. This printer essentially adds hundreds or thousands of 2D prints on top of one another to make a three-dimensional object.
- Notably, these machines are capable of printing anything from ordinary objects like a ball or a spoon to complex moving parts like hinges and wheels.

Notable examples of 3D printing

- As mentioned before, 3D printing is being used in a host of different industries like healthcare, automobile and aerospace.
- In May this year, aerospace manufacturing company Relativity Space launched a test rocket made entirely from 3D-printed parts, measuring 100 feet tall and 7.5 feet wide. Shortly after its take off, however, it suffered a failure.
- At the peak of the Covid-19 pandemic in 2020, the healthcare industry used 3D printers to make much-needed medical equipment, like swabs, face shields, and masks, as well as the parts to fix their ventilators.

Russia's maiden attempt at moon landing ends up in failure with the crash of Luna-25

Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- Luna-25, modern Russia's first attempt to land a spacecraft on the Moon, has ended in failure with the spacecraft crashing onto the lunar surface. The failure once again highlights the risks involved in getting a spacecraft to soft-land on the Moon.
- Even though a successful landing has been achieved more than 20 times, including six times with human beings on board, the technology clearly has not been mastered yet.



"15 minutes of terror"

- Ahead of the Chandrayaan-2 mission in 2019, the then chairman of Indian Space Research Organisation (ISRO), K Sivan, had referred to the final phase of landing as "15 minutes of terror". That remark captures the essence of the complexity involved in making a descent from the lunar orbit to the Moon's surface. Quite clearly, this is the most difficult part of the Moon mission.
- In the past four years, govt and private space agencies from four countries — India, Israel, Japan and now Russia — have tried to land their spacecraft on the Moon, and failed. Each of these missions encountered problems in the very last stage — during the landing process — and crashed on the Moon's surface.
- The exact problem with Luna-25 is not yet known, though it is speculated that the change in momentum that the spacecraft had experienced while moving into the pre-landing orbit was different from what it should have been.
- China has been the sole exception in this, having landed on its very first attempt in 2013 with Chang'e-3. It has repeated the feat with Chang'e-4 in 2019 and Chang'e-5, a sample return mission, in 2020.
- Among the countries that have tried and failed, India is the only one which is already in the process of making a second attempt. Having learnt from its previous failure, it has incorporated several safety features in Chandrayaan-3, and added layers of redundancy so that if one particular feature develops problems, something else will work.

The earlier landings

- It can seem strange that a technology capability that has been demonstrated on so many previous occasions half a century earlier continues to haunt some of the most advanced space agencies today. However, this technology was far from having been mastered even then. That is evident from the very high failure rate during that time.
- Out of the 42 attempts to land between 1963 and 1976, only 21 succeeded, giving a success ratio of just 50%.
- Also, the technologies being used for the current round of Moon missions are very different and are being tested only now. That is the reason why even the U.S, which landed as many as six crewed missions on the Moon, has started almost from scratch — by sending Orbiters — in the current round of Moon missions. Its crewed mission would go only on the Artemis-3 mission.

The future of Luna missions

- Luna-25 was just the resumption of Russian interest in the Moon. Luna-24, launched in 1976, was the last spacecraft to land on the Moon's surface, before lunar missions came to an abrupt halt and remained suspended for almost two decades.
- Notably, Russia has already planned at least three more lunar missions in the Luna series in this decade.

Aussie regulator warns of potential health risks caused by turmeric supplements

Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- Australia's Therapeutic Goods Administration (TGA), the country's regulator of medicines, medical devices and biologicals, recently issued a medical advisory warning Australians of the risk of liver injury from using medicines and herbal supplements containing turmeric or its active ingredient, curcumin.

What brought this?

- The TGA said that until June 29, 2023, it had received 18 reports of liver problems experienced by consumers taking products containing curcuma longa (turmeric) and/or curcumin.
- These followed an investigation the agency undertook to review the safety of the products, after instances of their consumption and liver injury were reported in Australia and internationally.
- The evidence from nine of these reports had enough information to suggest that a liver injury may have been caused by curcuma longa or a curcumin product. Two of these cases were severe, including one that resulted in death. Five of these cases involved products that contained other ingredients that may have contributed to the liver injury.
- The TGA's verdict, following the investigation, is that there is a "rare risk" of liver injury from taking curcuma longa and/or curcumin in medicinal dosage forms.
- People with existing or previous liver problems were more likely to develop this rare adverse event. There are over 600 listed medicines, legally available in Australia, that contain these curcuma species and/or curcumin.

Turmeric's health benefits

- The TGA warning says that the risk of liver injury did not appear to relate to curcuma longa consumed in "typical" dietary amounts as a food.
- As a staple ingredient in South and South East Asian cuisine, turmeric is also used in Ayurvedic and Chinese-medicine concoctions.
- Several studies, over the last five decades, have investigated the properties of curcumin and report it to have anti-oxidant properties that can help with inflammation. These include arthritis and infections.
- Research teams at the Indian Institute of Science, Bengaluru have reported that curcumin used along with the drug Artemisinin was effective in treating malaria when tested on mice.
- There have also been studies investigating the drug as an adjuvant in chemotherapy based on results in mice and animal studies. However, their effect in human trials have been inconclusive.

Curcumin's use in supplements

- One of the challenges of turmeric and by extension curcumin is that very little of it is absorbed, or made 'bioavailable', by the body.
- Much scientific effort has been expended over the decades to improve its bioavailability. A popular approach is to use piperine, the major active component of black pepper, which improves bioavailability by 2000%.
- However, whether increasing the bioavailability of curcumin and packaging them in supplements makes them effective and safe for use in medicines is still being debated with no conclusive evidence emerging from trials.

Warnings in other countries too!

- The Australian TGA cites reports of 20 hepatitis cases in France and an investigation into 100 reports of adverse effects, including 15 reports of hepatitis, potentially related to the consumption of food supplements containing turmeric or curcumin.
- That report underlines that turmeric has “choleretic” properties, which means it stimulates the secretion of bile to improve digestion, and therefore, it is advisable that those with bile duct disease should avoid turmeric.
- Curcumin could also interact with medications such as anticoagulants, cancer drugs and immunosuppressants, reducing their safety and effectiveness.

'Safe limit' of turmeric consumption

- The European Food Safety Authority has set an acceptable daily intake of 180 mg of curcumin per day for a 60 kg adult as the safe level of consumption.
- A World Health Organization/Food and Agricultural Organisation advisory recommends 3 mg/kg of body weight.
- India's Food Safety and Standards Authority of India has standards that packaged turmeric must comply with but nothing on the recommended dietary allowance.

Indian scientists create less pungent, more useful Gene-edited mustard

Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- Oilseeds yield not only oil for cooking and frying. Their so-called meal – the residual cake after extraction of oil from the seeds – is a protein-rich ingredient used in livestock, poultry and aqua feed.
- India's most significant domestically-grown oilseed is rapeseed-mustard. Its share in the country's production of vegetable oils has been estimated at 42.6% (more than soyabean's 19.2%) and in that of meal at 30.3% (next to soyabean's 38.9%), for the marketing year ending Sept. 2023.
- Mustard seeds have high levels of glucosinolates, a group of sulphur and nitrogen-containing compounds contributing to the characteristic pungency of their oil and meal.
- While that limits the oil's acceptability among consumers – especially those preferring cooking medium having less strong flavour and odour – the problem is even more with the meal. Rapeseed meal is unpalatable to poultry and pigs, while having to be mixed with fodder grass and water for giving to cattle and buffaloes. Besides reducing their feed intake, high glucosinolates are also known to cause goiter (swelling of neck) and internal organ abnormalities in livestock.

Breeding for Canola-quality mustard

- In the past two decades, the Indian scientists have made a lot of effort into the breeding of rapeseed-mustard lines of so-called Canola quality.
- The dry seeds from the normal mustard (*Brassica juncea*) cultivated in India contain 120-130 parts per million (ppm or mg/kg) of glucosinolates. This is as against the sub-30 ppm levels in canola seeds. By lowering the glucosinolate content to the same dry seed weight concentration, the scientists have bred mustard lines whose oil and meal match the standard of canola-quality rapeseed in terms of pungency.
- However, large-scale cultivation of these canola-quality low-glucosinolate mustard lines hasn't taken place, a major reason being their vulnerability to pests and diseases.

A Gene Editing breakthrough



- Glucosinolates are synthesised in the leaves and pod walls of mustard plants. Their translocation and accumulation in the seeds happens through the action of glucosinolate transporter or GTR genes. There are 12 such genes.
- Indian researchers have "edited" 10 out of the 12 GTR genes in 'Varuna', a high-yielding Indian mustard variety. The resultant variety had glucosinolate content well below the 30 ppm canola-quality threshold. At the same time, the other plant parts, especially the leaves and pod walls enclosing the seeds, had significantly higher glucosinolate accumulation.
- The edited lines displayed defence response against a pathogen and an insect pest at par with or better than that of the wild-type mustard.

GM versus GE

- The new GTR genes-edited mustard lines are transgene-free or non-genetically modified (GM). They contain no foreign genes. The low-seed high-leaf glucosinolate mustard lines developed by Indian scientists are genome edited or GE, as opposed to GM or transgenic plants.
- GM crops are currently subjected to stringent "environmental release" regulations in India, not just for commercial cultivation but even field trials and seed production. Such release is contingent upon clearance from a special Genetic Engineering Appraisal Committee (GEAC) under the Ministry of Environment, Forest and Climate Change (MoEFCC).
- The GEAC's green signal is itself not binding on the Union Government, which gives the final nod.
- In 2022, MoEFCC exempted GE plants "free of exogenous introduced DNA" from the requirement of GEAC approval for open field trials leading to commercial release. Such clearance is now necessary only at the level of an Institutional Bio-safety Committee (IBSC), comprising scientists from the institutions engaged in the GE crop development and from the DBT.

Importance of this work



- India is a huge importer of edible oils. These imports were valued at \$20.84 billion (Rs 167,270 crore) during the fiscal year ended March 2023, while meeting over 60% of the country's consumption requirement.
- Given the massive foreign exchange outgo on account of imports, there is a dire need to boost domestic oilseeds production through focused breeding for improving crop yields, pest and disease resistance, and product quality.
- Mustard and soyabean are India's most widely-cultivated oilseed crops, planted annually on 9 million and 12.5 million hectares area respectively. Its higher average oil extractable content (38% versus 18% for soyabean) makes mustard the bigger "oilseed" crop, while a source of both fat for humans and protein for animals.
- GM hybrid mustard and the new GE low-seed high-leaf glucosinolate lines are major plant breeding advancements – from Indian scientists – that can contribute majorly towards bringing down the dependence on imported vegetable oils.

Chandrayaan 3's rover Pragayan all set on its mission to explore the Moon's surface



Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- Recently, India's Chandrayaan 3 made a historic landing near the Moon's South Pole.
- After rolling down a ramp from the Chandrayaan-3 lander, the six-wheel, 26-kg rover named Pragayan, which is capable of slowly moving up to 500 m, will begin its job of lunar exploration.
- The landing has happened at lunar dawn, and the six payloads on board the lander and rover will start collecting data soon after to get as much science as possible in the single lunar day or 14 Earth days for which they will remain operable.
- The Chandrayaan-3 payloads will further the science learnings of the two predecessor missions by studying lunar quakes, mineral compositions, and the electrons and ions near the surface of the Moon. The mission will attempt to study water-ice, the presence of which was detected by Chandrayaan-1.



Mission experiments

- The lander has four experiments on board. They include
 - The Radio Anatomy of Moon Bound Hypersensitive ionosphere and Atmosphere (RAMBHA) will study the electrons and ions near the surface of the moon and how they change over time.
 - The Chandra's Surface Thermo physical Experiment (ChaSTE) will study the thermal properties of the lunar surface near the polar region.
 - There are also Instrument for Lunar Seismic Activity (ILSA) and the LASER Retroreflector Array (LRA).
 - Besides the above, there are also two scientific experiments on the rover.

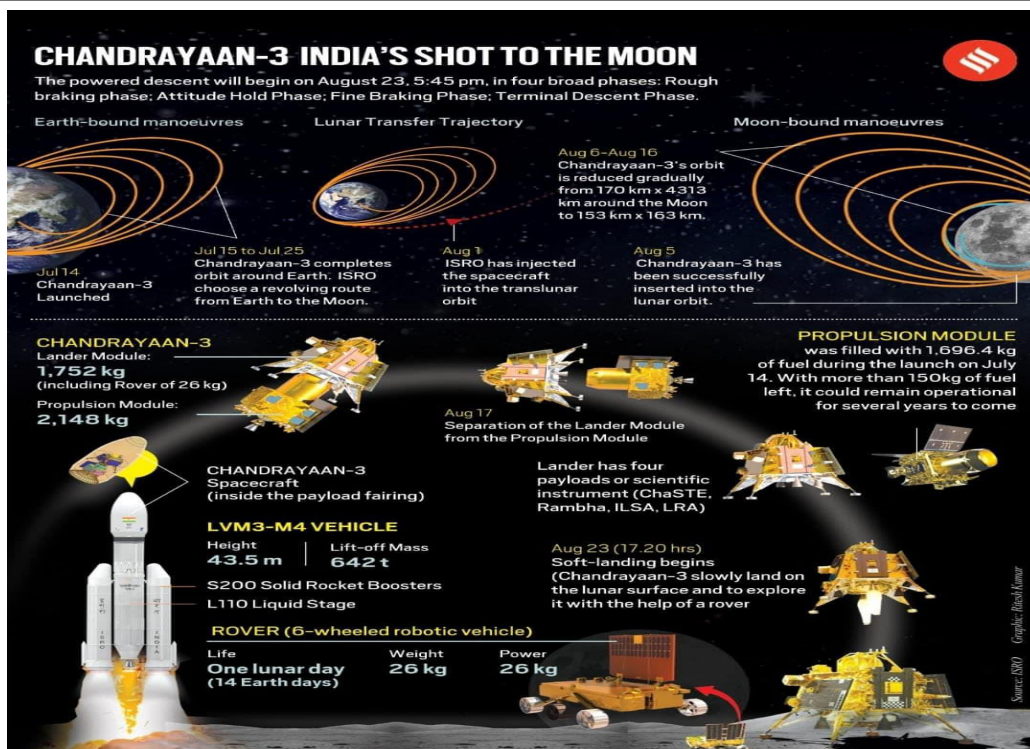
Discovery of water

- The southern polar region of the Moon is known to have deep craters that remain in permanent darkness, with a high likelihood of having water-ice.
- Perhaps the most important discovery made by instruments on board Chandrayaan-1 was the discovery of water and hydroxyl (OH) molecules in the Moon's thin atmosphere (exosphere) as well as on the lunar surface.
- India's Moon Impact Probe (MIP) — a payload that was deliberately crashed on the lunar surface near the south pole — helped study the concentration of water and hydroxyl molecules in the lunar atmosphere.
- Another payload called mini-SAR helped detect the subsurface deposits of water-ice in the permanently shadowed regions within the craters near the south pole.
- A third payload developed by NASA called Moon Mineralogy Mapper or M3 also helped detect these molecules on the surface of the Moon.
- Chandrayaan-2, which was designed to further study the water on the Moon, helped in separately identifying the water and the hydroxyl molecules, and mapping water features across the Moon for the first time.



Other key findings by previous Chandrayaan missions

- **Buried lava tubes**
 - The **terrain mapping camera** and **hyperspectral imager** on board Chandrayaan-1 detected an **underground lava tube**, which, scientists believe, can provide a **safe environment for human habitation in the future**. It can **protect against hazardous radiation, small meteoric impacts, extreme temperatures, and dust storms** on the surface of the Moon.
- **Magma ocean thesis**
 - The Moon is believed to have been formed **after an early piece of the Earth separated** due to an **impact**. The energy generated by the impact is believed to have **led to the melting of the Moon's surface**. This is called the **magma ocean hypothesis**. The M3 payload on board Chandrayaan-1 **picked up a specific type of lighter-density crystals** on the surface of the Moon, **which could be found on the surface only if it were liquid once**.
- **Mapping of minerals**
 - **CLASS X-ray Fluorescence experiment** has mapped **95% of the lunar surface in X-rays** for the first time. X-ray spectrometers flown to the Moon in the past 50 years together have covered **only less than 20% of the surface**. **Both the Chandrayaan missions have mapped even regions** from where **sample return missions haven't happened**. These studies have shown that **oxygen is abundant as oxides within the minerals on the Moon**. This can be **exploited as fuel for future missions**.
- **A dynamic Moon**
 - Findings from the Chandrayaan-1 mission also showed that the **Moon's interior was dynamic** and **interacted with the exosphere, contrary to the belief that it was dormant**.



Govt launches star-rating system to enhance car safety standards



Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- The Ministry of Road Transport and Highways has rolled out an indigenous star-rating system for crash testing cars under which vehicles will be assigned between one to five stars indicating their safety in a collision.
- Called the Bharat New Car Assessment Programme (NCAP), the rating system will be voluntary and will come into effect from October 1, 2023.

What is Bharat NCAP?

- Under the Bharat NCAP, cars voluntarily nominated by automobile manufacturers will be crash tested as per protocols laid down in the soon-to-be-published Automotive Industry Standard 197.
- The programme is applicable to passenger vehicles with not more than eight seats in addition to the driver's seat with gross vehicle weight not exceeding 3,500 kgs. Only the base model of a particular variant will be tested.
- Cars will be assigned a rating between one star to five stars after being evaluated on three parameters — adult occupant protection, child occupant protection and safety assist technologies present in the car.
- The first two parameters will be calculated with the help of three different kinds of tests, which include a frontal offset test where a vehicle is driven at 64 kmph and with 40% overlap into a deformable barrier which represents the oncoming vehicle, which replicates a crash between two cars of the same weight.

(more ahead)

Cont'd

- Other tests are the side impact test at 50 kmph and the pole-side impact test (where a car is crashed into a rigid pole sideways) at 29 kmph.
- Though Bharat NCAP is voluntary, in certain cases cars maybe subjected to a crash test such as for a base model of a popular variant (minimum clocked sale of 30,000 units), or when the Ministry of Road Transport and Highways recommends a model for testing based on market feedback or in the interest of public safety.
- The objective of the programme is to help consumers make an informed decision before purchasing a car, thereby spurring demand for safer cars.
- India sees nearly 1.5 lakh road fatalities in a year, accounting for 10% of deaths due to road crashes globally with only 1% of the world's vehicles.
- According to a World Bank study, road crashes are estimated to cost the Indian economy between 5 to 7% of GDP a year.

Evolution of Bharat NCAP



- The testing protocols adopted by the Bharat NCAP are modelled on the Global NCAP, which is a project of the U.K.-based NGO, Towards Zero Foundation.
- It serves as a platform for co-operation among new car assessment programmes worldwide, including countries such as the U.S. which has the world's oldest crash testing regime since 1978.
- The NGO launched a Safer Cars for India campaign in 2014 when it released the country's first independent crash tests covering the Suzuki-Maruti Alto 800, the Tata Nano, Ford Figo, Hyundai i10 and Volkswagen Polo.
- All but one of the five models failed the test at 56km/h and all scored zero stars at 64 km/h.
- Since then, more than 50 results have been published for the Indian market. In 2018, Tata achieved India's first 5-star cars and now manufacturers are competing to obtain four and five- star results and using ratings in their marketing. Notably, there has been a sharp fall in the number of zero- star models in the Indian market.

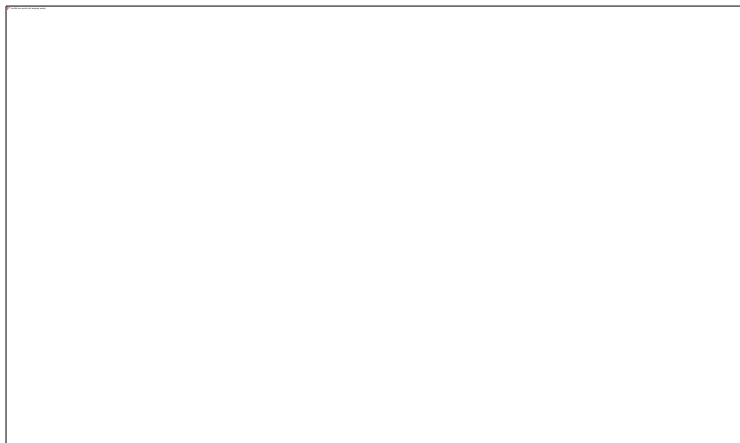
Lessons learnt from Chandrayaan 2's failure helped ISRO achieve spectacular success this time around



Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

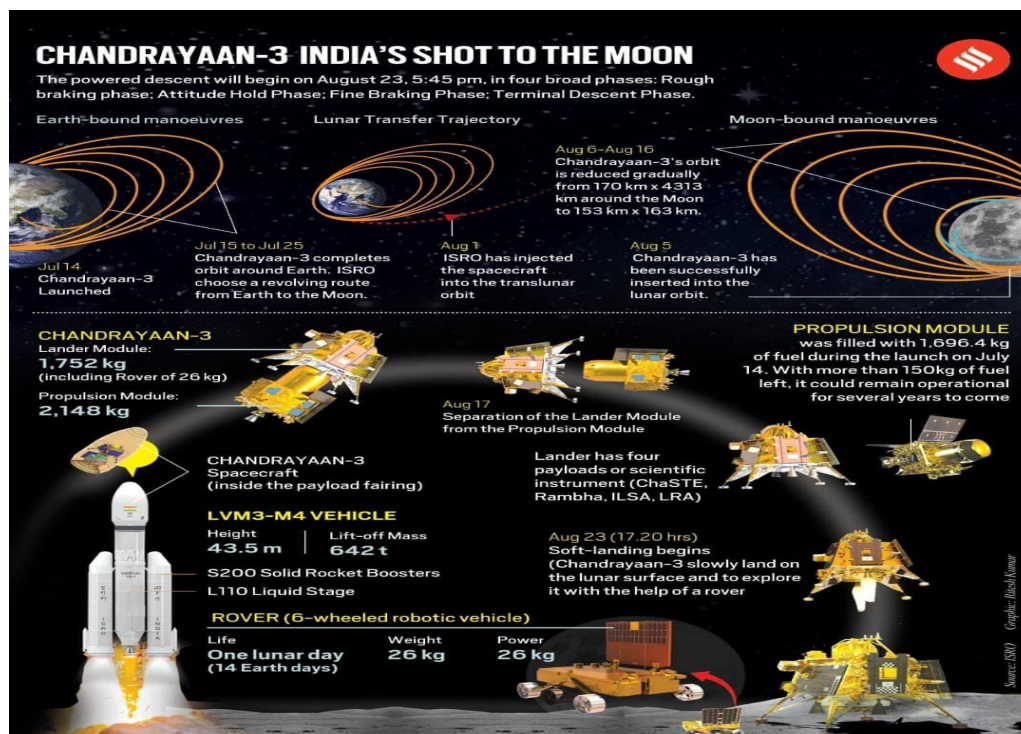
- Much has been made of Chandrayaan's Lander Vikram accomplishing a 'soft landing' on the Moon's South Pole. This has made India the only country to do so. After the landing, Pragyaan the rover, came out of the Lander and started moving around on the Moon's surface.



What is a soft landing?



- According to ISRO, this mission's three objectives are to demonstrate a safe and soft landing on the lunar surface, to demonstrate a Rover roving on the Moon and to conduct in-situ scientific experiments.
- Soft landing simply means landing at a gentle, controlled speed to not sustain damage to a spacecraft. Doing so showcases a spacecraft's technical capabilities. The landing site is near the south pole of the moon at 70 degrees latitude.
- All of the previous spacecraft to have landed on the Moon have landed in the region near the Moon's equator, firstly because it is easier and safer here. The terrain and temperature are more conducive for a long and sustained operation of instruments. Sunlight is also present, offering a regular supply of energy to solar-powered instruments.
- The polar regions of the Moon, however, are different. Many parts lie in a completely dark region without sunlight, and temperatures can go below 230 degrees Celsius. This creates difficulty in the operation of instruments. In addition, there are large craters all over the place.
- As a result, the polar regions of the Moon have remained unexplored. The extremely cold temperatures could mean that anything trapped in the region would remain frozen in time, without undergoing much change. The rocks and soil in the Moon's north and South Poles could therefore provide clues to the early Solar System.
- Notably, Chandrayaan-2 also planned to land in this region in 2019, but it was not able to accomplish a soft landing and lost contact after it hit the surface.



Rectification of past mistakes!

- Subsequent analyses reported that there were both software and hardware problems in 2019's Chandrayaan-2. As a result, the changes to the current mission were "failure-based." Some of the changes that have been made are:
- Chandrayaan-2 lost control over its descent around 7.2 km from the surface of the Moon. Its communications system relayed data of the loss of control up to around 400 m above the surface. The Lander had slowed down to about 580 km/hr when it crashed.
- Notably, a lander does not have wheels; it has stilts, or legs, which are supposed to touch down on the lunar surface, the legs of Chandrayaan-3 were strengthened to ensure that it would be able to land, and stabilise, even at a speed of 3 m/sec, or 10.8 km/hour.
- This time around, the range of the prospective landing site was also increased.
- The Chandrayaan-3 Lander is carrying more fuel than Chandrayaan-2. This was done to ensure that the Lander was able to make a last-minute change in its landing site if needed.
- The Chandrayaan-3 Lander has solar panels on four sides, instead of only two in Chandrayaan-2. This is to ensure that the Lander continues to draw solar power, even if it lands in a wrong direction, or tumbles over. At least one or two of its sides would always be facing the Sun, and remain active.

Payloads on Vikram and Pragyan

- Spacecraft often carry certain instruments and experiments with them (called payloads) that observe and record what is happening in Space. This information is then relayed to Earth for scientists to analyse and study.
- The six payloads on the Vikram lander and rover Pragyan remain the same as the previous mission. There are four scientific payloads on the lander to study lunar quakes, thermal properties of the lunar surface, changes in the plasma near the surface, and a passive experiment to help accurately measure the distance between Earth and the Moon. The fourth payload comes from NASA.
- There are two payloads on the Rover, designed to study the chemical and mineral composition of the lunar surface and to determine the composition of elements such as magnesium, aluminium, and iron in the lunar soil and rocks.

PM Modi announces names of Chandrayaan missions landing sites

Relevance: Prelims & Mains Paper III; S&T

Why in news?

- PM Narendra Modi recently announced that the point where the Chandrayaan-3 lander touched down on the lunar surface would be named Shiv Shakti.
- He added that the spot where Chandrayaan-2 crashed in 2019 has now been named "Tiranga".
- Notably, India has every right to name the landing site. The naming of the landing site is not the first incident. Several Indian names are already there on the Moon such as the Sarabhai crater. Other countries have also named places related to their scientific accomplishment.
- The Moon does not come under the jurisdiction of any one country – it's what makes global exploration and landing missions possible.



Why no one can own the Moon?

- In 1966, the United Nations Office for Outer Space Affairs came out with the Outer Space Treaty. Notably, this was during the Cold War era, when the two superpowers, the USSR and the United States, were locked in a rivalry. This manifested in an arms race, economic competition and the Space race. Here, both were eager to accomplish firsts – the first man on the Moon, the first astronauts in Space, etc.
- Setting some common principles for space exploration, the Treaty said in its Article II: “Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.”
- Simply, this meant countries had to cooperate in their Space exploration activities and could not stake a claim to it. “A nation can plant a flag on the moon, but it doesn’t have any legal meaning or consequence...” However, the Treaty does not talk about naming sites on the Moon.

Naming of the landing sites

- The International Astronomical Union (IAU) also determines some other rules for Space activities. India is among its 92 members. The IAU has been the arbiter of planetary and satellite nomenclature since its inception in 1919.
- Notably, many mission sites first see names being given to them informally. Later, with increasingly higher quality images, most major far-side craters on the Moon received the names of various scientists and engineers. Most of the informal names assigned during Apollo missions sent by the U.S. were later given “official” status by the IAU.

How IAU names the planetary objects?

- IAU’s Working Groups normally handle this process. While its decisions and recommendations are not enforceable by any national or international law, they establish conventions that are meant to help our understanding of astronomical objects and processes.
- As per the norms for naming planetary objects, the name should be “simple, clear, and unambiguous” and should not duplicate existing names.
- No names having political, military or religious significance may be used, except for names of political figures prior to the 19th century.
- Earlier, for the satellites of Jupiter and Saturn, inspiration was drawn from the Greco-Roman mythology. In order to internationalize the names, names of giants and monsters in other mythologies are now also allowed.

Site named by India

- Following the 2008 mission Chandrayaan-1, a spot where the probe crashed was named “Jawahar Sthal” after the first PM, Jawaharlal Nehru. The IAU later accepted it, making it official.

ISRO gears up for missions to the Sun, Venus as well as manned ones



Relevance: Prelims & Mains Paper III; Science & Technology

Why in news?

- The Chandrayaan-3 Lander Module touched down on the Moon on August 23 at 6.04 pm, after 17 minutes of powered descent.
- Soft landings on the lunar surface are notoriously difficult – as the recent Luna-25 mishap showed. With this success, India entered an elite club of nations including the erstwhile Soviet Union, the U.S. and China, to have achieved this feat.
- India also became the first country to land near the unexplored lunar south pole, believed to be a reservoir of frozen water which is believed to be key to future space missions.
- Now, ISRO is already looking ahead to more high-profile space missions.



Vital research on the Moon's surface

- In fact, Chandrayaan-3's mission objectives are yet to be fully met as well. While it has successfully carried out the trickiest part of the mission – the soft landing – for many, what lies ahead is even more exciting.
- Over the next two weeks, or the span of one lunar day, the Pragyan rover will explore the area around the landing site, transmit images and gather crucial scientific data.
- It will conduct chemical and elemental analysis of the lunar soil and rocks. The mission seeks to confirm the presence of ice in the region, something which could “supply oxygen, fuel, and drinking water for future space exploration.”

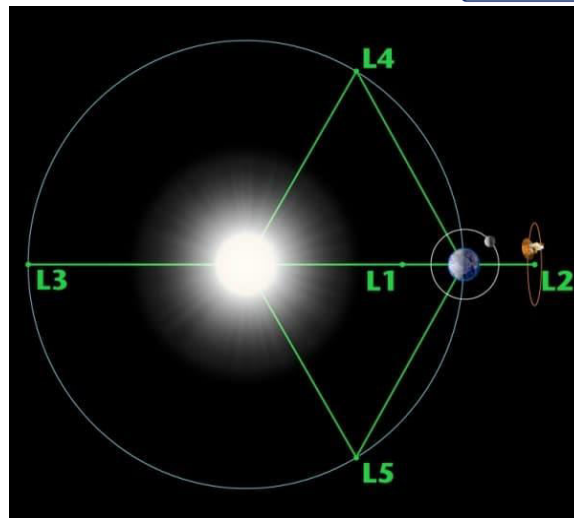
More lunar missions to come

- Crucially, this is also not the last of ISRO's moon missions. As of now, it has one more lunar mission on the cards, in collaboration with the Japanese space agency, JAXA. This mission, called LUPEX, or Lunar Polar Exploration, is slated for 2024-25.
- LUPEX will explore the permanently shaded polar region of the Moon. It will seek to scope the region for the possibility of locating a long-term station in the area – like the International Space Station, but on the Moon. For the mission, the launch vehicle and rover will be contributed by the Japanese agency, while ISRO will provide the lander.
- Also, Chandrayaan-3 is also not likely to be the last of this series of missions. In fact, if Chandrayaan-2 had succeeded in landing, Chandrayaan-3 would have been a sample return mission. Notably, such a mission would be a lot more difficult. China carried out such a mission with Chang'e-5 in 2020.



ISRO aims for the Sun

- More immediately, however, ISRO is focussing on the early September launch of Aditya-L1, India's first mission to study the Sun. The spacecraft will be placed in a halo orbit around the Lagrange point 1 (L1) of the Sun-Earth system, which is about 1.5 million km from the Earth.
- Lagrange points are positions in space where objects sent there tend to stay put. At these points, the gravitational pull of two large masses (in this case, the Earth and the Sun) precisely equals the centripetal force required for a small object to move with them. This means, spacecraft can remain in one position without requiring too much fuel.
- Placing the Aditya-L1 spacecraft in a halo orbit around the L1 point of the Earth-Sun system will mean that it will be able to continuously view the sun, without any disruption.
- Equipped with seven payloads, it will study the Sun's corona, solar emissions, solar winds and flares, and Coronal Mass Ejections (CMEs), and will carry out round-the-clock imaging of the star.



A trip to Venus

- Also on the cards is a trip to Venus, hopefully within the next couple of years. An overall plan has already been prepared for it. This mission will also emphasise on scientific research while also showcasing ISRO's technical prowess.
- Prior to planetary exploration, many believed that Venus would be suitable to human exploration. But early missions to Venus in the 1960s discovered that conditions were extremely inhospitable, making exploration an extremely challenging task.
- The intense heat and crushing pressure on the planet are further aggravated by the constant volcanic activity. Till date, the longest any spacecraft has survived on the planet's surface is a little over two hours – a record set by the Soviet Union's Venera 13 probe in 1981.

The 'ultimate' aim - Manned missions

- Perhaps ISRO's ultimate goal in the near future is to carry out manned space missions, something that would signal a radical advancement in ISRO's capabilities.
- The Gaganyaan project envisages demonstration of human spaceflight capability by launching crew of three members to an orbit of 400 km for a three day mission, and bring them back safely to Earth, by landing in Indian sea waters.
- ISRO is already working on a modified version of the LVM-3 rocket, used for Chandrayaan-3, to take humans to space. The HLV-M3 (Human-rated LVM-3) will be capable of launching an orbital module to an intended Low Earth Orbit of 400 km.
- Notably, Indian astronauts are already set to go to the International Space Station (ISS), sometime next year. ISRO and NASA agreed to send a joint human spaceflight mission to the ISS. This would be the first time in 40 years that Indians would fly to space, though they would ride a NASA spacecraft and not India's own.

SOCIAL ISSUES

Govt. proposes ST status for the Paharis and Paddaris in J&K

Relevance: Prelims & Mains Paper I; Social Issues

Why in news?

- The govt has brought a Bill to include four communities in the list of Scheduled Tribes (STs) in Jammu and Kashmir: "Gadda Brahmin", "Koli", "Paddari Tribe", and "Pahari Ethnic Group".



Present status of ST communities in J&K

- The dominant ST communities in J&K are the Gujjars and Bakerwals. Most of them, especially the Bakerwals, are nomadic — they migrate with their livestock to the higher reaches in the summer, and return before the onset of winter.
- With a population of almost 18 lakh, the Gujar-Bakerwal are the third largest group after Kashmiris and Dogras in J&K. They were given ST status in 1991, along with the two smaller groups of Gaddis and Sippis.
- This entitled these four communities to 10% reservation in govt jobs and admission to educational institutions; in 2019, they were empowered politically after the Centre announced a 10% quota for them in Lok Sabha and Assembly seats in J&K.
- Notably, the proposed expansion of the ST list has triggered unrest among the Gujar-Bakerwal, who fear a shrinking of their share of the quota benefits pie. As per them, Gadda Brahmins are a branch of the Gaddis while Kolis are a sub-caste of Sippis — both these communities are already in the ST list.

Pahari Ethnic Group

- The **Paharis** are **Hindus, Muslims, and Sikhs**, and include **people of Kashmiri origin** who settled in the districts of **Rajouri** and **Poonch** over a period of time. There are **upper caste Hindus** among the **Paharis**; also people who were **displaced from Pakistan Occupied Kashmir**.
- In **1989**, the **J&K govt** led by **Farooq Abdullah** recommended that **Paharis** should be included in the list of **STs** along with the **Gujjars, Bakerwals, Gaddis, and Sippis**. However, the recommendation got **rejected** on the ground that **there was no caste/ tribe of that name in the records**.
- In **2014**, the **Omar Abdullah govt** had brought a **Bill** proposing a **5% quota** for **Paharis**, but it too got **rejected**.
- The **Paharis** finally got a **4% reservation** in **jobs** and **educational institutions** in **2019**.

Paddari Tribe

- They live in the **remote Paddar area** of the **hilly Kishtwar district**. The **2011 census** recorded the **Paddari population** at **21,548**.
- Like in the case of the **Paharis**, the **Gujjar-Bakerwal** opposition to the proposed inclusion of the **Paddari Tribe** in the **ST list** is based on the argument that they **do not constitute a single ethnic group**, but are a **mix of individuals from different castes and religions** who speak a **particular language**.

WHO report praises India's efforts to discourage tobacco use

Relevance: Prelims & Mains Paper I; Social Issues

Why in news?

- **Bengaluru** finds special mention in a **World Health Organisation (WHO)** report on **tobacco control measures** released recently.
- Hundreds of enforcement drives, putting up 'No Smoking' signs, and creating awareness about the effects of smoking and second-hand smoke resulted in a **27% reduction** in smoking in public places in the city, the report said.
- Across the world, there are **300 million fewer smokers** today, with the prevalence of smoking **declining from 22.8% in 2007 to 17% in 2021**.
- **Fifteen years ago**, WHO had developed the **MPOWER** measures – monitor tobacco use and prevention policies; protect people from tobacco smoke; offer help to quit tobacco; warn about dangers of tobacco; enforce bans on tobacco advertising; and raise taxes on tobacco products. The report assesses the implementation of these measures.

Details

- In the **15 years** since the **MPOWER** measures were first introduced, **5.6 billion people** in the **world** – or **71% of the entire population** – remain **protected by at least one of the measures**. This has increased from just **5% of the population** in **2008**.
- The number of countries implementing at least one **MPOWER** measure has increased from **44 countries** in **2008** to **151 in 2022**. At least **four countries** – **Brazil, Turkey, Netherlands, and Mauritius** – have implemented all the measures.
- Notably, as per WHO, "**the tobacco epidemic**" kills **8.7 million people globally**.
- With a focus on **second-hand smoking**, the report says that **almost 40% countries** now have **completely smoke-free indoor public spaces**.

Bad news too!

- There are **at least 44 countries** that still **do not implement any MPOWER measure**. There are **53 countries** that **do not completely ban smoking in healthcare facilities**. And **only half of the countries** have **smoke-free workplaces** and **restaurants**.
- The WHO has also flagged **the dangers of e-cigarettes**. As per it, the progress so far is being undermined by the **tobacco industry's aggressive promotion of E-cigarettes as a safer alternative to cigarettes**. **Young people**, including those who **never previously smoked**, are **a particular target**.
- In fact, **E-cigarettes** are harmful to **both the people using them and those around them**, especially when used **indoors**.

Importance of curbing second-hand smoke

- The report focuses on **controlling second-hand smoking** (being in the presence of someone who is smoking) by **creating smoke-free public areas** and also **de-normalising the act of smoking** in the society.
- Of the **estimated 8.7 million tobacco-related deaths each year**, **1.3 million** are of **non-smokers exposed to second-hand smoke**.
- The report also adds that **severe asthma, respiratory tract infections, and sudden infant death syndrome** are more common among **children exposed to second-hand smoke**. Around **51,000 deaths in children and adolescents under the age of 20 years** is linked to **exposure to second-hand smoke**.

How does India fare?

- As per this report, **India has the highest level of achievement** when it comes to **putting health warning labels on tobacco products** and **providing tobacco dependence treatment**.
- With **85% of cigarette packs carrying health warnings both on the front and back**, India figures **among the top 10 countries** in terms of the **size of health warnings**. The cigarette packets in the country also carry a **toll-free number for a quit-line**.
- India has also **banned the sale of e-cigarettes**, and **banned smoking in healthcare facilities and educational institutions**.

Experts' take

- As per health experts, one of the biggest steps in discouraging tobacco use is **implementing warnings on OTT platform content** when **actors are seen using tobacco products**.
- During the pandemic, there was **a huge increase in the number of people subscribing to OTT platforms**. This content is also readily available to children, which means **the warnings have to reach them too**.
- There is **also a need to ban the loose sale of cigarettes**. Many people, especially college students, buy **one or two cigarettes instead of the whole pack** that might cost **Rs. 350-400**. This means **they are not exposed to the health warning and quit-line at all**.

Cabinet approves 'PM Vishwakarma' scheme to support traditional artisans



Relevance: Prelims & Mains Paper I; Social Issues

Why in news?

- The Cabinet Committee on Economic Affairs chaired by PM Narendra Modi has approved a new Central Sector Scheme "PM Vishwakarma".
- It has a financial outlay of Rs.13,000 crore for a period of five years (FY 2023-24 to FY 2027-28).
- The scheme aims to strengthen and nurture the family-based practice of traditional skills by artisans and craftspeople working with their hands and tools.
- The scheme also aims at improving the quality, as well as the reach of products and services of artisans and craftspeople and to ensure that the Vishwakarmas are integrated with the domestic and global value chains.

Details

- Under this scheme, the artisans and craftspeople will be provided recognition through PM Vishwakarma certificate and ID card, Credit Support upto Rs.1 lakh (First Tranche) and Rs.2 lakh (Second Tranche) with a concessional interest rate of 5%. The Scheme will further provide Skill Upgradation, Toolkit Incentive, Incentive for Digital Transactions and Marketing Support.
- The scheme will provide support to artisans and craftspeople of rural and urban areas across India. Eighteen traditional trades will be covered in the first instance under PM Vishwakarma.
- These trades include (i) Carpenter (Suthar); (ii) Boat Maker; (iii) Armourer; (iv) Blacksmith (Lohar); (v) Hammer and Tool Kit Maker; (vi) Locksmith; (vii) Goldsmith (Sonar); (viii) Potter (Kumhaar); (ix) Sculptor (Moortikar, stone carver), Stone breaker; (x) Cobbler(Charmkar)/ Shoemsmith/Footwear artisan; (xi) Mason (Rajmistri); (xii) Basket/Mat/Broom Maker/Coir Weaver; (xiii) Doll & Toy Maker (Traditional); (xiv) Barber (Naai); (xv) Garland maker (Malakaar); (xvi) Washerman (Dhobi); (xvii) Tailor (Darzi); and (xviii) Fishing Net Maker.

SC releases vocabulary to tackle gender stereotyping



Relevance: Prelims & Mains Paper I; Social Issues

Why in news?

- Discarding "archaic ideas with patriarchal overtones", particularly while describing women and their issues, the Supreme Court of India has released a set of new words and phrases to be used by both lawyers and judges in court.
- In his foreword, Chief Justice of India D.Y. Chandrachud writes that 'The Handbook on Combating Gender Stereotypes' aims to assist the legal community in "identifying, understanding and combating stereotypes about women."
- It contains a glossary of gender-unjust terms and suggests alternative words or phrases which may be used while drafting pleadings as well as orders and judgments.

Key changes

- To avoid the use of harmful gender stereotypes in judicial decision-making and writing, the handbook identifies language that promotes such stereotypes, and offers new words. For example, under the guidelines, it will be incorrect to say "adulteress"; instead, the following words have to be used: "Woman who has engaged in sexual relations outside of marriage."
- It is no longer proper to prefix "chaste" or "obedient" before woman and wife; plain "woman" and "wife" will do.

Guidelines on describing sexual violence

- The handbook says an individual who has been affected by sexual violence may identify as either a “survivor” or “victim”.
- Stressing on consent, the guidelines point out that the clothing or attire of a woman must be independent of questions of sexual relations. “A man who touches a woman without her consent must not be permitted to take the defence that the woman invited his touch by dressing in a particular way.”
- The Court shatters the stereotype that women who are sexually assaulted or raped file a complaint about the injustice immediately and if they complain after a time, they are lying. It adds, “women may therefore register a complaint after a lapse of some time, when she thinks she is able to.”

Harms of using stereotypes



- On a micro-level, the handbook states that stereotypes lead to exclusion and discrimination at the workplace, educational institutions and in public places.
- It cites the example of a stereotype that individuals from oppressed castes are not as accomplished in school or university in comparison to individuals from oppressor castes. This, it says, may cause members of oppressed castes to face additional mental pressure when writing an examination.
- As for women, the traditional view of women as caregivers means that childcare responsibilities often fall exclusively on women. The Supreme Court has taken care of it with these directives: “A person’s gender does not determine or influence their capacity for rational thought,” and “People of all genders are equally suited to the task of caring for others.”

Stereotypes in the past verdicts



- The Supreme Court has highlighted verdicts that have rejected stereotypes and which can be utilised by judges to shun gender stereotypes. For instance, in a past case, a Constitution Bench struck down the offence of “adultery” under Section 497 of the Indian Penal Code.
- Observing that the law on adultery was but a codified rule of patriarchy, it said, “Society ascribes impossible virtues to a woman and confines her to a narrow sphere of behaviour by an expectation of conformity.”
- In another case, the Court reiterated its categorical ban on the “two finger test” and said it was irrelevant to determination of rape and that it violated the dignity of rape survivors or victims. In yet another case, it held that a testimony of a rape survivor or victim is “inherently credible.” The delay in lodging an FIR can be due to a variety of reasons, it said.

Jadavpur University student's death brings back focus on the evil of ragging



Relevance: Prelims & Mains Paper I; Social Issues

Why in news?

- An 18-year-old undergraduate student died recently after falling from the second floor of his hostel in the Jadavpur University campus in Kolkata. His family has alleged that he was being ragged on campus.
- Both the University and the police are currently conducting their respective investigations. So far, several people including students and alumni of JU, have been arrested in the case.

The Supreme Court's take on ragging

- The Supreme Court in a 2001 case had dealt with ragging, which it termed the "menace pervading the educational institutions of the country." Vishwa Jagriti Mission has filed a public interest litigation against the central govt.
- The Court issued key guidelines on anti-ragging. These included setting up proctorial committees to prevent ragging and internally address complaints against ragging.
- "Ragging if it becomes unmanageable or amounts to a cognizable offence the same may be reported to the police," the Court had said.
- In 2009, the SC in another case again dealt with the ragging issue in which it appointed a committee headed by former CBI Director RK Raghavan. The recommendations of the committee were subsequently formalised by the University Grants Commission (UGC).

UGC guidelines



- In 2009, the UGC issued detailed guidelines to universities on anti-ragging. As per them, the following acts constitute ragging:
 - teasing, treating or handling a fellow student with rudeness; causing physical or psychological harm; causing or generating a sense of shame; academic activity of any other student or a fresher; exploiting a fresher or any other student for completing academic tasks assigned to an individual or a group of students; financial extortion or forceful expenditure; homosexual assaults, stripping, forcing obscene and lewd acts, gestures, causing bodily harm.
- At an institutional level, the UGC requires universities to take measures for prevention of ragging including declaring its intent publicly to prevent ragging and requiring students to sign an undertaking that they will not engage in ragging activities.
- "The institution shall set up appropriate committees, including the course-in-charge, student advisor, Wardens and some senior students as its members, to actively monitor, promote and regulate healthy interaction between the freshers, junior students and senior students," the Rules state.
- If found guilty by the anti-ragging committee, the UGC guidelines require any member of the committee to "proceed to file a First Information Report (FIR), within twenty-four hours of receipt of such information or recommendation, with the police and local authorities, under the appropriate penal provisions."

The offence

- While ragging is not a specific offence, it could be penalised under several other provisions of the Indian Penal Code such as the offences of wrongful restraint and/or wrongful confinement. Both of them are punishable with imprisonment and/or fines.
- Several states have special laws for anti-ragging. The Kerala Prohibition of Ragging Act, 1998 provides for suspension or dismissal of the student accused of ragging and mandatorily requires the college administration to inform the nearest police station. If an educational institution fails to do so, it would be "deemed abetment" to commit the offence.

Care protocol for babies in India

Relevance: Prelims & Mains Paper I; Social Issues

Why in news?

- Former British nurse Lucy Letby was sentenced to life in prison recently after being found guilty in the worst child serial killer case in the history of the U.K.
- Letby was convicted of murdering seven babies and trying to kill six others while working at a hospital between 2015 and 2016. She was first arrested in 2018.
- Letby killed infants by injecting them with air, others were force-fed milk and two were poisoned with insulin..

Patient safety provisions in India

- Patient safety is a fundamental element of public healthcare and is defined as the freedom for a patient from unnecessary harm or potential harm associated with provision of healthcare, as per the 'National Patient Safety Implementation Framework'.
- Patients in India are protected under multiple layers of law that are largely fragmented.
- The first idea of patient safety is enshrined in the Hippocratic Oath itself.
- Additionally, the Consumer Protection Act deals with medical negligence and deficiency of services; legal rights of the patients are set out in the Clinical Establishment Act, and the National Pharmaceutical Pricing Authority and Drugs Controller General of India have mechanisms to see that patients' rights in terms of medication and devices are protected and that they are not overcharged, among other things.

How is neonatal safety maintained?

- While there are no exclusive rules for neonatal care and safety, or protection against external harm in Indian hospitals, there are provisions and checks against issues like inadvertent mix-up of babies at birth and abduction.
- There are a set of comprehensive provisions for the safety and wellbeing of neonates or newborn babies to minimise potential risks. The healthcare staff is also trained to counsel parents and provide emotional support, contributing to the safety and development of neonates.
- Adequate staffing ensures that trained healthcare providers can closely monitor each baby's condition and respond swiftly to any concerns. Proper equipment for respiratory support, temperature regulation, and monitoring vital signs are readily available.
- Neonates are typically kept in controlled environments to avoid exposure to external infections and temperature fluctuations. Parental involvement is encouraged but with precautions to prevent the spread of infections.

Issues faced by neonates

- Although the global number of neonatal deaths declined from 5 million in 1990 to 2.4 million in 2019, children face the greatest risk of death in their first 28 days, according to the World Health Organization. Its data shows that in 2019, 47% of all under-five deaths occurred in the newborn period with about one-third dying on the day of birth and close to three-quarters dying within the first week of life.
- The current infant mortality rate for India in 2023 is 26.6 deaths per 1,000 live births, a 3.89% decline from 2022.
- Children who die within the first 28 days of birth suffer from conditions and diseases associated with lack of quality care at birth or skilled care and treatment immediately after birth and in the first days of life. Pre-term birth, intrapartum-related complications, infections and birth defects cause most neonatal deaths.
- Women who receive midwife-led continuity of care (MLCC) provided by professional midwives, educated, and regulated to international standards, are 16% less likely to lose their baby and 24% less likely to experience pre-term birth.
- The WHO has also advised families that prompt medical care should be sought in case of danger signs, including feeding problems, or if the newborn has reduced activity, difficult breathing, a fever, fits etc.

DISASTER MANAGEMENT

Raigad landslide brings back focus on Madhav Gadgil report on Western Ghats

Relevance: Prelims & Mains Paper III; Disaster Management

Why in news?

- A landslide in Maharashtra's Raigad district recently claimed 27 lives. It flattened an entire village, and brought back into focus the 2011 Dr Madhav Gadgil report on conservation of the Western Ghats.



Details of the Report

- In 2010, Western Ghats Ecology Expert Panel (WGEEP) was appointed. It was chaired by ecologist Dr Madhav Gadgil.
- In its 2011 report, this commission recommended classifying 64% of the Western Ghats, spread over six states, into Ecologically Sensitive Zones called ESZ 1, ESZ 2 and ESZ 3. It also recommended designating the entire region as an Ecologically Sensitive Area (ESA).
- Almost all developmental activities like mining, construction of thermal power plants, dams were to stop along with the decommissioning of similar projects in Goa as well as Maharashtra's Ratnagiri and Sindhudurg districts.
- As per the commission, in all the zones, genetically modified crops should not be allowed, use of plastic bags be prohibited, SEZs should not be permitted, new hill stations should not be allowed, changing the land use from farmland to non-farm land and the stoppage of diversions of rivers to protect the ecology of the region, and public lands should not be converted into private lands.
- Another major recommendation was a ban on growing commercial crops like tea, coffee, cardamom, rubber etc., which have led to fragmentation of forest, and soil erosion.

Significance of Western Ghats

- Accorded the World Heritage status by UNESCO, the Western Ghats are a 1,600-km-long mountain chain running the western coast of the country covering six states — Gujarat, Maharashtra, Goa, Tamil Nadu, Karnataka and Kerala.
- These Ghats are home to high mountain forests, which moderate the tropical climate of the region and present one of the best examples of the monsoon system on the planet.
- They are home to 325 globally threatened flora, fauna, bird, amphibian, reptile and fish species. About 60% of the mountain range is in Karnataka.

Kasturirangan-led panel formulates report to replace WGEEP

- While the Gadgil panel recommended 64% area in the Western Ghats, a report by a panel led by Dr K Kasturirangan notified only 37% of the area as ecologically sensitive.
- It also split the Western Ghats into cultural (human settlements) and natural (non-human settlements) regions. It was suggested that cultural lands be designated as an ecologically sensitive area (ESA).
- It also consisted of red, orange and green categories. The red list entailed a ban on mining, stone quarrying, thermal plans and certain construction and township projects. The orange category had activities that would be regulated and taken up with appropriate permissions, while the green category allows all agricultural and horticultural activities and commercial activities.
- In 2014, the Ministry of Environment and Forests announced that it is examining the recommendations of the K Kasturirangan-led panel and will not process the Gadgil report for further action.
- Gadgil criticised the report calling it 'faulty' and 'unscientific'.
- By 2022, the Centre announced a high-powered committee to conduct physical landscaping and submit a detailed report in a year's time.

China's 'sponge cities' fail to serve their purpose of stopping floods

Relevance: Prelims & Mains Paper III; Disaster Management

Why in news?

- China has been hit by devastating floods in recent weeks, inundating cities and causing deaths and infrastructural damage, as well as raising questions about the effectiveness of its 2015 "sponge city" initiative aimed at reducing urban flood risks.
- The initiative was launched to boost flood resilience in major cities and make better use of rainwater through architectural, engineering and infrastructural tweaks.
- But cities remain vulnerable to heavy rain. In July alone, floods and related geological disasters caused 142 deaths and disappearances, destroyed 2,300 homes and caused direct economic losses of 15.78 billion yuan (\$2.19 billion).



Objectives

- China has long sought to improve the way it handles extreme weather, and make highly populated cities less vulnerable to flooding and drought. The “sponge city” initiative was designed to make greater use of lower-impact “nature-based solutions” to better distribute water and improve drainage and storage.
- Those solutions included the use of permeable asphalt, the construction of new canals and ponds and also the restoration of wetlands, which would not only ease waterlogging, but also improve the urban environment.
- Breakneck urbanisation has encased vast stretches of land in impermeable concrete, often along banks of major rivers that traditionally served as flood plains. With wetlands paved over and nowhere for surplus water to settle, waterlogging and flooding was commonplace.
- According to 2018 data, 641 out of 654 large- and medium-sized cities in China were vulnerable to flooding and waterlogging, with 180 facing flood risks every year.

Work done till date

- Studies show that many of the local pilot initiatives launched so far have had a positive effect, with low-impact projects like green roofs and rain gardens reducing run-offs.
- But implementation has so far been patchy. A total of 30 pilot sponge cities were selected in 2015 and 2016. By last year, only 64 of China’s 654 cities had produced legislation to implement sponge city guidelines.
- The researchers said the govt had so far paid “minimum attention” to sponge city construction, and called for national legislation to be drawn up as soon as possible.

Limitations of sponge cities

- Even if sponge city measures had been implemented in full, they would have been unable to prevent this year’s disasters.
- Zhengzhou in Henan province was one of the most enthusiastic pioneers of sponge city construction, allocating nearly 60 billion yuan to the programme from 2016 to 2021. But it was unable to deal with its heaviest rainfall in history in 2021.
- Experts believe sponge city infrastructure can only handle no more than 200 mm (7.9 inches) of rain per day. At the height of the rainstorms that lashed Beijing at the end of July, rainfall at one station reached 745 mm over three and a half days. In July 2021, Zhengzhou saw rainfall in excess of 200 mm in just one hour.
- Authorities are also playing catch-up to climate change. This year’s heavy rain hit cities in the normally arid north, where sponge city development is less advanced.

INTERNAL SECURITY

Centre to look into 'Havana Syndrome'

Relevance: Prelims & Mains Paper III; Internal Security

Why in news?

- The Central govt has told the **Karnataka High Court** that it will look into the matter of the '**Havana Syndrome**' in India, in response to a **Bengaluru resident's recent petition**. The Court has directed the Centre to do so **within three months**.
- The petitioner had approached the court **requesting an enquiry on Havana Syndrome in India and the prevention of high-frequency microwave transmission in India**.

What is Havana Syndrome?

- **Havana Syndrome** refers to a set of mental health symptoms that are said to be experienced by **U.S. intelligence and embassy officials** in various countries.
- It is worth noting that in general, the word '**syndrome**' simply means a set of symptoms. It does not mean a unique medical condition, but rather a set of symptoms that are **usually experienced together** whose origins **may be difficult to confirm**.
- What is known as the **Havana Syndrome** typically involves **symptoms** such as hearing certain sounds without any outside noise, nausea, vertigo and headaches, memory loss and balance issues.
- As the name suggests, it traces its roots to **Cuba in late 2016**. This was about a year after the US opened its embassy in the capital city of Havana after ties between the two countries were normalised in 2015.
- Some US intelligence officials and members of the staff at the embassy **began experiencing sudden bursts of pressure in their brains** followed by **persistent headaches, feelings of disorientation and insomnia**.

Similar cases elsewhere

- Since the Cuban incident, American intelligence and foreign affairs officials **posted in various countries** have reported **symptoms of the syndrome**.
- In **early 2018**, similar accusations began to be made by **US diplomats** in **China**.
- Another incident had previously been reported by a **USAID employee** at the **US Embassy** in **Tashkent, Uzbekistan**, in **2017**.
- In **2019** and **2020**, such incidents have been reported **from within the US** — particularly in **Washington DC**. One incident was even reported at **The Ellipse**, a lawn adjacent to the **White House**.
- In all, the U.S. officials have reported **more than 130 such experiences across the world** including at Moscow in Russia, Poland, Georgia, Taiwan, Colombia, Kyrgyzstan, Uzbekistan, and Austria, among others. In **2021**, **US Vice-President Kamala Harris' flight to Hanoi, Vietnam** was reportedly delayed for three hours after a **US official in Vietnam** reported the symptoms.
- In **India**, the first such case was reported in the same year, when a **US intelligence officer** travelling to **New Delhi** with **CIA director William Burns** reported **symptoms of Havana Syndrome**.



Causes

- **No one is entirely sure**. But initially during the **Cuban experience**, being in a country that had been **hostile to the US** for **over five decades**, the suspicion was on **Cuban intelligence** or a section within the **Cuban establishment** that did not want **US-Cuba relations** to **normalise**. It was then speculated to be a **"sonic attack"**.
- However, further study by scientists in the US and medical examination of the victims began to suggest that they may have been **subjected to high-powered microwaves** that either **damaged** or **interfered with the nervous system**.
- It was said to have **built pressure inside the brain** that generated the **feeling of a sound being heard**. Greater exposure to high-powered microwaves is said **not only to interfere with the body's sense of balance** but also to **impact memory** and **cause permanent brain damage**.
- It was suspected that **beams of high-powered microwaves were sent** through a **special gadget** that Americans then called a **"microwave weapon"**.
- The use of microwaves as a counter-intelligence tactic has been experimented with since the **Cold War** and **both Russia** and the **US** have made attempts to **weaponise it**.
- There have been reports of **US embassy officials** in **Moscow** experiencing **mental health issues** due to the **suspected use of microwaves** in the **1970s**.

No clues yet!

- After many years of data collection, experiments and medical examination of victims, the US has as yet not been able to come up with any conclusive evidence suggesting the "microwave weapon" is a reality.
- No one seems to have an idea what the mechanics of this weapon is and how it functions. There is also a question mark on how the so-called weapon is able to specifically target individuals and not affect all the people in its range.
- Some medical experts in the US have outrightly debunked this theory, calling the syndrome a psychological illness amplified by widespread fear of being targeted.

The India scenario

- As of July 2023, the 2021 incident was the only reported occurrence of the syndrome in India. Sources in the Indian security establishment said in 2021 that they were not aware of any weapon with such capacities being in the possession of an Indian agency.
- Even if there was one, it was unlikely the govt would admit to having acquired such counter-espionage technology given the sensitive nature of intelligence work.

Defence Ministry ditches Microsoft Windows for Maya OS

Relevance: Prelims & Mains Paper III; Internal Security

Why in news?

- India's Defence Ministry has decided to replace the Microsoft Operating System (OS) in all its computers that can connect to the Internet with Maya, an Ubuntu-based OS built locally.
- The new OS is currently being rolled out only in the Defence Ministry computers, and not the three Services. While the Navy is said to have cleared Maya for use in its systems, the Army and the Air Force are still evaluating the software.
- Maya has been developed by Indian govt agencies within six months, and it is aimed at preventing malware attacks by cybercriminals who are increasingly targeting critical infrastructure and government agencies.
- The new OS will be backed by a protection system called Chakravyuh. This end point system is also being deployed in the computers that have Maya installed.

Differences from Microsoft's Windows

- While the two operating systems provide a platform for the user to interact with computer hardware, Maya and Windows differ significantly, both in terms of cost and build.
- Windows is a commercial software sold by Microsoft for a license fee. It is the most widely used OS, and is easy to install and run.
- Devices powered by Microsoft's OS run on the Windows NT kernel. A kernel is the core of an operating system. It runs on a computer's Random Access Memory (RAM) and gives the device instructions on how to perform specific tasks.
- Prior to building the kernel architecture, programmers used to run codes directly on the processor.

Cont'd

- This design was **monolithic**, meaning a **single programme contained all necessary codes to perform kernel-related tasks**. But it was also large and difficult to maintain as the lines of codes ran in the millions.
- Limitations in the traditional architecture led to a **new kernel design called the microkernel**. This design **broke down the monolithic system into multiple small servers that communicate through a smaller kernel while giving more space for user customisations**.
- Windows runs on a **hybrid kernel architecture which is a microkernel design coupled with additional codes that help enhance performance**.
- Apple's MacOS also uses a **hybrid kernel called XNU**. And Ubuntu, a Linux OS that was used to build Maya, runs on **monolithic architecture**. In fact, Android is also based on the Linux kernel.

Cyber threats and malware



- India's switch to the Ubuntu-based Maya OS comes at a time **when cyberspace is increasingly becoming vulnerable to malware and ransomware attacks**. An almost three-year old cyberattack made govts around the world rethink their cyber strategy.
- In Dec. 2020, cybersecurity firm discovered a **cyber spy campaign that compromised dozens of govt agencies and private organisations in the U.S**. Hackers even found their way into the **Cybersecurity and Infrastructure Security Agency (CISA)** which is tasked to **protect the U.S. govt's networks from cyberattacks**. This attack was found to have originated from the Russian intelligence service, the SVR.
- Also, a network management software, **Orion**, deployed on **hundreds of computers globally** was used by hackers to **plant malware masquerading as a software update from the company**. Nearly 18,000 customers downloaded it. Microsoft's own systems were breached in this attack.

An open source future



- Such cyber threats **arising from proprietary software** are **once again making global govts look to free and open-source software (FOSS) to develop their own OS**.
- As per a survey, **a total of 669 open-source policy initiatives were taken by govts around the world between 1999 and 2022**.
- Apart from cybersecurity, the reason behind this move is to **assist IT modernisation efforts that are underway — like digitising govt services and making them interoperable**.

MISCELLANEOUS

Cinematograph (Amendment) Bill, 2023 passed in Rajya Sabha

Relevance: Prelims; Miscellaneous

Why in news?

- The Rajya Sabha recently passed the Cinematograph (Amendment) Bill, 2023. It cracks down on film piracy along with changing how movies are certified by the censor board.

Why was it needed?

- The Cinematograph Act, 1952 needed to be amended due to several reasons — to harmonise the law with various executive orders, Supreme Court judgements, and other legislations; to improve the procedure for licensing films for public exhibition by the CBFC; and to expand the scope of categorisations for certification.
- Lastly and importantly, there was a huge demand from the film industry to address the issue of unauthorised recording and exhibition of films and curb the menace of piracy, which is causing them huge losses.

Showing films on TV

- The Amendment empowers the Central Board of Film Certification (CBFC) to give separate certificates for a film's exhibition on television or other media.
- As the Cable Television Networks (Regulation) Act, 1995 stipulates that only UA category films can be shown on TV, the Bill allows for a change of category of a film from A (adult) or S (specialised groups) to UA, after making suitable alterations.
- The Amendment introduces three certifications under the 'UA' category, UA 7+, UA 13+ and UA 16+, which means that children younger than the given age limits can access such movies with parental guidance.
- While the earlier Act provided that the certificate issued by the CBFC is valid for 10 years, it would now be valid perpetually.
- The new Bill clarifies that the Centre will not have any revisional powers over CBFC certificates.

A tough stance against piracy

- The Bill lays down a three-year jail term and a fine of up to 5% of a movie's production cost for those making its pirated copies.
- Recording or helping a person record any film that is being exhibited at a cinema theatre using audio-visual devices has been prohibited under the Bill. Notably, it is claimed that the film industry is facing a loss of Rs 20,000 crore annually because of piracy.
- While inserting new clauses for piracy, the Bill aims to harmonise the Cinematograph Act with the existing laws that tangentially address piracy — the Copyright Act, 1957 and the Information Technology Act (IT) 2000.

D Gukesh becomes India's No.1 chess player, ends Anand's 36-year-long reign

Relevance: Prelims; Miscellaneous

Why in news?

- The 17-year-old Dommaraju Gukesh has replaced Viswanathan Anand as India's No. 1 chess player in live rating. He achieved this feat during the on-going Chess World Cup at the Azerbaijan capital of Baku.
- This has happened only once before, during the last 37 years, when P. Harikrishna edged past the five-time World champion - Viswanathan Anand in March 2016. Notably, Anand has never lost his India No.1 rank in FIDE's rating list since July 1986, when he overtook Pravin Thipsay.
- Gukesh could also be breaking into the world's top 10, which is an incredibly hard fortress to breach. Even more important is the fact that he could be doing it while he is still very much in his teens. A fortnight ago, he crossed another major milestone, when he touched 2750 Elo points.
- As per the live rating on August 6, Gukesh is on 2756 points and is ranked World No. 9, one slot ahead of Anand (2754).



India's domination across the world chess scene

- India thus has **two players** in the **World top 10**. The **only other Indian** to be ranked **inside the top 10** has been **Harikrishna** (in 2016).
- In **women rankings**, **Koneru Humpy** is **World No. 4** while **Dronavalli Harika** is **No. 12**. This shows how far India has travelled on the chessboard from the time when it **did not have a single Grandmaster** until **Anand**.
- **Four of the world's top seven** in the **junior ranking list** are **Indians**. Among the **junior girls**, there are **two in the top 10**.

Ukraine uses Sulina Channel to safely ship out its grains amid war with Russia

Relevance: Prelims; Miscellaneous

Why in news?

- Russia recently **targeted ports** and **grain storage facilities** along the **Danube river** in **Ukraine** in **overnight drone strikes**.
- The **Danube delta** has provided **Ukraine** with an **alternative passage** for its **grain** after **Russia** withdrew from the **Black Sea grain deal** last month. The deal, brokered by the **UN** and **Turkey**, used to provide **safe passage** for cargo ships carrying grain from **Ukrainian Black Sea ports** of **Odessa**, **Chornomorsk** and **Pivdennyi**.
- Of particular importance in this 'new' trade route is the **Sulina Channel** – a **63 km long** distributary of the **Danube**, connecting major **Ukrainian ports** on the river to the **Black Sea**, lying completely within the borders of **Romania**, a **NATO member**.
- **Ukraine**, often called the "breadbasket of Europe", is among the world's **biggest grain exporters**, with its economy **heavily dependent** on **agricultural exports**.



The path

- The **Danube**, Europe's second longest river, has historically been crucial for the movement of freight. **Near Tulcea, Romania**, this river begins to spread out into its delta which has **three major channels** – **Chilia, Sulina** and **St George**.
- Of these, the **Sulina Channel**, is the **only one deep and wide enough** for freight transport. This makes it a sort of a riverine 'expressway' – crucial for transport of goods from inland to the Black Sea.
- Ships carrying grain from Ukraine leave from Ukrainian ports and **head to the port of Sulina**, at the mouth of the **Sulina Channel**.
- From there, they head around 140 km south to **Constanta, Romania's biggest seaport**. Here the cargo is transferred to **bigger ships** that carry it **out of the Black Sea** into the **Mediterranean** through the **Bosphorus straits**. This route is **under constant surveillance** and **protection** of **NATO**.

Congestion and lack of capacity

- Though this route too has its problems as well, **Russia** – as of now – has **desisted from attacking NATO-controlled territories**, but **continued targeting of Ukrainian ports** and **grain facilities** on the **Danube** can be **crippling**.
- Moreover, **Ukraine** has historically not used the **Danube** for **grain exports**, relying instead on its **rail network** and **Black Sea ports**. This has meant that the **capacity of Ukrainian ports** to handle the volume of grain suddenly coming their way is fairly limited.
- Another problem, given the sheer traffic on the Channel, has been **congestion at its mouth**. Boats are **having to wait for days** before they can **enter the Channel**, causing **major delays in shipping**.

Revised NCF calls for twice-a-year Board exams and learning more Indian languages

Relevance: Prelims; Miscellaneous

Why in news?

- The revised National Curriculum Framework (NCF) comes into effect next academic year. It makes the study of Indian languages an integral part of school education, and allows students the freedom to choose from a range of subjects across streams.
- This is in line with the vision of the National Education Policy 2020 to promote teaching and learning in Indian languages, and make greater interdisciplinarity possible in school education.
- The **640-page NCF**, an update on the draft released in April, was developed by a **13-member steering committee** led by former ISRO chief **K Kasturirangan**. The NCF, a key document on which textbooks are based, was last revised in 2005.

Some key proposals

- The revised NCF divides school education into four stages: Foundational (preschool to grade 2), Preparatory (grades 2 to 5), Middle (grades 6 to 8), and Secondary (grades 9 to 12).
- It recommends the teaching of two languages till the middle stage, supplemented by a third language from the middle stage to class 10. Two out of these three languages must be "native to India".
- In the middle stage, students are expected to study, apart from the languages, mathematics, art education, physical education, science, social science, and a subject of vocational education.
- A subject of environmental education will be added in grades 9 and 10.
- The framework allots specific times and weights to all subjects till grade 10, and recommends an optional "Additional Enrichment Period" in grades 9 and 10 to add to a student's knowledge in any subject. (more ahead)

Cont'd

- The revised NCF also lists the competencies to be achieved by students in different subjects and stages. For example, social sciences is to be thematically organised in middle stage — from knowing the “local to the global”.
- In grades 11 and 12, it is mandatory to study two languages, one of which must be Indian. In this phase, students have the freedom to choose the remaining four or five subjects from different streams — commerce, sciences, humanities — leaving ample room for interdisciplinarity. A student may pick English and Sanskrit as her languages for example, and study history, journalism, mathematics, and gardening alongside.
- The framework recommends twice-a-year Board examinations in grades 10 and 12, with the best score retained. While the annual system will continue in grade 12 for now, the framework suggests a gradual transition to a semester system in the secondary stage. It will also allow students to take Board examinations immediately after a semester is completed.

The two versions

- While the revised NCF recommends the study of three languages, including two Indian languages, up to class 10, the draft document had recommended the teaching of three languages (called R1, R2, and R3) in classes 6, 7, and 8, and two languages in classes 9 and 10 (R1 and R2).
- R1 would be the mother tongue or home language, R2 could be any other language (including English), and R3 was any language that wasn't R1 or R2. State govts and school boards were granted the freedom to decide the classification of R1, R2, and R3.
- Also, in the draft NCF, language was an optional discipline in grades 11 and 12..
- The revised draft favoured staying with the annual system for now after states expressed reservations about transitioning to a semester system too soon.

What next?

- The NCF provides the framework for the development of textbooks for different subjects.
- The new textbooks are expected to be introduced in the 2024-25 academic session. The textbooks currently in circulation were prepared using the NCF 2005.
- Neither the NEP, nor the NCF are binding on the states. Congress-ruled Karnataka has announced that it would not follow the NEP.

Two Chhattisgarh men amass Rs 5000 cr. by running Mahadev online betting racket



Relevance: Prelims; Miscellaneous

Why in news?

- The Enforcement Directorate recently made four arrests in the Mahadev online betting case, in which its main promoters based out of Dubai may have amassed as much as Rs 5,000 crores.
- According to ED, Mahadev Online Book provides online platforms for illegal betting in different live games such as poker and other card games, chance games, cricket, badminton, tennis, football and others, even providing an avenue to bet on different elections in India.
- It also provides a facility to play several card games such as 'Teen Patti', poker, 'Dragon Tiger', virtual cricket games, and more.



How the app operated?



- As per ED, M/s Mahadev Book maintains various websites and operates a number of closed groups on chat apps. They advertise contact numbers over websites and lure people to play to earn profits. These numbers can only be contacted over WhatsApp.
- Once a potential user makes contact, he/she is provided with two separate contact numbers. One to be contacted for depositing money and collecting points in the User IDs used to make bets. The other number is for contacting the website to encash the accumulated points in the designated IDs.
- The IDs are generally created on websites such as laser247.com, laserbook247.com, <http://www.betbhai.com>, betbook247.com, tigerexch247.com, and <http://www.cricketbet9.com> – depending on the need and preference of the bettors.
- The operations to collect money, create User IDs, distribute these ID credentials customers, and distribute any money earned are carried out by panel/branch owners. Players have to deposit money in benami accounts shared online and then are assigned panels by the head office in Dubai. Payouts are also done using benami bank accounts. These bank accounts are either opened fraudulently or are loaned for commission.
- Importantly, all the games are rigged in a manner that overall, the panel owners do not lose money and despite initial profits to the user, ultimately, they are always likely to incur losses.

The men behind Mahadev Book

- Sourabh Chandrakar, 28, and Ravi Uppal, 43, who hail from Bhilai, are the main promoters of Mahadev Online Book, and are running their operations from Dubai.
- They have total control over its operations and keep 80% of the profits. ED sources said the duo is suspected to have made Rs 5,000 crores from this app.
- The duo have been staying in Dubai for nearly two years. Prior to that, they frequently travelled to Dubai as well. Chhattisgarh police issued a look out notice against them nearly three months ago.
- Notably, four businessmen have also been arrested in this case. The involvement of govt officials and some police officers has also been uncovered.



Ravi Uppal



Sourabh Chandrakar

GS Pre-cum-Mains Study Material for IAS Preparation

1. 10 Published Books for Pre cum Mains

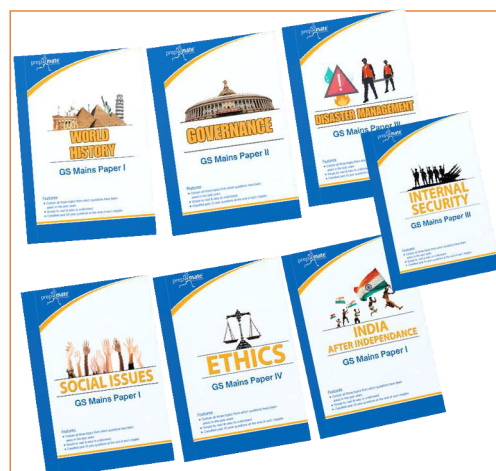


Rs. 10,000/-

2. Value Added Material



3. Mains Study Material



4. Guidance

To Order send 'Study material for IAS' on WhatsApp number 75979-00000

Quiz



1. Madhav Gadgil committee was established for conservation of
 - (a) Western Ghats
 - (b) Eastern Ghats
 - (c) Eastern Himalayas
 - (d) Higher Himalayas

2. The 13th amendment act often in news is in context of Political affairs of
 - (a) Sri Lanka
 - (b) Myanmar
 - (c) Bangladesh
 - (d) Pakistan

3. Which of the following is the implication of Full-reserve banking?
 - (a) Banks cannot lend any money against the deposits received from Public.
 - (b) Banks cannot lend any money against the demand deposits received from Public.
 - (c) Banks cannot lend any money against the cash deposits received from Public.
 - (d) Banks cannot lend any money against the time deposits received from Public.

4. The Tehseen Poonawala judgment (2018) by Supreme Court was recently in news in context of
 - (a) Rights of Transgender community
 - (b) Crime against women
 - (c) Mob lynchings
 - (d) Black money repatriation



5. Kuril Islands are disputed between
 - (a) China and Russia
 - (b) China and Japan
 - (c) Japan and Russia
 - (d) Japan and North Korea

6. WHO has developed 'MPOWER' measures in order to
 - (a) Reduce spread of viral infections like Covid
 - (b) Reduce the incidence of tobacco consumption
 - (c) Reduce the consumption of bad cholesterol food
 - (d) promote the yoga among global population

7. Rohini Panel, which has recently submitted its report, was established to report on
 - (a) Conservation of himalayan ecosystem
 - (b) Steps to check transfer pricing
 - (c) Media self regulation
 - (d) Sub-categorisation of OBCs

8. Which of the following statement is correct regarding financial bills as per the constitution?
 - (a) There are three types of financial bill in the constitution.
 - (b) The financial bill of second type can be introduced only in Lok Sabha.
 - (c) The financial bill of 2nd type, if enacted, involves expenditure from consolidated fund of India.
 - (d) The financial bill of first type is not required to be passed by Rajya Sabha.

9. Imran Khan, ex-PM of Pakistan, has been sentenced to 3 years jail because

- (a) He did not disclose some of the official gifts he received as PM.
- (b) He took commission in defence purchases.
- (c) He misutilised flood relief funds for party activities.
- (d) He engaged in Private business while being PM.

10. 17-year old Dommaraju Gukesh has emerged the no.1 player in India in which of the following sports?

- (a) Badminton
- (b) Fencing
- (c) Chess
- (d) Shooting

11. A major international conference to end Russia-Ukraine war, consisting of representatives from 42 nations including India, was recently held at

- (a) Brussels
- (b) Tashkent
- (c) Jeddah
- (d) Washington DC

12. ECOWAS is group of

- (a) Western European nations to promote military coordination
- (b) Eastern European nations to promote economic integration
- (c) South American nations to eliminate drug trafficking
- (d) African nations to promote economic integration

13. Which of the following statements is correct about Superconductors?

- (a) Room temperature superconductors have already been discovered.
- (b) Superconductors do not change their temperature.
- (c) Superconductors can transfer heat without any loss.
- (d) Superconductors can transfer electricity without any resistance.

14. The recently introduced Bharatiya Nyaya Sanhita' (BNS) Bill 2023 seeks to replace :

1. Indian Penal Code (IPC), 1860
2. Code of Criminal Procedure, 1973
3. Indian Evidence Act, 1872

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

15. Aditya, a space probe, to study the Sun is going to be launched at Lagrange Point. What is a Lagrange Point?

- (a) A point which is close enough to study the Sun in detail.
- (b) A point in outer space at which the earth's atmosphere ends.
- (c) A point at which the gravitational force of Earth and Sun is balanced.
- (d) A point at which the International Space Station is maintained.

16. PM-Usha scheme deals with which of the following sectors?

- (a) Health
- (b) Employment generation
- (c) Education
- (d) Food Security

17. Which of the following is the correct explanation of Maya Operating system?

- (a) It is Linux based Operating system (OS).
- (b) It has been developed in Russia to counter security threats.
- (c) It is backed by a protection system called Chakravyuh.
- (d) It has been developed specifically for Supercomputers.

18. Sulina Channel, recent used to export the granis from Ukraine, is a distributary of river

- (a) Volga
- (b) Danube
- (c) Dniester
- (d) Oder

19. What is the RBI project of 'frictionless credit'?

- (a) Credit by Indian banks at floating rate of interest, linked to international interest rates.
- (b) Aggregation of data required to process loans and digitisation of loan process.
- (c) Aggregation of multiple loans of a single borrower under common head.
- (d) Minimum security of 150% for already disbursed loans

20. Luna-25 recently launched by Russia, ended in a failure. The objective of this mission was:

- (a) Launch spacecraft to orbit the Mars
- (b) Launch spacecraft to soft land on Mars
- (c) Launch spacecraft to orbit the Moon
- (d) Launch spacecraft to soft land on Moon

21. Which of the following statements is correct about Genetically edited crop?

- (a) A Genetically edited crop has not been produced so far.
- (b) A Genetically edited crop may be transgene free.
- (c) A genetically edited crop always have foreign genes.
- (d) India does not allow cultivation of genetically edited crop.

22. If the prices of a commodity suddenly rise in the domestic economy due to its lack of availability, then which of the following steps can be taken:

- (a) Discourage exports of the commodity
- (b) Subsidise the commodity
- (c) Encourage hoarding of the commodity
- (d) Eliminate alternatives of the commodity

23. The rover on the moon, which is part of Chandrayaan-3 mission is named

- (a) Vikram
- (b) Pragayan
- (c) Aditya
- (d) Abhinav

24. Chandrayaan-3 has been landed near the South pole of the moon because

- (a) The terrain near South pole has less of craters.
- (b) The temperature near South Pole is suitable for working of scientific instruments.
- (c) The South Pole receives the maximum Sunlight.
- (d) The South Pole is largely unexplored.

25. Which of the following countries have been invited for membership of BRICS?

- (a) Iran, UAE, Saudi Arabia, Argentina, Egypt, & Ethiopia.
- (b) Iran, UAE, Saudi Arabia, Argentina, Nigeria & Algeria.
- (c) Iran, UAE, Saudi Arabia, Argentina, Turkey & Israel.
- (d) Iran, UAE, Saudi Arabia, Argentina, Turkey & Qatar.

26. The point on the moon where the Chandrayaan-3 lander touched down on the lunar surface would be named

- (a) Tiranga
- (b) Shiv Shakti
- (c) Sarabhai
- (d) ISRO

27. The Lunar Polar exploration (LUPEX), slated for 2024-25, seeks to explore the possibility of locating a long-term station, like International Space Station, on the Moon. This mission is in collaboration of ISRO and

- (a) Japanese Space agency
- (b) French Space agency
- (c) Israel Space agency
- (d) NASA

Answer Key

1. (a)	2. (a)	3. (b)	4. (c)	5. (c)
6. (b)	7. (d)	8. (c)	9. (a)	10. (c)
11. (c)	12. (d)	13. (d)	14. (a)	15. (c)
16. (c)	17. (c)	18. (b)	19. (b)	20. (d)
21. (b)	22. (a)	23. (b)	24. (d)	25. (a)
26. (b)	27. (a)			

GS Pre-cum-Mains Study Material for IAS Preparation

1. 10 Published Books for Pre cum Mains

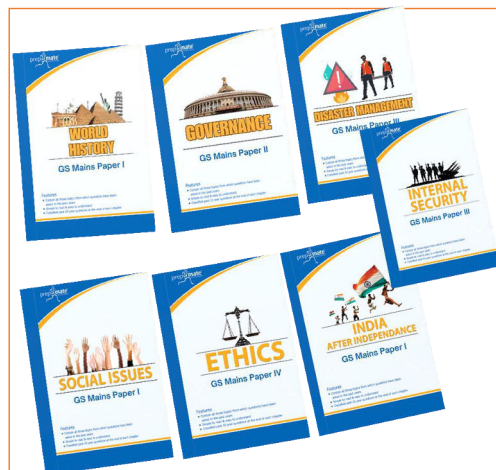


Rs. 10,000/-

2. Value Added Material



3. Mains Study Material



4. Guidance

To Order send 'Study material for IAS' on WhatsApp number 75979-00000