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GS 1 HISTORY

Coronation Park: An address in Delhi synonymous with rise and wane of British power

#CoronationPark #DelhiDurbar #LordCurzan #BritishRaj #ModernHistory #History #GS1

This is the same place where the coronation of as many as three British monarchs were celebrated many decades ago.

Shortly after the 1857 rebellion, it was decided that the East India Company's rule would be replaced by direct rule by the Crown. The **first Durbar was organised in 1877** at the park and while Queen Victoria did not attend it, it was used to announce the crown's takeover of India.

Notably, **despite the capital of the Raj still being in Calcutta, the Durbar was organised in Delhi**. The move to conduct the celebrations in Delhi proved to be a popular one with the then Princely States invited to the Durbar.

It was also where **Ganesh Vasudeo Joshi, a founding member of the Poona Sarvajanik Sabha**, took the opportunity to politely ask the Queen "to grant to India the same political and social status as is enjoyed by her British subjects".

According to Swapna Liddle, **Delhi was seen as the historic capital of India**, the seat of the Mughals from where they once ruled over a large part of the subcontinent. In an interview with the Delhi Art Gallery, she shared that **Abul Fazl's Akbar Nama claimed that Delhi had been the seat of power since the time of Indraprastha.** However, Delhi only emerged as a power centre in the late thirteenth century.

When Edward VII succeeded Victoria, a similar ceremony was held in 1903 in the same spot. Then again in 1911, a grander Durbar was held to celebrate the coronation of George V where it was announced that the Raj's capital was being shifted from Calcutta to Delhi.

In the middle of the park, exactly where the 1911 Durbar was held, stands a tall stone obelisk commemorating the Durbar held in honour of George V's ascension to the throne. Beside the obelisk is a statue of the King himself standing solemnly, which had earlier stood at the India Gate till the 1960s before it was unceremoniously removed. The **park also houses statues of King Edward VII and Viceroys such as Lord Hardinge and Lord Chelmsford**, among others. Tucked away on another end of the park is an open gym, where locals gather to exercise.

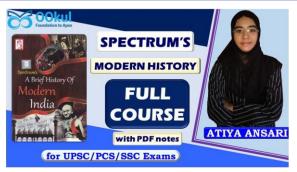
Among the three Durbar gatherings held at the park, it is the 1903 event that perhaps most vividly lingers in the collective memory. The two weeks of festivities were overseen with meticulous detail by the then Viceroy of India, Lord Curzon. Again, the King never attended the festivities and sent his brother Duke of Connaught in his stead.

The Coronation Durbar swiftly earned the moniker of the **"Curzonization Durbar,"** as suspicions arose that **Lord Curzon viewed the** occasion less as a celebration of the new king's ascension and more as a personal commemoration of his own Viceroyalty. This was especially highlighted by Curzon's entry into Delhi and the Durbar atop a bejewelled elephant, leading a convoy of several Indian kings and princes seated on gold-adorned elephants as well.

It would also lead to the downfall of Curzon. Disputes over the escalating expenses, particularly since India was still reeling under the immense aftereffects of a famine, left a lingering bitterness for years to come. In March 1911, the Under-Secretary of India, Edwin Montagu, would reveal to the House of Commons that the Durbar cost the crown around £2,99,000.

Not even the 1911 Durbar could surpass the glitz and glamour of its predecessor. The only events of note that took place during the ceremony were the announcement of the decision to shift the capital to Delhi and the annulment of the 1905 Bengal partition. And, of course, the infamous appearance of the Gaekwad of Baroda, Maharaja Sayajirao III, conspicuously without his jewels and his show

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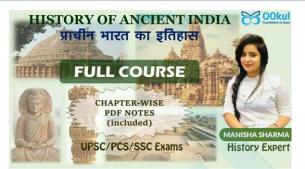






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GS 1 ART AND CULTURE

What House panel report on ASI says about 'rationalising' protected monuments, and rules governing them

#ProtectedMonuments #ASI #ArchaelogicalSurvey #AdoptAHeritage #MinistryOfCulture #MonumentMitra #ArtandCulture #GS1

Claiming that many of the 3,691 centrally protected monuments (CPM) in India are "minor" monuments, a parliamentary committee has recommended that the list should be "rationalised and categorised" on the basis of their national significance, unique architectural and heritage value.

Besides, it has also raised questions about the functioning of the Archaeological Survey of India (ASI), the custodian of all CPMs in India, in terms of its administration, security, restoration work and general upkeep of heritage sites.

The committee

The recommendations are part of the '359th Report on the Functioning of Archaeological Survey of India' by the Parliamentary Standing Committee on Transport, Tourism and Culture, which was presented to Parliament last week. During its tenure, the committee held four meetings, with the Ministry of Culture and the Administrative Head of ASI, and with NGOs Indian National Trust for Art and Cultural Heritage (INTACH) and Aga Khan Trust for Culture (AKTC) in August.

Pruning the list of protected monuments

The committee said the list includes a large number of minor monuments with no national significance. It is estimated that this applies to at least a quarter of the current list of 3,691 monuments. In this regard, it says the list includes 75 graves of colonial-era soldiers or officials of no notable importance. Some specific examples have also been cited.

For instance, "a small brick wall enclosure containing two graves located in Kumta, Karnataka, is a protected monument under the supervision of the ASI". The graves are those of public works department engineer John Albert Cope (died in 1880) and Henry Gassen (died 1877) who worked for a cotton ginning company. The structure had no architectural value, and the individuals were of no historical significance, the committee said. Yet, they are supposed to get the same level of protection as the country's most cherished monuments. The committee recommends that the list of monuments with ASI should be rationalised and categorised on the basis of their national significance, unique architectural value and specific heritage content. Deletion of some of the kosminars (milestones built by Mughals) may also be considered, because they come in the way of road-widening exercises.

Easing restrictions around monuments

The committee said the **provision of a 100metre prohibited area and 300-metre regulated area around all ASI-protected monuments leads to public inconvenience**. This provision was **introduced in 2010 through an amendment in the AMASR Act, 1958**, and **prohibits and regulates all activities like mining and construction around 100 metres and 300 metres of all the protected monuments.** This, the panel said, causes problems for the local community living around it. In some cases, the entire village is within a radius of 300 metres, which makes it difficult for the village to repair their residential houses.

The panel said the same rule applies equally to both significant and insignificant monuments. For instance, the rules above apply identically to the Ajanta and Ellora monuments as much as to kosminars, unknown cemeteries and tombs.

Fixing ASI's core mandate

The committee said that **preservation of a monument or a site is a core mandate of the ASI and recommended the central agency to develop preservation plans for all its work, especially before excavations.** This includes establishing clear strategies for documenting findings, conserving artefacts, and restoring structures to ensure minimal impact on the site's integrity. The ASI should focus on areas that have the potential to answer crucial historical questions and contribute to a deeper understanding of India's rich past, it said.

It also advocated the use of advanced technologies such as LiDAR, groundpenetrating radar, and 3D scanning enhanced accuracy and efficiency of excavations. Some of these techniques were recently used inside the Gyanvapi complex in

Varanasi by the ASI for its court-mandated noninvasive survey, the report of which is yet to be made public.

Alternatively, to make the ASI an effective agency, it advised bifurcation of the organisation, the committee said. While the ASI can look after the core mandate exploration, excavation and conservation aspects, the India Heritage Development Corporation (IHDC) can deal with ASI's revenue. such as ticket collection. conducting auctions, issuing licences, running cafeterias, selling mementoes and running sound and light systems.

What happens to missing monuments?

The committee said that the CAG had declared 92 CPMs as "missing". The ASI has located only 42 of these monuments, while the remaining 50 monuments are either affected by rapid urbanisation, submerged under reservoirs/dams or are untraceable. The committee observes that "monuments once lost cannot ever be retrieved. The CPMS are central to our historical heritage. The ASI should, therefore, give the highest priority to ensuring the physical security of all CPMs across the country."

It recommended that the ministry may conduct a survey of all remaining monuments to ensure their physical existence and safety. It also recommended that regular physical surveys of all CPMs should be carried out from time to time. The ASI should maintain digital log books that include textual and photographic/ video records of the monument's physical state and location coordinates, it said, adding that this would also allow the ASI to check encroachment, if any, of these CPMs at an early stage.

Shortage of resources, fund crunch

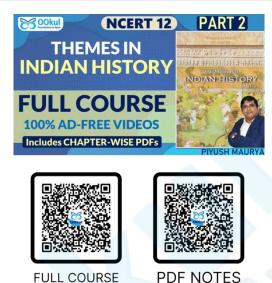
The agency stated that as far as conservation work is concerned, there is an issue of shortage of human resources. The **Ministry of Culture**, **under whose aegis the ASI functions**, said it is finding ways and means to acquire human resources by outsourcing some work. However, the ASI expressed that this has its own

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GS 1 SOCIAL ISSUES

Dilemma in court: Should 'viable' foetus be aborted or given life support?

#MedicalTerminationOfPregancy #Abortion #ViableFoetus #HealthIssue #WomenandChildCare #GS1

As A two-judge Supreme Court bench on Wednesday failed to reach an agreement on a woman's request for medical termination of her 26-week-old pregnancy, it brought a key medical question before the court: whether a "viable" foetus should be terminated or provided with life support in cases of abortion at advanced stages.

In the current case of a **27-year-old woman, who already has two children and is suffering from postpartum depression**, a sixmember medical board on October 6 advised against the termination, citing three reasons.

First, termination at an advanced stage of pregnancy can still lead to postpartum psychosis, a severe condition where the mother experiences hallucinations and delusions.

Second, the mother had undergone a cesarean section during her two previous pregnancies, increasing the risk of complications. And, most importantly, the baby

is already viable and has a "reasonable chance of survival".

However, on October 9, the bench allowed the abortion.

But on Wednesday, after one of the members of the medical board sought clarification from the court, the two-judge bench failed to reach an agreement regarding the woman's request for abortion.

In the present case, four key medical issues have been raised in the clarification sought by the doctor. First, the doctor has highlighted that the baby is currently viable, which means it will show signs of life and has a strong possibility of survival. Hence, the doctor has sought a directive on whether foeticide, the stopping of the foetal heart, can be performed before termination. "We perform this procedure for a foetus which has abnormal development, but generally not done in a normal foetus," the doctor wrote.

Second, the doctor has highlighted issues in a scenario if the foeticide is not performed. The doctor has said that a baby who is born preterm and with low birth weight will have a long stay in the intensive care unit, with a high possibility of "immediate and long term physical and mental disability", "…which will allowing Medical Termination of Pregnancy (MTP).

"(The foetus) having crossed the statutory limit of 24 weeks, the requirements either in **Section 3(2)(b) or Section 5** must be met," it said. As per these provisions, MTP in case of a foetus exceeding 24 weeks can only be allowed if it is necessary for saving the life of the mother or if the foetus suffers from physical or mental abnormalities. The bench said the medical reports don't "indicate that a termination is immediately necessary".

----E----D-----

GS 1 GEOGRAPHY

What is Glacial Lake Outburst Flood (GLOF), and why does it happen?

#GlacialLakeOutburstFlood #GLOF #GlacialLake #GlacierLandforms #NaturalDisasters #Geography #GS1

Fourteen people have been killed and 102, including at least 23 Army personnel, are missing in Sikkim as of Thursday morning after the South Lhonak Lake — a glacial lake situated in the state's northwest at 17,000 ft — burst due to incessant rains, leading to the release of water in downstream areas. This caused the rise of water levels in Teesta river that flooded at least four districts, including Mangan, Gangtok, Pakyong and Namchi.

What is GLOF?

Glacial lakes, like the South Lhonak Lake, are large bodies of water that sit in front of, on top of, or beneath a melting glacier. As they grow larger, they become more dangerous because glacial lakes are mostly dammed by unstable ice or sediment composed of loose rock and debris. In case the boundary around them breaks, huge amounts of water rush down the side of the mountains, which could cause flooding in the downstream areas. This is called glacial lake outburst floods or GLOF.

GLOF can be **triggered by several reasons**, including earthquakes, extremely heavy rains and ice avalanches.

In 2013, one such event took place in Uttarakhand's Kedarnath when the region witnessed flash floods along with a GLOF caused

by the Chorabari Tal glacial lake, killing thousands of people.

How did South Lhonak Lake become susceptible to GLOF?

With the **rising global temperatures**, glaciers in Sikkim Himalayan have been melting rapidly, giving rise to many glacier lakes and expanding the already existing ones in the region. There are currently more than 300 glacial lakes in Sikkim Himalayan, according to the Sikkim State Disaster Management Authority. Out of these, 10 have been identified as vulnerable to outburst floods.

----N---E---X---T----

Large ozone hole detected over Antarctica: Is it a matter of concern? #OzoneHole #OzoneDepletion #UVrays

#OzoneDepletion #Ovidys #CausesOfOzoneDepletion #CholoroFlouroCarbons #Wildfires #ClimateChange #Geography #GS1

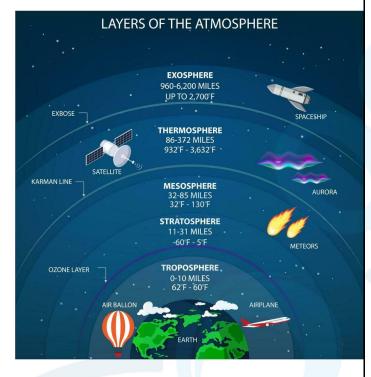
Satellite measurements over Antarctica have detected a giant hole in the ozone layer.

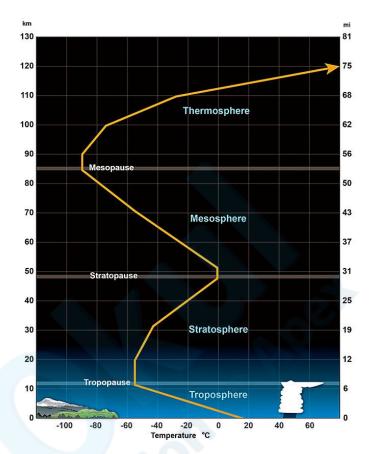
The hole, which scientists call an "ozonedepleted area" was **26 million square kilometers (10 million square miles) in size, roughly three times the size of Brazil.**

The **European Space Agency Copernicus Sentinel-5P satellite** made the recordings on September 16, 2023, as part of the EU's environmental monitoring program. Experts believe the hole in the **ozone is not likely to increase warming on the surface of Antarctica**.

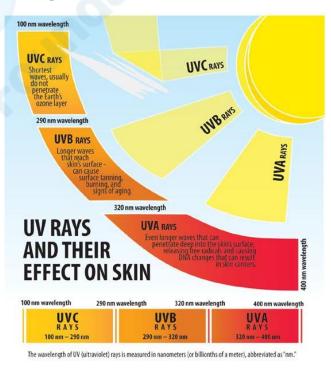
What is the ozone layer?

Earth's atmosphere comprises five major layers: (from the lowest) troposphere, stratosphere, mesosphere, thermosphere and exosphere. What is commonly referred to as the ozone layer is a region within the stratosphere (15-50 km above Earth's surface) where the concentration of ozone is the highest — although even at the layer's thickest, there are no more than a few molecules of ozone for every million air molecules.





Nonetheless, this layer is critical for planetary life as it absorbs harmful ultraviolet rays coming from the sun.



What is an ozone 'hole'?

An ozone 'hole' is actually just an area where there is a depleted concentration of the gas. This depletion was first noticed in the early 1980s, and considered by scientists at the time the greatest existential threat to life on Earth. It



GS 2 POLITY

ED must give grounds of arrest in writing to accused: SC #GroundsOfArrest #ED #Article22 #PMLA #FundamentalRights #Polity #GS2

Underlining that the Enforcement Directorate (ED) is "not expected to be vindictive in its conduct", the Supreme Court ruled that the **agency must furnish the grounds of arrest in** writing to the accused at the time of arrest.

The bench said the **investigating officer** reading out the reasons for arrest to the accused does not fulfil the mandate of Article 22(1) of Constitution and Section 19(1) of the PMLA.

Article 22(1) reads:

22. Protection against arrest and detention in certain cases.—(1) No person who is arrested shall be detained in custody without being informed, as soon as may be, of the grounds for such arrest nor shall he be denied the right to consult, and to be defended by, a legal practitioner of his choice.

Section 19(1) of PMLA reads:

Power to arrest

19(1) If the Director, Deputy Director, Assistant Director or any other officer authorised in this behalf by the Central Government by general or special order, has on the basis of material in his possession, reason to believe (the reason for such belief to be recorded in writing) that any person has been guilty of an offence punishable under this Act, he may arrest such person and shall, as soon as may be, inform him of the grounds for such arrest.

----N---E---X---T----

ED can redact 'sensitive' portions from document recording arrest grounds: SC ruling

#EnforcementDirectorate #GroundsOfArrest #SensitivePortion #Article22 #PMLA #FundamentalRights #Polity #GS2

In its October 3 judgement directing the Enforcement Directorate (ED) to furnish the grounds of arrest in writing to accused persons, the **Supreme Court also gave the agency liberty to redact any "sensitive portions" that may find mention in the document "so as to safeguard the sanctity of the investigation"**.

It also said the **ED should not categorise anything short of an admission of guilt from a person summoned for interrogation as an 'evasive reply'**.

----N---E---X---T----

When can a bill be designated as a 'money bill': SC to hear challenge #MoneyBill #FinanceBill #Article110

#MoneyBill #FinanceBill #Article110 #Parliament #Polity #GS2

Chief Justice of India DY Chandrachud said on Friday (October 6) that a **seven-judge bench will soon be set up to hear a batch of pleas challenging the Centre's use of the Money Bill route to pass certain key legislations.** The CJI's observation was made when he was hearing a plea specifically challenging certain amendments to the Prevention of Money Laundering Act (PMLA).

The 7- judge bench will essentially examine whether a law was validly categorised as a Money Bill or only to circumvent scrutiny of the Rajya Sabha.

What is a Money Bill?

Article 110 of the Constitution deals with Money Bills. A money bill is a bill that, in the opinion of the Speaker of the Lok Sabha, deals with taxation or the appropriation of public funds — the Consolidated Fund of India or the Contingency Fund of India. A money bill can only be introduced in the Lok Sabha, and the Speaker categorising a bill as a "money bill" means that it need not be passed by the Rajya Sabha. The union budget, for example, is a money bill.

According to Article 110 (3) of the Constitution, "if any question arises whether a Bill is a Money Bill or not, the decision of the Speaker of the House of the People thereon shall be final." This raises the question of the extent of judicial review possible on the Speaker's decision. However, the court in the 2018 Aadhaar case had said that the Speaker's decision will be subject to judicial scrutiny.

Under Article 110(1), a Bill is deemed to be a money Bill if it deals only with matters specified in Article 110 (1) (a) to (g) taxation, borrowing by the government, and appropriation of money from the Consolidated Fund of India, among others. Article 110(1)(g) adds that "any matter incidental to any of the matters specified in Articles 110(1)(a)-(f)" can also be a Money Bill.

Citing this additional clause, the Modi government has introduced several key legislation as a Money Bill, bypassing the Rajya Sabha. The Opposition has argued that this was done only because the government did not have the numbers to get these legislations cleared in the Rajya Sabha.

What will the larger bench decide?

The constitutionality of three key legislations, including the PMLA, will be examined afresh by the larger bench in the light of whether these laws qualified as a money bill. The other two are the Aadhaar Act and the 2017 amendments altering service conditions of Tribunals. While the PMLA, Aadhaar Act have been substantially upheld by the Court, the SC had struck down the tribunal amendments as unconstitutional.

1. PMLA

In July 2022, a three-judge bench comprising Justices AM Khanwilkar, Dinesh Maheshwari and CT Ravikumar had upheld the PMLA and the vast powers of the ED. However, the bench had left the validity of amendments to the PMLA through the Money Bill route open for a larger Constitution bench to hear.

The Finance Acts passed in 2015, 2016, 2018 and 2019, brought in crucial amendments to the PMLA. Finance Bills passed during the budget are introduced as money bills under Article 110 of the Constitution.

2. Aadhaar Act

The first major challenge on whether a bill qualified to be a money bill under the Constitution was in the Aadhaar case. In a 4:1 majority, the Supreme Court in 2018, had ruled in favour of the government and had cleared the Aadhaar Act as a valid money bill under Article 110 of the Constitution.

Incidentally, Justice Chandrachud had been the lone dissenter in the Aadhaar ruling of 2018, criticising the government for passing the Aadhaar Act as a money Bill. He had called it a "fraud on the Constitution" and "subterfuge". The government had argued that since the subsides distributed through Aadhaar flows from the Consolidated Fund of India, the law is validly categorised as a Money Bill.

3. Tribunal reform

In November 2019, in **Roger Matthew**, versus union of India, the Supreme Court heard the challenge against tweaks in the service conditions of tribunal members which was also introduced as a money bill in the Finance Act, 2017. On the issue of tribunals, the government had argued that since salaries of members of Tribunals flow from the Consolidated Fund of India, the amendments were introduced as a Money Bill.

While a five-judge bench of the court struck down the law as unconstitutional for interfering

with judicial independence, it referred the money bill aspect to a larger constitution bench.

In doing so, the court also expressed doubts over the correctness of a five-judge Constitution Bench's 2018 verdict upholding the Aadhaar Act which had been passed as a money Bill.

----N---E---X---T----

SC to hear petition challenging electoral bonds: What is the scheme and its criticisms?

#ElectoralBonds #PoliticalDonations #FreeAndFairElections #Polity #GS2

The Supreme Court said on Tuesday that it will hear petitions challenging the electoral bonds scheme on October 31. The 2018 scheme introduced instruments through which money could be donated to political parties in India. However, in April last year, the court had said it would take up the petitions filed by two NGOs — Common Cause and Association for Democratic Reforms (ADR) — challenging the scheme.

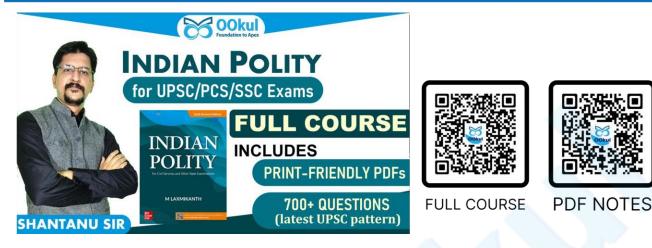
What is the electoral bonds scheme?

Announced in the 2017 Union Budget, electoral bonds are interest-free bearer instruments used to donate money anonymously to political parties. Simply put, anyone can donate money to political parties through them.

Such bonds, which are **sold in multiples of Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh, and Rs 1 crore**, can be **bought from authorised branches of the State Bank of India (SBI).** As such, a donor is required to pay the amount say Rs 10 lakh — **via a cheque or a digital mechanism (cash is not allowed)** to the authorised SBI branch.

The political parties can choose to **encash such bonds within 15 days of receiving them** and fund their electoral expenses. There is **no limit on the number of bonds an individual or company can purchase.** If a **party hasn't enchased any bonds within 15 days, SBI deposits these into the Prime Minister's Relief Fund.**

CHECK OUT OUR INDIAN POLITY COURSE & PDF NOTES



GS 2 GOVERNANCE

Govt issues guidelines to prevent suicide among students

#GuidelinesToPreventSuicide #UMMEED #SchoolWellnessTeam #Governance #GS2

The **Union Ministry of Education (MoE)** released the draft guidelines for schools to prevent suicide among students, prescribing in its 'plan of action' the setting up of wellness teams, orientation of teachers and family members, and immediate response to students exhibiting warning signs.

Titled **UMMEED** (Understand, Motivate, Manage, Empathise, Empower, Develop), the guidelines aim to serve as "directions to schools for enhancing sensitivity, understanding, and providing support in case of reported selfharm".

"A school wellness team (SWT) may be formed under the leadership of the school principal, where each member is oriented in handling crisis situations. When a student displaying warning signs has been identified by any stakeholder, they need to be reported to the SWT, which takes immediate action," the guidelines state. The guidelines recommend **an** orientation a year for teachers and family members, to help build awareness around student suicides. These orientations will be conducted by the schools for the capacitybuilding of various stakeholders. ----N---E---X---T----

52nd GST Council meeting: States flag issue of 'retrospective taxation' on online gaming firms #GSTCouncil #OnlineGaming #RetrospectiveTaxation #ExtraNeutralAlcohol #GSTAppellateTribunal #Governance #GS2

The issue of **tax demand notices** (under section 156 of Income Tax Act 1961) being served on gaming companies and others under the Goods and Services Tax (GST) regime was raised at the GST Council meeting on Saturday, with some states terming it as "retrospective taxation" even as the Centre defended the 28 per cent levy.

Revenue Secretary Sanjay Malhotra underlined that **it is not retrospective taxation**, as liabilities from these companies already existed.

The Council, in its 52nd meeting, also recommended that **Extra Neutral Alcohol** (ENA), used for manufacture of alcoholic liquor for consumption, be kept outside the GST ambit, along with a cut in the GST rate on molasses from 28 per cent to 5 per cent. The Council clarified that the GST rate for corporate guarantees provided by a parent company to its subsidiaries will be levied at 18 per cent. Millet flour in powder form, containing at least 70 per cent millet by weight, will not attract any GST if sold loose, but will face 5 per cent levy if sold in pre-packaged, labelled form.

The Council also gave its nod to **cap the maximum age of the GST Appellate Tribunal** (GSTAT) president and members at 70 years and 67 years respectively, as against the earlier age limit of 67 and 65 years. The minimum age for appointment would be 50 years. Also, an advocate with up to 10 years of substantial experience in litigation under indirect tax laws would be eligible for judicial membership in the tribunal.

----N---E---X---T----

Centre to create autonomous body Mera Yuva Bharat to 'harness immense youth energy for nation-building'

#MeraYuvaBharat #MYBharat #YouthScheme #GovernmentSchemes #Governance #GS2

After the passage of the women's reservation Bill last month, the government has launched an initiative to tap into a big constituency—the 40crore youth population—ahead of the Lok Sabha elections. Prime Minister Narendra Modi's cabinet on Wednesday approved the establishment of an autonomous body called Mera Yuva Bharat (MY Bharat) for "youth-led development and to provide equitable access to the youth".

Announcing that the **country has 40 crore people in the age group of 15-29 years**, Anurag Thakur, Union minister for youth affairs and sports, and information and broadcasting, said the **primary objective of MY Bharat is to become an overarching platform for youth development.** The **MY Bharat portal will be unveiled on October 31 to mark the birth anniversary of Sardar Vallabhbhai Patel**, he said.

The **platform** is meant to offer suitable opportunities for youngsters to engage in voluntary work in the field of their choice and look for such opportunities across the country. It will act as a one-stop shop for young people and various central government ministries, and will also create a centralised youth database. However, Thakur clarified there will be no financial remuneration involved.

Under the new arrangement, with access to resources and connection to opportunities, the youth will become agents of community change and nation builders, acting as the **Yuva Setu (a youth bridge)** between the government and the citizens, the minister said.

The establishment of MY Bharat would **improve leadership skills in youngsters through experiential learning.** It would also lead to investing more in the youth to make them social innovators and leaders.

----N---E---X---T----

India ranks 111th on Global Hunger Index 2023; 'erroneous measure of hunger', says govt #GlobalHungerIndex2023 #GHI2023 #RankandIndices #Hunger #Governance #GS2

India ranked 111th out of 125 countries in the Global Hunger Index 2023, a standing the government termed "erroneous and having malafide intent".

In the index released on October 12, **India has a** score of 28.7, indicating a serious level of hunger. The country came after neighbouring countries Pakistan (102nd), Bangladesh (81st), Nepal (69th) and Sri Lanka (60th). However, India fared better than South Asia and Africa South of the Sahara, which recorded a score of 27 each.

While the **rate of undernourishment in India stood at 16.6 percent** and **under-five mortality at 3.1 percent**, the **prevalence of anaemia in women aged between 15 and 24 years stood at 58.1 percent**.

As per the index, **India also has the highest child wasting rate in the world at 18.7 percent, reflecting acute undernutrition**. questions. As the party that rules at the Centre, and in several states, the greater responsibility is on the BJP, however, to ensure that important lines are not crossed, and the governing principle of non-political domains is given its due respect. At stake is public trust in the system's functioning in the long term.

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CHECK OUT OUR GOVERNANCE COURSE & PDF NOTES



GS 2 INTERNATIONAL RELATIONS

Nagorno-Karabakh conflict: History, India's response

#NagarnoKarabakhConflict #LachinCorridor #BishkekProtocol #IndiaArmeniaRelations #IndiaAzerbaijanRelations #InternationalNorthSouthTransportCorridor #InternationalRelations #GS2

The conflict over the decades

Nagorno-Karabakh is a mountainous region officially recognised as part of Azerbaijan. But its 1.2 lakh population is predominantly ethnic Armenian, having close cultural, social, and historical ties with Armenia. Basically, Nagorno-Karabakh is an ethnic Armenian enclave in Azerbaijan. The Armenians are Christians, while Azeris are Muslims. The conclave is connected to Armenia through the 5-km Lachin Corridor.



The region has seen conflicts of influence between regional powers since the medieval period — imperial Russia, Ottoman Empire (modern-day Turkey) and the Persian empire (Iran). When Czarist Russia gave way to the Soviet Union in 1921, Nagorno-Karabakh was part of the Azerbaijan SSR (Soviet Socialist Republic).

In 1923, USSR established the Nagorno-Karabakh Autonomous Oblast—home to a 95 per cent ethnically Armenian population within the Azerbaijan Soviet Socialist Republic. As the Soviet Union collapsed, the first round of tensions over Nagorno-Karabakh began in 1988, with its regional legislature passing a resolution declaring its intention to join Armenia, despite being geographically located within Azerbaijan.

When the Soviet Union was dissolved in 1991 and Armenia and Azerbaijan achieved statehood, Nagorno-Karabakh officially declared independence.

War then broke out between Armenia and Azerbaijan, killing about 30,000 people. By 1993, Armenia had captured Nagorno-Karabakh, and additionally, occupied 20 per cent of Azerbaijan's geographic area.

In 1994, Russia brokered a ceasefire known as the Bishkek Protocol. "This made Nagorno-Karabakh de facto independent with a selfproclaimed government in Stepanakert, but still heavily reliant on close economic, political, and military ties with Armenia," a background note on the conflict by Council on Foreign Relations said.

Sixteen years later, **in September 2020, Azerbaijan and Armenia went to war again**. This time, Azerbaijan managed to wrest control of the territory around Nagorno-Karabakh.

Russia again brokered a deal, and provided peacekeeping forces along the Lachin Corridor. But having tasted victory, Azerbaijan wanted more concessions and no peace deal was inked.

Azerbaijan is said to have got support from Turkey and Pakistan in the form of weapons and personnel. Pakistan military personnel are believed to have helped the Azerbaijan forces, and on the ground, there were reports of Syrian, Libyan and Afghan fighters as well.

In December 2022, the Lachin Corridor was blockaded by Azerbaijan, causing severe shortages of essential goods including food, fuel and water in Nagorno-Karabakh.

On September 19, days after an agreement to reopen the Lachin Corridor for aid deliveries sparked hopes of easing the crisis, Azerbaijan launched an "anti-terrorist" offensive in Nagorno-Karabakh and claimed to have regained full control over the region.

India's position

On the conflict, India has always steered clear of taking sides.

In 2020, after the conflict broke out, it had said, "India believes that any lasting resolution of the conflict can only be achieved peacefully through diplomatic negotiations."

India has ties with both Armenia and Azerbaijan. Importantly, the region is central to its plans of connectivity through the south Caucasus region.

India's ties with Armenia date back millenia. Historians have suggested that when Assyrian warrior queen Semiramis invaded India in 2000 BC, some Armenians accompanied her. According to literary evidence, Indian settlements in Armenia were established by two princes (Krishna and Ganesh escaping from Kannauj) in 149 BC.

The first guidebook to Indian cities in Armenian was written in the 12th century. **A few Armenian traders had come to Agra during the Mughal Empire.** Emperor Akbar, who is believed to have an Armenian wife Mariam Zamani Begum, granted them privileges and considerable religious freedom.

In the 16th century, Armenian communities emerged in Kolkata, Chennai, Mumbai and Agra. Today, the vestigial community is mainly settled in Kolkata.

In contrast, **historical ties between India and Azerbaijan have been more recent** — the **'Ateshgah' fire temple in the vicinity of Baku is an 18th-century monument, with a much older history, and has wall inscriptions in Devanagari and Gurmukhi.** It is a surviving proof of the hospitality that Indian merchants on the Silk Route to Europe enjoyed in Azerbaijani cities such as Baku and Ganja.

In modern times, after the collapse of the Soviet Union, **India recognised the independence of Armenia and Azerbaijan and established diplomatic relations.** With Armenia, India opened its embassy in 1999, has a treaty relationship, and has received as many as three Heads of State. There have been two visits from India at the level of Vice President.

Prime Minister Narendra Modi met his Armenian counterpart in New York in September 2019, which was followed by the External Affairs Minister's visit to Yerevan in 2022.

Armenia publicly endorses India's position on the resolution of the Kashmir issue on a bilateral basis and supports India's aspiration for a permanent seat in the expanded UN Security Council.

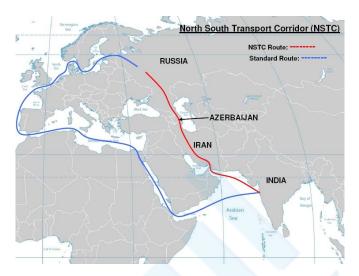
In fact, in 2022, the India-Armenia deal to supply Armenian armed forces with PINAKA multi-barrel rocket launchers (MBRL), antitank munitions, and ammunitions and warlike stores worth US \$250 million was viewed as Delhi siding with Yerevan.

In contrast, Azerbaijan's proximity to Pakistan has been perceived as an irritant in the ties. There has not been a single visit at the level of Head of State/ Government between India and Azerbaijan.

India's Nobel laureate Rabindranath Tagore, former President Dr S. Radhakrishnan (as Vice President in 1956) and former Prime Minister Jawaharlal Nehru (in 1961) had visited the Azerbaijan Soviet Socialist Republic. In recent years, Vice President M Venkaiah Naidu visited Baku for the NAM Summit in 2019, accompanied by External Affairs Minister S Jaishankar. Former External Affairs minister Sushma Swaraj had also visited Azerbaijan for the NAM ministerial meeting in 2018.

Because of the geographical location of Armenia and Azerbaijan, the region is important as a viable corridor for India's connectivity with Russia and Europe through Central Asia and Iran.

Armenia and Azerbaijan are members of the International North South Transport Corridor (INSTC), which India is keen to develop. India supports Armenia's proposal to include Iran's Chabahar port in INSTC.



Tensions in the region directly impact India's plans to bypass Pakistan as the gateway to Europe and Russia. New Delhi has to figure out a way around this.

----N---E---X---T----

How India-Israel ties progressed: from Palestine-leaning to a strategic embrace of the Jewish nation #IndiaIsraelRelations #IndiaPalestineRelations #IsraelPalestineConflict #ArabIsraelWar #AbrahamAccords #InternationalRelations #GS2

As Hamas, the militant group ruling the Gaza Strip, mounted one of the most audacious attacks on Israel — many have called it the worst inside the Jewish state's territory since its creation in 1948 — Prime Minister Narendra Modi expressed shock at what he called "terrorist attacks" and conveyed "solidarity with Israel".

New Delhi has never condoned Hamas' actions. But the arc of India's ties with Israel and Palestine has been a roller coaster over the past seven decades.

In the years post Independence

India's political attitude towards Israel was set quite firmly **shortly after independence in 1947, when Jawaharlal Nehru and Mahatma Gandhi vowed to support the Palestinian cause as they rejected the idea of two nations on the basis of religion**. While they had personalities but Gandhi towered above all others, and many others could also be controversial.

----N---E---X---T----

India's crude oil imports – Russia, Iraq gain at Saudi Arabia's expense in September

#CrudeOilImports #CrudeOilGrades #SourGrade #SweetGrade #HeavyOil #LightOil #Economy #GS3

After falling in August, India's imports of Russian and Iraqi oil recovered in September, most likely due to **their price advantage over comparable Saudi Arabian crude grades**, even as India's overall crude oil imports slumped to their lowest this year as the refinery maintenance shutdown season kicked in.

Currently, Saudi Arabia is the third-biggest supplier of crude oil to India, behind top supplier Russia, and Iraq in the second spot. Traditionally, Riyadh used to be New Delhi's second-biggest source of crude after Baghdad. But after the war in Ukraine broke out, Russia displaced Iraq and Saudi Arabia as India's largest oil supplier by offering deep discounts on its crude. Prior to the war, Russia was only a marginal player in India's oil trade.

Price competitiveness favours Russian crude and if the Indian refiners want to take term volumes from the Middle East, they seem to prefer Iraqi barrels as Basrah Medium continues to be some \$2 per barrel cheaper than (the competing Saudi Arabian crude grades) Arab Medium or Arab Light.

Indian refiners mostly purchase Russian crude from the spot market, while West Asian oil is predominantly bought through term contracts. A narrowing of discounts on Russian crude was seen as one of the primary reasons for the fall in India's oil imports from Moscow in August.

The recent rise in prices of Saudi Arabian crudes–like Arab Light and Arab Medium–vis-avis competing medium-sour grades like Oman, Dubai, and Basrah Medium from the region has led to a reduced appetite for the former. Russia's flagship grade Urals, which accounts for the lion's share of India's Russian oil imports–is also a medium sour crude.

India is the World's third-largest consumer of crude oil and depends on imports to meet over 85 per cent of its requirement. The country's overall crude oil refining capacity stands at over 5 million bpd.

Types of Crude Oil: Heavy vs Light, Sweet vs Sour, and TAN count

What is crude oil?

Crude oil is a black liquid found in geological formations. It is a fossil fuel, which means it is formed from dead organisms that are buried under intense heat and pressure.

But not all crudes are alike. There are three primary qualities that differentiate one oil from another: **Weight, Sweetness, and TAN count.**

Weight of crude: Light oil vs. Heavy oil

Heavy oil evaporates slowly and contains material that will be used to make heavy products like asphalt.

Light oil requires less processing and produces a greater percentage of gasoline and diesel than heavy oil.

The standard unit of measurement for oil weight is API Gravity. This scale was created by the American Petroleum Institute to measure the density of oil. Below are some visual examples of heavy oil and light oil.



The higher the API, the lighter the oil. The lower the API, the heavier the oil. Sweetness of crude oil

What makes a particular crude sweet or sour is the **amount of sulfur it contains**. **Sweet crude has very low levels of sulfur, well under 1%**. **Sour crude has as much as 1-2% of sulfur**.

Midstream companies and refiners that transport, store, and process sour oil know they need extra treating capabilities to take out the sulfur and sweeten the product.



TAN count of crude oil

TAN stands for **"Total Acid Number."** The **TAN** count of oil is a measure of how corrosive it is.

If a crude has a high TAN number, producers must use more robust metallurgy than standard

so their processes can handle that corrosivity and keep the crude in the pipe.

3.0 mg KOH/g	0.01 mg KOH/g
High Count ———— TAN Count	Low Count
Requires More Robust Metallurgy	Very Low Corrosivity

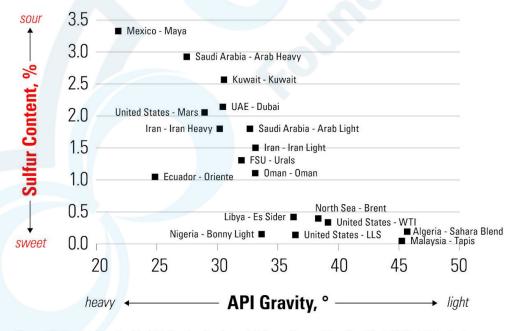
The Ideal Oil: Light & Sweet

The **ideal oil is light and sweet with a low TAN count**, while the harder to process oil is heavy and sour with a high TAN count.

Crude Oil Types List

There are over one hundred different crude oils traded on the market today.

These oils are typically labeled by the region they come from, and they have a specific chemical makeup. This graph below shows the sulfur content and weight of some of the most common.



Density and Sulfur Content of Selected Crude Oils

Source: U.S. Energy Information Administration, based on Energy Intelligence Group—International Crude Oil Market Handbook. United States-Mars is an offshore drilling site in the Gulf of Mexico. WTI = West Texas Intermediate; LLS = Louisiana Light Sweet; FSU = Former Soviet Union; UAE = United Arab Emirates.

Benchmark Crude Oils: OPEC, WTI, And Brent

The three most well-known regional benchmark oils are **WTI, Brent, and OPEC**.

• WTI stands for West Texas Intermediate. This is oil produced in the United States. It is typically on the lighter end of the spectrum, at an API gravity of 39.6. WTI **sulfur content is 0.24%**, putting it at the **sweeter end** of the spectrum.

- Brent oil comes from the Scottish Brent and Ninian Systems located in the North Sea. This oil is also light and sweet, with an API gravity of 38.3. Brent sulfur content is 0.37%.
- OPEC stands for "Organization of Petroleum Exporting Countries." It is a collective group of seven different crude oils from Algeria, Saudi Arabia, Nigeria, Dubai, Indonesia, Venezuela, and the Mexican Isthmus. The oil from these regions is typically on the heavier and sour end of the spectrum.

While logistics also play a role, typically **the lighter and sweeter an oil is, the more expensive it's going to be**.

----N---E---X---T----

Demand for jobs is falling, employment rate lower than in 2017: what data show

#LabourForceParticipationRate #LFPR #UnemploymentRate #EmploymentRate #Economy #GS3

The Bihar government has released some details about the state's caste survey that was conducted this year. The survey provides an understanding of how the whole population of the state is divided into different caste categories such as Backward Classes, Extremely Backward Classes, Scheduled Castes, Scheduled Tribes, General (or unreserved) etc.

The caste details could likely have massive political implications. That's because, in India, caste often plays a crucial role in determining the economic fortunes of people.

Some Basics on Employment Metrics

There are three variables that one needs to look at when talking about employment in India.

One is the **Labour Force Participation Rate** (LFPR). Simply put, it gives a sense of how many Indians are "demanding" a job.

The "Labour Force" consists of persons who are of 15 years of age or more and are either of the following two categories:

- 1. are employed
- 2. are unemployed and are willing to work and are actively looking for a job

The LFPR is expressed as a percentage of the working-age population.

The second variable is **Unemployment Rate** (UER). It is nothing but the number of people in the labour force who are looking for a job but as yet unemployed. The UER is expressed as a percentage of the labour force.

In everyday parlance, the unemployment rate often dominates the general public discourse. However, in India's case, the UER often underestimates the joblessness because the LFPR itself keeps falling.

Simply put, it has been found that if they do not get a job over time, a lot of unemployed people get discouraged and leave the labour force (that is, stop actively looking for a job). With unemployed people leaving the labour force, the ratio of unemployed to total labour force falls. As such, often in India, the UER falls not because more people have got jobs but because the LFPR itself falls (that is, when more people — who failed to get a job — stop looking for a job altogether).

As such, the best metric to look at is **Employment Rate (ER).** The ER dispenses with the labour force calculation and simply looks at the **total number of people employed as a percentage of the working-age population.** By not basing itself on LFPR, the ER avoids the problem of a falling LFPR artificially dragging the unemployment rate.

Caste-wise LFPR

Table 1 gives the details of caste-wise LFPR since the start of the 2016 financial year.

GS 3 ENVIRONMENT

Gujarat bans Conocarpus plants: Which other states stopped cultivating some trees, and why

#Conocarpus #ProsopisJuliflora #Eucalyptus #ExoticSpecies #Environment #GS3

The Gujarat government has banned the planting of **ornamental Conocarpus trees "in forest or non-forest areas"**, citing their **"adverse impacts on environment and human health"**.

Conocarpus, a fast-growing exotic mangrove species, had been a popular choice for increasing the green cover in Gujarat in recent years.

Earlier, **Telangana too had banned the plant species**.

Conocarpus is not the only plant species that has fallen out of favour after widespread use. In the past few years, **Delhi and Kerala have tried to control the growth of non-indigenous trees that were harming the local environment and flora and fauna due to their abundance.**

What happened in Gujarat?

Research reports have highlighted adverse impacts/ disadvantages of this species on environment and human health... Trees of this species flower in winter and spread pollen in nearby areas. It is learnt that this is **causing diseases like cold, cough, asthma, allergy etc...Roots of this species go deep inside the soil and develop extensively, damaging telecommunication lines, drainage lines and freshwater systems**.

Also, the **leaves of Conocarpus are unpalatable to plant-eating animals.**

What happened in Delhi with Vilayati Kikar?

In 2018, the Delhi government agreed to clear the capital's green lungs, the Central Ridge, of the Vilayati Kikar after years of appeals and court cases by activists. The Vilayati Kikar (Prosopis juliflora) is not native to Delhi, and was brought to the city in the 1930s by the British. As the tree grows fast even in arid conditions, it can quickly increase the green cover of an area, and be used as firewood. However, it also kills off competition. Thus, within a decade, it had taken over the Ridge, killing the native trees like acacia, dhak, kadamb, amaltas, flame-of-theforest, etc. Along with the trees disappeared the fauna — birds, butterflies, leopards, porcupines and jackals.

The **tree also depletes the water table of the area** it is planted in.

In 2016, the Madras High Court too passed an interim order for the removal of these trees as they were depleting the water table in areas already struggling for water.

In Delhi, the canopy of the trees is being shortened, so it uses less water and allows sunlight to reach the ground. More native trees are being planted, so they can suppress the growth of the Kikar.

What was Kerala's experience with Eucalyptus?

In Kerala's case too, it was the British who introduced the Eucalyptus tree to Munnar, so its wood could be used as fuel in tea plantation boilers. The **state forest department stopped the cultivation of acacia and eucalyptus in forest tracts in 2018**.

A study by The Wildlife Institute of India-Dehradun and Periyar Tiger Conservation Foundation in Kerala on man-animal conflict had found that foreign invasive plants had reduced the availability of fodder in forests, forcing animals to foray into settlements and farmlands. The quality of forest habitats had been lost due to the cultivation of alien plants such as acacia, mangium and eucalyptus in forest tracts for commercial purposes.

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In alarm over Conocarpus trees, echo of faulty policies on invasive exotics

#Conocarpus #ExoticSpecies #NonNativeSpecies #InvasiveSpecies #Ecology #Environment #GS3

Concerns over the management of the invasive Conocarpus species of trees have recently led Gujarat and, last year, Telangana, to ban their use. Several other states could follow suit which is likely to discourage horticulturists and nurseries from multiplying the species and using lakhs of its saplings in afforestation and landscaping projects across the country over the next year.

This has brought fresh attention to the process of selection of species in urban landscaping projects in particular, which favours the use of exotics for beautification and greening.

Problem with exotic plant species

It has been shown repeatedly that many species that were introduced to India previously for greening or ornamental projects **eventually turned invasive. Native species that failed to compete for space and soil resources were driven to extinction**, and significant costs were incurred to ensure the management of the invasive species. The list of these species is long — among the notable stories are those of **Eucalyptus, Prosopis juliflora (vilayati kikar), Acacia mangium, and Lantana camara** — and they continue to be used until considerable focus is brought on to their invasive characteristics.

There are two species of Conocarpus (buttonwood) trees, with several varieties and hybrids — Conocarpus erectus, which is more widely used in India, is native to South America, and C. lancifolius is native to East Africa. They are easily propagated and multiplied in nurseries through stem cuttings.

Serious pollen allergies and respiratory problems have been reported in the vicinity of their plantations, which has led to civic agencies taking action to ban them. The problems had already been noted in Kuwait and other parts of the Middle East, as well as in Karachi and Faizabad in Pakistan, when they started being used in greening projects in India.

India's losing battle

So while banning Conocarpus plantations seems to be the right thing to do, what is being done to address the root cause of this kind of problem?

It is Conocarpus today, it could be Leucaena tomorrow, and Mangium the day after. As is the case with exponential growth, by the time adverse impacts are visible to the public, it's already too late.

Conocarpus can hopefully still be managed, but we have certainly lost the chance to manage Prosopis juliflora and Lantana camara on public lands and commons. We can also no longer manage Leucaena leucocephala, which is battling it out with vilayati kikar for dominance in the urban woodlands of Delhi while nearly extinct native species gradually perish.

Short-sighted policies

Why do urban greening initiatives end up deploying these exotics in the first place?

The non-native species, in a biogeographic sense, often face very few or no pests or pathogens in new habitats, which makes their proliferation easy. Often, these species may require very little aftercare. **Some species like Conocarpus are not browsed by livestock, and are thus favoured for horticultural or landscaping projects.**

The problems surface only slowly and often much later.

The human population gets familiar with the local pollen calendar and, to a large extent, their immune systems coevolve. People in cities are exposed to a spectrum of allergens in any case, and respiratory allergies are common. Into this already precarious landscape comes new and newer plantations of exotics, which are ironically brought in often to improve urban air quality and aesthetics.

What can be done

Almost all horticultural species are well studied, and propensities, including phytochemical

GS 3 SCIENCE AND TECHNOLOGY

Physics Nobel 2023: They made it possible to watch electrons move #NobelPrize2023 #ElectronMovement #AttosecondScience #ScienceandTechnology #GS3

In our everyday lives, we are familiar with processes that happen so fast we are unable to observe them completely. For example, when a bullet is fired at an apple, we see the outcome — the smashed apple — but are unable to capture the entire process, which takes barely a few milliseconds. With the help of a camera that has a very high shutter-speed, it is possible to see every step of the bullet piercing the apple and coming out of it, destroying the apple in the process.

But there are a lot of other processes in the universe that are incredibly faster, especially at atomic and subatomic levels. Atoms or molecules make movements, or changes, that take just a few picoseconds (a trillionth of a second, or 10-12 seconds) or femtoseconds (10-15 seconds). Scientists found innovative ways to observe these processes, using unimaginably short pulses of light, similar to using extremely high shutter-speed cameras. But then they hit a barrier.

A matter of attoseconds

There were processes that were even faster, happening within a few **attoseconds** (thousandth of a femtosecond, or 10-18 second) — the motion of electrons within the atom, for instance. For a long time, femtosecond 'photography' was considered the limit. Production of shorter pulses of light, in the attosecond range, did not seem possible. Till the works of Pierre Agostini, Ferenc Krausz and Anne L'Huillier made it possible.

The 58-year-old Frenchman Agostini, 61year-old Hungarian Krausz, and 65-year-old L'Huillier, also French, were awarded the 2023 Nobel Prize in Physics "for experimental methods that generate attosecond pulses of light for the study of electron dynamics in matter". In the process, L'Huillier became just the fifth woman to win the Physics Nobel.

Attosecond science

To observe any process, the measurement must be made at a pace quicker than the rate of change. That is how clear images of moving objects are generated: for example, by making the shutter open and close faster than the motion being captured. But there is a limit to how fast the shutter speed can be.

Light pulses, the only plausible tool to capture processes at the atomic level, cannot be made indefinitely shorter. Light consists of waves, or vibrations in the electromagnetic field. The shortest possible pulse would have to be at least one cycle long, equivalent to its wavelength. For all sorts of light produced by laser systems, this cycle used to take at least a few femtoseconds to complete. This was longer than the sub-atomic motion that was happening in a matter of attoseconds. Scientists were therefore unable to glimpse the motion of electrons with existing technologies.

Femtosecond pulses had enabled scientists to observe the processes happening at the atomic or molecular level. But when one moves further down, at the sub-atomic level, things start to happen even faster. The dynamics of the electron, for example, are 100 to 1,000 times faster than that of the atom. A lot of that has to do with inertia. The atom is heavier, because of the nucleus, and has greater inertia. Lower the inertia, faster the dynamics.

Working independently, Agostini, Krausz and L'Huillier developed innovative methods, usually by mixing lights of different wavelengths, to produce attosecond pulses.

Watching electron dynamics

It is natural for scientists to try and observe every step of a process, so they can fully understand it. More importantly, it allows scientists to control the process by tweaking the intermediate steps and obtaining desired results. In fact, **this is the third Nobel Prize in this field in the last three decades**, underscoring the potential benefits of the science. The 1998 Nobel Prize in Chemistry to Egyptian scientist Ahmed Zewail, and the 2018 Nobel Prize for Physics to Gerard Mourou, Donna Strickland and Arthur Ashkin, were for breakthroughs in related science.

Potential uses

Attosecond science has potential applications in a variety of areas, from electronics to medicine, across disciplines in physics, chemistry and biology.

One of the active areas of research using this technology is in medical science, particularly in finding **therapies for cancer care.**

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Chemistry Nobel 2023: Winners showed how particles' size changes their behaviour, and why that's important

#ChemistryNobelPrize #NobelPrize2023 #Nanoparticles #QuantumDots #QuantumEffect #ScienceandTechnology #GS3

Every element exhibits specific properties, usually determined by the number of electrons in its atoms and the distribution of these electrons around the nucleus. Also, every piece of a pure element exhibits exactly the same properties, regardless of its size. A piece of pure gold, for example, has properties very different from a piece of silver or any other element, but every piece of gold, whether it is a large 100gram piece or a small 10 milligram one, has exactly the same properties. This is one of the fundamental facts of chemistry.

But about forty years ago, scientists started discovering something very remarkable. **Very small particles, in the nanoscale range, were found to behave slightly differently from larger particles of the same element**. A nanoparticle (sizes in the range of 1 to 100 billionth of a metre) of gold, for example, displayed properties different in some respects from larger particles of gold. Such deviant behaviour had been predicted in theory a few decades earlier, but never observed.

Alexei Ekimov was the first to notice this deviant behaviour in Copper Chloride nanoparticles around 1980. He was also able to manufacture these nanoparticles to show this change in behaviour. However, as he was working in the erstwhile USSR then, his finding was largely unknown in the rest of the world.

A few years later, Louis Brus, an American scientist working independently, discovered similar behaviour in Cadmium Sulphide nanoparticles. He too was able to create these nanoparticles with changed properties. Moungi Bawendi, who worked with Brus in the initial part of the career, later developed easier methods to efficiently produce nanoparticles that showed some desired deviant behaviour.

For their path-breaking research, done three to four decades ago, **Ekimov (78)**, **Brus (80)**, and **Bawendi (62) were awarded the 2023 Nobel Prize in Chemistry.** Thanks to their work, nanoparticles with desired deviant behaviour have become an integral part of a variety of modern appliances, including television, computer screens, and LED lamps. There are a wide range of applications in biochemistry and medicine as well.

Quantum dots

The deviant behaviour of small nanoparticles arises because of the emergence of quantum effects. The motion and behaviour of very small particles, like electrons, are radically different, and strange, when compared with any familiar object in normal human experience. Such strange behaviour at the sub-atomic level is described by the hugely successful Quantum Theory, developed by physicists 100 years ago.

But **nanoparticles are much larger compared with atoms**. Depending on the size of the atom, a nanoparticle can pack in thousands to millions of atoms. However, it was theorised, in the 1930s itself, that when the size of particles was reduced to nanoscale, it could give rise to quantum effects. **immense amount of matter believed to populate the expanses of space between galaxies**. As these radio waves zip through the cosmos, they can flag the presence of this intergalactic plasma — gas so hot that some or all its atoms are split into the subatomic particles electrons and ions.

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GS 3 DISASTER MANAGEMENT

Secret of durability of ancient buildings around the world #DurabilityOfBuilidings

#DisasterResilientStructures #DisasterManagement #GS3

Ancient structures are still standing thousands of years later, while scores of more recent structures are staring down their expiration dates: the concrete that makes up much of our modern world has a lifespan of around 50 to 100 years.

Scientists have been studying materials from long-ago eras — chipping off chunks of buildings, poring over historical texts, 'mixing up copycatrecipes —hoping to uncover how they've held up for millennia.

This reverse engineering has turned up a surprising list of ingredients that were mixed in to old buildings— tree bark, volcanic ash, rice, beer, and even urine.

Rome: self-healing concrete

Builders mixed materials like **burnt limestone** and volcanic sand with water and gravel, creating chemical reactions to bind everything together.

When cracks form, water is able to seep into the concrete, which activates the leftover pockets of lime, sparking up new chemical reactions that can fill in the damaged sections.

Mayan sculpture: tree juice

According to a study published earlier this year, the secret to the structures' longevity might lie in the trees that sprout among them. Local masons told researchers about using extracts from local **chukum** and **jiote trees** in the lime mix. When researchers tested out the recipe — collecting bark, putting the chunks in water and adding the resulting tree "juice" into the material — they found the resulting plaster was especially durable against physical and chemical damage.

India: depending on climate

In India, builders crafted blends of local materials to produce different properties.

In humid areas of India, builders used local herbs that help structures deal with moisture. Along the coast, they added jaggery, which can help protect from salt damage. And in areas with higher earthquake risks, they used super-light "floating bricks" made with rice husks.

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The message from Sikkim: Heed the water's warning

#GlacialLakeOutburstFlood #GLOF #SouthLhonakLake #GlacialLakeMonitoring #Himalayas #DisasterManagement #GS3

In the early hours of October 4, the southern bank of the **South Lhonak Lake** in Sikkim burst open, leading to an outflow of huge amounts of water. Flowing over the steep mountain slopes in the Teesta basin, a lethal mix of icy water and debris washed away whatever came in its way. The floods caused heavy damage to the **Chungthang Dam** and hydropower projects of NHPC. More than 35 people were killed, 14 bridges were washed away or submerged, 1,320 houses were severely damaged, drinking water supply lines and sewage networks were damaged and widespread damage to highways was reported in North Sikkim, Gangtok, due to GLOFs, standards to ensure the safety of projects in mountainous areas should be revised at the earliest.

Infrastructure projects in mountains dams, bridges and highways — must be subjected to stringent quality control measures. GLOFs and other floods in mountainous regions have shown that buildings constructed close to rivers were the first and the worst sufferers. Construction close to rivers should, therefore, be carefully regulated.

Scientific studies on glaciers in the country must be scaled up. Lack of funds and skilled personnel today mean that very few glaciers are monitored. **Climate projections indicate that glaciers are receding in the Himalayan** **region.** This means that **new lakes are likely to form and the existing ones could expand.** Glaciers are among the best indicators of climate change. It is, therefore, necessary to understand how these ice bodies respond to climate change in the different Himalayan zones — among the most data-scarce regions in the country.

The Himalayan region requires a comprehensive risk assessment that accounts for projected temperature rise, changes in precipitation patterns, and land-use/cover changes. This assessment should inform disaster risk-reduction strategies.

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GS 3 DEFENCE

Rajnath releases fifth positive indigenisation list at Navy seminar

#PositiveIndigenisationList

#AtmanirbharInDefence #Swavlamban2.0 #iDEX #DISC10 #DISC10PRIME #Defence #GS3

Defence Minister Rajnath Singh on Wednesday released the **fifth positive indigenisation list of 98 items for which there would be an import ban beyond indicated deadlines against them**. He released this list **comprising a range of weapons, ammunition, and sensors**—alongside other announcements during the plenary session of 'Swavlamban 2.0', **the two-day seminar of Naval Innovation and Indigenisation Organisation (NIIO).**

The list includes Futuristic Infantry Combat Vehicle, Articulated All-Terrain Vehicles, Remotely Piloted Air Borne Vehicles up to 25 Km with 2Kg Payload for Army, Naval Shipborne Unmanned Aerial System, Medium Upgrade Low Endurance Class Tactical Drone, Electric Light Vehicle for Army, Medium Range Precision Kill System for Artillery, Next Generation Low Level Light Radar for Army. At the event, he also launched 76 challenges for the industry under 10th Defence India Start-up Challenges **(DISC 10)** and **DISC 10 PRIME** of Innovations for Defence Excellence (iDEX) and five problem statements under iDEX for Fauji. iDEX is the flagship scheme under the Defence ministry to encourage innovation in the defence sector.

In addition, two INDUS X challenges under **'INDUS-X Mutual Promotion of Advanced Collaborative Technologies' (IMPACT)** challenges jointly finalised by iDEX and United States Department of Defense (US DoD) were launched by Rajnath.

He also released the Indian Navy's updated Indigenisation Roadmap 'Swavlamban 2.0'.

At the event, Navy Chief Admiral R Hari Kumar said the **Indian Navy has made a commitment to be a fully indigenous force by 2047.**

He said last year, the Navy sought solutions to 75 challenges, received more than 1,000 responses, declared 118 winners under **DISC 7 SPRINT** and **SPRINT-PRIME** and concluded over 100 technological development agreements between iDEX and the industry.

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USS Gerald R. Ford (CVN-78) Displacement: 100 000 tonnes Length: 333 metres Capacity: 80 aircraft Liaoning (CV 16) Displacement: 59 000 tonnes Length: 306 metres Admiral Kuznetsov Displacement: 59 000 tonnes Length: 306 metres Capacity: 50 aircraft HMS Queen Elizabeth Displacement: 65 000 tonnes Length: 280 metres Capacity: 40 aircraft

INS Vikramaditya Displacement: 45 000 tonnes Length: 284 metres Capacity: 30 aircraft















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GS 3 INTERNAL SECURITY

What UAPA sections have been invoked against NewsClick

#UnlawfulActivitiesPreventionAct #UAPA #AntiTerrorLaws #Terrorism #InternalSecurity #GS3

The Delhi Police has sealed the office of news portal NewsClick, alleging it received money for pro-China propaganda. The FIR against the portal invokes the **Unlawful Activities (Prevention) Act (UAPA)**, the stringent antiterror law.

Terror charges

The main allegation in the FIR against NewsClick is that the newsportal allegedly received illegal funding from China routed through the United States.

It is learnt that the FIR has been registered under various Sections of the UAPA. Among the

key provisions invoked is **Section 16, which prescribes punishment for terrorist acts**.

Section 15 of the UAPA defines "terrorist act" and is punishable with imprisonment for a term of at least five years to life. In case the terrorist act results in death, the punishment is death or imprisonment for life. This is an offence that describes violent acts that are serious in nature.

The provision reads: "Whoever does any act with intent to threaten or likely to threaten the unity, integrity, security, [economic security], or sovereignty of India or with intent to strike terror or likely to strike terror in the people or any section of the people in India or in any foreign country,..."

The provision describes the use of **"bombs**, dynamite or other explosive substances; causing death or loss/ damage/ destruction of property; disruption of any supplies or services essential to the life of the community in India; damage to the monetary stability of India by way of production or smuggling or circulation of high quality counterfeit Indian paper currency, coin or of any other material" as terrorist acts.

The other provisions invoked against NewsClick include Section 13 (unlawful activities), 16 (terrorist act), 17 (raising funds for terrorist acts), 18 (conspiracy), and 22 (C) (offences by companies, trusts) of the UAPA, along with IPC sections 153 A (promoting enmity between different group) and 120B (criminal conspiracy).

UAPA framework

UAPA presents an alternate criminal law framework where the general principles of criminal law are reversed. By relaxing timelines for the state to file chargesheets and its stringent conditions for bail, the UAPA gives the state more powers compared with the Indian Penal Code (IPC).

Enacted in 1967, the UAPA was strengthened by the Congress-led UPA government in 2008 and 2012. **The test for denying bail under the UAPA is that the court must be satisfied that a "prima facie" case exists against the accused**. In 2019, the SC defined prima facie narrowly to mean that the courts must not analyse evidence or circumstances, but look at the "totality of the case" presented by the state. In **NIA v Zahoor Ahmed Watali**, the SC read the bail provisions strictly, holding that courts must only be satisfied that a prima facie case can be made out to deny bail, and not consider the merit or the admissibility of the evidence.

Section 43D(5) reads: "Notwithstanding anything contained in the Code, no person accused of an offence punishable under Chapters IV and VI of this Act shall, if in custody, be released on bail or on his own bond unless the Public Prosecutor has been given an opportunity of being heard on the application for such release."

It adds: "Provided that such accused person shall not be released on bail or on his own bond if the Court, on a perusal of the case diary or the report made under section 173 of the Code is of the opinion that there are reasonable grounds for believing that the accusation against such person is prima facie true."

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'Unconventional' Israel-Hamas warfare tops anti-terror meet talks

#AntiTerrorConference #NationalSecurityGuard #UnconventionalWarfare #AntiTerrorForces #CounterTerrorism #InternalSecurity #GS3

As the Israel-Hamas war entered the sixth day Thursday, an anti-terror conference of special forces held in Delhi discussed the challenges of combating "unconventional warfare" in the light of ongoing conflict in the region with 33 foreign delegates, including from Israel, attending the conference.

The two-day conference, organised by the National Security Guard, was attended by representatives from all special anti-terror forces in the country including those raised by state police, central armed police forces and the armed forces, making it the first such conference ever organised in the country.

While the **basic aim of the conference was to achieve synergy and coordination among all special units India and friendly countries** to deal with emergency situations, the conference is cognisant of the developments in the Middle East that have taken place over the weekend. On the sidelines, a discussion was also held on how to prepare for unforeseen and unprecedented scenarios as witnessed during the Israel-Hamas conflict.

Israel was represented by embassy officials here. Among others, there were representatives from the US, UK, France, Germany, Japan and Uzbekistan.

The conference, titled **"Sub Conventional Threats-Challenges and Prospects for Definite and Enduring Solutions"**, brought together experts, practitioners and leaders from the special anti-terror forces to use their

INTERNATIONAL AFFAIRS

At war, says Israel, after worst Hamas attack in years, 300 killed and counting

#IsraelPalestineConflict #HamasMilitants #AlAlqsaMosque #SimchatTorah #GazaStrip #LevantRegion #InternationalAffairs

Hamas militants fired thousands of rockets and sent dozens of fighters into Israeli towns near the Gaza strip in an unprecedented surprise early morning attack during a major Jewish holiday, killing dozens and stunning the country.

Militants were holding hostages in standoff in two towns, **Beeri** and **Ofakim**, which is 15 miles (24 kilometers) from the Gaza border.

Hamas leader said the morning attack was only the start of what he called **"Operation Al Aqsa Storm".**

The Hamas incursion on **Simchat Torah**, a normally joyous day when **Jews complete the annual cycle of reading the Torah scroll**, revived painful memories of the 1973 Mideast war practically 50 years to the day, in which **Egypt and Syria launched a surprise attack on Yom Kippur**, the holiest day of the Jewish calendar, aiming to take back Israeli-occupied territories.

Levant region

The Levant is an approximate historical geographical term referring to a large area in the Eastern Mediterranean region of West Asia, roughly corresponding to modern-day Israel, Jordan, Lebanon, Syria, and certain adjacent areas.



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What is Australia's Indigenous Voice referendum?

#AustraliaIndigenousPopulation #Referendum #Democracy #InternationalAffairs

Australians will vote in a referendum on October 14 to decide whether the country's indigenous peoples should be formally consulted in making laws.

The referendum question reads: **"A Proposed** Law: to alter the Constitution to recognise the First Peoples of Australia by establishing an Aboriginal and Torres Strait Islander Voice. Do you approve this proposed alteration?"

A recent YouGov poll has found that the referendum is unlikely to pass.

Who are the 'First Peoples of Australia'?

The expression, as well as the word 'aboriginal', refers to the indigenous inhabitants of the continent — people who lived on the Australian mainland and surrounding islands for tens of thousands of years before the first Europeans arrived in the early 17th century.

The Torres Strait Islands, mentioned in the referendum question, is an archipelago of small islands in the Torres Strait, a narrow body of water between the northern tip of the state of Queensland and the large island of Papua New Guinea.

What does the referendum seek to do, and why?

The **referendum asks whether indigenous Australians should be recognised in the country's Constitution**, and whether a body called the indigenous "Voice to Parliament" should be set up to advise lawmakers on matters that impact their lives. The **Aboriginals find no** mention in Australia's 122-year-old Constitution.

Aboriginal people make up about 3.2% of Australia's population and track below national averages on most socio-economic measures. According to a government booklet containing information that would help people make the choice on whether to support or reject the vote, indigenous Australians have:

- A life expectancy 8 years shorter than non-Indigenous Australians;
- Worse rates of disease and infant mortality;
- A suicide rate twice as high as non-Indigenous Australians.

How did the Australian government's policies impact indigenous people?

Laws and policies made by the colonial settlers over time contributed to the marginalisation of the indigenous communities, who fared increasingly worse than their non-native counterparts on indicators like education and life expectancy.

Under the Infants Welfare Act of 1935, indigenous children on Cape Barren Island were removed from their families based on claims of child neglect. They were then placed in the care of non-native families and institutions and were kept separate from their culture, often facing abuse as well.

In recent years, legislation to improve the status of indigenous Australians has been introduced. Voting rights were granted in 1962, and in 1992 Australia's apex court decided that native title exists over particular kinds of lands unalienated Crown Lands, national parks and reserves — and that Australia was never terra nullius or empty land.

In 1997, a national inquiry was set up on tracking the Stolen Generation, resulting in the "Bringing Them Home" report. Australia's Parliament and all provincial governments issued statements recognising and publicly apologising to those generations.

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China launches new missile submarine

#NuclearSubmarine #SSGN #CruiseMissile #BallasticMissile #InternationalAffairs

China has launched its first nuclear guided missile submarine. This gives it land and sea attack options, once the sole province of the US and Russia.

Modified submarines seen in Chinese shipyards over the last 18 months are **Type 093B guided missile submarines.**

Threat to aircraft carriers

Known as **SSGNs** (Sub Surface Guided Nuclear), conventionally armed missile submarines were first developed by the Soviet Union during the Cold War to target US aircraft carriers with cruise missiles – long-range, precision weapons that are jet-propelled at subsonic speeds throughout their flights.

Unlike ballistic missiles, which are rocket propelled only in the initial phases of their flight, cruise missiles fly at low altitudes, skimming the surface of the sea and thus avoiding radar detection.

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Practice Questions

1. Consider the following factors:

- 1. High-yielding variety seeds
- 2. Fertilisers
- 3. Adequate irrigation facilities
- 4. Mechanised Farm Tools

How many of the factors given above were responsible for the Green Revolution?

- A. only one
- B. only two
- C. only three

2. With reference to the Dadasaheb Phalke Award, consider the following statements:

- 1. The award is given for "outstanding contribution to the growth and development of Indian cinema.
- 2. The award was first given in the year 1975.
- The award comprises a Swarna Kamal (Golden Lotus) medallion, a shawl and a cash prize of ₹20 lakh.
- 4. Asha Parekh has been conferred with the Dadasaheb Phalke Award for the year 2021.

How many of the statements given above are correct?

- A. only one
- B. only two
- C. only three
- D. all four

3. Consider the following countries:

- 1. Brunei
- 2. Indonesia
- 3. Malaysia
- 4. Laos
- 5. Vietnam
- 6. Cambodia

How many of the countries given above border South-China Sea?

- A. only three
- B. only four
- C. only five
- D. all six

4. Consider the following statements:

- 1. In 2020, China's Chang'e 5 mission returned samples from the moon.
- 2. Scheduled to launch in 2024, Japan's Martian Moons eXploration (MMX) aims to investigate the moons of Mars, Phobos

and Deimos, and gather information on how they formed.

- 3. JAXA's Hayabusa mission from 2003 to 2010 was the first time humans had brought back samples from a near-Earth object: the asteroid Itokawa.
- 4. NASA's OSIRIS-REx has been on a sevenyear mission to collect and return samples from an asteroid called Bennu — billions of kilometers from Earth.

How many of the above statements are correct?

- A. only one
- B. only two
- C. only three
- D. all four

5. With reference to a latest Lancet Commission report on gender inequity in cancer care, consider the following statements:

- 1. The report highlighted that even though men are at a higher risk of cancers that affect both genders, cancer incidence and mortality in women remains high.
- 2. Except in metropolitan cities and higher income group families, women are more likely than men to lack the knowledge and power to make informed decisions, the report said.

Which of the above statement/s is/are correct?

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

6. The Sammakka Saralamma Jatara is a biennial festival which is considered among the largest gatherings of tribal people in the world. The Jatara (yatra, or pilgrimage) begins from which state?

- A. Jharkhand
- B. Telangana
- C. Chhattisgarh