



Appointment of Judges in Supreme Court

For Prelims: [Collegium System](#), [Chief Justice of India](#).

For Mains: Evolution of the Collegium System and its Criticism, Appointment of Judges in SC

Why in News?

The [Supreme Court of India](#) recently witnessed the administration of oath to two new judges, **Justice Prashant Kumar Mishra**, and **Justice K.V. Viswanathan**, by [Chief Justice of India DY Chandrachud](#).

- With their induction, the court has reached its [sanctioned strength](#) of **34 judges**.

How are Supreme Court Judges Appointed?

- **Composition and Strength of the Supreme Court:**
 - Originally, the **Supreme Court had eight judges** (one chief justice and seven others).
 - The Parliament has **increased** the number of judges over time.
 - The current strength of the **Supreme Court is 34 judges (one chief justice and 33 others)**.
- **Qualifications for Appointment as a Judge:**
 - According to **Article 124(3) of the Constitution**, a person can be appointed as a judge of the Supreme Court if he or she:
 - A person must be a **citizen of India**.
 - Must have served as a **judge of a High Court for at least five years or two such courts in succession**.
 - Alternatively, must have been an **advocate of a High Court for at least ten years** or two or more such courts in succession.
 - Must be a **distinguished jurist in the opinion of the president**.
- **Appointment:**
 - The Judges of the Supreme Court are appointed by the **President under clause (2) of Article 124 of the Constitution**.
 - The President consults with judges of the Supreme Court and High Courts to make informed appointments.
- **Oath of Office:**
 - Every appointed judge must make and subscribe to an oath before the President or an appointed person.
 - The oath includes commitments to uphold the Constitution, [sovereignty](#) and **integrity of India**, and **perform duties without fear or favor**.
- **Tenure and Resignation:**
 - There is no prescribed minimum age limit for a judge's appointment.
 - A judge of the Supreme Court serves until they reach the **age of 65 years**.
 - However, a judge may resign before reaching the age of 65 years by tendering their resignation to the President.
- **Salaries and Allowances:**

- Salaries, allowances, privileges, leave, and pension of Supreme Court judges are determined by **Parliament**.
 - The Salaries, Pension, and Allowances of the Supreme Court Judges are charged upon the **Consolidated Fund of India**.
- **Post-retirement Restrictions:**
 - After retirement, a judge of the Supreme Court is **prohibited from practicing law in any court in India** or pleading before any government authority.
 - As per **Article 128 of Indian Constitution**, any **retired judge** of the Supreme Court of India **can be called back to sit and act as a Supreme Court judge** by the Chief Justice of India with the prior permission of the President of India.
- **Removal:**
 - A judge of the Supreme Court can only be removed from office by an order of the **President**.
 - The removal process requires an address by each House of Parliament, supported by a special majority i.e., a majority of the total membership of that House and a majority of not less than **two-thirds of the members present and voting**.
 - The grounds for removal are proven misbehaviour or incapacity.
 - Parliament has the authority to regulate the procedure for presenting the address and investigating and proving the misbehaviour or incapacity of a judge.
 - Once appointed, judges can serve until the age of 65 and cannot be removed during their tenure except for proved misbehaviour or incapacity.
- **Collegium System for Judicial Appointments:**
 - Judges of the higher judiciary are appointed through the **collegium system**.
 - The collegium, consisting of the **Chief Justice of India** and the **four senior-most judges** of the **Supreme Court**, decides on appointments, elevations, and transfers of Judges.
 - The term "collegium" is not mentioned in the Indian Constitution but has been established through judicial pronouncements.

How Did Collegium Evolve?

- **First Judges Case (1981):**
 - It declared that the "primacy" of the **CJI's (Chief Justice of India)** recommendation on judicial appointments and transfers can be refused for "cogent reasons."
 - The ruling gave the Executive primacy over the Judiciary in judicial appointments for the next 12 years.
- **Second Judges Case (1993):**
 - SC introduced the Collegium system, holding that "consultation" really meant "concurrence".
 - It added that it was not the CJI's individual opinion, but an institutional opinion formed in consultation with the two senior-most judges in the SC.
- **Third Judges Case (1998):**
 - SC on the President's reference (Article 143) expanded the Collegium to a five-member body, comprising the CJI and four of his senior-most colleagues.
- **Fourth Judges Case (2015):**
 - The **99th Constitutional Amendment Act of 2014** and the National Judicial Appointments Commission Act of 2014 has replaced the collegium system of appointing judges to the Supreme Court and High Courts with a new body called the **National Judicial Appointments Commission (NJAC)**.
 - However, in 2015, the Supreme Court declared both the 99th Constitutional Amendment as well as the NJAC Act as **unconstitutional and void in the fourth judge case**. Consequently, the earlier collegium system became operative again.

Prelims

Q. With reference to the Indian judiciary, consider the following statements: (2021)

1. Any retired judge of the Supreme Court of India can be called back to sit and act as a Supreme Court judge by the Chief Justice of India with the prior permission of the President of India.
2. A High Court in India has the power to review its own judgement as the Supreme Court does.

Which of the statements given above is/are correct?

- (a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Ans: (c)

Mains

Q. Critically examine the Supreme Court's judgement on 'National Judicial Appointments Commission Act, 2014' with reference to appointment of judges of higher judiciary in India. (2017)

[Source: TH](#)

Custodial Torture

Prelims: [Fundamental Rights](#), [Indian Penal Code](#), [Code of Criminal Procedure](#)

Mains: Reasons for Custodial torture and [Custodial Deaths](#), Reforms in Policing, Technology and Interrogation, Measures to avoid custodial deaths

Why in News?

Recently, two police officers were suspended on the **charges of [Custodial Torture \(Violence\)](#)**, assaulting the accused in Police custody.

What is Custodial Torture?

▪ **About:**

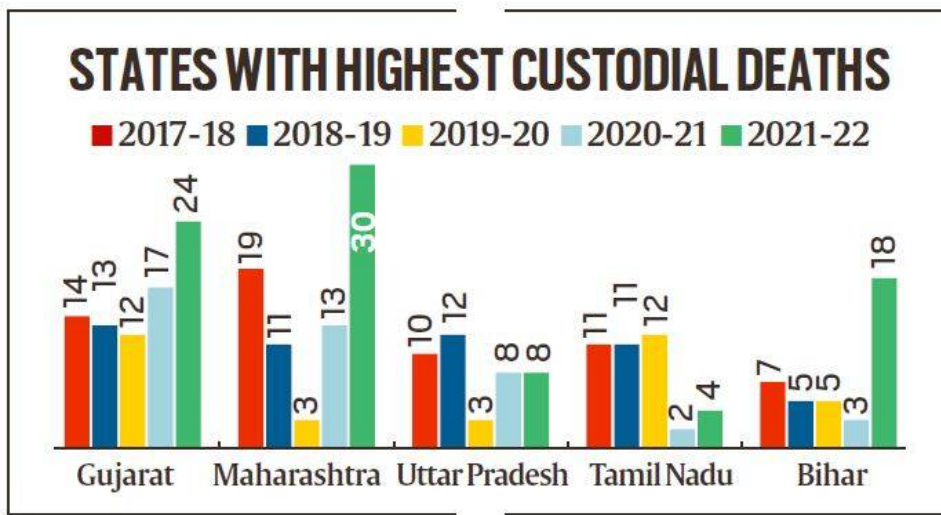
- Custodial torture is the **infliction of physical or mental pain or suffering on a person who is in the custody** of the police or other authorities.
- It is a grave violation of **human rights and dignity** and often leads to **[custodial deaths](#)**, which are deaths that occur while a person is in custody.

▪ **Types of Custodial Death:**

◦ **Death in Police Custody:**

- Death in police custody can result from excessive force, torture, denial of medical care, or other forms of abuse.

- **Death in Judicial Custody:**
 - Death in judicial custody may occur due to overcrowding, poor hygiene, lack of medical facilities, inmate violence, or suicide.
- **Death in the Custody of Army or Paramilitary Forces:**
 - Can happen through torture, extrajudicial killings, encounters, or crossfire incidents.
- **Custodial Death in India:**
 - According to the Ministry of Home Affairs (MHA), a total of **146 cases of death in police custody were reported** during 2017-2018,
 - 136 in 2018-2019,
 - 112 in 2019-2020,
 - 100 in 2020-2021,
 - 175 in 2021-2022.
 - In the last five years, the **highest number of custodial deaths** (80) has been reported in **Gujarat**, followed by **Maharashtra** (76), Uttar Pradesh (41), Tamil Nadu (40) and Bihar (38).



- **Challenges in Preventing Custodial Torture in India:**
 - Lack of ratification of the **UN Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (UNCAT)**, which India signed in 1997 but has not yet ratified.
 - This prevents India from being bound by international obligations and standards to **prevent and combat custodial torture**.

What are the Constitutional and Legal Framework Related Custodial Torture?

- **Constitutional Provisions:**
 - **Article 21 of the Constitution of India** guarantees the **right to life** and **personal liberty**, which includes the right to be free from torture and other cruel, inhuman or degrading treatment or punishment.
 - **Article 20(1)** states that no person shall be convicted of any offence, except those which are in contravention of the law in power at the commission of the Act. Thus, **this law prohibits punishment above what is mentioned in the law** that deals with the offence.
 - Article 20(3) prohibits **a person to be compelled to be a witness against himself**. It is an extremely instrumental law as it protects the accused from giving confessions when the accused is coerced or tortured to do so.
- **Legal Protections:**
 - **Section 24 Indian Evidence Act, 1872** declares that all the confessions made by the accused by succumbing to the threat, promise or inducement of investigating agencies would not be admissible in the court of law. This Section primarily works for preventing the accused to give confessions against his will.

- **Section 330 and 331 of the [Indian Penal Code \(IPC\)](#)** criminalize voluntarily causing hurt or grievous hurt to extort confession or information from any person.
- Section 41 of **[Criminal Procedure Code \(CrPC\)](#)** was amended in 2009 to include safeguards under 41A, 41B, 41C and 41D, so that arrests and detentions for interrogation have reasonable grounds and documented procedures, arrests are made **transparent to family, friends and public, and there is protection through legal representation.**

What are the International Conventions for Human Rights?

- **International Human Rights Law, 1948:**
 - The International Human Rights Law contains a provision which **protects people from torture and other enforced disappearances.**
- **United Nation Charter, 1945:**
 - The United Nations Charter calls for **treating prisoners with dignity.** The Charter clearly states that despite being prisoners, their fundamental freedoms and human rights are set out in the **[Universal Declaration of Human Rights](#)**, the International Covenant on Civil and Political Rights and the International Covenant on Economic, Social and Cultural Rights.
- **The Nelson Mandela Rules, 2015:**
 - The Nelson Mandela Rules were **adopted by the [United Nations General Assembly in 2015 to treat prisoners with inherent dignity](#)** and to prohibit torture and other ill-treatment.

What Measures can be Taken to Combat Custodial Torture?

- **Strengthening Legal Systems:**
 - Enacting comprehensive legislation explicitly **criminalizing custodial torture.**
 - Ensuring **prompt and impartial investigations into allegations** of custodial torture.
 - Holding perpetrators accountable through fair and expeditious trials.
- **Police Reforms and Sensitization:**
 - Enhancing **police training programs to emphasize respect for human** rights and dignity.
 - Promoting a culture of accountability, professionalism, and empathy within law enforcement agencies.
 - Establishing **oversight mechanisms** to monitor and address cases of custodial torture effectively.
- **Empowering Civil Society and Human Rights Organizations:**
 - Encouraging civil society organizations to actively advocate for victims of custodial torture.
 - Providing support and legal assistance to victims and their families.
 - Collaborating with international human rights bodies and organizations to seek redress and justice.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Q.1 National Human Rights Commission (NHRC) in India can be most effective when its tasks are adequately supported by other mechanisms that ensure the accountability of a government. In light of above observation assess the role of NHRC as an effective complement to the judiciary and other institutions in promoting and protecting human rights standards. **(2014)**

Source: TOI

Rohingya Refugees in India

For Prelims: [Rohingya](#), [Myanmar](#), [United Nations High Commissioner for Refugees \(UNHCR\)](#), [Citizenship Amendment Act, 2019 \(CAA\)](#), [1951 Refugee Convention](#).

For Mains: Reasons behind India's Decision not to Sign the 1951 Refugee Convention, Current Legislative Framework in India to Handle Refugees.

Why in News?

A recent report titled '**A Shadow of Refuge: [Rohingya Refugees in India](#)**' sheds light on the **challenges faced by Rohingya refugees in India**.

- The report was jointly prepared **by The Azadi Project, a women's rights non-profit and Refugees International**, an international NGO that advocates for the rights of stateless people

What is the Rohingya Crisis?

- The Rohingya people have suffered decades of **violence, discrimination and persecution in [Myanmar](#)**.
 - Rohingya are not recognized as an official ethnic group and have been **denied citizenship since 1982**. They are one of the largest stateless populations in the world.
- Since the early 1990's, the **Rohingya have fled successive waves of violence in Myanmar**.
 - Their **largest and fastest exodus began in August 2017** when violence broke out in Myanmar's Rakhine State, driving more than 742,000 people to seek refuge in neighbouring countries —**the majority of whom were women and children**.



What are the Concerns and Recommendations Outlined in the Report?

▪ Concerns Related to Rohingya:

- **Denied Exit Permissions for Resettlement:**
 - **India's refusal to grant exit visas to Rohingya refugees** who have completed refugee status determinations and gained approval for resettlement in third countries is a **significant concern**.
- **Stigmatisation and Anti-Refugee Sentiment:**
 - The **Rohingya refugees in India face various challenges**, including being labelled as **"illegal migrants"**.
 - This **stigmatisation not only hampers their integration into society but also places them at risk of being deported back to Myanmar**, where they fled from a genocidal regime.
- **Fear of Deportation:**
 - Actual and threatened deportations have instilled a **sense of fear within the Rohingya community**, compelling some to return to **camps in Bangladesh**.
 - International conventions, including the **International Covenant on Civil and Political Rights and the Convention on the Rights of the Child**, obligate India **not to return the Rohingya to Myanmar**.
 - However, the Supreme Court has accepted the government's arguments **regarding national security threats, allowing deportations to proceed**.
- **Harsh Living Conditions:**
 - The report details the dire living conditions of Rohingya refugees in India, residing in **slum-like settlements without safe running water, toilets, or access to basic healthcare and education**.
 - Without valid travel documents, obtaining an Aadhaar card for essential services such as school admissions has become impossible.

▪ Recommendations:

- **Formal Recognition and Domestic Laws:** India should formally recognize **Rohingya refugees as individuals with a right to asylum rather than as illegal migrants**.
 - Signing the **1951 Refugee Convention** and establishing domestic laws on refugees and asylum can be the crucial steps to achieve this.
- **Acknowledgment of Residency:** India can recognize UNHCR cards as sufficient for accessing basic education, work, and health services.
 - UNHCR cards refer to **identification documents issued by the United Nations High Commissioner for Refugees (UNHCR)** to individuals who have been recognized as refugees or asylum seekers.
 - UNHCR is the United Nations agency responsible for protecting and supporting refugees worldwide.
 - UNHCR cards **serve as proof of the individual's status as a refugee or asylum seeker** and may grant them certain rights and access to services in the country where they reside.
- **Global Credibility and National Security:** Treating refugees better would enhance **India's global credibility and serve national security interests** by documenting new arrivals and discouraging them from remaining under the radar.
 - The report suggests that **India can play a proactive role in facilitating resettlement opportunities for Rohingya refugees** by advocating for their acceptance in ally countries such as the **U.S., Canada, Australia, Germany, and other European nations**.

What can be the Reasons behind India's Decision not to Sign the 1951 Refugee Convention?

- **Issue with Definition of Refugee:** According to the 1951 convention, **refugees are defined as people who have been deprived of their civil and political rights, but not their economic rights**.

- If the violation of economic rights were to be included in the definition of a refugee, **it would clearly pose a major burden on the developed world.**
- **Sovereignty Concerns:** Countries may be reluctant to sign international agreements that they believe could **compromise their sovereignty or interfere with their domestic policies and decision-making processes.**
 - By not signing the convention, **India retains the freedom to implement its own refugee policies.**
- **Limited Resources:** India is one of the **most populous countries in the world** and already faces significant challenges in providing basic services and resources to its own population.
 - Signing the convention might result in **increased responsibilities and resource burdens related to the protection and support of refugees.**
- **Regional Dynamics:** India is located in a region that has been historically affected by various conflicts and displacement situations.
 - The country has faced influxes of refugees from neighbouring countries, due to the **porous nature of borders in South Asia.**
 - However, India is still **bound by other international human rights treaties and customary international law principles.**

What is the Current Legislative Framework in India to Handle Refugees?

- India treats all foreigners whether illegal immigrants, refugees/asylum seekers or those overstaying visa permits under
 - **Foreigners Act of 1946:** Under Section 3, the central government is empowered to **detect, detain and deport illegal foreign nationals.**
 - **Passport (Entry into India) Act, 1920:** Under Section 5, authorities can remove an **illegal foreigner by force under Article 258(1) of the Constitution of India.**
 - **Registration of Foreigners Act of 1939:** Under this, there is a mandatory requirement under which all foreign nationals (excluding overseas citizens of India) visiting India on a long-term visa (more than 180 days) are required to register themselves with a **Registration Officer within 14 days of arriving in India.**
 - **Citizenship Act, 1955:** It provided provisions for renunciation, termination, and deprivation of citizenship.
 - Further, **Citizenship Amendment Act, 2019 (CAA)** seeks to provide citizenship to **Hindu, Christian, Jain, Parsi, Sikh, and Buddhist immigrants persecuted in Bangladesh, Pakistan, and Afghanistan.**
- India issued a **Standard Operating Procedure (SOP)** to be followed by all concerned agencies while dealing with foreign nationals who claim to be refugees.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. Consider the following pairs: (2016)

	Community sometimes mentioned in the news	In the affairs of
1.	Kurd	Bangladesh
2.	Madhesi	Nepal
3.	Rohingya	Myanmar

Which of the pairs given above is/are correctly matched?

- (a) 1 and 2
- (b) 2 only

- (c) 2 and 3
(d) 3 only

Ans- (c)

Mains

Q. How does illegal transborder migration pose a threat to India's security? Discuss the strategies to curb this, bringing out the factors which give impetus to such migration. **(2014)**

[Source: TH](#)

Malnutrition

For Prelims: [Malnutrition](#), **SAM**, **MAM**, **NFHS**, [Global Hunger Index](#), [POSHAN Abhiyaan](#).

For Mains: Malnutrition and its Prevalence.

Why in News?

Recently, the Orissa High Court has directed the State government to draw an action plan to ensure complete absence of **Severe Acute Malnutrition (SAM)** children and reduction of Moderate Acute Malnutrition (MAM) children by half in the State, by the end of 2023.

What is Malnutrition?

▪ About:

- Malnutrition refers to **deficiencies or excesses in nutrient intake**, imbalance of essential nutrients or impaired nutrient utilization.
- The double burden of malnutrition consists of both **undernutrition and overweight and obesity, as well as diet-related noncommunicable diseases**.
- Undernutrition manifests in four broad forms: **wasting, stunting, underweight, and micronutrient deficiencies**.

▪ Severe Acute Malnutrition:

- The [World Health Organisation \(WHO\)](#) defines 'severe acute malnutrition' (SAM) by **very low weight-for-height** or a mid-upper arm circumference less than 115 mm, or by the presence of nutritional oedema (**abnormal fluid retention in the tissues** resulting especially from lack of protein in states of starvation or malnutrition).
 - Children suffering from SAM are **nine times more likely to die in case of diseases** due to their weakened immune system.
- The SAM children are those in the red zone with a **higher risk of contracting secondary infection**. This category may suffer from severe illnesses.

▪ Moderate Acute Malnutrition:

- MAM, also known as wasting, is defined by a weight-for-height indicator between -3 and -2 z-scores (standard deviations) of the international standard or by a mid-upper arm circumference (MUAC) between 11 cm and 12.5 cm.
- MAM children show signs of malnourishment but are in the yellow zone which means their

lives are not under threat.

▪ **Prevalence:**

- India is ranked at the bottom of the [Global Hunger Index \(2022\)](#), which is determined by factors such as **child stunting, wasting, and death placing India in 107th** rank of 121 Countries.
- According to India's National Family Health Survey (NFHS-5) from 2019-21 reported that in children below the age of five years, **35.5% were stunted, 19.3% showed wasting, and 32.1%** were underweight.
 - The most cases of SAM are in Uttar Pradesh (3,98,359) followed by Bihar (2,79,427).
 - Uttar Pradesh and Bihar are also home to the highest number of children in the country.

▪ **Initiatives:**

- [POSHAN Abhiyaan](#): The government of India has launched the National Nutrition Mission (NNM) or POSHAN Abhiyaan to ensure a "Malnutrition Free India" by 2022.
- [Mid-day Meal \(MDM\) scheme](#): It aims to improve nutritional levels among school children which also has a direct and positive impact on enrolment, retention and attendance in schools.
- [The National Food Security Act \(NFSA\), 2013](#): It aims to ensure food and nutrition security for the most vulnerables through its associated schemes and programmes, making access to food a legal right.
- [Pradhan Mantri Matru Vandana Yojana \(PMMVY\)](#): Rs.6,000 is transferred directly to the bank accounts of pregnant women for availing better facilities for their delivery.
- [Integrated Child Development Services \(ICDS\) Scheme](#): It was launched in 1975 and the scheme aims at providing food, preschool education, primary healthcare, immunization, health check-up and referral services to children under 6 years of age and their mothers.
- [Anemia Mukht Bharat Abhiyan](#): Launched in 2018, the mission aims at accelerating the annual rate of decline of anaemia from one to three percentage points.

Way Forward

- To improve the health and well-being of women and children, **it is crucial to increase financial investments** in their health and nutrition. This will contribute to their sustainable development and overall quality of life.
- India should adopt an outcome-oriented approach when implementing nutrition programs. This means **focusing on achieving specific results and outcomes** rather than just implementing activities.
- It is essential to directly engage with nutritionally vulnerable groups such as the elderly, pregnant women, individuals with special needs, and young children. This will ensure that **key nutrition services and interventions reach** those who need them the most.

UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. Which of the following is/are the indicators/ indicators used by IFPRI to compute the Global Hunger Index Report? (2016)

1. Undernourishment
2. Child stunting
3. Child mortality

Select the correct answer using the code given below:

- (a) 1 only
- (b) 2 and 3 only
- (c) 1, 2 and 3
- (d) 1 and 3 only

Ans: (c)

Mains

Q. How far do you agree with the view that the focus on lack of availability of food as the main cause of hunger takes the attention away from ineffective human development policies in India? (2018)

[Source: TH](#)

Calcium-41 for Radiometric Dating

Why in News?

Scientists have suggested using **Calcium-41** for [Radiometric Dating](#) as an alternative to **Carbon-14** for determining the age of fossilized bones and rocks.

- They have suggested a technique called **Atom-Trap Trace Analysis (ATTA)** as a solution, because ATTA is sensitive enough to **spot Calcium-41, which is a rare isotope.**

What is Calcium-41 and ATTA?

- **Calcium-41:**
 - Calcium-41 is a **rare long-lived radioisotope** of calcium with a half-life of 99,400 years.
 - Calcium-41 is produced in the **Earth's crust when cosmic rays from space collide with calcium atoms** in soil or rocks.
 - This isotope has the potential to be employed in dating methods for objects that are older than what can be accurately determined **using carbon-14 dating.**
- **ATTA:**
 - It is based on **laser manipulation and detection** of neutral atoms.
 - The sample is vaporized, and the atoms are laser-cooled and loaded into a light and magnetic field cage.
 - By tuning the laser's frequency, **Calcium-41 atoms can be detected through electron transitions.**
 - **Electron transition:** In an atom, an electron in one orbital **can transition to the next if it's given a specific amount of energy;** then it jumps back by releasing that energy.
 - The researchers reported being able to spot one **calcium-41 atom in every 10^{16} calcium atoms** with 12% precision in seawater.
 - It is selective and avoids confusion with potassium-41 atoms.
- **Applications of ATTA:**
 - The successful application of a calcium isotope opens the **possibility of extension to other metal isotopes.**
 - ATTA can be adapted to study other isotopes, such as argon-39, krypton-81, and krypton-85.
 - In warmer climates, glaciers retreat and allow rock below to accumulate calcium-41. In colder climates, glaciers advance and block the calcium-41 from reaching the rock. This way, scientists **hope to use ATTA to study how long some rock has been covered by ice.**

What is Radiometric Dating?

▪ About:

- Radiometric dating is a method used to **determine the age of rocks, minerals, and fossils** based on the decay of radioactive isotopes.
- It relies on the principle that certain **isotopes of elements are unstable and spontaneously decay over time** into more stable forms. The rate of decay is measured by the **half-life, which is the time it takes for half of the parent isotope** to decay into the daughter isotope.
- Different isotopes have different half-lives, which makes them useful for dating different time ranges.
 - For example, **carbon-14 dating is effective for dating organic materials up to about 50,000 years old**. When an organic entity is alive, its body keeps absorbing and losing carbon-14 atoms. When it dies, this process stops and the extant carbon-14 starts to decay away.
 - Using the difference between the relative abundance of these atoms in the body and the number that should've been there, researchers can estimate when the entity died.

▪ Limitations with Carbon-14:

- Carbon-14 is an unstable and weakly radioactive isotope of carbon. It has a half-life of 5,700 years and is **used to estimate the age of carbon-based materials**.
- Carbon dating using Carbon-14 is limited to objects up to 50,000 years old due to carbon-14's 5,700-year half-life.

[Source: TH](#)

The Genetic Legacy of Neanderthals in the Human Nose

Why in News?

Recent research conducted by a team of scientists from the University College London and Fudan University, in collaboration with researchers worldwide, has shed light on the [genetic factors influencing the human nose](#).

- The study identified **genetic loci associated with the nose**, including one locus influenced by **Neanderthal ancestry**.

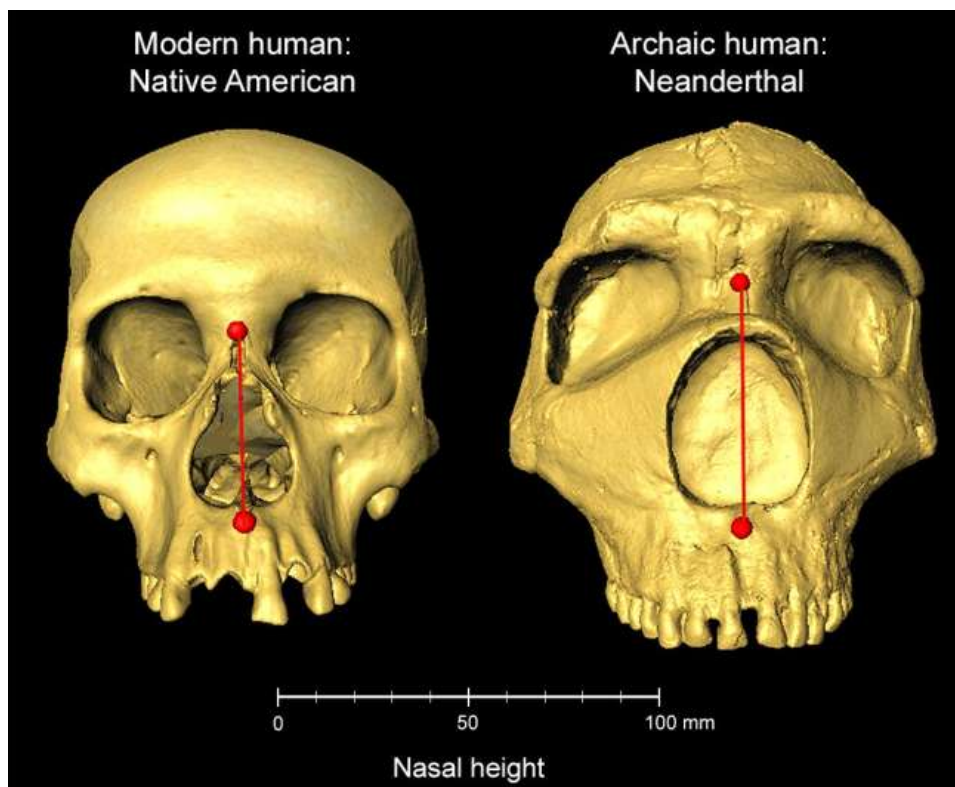
What are the Key Highlights of the Research?

▪ The Genetic Study:

- The study analyzed **2D images** and measured **distances between facial landmarks** in over 6,000 Latin American individuals.
- The research identified **42 new genetic loci associated with the nose**, with **26 of them being replicated in diverse populations including Asians, Europeans, and Africans**.
 - A 'locus', plural '**loci**', is the **position of a particular gene** on the human chromosome.
- One specific locus, **1q32.3**, **previously linked to Neanderthal** genetic contributions, was found to influence **midface height**.
 - The **1q32.3 locus contains the gene ATF3 (activating transcription factor 3)**, which is regulated by the **forkhead box L2 (FOXL2) gene involved in skull and facial development**.

▪ The Legacy of Neanderthals:

- Genetic evidence suggests that **Neanderthals and early humans interbred**, leading to the **introgression of Neanderthal genomic sequences** into the **human population**.
- The influential work of evolutionary geneticist **Svante Pääbo, who won the Nobel Prize for Physiology and Medicine in 2022**, has provided key insights into the interbreeding events between **archaic hominids, such as Neanderthals and Denisovans, and modern humans**.
 - This interbreeding has left lasting genetic imprints on our species, affecting various traits and disease susceptibilities.
 - **Non-African populations today carry about 1-2% of Neanderthal DNA**, highlighting the genetic legacy of this interbreeding event.
- Apart from nose shape, Neanderthal genetic contributions have been implicated in the **way humans respond to pathogens** and their susceptibility to certain skin and blood conditions, cancers, and even depression.
- The study highlights the growing body of evidence indicating **the profound impact of Neanderthal and Denisovan genomes** on modern human biology and health.



▪ The Future of Genomic Research:

- The investigation of interbreeding events and their consequences represents an **exciting frontier in genomic research**.
- As more studies contribute to **our understanding of the interplay between archaic and modern human genomes**, we will gain a more comprehensive picture of our genetic heritage.
- This knowledge has **the potential to revolutionize the study of diseases** and enhance our appreciation for the intricate tapestry of human genetic diversity.

Who are Neanderthals?

▪ About:

- Neanderthals lived in **Eurasia** from approximately 400,000 to 40,000 years ago.
- They were a species of archaic humans closely related to modern humans, sharing a common ancestor.

▪ Physical Characteristics:

- Neanderthals had a **robust build and a stocky physique**, adapted for survival in **colder**

environments.

- They possessed distinct physical features, including:

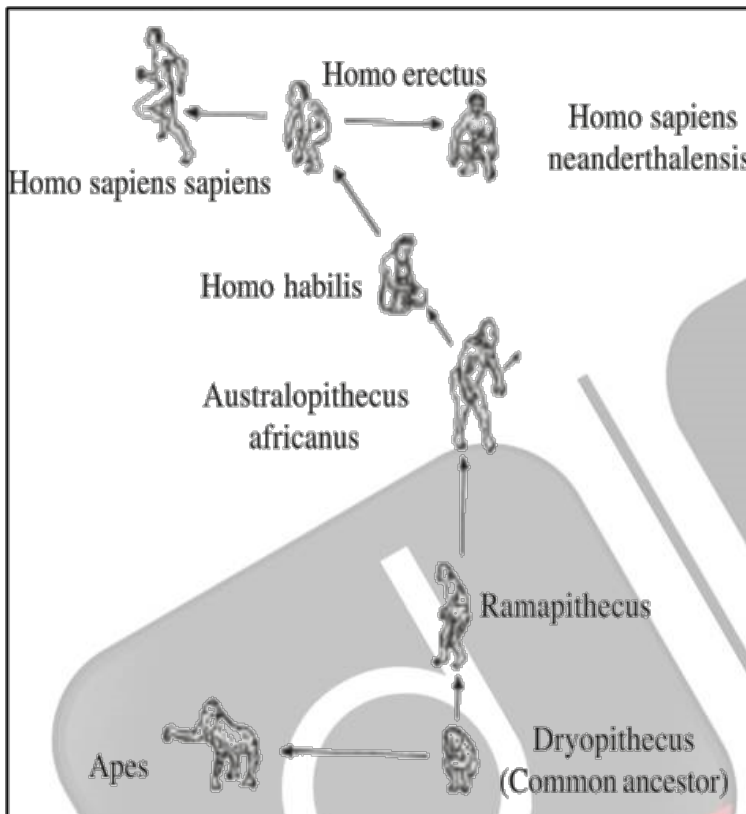
- **Prominent brow ridge.**
- **Large nose.**
- **Receding chin.**

▪ **Skills and Tools:**

- Neanderthals were skilled **hunters and toolmakers.**
- They utilized stone tools and weapons for various purposes, reflecting their adaptability and resourcefulness.

▪ **Cultural Sophistication:**

- Neanderthals had a sophisticated culture, as evidenced by:
 - **Symbolic behavior, such as cave paintings and personal ornaments**
 - Burial rituals, indicating an awareness of death and possibly spiritual beliefs.
 - Artistic expressions, showcasing their creativity and cognitive abilities.



[Source: TH](#)

World Food India 2023

Why in News?

In celebration of the [International Year of Millets in 2023](#), India's Ministry of Food Processing Industries will be organizing the second edition of 'World Food India 2023', which aims to **showcase India's rich food culture and attract global investments in the diverse [food processing sector](#).**

- The event will take place from **3rd-5th November 2023** in New Delhi.

What is World Food India 2023?

▪ About:

- **World Food India 2023** is a **gateway to the [Indian food economy](#)**, facilitating partnerships between Indian and foreign investors.
- It will be a **one-of-a-kind gathering of manufacturers, producers, food processors, investors, policymakers, and organisations** from across the global food ecosystem.
- It is a promising platform to **showcase, connect and collaborate in retail, processing, technology transfer, manufacturing, and cold chain logistics, along the global food value chain.**
 - It will showcase investment opportunities in **backward linkages, processing equipment, research and development, cold chain storage, start-ups, logistics, and retail chains.**

▪ Focus Pillars:

- **Shree Anna (Millets): Leveraging India's Super Food for the World**
 - Millets are ancient grains that have been part of **India's rich heritage for millennia.**
 - They are **super foods that provide high nutrition, gluten-free options, climate resilience, and eco-friendliness.**
 - Millets can enhance **food security, [nutrition security](#), and sustainability in the face of global challenges** such as climate change, population growth, and malnutrition.
 - The **[United Nations](#) has declared 2023 as the International Year of Millets (IYM 2023)** with the aim of increasing the production and consumption of millets worldwide.
- **Exponential Food Processing: Positioning India as the Global Hub**
 - **India has a vision to become a global hub for food processing** and create a competitive advantage for itself in the world food market.
 - To achieve this vision, India intends to boost its enablers that can **support and accelerate its food processing industry.**
 - One of the key enablers is **Financing Agri Food Value Chains.** Providing adequate and affordable credit to the food processing sector, **especially to the [micro, small and medium enterprises \(MSMEs\)](#)** that constitute a major part of the industry is one of the key focus areas of India.
- **Strategic Segments: Unlocking Potentials for Growth**
 - India has a dynamic and diverse food processing industry that encompasses several sub-sectors such as **[marine products](#), fruits and vegetables products, meat and poultry products, RTE/RTC (packaged foods), and dairy products.**
 - These sub-sectors have **immense potential for growth in terms of production, consumption, exports, and value addition.**
 - India is one of the **world's largest producers and consumers of food products.**
 - India leads the world in the **production of [milk](#), bananas, mangoes, papayas, guavas, ginger, okra and buffalo meat, ranks second in the production of [rice](#), [wheat](#), potatoes, garlic, cashew nuts.**
- **Efficient Ecosystem - Harnessing Opportunities with Inclusion**
 - An **efficient and all-encompassing ecosystem necessitates dismantling barriers and establishing a coordinated and integrated framework.** The creation of value chains and the promotion of knowledge sharing are crucial to generate inclusive opportunities.
 - In order to entice foreign investment, the **government has opened the doors to 100% foreign direct investment and is making efforts to enhance its standing in the [Ease of Doing Business index](#).**
- **Sustainable Development: Processing for Prosperity**
 - **[Sustainable Development](#)** constitutes a fundamental component in the attainment of **Processing for Prosperity.**
 - These technologies, encompassing renewable energy sources and sustainable

agricultural and food processing practices, have become prominent and promising trends, signifying a transformation in the global approach towards a **more sustainable future**.

World Food India 2017

- The Ministry of Food Processing Industries launched the **first edition of World Food India in 2017 with the theme of Transforming the Food Economy**.
 - The event aimed to **introduce the world to India's diverse and rich food culture**.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q.1 An objective of the National Food Security Mission is to increase the production of certain crops through area expansion and productivity enhancement in a sustainable manner in the identified districts of the country. What are those crops? (2010)

- (a) Rice and wheat only
- (b) Rice, wheat and pulses only
- (c) Rice, wheat, pulses and oil seeds only
- (d) Rice, wheat, pulses, oil seeds and vegetables

Ans: (b)

Q.2 Among the following, which one is the largest exporter of rice in the world in the last five years? (2019)

- (a) China
- (b) India
- (c) Myanmar
- (d) Vietnam

Ans: (b)

Mains

Q.1 In what way could replacement of price subsidy with Direct Benefit Transfer (DBT) change the scenario of subsidies in India? Discuss. (2015)

Source: PIB

International Museum Expo 2023

Why in News?

Recently, the Prime Minister (PM) of India inaugurated the **International Museum Expo 2023** in New Delhi to celebrate the 47th [International Museum Day \(IMD\)](#).

- The PM also unveiled the plan for what is set to be the world's largest museum, **Yuge Yugeen Bharat**, which will capture **5,000 years of India's history**.

What is International Museum Day?

- **About:** IMD is **observed on 18th May** every year to raise awareness among people about the museums.
 - **2023 Theme:** 'Museums, Sustainability and Well Being'
- **History:** The Day was instituted in 1977 by the [International Council of Museums \(ICOM\)](#).
- **Objective:** To raise awareness about the fact that museums are an important means of cultural exchange, enrichment of cultures and development of mutual understanding, cooperation and peace among peoples.
- **International Museum Day and SDG:** Each year since 2020, the **International Museum Day supports a set of Goals from the [Sustainable Development Goals of the United Nations](#)**. In 2023, we will focus on:
 - **Goal 3 Global Health and Wellbeing, Goal 13 Climate Action, Goal 15 Life on Land.**

What is International Council of Museum?

- ICOM is a **membership association and a non-governmental organisation** that establishes professional and ethical standards for museum activities. It is the **only global organisation in the museum field**.
- It was **created in 1946 and is headquartered in Paris, France**.
- The **ICOM Red Lists of Cultural Objects at Risk** are practical tools to curb the illegal traffic of cultural objects.

What are the Major Highlights of the Expo?

- The Prime Minister unveiled the **Mascot of the International Museum Expo, the Graphic Novel - A Day at the Museum, the Directory of Indian Museums, the Pocket Map of [Kartavya Path](#), and Museum Cards**.
 - The **Mascot of the International Museum Expo** is a contemporized version of the **Dancing Girl made of wood in the Chennapatnam art style**.
- The Prime Minister also highlighted the significance of museums in **preserving history, promoting sustainability, and fostering a sense of well-being**.
 - **Preserving Heritage and Reviving Cultural Infrastructure:**
 - Emphasis is being placed on **conserving [India's rich heritage](#) and reviving long-lost aspects of the country's cultural legacy**.
 - A new cultural infrastructure is being developed to showcase India's fight for independence and its **extensive thousand-year-old heritage**.
 - **Ten special museums** are being established to **honour and immortalise the contributions of tribal communities in India's freedom struggle**.
 - **Promoting Sustainability and Well-being:**
 - The theme of '**Sustainability and Well-being**' aligns with the present-day global priorities, recognizing the **significant role museums play in raising awareness and promoting sustainable practices**.
 - **Combating Smuggling and Appropriation of Artefacts:**
 - The **challenges of smuggling and appropriation of artefacts, particularly for countries with ancient cultures like India**, have been acknowledged.
 - Efforts are **being made to recover and repatriate stolen artefacts**, resulting in the retrieval of **over 240 ancient items in the past nine years**.
 - **Examples: [18th-Century Annapurna statue stolen from Banaras](#) (recently returned from Canada), the **12th-Century statue of Mahishasur****

- Mardini stolen from Gujarat** (returned by New York's Met Museum in 2018), and the **idols of Nataraja built during the Chola Empire**.
- Increased cooperation among art connoisseurs and museums worldwide is **advocated to prevent the unethical acquisition of artworks**.

Administration of Museums in India

- Multiple ministries hold charges of various Museums.
- Not all Museums are administered by the **Ministry of Culture**.
- Some are run without government support by a handful of people **under a Board of Trustees**.

Notable Museums in India

- National Museum, New Delhi (Subordinate Office under the Ministry of Culture)
- National Gallery of Modern Art, Bengaluru
- Victoria Memorial Hall (VMH), Kolkata
- Asiatic Society, Kolkata
- National Museum of Natural History (NMNH), New Delhi

[Source: PIB](#)

Rapid Fire Current Affairs

Centre of Excellence on Sustainable Land Management

The [Centre of Excellence on Sustainable Land Management \(CoE-SLM\)](#) was formally inaugurated on 20th May 2023 at the **Indian Council of Forestry Research and Education (ICFRE), Dehradun**. This initiative was announced by the **Prime Minister of India** during the 14th [Conference of the Parties \(COP-14\)](#) of the [United Nations Convention to Combat Desertification \(UNCCD\)](#) in 2019. The CoE-SLM aims to **tackle land degradation issues** through **sustainable land management practices**, promote **South-South Cooperation**, and contribute to achieving [Land Degradation Neutrality \(LDN\)](#). By leveraging technical support, capacity building, and knowledge sharing, the CoE-SLM intends to restore degraded land, align with international conventions and goals such as the [SDGs](#), [Convention on Biological Diversity](#), and [UNFCCC](#), and address the impacts of land degradation on [greenhouse gas emissions](#) and biodiversity loss. The establishment of the CoE-SLM reflects the Indian government's commitment to environmental conservation and combating climate change.

Read more: [Dialogue on Desertification](#), [Land Degradation and Drought](#)

DRI Busts Ambergris Smuggling Gang



The [Directorate of Revenue Intelligence \(DRI\)](#) has made a significant breakthrough by busting an [Ambergris smuggling gang racket](#), which poses a threat to the **nation's flora and fauna**.

The DRI is an Indian intelligence agency that functions under the [Central Board of Indirect Taxes and Customs \(CBIC\)](#), Ministry of Finance. It was constituted in 1957 as the apex anti-smuggling agency to counter the menace of smuggling and commercial frauds related to **international trade and evasion of customs duty**. The DRI also works as the lead agency for **Anti-Smuggling National Coordination Centre (SCord)**, which coordinates the efforts of various agencies involved in anti-smuggling activities. The DRI has a network of regional and zonal units across the country, as well as overseas liaison offices in some countries.

Ambergris, known as "**whale vomit**," is a solid **waxy substance** that originates in the intestines of [sperm whales](#). Produced by only around **1% of these whales**, ambergris contains alkaloids, acids, and a compound called ambreine, similar to cholesterol. It is often found floating on the surface of water bodies and occasionally washes up on coastlines. Due to its **high value**, ambergris is often referred to as "**floating gold**". The main use of ambergris is in the **perfume industry, particularly for creating musk fragrances**. Countries like Dubai, known for their large perfume market, have a high demand for ambergris. Additionally, ancient Egyptians used it as incense, and it is believed to have been used in traditional medicines and as a spice. However, due to its value, ambergris has become a target for smugglers, especially in coastal areas.

Read more: [Directorate of Revenue Intelligence \(DRI\)](#) , [Ambergris](#)

Arsenic Exposure

A recent study has highlighted the **potential cognitive impacts of even low levels of arsenic consumption on children, adolescents, and young adults in India**. The research revealed that individuals exposed to arsenic displayed reduced grey matter and **weaker connections** in crucial brain regions responsible for **concentration, task-switching, and information storage**. It suggests that **chronic exposure to arsenic could be a "silent pandemic" affecting a significant portion of the global population**. The researchers analysed that the arsenic exposure, primarily through **food intake**, was strongly correlated with the consumption of rice, especially in south India. However, cooking rice in a specific way can significantly reduce the naturally occurring arsenic content by over **50% in brown rice and 74% in white rice** without compromising the rice's micronutrient content.

The research is part of the **C-Veda initiative**, a collaborative effort between **India and the United Kingdom to assess the impact of various risk factors on cognitive development**, including vulnerable populations in industrialising and industrialised societies.

Arsenic is an **odourless and tasteless metalloid** widely distributed in the earth's crust. It is naturally present at high levels in the earth crust and groundwater of a number of countries. **It is highly toxic in its inorganic form. Arsenicosis** is the medical word for **arsenic poisoning**, which occurs due to accumulation of large amounts of arsenic in the body.

Read more: [Arsenic Contamination](#)

Annual Forex Spends up to ₹7 Lakh Exempted from TCS

India will **not impose a 20% tax on spending of up to 7 lakh rupees through international debit and credit cards** in a financial year to eliminate any procedural uncertainties. This decision comes in response to concerns raised regarding the application of [Tax Collection at Source \(TCS\)](#) to small transactions under the [Liberalised Remittance Scheme \(LRS\)](#) from **July 1, 2023**.

It clarified that expenditures up to **₹7 lakh per year would neither fall under the LRS nor be subject to TCS**. To facilitate this exemption, the necessary changes to the [Foreign Exchange Management \(Current Account Transactions Rules\), 2000](#) would be separately issued.

Additionally, the ministry emphasised that the existing beneficial TCS treatment for education and health payments would continue, with a **TCS rate of 5% for such payments up to ₹7 lakh per year**.

Also, the **Reserve Bank of India** recently introduced a new provision under the LRS, allowing individuals to make **forex remittances** of up to **USD 2.5 lakh annually**.

Read more: [Liberalised Remittance Scheme](#), [Reserve Bank of India](#).

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