



EXCEL QUEST

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Antarctica's Doomsday Glacier



Iron Dome System and SkyHunter Missile



India keeping an eye on China-backed Colombo Port City



DCGI Approves Anti-COVID Drug Developed By DRDO



China launches Shenzhou 10 to prototype space station



Violent Clashes at the Troublesome Kyrgyzstan-Tajikistan Border



National Dengue Day 2021 - 16th May

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NTR Bhavan, Rd. No. 2, Banjara Hills, Hyderabad.

Contact: 91004 33442, 91004 33445

www.excelacademy.com

Director's message

Dear Aspirants,

During the past one month, the Country has seen the peak of second wave COVID19 infections with more than 4 lakh infections per day forcing various State Governments to declare lockdowns of varying durations. Due to imposition of strict measures to break the contact chain, the daily number of infections came down to 48,698 per day as on today with the weekly positivity rate declining to 2.97 percent and the case fatality rate standing at 1.31 percent. The total death count as on date stands at 3,94,493.

Owing to improvement in the situation both due to lockdown as well as rigorous vaccination drive, most of the State Governments have started the unlocking process and resumed normal economic activities albeit with a few restrictions amidst the apprehension of an impending third wave in the months of August /September 2021 and emergence of a new Delta Plus variant of the Virus which is highly infectious. Hence the need for stepping up vaccination drive of the entire population and following COVID appropriate behavior is the need of the hour and every citizen of the country is duty bound to cooperate with the efforts of the Government in containing this pandemic.

While the entire world was grappling with the COVID19 pandemic, a serious conflict broke out in the Middle East between Israel and Palestine during the month of May which was seen as the worst since 2014 in which more than 200 Palestinians and Israeli civilians died in the 11 day clashes between the Hamas and Israeli defence forces. While the 100 year old problem continues to pester, the immediate trigger for the current crisis was the impending eviction of several Palestinians living in Sheikh Jarrah, a neighborhood in East Jerusalem. In October 2020, an Israeli Court ruled that the Palestinians families located in Sheikh Jarrah be evicted by May 2021 and their land handed over to Jewish Families. In Feb 2021, several Palestinian families from Sheik Jarrah filed an appeal to the court ruling and prompted protests around the appeal hearings demanding an end to the forcible displacement of Palestinians from their homes in Jerusalem. In early May, after a Court ruled in favour of the evictions, the protests expanded with the Israeli Police deploying force against the demonstrators. Following weeks of daily demonstrations and rising tensions between protesters, Israeli settlers and the police during the month of Ramadan, violence broke out at the Al-Aqsa Mosque compound in Jerusalem with Israeli police using force against the violent protestors that left hundreds of Palestinians wounded.

After the clashes in Jerusalem's Old City, tensions increased throughout East Jerusalem, compounded by the celebration of Jerusalem Day. Following several days of violence throughout Jerusalem, Hamas, the militant group which governs Gaza and other Palestinian militant groups launched hundreds of rockets into Israeli territory killing a few civilians including an Indian citizen working as a nurse and injuring scores of others. Israel responded with air strikes and later used Artillary bombardments against the Hamas leaders, their infrastructure including residential buildings, media headquarters etc

inflicting heavy damage. On May 21st, Israel and Hamas agreed to a cease-fire brokered by Egypt with both sides claiming victory. During the over eleven days long fighting, more than two hundred and fifty Palestinians were killed and nearly two thousand others wounded and at least thirteen Israelis were killed. As per United Nations estimates, more than 72,000 Palestinians were displaced and tens of millions of dollars of damage was done to the infrastructure.

The Israeli-Palestinian conflict dates back to the end of 19th century. In 1947, the United Nations adopted Resolution 181, known as the Partition Plan which sought to divide the British Mandate of Palestine into Arab and Jewish States. On May 14, 1948, the State of Israel was created sparking the first Arab-Israeli War which ended in 1949 with Israel's victory but 750,000 Palestinians were displaced and the territory was divided into 3 parts: the State of Israel, the West Bank (of the Jordan River) and the Gaza Strip. Over the following years, tensions rose in the region particularly between Israel and Egypt, Jordan and Syria which resulted in a series of conflicts between the Egypt, Syria, Jordan and Israel. Following a series of ceasefires and peace negotiations, representatives from Egypt and Israel signed the Camp David Accord, a peace treaty that ended the thirty-year conflict between Egypt and Israel. While relations between Israel and its neighbours improved, the question of Palestinian self-determination and self-governance remained unresolved which lead to Palestinian uprising popularly known as first Intifida which resulted in Oslo Accord paving way for the Palestinians to govern themselves in the West Bank and Gaza by establishing a Palestinian Authority in 1993 and also complete withdrawal of Israel from 6 cities and 450 towns in the West Bank.

Accumulated grievances over Israel's control over the West Bank lead to the Palestinians launching second Intifida in 2000 which lasted almost till 2005. Despite attempts by the US to revive peace process between the Israeli government and the Palestinian Authority in the West Bank, the Palestinian Authority's ruling party Fatah disrupted the same by forming ally with Hamas in 2013 and bloody clashes erupted between the Hamas and Israel in the summer of 2014 which resulted in 73 Israeli and 2,551 Palestinian casualties. US hosted Israel and several Arab States for ministerial talks in Warsaw, Poland about the future of peace in the Middle East which was rejected by the Palestinian leaders and the Hamas.

There is a concern that a third Intifida could break out and that renewed tensions will escalate into large scale violence. The US has an interest in protecting the security of its long-term ally Israel and achieving lasting deal between Israel and the Palestinian territories which would improve regional security whereas India is striving to maintain balance between its historic ties with Palestine and its blossoming relations with Israel.

Best wishes.



K. Rajendra Kumar IPS (Retd.)

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1. NATIONAL

1.1 President's Rule

- AAP MLA Shoaib Iqbal has demanded imposition of President's Rule in Delhi in view of the massive surge in COVID-19 cases.
- He said neither him nor the government is able to offer any help to the people affected by the second wave of COVID-19. Therefore, the President's rule must be imposed.
- In NCT of Delhi, President's rule is applied on the basis of Article 239AB of the Constitution of India (as the Article 356 is not applicable to Union Territories) which reads thus:
- Article 239AB. -If the President, on receipt of a report from the Lieutenant Governor or otherwise, is satisfied—
 - a) that a situation has arisen in which the administration of the National Capital Territory cannot be carried on in accordance with the provisions of article 239AA or of any law made in pursuance of that article; or
 - b) that for the proper administration of the National Capital Territory it is necessary or expedient so to do, the President may by order suspend the operation of any provision of Article 239AA or of all or any of the provisions of any law made in pursuance of that article for such period and subject to such conditions as maybe specified in such law and make such incidental and consequential provisions as may appear to him to be necessary or expedient for administering the National Capital Territory in accordance with the provisions of article 239 and article 239AA.
- Article 239 AA (inserted by 69th amendment act, 1991): UT of Delhi is called National Capital Territory of Delhi; Legislative Assembly; make laws over State & Concurrent List.

What is President's Rule in the Indian context?

- Article 356 of the Constitution of India gives the President of India power to suspend state government and impose President's rule of any state in the country “if he is satisfied that a situation has arisen in which the government of the state cannot be carried on in accordance with the provisions of the Constitution”.
- It is also known as ‘State Emergency’ or ‘Constitutional Emergency’.
- Upon the imposition of this rule, there would be no Council of Ministers.
- The state will fall under the direct control of the Union government, and the Governor will continue to head the proceedings, representing the President of India.

Parliamentary Approval and Duration:

- A proclamation imposing President's Rule must be approved by both the Houses of Parliament within two months from the date of its issue.

- The approval takes place through simple majority in either of the Houses, that is, a majority of the members of the House present and voting.
- Initially valid for six months, the President's Rule can be extended for a maximum period of three years with the approval of the Parliament, every six months.

Report of the Governor:

- Under Article 356, President's Rule is imposed if the President, upon receipt of the report from the Governor of the State or otherwise, is satisfied that a situation has arisen in which the government of the State cannot be carried on in accordance with the provisions of the Constitution.

Revocation:

- A proclamation of President's Rule may be revoked by the President at any time by a subsequent proclamation.
- Such a proclamation does not require parliamentary approval.

1.2 Drug Pricing

- Drug Price Control Orders (DPCO) are issued by the Government in exercise of the powers conferred under the Essential Commodities Act, 1955, for enabling the Government to declare a ceiling price for lifesaving medicines to ensure that these medicines are available at a reasonable price to the general public.
- Price controls are applicable to "Scheduled drugs" or "Scheduled formulations" i.e. those medicines which are listed out in the Schedule I of DPCO, also referred to as National List of Essential Medicines (NLEM).
- The National Pharmaceutical Pricing Authority (NPPA) fixes the prices of controlled drugs and formulations and enforces prices and availability of the medicines in the country. It is to be noted that the NPPA not only fixes the prices of Essential Medicines, but it also ensures that the prices of the non-scheduled drugs do not increase by more than 10% every year.

How are the prices of the essential medicines fixed?

- The prices of the medicines are fixed based on Market pricing model. The ceiling price of the Essential drugs is fixed by calculating the simple average price of all the brands having at least 1% of the market share.
- Further, under Paragraph 19 of DPCO, the NPPA has been given the following exceptional powers:
- Fix the prices of even those drugs that are not listed under NLEM. Example: In pursuance of these powers, the NPPA has fixed the ceiling prices of Cardiac Stents and Knee implants.
- Increase or decrease the prices of the drugs listed under NLEM. In pursuance of these powers, the NPPA has recently increased the prices of the 21 essential medicines by almost 50%.

Exceptions under the TRIPS Agreement:

- **Compulsory licensing:** It is issued when the government allows someone else to produce the patented drug without the consent of the patent owner. It can only be done under a number of conditions aimed at protecting the legitimate interests of the patent holder. For example: Normally, the person or company applying for a licence must have first attempted, unsuccessfully, to obtain a voluntary licence from the right holder on reasonable commercial terms. If a compulsory licence is issued, adequate remuneration must still be paid to the patent holder.
- India has exercised the Compulsory licensing option in 2013 for Bayer's Nexavar, a patented kidney cancer drug. It authorized Natco Pharma to manufacture and sell Nexavar in India. Subsequently, the price of the Nexavar drug got reduced to 4% of its original price.
- **Parallel or Grey Imports:** These are products marketed by the patent owner in one country and imported into another country without the approval of the patent owner. For example, suppose company A has a drug patented in the Country 'X' and Country 'Y'. In Country 'Y', the drug may be sold at lower prices. In this case, the Country 'X' may decide to import the drug from Country 'Y'. It is referred to parallel or grey import.
- **Bolar Exception:** Usually, the marketing approval for new drugs takes substantial amount of time. Hence, upon the expiry of patented drugs, the entry of cheaper Generic medicines into market may get delayed.
- Hence, Bolar Exception allows potential competitors to use a patented invention during the patent term without the consent of the patent owner for the purpose of obtaining marketing approval for a prospective generic product.

1.3 Legal Metrology (Packaging Rules 2011)

- According to the Ministry of Consumer Affairs, Importers of medical devices, used particularly for providing oxygen support to Covid-19 patients, are now allowed to import these devices without prior mandatory declaration for the next three months, the said in a notification.

Key takeaways

- The importers can make all necessary declarations after the custom clearance, but before they are sold to consumers.
- The Legal Metrology (Packaged Commodities) Rules, 2011, make it mandatory to get the approvals prior to the import.
- Department of Consumer Affairs administers the Legal Metrology Act 2009.

Do you know?

- The act provides for application of legal requirements to measurements and measuring instruments.
- The objective of Legal Metrology is to ensure public guarantee from the point of view of security and accuracy of the weighments and measurements.

- The Legal Metrology (Packaged Commodities), Rules 2011 are primarily intended to ensure that the consumers are able to make informed choices by being informed of essential declarations on the pre-packed commodities.

1.4 Codex Committee on Species and Culinary Herbs (CCSCH)

- The Codex Committee on Species and Culinary Herbs (CCSCH) works to elaborate worldwide standards for spices and culinary herbs in their dried and dehydrated state in whole, ground, and cracked or crushed form.

Why is it in the news?

- The fifth session of the Codex Committee on Species and Culinary Herbs was held virtually. It was hosted by India, inaugurated by the Food Safety and Standards Authority of India (FSSAI), with nearly 300 experts from 50 countries taking part in the deliberations.

About CCSCH5 – Fifth Session of CCSCH

- Due to the ongoing COVID-19 pandemic, for the first time, a session for Codex Committee on Species and Culinary Herbs was held virtually
- It was held between April 20th and 29th, 2021
- At the end of the entire session, the committee finalised and recommended quality standards for four spices; cloves, oregano, basil, and ginger
- The committee also took up the following new work items:
- To develop Codex standards for small cardamom and turmeric
- To develop the first group standard for spices that fall under the class ‘dried fruits and berries’
- India was the host country and Spices Board India was the Secretariat for organising the sessions of the committee
- Emphasis was placed on adopting the ‘Farm to Fork’ approach for ensuring safety and traceability throughout the entire supply chain.

About Codex Committee on Species and Culinary Herbs

- The Committee on Species and Culinary Herbs was formed in 2013 and was established under Codex Alimentarius Commission (CAC)
- It is the youngest of the Codex Commodity Committees and is Chaired by India and Spices Board India is its Secretariat
- This committee is mandated to elaborate worldwide, science-based quality standards for spices and culinary herbs, in accordance with the Codex principles of consumer protection and fair trade practices

About Spices Board India

- Spices Board (Ministry of Commerce and Industry, Government of India) is the flagship organization for the development and worldwide promotion of Indian spices.
- The Board is an international link between the Indian exporters and the importers abroad and has been spearheading activities for excellence of Indian spices, involving every segment of the industry.

1.5 Article 311 of the Indian Constitution

- A suspended Maharashtra police officer was dismissed from service by Mumbai Police Commissioner under Article 311 (2) (b) of the Indian Constitution without a departmental enquiry.

What is Article 311?

- Article 311 says that no government employee either of an All India Service or a State Government shall be dismissed or removed by an authority subordinate to the authority that appointed him/her.
- Section 2 of the article says that no civil servant shall be dismissed or removed or reduced in rank except after an inquiry in which s/he has been informed of the charges and given a reasonable opportunity of being heard in respect of those charges.

Various safeguards under Art. 311

- Article 311 is meant to act as a safeguard for civil servants that give them a chance to respond to the charges in an enquiry so that he/she is not arbitrarily dismissed from service.
- The article also provides exceptions to these safeguards under subclause 2 provision b.
- It states “when an authority empowered to dismiss or remove a person or to reduce him in rank is satisfied that for some reason, to be recorded by that authority in writing, it is not reasonably practicable to hold such enquiry”.

What is the process of a Departmental Enquiry?

- In a departmental enquiry, after an enquiry officer is appointed, the civil servant is given a formal chargesheet of the charges.
- The civil servant can represent himself/herself or choose to have a lawyer.
- Witnesses can be called during the departmental enquiry following which the enquiry officer can prepare a report and submit it to the government for further action.
- Are there other exceptions where a person can be dismissed without departmental enquiry?
- As per Article 311 subclause 2 provision a, if a government employee is convicted in a criminal case, he can be dismissed without DE.
- Apart from this, under 311 (2) (c), a government employee can be dismissed when the President or the Governor, as the case may be, is satisfied in the interest of the security of the State.

1.6 CEC moves Supreme Court against Madras HC's comments

- The Chief Election Commissioner of India has appealed to the Supreme Court through a Special Leave Petition against the oral comments attributed to the judges of the Madras High Court on the poll body and its officials, portraying them as responsible for the surge in the COVID-19 pandemic.
- CEC urged the court to direct the Police not to register cases for murder against Election Commission officials or take any coercive action on the basis of media reports on oral observations attributed to the High Court judges.

What's the issue?

- Madras High Court had recently made some oral comments against the Election commission and its officials, portraying them as responsible for the surge in the COVID-19 pandemic.
- It has also been reported that the judge called for concerned officers to be put up for murder charges.
- Now, the Election Commission wants to obtain an order from the Madras High Court to gag the media from reporting oral observations made by judges during the hearing of elections-related cases.

Need

- Oral comments would impact or lower the faith of the masses in the poll body and the democratic process.
- It is also not justified in the least for an independent constitutional authority to make allegations against another which would effectively tarnish the image of the latter.

Article 136 in the Constitution Of India:

- Special leave to appeal by the Supreme Court:
- Notwithstanding anything in this Chapter, the Supreme Court may, in its discretion, grant special leave to appeal from any judgment, decree, determination, sentence or order in any cause or matter passed or made by any court or tribunal in the territory of India.
- Nothing in clause (1) shall apply to any judgment, determination, sentence or order passed or made by any court or tribunal constituted by or under any law relating to the Armed Forces.

1.7 SUTRA Model

- Scientists from the IITs of Kanpur and Hyderabad have applied the ‘Susceptible, Undetected, Tested (positive), and Removed Approach’ (SUTRA) model to predict the COVID graph in India.
- The model uses three main parameters to predict the course of the pandemic.
- The first is called beta, or contact rate, which measures how many people an infected person infects per day. It is related to the R₀ value, which is the number of people an infected person spreads the virus to over the course of their infection.

- The second parameter is ‘reach’ which is a measure of the exposure level of the population to the pandemic.
- The third is ‘epsilon’ which is the ratio of detected and undetected cases.

1.8 Returning officer’s role in recounting of votes

- The Election Commission of India recently took cognisance of media reports on recounting at Nandigram assembly constituency in West Bengal, to clarify that the returning officer appointed by the poll panel is the final authority under the law to take decision on such matter.

What’s the issue?

- The Nandigram assembly constituency saw a tough, nail-biting battle between incumbent West Bengal chief minister Mamata Banerjee and her former aide, Bharatiya Janata Party (BJP) leader Suvendu Adhikary.
- Ultimately, the election commission declared Adhikari had won by a margin of 1,956 votes. Mamata’s party Trinamool Congress immediately demanded a recount but was turned down by the EC.

Roles and powers of Returning Officer under the Representation of the People Act, 1951:

- The returning officer of an assembly constituency performs statutory functions under the Representation of the People Act, 1951 in quasi-judicial capacity
- Whether it is nomination, polling or counting, the RO acts strictly in accordance with the extant electoral laws, instructions and guidelines of the ECI.
- When an application for recounting of votes is made the returning officer shall decide the matter and may allow the application in whole or in part or may reject it in its entirety if it appears to him to be frivolous or unreasonable.

What lies ahead?

- In such a case, only legal remedy is to file an EP (election petition) before the high court.
- As per provisions of the Representation of the People Act, 1951, the decision of a returning officer can only be challenged through an election petition under section 80 of the Act.

1.9 First supply of UCO-based Biodiesel flagged off

- Eco-system for collection and conversion of UCO into Biodiesel
- Minister of Petroleum & Natural Gas flagged off the first supply of UCO (Used Cooking Oil) based Biodiesel blended Diesel under the EOI Scheme.
- To create an eco-system for collection and conversion of UCO, Expressions of Interest had been initiated for “Procurement of Bio-diesel produced from Used Cooking Oil” on the occasion of World Biofuel Day on 10th August 2019.

- Under this initiative, Oil Marketing Companies (OMC) offer periodically incremental price guarantees for five years and extend off-take guarantees for ten years to prospective entrepreneurs.

Advantages

- This is a landmark in India's pursuance of Biofuels and will have a positive impact on the environment.
- This initiative will garner substantial economic benefits for the nation by shoring up indigenous Biodiesel supply, reducing import dependence, and generating rural employment.

1.10 Moorhen yoga mat

- A biodegradable and compostable yoga mat has been developed from water hyacinth by six young girls from the fishing community near Deepor Beel lake in Assam.

About Moorhen yoga mat

- The 'Moorhen Yoga mat' is named after Kam Sorai (Purple moorhen, a resident bird of Deepor Beel Wildlife sanctuary).
- The mat comes in a cotton canvas cloth bag where no zip or metal closures are used.
- The bag has an adjustable strap and closures effectively designed to be in sync with biodegradability.
- It is a hand-woven 100% biodegradable and 100 % compostable mat developed through fiber processing and technological interventions which could improve the aquatic ecosystem of the wetland through the removal of water hyacinth.
- It has resulted in the engagement of 38 women from 3 fringe villages (Keotpara, Notun Basti and Borbori).
- The intervention was triggered through an initiative by North East Centre For Technology Application and Reach (NECTAR), an autonomous body under the Department of Science & Technology (DST).
- It involved the entire women community associated with a collective called 'Simang' meaning dream, led by the 6 girls to create wealth from water hyacinth plants.
- "7WEAVES", (a sister concern of the Simang Collectives) team provided expertise on natural dyeing from locally available natural materials like lac, onion skins, iron and jaggery, in various patterns for the mat.

Water hyacinth

- Water hyacinth is a free-floating perennial aquatic plant (or hydrophyte) native to tropical and subtropical South America.
- It is the fastest-growing plant known, which reproduces primarily by way of runners or stolons.

- In their native range, these flowers are pollinated by long-tongued bees and they can reproduce both sexually and clonally.
- The invasiveness of the hyacinth is related to its ability to clone itself.
- Its habitat ranges from tropical desert to subtropical or warm temperate desert to rainforest zones.
- Water hyacinths do not grow where the average salinity is greater than 15% that of sea water.

1.11 Lineament among four factors behind frequent earthquakes in northern Assam

- An unfamiliar lineament is among four factors behind frequent earthquakes in northern Assam's Sonitpur area.
- A lineament is a linear feature in a landscape dictated by an underlying geological structure such as a fault.
- According to the Geological Survey of India (GSI), Sonitpur district lies within a tectonically complex triangular area bounded by the east-west trending Atherkhet Fault, the northwest-southeast trending Kopili Fault and a north-south trending lineament.
- The two faults and the lineament, along with the convergence of the Indian plate, have caused frequent earthquakes.
- The National Centre of Seismology recorded 29 earthquakes of magnitude varying from 2.6 to 4.7 in Sonitpur after the 6.4 tremor on April 28 that damaged several buildings, bridges and a river embankment.
- The north-east India is demarcated as Seismic Zone V, which indicates a zone with high vulnerability.
- The Indian plate is moving northeast toward the Eurasian plate in the Himalayan region, their slanting collision and release of stress and strain accumulated in the local tectonic or fault environments lead to earthquakes.

1.12 Supreme Court's Maratha quota verdict

- A five-judge Constitution Bench of the Supreme Court has struck down the Maharashtra law granting reservation to the Maratha community in admissions and government jobs in the state.

Background of the issue

- 2018 Maharashtra law gave 16% reservation to the Maratha community in jobs and admissions by terming them socially and educationally backward class in the state.
- This law got past the scrutiny of the Bombay High Court in June 2019 but the quantum of reservation stood reduced to 12% in admissions and 13% in jobs.
- With the introduction of this Act, the reservation benefits in the state exceeded 50 per cent.
- The court had framed six questions of law on the issue; it unanimously agreed on three of those issues, while the verdict was split 3:2 on the other three.

- SC Verdict: The Bench unanimously upheld the constitutional validity of the 102nd Amendment but differed on the question whether it affected the power of states to identify socially and economically backward classes (SEBCs).

Majority Verdict with regard to Power of President & States

- **Final Say with President:** Three judges on the bench held the view that final say with regard to inclusion or exclusion (or modification of lists) of SEBCs is firstly with the President, and thereafter, in case of modification or exclusion from the lists initially published, with the Parliament”.
- **Space for States:** They also said that while the identification of SEBCs will be done centrally, state governments retain power to determine the extent of reservation and make specific policy in the spirit of “cooperative federalism”.
- **Fresh SEBC List:** The majority opinion by Justice Bhat essentially says that now the National Backward Classes Commission must publish a fresh list of SEBCs, both for states and the central list.
- **Dissenting View:** Justice Bhushan and Justice Nazeer, however, preferred a textual reading of the Amendment and said it does not take away the state’s powers to identify SEBCs.

Critical Analysis of the above Judgement

- **Crossing 50% limit can perpetuate Caste:** SC observed that “To change the 50% limit is to have a society which is not founded on equality but based on caste rule”.
- **Equality Upheld:** The SC held that to dilute the 50% benchmark further, would be to effectively destroy the guarantee of equality, especially the right not to be discriminated against on the grounds of caste (under Articles 15 and 16).
- **Slippery Slope:** SC also observed that if the reservation goes above 50% limit it will be slippery slope and the political pressure will make it difficult to reduce the same.
- **Similar Laws will be scrutinised:** The ruling is likely to have an impact on several laws passed by various state assemblies reserving in excess of the 50% ceiling under the category of “extraordinary circumstances”.
- **Impact on EWS reservation:** The ruling may also have an impact on the reservations for economically weaker sections (EWS), introduced by the Central government through 103rd Constitutional Amendment Act, in excess of the 50% ceiling.

1.13 Indian SARS-CoV-2 Genomic Consortia (INSACOG)

- In early March, members of the Indian SARS-CoV-2 Genomic Consortia (INSACOG), an advisory group to the Central government, warned of a new and contagious form of the novel coronavirus.

What is INSACOG?

- INSACOG is a consortium of 10 labs across the country tasked with scanning COVID-19 samples from swathes of patients and flagging the presence of variants that were known to have spiked transmission internationally.
- It has also been tasked with checking whether certain combinations of mutations were becoming more widespread in India.
- Some of these labs had begun scanning for mutations in April 2020 itself, but it was not a pan-India effort.
- The institutes involved were laboratories of the Department of Biotechnology, the CSIR, the ICMR, and the Ministry of Health & Family Welfare (MoHFW).
- The National Centre for Disease Control (NCDC) under the MoHFW was tasked with coordinating the collection of samples from the States as well correlating disease with the mutations.
- The work began in January by sequencing samples of people who had a history of travel from the United Kingdom and a proportion of positive samples in the community.

What are the findings?

- The “foreign” variants identified were primarily the B.1.1.7 (first identified in the United Kingdom) and the B.1.351 (first found in South Africa) and a small number of P2 variants (from Brazil).
- However, some labs flagged the growing presence of variants identified in India that were clubbed into a family of inter-related variants called B.1.617, also known as the ‘double mutant’ variant.
- It was primarily due to two mutations — E484Q and L452R — on the spike protein.
- The B.1.617 family was marked as an international ‘variant of concern’ after it was linked to a recent spike in cases in the UK.
- INSACOG labs also found that the B.1.1.7 variant, which is marked by increased infectivity, is distinctly more prevalent in several northern and central Indian States in comparison to southern States.

1.14 Lumpy Skin Disease

- Lumpy Skin Disease is a viral illness that causes prolonged morbidity in cattle and buffaloes.
- Caused by the poxvirus Lumpy skin disease virus (LSDV).

Symptoms:

- It appears as nodules of two to five centimetre diameter all over the body, particularly around the head, neck, limbs, udder (mammary gland of female cattle) and genitals. The lumps gradually open up like large and deep wounds.

Spread:

- It spreads through mosquitoes, flies and ticks and also through saliva and contaminated water and food.

Affected Countries:

- LSD is endemic to Africa and parts of West Asia, where it was first discovered in 1929.
- In Southeast Asia the first case of LSD was reported in Bangladesh in July 2019.
- In India it was first reported from Mayurbhanj, Odisha in August 2019.

Treatment:

- There is no treatment for the virus, so prevention by vaccination is the most effective means of control.

Context:

- The Bihar government sounded an alert and issued an advisory about the likely spread of the disease.

Concerns:

- In India, which has the world's highest 303 million heads of cattle, the disease has spread to 15 states within just 16 months.
- This might have a devastating impact on the country, where most dairy farmers are either landless or marginal landholders and milk is among the cheapest protein sources.

1.15 Kabasura Kudineer

- Ayush Ministry launches nationwide distribution campaign of AYUSH 64 & Kabasura Kudineer.

What's in News?

- Ministry of Ayush has launched a massive nationwide campaign to distribute its proven poly herbal Ayurvedic drug AYUSH 64 and Siddha drug Kabasura Kudineer for the benefit of the vast majority of out of hospital COVID patients.
- According to the Ministry, the efficacy of these drugs has been proved through robust multi-centre clinical trials.
- The Ministry has also setup an Interdisciplinary Committee for Inclusion of Ayurveda and Yoga Interventions in the 'National Clinical Management Protocol: COVID-19'.

What is Kabasura Kudineer?

- Kabasura Kudineer is a traditional formulation used by Siddha practitioners for managing common respiratory health.
- It is a herbal concoction, comprising dry ingredients of ginger, pippali, clove, cirukancori root, mulli root, kadukkai, ajwain and many other herbs.
- The ingredients are powdered and mixed with water, then boiled to make a decoction of one-fourth of its initial volume.

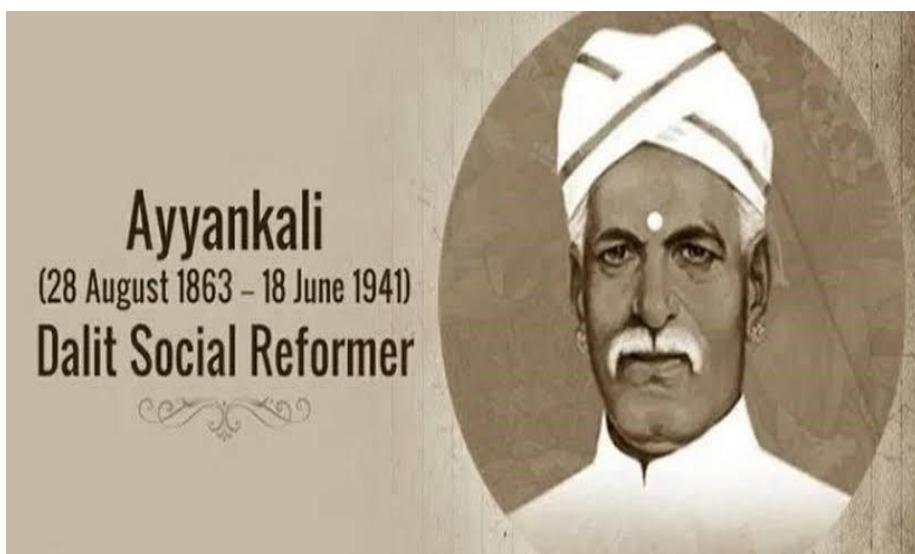
1.16 e-Sanjeevani OPD

- Ex- doctors to provide online consultation on e-Sanjeevani OPD.

- The e-Sanjeevani OPD is a flagship telemedicine platform of the Government, developed by the Centre for Development of Advance Computing (C-DAC), Mohali under the aegis of Ministry of Health and Family Welfare (MoHFW).
- It provides free consultations to Indian citizens.
- However, due to the surge in COVID-19 cases, the demand for doctors is up while the supply has reduced as doctors are being pulled out for COVID ward duties.
- This is where the defence veterans are stepping in to help.

1.17 Pulayar Community

- Two Tribal settlements (Kattupatti and Kuzhipatti) of Pulayar community within the limits of Anamalai Tiger Reserve in Tamil Nadu are gearing up for their annual festival of local deity Vairapattan.
- The Pulayar, also Pulaya, or Holeya or Cheramar, are one of the main social groups found in Kerala, Karnataka and in historical Tamil Nadu or Tamilakam.
- Pulayas are noted for their music, craftsmanship, and for certain dances which include, Kōlam-thullal (a mask dance which is part of their exorcism rituals) and Mudi-āttam or hair-dance.
- Mahatma Ayyankali (1863- 1941) was called as Pulaya King.



1.18 Maharana Pratap

- Pratap Singh popularly known as Maharana Pratap was a king of Mewar, a region in the present-day state of Rajasthan.
- He was the eldest son of Udai Singh II (founder of city of Udaipur).
- Battle of Haldighati: It was fought on 18 June 1576 between the forces Maharana Pratap; and the Mughal emperor Akbar's forces, led by Man Singh I of Amber. The Mughals were the victors but failed to capture Pratap, who escaped.

- Mughal pressure on Mewar relaxed after 1579 following rebellions in Bengal and Bihar. Taking advantage of the situation, Pratap recovered Western Mewar including Kumbhalgarh, Udaipur and Gogunda. During this period, he also built a new capital, Chavand, near modern Dungarpur.
- Chetak is the name given in traditional literature to the horse ridden by Maharana Pratap at the Battle of Haldighati.
- However, some Historians debate it.
- According to tradition, Chetak, although wounded, carried Pratap safely away from the battle, but then died of his wounds.
- The story is recounted in court poems of Mewar from the 17th century onwards.
- Pratap Gaurav Kendra: It is a tourist spot at Tiger Hill in Udaipur city, Rajasthan.
- It aims at providing information about Maharana Pratap and the historical heritage of the area with the help of modern technology.



1.19 Gopal Krishna Gokhale

- Gokhale was a social reformer who formed a sectarian organization to work for the relief of the underprivileged in India. He led the moderate nationalists in the early years of the Indian Independence movement.
- Gokhale was born in Kotluk in District Ratnagiri in modern-day Maharashtra to Krishna Rao Gokhale and his wife Valubai.
- Despite having financial problems, his family ensured that he received a western education. This was to have a profound influence on him as he came to admire the works of John Stuart Mill and Edmund Burke.
- He first went to school in Kolhapur and then to Bombay for higher education. He secured his graduate degree from Bombay's Elphinstone College in the year 1884.

- He worked in Pune as a school teacher. He later taught political economy and history at Fergusson College, Pune and also became the institution's principal in 1902.

Gopal Krishna Gokhale – Involvement in Political Activities

- In 1889, Gokhale joined the INC motivated by his mentor, social reformer M G Ranade.
- He fought along with a host of other leaders and reformers for more political rights for the Indian people. He was a moderate. He did not believe in radical demands altogether and wished for peaceful and non-confrontationist methods to acquire rights and privileges from the government.
- This is where he came into conflict with the extremist faction of the INC, especially Bal Gangadhar Tilak.
- He was elected as Honorary Secretary of the Sarvajanik Sabha, Pune in 1890.
- In 1893, Gokhale became the Secretary of the Bombay Provincial Conference and in 1895, he served as the Joint Secretary of the INC along with Tilak.
- Gokhale believed in working with the colonial government to bring about social reforms in society. He was voted to the Legislative Council of Bombay in 1899, and also to the Governor-General's Imperial Council in 1901.

1.20 Mucormycosis Or Black Fungus

- A number of Covid-19 patients are developing a serious fungal infection known as Mucormycosis also called black fungus.

Mucormycosis:

- It is a serious but rare fungal infection caused by a group of molds called mucormycetes, which is abundant in the environment.
- It mainly affects people who have health problems or take medicines that lower the body's ability to fight germs and sickness.
- The types of Mucormycosis are: Rhinocerebral (Sinus and Brain), Pulmonary (Lung), Gastrointestinal, Cutaneous (Skin), and disseminated Mucormycosis.

Transmission:

- It occurs through inhalation, inoculation, or ingestion of spores from the environment.
- Mucormycosis does not spread between people or between people and animals.

Symptoms:

- These include pain and redness around eyes and/or nose, fever, headache, coughing, shortness of breath, bloody vomits, and altered mental status.
- Warning signs can include toothache, loosening of teeth, blurred or double vision with pain.

Prevention:

- Avoiding areas with a lot of dust like construction or excavation sites, avoiding direct contact with water-damaged buildings and flood water after hurricanes and natural disasters and avoiding activities that involve close contact to soil.

Treatment:

- Mucormycosis needs to be treated with prescription antifungal medicine.
- In some cases, it can require surgery.

1.21 Mission for Integrated Development of Horticulture (MIDH)

- The Ministry of Agriculture and Farmers' Welfare has provided an enhanced allocation of Rs. 2250 Crore for the year 2021-22 for 'Mission for Integrated Development of Horticulture' (MIDH).

About the 'Mission for Integrated Development of Horticulture' (MIDH):

- It is a scheme for the holistic growth and development of the Indian horticulture sector.
- This Centrally Sponsored scheme covers vegetables, fruits, roots and tuber crops, aromatic plants, flowers, spices, bamboo, coconut, cashew and cocoa.
- MIDH also provides technical support and advice to state horticultural missions, Rashtriya Krishi Vikas Yojana (RKVY), Saffron Mission and the National Mission for Sustainable Agriculture (NMSA).
- MIDH is under the Ministry of Agriculture and Farmers' Welfare, GOI.
- Under MIDH, Government of India (GOI) contributes 60%, of total outlay for developmental programmes in all the states except states in North East and Himalayas, 40% share is contributed by State Governments. In the case of North Eastern States and Himalayan States, GOI contributes 90%.

Sub Schemes:

- National Horticulture Mission (NHM).
- Horticulture Mission for North East & Himalayan States (HMNEH).
- National Bamboo Mission (NBM).
- National Horticulture Board (NHB).
- Coconut Development Board (CDB).
- Central Institute for Horticulture (CIH).

1.22 FCRA amendments crippling our work, say NGOs

- An NGO has now moved the Delhi High Court seeking exemption from the Union Home Ministry's March 31 deadline to open an FCRA account with the SBI branch in New Delhi.

What's the issue?

- The amendments to the Foreign Contribution Regulation Act (FCRA) enacted in 2020 made it compulsory for NGOs to open a bank account in Delhi.
- But, this has crippled the work of many organisations that are unable to receive foreign funds.
- Many NGOs are affected by the new regulations as they are hampering charitable work during the pandemic.

Foreign Contribution (Regulation) Amendment, 2020:

- It seeks to prohibit ‘public servants’ from receiving any foreign funding.
- It proposes to reduce the use of foreign funds to meet administrative costs by NGOs from the existing 50 per cent to 20 per cent.
- It seeks to “prohibit any transfer of foreign contribution to any association/person”.
- It proposes to make Aadhaar cards a mandatory identification document for all office-bearers, directors and other key functionaries of NGOs or associations eligible to receive foreign donations.
- It seeks to allow for the central government to hold a summary inquiry to direct bodies with FCRA approval to “not utilise the unutilised foreign contribution or receive the remaining portion of foreign contribution”.
- And to limit the use of foreign funds for administrative purposes. This would impact research and advocacy organisations which use the funding to meet their administrative costs.

1.23 Jal Jeevan Mission (JJM)

- The Union Territory of Puducherry has become the fourth State/UT after Goa, Telangana and Andaman & Nicobar Islands to provide assured tap water supply to every rural home under Jal Jeevan Mission (JJM).

About the Jal Jeevan Mission:

- JJM envisages supply of 55 litres of water per person per day to every rural household through Functional Household Tap Connections (FHTC) by 2024.
- It is under the Ministry of Jal Shakti.

It also encompasses:

- Prioritizing provision of FHTCs in quality affected areas, villages in drought prone and desert areas, Sansad Adarsh Gram Yojana (SAGY) villages, etc.
- Providing functional tap connection to Schools, Anganwadi centres, Gram Panchayat buildings, Health centres, wellness centres and community buildings.
- Technological interventions for removal of contaminants where water quality is an issue.

Implementation:

- The Mission is based on a community approach to water and includes extensive Information, Education and Communication as a key component of the mission.

- JJM looks to create a jan andolan for water, thereby making it everyone's priority.
- The fund sharing pattern between the Centre and states is 90:10 for Himalayan and North-Eastern States, 50:50 for other states, and 100% for Union Territories.

1.24 Juvenile Justice Act

- The Union Cabinet, chaired by the Prime Minister Narendra Modi approved the proposal of the Ministry of Women and Child Development to amend the Juvenile Justice (Care and Protection of Children) Act, 2015 to introduce measures for strengthening Child Protection set-up to ensure best interest of children.

What is the Juvenile Justice (Care and Protection of Children Act) 2015?

- **Updated Legislation:** It was introduced and passed in Parliament in 2015 to replace the Juvenile Delinquency Law and the Juvenile Justice (Care and Protection of Children Act) 2000.
- **Change in nomenclature:** The Act changes the nomenclature from Juvenile to child or 'child in conflict with law'. Also, it removes the negative connotation associated with the word "juvenile".
- **Special Provisions for Age 16-18 years:** One of the main provisions of the new Act was that juveniles charged with heinous crimes and who are between the ages of 16-18 years would be tried as adults and processed through the adult justice system. This provision received an impetus after the 2012 Delhi gangrape in which one of the accused was just short of 18 years, and was therefore tried as a juvenile.
- **Juvenile Justice Board:** The nature of the crime, and whether the juvenile should be tried as a minor or a child, was to be determined by a Juvenile Justice Board (set up in every district). Also Child Welfare Committees must be set up in every district. Both must have at least one woman member each.
- **Adoption Related Clauses:** Another major provision was that the Act streamlined adoption procedures for orphans, abandoned and surrendered children and the existing Central Adoption Resource Authority (CARA) has been given the status of a statutory body to enable it to perform its function more effectively
- **Inclusion of New Offences:** The Act included several new offences committed against children (like, illegal adoptions, use of child by militant groups, offences against disabled children, etc) which are not adequately covered under any other law.

What are the amendments passed by the Union Cabinet?

1. The inclusion of serious crimes apart from heinous crimes
- included for the first time the category of "serious crimes" differentiating it from heinous crimes, while retaining heinous crimes. Both heinous and serious crimes have also been clarified for the first time, removing any ambiguity.

- What this means is that for a juvenile to be tried for a heinous crime as an adult, the punishment of the crime should not only have a maximum sentence of seven years or more, but also a minimum sentence of seven years.
- This provision has been made to ensure that children, as much as possible, are protected and kept out of the adult justice system.
- Heinous crimes with a minimum imprisonment of seven years pertain mostly to sexual offences and violent sexual crimes. Crime like the possession and sale of an illegal substance, such as drugs or alcohol, will now fall under the ambit of a “serious crime”.

2. Expanding the purview of District and Additional District Magistrates

- The NCPCR report pf 2019-19 had found that not a single Child Care Institution in the country was found to be 100 per cent compliant to the provisions of the JJ Act.
- DM and ADMs will monitor the functioning of various agencies under the JJ Act in every district. This includes the Child Welfare Committees, the Juvenile Justice Boards, the District Child Protection Units and the Special juvenile Protection Units.
- Amendment says that no new children’s home can be opened without the sanction of the DM. They are also responsible now for ensuring that CCIs falling in their district are following all norms and procedures (earlier the process was relaxed and lacked effective oversight)
- The DM will also carry out background checks of Child Welfare Committee members, who are usually social welfare activists, including educational qualifications, as there is no such provision currently to check if a person has a case of girl child abuse against him.
- To hasten the process of adoption and ensure the swift rehabilitation of children into homes and foster homes, the amendment further provides that the DM will also now be in charge of sanctioning adoptions, removing the lengthy court process.

1.25 Article 164 (3) of the Constitution

- As the demand for online swearing-in of the new government in Kerala gets louder, jurists say there is no legal infirmity in a government assuming office through online mode.

What does the Constitution of India say?

- The Article 164 (3) of the Constitution states that “before a Minister enters upon his office, the Governor shall administer to him the oaths of office and of secrecy according to the forms set out for the purpose in the Third Schedule.”
- There is no ban on an online event as the Constitution does not insist on a physical mode.

Need for:

- Several organisations, including the Indian Medical Association, have favoured the online mode in the wake of the alarming spread of COVID-19.

- Besides, the makers of the Constitution had not foreseen the advent of online world and hence there was no mention about the mode of Ministers assuming the office.

1.26 **PM CARES**

- A plea was filed in the Supreme Court seeking a direction to utilise the PM-CARES fund for immediate procurement of vaccines and establishment of oxygen plants, generators and their installation in 738 district hospitals across the country.
- The petition said the government should loosen its PM-CARES purse strings and help common people in accessing medical care and oxygen.
- Need for:
- These government hospitals are easily accessible at no cost to common people of every district in the country who are desperately seeking medical oxygen as basic life-saving support.

About PM-CARES:

- The Prime Minister's Citizen Assistance and Relief in Emergency Situations (PM-CARES) Fund was set up to accept donations and provide relief during the Covid-19 pandemic, and other similar emergencies.

PM-CARES Fund:

- PM-CARES was set up as a public charitable trust with the trust deed registered on March 27, 2020.
- It can avail donations from the foreign contribution and donations to fund can also avail 100% tax exemption.
- PM-CARES is different from the Prime Minister's National Relief Fund (PMNRF).

Who administers the fund?

- Prime Minister is the ex-officio Chairman of the PM CARES Fund and Minister of Defence, Minister of Home Affairs and Minister of Finance, Government of India are ex-officio Trustees of the Fund.

1.27 **West Bengal government to set up a Legislative Council**

- The West Bengal government will set up a Legislative Council (Vidhan Parishad), as per a decision taken up at the recent Cabinet meeting.
- For setting up the Council, a Bill has to be introduced in the Assembly and then a nod from the Governor is required. The Upper House existed till 1969.

What are the Legislative Councils, and why are they important?

- India has a bicameral system i.e., two Houses of Parliament. At the state level, the equivalent of the Lok Sabha is the Vidhan Sabha or Legislative Assembly; that of the Rajya Sabha is the Vidhan Parishad or Legislative Council.

How is a legislative council created?

- Under Article 169 of the constitution, Parliament may by law create or abolish the second chamber in a state if the Legislative Assembly of that state passes a resolution to that effect by a special majority.

Strength of the house:

- As per article 171 clause (1) of the Indian Constitution, the total number of members in the legislative council of a state shall not exceed one third of the total number of the members in the legislative Assembly of that state and the total number of members in the legislative council of a state shall in no case be less than 40.

How are members of the Council elected?

- 1/3rd of members are elected by members of the Assembly.
- 1/3rd by electorates consisting of members of municipalities, district boards and other local authorities in the state.
- 1/12th by an electorate consisting of teachers.
- 1/12th by registered graduates.
- The remaining members are nominated by the Governor from among those who have distinguished themselves in literature, science, art, the cooperative movement, and social service.

1.28 Appointment of ECI members

- A petition was filed in the Supreme Court seeking the constitution of an independent collegium to appoint members of the Election Commission of India (ECI).
- The petition was filed by the Association for Democratic Reforms.

Need for an independent Collegium:

- The petition states that the present process of appointing members to the Election Commission, solely by the executive, is incompatible with Article 324(2) of the Constitution.
- The appointment of members of Election Commission on the “pick and choose” of the executive violates the very foundation for which it was created, thus, making the Commission a branch of executive.

Need of the hour:

- Democracy is a facet of the basic structure of the constitution and in order to ensure free and fair elections and to maintain healthy democracy in our country, the Election Commission should be insulated from political and/or executive interference.
- Recommendations given by various expert committees:
- 255th Law Commission Report recommended that the appointment of all the Election Commissioner should be made by the President in consultation with a three-member collegium or

selection committee, consisting of the Prime Minister, the Leader of the Opposition of the Lok Sabha and the Chief Justice of India.

- 4th Report submitted by the Second Administrative Reform Commission in January 2007 also recommended for the constitution of a neutral and independent collegium headed by the Prime Minister with the Speaker of the Lok Sabha, the Leader of Opposition in the Lok Sabha, the Law Minister and the Deputy Chairman of the Rajya Sabha as its members.
- Dr. Dinesh Goswami Committee in its Report of May 1990 recommended for the effective consultation with neutral authorities like Chief Justice of India and the Leader of the Opposition for the appointment in Election Commission. Justice Tarkunde Committee in its Report of 1975 recommended that the members of Election Commission should be appointed by the President on the advice of a Committee consisting of the Prime Minister, the Leader of the Opposition in the Lok Sabha and the Chief Justice of India.

Present System of Appointment

Constitutional versus Executive Power of Appointment:

- There is no prescribed procedure for appointment of the Chief Election Commissioner and Election Commissioners as per the constitution.
- At present, the President shall appoint the CEC and EC based on the recommendations made by the Prime Minister. Therefore, it is the executive power of the President to appoint CEC and ECs.
- However, according to Article 324(5), the Parliament has the power to regulate the terms of conditions of service and tenure of ECs.

1.29 Creating a new District

- Punjab CM has recently declared Malerkotla the 23rd district of the State.

How are new districts carved?

- The power to create new districts or alter or abolish existing districts rests with the State governments.
- This can either be done through an executive order or by passing a law in the State Assembly.
- Many States prefer the executive route by simply issuing a notification in the official gazette.

How does it help?

- States argue that smaller Districts lead to better administration and governance.
- For example, in 2016, the Assam government issued a notification to upgrade the Majuli subdivision to the Majuli District for “administrative expediency”.

Exceptions

- The State government has been vested with unfettered powers under Section 5 of the Punjab Land Revenue Act, 1887 to create new districts.

- This power is generally held temporarily in abeyance only during active census operations or during the delimitation exercise of Lok Sabha/Vidhan Sabha constituencies.

Central Government's role

- The Centre has no role to play in the alteration of districts or creation of new ones. States are free to decide.
- The Home Ministry comes into the picture when a State wants to change the name of a district or a railway station.
- The State government's request is sent to other departments and agencies such as the Ministry of Earth Sciences, Intelligence Bureau, Department of Posts, Geographical Survey of India Sciences and the Railway Ministry seeking clearance.
- A no-objection certificate may be issued after examining their replies.

1.30 SAMVEDNA

- With the objective of providing psychological first-aid and emotional support to children affected during the COVID-19 Pandemic, the National Commission for Protection of Child Rights (NCPCR) is providing Tele-Counselling to children through SAMVEDNA.
- SAMVEDNA stands for Sensitizing Action on Mental Health Vulnerability through Emotional Development and Necessary Acceptance.



- It is a Toll-Free Helpline launched to provide psycho-social mental support for Children affected during COVID 19 Pandemic.
- This service is available on a toll-free No: 1800-121-2830 from Monday to Saturday from 10 a.m. to 1 p.m. and 3 p.m. to 8 p.m.

Tele counseling is provided to the children under three categories:

1. Children who are in Quarantine/isolation/COVID Care centers.
2. Children who have COVID positive parents or family members and near ones.
3. Children who have lost their parents due to Covid-19 Pandemic.

1.31 Electoral Bonds

- The State Bank of India (SBI) sold electoral bonds worth ₹695.34 crore from April 1 to 10, when the Tamil Nadu, Puducherry, West Bengal, Assam and Kerala polls were in full swing.
- The amount sold was the highest-ever for any Assembly elections since the scheme started in 2018.

What are electoral bonds?

- Electoral Bond is a financial instrument for making donations to political parties.
- The bonds are issued in multiples of Rs. 1,000, Rs. 10,000, Rs. 1 lakh, Rs. 10 lakh and Rs. 1 crore without any maximum limit.
- State Bank of India is authorised to issue and encash these bonds, which are valid for fifteen days from the date of issuance.
- These bonds are redeemable in the designated account of a registered political party.
- The bonds are available for purchase by any person (who is a citizen of India or incorporated or established in India) for a period of ten days each in the months of January, April, July and October as may be specified by the Central Government.
- A person being an individual can buy bonds, either singly or jointly with other individuals.
- Donor's name is not mentioned on the bond.

1.32 Recusal of Judges

- Supreme Court judge Justice B.R. Gavai, one of the two judges on the Vacation Bench scheduled to hear a plea by former Mumbai Police Commissioner Param Bir Singh challenging the internal enquiries instituted against him, has recused himself from hearing the case.

Background:

- Mr. Singh had moved the Supreme Court alleging that the departmental enquiries against him were part of a conspiracy to frame him for levelling allegations of corruption against
- Anil Deshmukh, who resigned as Maharashtra Home Minister. He urged the top court to shift the enquiries to another State.

What is Judicial Disqualification or Recusal?

- Judicial disqualification, referred to as recusal, is the act of abstaining from participation in an official action such as a legal proceeding due to a conflict of interest of the presiding court official or administrative officer.

Grounds for Recusal:

- The judge is biased in favour of one party, or against another, or that a reasonable objective observer would think he might be.
- Interest in the subject matter, or relationship with someone who is interested in it.
- Background or experience, such as the judge's prior work as a lawyer.

- Personal knowledge about the parties or the facts of the case.
- Ex parte communications with lawyers or non-lawyers.
- Rulings, comments or conduct.

Are there any laws in this regard?

- There are no definite rules on recusals by Judges.
- However, In taking oath of office, judges, both of the Supreme Court and of the high courts, promise to perform their duties, to deliver justice, “without fear or favour, affection or ill-will”.

What has the Supreme Court said on this?

- Justice J. Chelameswar in his opinion in Supreme Court Advocates-on-Record Association v. Union of India (2015) held that “Where a judge has a pecuniary interest, no further inquiry as to whether there was a ‘real danger’ or ‘reasonable suspicion’ of bias is required to be undertaken”.

1.33 Community Based Inclusive Development (CBID) Program

- It was launched recently by the Union Ministry of Social Justice.
- The program aims to create a pool of grass-root rehabilitation workers at the community level who can work alongside ASHA and Anganwadi workers to handle cross-disability issues and facilitate inclusion of persons with disabilities in the society.
- The program has been designed to provide competency-based knowledge and skills among these workers to enhance their ability to successfully discharging their duties.
- These workers will be called ‘Divyang Mitra’ i.e. friends of persons with disabilities.
- The National Board of Examination in Rehabilitation under the Rehabilitation Council of India will conduct examinations and award certificates to pass-out candidates.

1.34 Governing board of the Kalakshetra Foundation

- The Central government nominated 12 eminent artistes and musicians as members of the governing board of the Kalakshetra Foundation.

Important value additions

- Kalakshetra Foundation is an arts and cultural academy.
- It is dedicated to the preservation of traditional values in Indian art and crafts, especially in the field of Bharatanatyam dance and Gandharvaveda music.
- It is based in Chennai.
- Founded in: 1936
- Founded by: Rukmini Devi Arundale and her husband George Arundale.
- In 1994, an Act of the Parliament of India recognised the Kalakshetra Foundation as an “Institute of National Importance.”

- The Kalakshetra style of Bharatanatyam developed by Rukmini Devi Arundale is noted for its angular, straight, ballet-like kinesthetics, and its avoidance of Recakas and of the uninhibited throw (Ksepa) of the limbs.

1.35 Sunderlal Bahuguna

- Veteran environmentalist and architect of the Chipko Movement Sunderlal Bahuguna, 94 has succumbed to COVID.
- Bahuguna was one of the leaders of the Chipko movement, fighting for the preservation of forests in the Himalayas.
- Chipko means ‘embrace’ or ‘tree huggers’ and this vast movement was a decentralized one with many leaders usually being village women. Often, they would chain themselves to trees so that loggers could not cut down forests.
- These actions slowed down the destruction, but more importantly, they brought deforestation to the public’s attention.

His contributions

- From 1981-1983, Sunderlal Bahuguna led a 5,000-kilometre march across the Himalayas, ending with a meeting with late PM Indira Gandhi, to protect some areas of the Himalayan forests from tree-felling.
- Sunderlal Bahuguna was also a leader in the movement to oppose the Tehri dam project and in defending India’s rivers.
- He also worked for women’s rights and the rights of the poor.
- His methods were Gandhian, making use of peaceful resistance and non-violence.
- The Chipko Movement received the 1987 Right Livelihood Award, also referred to as the Alternative Nobel Prize.

1.36 MCA21 Version 3.0 Compliance Portal

- Minister of State for Finance and Corporate Affairs launched the first phase of Ministry of Corporate Affairs (MCA) MCA21 Version 3.0 Compliance Portal (V3.0) to transform the corporate regulatory environment in India.

About MCA21

MCA21 V3 Project is a technology-driven forward looking project.

It aims to

- ❖ Strengthen enforcement, promote Ease of Doing Business
- ❖ Enhance user experience
- ❖ Facilitate seamless integration and data exchange among Regulators

- The project will have Micro-services architecture with high scalability and capabilities for advanced analytics.
- It comprising of revamped website, new email services for MCA Officers and two new modules, namely, e. Book and e. Consultation.
- The MCA V3.0 is going to be implemented in two phases.
- The second and final phase shall be launched from October 2021 onwards.
- The entire project is proposed to be launched within this Financial Year and will be data analytics and machine learning driven.
- The MCA21 V3.0 in its entirety will not only improve the existing services and modules, but will also create new functionalities like e-adjudication, compliance management system, advanced helpdesk, feedback services, user dashboards , self-reporting tools and revamped master data services.
- Major Components of the MCA21 Version 3.0 Compliance Portal
- It is designed to fully automate all processes related to the proactive enforcement and compliance of the legal requirements under various statutory acts. It has the following components.

e-consultation module

- Virtual public consultation of proposed amendments and new legislations to be introduced by MCA from time to time.
- Leverage Artificial intelligence for compiling, grouping and categorising comments/inputs received from stakeholders and create analytical reports for quick policy decision making.
- New email service for officers of MCA will provide them with advanced features and capabilities for organised and managed communication with internal as well as external stakeholders.

e-Scrutiny

- MCA is in process of setting up a Central Scrutiny Cell which will scrutinise certain Straight Through Process (STP) Forms filed by the corporates on the MCA21 registry.
- It will flag the companies for more in depth scrutiny.

e-adjudication

- To manage the increased volume of adjudication proceedings by Registrar of Companies (RoC) and Regional Directors (RD)
- This will facilitate end to end digitisation of the process of adjudication for the ease of users.
- It will provide a platform for conducting online hearings with stakeholders and end to end adjudication electronically.

Compliance Management System

- CMS will assist MCA in identifying non-compliant companies/LLPs, issuing e-notices to the said defaulting companies/LLPs, generating alerts for internal users of MCA.
- CMS will serve as a technology platform/solution for conducting rule based compliance checks and undertaking enforcement drives of MCA wherein e-notices will be issued by MCA for effective administration of corporates.

1.37 **Shahi Litchi**

- In a major boost to export of GI certified products, season's first consignment of Shahi Litchi from Bihar was exported to United Kingdom by air route.

About:

- The phyto-sanitary certification for exports of Shahi Litchis was issued from newly established certification facility at Patna.
- The fruit is being exported by Cira Enterprises and sourced from farmers in Muzaffarpur, Bihar. The Litchi is being imported by H & J Veg, London.
- APEDA collaborated with Department of Agriculture, Bihar along with other stakeholders such as farmers, exporters, and importers for facilitating exports of Shahi Litchi.
- Because of short-shelf life of litchi, there is need to explore exports opportunities for the processed and value-added products.
- APEDA has been facilitating Bihar government in formulating State agri-export plan which would provide roadmap for boosting agricultural and processed food products exports from the State.
- After the finalisation of State agri-export plan, the export potential of Makhana, mango, litchi and other fruits and vegetables can be harnessed.
- Bihar government is making efforts in association with APEDA and other agencies for creating required infrastructures such as customs clearance facility, laboratory testing facility, pack-houses, pre-cooling facilities, which would harness and boost agricultural exports potential of the State.

GI Certification:

- Shahi litchi was the fourth agricultural products to get GI certification from Bihar in 2018, after Jardalu mango, Katarni rice and Magahi paan.
- GI registration for Shahi Litchi is held with the Muzaffarpur-based Litchi Growers Association of Bihar.
- Muzzafarpur, Vaishali, Samastipur, Champaran, Begusarai districts and adjoining areas of Bihar have favorable climate for growing Shahi Litchi.
- India is the second largest producer of litchi (Litchi chin) in the world, after China. The translucent, flavoured aril or edible flesh of the litchi is popular as a table fruit in India, while in China and Japan it is preferred in dried or canned form. Bihar tops in terms of production of litchi.

1.38 Putola Nach

- The COVID-19 pandemic has provided an Assam-based trust the opportunity to focus on a near-forgotten form of string puppetry called Putola Nach.

Key takeaways

- It is performed in three areas with distinct characteristics.
- These areas are Barpeta-Nalbari in western Assam, Kalaigaon in northern Assam and Majuli “island” in eastern Assam.
- The Ramayana, either in its entirety or by episodes, is performed, as well as scenes from the Mahabharata.
- The puppeteers are happy to add dialogues or chants taken from bhaona, the local traditional theatre.

1.39 Mekedatu Project

- The National Green Tribunal (NGT) has appointed a joint committee to look into allegations of unauthorized construction activity taking place in Mekedatu, where the Karnataka government had proposed to construct a dam across the Cauvery River.
- Acting suo motu based on a media report, the NGT has directed the panel to submit a report on or before July 5.
- The Mekedatu multi-purpose project involves building a balancing reservoir across the Cauvery River near Kanakapura in Ramanagaram district.
- It envisages supplying drinking water to Bengaluru and Ramanagaram districts, besides the generation of power.
- The project was conceived in 2013 and in 2017, the Karnataka state cabinet decided to implement it.
- The project, however, ran into a controversy after Tamil Nadu opposed it on the grounds that the project violates the Cauvery Water Disputes Tribunal award.

1.40 U.P. Sunni Waqf Board

- The Uttar Pradesh (UP) Sunni Central Waqf Board recently condemned the demolition of a mosque in Barabanki, UP and demanded its restoration.

Key takeaways

- The UP Sunni Central Waqf Board is a body constituted under The Wakf Act, 1954.
- It manages the affairs of Sunni Muslim waqf (charity) properties, waqf institutions and the marriage records of the Sunni Muslim community of UP.
- It has been the main Muslim litigant in the Babri Masjid–Ram Janmabhoomi title dispute.

Important value additions

- A waqf (also known as wakf or hubous) is an inalienable charitable endowment under Islamic law.
- It typically involves donating a building, plot of land or other assets for Muslim religious or charitable purposes with no intention of reclaiming the assets.
- The state waqf boards were established by the state governments in view of the provisions of Section 9(1) of the Wakf Act, 1954.
- India also has a Central Waqf Council to advise the government “on matters concerning the working of boards and the due administration of waqfs.”

1.41 One Stop Centre scheme (OSCs)

- It has provided assistance to over 3 lakh women so far.
- Implemented by: the Ministry of Women and Child Development

Key Highlights

- The scheme is implemented through State Governments/ Union Territory (UT) Administrations.
- Objective: To provide integrated support and assistance to women affected by violence and in distress, both in private and public spaces, under one roof and facilitate immediate, emergency and non-emergency access to a range of services including police, medical, legal aid and counseling, psychological support to fight against any forms of violence against women.
- Till date, 701 OSCs in 35 States/UTs have been operationalised.

1.42 Creation of a Lakshadweep Development Authority (LDA)



- People of Lakshadweep are Discontent over the creation of a Lakshadweep Development Authority (LDA) by the new administrator Praful Khoda Patel.
- Mr Patel is the first political appointee as Administrator, a post mostly held by retired civil servants.

- Islanders have pointed out that the legislation is out of sync with the social and environmental realities of the archipelago.
- The creation of the Lakshadweep Development Authority (LDA) with extensive powers includes eviction of land owners.
- It is widely seen as being pushed by the real estate lobby and against the interest of the islanders.
- Hundreds of islanders have written to the administrator demanding the withdrawal of the proposed Regulation.

It includes provisions such as:

1. Orderly and progressive development of land in both urban and rural areas and to preserve and improve the amenities thereof;
2. Grant of permission to develop land and for other powers of control over the use of land;
3. Conferring additional powers in respect of the acquisition and development of land for planning.

1.43 Vesak

- The Prime Minister addressed “Virtual Vesak Global Celebrations” on Buddha Purnima.
- The event is being organized by the Ministry of Culture in collaboration with the International Buddhist Confederation (IBC) and will witness the participation of all the supreme heads of the Buddhist Sanghas from around the world.

Buddha Purnima:

- It is celebrated to mark the birth of Gautam Buddha, the founder of Buddhism.
- It is also known as Vesak. In 1999, it became an UN-designated day, to acknowledge the contribution of Buddhism to society.
- It is considered a ‘triple-blessed day’ – as Tathagata Gautam Buddha’s birth, enlightenment, and Maha Parinirvana.
- Buddha Purnima falls on a full moon night, usually between April and May, and it is a gazetted holiday in India.
- Many devotees visit Mahabodhi Temple, a UNESCO World Heritage Site, located in Bodh Gaya, Bihar, on this occasion.
- Bodhi Temple is the location where Lord Buddha is said to have attained enlightenment.
- International Buddhist Confederation (IBC) is the biggest religious Buddhist confederation.
- The purpose of this body is to create a role for Buddhism on the global stage so as to help to preserve heritage, share knowledge, and promote values, and represent a united front for Buddhism to enjoy meaningful participation in the global discourse.

- In November 2011, New Delhi was host to the Global Buddhist Congregation (GBC), where the attendees unanimously adopted a resolution to form an international umbrella body – the International Buddhist Confederation (IBC).

2. International Relations

2.1 International Labour Day

- Every year 1st May is observed as May Day and is also known as International Labour Day worldwide.
- The day is observed as an occasion to commemorate the contributions of labourers and the working class.
- The International Labour Organization, a United Nations agency, works towards setting international labour standards.

History of Labour Day

- In 1889, the Marxist International Socialist Congress adopted a resolution for a great international demonstration in which they demanded that the workers should not be made to work for more than 8 hours a day. After this, it became an annual event and May 1 was celebrated as Labour Day.
- Earlier, the labours were exploited as they were made to work for 15 hours a day and it was in the year 1886 that the workers came together and started raising their voice for their right. In the protest, they asked for working 8 hours a day and to be provided with paid leaves.
- In India, Labour Day was observed in the year 1923, in Chennai. This day was observed by the Labour Kisan Party of Hindustan. On this day, the communist leader Malayapuram Singaravelu Chettiar also asked the government that this day should be considered as a national holiday to symbolise the efforts and work of the workers. This day is also known as Kamgar Divas, Kamgar Din and Antrarashtriya Shramik Divas in India.

The theme of Labour Day 2021:

- The International Workers' Day will be observed on May 1 and every year there is a common observance theme that symbolises the efforts of the labours. The theme of 2021 has not been announced yet, however, it will be announced soon. In 2019, the theme for labour day was, "Uniting Workers for Social and Economic Advancement."

Global History and Significance:

United States:

- Labour Day has its origins in the labour union movement in the United States in the 19th Century.
- However, the USA and Canada celebrate Labour day on the first Monday of September, every year.
- Labour day was designated as a day in support of workers by trade unions and socialist groups in the memory of the Haymarket affair of 1886 in Chicago, USA.
- Haymarket Affair was a peaceful rally in support of workers which led to a violent clash with the police, leading to severe casualties. Those who died were hailed as "Haymarket Martyrs".

- Workers' rights violations, straining work hours, poor working conditions, low wages and child labour were the issues highlighted in the protest.

Europe:

- May Day was first celebrated on 1st May, 1890, after it was declared by the first International Congress of Socialist Parties in Europe in July 1889.

USSR:

- The Soviet Union and the Eastern bloc nations started celebrating the Labour day after the Russian Revolution, 1917.
- New ideologies such as Marxism and Socialism inspired many socialist and communist groups and they attracted peasants and workers and made them an integral part of national movement.

2.2 The Global Forest Goals Report 2021: UN Report

- Released recently, the Report has been prepared by the Department of Economic and Social Affairs of the United Nations.
- It provides an initial overview of progress of Goals and targets contained within the United Nations Strategic Plan for Forests 2030.

Key findings:

- Covid-19 pandemic has aggravated the challenges faced by countries in managing their forests.
- Overall impact: More than just a health crisis, Covid-19 is driving losses of lives and livelihoods, extreme poverty, inequality, and food insecurity, and it has put the 'Future We Want' further out of reach.
- Impact on Global Output: It is estimated that world gross product fell by an estimated 4.3% in 2020. It is the sharpest contraction of global output since the Great Depression.
- On the economic front, forest-dependent populations have faced job loss, reduced income, diminished access to markets and information, and for many women and youth, a contraction in seasonal employment.
- Many forest dependent populations, especially those in remote or hard to reach places, have faced difficulties accessing healthcare or find that government assistance programmes and basic services are disrupted.
- Pandemic driven health and socio-economic outcomes have increased pressure on forests. This is because, to ease their growing vulnerability, many indigenous peoples and local communities, as well as returning migrants and urban workers, have retreated deeper into the woods to seek food, fuel, shelter, and protection from the risks of Covid-19.
- One million species were at risk of extinction and that 100 million hectares of tropical forest were lost from 1980 to 2000.

What needs to be done?

- Sustainably resourced and managed forests can bolster employment, disaster risk reduction, food security and social safety nets, for starters.
- With regard to global health, safeguarding and restoring forests are among the environmental actions that can reduce the risk of future zoonotic disease outbreaks.
- The report called for a future course of action that included greater sustainability and a greener and more inclusive economy to tackle the threats of Covid-19, climate change and the biodiversity crisis faced by forests.

2.3 World Press Freedom Day

- World Press Freedom Day is being observed on May 3, 2021.
- World Press Freedom Day was proclaimed by the UN General Assembly in December 1993, following the recommendation of UNESCO's General Conference.
- Since then, 3 May, the anniversary of the Declaration of Windhoek is celebrated worldwide as World Press Freedom Day.
- **The objective of the Day:** To celebrate the fundamental principles of press freedom, assess the state of press freedom throughout the world, defend the media from attacks on their independence, and pay tribute to journalists who have lost their lives in the line of duty.
- **Theme:** This year's theme "Information as a Public Good" serves as a call to affirm the importance of cherishing information as a public good.

2.4 Vorukh

- At least 31 people have been killed in Kyrgyzstan in heavy clashes at its disputed border with Tajikistan.

Key takeaways

- More than a third of the two countries' border is disputed, with the area surrounding the Vorukh, where recent conflict erupted.
- It is a regular flashpoint over territorial claims and access to water.
- Vorukh is a jamoat (administrative division) in northern Tajikistan.
- It is an enclave surrounded by Kyrgyzstan that forms part of the city of Isfara in Sughd Region.
- The location of the border of the enclave is disputed by the Tajik and Kyrgyz governments.



2.5 Congo declares the end of Ebola outbreak

- The Democratic Republic of Congo recently declared the end of the twelfth outbreak of Ebola. It had killed six people in the eastern province of North Kivu.

About Ebola Outbreak

- The current Ebola outbreak was genetically linked to that of the outbreak that occurred in 2018-20.
- Currently, Guinea is also fighting against Ebola epidemic.
- The Ebola virus was discovered in 1976. The 2014-16 outbreak of Ebola in West Africa is the largest Ebola outbreak since its discovery.
- In June 2019, the World Health Organisation declared outbreak in the Democratic Republic of Congo as Global Health Emergency.

Global Health Emergency

- The Global Health Emergency is declared when a disease outbreak is a risk to other countries. It requires a coordinated international response.

Ebola virus

- The Ebola virus transmits from wild animals to people. It spreads among human population through human-to-human population.
- The natural hosts of Ebola virus are the fruit bats.
- The methods used to diagnose Ebola are ELISA, Serum neutralization test, electron microscopy, virus isolation by cell culture, reverse transcriptase polymerase chain reaction (RT-PCR), antigen capture detection tests.
- The fatality rate of Ebola is 50%.
- In 2019, WHO declared Ebola as one of the top ten threats to Global Health in 2019. The other threats were non-communicable diseases, air pollution, climate change, global influenza pandemic, anti-microbial resistance, weak primary health care, vaccine hesitancy, HIV, and fragile and vulnerable settings.

2.6 United Nations High Commissioner for Refugees (UNHCR)

- The High Court of Manipur has allowed seven Myanmar nationals, who entered India secretly following the February military coup, to travel to New Delhi to seek protection from the United Nations High Commissioner for Refugees (UNHCR).

Observations made by the Court:

- Though India is not a party to the UN Refugee Conventions, the country is a party to the Universal Declaration of Human Rights of 1948 and the International Covenant on Civil and Political Rights of 1966.
- The far-reaching and myriad protection afforded by Article 21 of our Constitution, as interpreted and adumbrated by our Supreme Court time and again, would indubitably encompass the right of non-refoulement.

What is Non-refoulement?

- It is the principle under international law that a person fleeing from persecution from his own country should not be forced to return.
- About the United Nations High Commissioner for Refugees (UNHCR):
- It is a UN Refugee Agency and a global organization dedicated to saving lives, protecting the rights and building a better future for refugees, forcibly displaced communities and stateless people.
- It was created in 1950 to help millions of Europeans who had fled or lost their homes.
- It is headquartered at Geneva, Switzerland.

2.7 Kachin people

- They are a confederation of ethnic groups who inhabit the Kachin Hills in northern Myanmar's Kachin State and neighbouring Yunnan Province, China, and Arunachal Pradesh, Assam in Northeastern India.
- The term Kachin people is often used interchangeably with the main subset, called the Jingpo people in China.

Why in News?

- Protests against Myanmar's military government continued in Kachin State and elsewhere in the country.



2.8 Global Innovation Partnership (GIP)

- The Union Cabinet has given ex-post facto approval to the signing of MoU between the Ministry of External Affairs of India and Foreign, Commonwealth, and Development Office (FCDO) of the United Kingdom on Global Innovation Partnership (GIP).
- Through this MoU, India, and UK agree to launch the Global Innovation Partnership.
- GIP will support Indian innovators to scale up their innovations in third countries thereby helping them explore new markets and become self-sustainable.
- It will also foster the innovation ecosystem in India.
- GIP innovations will focus on Sustainable Development Goals (SDG) related sectors thereby assisting recipient countries to achieve their SDGs.
- Through seed funding, grants, investments, and technical assistance, the Partnership will support Indian entrepreneurs and innovators to test, scale up and take their innovative development solutions to select developing countries.
- GIP will also develop an open and inclusive e-marketplace (E-BAAZAR) for cross-border innovation transfer and will focus on results-based impact assessment thereby promoting transparency and accountability.

2.9 DAHLA DAM

- The Taliban has captured Afghanistan's second-biggest dam after months of fierce fighting in its former bastion of Kandahar.

Concept :

- Dahlia Dam, which provides irrigation to farmers via a network of canals as well as drinking water for the provincial capital, is now under Taliban control.
- The dam's capture comes after clashes erupted in neighbouring Helmand province this week, just days after the U.S. military formally began withdrawing its remaining troops from Afghanistan.

Geography

- The Dahlia Dam, also known as Arghandab Dam, is located in the Shah Wali Kot District of Kandahar Province in Afghanistan.
- Constructed in 1952, it is said to be the second largest dam in Afghanistan.
- The Dahlia Dam is built on the Arghandab River.

2.10 "Global Methane Assessment": The UN Report on human-caused methane emissions

- Climate and Clean Air Coalition(CCAC) and the United Nations Environment Programme (UNEP) has released a report titled "Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions".

- Objective: The report has suggested that the world needs to dramatically cut methane emissions to avoid the worst of climate change.

Key Findings of the Global Methane Assessment Report:

Increase in Methane Emissions:

- Currently, Human-caused methane emissions are increasing faster at any other time (since record keeping began in the 1980s).
- Carbon dioxide levels have dropped during the novel coronavirus disease (COVID-19) pandemic. However, methane in the atmosphere reached record levels last year.
- This was a cause of concern as methane was an extremely powerful greenhouse gas. It was responsible for about 30% of global warming since pre-industrial times.

Source of Methane Emissions:

- More than half of global methane emissions stem from human activities in three sectors: fossil fuels (35%), waste (20%) and agriculture(40%).
- Fossil fuel sector: Oil and gas extraction, processing and distribution account for 23%. Coal mining alone accounts for 12% of emissions.
- Waste sector: Landfills and wastewater make up about 20% of global anthropogenic emissions.
- Agricultural sector: Livestock emissions from manure and fermentation represent roughly 32%. Further, rice cultivation accounts for 8% of global anthropogenic emissions.
- Methane Mitigation according to Global Methane Assessment Report:
- The mitigation potential in different sectors varies between countries and regions:
- Europe had the greatest potential to curb methane emissions from farming, fossil fuel operations and waste management.
- India had the greatest potential to reduce methane emissions in the waste sector.
- China's mitigation potential was best in coal production and livestock.
- Africa's mitigation potential was best in livestock, followed by oil and gas.

What needs to be done?

- Human-caused methane emissions must be cut by 45% to avoid the worst effects of climate change.
- Such a cut would prevent a rise in global warming by up to 0.3 degrees Celsius by 2045.
- It would also prevent 26 lakh premature deaths, 77 lakh asthma-related hospital visits annually as well as 25 million tonnes of crop losses.
- Further, three human behavioural changes could reduce methane emissions by 65–80 million tonnes per year over the next few decades. The behavioural changes are:
- Reducing food waste and loss
- Improving livestock management and

- Adopting healthy diets (vegetarian or with a lower meat and dairy content).

2.11 3rd Arctic Science Ministerial

- India participates in the 3rd Arctic Science Ministerial shares plans for research and long-term cooperation in the Arctic.
- The first two meetings ASM1 and ASM2 were held in the USA in 2016 and Germany in 2018, respectively.
- ASM3, jointly organised by Iceland and Japan, is the first Ministerial meeting being held in Asia.
- The theme for this year is ‘Knowledge for a Sustainable Arctic’.

Key Facts

- India shared vision and long-term plans for research, work, and cooperation in the Arctic region with the stakeholders.
- Collaborations towards strengthening observational systems and sharing of data to enhance knowledge.
- India would continue to play a positive role in deepening shared understanding of the Arctic through observation, research, capacity building, as well in promoting sustainable development of the region through international cooperation.
- India shared its plans to contribute observing systems in the Arctic both in-situ and by remote sensing.
- The country would deploy open ocean mooring in the Arctic for long-term monitoring of upper ocean variables and marine meteorological parameters.
- India’s contributions to the Sustained Arctic Observational Network (SAON) would continue.
- The meeting is designed to provide opportunities to various stakeholders, including academia, indigenous communities, governments and policymakers, to enhance collective understanding of the Arctic region, emphasize and engage in constant monitoring, and strengthen observations.

India And Arctic Region

- India’s engagement with the Arctic dates back to 1920 with the signing of the Svalbard Treaty in Paris.
- Since July 2008, India has a permanent research station in the Arctic called Himadari at NyAlesund, Svalbard Area in Norway.
- It has also deployed a multi-sensor moored observatory called IndARC in the Kongsfjorden fjord since July 2014.
- The research in the Arctic region from India is coordinated, conducted, and promoted by the National Centre for Polar and Ocean Research (NCPOR), Goa, under the Ministry of Earth Sciences, Government of India.

- India enjoys ‘Observer’ status in the Arctic Council.
- The launch of NISER (NASA-ISRO Synthetic Aperture Radar) satellite mission in collaboration with the USA, is underway.
- NISER aims to conduct global measurements of the cause and consequences of land surface changes using advanced radar imaging.

Arctic Science Ministerial

- It is a grouping to strengthen scientific cooperation and collaboration among both Arctic and non-Arctic States in order to develop our understanding of the rapid changes impacting the Arctic.
- First Arctic Science Ministerial (ASM1) was hosted by the United States in 2016.
- Second Arctic Science Ministerial (ASM2) was co-hosted by Germany, Finland, and the European Commission.
- The Third Arctic Science Ministerial will be co-hosted by Iceland and Japan and take place on the 8th and 9th of May 2021 in Tokyo, Japan.
- ASM3 aims to use the well-established foundation of the Ministerial as a means to take action on coordinated Arctic observing and research in an open and transparent format which includes all Arctic stakeholders.

Concern over Arctic Region

- Arctic warming and its ice melt are global concerns as they play a pivotal role in regulating climate, sea levels, and maintaining biodiversity.
- There is growing evidence of connection between the Arctic and the Indian Ocean (which modulates the Indian monsoon).
- Improving the understanding of physical processes and quantifying the impact of Arctic ice melt on the Indian summer monsoon is very important.

2.12 Jerusalem

- Tensions have been building up in Jerusalem since the start of Ramzan in mid-April between Israeli forces and Palestinians.
- Recently, Israeli armed forces stormed Al-Aqsa Mosque in the Haram esh-Sharif in Jerusalem.
- In retaliation, Hamas, the Islamist militant group that runs Gaza, fired dozens of rockets.

Why Jerusalem?

- Jerusalem has been at the centre of the Israeli-Palestinian conflict.
- According to the original 1947 UN Partition Plan, Jerusalem was proposed to be an international city.
- But in the first Arab Israel war of 1948, the Israelis captured the western half of the city, and Jordan took the eastern part, including the Old City that houses Haram esh-Sharif.

- Al-Aqsa Mosque, Islam's third holiest site, and the Dome of the Rock are situated within Haram esh-Sharif (Noble Sanctuary).
- Israel captured East Jerusalem from Jordan in the 1967 Six-Day War and annexed it later.

Citizenship issues:

- Since its annexation, Israel has expanded settlements in East Jerusalem, which is now home for some 220,000 Jews. Jews born in East Jerusalem are Israeli citizens, while Palestinians in the city are given conditional residency permits.
- Palestinians in East Jerusalem, unlike other parts of the occupied West Bank, can, however, apply for Israeli citizenship. Very few Palestinians have done so.

Root cause of the problem:

- Israel sees the whole city as its “unified, eternal capital”, a claim endorsed by Donald Trump when he was U.S. President but not recognised by most other countries. Palestinian leaders across the political spectrum have maintained that they would not accept any compromise formula for a future Palestinian state unless East Jerusalem is its capital.



2.13 2021 World Food Prize

- Dr. Shakuntala Haraksingh Thilsted, a global nutrition expert of Indian descent has won the prestigious 2021 World Food Prize for her groundbreaking research in developing holistic, nutrition-sensitive approaches to aquaculture and food systems.
- Shakuntala Haraksingh Thilsted:
- Thilsted's trailblazing research on small native fish species in Bangladesh led to the development of nutrition-sensitive approaches to aquatic food systems at all levels, from the farm to food processing to final consumers, resulting in improved diets for millions of the most vulnerable people in Asia and Africa.
- Thilsted, who is a native of Trinidad and Tobago and a citizen of Denmark, was born in 1949 in the Caribbean island of Trinidad in the small village of Reform. Most of the inhabitants, including her

family, were descendants of Indian Hindu migrants brought to Trinidad to engage in agricultural labour.

World Food Prize:

- The World Food Prize recognizes the achievements of individuals who have advanced human development by improving the quality, quantity, or availability of food in the world.
- It recognizes contributions in any field involved in the world food supply such as plant, animal and soil science; nutrition; rural development; marketing; food processing and packaging; water and the environment; physical infrastructure; policy analysis, etc.
- The prize is open to every individual without regard to race, religion, nationality, or political beliefs.

2.14 International Nurses and Midwives Day:

- Celebrated on May 12 every year.
- Theme: A Voice to Lead-A Vision for Future Healthcare.
- Started in 1965 by the International Council of Nurses(ICN).
- This day is the birth anniversary of the famous Florence Nightingale.
- Florence Nightingale was an English nurse, social reformer, and statistician. During the Crimean war, she gained fame while serving as a manager and trainer of nurses, being the pillar of modern nursing.

2.15 Climate Change impact on Cave Arts of Sulawesi Island of Indonesia

- A new Australian study has suggested that climate change may be accelerating the degradation of Pleistocene-era rock paintings located in the Sulawesi Island of Indonesia. It is the world's oldest cave art.

About the study:

- Australian and Indonesian archaeological scientists conducted the study.
- The scientists examined around 11 caves and rock-shelters in the Maros-Pangkep region in Sulawesi Island of Indonesia.
- These are Pleistocene-era rock paintings dating back to 45,000-20,000 years ago.
- Which are those ancient cave arts of Indonesia? Some important artworks include:
- Firstly, the world's oldest hand stencil (almost 40,000 years ago): It was created by pressing the hand on a cave wall and spraying wet red-mulberry pigments over it.
- Secondly, the world's oldest depiction of an animal (almost 45,500 years ago): The animal depicted is a warty pig painted on the wall.
- Lastly, one of the caves contains what researchers describe as possibly the earliest known narrative scene in prehistoric art depicting a hunting scene.

Key Findings of the study:**Salts on Rocks:**

- The researchers studied the flakes of rock that have begun to detach from cave surfaces.
- It found salts such as calcium sulphate and sodium chloride on three of the cave samples.
- These salts also form crystals on rock surfaces, causing them to break.

Change in Temperature and Humidity:

- The artworks made with pigments are decaying due to a process known as haloclasty.
- Haloclasty is a type of physical weathering caused by the growth of salt crystals. It occurs due to repeated changes in temperature and humidity, caused by alternating wet and dry weather in the region.

Natural Disasters:

- Indonesia has also experienced several natural disasters in recent years, which have quickened the process of deterioration.

Recommendations:

- Firstly, Researchers have recommended regular physical and chemical monitoring of the sites to reduce environmental degradation.
- Secondly, preservation efforts undertaken at the French and Spanish prehistoric cave art sites such as Lascaux and Altamira should also be implemented here.

2.16 The diplomatic immunity

- After she allegedly hit two staff members at a boutique in Seoul last month, the wife of Belgium's ambassador to South Korea will now be exercising her diplomatic immunity to avoid criminal charges.
- The incident has since sparked anger in South Korea, with debates rife over the extent of protection enjoyed by diplomats and their family members.

What is diplomatic immunity?

- It is a privilege of exemption from certain laws and taxes granted to diplomats by the country in which they are posted.
- This custom was established so that diplomats can function without fear, threat or intimidation from the host country.
- Diplomatic immunity is granted on the basis of two conventions:
- Popularly called the Vienna Conventions — the Convention on Diplomatic Relations, 1961.
- The Convention on Consular Relations, 1963.
- They have been ratified by 187 countries, which means, it is a law under that country's legal framework and cannot be violated.

What is the extent of this immunity?

- According to the Vienna Convention on Diplomatic Relations, 1961, the immunity enjoyed by a diplomat posted in the embassy is “inviolable”.
- The diplomat cannot be arrested or detained and his house will have the same inviolability and protection as the embassy.

Exceptions:

- It is possible for the diplomat’s home country to waive immunity but this can happen only when the individual has committed a ‘serious crime’, unconnected with their diplomatic role or has witnessed such a crime. Alternatively, the home country may prosecute the individual.

What are the Concerns?

- While diplomatic immunity is intended to “insulate” diplomats from harm, it does not insulate their countries from a bad reputation and a blow to bilateral ties.

2.17 Colombo Port City

- A Chinese-funded tax-free enclave in Sri Lanka recently cleared the final legal hurdle as its Supreme Court gave it a go ahead.

Key takeaways

- It is named the “Colombo Port City”.
- It is the largest single foreign investment by China in Sri Lanka among the other massive infrastructure projects.
- The Port City will attract billions of dollars for trade, banking and offshore services similar to what is available in Dubai and Singapore.
- The Port City will be administered by a commission with various powers to fast track investment approvals.
- All transactions within the Port City will be denominated in foreign currency and all salaries earned by any worker will be tax-exempt.



2.18 Taiwan

- India recently received assistance from Taiwan, including oxygen concentrators and cylinders, with more batches of medical equipment set to follow.

Important value additions

- Taiwan is officially known as the Republic of China (ROC).
- It is a state in East Asia with China to its west, Japan to the north-east, and the Philippines to the south.
- The East China Sea lies to its north, the Philippine Sea to its east, the Luzon Strait directly to its south and the South China Sea to its southwest.
- The Taiwan Strait separates the island of Taiwan from mainland China.
- Taipei is the capital.



- Taiwan is no longer a member of the UN, having been replaced by China in 1971.
- Taiwan is claimed by China, which refuses diplomatic relations with countries that recognise the ROC.
- Taiwan maintains official ties with 14 out of 193 UN member states and the Holy See.
- The bilateral relations between India and Taiwan have improved since the 1990s despite both nations not maintaining official diplomatic relations.

2.19 Iceberg A-76

- World's largest iceberg breaks off in Antarctica as glaciers retreat.
- Iceberg A-76 calved from the western side of the Ronne Ice Shelf in Antarctica and is now floating on the Weddell Sea.
- Measurements taken from satellites and planes confirm it's now the world's largest.
- It measures around 170 kilometers (105 miles) long and 25 kilometers (15 miles) wide.

What's the Concern?

- The Antarctica ice sheet is warming faster than the rest of the planet, causing melting of snow and ice covers as well as the retreat of glaciers, especially around the Weddell Sea. As glaciers retreat, chunks of ice break off and float adrift until they break apart or crash into land.

2.20 New Big 5 project

- It has named the five animals for framing instead of firing at. These are the elephant, polar bear, gorilla, tiger, and lion.
- All the New Big 5 animals are keystone species, essential to the balance of nature in their habitats, biodiverse ecosystems, and the survival of other species, including humans.
- It is an international initiative of more than 250 of the world's wildlife photographers, conservationists, and wildlife charities.
- Created by British photographer Graeme Green.
- Its aim is to raise awareness about the crisis facing the world's wildlife from threats including habitat loss, human-wildlife conflict, poaching, illegal wildlife trade, and climate change.
- Since its launch in April 2020, the project to list the animals received more than 50,000 votes from wildlife lovers.

2.21 BAWG

- 7th BRICS Astronomy Working Group Meeting recommends networking of existing telescopes.

About BRICS Astronomy Working Group:

- It provides a platform for BRICS member countries to collaborate in the field of astronomy, recommending that the focal points in each country should present the scientific results of the work being carried out in each country.
- This will help seek funding support to realize the flagship project whenever funding opportunities are announced by BRICS funding agencies.
- At the meeting, the members indicated future directions of research in this area such as building network of intelligent telescope and data network, study of transient astronomical phenomena in universe, big data, artificial intelligence, machine learning application to process the voluminous data generated now a days due to enhance multi-wavelength telescope observatory.

BRICS:

- BRICS is an acronym for the grouping of the world's leading emerging economies, namely Brazil, Russia, India, China and South Africa.
- In 2001, the British Economist Jim O'Neill coined the term BRIC to describe the four emerging economies of Brazil, Russia, India, and China.
- The grouping was formalised during the first meeting of BRIC Foreign Ministers' in 2006.
- South Africa was invited to join BRIC in December 2010, after which the group adopted the acronym BRICS.
- India has assumed the BRICS Presidency from January 2021.
- BRICS does not exist in the form of organization, but it is an annual summit between the supreme leaders of five nations.

- The Chairmanship of the forum is rotated annually among the members, in accordance with the acronym B-R-I-C-S.

Cooperation Mechanism:

- Cooperation among members is achieved through:
- Track I: Formal diplomatic engagement between the national governments.
- Track II: Engagement through government-affiliated institutions, e.g. state-owned enterprises and business councils.
- Track III: Civil society and People-to-People engagement.

2.22 BELARUS

- The President of Belarus, Alexander Lukashenko sparked international outrage after his regime forced a commercial airline flying from Greece to Lithuania to land in its territory allegedly on the pretext of a bomb scare, so it could arrest a dissident journalist on board.

Key takeaways

- The journalist, Roman Protasevich, is a prominent opponent of Lukashenko.
- He had been living in exile in neighbouring Lithuania since 2019.
- He is also the co-founder of the NEXTA media outlet on social media platform Telegram.
- The regime has also put his name on a list of terrorists, and if convicted, he could face the death penalty.
- Western leaders have denounced the incident.

Important value additions

- Belarus is a landlocked country in Eastern Europe.
- It is bordered by Russia, Ukraine, Poland, and Lithuania, and Latvia (See the map)
- Capital: Minsk
- During the dissolution of the Soviet Union, Belarus declared independence in 1991.

2.23 Interpol

- Fugitive diamantaire Mehul Choksi, who had recently fled from Antigua and Barbuda, was captured in neighbouring Dominica after an Interpol Yellow Notice was issued against him.
- Choksi had been living in Antigua and Barbuda since 2018 after taking the citizenship. He is wanted in a ₹13,500-crore loan fraud in Punjab National Bank.

What is Interpol?

- The International Criminal Police Organisation, or Interpol, is a 194-member intergovernmental organisation.
- Headquartered in Lyon, France. Formed in 1923 as the International Criminal Police Commission, and started calling itself Interpol in 1956.
- India joined the organisation in 1949, and is one of its oldest members.

Interpol's declared global policing goals include:

- Countering terrorism, promoting border integrity worldwide, protection of vulnerable communities, providing a secure cyberspace for people and businesses, curbing illicit markets, supporting environment security, and promoting global integrity.

What is the Interpol General Assembly?

- It is Interpol's supreme governing body, and comprises representatives from all its member countries.
- It meets annually for a session lasting approximately four days, to vote on activities and policy.
- Each country is represented by one or more delegates at the Assembly, who are typically chiefs of law enforcement agencies.
- The Assembly also elects the members of the Interpol Executive Committee, the governing body which "provides guidance and direction in between sessions of the Assembly".



3. INDIAN ECONOMY

3.1 Scheme For Special Assistance To States For Capital Expenditure For 2021-22

- The Ministry of Finance, Government of India has decided to provide an additional amount of upto Rs. 15,000 crore to States as interest free 50 year loan for spending on capital projects.

Key takeaways

- The Department of Expenditure has issued fresh guidelines in this regard on the “Scheme of Financial Assistance to States for Capital Expenditure” for the financial year 2021-22.
- Under the Scheme, financial assistance is provided to the State Governments in the form of 50-year interest free loan.
- An amount not exceeding Rs.12,000 crore was earmarked for the scheme for the financial year 2020-21, and a sum of Rs.11,830.29 crore was released to the States.
- This helped to sustain state level capital expenditure in the pandemic year.
- In view of the positive response to the scheme and considering the requests of the State Governments, the Government has decided to continue the scheme in the year 2021-22.

The Scheme for Special Assistance to States for Capital Expenditure for 2021-22 has three Parts:

- Part-I: It is for the North-East and Hill States
- Part-II: It is for all other States not included in Part-I. This amount has been allocated amongst these States in proportion to their share of central taxes as per the award of the 15th Finance Commission for the year 2021-22.
- Part-III: It is for providing incentives to States for monetization/recycling of infrastructure assets and disinvestment of the State Public Sector Enterprises (SPSEs).
- An amount of Rs.5,000 crore is allocated for this part of the scheme.
- Under this part, States will receive interest free 50 years loan ranging from 33% to 100% of the amount realised by them, through assets monetization, listing and disinvestment.

3.2 Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)

- The Ministry of Food Processing Industries (MoFPI) has launched an online portal for ‘Production Linked Incentive Scheme for Food Processing Industry’(PLISFPI).

Key takeaways

- Government of India has approved a new Central Sector Scheme namely‘ Production Linked Incentive Scheme for Food Processing Industry’ for implementation during 2021-22 to 2026-27 with an outlay of Rs. 10,900 crore.
- **Objective:** To support creation of global food manufacturing champions commensurate with India’s natural resource endowment and support Indian brands of food products in the international markets.

- Ministry of Food Processing Industries is inviting applications for availing sales based incentives and grants for undertaking Branding & Marketing activities abroad under the scheme from three categories of Applicants:
- Category-I: Applicant under this category could undertake Branding & Marketing activities abroad also and apply for grant under the scheme with a common application.
- Category-II: SMEs Applicants manufacturing innovative/ organic products who apply for PLI Incentive based on Sales.
- Category-III: Applicants applying solely for grant for undertaking Branding & Marketing activities abroad.

3.3 5G Technology

- The Department of Telecommunications (DoT), Government of India approved permissions to Telecom Service Providers (TSPs) for conducting trials for use and applications of 5G technology.
- The applicant TSPs include Bharti Airtel Ltd., Reliance JioInfocomm Ltd., Vodafone Idea Ltd., and MTNL.
- The duration of the trials, at present, is for a period of 6 months.
- Each TSP will have to conduct trials in rural and semi-urban settings also in addition to urban settings so that the benefit of 5G Technology proliferates across the country and is not confined only to urban areas.
- The objectives of conducting 5G trials include testing 5G spectrum propagation characteristics especially in the Indian context; model tuning and evaluation of chosen equipment and vendors; testing of indigenous technology; testing of applications; and testing 5G phones and devices.
- 5G technology is expected to deliver improved user experience in terms of data download rates (expected to be 10 times that of 4G), up to three times greater spectrum efficiency, and ultra low latency to enable Industry 4.0.
- The TSPs are encouraged to conduct trials using 5Gi technology in addition to the already known 5G Technology.
- It will be recalled that International Telecommunications Union (ITU) has also approved the 5Gi technology, which was advocated by India, as it facilitates much larger reach of the 5G towers and Radio networks.
- The 5Gi technology has been developed by IIT Madras, Centre of Excellence in Wireless Technology (CEWiT) and IIT Hyderabad.

3.4 **SVAMITVA Scheme**

- Union Minister for Panchayati Raj Shri Narendra Singh Tomar released the new framework for implementation of the SVAMITVA Scheme to mark the nationwide roll-out of the SVAMITVA Scheme.
- The SVAMITVA Framework is developed by the Ministry of Panchayati Raj.
- It provides a detailed roadmap and guidelines for the various States in terms of the Scheme objectives, coverage, various components involved, year-wise funding pattern, survey approach and methodology, stakeholders involved and their roles and responsibility, monitoring and evaluation, and deliverables.
- SVAMITVA, a Central Sector Scheme of the Ministry of Panchayati Raj was nationally launched by the Prime Minister on the occasion of National Panchayati Raj Day on 24th April 2021 after successful completion of the pilot phase of the Scheme in 9 States.
- SVAMITVA Scheme aims to provide property rights to the residents of rural inhabited areas in India by using a Drone survey and CORS Networks which provides mapping accuracy of 5 cms.
- The Ministry of Panchayati Raj (MoPR) is the Nodal Ministry for implementation of the SVAMITVA scheme.
- In the States, the Revenue Department/Land Records Department will be the Nodal Department and shall carry out the scheme with the support of State Panchayati Raj Departments.

3.5 **Intellectual property waiver for Covid-19 vaccines**

- The United States has announced support for waiving intellectual property protection for Covid-19 vaccines, saying extraordinary circumstances call for extraordinary measures.
- The US will pursue “text-based negotiations” on the waiver at the World Trade Organization (WTO).

What are Text-based negotiations?

- They involve negotiators exchanging texts with their preferred wording and then thrashing out a consensus on the working — a fairly long-drawn affair.

What does the intellectual property waiver for Covid-19 vaccines mean?

- The IP waiver might open up space for production of Covid vaccines with emergency use authorisations (EUA) — such as those developed by Pfizer, Moderna, AstraZeneca, Novavax, Johnson & Johnson and Bharat Biotech — on a larger scale in middle-income countries.
- Most production is currently concentrated in high-income countries; production by middle-income countries has been happening through licensing or technology transfer agreements.

What was the earlier proposal from India and South Africa?

- In October 2020, India and South Africa had asked the WTO to waive certain conditions of the Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement that could impede timely access to affordable medical products to combat Covid-19.
- The countries had asked the TRIPS Council to recommend, “as early as possible”, a waiver on the implementation, application and enforcement of four sections in the second part of the agreement.
- These sections — 1, 4, 5, and 7 — pertain to copyright and related rights, industrial designs, patents, and the protection of undisclosed information.

What are patents and IP rights?

- A patent represents a powerful intellectual property right, and is an exclusive monopoly granted by a government to an inventor for a limited, pre-specified time. It provides an enforceable legal right to prevent others from copying the invention.

Patents can be either process patents or product patents:

- A product patent ensures that the rights to the final product is protected, and anyone other than the patent holder can be restrained from manufacturing it during a specified period, even if they were to use a different process.
- A process patent enables any person other than the patent holder to manufacture the patented product by modifying certain processes in the manufacturing exercise.

Patent regime in India:

- India moved from product patenting to process patenting in the 1970s, which enabled India to become a significant producer of generic drugs at global scale, and allowed companies like Cipla to provide Africa with anti-HIV drugs in the 1990s.
- But due to obligations arising out of the TRIPS Agreement, India had to amend the Patents Act in 2005, and switch to a product patents regime across the pharma, chemicals, and biotech sectors.

3.6 Kharif Mini Kit Programme

- With an aim to attain self-sufficiency in the production of pulses, the Ministry of Agriculture and Farmers Welfare has formulated a special Kharif strategy for implementation in the ensuing Kharif 2021 season.
- It also aims India to become Aatmanirbhar in the production of pulses.
- Aim : The special programme will increase the production and productivity of the three pulses of Tur, Moong and Urad will play an important role in reducing the import burden.

Kharif Mini Kit Programme :

- Through consultations with the state governments, a detailed plan for both area expansion and productivity enhancement for Tur, Moong and Urad has been formulated.

- Under the strategy, utilising all the high yielding varieties (HYVs) of seeds that are available either with the Central Seed Agencies or in the States will be distributed free of cost.
- It is proposed to distribute 20,27,318 (almost 10 times more seed mini kits than 2020-21) amounting to Rs. 82.01 crores.
- The total cost for these mini-kits will be borne by the Central Government to boost the production and productivity of tur, moong and urad.

Other Facts

- Tur intercropping will be covered in 11 states and 187 districts. The states are Andhra Pradesh, Chattisgarh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Telangana and Uttar Pradesh.
- Moong intercropping will be covered in 9 states and 85 districts. The states are Andhra Pradesh, Gujarat, Haryana, Karnataka, Maharashtra, Rajasthan, Tamil Nadu, Telangana and Uttar Pradesh.
- Urad intercropping will be covered in 6 states in 60 districts. The states are Andhra Pradesh, Madhya Pradesh, Karnataka, Maharashtra, Tamil Nadu and Uttar Pradesh.
- Urad sole cropping will be covered in 6 states.

Cropping Seasons in India

- There are three distinct crop seasons in the northern and interior parts of country, namely kharif, rabi and zaid.
- The kharif season largely coincides with Southwest Monsoon.
- The cultivation of tropical crops such as rice, cotton, jute, jowar, bajra and tur is possible.
- The rabi season begins with the onset of winter in October-November and ends in March-April.
- Cultivation of temperate and subtropical crops such as wheat, gram and mustard.
- Zaid is a short duration summer cropping season beginning after harvesting of rabi crops.
- The cultivation of watermelons, cucumbers, vegetables and fodder crops during this season is done on irrigated lands.

Pulses In India

- Pulses are a very important ingredient of vegetarian food as these are rich sources of proteins.
- These are legume crops which increase the natural fertility of soils through nitrogen fixation.
- India is a leading producer of pulses
- It accounts for about one-fifth of the total production of pulses in the world.
- The cultivation of pulses in the country is largely concentrated in the dry lands of Deccan and central plateaus and northwestern parts of the country.
- Pulses occupy about 11 per cent of the total cropped area in the country.
- Being the rainfed crops of drylands, the yields of pulses are low and fluctuate from year to year.

- Gram and Tur are the main pulses cultivated in India.

Pulse Production Programme

- Major push towards this effort was made in 2016-17
- Started with the creation of 150 pulses seed hubs in 24 states covering Krishi Vigyan Kendras in 97 districts, 46 State Agricultural Universities and 7 ICAR institutions
- They provide location-specific varieties and quality seed quantities.
- Breeder Seed Production Centres infrastructure at 12 ICAR/SAU centres in 08 states was created for increasing Varietal Replacement and Seed Replacement.

3.7 S. Janakiraman Advisory Group

- The Reserve Bank said an advisory group had been constituted to assist the second Regulatory Review Authority (RRA) which was set up by the central bank earlier this month to streamline regulations and reduce the compliance burden of regulated entities.
- Headed by SBI Managing Director S. Janakiraman, the group will assist the RRA by identifying regulations, guidelines, and returns that can be rationalized.
- The group will assist the RRA by identifying areas, regulations, guidelines, returns which can be rationalized and submit reports periodically to RRA containing the recommendations/suggestions.
- In 1999, the RBI had set up a Regulations Review Authority (RRA) for reviewing the regulations, circulars, reporting systems, based on the feedback from the public, banks, and financial institutions.
- The RBI has set up the second Regulatory Review Authority (RRA 2.0), initially for a period of one year from May 01, 2021, with a view to streamline regulations and reduce the compliance burden of regulated entities.
- Reserve Bank of India Deputy Governor M Rajeshwar Rao was appointed as the Regulations Review Authority.

3.8 SWAMIH Fund

- The Government of India's Special Window for Affordable & Mid-Income Housing (SWAMIH) completed its first residential project.
- The residential project – Rivali Park, located in suburban Mumbai, was the first housing project in India to have received funding under the SWAMIH Fund.
- SWAMIH Fund:** This is a government-backed fund that was set up as a Category-II AIF (Alternate Investment Fund) debt fund registered with SEBI, launched in 2019.
- SWAMIH Investment Fund was formed to complete construction of stalled, RERA-registered affordable and mid-income category housing projects which are stuck due to paucity of funds.

- The Investment Manager of the Fund is SBICAP Ventures, a wholly-owned subsidiary of SBI Capital Markets, which in turn is a wholly-owned subsidiary of the State Bank of India.
- The Sponsor of the Fund is the Secretary, Department of Economic Affairs, Ministry of Finance, on behalf of the Government of India.

Alternative Investment Fund (AIF):

- AIF means any fund established or incorporated in India which is a privately pooled investment vehicle that collects funds from sophisticated investors, whether Indian or foreign, for investing it in accordance with a defined investment policy for the benefit of its investors.
- Regulation 2(1)(b) of Securities and Exchange Board of India (SEBI) Regulations (AIFs), 2012 lays down the definition of AIFs.
- Through a company, or a Limited Liability Partnership (LLP), an Alternative Investment Fund can be established.
- AIF does not include funds covered under the SEBI (Mutual Funds) Regulations, 1996, SEBI (Collective Investment Schemes) Regulations, 1999, or any other regulations of the Board to regulate fund management activities.
- Other exemptions include family trusts, employee welfare trusts, or gratuity trusts.

3.9 Sovereign Gold Bond Scheme 2021-22

- The Central Government in consultation with the RBI, has decided to issue Sovereign Gold Bonds.

Key takeaways

- The Sovereign Gold Bonds will be issued in six tranches from 17th May to September 2021.
- The Bonds will be sold through Scheduled Commercial banks (except Small Finance Banks and Payment Banks), Stock Holding Corporation of India Limited (SHCIL), designated post offices, and National Stock Exchange of India Limited and Bombay Stock Exchange Limited.
- The minimum permissible investment will be one gram of gold.
- Investors will be compensated at a fixed rate of 2.50% per annum payable semi-annually on the nominal value.
- The Bonds will be restricted for sale to resident individuals, Hindu Undivided Families, Trusts, Universities and Charitable Institutions.
- The tenor of the Bond will be for a period of 8 years with exit option after 5th year to be exercised on the next interest payment dates.

Benefits of Sovereign Gold Bond Scheme

- The Sovereign Gold Bond Scheme provides flexible gold denomination in terms of purchasing gold. These gold bonds are available in multiple weight denominations starting from 1 gram.

- The gold bonds can be availed either in paper or in demat form as per the convenience of an individual.
- The scheme also provides flexible investment where one can choose the amount he/she wants to invest.
- The gold bonds invested by the Investors can be gifted or transferred to others who are eligible under the scheme. They can also trade these bonds on stock exchanges subject to notifications of the Reserve Bank of India.
- These Gold bonds can be purchased through multiple payment modes such as cheques, cash, DDs or electronic transfer.

3.10 Petroleum & Explosives Safety Organization (PESO)

- The Indian Government has reviewed the existing procedure for approval of global manufacturers for importing oxygen cylinders by Petroleum and Explosive Safety Organization (PESO).
- Petroleum & Explosives Safety Organization (PESO)
 1. It is an organization under Department of industrial policy and promotion (DIPP), Ministry of commerce & Industry.
 2. PESO is the apex department to control and administer manufacture, storage, transport and handling of explosives, petroleum, compressed gases and other hazardous substances in India.
 3. Headquarters: Nagpur, Maharashtra.

3.11 Gold Exchange Framework Proposal In India

- Securities and Exchange Board of India (SEBI) has issued a consultation paper proposing draft regulations for exchanges that permit trading in gold.
- Gold Exchange Framework Proposal In India now out for public feedback.
- Finance Minister in budget speech for FY22 had announced that the Sebi will be the regulator for gold exchange.

Key Facts

- It has proposed an elaborate framework wherein one can convert physical gold into Electronic Gold Receipts (EGR) and even convert those back into physical gold.
- Proposed flow of transactions in the Gold exchange
- The entire transaction in the proposed Gold Exchange has been divided into three tranches
- First Tranche : Conversion from Physical Gold to Electronic Gold Receipt
- Second Tranche: Trading of Electronic Gold Receipt on stock exchange/s
- Third Tranche: Conversion from Electronic Gold Receipt to Physical Gold
- The proposed denominations reflecting underlying physical gold of EGRs are 1 kilogram, 100 gram, 50 gram and subject to conditions, those can also be even for 5 and 10 gram.

Key issues on which SEBI needs public feedback

- Taxation is a key issue as the EGRs would be traded on an exchange, Securities Transaction Tax (STT) would be levied.
- GST would be applicable when EGRs are converted into physical gold for withdrawal.
- feedback on the kind of incentives or waivers that should be sought from the government to make the segment more investor-friendly.
- What should be the smallest denomination for conversion of EGR into physical gold.

Need for regulations

- India is the second largest consumer of gold globally with annual gold demand of approximately 800-900 tonnes, and holds an important position in the global markets.
- Despite being second only to China, in consumption of gold, India has remained only as a price-taker in the global markets.
- At present, India does not play any significant role in influencing the global price-setting for the commodity.
- The proposed gold exchange would infuse transparency in gold transactions and over a period of time enable India to emerge as a global price setter for the commodity.

Gold Exchange

- It would offer trading facilities in gold.
- Entities like retail investors, banks, foreign portfolio investors jewellers and bullion dealers among others would be allowed to trade on the exchange.

Methods of Investment

1. Buy physical gold, a visit to the neighbourhood jeweller
2. Buy gold in digital form from platform like Paytm, Indiagold
3. Sovereign gold bonds issued by the government
4. Gold funds by mutual funds

Securities and Exchange Board of India(SEBI)

- ❖ The regulatory body for securities and commodity market in India.
- ❖ A non-statutory body for regulating the securities market.
- ❖ The jurisdiction of Ministry of Finance, Government of India.
- ❖ Basic functions is to protect the interests of investors in securities and to promote the development of, and to regulate the securities market and for matters connected therewith or incidental thereto.

The SEBI Board

- The chairman is nominated by the Union Government of India.
- Two members, i.e., Officers from the Union Finance Ministry.

- One member from the Reserve Bank of India.
- The remaining five members are nominated by the Union Government of India, out of them at least three shall be whole-time members.

3.12 Rethinking PSE Policy

- Recently, the government said that it will be using three public sector enterprises (PSE) for manufacturing Covaxin to augment the manufacturing capacity under Mission COVID Suraksha. These were:
 - Haffkine Biopharmaceutical Corporation Ltd, a State PSE under the Maharashtra government;
 - Indian Immunologicals Ltd (IIL), Hyderabad — a facility under National Dairy Development Board;
 - Bharat Immunologicals and Biologicals Corporation Ltd (BIBCOL), Bulandshahr, a CPSE under the Department of Biotechnology.
- This has revived the debate on the relevance of PSEs Cannot entirely do away with PSEs: Since Independence, PSEs have played a pivotal role in realising the objective of achieving higher growth and equitable socio-economic development of the country. So to say the government has no business to be in doing business perhaps needs to be revisited
- Crucial Role in testing times: PSEs in the steel, petroleum and natural gas sectors have supplemented the efforts of the government in making available liquid medical oxygen as well as transportation of it.
- Contribution of PSE Employees: PSEs by their inherent work culture spend a lot of time and resources in manpower training and developing expertise. Former public sector employees, after retirement or having quit jobs and then joined private sector, have given the right kind of impetus to the industry, particularly the core sector of the economy.

Importance of Pharma PSE

- Self-reliance: The public sector drug companies were established with a vision to make the country self-reliant in producing medicines needed for the people of the country
- Free & Fair Market: Strong presence of Pharma PSEs helps save an industry like the drug industry from the clutches of MNCs and the private corporate sector.
- Ensures affordability during crisis times: Pandemic has resulted in loss of imports from China. This directly resulted in escalation of prices of everyday medicines like paracetamol in the Indian market. Expansion of Pharma PSE units at these times will make medicines affordable.

3.13 Customs Rules Changes 2021

- The Government has brought changes in the existing Customs (Import of Goods at Concessional Rate of Duty) Rules, IGCR 2017 to boost trade facilitation.

- The Central Board of Indirect Taxes and Customs has introduced changes through the Customs (Import of Goods at Concessional Rate of Duty) Amendment Rules, 2021.
- The IGCR, 2017 lays down the procedures and manner in which an importer can avail the benefit of a concessional Customs duty on import of goods required for domestic production of goods or providing services.
- One major change that accommodates the needs of trade and industry is that the imported goods have been permitted to be sent out for job work.
- The absence of this facility had earlier constrained the industry especially those in the Micro, Small, and Medium Enterprises sector which did not have the complete manufacturing capability in-house.
- Importers who do not have any manufacturing facility can now avail of the IGCR, 2017 to import goods at concessional Customs duty and get the final goods manufactured entirely on a job work basis.
- However, some sectors such as gold, jewelry, precious stones, and metals have been excluded.
- Another major incentive now provided is to allow those who import capital goods at a concessional Customs duty to clear them in the domestic market on payment of duty and interest, at a depreciated value.
- This was not allowed earlier and manufacturers were stuck with the imported capital goods after having used them as they could not be easily re-exported.

3.14 Infrastructure Status For Convention Centres

- The government has expanded the definition of infrastructure to include exhibition-cum-convention centres.

Key Facts

- Convention and exhibition centres had been included in the harmonised master list of infrastructure sub-sectors under the social and commercial infrastructure sub-sector.
- To qualify under the category projects will require a minimum built-up floor area of 100,000 square metres of exclusively exhibition space or convention space.
- Exhibition-cum-Convention Centre is included in the Harmonised Master List of Infrastructure Sub-sectors by insertion of a new item in the category of Social and Commercial Infrastructure.
- Inclusion in the list implies access to concessional funds, promotion of projects and continuity of construction for the specified sub-sectors.

What is Infrastructure status ?

- Infrastructure status gives industries access to cheaper foreign currency funding through the external commercial borrowing route.

- Infrastructure sectors including those concerning road, ports, shipping, railways, inland water transport, urban development, power, new and renewable energy, railways and telecommunication sector referred to Department of Economic Affairs by the Administrative Ministries concerned.

3.15 Money Withdrawal from online wallets through ATM permitted

- Now Money kept in various online wallets like Amazon pay, Ola money, MobiKwik, PhonePe, Delhi Metro Card etc. can be withdrawn using an ATM or Point of Sale Terminal.

Key takeaways

- RBI has permitted cash withdrawal of Rs.2,000 per transaction with maximum limit of Rs.10,000 per month.
- All non-bank Payment Prepaid Instruments can provide this service.
- Till date, RBI has permitted 37 Prepaid Payment Instruments (PPIs) in country.
- Maximum two lakh rupees can be kept in various wallets after completion of full KYC.
- All PPIs have to ensure interoperability by 31st March 2022

Important value additions

- PPIs help facilitate the purchase of goods and services, including financial services, remittances and fund transfers against the value stored on such instruments.
- These instruments are generally pre-loaded cards.
- Examples: Paytm and GPay (semi-closed system PPIs), gift cards (closed system PPIs) and debit or credit cards (open system PPIs).

3.16 Business Localisation

- Context: As global businesses look to diversify their supply chains, the spotlight is back on the government's 'Atmanirbhar Bharat' (Self-Reliant India) campaign.

Benefits of Localisation

Benefits for Customers:

- Locally produced goods are aptly suited for their home markets as they are developed and tested in local conditions
- Due to local manufacturing, customers (intermediary or end use) can expect faster deliveries.
- Local products tend to be cheaper than imported goods due to differential rates of taxation

Benefits to Companies

- Local manufacturing enables a great deal of flexibility which allows cost efficiencies, control over quality, faster turn-around times in terms of production, transportation, deliveries, etc.
- Manufacturing locally helps India's industries grow and its talent pool to develop specialised skill sets.

- Localisation can be the gateway to further opportunities such as export growth, import substitution, and contract manufacturing.

Benefits to Country

- India has the world's largest population of youth at an employable age. Local manufacturing makes for a great opportunity for the country to supply a workforce to its industries.
- Localisation assists in raising the standards of the lives in the area.
- Localisation enables knowledge sharing and tech transfer with other countries, lending the home country access to the latest global technologies too
- Allows country to position itself as a manufacturing hub for other countries.
- With greater government support and industries' combined efforts, India will surely reap the numerous benefits of localisation in years to come.

3.17 New Insurance Rules

- The Ministry of Finance amended Indian Insurance Companies (Foreign Investment) Rules, 2015, and clarified the final rules for increased FDI (Foreign Direct Investment) in the Insurance Sector.
- Parliament had passed the Insurance Amendment Bill 2021 to increase the FDI limit in the insurance sector to 74% from 49%.
- The Ministry of Finance has notified 'Indian Insurance Companies (Foreign Investment) Amendment Rules, 2021'.

Highlights of New Rules:

- Management Persons to be Resident Indian Citizens:
- For an Indian insurance company having foreign investment – the majority of its directors, key management persons, and at least one among the chairperson of its Board, its managing director, and its chief executive officer – will be a resident Indian citizen.
- Total foreign investment here would mean the sum of both direct and indirect foreign investment.
- Direct investment by a foreigner will be called Foreign Direct Investment, while investment by an Indian company (which is owned or controlled by foreigners) into another Indian entity is considered as Indirect Foreign Investment.

Insurance Penetration in India:

- Insurance penetration in India is currently at 3.7% of the Gross Domestic Product (GDP) compared to the world average of 6.31%.
- Growth in the life insurance sector has slowed to 11-12% currently from 15-20% until fiscal 2020, as the pandemic pushed customers to save cash instead of spending on stocks or life insurance policies.

- As of 31st March 2021, there were only 24 life and 34 non-life direct insurers in India, whereas there were 243 life insurance companies (1956) and 107 non-life insurance companies (1973) at the time of nationalization.

3.18 FDI flow increased

- A data released by the Commerce and Industry Ministry relating to foreign investment into India.

Impressive growth in foreign investment:

- Foreign direct investment (FDI) flows into India grew 10% in 2020-21 to touch a record \$81.72 billion. The FDI equity inflows have risen 19% to total almost \$60 billion.

Top investors:

- Singapore has emerged as the top investor followed by the U.S. and Mauritius.
- FDI equity flows from the U.S., the U.K. and Saudi Arabia have witnessed sharp increases.

Top destination states:

- Gujarat was the top FDI destination followed by Maharashtra and Karnataka.
- The other regions have accounted for a disproportionately lower amount of 23% of the remaining foreign equity capital. This is indicative of the skewed pattern of FDI inflows and concerns of unbalanced growth.

Top sectors:

- Computer software and hardware has emerged as the top sector during 2020-21 with about 44% share of the total FDI equity inflow followed by construction (infrastructure) activities and services sector.
- Construction (infrastructure) activities, computer software and hardware, rubber goods, retail trading, drugs and pharmaceuticals and electrical equipment have recorded more than a 100% jump in equity during 2020-21.

Reasons

- The boost in FDI inflow comes in the backdrop of a series of policy steps taken to improve ease of doing business and to attract investments into domestic manufacturing capacity and an ambitious infrastructure project pipeline.
- Also, the investments recorded a growth in double digits boosted by investments in the digital sector.

Foreign Direct Investment

- It refers to the conditions when a company or investor takes ownership and controls operation in a business entity in another country.
- With FDI, foreign companies are directly involved with day-to-day operations in the other country which implies that along with bringing money, they also bring knowledge, skills, and technology.

- It is an important non-debt monetary source for India's economic development.
- In January 2021, a report by the United Nations Conference on Trade and Development (UNCTAD) highlighted that in 2020, developing nations accounted for 72 per cent of global FDI, the highest share on record.
- China was the world's largest FDI recipient in 2020, with flows rising 4 per cent to USD 163 billion.
- India recorded positive growth of 13 per cent, boosted by investments in the digital sector.

3.19 Asian Development Outlook 2021: ADB

- According to the report Asian Development Outlook (ADO) 2021, the second wave of Covid-19 can put India's economic recovery at "risk".
- ADO is a series of annual economic reports on the Developing Member Countries (DMCs) of the Asian Development Bank (ADB).
- The Asian Development Bank recently released its Asian Development Outlook, 2021. According to the report, India is to grow at 11%. The Asian Development Bank recently released its Annual outlook. The outlook says that ADB has provided a financial support of 1.5 billion USD to India to fight against COVID-19

Key Findings of the report

For India:

- Gross Domestic Product (GDP) will rebound strongly by 11% in Fiscal Year (FY) 2021-22 due to continued economic recovery boosted by increased public investment, vaccine rollout, and a surge in domestic demand.
- India's economic growth to moderate to 7% in FY 2022-23.
- The economy is expected to have contracted by 8% in FY 2020-21 in line with the government's second advance estimate.

For Asia:

- According to ADB, the South Asia is expected to rebound at 9.5% in 2021. The South Asian region had contracted by 6% in 2020. The growth of the region will moderate to 6.6% in 2022.
- The economic growth of Asia is to rebound at 7.3% in 2021. The region faced a contraction of 0.2% in its growth in 2020. In 2022, its growth rate is to be 5.3%.
- The countries such as China, Hong Kong, Singapore and Taipei are expected to meet an increased growth rate of 7.7% in 2021 and 5.6% in 2022. The report classifies these countries as newly industrialised countries.
- The GDP of East Asia is expected to grow at 7.4% in 2021 and at 5.1% in 2022.

Report about China

- The GDP of China is to expand to 8.1% in 2021 and will reach a moderate value of 5.5% in 2022.
- Strong exports of China is to boost the economic activity of the country in 2021.

Reasons of recovery

- The progress in production and delivery of COVID-19 vaccines helped Asia in reaching the current state. However, significant new outbreaks might undermine the growth of the region.

Challenges

- The following challenges are faced by the Asian Economies:
- Increasing Geopolitical tensions
- Financial turmoil from tightening financial conditions
- Production bottlenecks

Costs of Pandemic-induced School Closures:

- Countries are using distance learning, but this is only partially effective as many students lack access to computers and the internet.
- These disruptions will affect the skills students acquire and, eventually, their productivity and earnings as future workers.
- Learning losses range from 8% of a year of learning in the Pacific, where schools have mostly stayed open, to 55% in South Asia, where school closures have been longest.
- The present value of students' future earning reductions is estimated at USD 1.25 trillion for developing Asia, equivalent to 5.4% of the region's GDP in 2020.
- Analysis for India:
 - Increased government expenditure on health care, water, and sanitation will strengthen the country's resilience against future pandemics.
 - Private investment is expected to pick up on improving sentiment and risk appetite, as well as accommodative credit conditions (i.e. making money less expensive to borrow and encouraging more spending).
 - Domestic demand is expected to remain the main driver of growth.
 - A faster vaccine rollout will boost urban demand for services, while the rural demand will be boosted by robust agriculture growth and continued government support to farmers by expanding irrigation, improving value chains, and increasing farm loan limits.
 - The government's push to the manufacturing sector through the production-linked incentive scheme will expand domestic production and help integrate domestic manufacturing with global supply chains.

Asian Development Bank

- ADB is a regional development bank established in 1966.

- It has 68 members. India is a founding member.
- 49 are from within Asia and the Pacific and 19 outside.
- It aims to promote social and economic development in Asia and the Pacific.
- As of 31st December 2019, ADB's five largest shareholders are Japan and the United States (each with 15.6% of total shares), the People's Republic of China (6.4%), India (6.3%), and Australia (5.8%).
- It is headquartered in Manila, Philippines.

4. ENVIRONMENT

4.1 Xylophis deepaki

- A tiny snake “Xylophis deepaki” has been named in honour of Indian herpetologist Deepak Veerappan for his contribution in erecting a new subfamily Xylophiinae to accommodate wood snakes.



About **Xylophis deepaki**:

- It is a tiny snake of just 20 cm length with iridescent scales.
- It was first found on a coconut plantation in Kanyakumari.
- It is now reported to be an endemic species of Tamil Nadu and also been sighted in some parts of the southern western ghats.
- It is found in the drier regions and in lower altitudes around Agasthyamalai hills.

About **Xylophis**:

- It is a small genus of snakes in the family Pareidae.
- It has five species, all of which are endemic to the Western Ghats in southern India.
- Five Species: Xylophis Captaini, Xylophis deepaki, Xylophis Mosaicus, Xylophis Perroteri and Xylophis Stenorhynchus.
- These five species constitute the monotypic subfamily Xylophiinae.
- They are the only pareidae snakes found in India and the only snakes in the family found outside Southeast Asia.

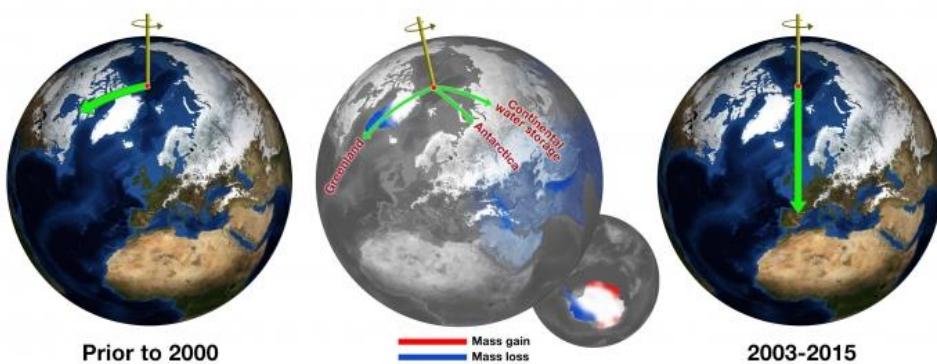
About Wood Snakes:

- These are harmless (non-venomous), sub-fossorial and often found while digging soil in farms and under the logs in the Western Ghat forests.
- They feed on earthworms and possibly other invertebrates.

- Their close relatives are found in Northeast India and Southeast Asia and are known to be arboreal (living in trees).
- According to the IUCN Red list of Threatened Species, 12% of assessed snake species are listed as threatened and their populations are in decline.

4.2 Climate Change Causing Shift in Earth's Axis

- A study published in Geophysical Research Letters of the American Geophysical Union (AGU) says that due to the significant melting of glaciers because of global temperature rise, Earth's axis of rotation has been moving more than usual since the 1990s.
- like many other natural processes large and small, from sea levels to wildfires, climate change is also playing a role in this shift.
- The calculations were based on satellite data from NASA's Gravity Recovery and Climate Experiment (GRACE) mission.
- The north pole has shifted in a new eastward direction since the 1990s, because of changes in the hydrosphere (meaning the way in which water is stored on Earth).
- From 1995 to 2020, the average speed of drift was 17 times faster than from 1981 to 1995.
- Also, in the last four decades, the poles moved by about 4 metres in distance.



Before 2000, Earth's spin axis was drifting toward Canada (left globe). Climate change-driven ice loss in Greenland, Antarctica and elsewhere is pulling the direction of drift eastward.

About Earth's Axis of Rotation:

- It is the line along which it spins around itself as it revolves around the Sun.
- Earth's axial tilt (also known as the obliquity of the ecliptic) is about 23.5 degrees. Due to this axial tilt, the sun shines on different latitudes at different angles throughout the year. This causes the seasons.

- The points on which the axis intersects the planet's surface are the geographical north and south poles.
- The location of the poles is not fixed. The axis moves due to changes in how the Earth's mass is distributed around the planet. Thus, the poles move when the axis moves, and the movement is called "polar motion".
- Polar motion has been observed for more than 130 years, but the process has been going on for eons driven by mass shifts inside the earth as well as ones on the surface. For decades, the north pole had been slowly drifting toward Canada, but there was a shift in the drift about 15 years ago. Now it's headed almost directly down the Greenwich Meridian.

Causes of Polar Drift:

1. Ice Melting: The faster ice melting under global warming was the most likely cause of the directional change of the polar drift in the 1990s.
As glaciers melt, water mass redistributes, causing shifts in the planet's axis.
2. Change in Non-Glacial Regions (Terrestrial Water Storage): Due to climate change and unsustainable consumption of groundwater for irrigation and other anthropogenic activities.
3. Groundwater Depletion: As millions of tonnes of water from below the land is pumped out every year for drinking, industries or agriculture, most of it eventually joins the sea, thus redistributing the planet's mass.

Significance of this study:

- Polar motion shifts matter for astronomical observations and perhaps even more importantly for the average person, GPS calculations.

4.3 Global Methane Assessment: Benefits and Costs of Mitigating Methane Emissions

- The report released by the Climate and Clean Air Coalition and the United Nations Environment Programme (UNEP) calls for dramatic cut in methane emissions to avoid worst of climate change.
- Human-caused methane emissions must be cut by 45% to avoid the worst effects of climate change.
- Such a cut would prevent a rise in global warming by up to 0.3 degrees Celsius by 2045.

Major sources of Methane:

1. Fossil Fuel:

- Oil and gas extraction, processing and distribution accounted for 23% of methane emissions in the fossil fuel sector. Coal mining accounted for 12% of emissions.
- Fossil fuel industry had the greatest potential for low-cost methane cuts, up to 80% of measures in the oil and gas industry could be implemented at negative or low cost.
- About 60% of methane cuts in this sector could make money as reducing leaks would make more gas available for sale.

2. Waste:

- Landfills and wastewater made up about 20% of emissions in the waste sector.
- The waste sector could cut its methane emissions by improving the disposal of sewage around the world.

3. Agriculture:

- In the agricultural sector, livestock emissions from manure and enteric fermentation constituted for roughly 32% and rice cultivation 8% of emissions.
- Three behavioural changes — reducing food waste and loss, improving livestock management and adopting healthy diets (vegetarian or with a lower meat and dairy content) — could reduce methane emissions by 65–80 million tonnes per year over the next few decades.

Indian initiatives:**1. India Greenhouse Gas Program:**

- The India GHG Program led by WRI India (non-profit organization), Confederation of Indian Industry (CII) and The Energy and Research Initiative is an industry-led voluntary framework to measure and manage greenhouse gas emissions.
- The programme builds comprehensive measurement and management strategies to reduce emissions and drive more profitable, competitive and sustainable businesses and organisations in India.

2. National Action Plan on Climate Change:

The National Action Plan on Climate Change was launched in 2008 which aims at creating awareness among the representatives of the public, different agencies of the government, scientists, industry and the communities on the threat posed by climate change and the steps to counter it. India shifted from BS-IV to BS-VI emission norms.

3. Seaweed-Based Animal Feed:

Central Salt & Marine Chemical Research Institute (CSMCRI) in collaboration with the country's three leading institutes developed a seaweed-based animal feed additive formulation that aims to reduce methane emissions from cattle and also boost immunity of cattle and poultry.

4.4 Natural forest restoration:

- An area of forest the size of France has regrown naturally across the world in the last 20 years, a study suggests. A team led by WWF used satellite data to build a map of regenerated forests.
- The project is a joint venture between WWF, BirdLife International and WCS, who are calling on other experts to help validate and refine their map, which they regard as "an exploratory effort".

About forest regeneration:

- Forest regeneration involves restoring natural woodland through little or no intervention.

- This ranges from doing nothing at all to planting native trees, fencing off livestock or removing invasive plants.



Findings of the study:

- The Atlantic Forest in Brazil gives reason for hope, the study said, with an area roughly the size of the Netherlands having regrown since 2000.
- In the boreal forests of northern Mongolia, 1.2 million hectares of forest have regenerated in the last 20 years, while other regeneration hotspots include central Africa and the boreal forests of Canada.

Advantages of natural reforestation:

1. The restored forests have the potential to soak up the equivalent of 5.9 gigatonnes (Gt) of carbon dioxide - more than the annual emissions of the US.
2. Natural forest regeneration is often "cheaper, richer in carbon and better for biodiversity than actively planted forests".

4.5 Stony Coral Tissue Loss Disease(SCTLD) cured using a common antibiotic, Amoxicillin:

- The disease is characterized by white lesions that rapidly eat away at coral tissue. Stony coral tissue loss disease (SCTLD) is a disease of corals that first appeared off the coast of Florida in 2014.
- The causal agent is unknown but is suspected to be a bacterium.



Why in news?

- Scientists have come up with two treatments to treat this disease, namely amoxicillin paste and chlorinated epoxy.
- The scientists dug trenches into the corals around the lesions to separate diseased tissue from healthy tissue, then filled the moats and covered the diseased patches with the antibiotic paste or chlorinated epoxy and monitored the corals over 11 months.
- Within about three months of the treatment, some 95 percent of infected coral tissues treated with amoxicillin had healed.
- Meanwhile, only about 20 percent of infected tissue treated with chlorinated epoxy had healed in that time — no better than untreated lesions.
- Even though the exact pathogen is not known exactly, finding a cure for the disease is a welcome step.

4.6 Asia is home to 99 of world's 100 most vulnerable cities:

- Of the 100 cities worldwide most vulnerable to environmental hazards all but one are in Asia, and 80% are in India or China, according to a risk assessment.
- The report has been compiled by the business risk analytics firm Verisk Maplecroft.

Important points from the report:

1. Jakarta, the capital of Indonesia – plagued by pollution, flooding and heatwaves – topped the ranking.
2. Of the 100 most vulnerable cities, 37 are in China and 43 are in India, the world's first and third biggest emitters of greenhouse gases respectively.
3. Delhi ranks second on the global index of 576 cities, followed within India by Chennai (3rd), Agra (6th), Kanpur (10th), Jaipur (22nd) and Lucknow (24th). Mumbai, with a population of 12.5 million, is 27th.
4. Outside Asia, the Middle East and north Africa have the largest proportion of high risk cities across all threat categories, with Lima the only non-Asian city to be in the Top 100.
5. Africa's two most populous cities, Lagos and Kinshasa, are among those at highest risk.
6. Within India other most vulnerable cities are Chennai (3rd), Agra (6th), Kanpur (10th), Jaipur (22nd) and Lucknow (24th). Mumbai (27th).

About India:

- The report has identified certain bottlenecks which will have a negative impact on India's counter measures, they are listed below:
 1. Weak governance.
 2. Large population.
 3. Large informal sector.

4. Climate change.
5. Extreme weather.
6. Pollution (Air,Water).

About China:

1. China's top-down governance structure – and willingness to take abrupt measures, such as shutting down factories to meet emissions goals – gives it more of a chance of mitigating these risks.
 2. For China, an emerging middle class is increasingly demanding cleaner air and water, which is being reflected in government targets.
- The report is the first in a series of risk assessments for cities and evaluates threats to liveability, investment potential, real estate assets and operational capacity.

4.7 Cloudburst in Uttarakhand may be due to Climate Change:

- The recent weather events in Uttarakhand termed as 'cloudbursts' were highly unusual and could have been caused by the warming of the region.
- Cloudburst-like events have hit Uttarakhand since May 3 and have caused considerable damage in the four hilly districts of Tehri Garhwal, Rudraprayag, Uttarkashi and Chamoli.
- The latest of these occurred on the evening of May 11 in Devprayag town of Tehri Garhwal district.



- According to Raghu Murtugudde, a climate scientist at the University of Maryland in the United States, these cloudbursts were weather events that were hard to predict by definition.
- Murtugudde added that the months of March, April and May were warmer than normal over Uttarakhand. "This would also reduce pressure and drive winds into it," he said.
- Cloudbursts are generally more common in India during the south west monsoon season that begins in June, according to a research paper published in the journal Earth Science Reviews in March 2017.

What is a cloudburst?

- Cloudbursts are sudden and extreme rainfall events over a limited area in a short span of time. There is no universal definition of a cloudburst.

- India Meteorological Department (IMD) defines a cloudburst as any event where 100 millimetres of rainfall have fallen in a span of an hour over a region that is 20-30 square kilometres in area.
- A cloudburst occurs when moisture-carrying air moves up a hilly terrain, forming a vertical column of clouds known as ‘cumulonimbus’ clouds.
- Such clouds usually cause rain, thunder and lightning. This upward motion of the clouds is known as an ‘orographic lift’.
- These unstable clouds cause an intense rainstorm over a small area after becoming heavy enough and locked in the ridges and valleys between the hills.
- Doppler Weather radars:
- Uttarakhand is highly prone to cloudburst events. Nineteen of the 30 major cloudburst events reported from the southern rim of the Himalayas in the Earth Science Reviews study occurred in Uttarakhand.
- In 2019, there was a cloudburst event in Chamoli district while there were a dozen of these events in 2018. But the official response to these events has been slow.
- In January 2021, the IMD and state government installed a doppler weather radar in Mukteshwar in Kumaon, which had been in the pipeline for many years.
- Doppler weather radars are ideal for near-real time tracking of potential cloud bursts. Especially if they have a network which allows them to track winds and moisture.
- There are plans to install two more doppler weather radars in Dhanoulti, Tehri Garhwal district and Lansdowne, Pauri Garhwal district. These two radars will be much closer to where the recent events have occurred.

4.8 Red-Eared Slider Turtle:

- The invasive red-eared slider can become a major threat to the biodiversity of water bodies across the Northeast region of India.
- The Northeast region of India is home to more than 72% of the turtle and tortoise species in the country.



About:

- Scientific Name: Trachemys scripta elegans
- Habitat: U.S. and northern Mexico
- Description: The red-eared slider derives its name from red stripes around the part where its ears would be and from its ability to slide quickly off any surface into the water.
- About invasive species?
- An invasive species is an organism that causes ecological or economic harm in a new environment where it is not native.

4.9 Sulawesi cave art under threat due to Climate Change:

- Scientists have warned that environmental degradation is killing one of the oldest and most precious pieces of the world's human heritage.
- Research published by Nature Research, have reported that Pleistocene-era rock paintings dating back to 45,000-20,000 years ago in cave sites in southern Sulawesi, on the Indonesian island of Sulawesi, are weathering at an alarming rate.

**Significance of the painting:**

- A team of Australian and Indonesian archaeological scientists, conservation specialists, and heritage managers examined 11 caves and rock-shelters in the Maros-Pangkep region in Sulawesi.
- The artwork in the area includes what is believed to be the world's oldest hand stencil (almost 40,000 years ago), created by pressing the hand on a cave wall, and spraying wet red-mulberry pigments over it.
- A nearby cave features the world's oldest depiction of an animal, a warty pig painted on the wall 45,500 years ago.
- The cave art of Sulawesi is much older than the prehistoric cave art of Europe.

Findings of the study:

- The researchers studied flakes of rock that have begun to detach from cave surfaces to find that salts in three of the samples comprise calcium sulphate and sodium chloride, which are known to form crystals on rock surfaces, causing them to break.
- The artwork made with pigments was decaying due to a process known as haloclasty, which is triggered by the growth of salt crystals due to repeated changes in temperature and humidity, caused by alternating wet and dry weather in the region.
- Indonesia has also experienced several natural disasters in recent years, which have quickened the process of deterioration.

4.10 Kaziranga Animal Corridor:

- There are cases of clearance of forest land, digging and construction activities on at least three animal corridors within the eco-sensitive zone of the Kaziranga National Park and Tiger Reserve.



Note:

- The Supreme Court of India in its 2019 order had said that “No new construction shall be permitted on private lands which form part of the nine identified animal corridors.”

About the Animal Corridor:

- Wildlife or animal corridors are meant to ensure safe passage for animals between two isolated habitats.
- In wildlife parlance, corridors are mainly of two types: functional and structural.
- Functional corridors are defined in terms of functionality from the perspective of the animal (basically areas where there have been recorded movement of wildlife).
- Structural corridors are contiguous strips of forested areas and structurally connect the otherwise fragmented blocks of the landscape.
- When structural corridors are affected by human anthropogenic activities, functional corridors automatically widen because of animal use.

Kaziranga Animal Corridor:

- A special committee formed by the Supreme Court in its report had recommended the delineation of nine animal corridors in Kaziranga National Park (KNP). The nine identified animal corridors are:
- Amguri, Bagori, Chirang, Deosur, Harmati, Hatidandi and Kanchanjuri are in Nagaon district and Haldibari and Panbari corridors are in Golaghat district of Assam.
- The nine corridors that already exist behave as functional corridors, but according to the new recommendation, the corridors will act as both structural and functional, on the basis of need.
- The report suggested that structural corridors should be made free of all human induced disturbances except for the forestry and wildlife management practices.
- On the other hand, functional corridors (which might become important when structural corridors are disturbed), can have regulated multi-use with restrictions on land use change.

Significance of Animal Corridors:

- These corridors are crucial for the rhinos, elephants, tigers, deer and other animals that escape a flooded Kaziranga during the monsoon months for the safety of the hills of Karbi Anglong district beyond the highway skirting the southern boundary of the tiger reserve.

4.11 Pair of Cranes spotted after 300 years in Ireland:

- A pair of cranes were spotted last year on a restored peat bog –a type of wetland that is mostly found in northern latitude countries.
- The birds are in Ireland's Midlands region, but their exact location has been kept secret to protect them, a BBC reports said.

About Cranes:

- The common crane is typically seen in Ireland during the winter, but is not sighted during the breeding season. Last year was the first time in over 300 years that they were spotted nesting in Ireland during this period.
- Cranes stand at 4 feet tall with a wingspan of over 7 feet, and used to be the largest birds in Ireland. They are connected with the history and culture of the country, featuring in folklore tales and in the names of towns.



- Although they were once common, the destruction of their habitat saw them disappear around the 16th and 17th century.
- The cranes were spotted on land belonging to Bord na Móna, a semi-state company known for extracting peat fuel from bogs in the region, but which ceased its harvesting operations in January this year to shift towards renewable energy and rehabilitating wetland bodies. It was the company that confirmed the sighting.

Why is bog restoration important?

- Bogs (also called quagmires) are soft, spongy wetlands that accumulate peat— a fossil fuel that is used for heating homes and businesses in northern Europe. They are formed in northern climates, and take thousands of years to develop.
- Bogs also act as carbon sinks, sequestering around 200 million tons of carbon from the environment in Siberia and Scandinavia.
- For centuries, however, they have been drained for extracting peat or for development, leading to the destruction of their delicate ecosystems, including damage to species such as cranes that breed here.
- Efforts are now underway around the world to restore these wetlands by rewetting them and reintroducing bog plants. If bogs in Ireland recover, experts say, there is a chance that cranes too would re-colonise them.

4.12 International Day for Biological Diversity(IDB):

- May 22 is observed as the IDB, it is commemorated to showcase the importance of biodiversity and to bring awareness towards protecting it.
- The day was first observed in 1993 by United Nations General Assembly.



Theme for 2021:

- This year's theme is "We're part of the solution" which is a continuation of 2020 theme- Our solutions are in nature.

About Biodiversity:

- It is a term used to describe the enormous variety of life on Earth. It can be used more specifically to refer to all of the species in one region or ecosystem. Biodiversity refers to every living thing, including plants, bacteria, animals, and humans.
- It is often understood in terms of the wide variety of plants, animals and microorganisms, but it also includes genetic differences within each species.

Concerns:

- Living planet report of World wide fund for Nature has revealed a global species loss of 68% in less than 50 years, a catastrophic decline never seen before.

Global Initiatives to Save Biodiversity:

Convention on Biological Diversity:

- It is a legally binding treaty to conserve biodiversity that has been in force since 1993.
- India is a party to the convention.

Convention on international trade in Endangered species of wild fauna and Flora:

- It provides public, private and NGOs with the knowledge and tools that enable human progress, economic development and nature conservation to take place together.
- India is a member of the convention.

Some Indian Initiatives For Conservation of Biodiversity:

- National plan for conservation of Aquatic Ecosystems.
- Wetland(Conservation and Management) Rules, 2017.
- The Biological Diversity Act, 2002.
- Wild life(Protection) Act, 1972.

4.13 Protected planet report:

- These reports underline the progress made by the towards the ambitious goals agreed by countries in 2010 at the UN Convention on Biological Diversity.
- The reports are released by the United Nations Environment Programme (UNEP) World Conservation Monitoring Centre (UNEP-WCMC) and the International Union for the Conservation of Nature(IUCN) with support from the National Geographic Society, a global non-profit.
- These are biennial landmark publications that assess the state of protected and conserved areas around the world.
- The report is the first in the series to include data on Other Effective Area-based Conservation Measures (OECM) in addition to protected areas.
- The 2020 edition provides the final report on the status of Aichi Biodiversity Target 11, and looks to the future as the world prepares to adopt a new post-2020 global biodiversity framework.
- Aichi Biodiversity Target 11 aimed to conserve 17% of land and inland water ecosystems and 10% of its coastal waters and oceans by 2020.

Findings of the Report:**Increase in Protected Area:**

- As many as 82% of countries and territories have increased their share of protected area and coverage of Other Effective Area-based Conservation Measures (OECM) since 2010.
- OECM are a conservation designation for areas that are achieving the effective in-situ conservation of biodiversity outside of protected areas.
- Protected areas covering almost 21 million km² have been added to the global network.

Increase in OECMs:

- Since OECMs were first recorded in 2019, these areas have added a further 1.6 million km² to the global network.
- Despite being limited to only five countries and territories, the available data on OECMs show that they make a significant contribution to coverage and connectivity.
- Of the area now covered by protected areas and OECMs, 42% was added in the past decade.

Key Biodiversity Areas (KBAs):

- KBAs are sites that contribute significantly to the global persistence of biodiversity, in terrestrial, freshwater and marine ecosystems.
- On an average, 62.6% of KBA either fully or partially overlap with protected areas and OECMs.
- The average percentage of each KBA within protected areas and OECMs is 43.2% for terrestrial; 42.2% for inland water and 44.2% for marine (within national waters).

- There was an increase of 5 percentage points or less in each case since 2010, the greatest growth in marine and coastal areas.

CHALLENGES:

1. Lack of global standards for effective management of biodiversity leads to inaccurate assessment of effectiveness.
2. Data is still poor on governance diversity and quality for protected areas and OECMs.
3. Measurable targets for integrated land-use and marine spatial planning are needed to facilitate progress.

Protected Areas in India:

India has a network of 903 Protected Areas covering about 5% of its total geographic area.

India has the following kinds of protected areas in the sense of the word designated by IUCN:

- National Parks, Wildlife sanctuaries, Biosphere reserves, Reserved and protected forests, Conservation reserves and community reserves, Private protected areas.

5. SCIENCE & TECHNOLOGY

5.1 MACS 1407:

- It is a high yield, pest resistant variety of Soya bean.
- It has been developed by scientists from MACS- Agharkar Research Institute (ARI), Pune, an autonomous institute of the Department of Science & Technology, Government of India in collaboration with Indian Council of Agricultural Research (ICAR), New Delhi.
- Using the conventional cross breeding technique they developed MACS 1407 which gives 39 quintals per hectare making it a high yielding variety and is also resistant to major insect-pests like girdle beetle, leaf miner, leaf roller, stem fly, aphids, white fly and defoliators.
- This newly developed variety called MACS 1407 is suitable for cultivation in the states of Assam, West Bengal, Jharkhand, Chhattisgarh and North-Eastern states and its seeds will be made available to farmers for sowing during the 2022 Kharif season.
- In 2019, India produced around 90 million tons of soybean, widely cultivated as oil seeds as well as a cheap source of protein for animal feed and many packaged meals and is striving to be among the world's major producers of soybean.
- High-yielding, disease resistant varieties of the legume can help achieve this target.

5.2 5G trials in India:

- The Department of Telecommunications (DoT), Government of India, approved on May 4, 2021, permissions to Telecom Service Providers (TSPs) for conducting trials for use and applications of 5G technology.
- The applicant TSPs include Bharti Airtel Ltd., Reliance JioInfocomm Ltd., Vodafone Idea Ltd. and MTNL.
- These TSPs have tied up with original equipment manufacturers and technology providers which are Ericsson, Nokia, Samsung and C-DOT. In addition, Reliance JioInfocomm Ltd. will also be conducting trials using its own indigenous technology.
- The experimental spectrum is being given in various bands which include the mid-band (3.2 GHz to 3.67 GHz), Millimeter wave band (24.25 GHz to 28.5 GHz) and in Sub-Gigahertz band (700 GHz). TSPs will also be permitted to use their existing spectrum owned by them (800 MHz, 900 MHz, 1800 MHz and 2500 MHz) for conduct of 5G trials.
- The objectives of conducting 5G trials include testing 5G spectrum propagation characteristics especially in the Indian context:
 1. Model tuning and evaluation of chosen equipment and vendors;
 2. Testing of indigenous technology;

3. Testing of applications (such as tele-medicine, tele-education, augmented/ virtual reality, drone-based agricultural monitoring, etc.);
4. Test 5G phones and devices.

Advantages of 5G:

1. Deliver improved user experience in terms of data download rates (expected to be 10 times that of 4G)
 2. Up to three times greater spectrum efficiency
 3. Ultra low latency to enable Industry 4.0.
 4. Applications are across a wide range of sectors such as agriculture, education, health, transport, traffic management, smart cities, smart homes, and multiple applications of IOT (Internet of Things).
- 5Gi: It is indigenous 5G technology developed by IIT Madras, Centre of Excellence in Wireless Technology (CEWiT) and IIT Hyderabad.
 - The TSPs are encouraged to conduct trials using 5Gi technology in addition to the already known 5G Technology.
 - International Telecommunications Union (ITU) has also approved the 5Gi technology, which was advocated by India, as it facilitates much larger reach of the 5G towers and Radio networks.

5.3 Chinese Space Station:

- China has launched the first module of its new space station on April 28, 2021.
- The Tianhe or “Heavenly Harmony” unmanned core module, containing living quarters for three crew, was launched from Wenchang in China’s Hainan province on a Long-March 5B rocket.
- The space station is expected to become fully operational in 2022 after about 10 missions to bring up more parts and assemble them in orbit.



- Once completed, the Chinese space station is expected to remain in low Earth orbit at between 400 and 450 kilometres above Earth for 15 years.

- The Chinese space station will weigh around 66 Tonnes much smaller than the International Space Station which was launched in 1998 and it weighs around 450 Tonnes.

Out-of-control Chinese rocket:

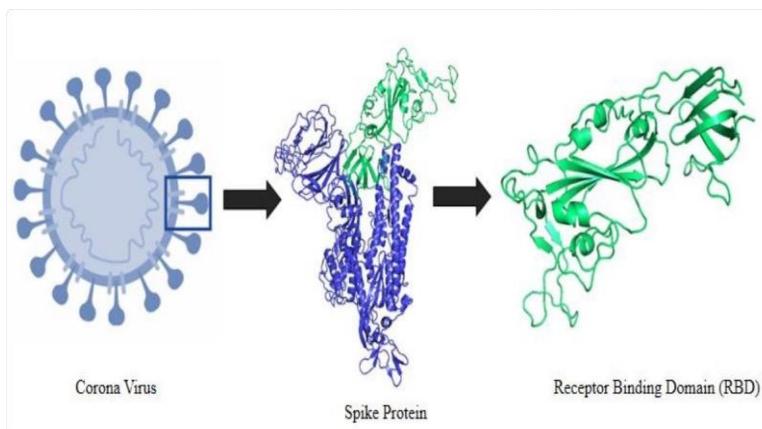
- Part of a huge rocket that launched China's first module for its Tianhe space station is falling back to Earth and could make an uncontrolled re-entry at an unknown landing point.
- The 30-metre high core of the Long March 5B rocket launched the "Heavenly Harmony" unmanned core module into low Earth orbit on 29 April from Wenchang in China's Hainan province.
- The Long March 5B then itself entered a temporary orbit, setting the stage for one of the largest ever uncontrolled re-entries. Some experts fear it could land on an inhabited area.
- Since 1990 nothing over 10 tonnes has been deliberately left in orbit to re-enter uncontrolled. The Long March 5B core stage is thought to be about 21 tonnes.
- Last time Long March 5B rocket was used for launch it ended up with big long rods of metal flying through the sky and damaging several buildings in the Ivory Coast.

5.4 Immune system response to Covid-19:

- Researchers at The University of Texas at Austin (UTexas) have studied the immune response to covid-19 and have provided a comprehensive description of how the antibodies work to neutralise the virus.

What's new?

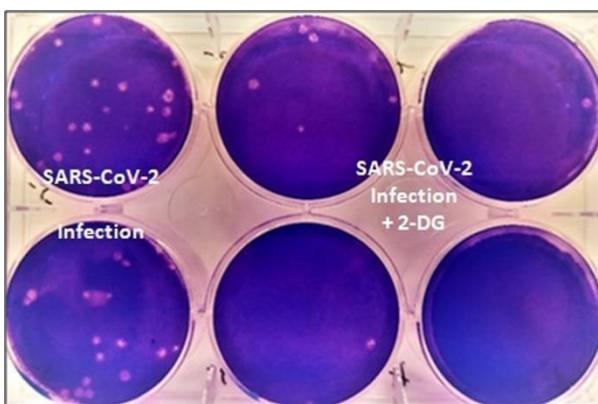
- Previous research focused on one group of antibodies that target the most obvious part of the coronavirus's spike protein, called the receptor-binding domain (RBD).
- RBD is the part of the spike that attaches directly to human cells and enables the virus to infect them, it was assumed to be a primary target of the immune system.
- But, testing blood plasma samples from four people who recovered from SARS-CoV-2 infections, the researchers found that most of the antibodies circulating in the blood — on average, about 84% — target areas of the viral spike protein outside the RBD.



- The immune system sees the whole spike and tries to neutralise it. Many of these non-RBD-directed antibodies act as a potent weapon against the virus by targeting a region in a part of the spike protein located in what would be the umbrella's canopy called the N-terminal domain (NTD).
- The NTD is also a part of the viral spike protein that mutates frequently, especially in several variants of concern. This suggests that one reason these variants are so effective at evading our immune systems is that they can mutate around one of the most common and potent types of antibody in our arsenals.

5.5 Anti-COVID drug developed by DRDO:

- An anti-COVID-19 therapeutic application of the drug 2-deoxy-D-glucose (2-DG) has been developed by Institute of Nuclear Medicine and Allied Sciences (INMAS), a lab of Defence Research and Development Organisation (DRDO), in collaboration with Dr Reddy's Laboratories (DRL), Hyderabad.
- Clinical trial results have shown that this molecule helps in faster recovery of hospitalised patients and reduces supplemental oxygen dependence. Higher proportion of patients treated with 2-DG showed RT-PCR negative conversion in COVID patients. The drug will be of immense benefit to the people suffering from COVID-19.
- INMAS-DRDO scientists conducted laboratory experiments with the help of Centre for Cellular and Molecular Biology (CCMB), Hyderabad and found that this molecule works effectively against SARS-CoV-2 virus and inhibits the viral growth. Based on these results, Drugs Controller General of India's (DCGI) Central Drugs Standard Control Organization (CDSCO) permitted Phase-II clinical trial of 2-DG in COVID-19 patients in May 2020.
- Phase-III trials conducted between December 2020 and March, 2021 have also been successful.



- On May 01, 2021, DCGI granted permission for Emergency Use of this drug as adjunct therapy in moderate to severe COVID-19 patients. Being a generic molecule and analogue of glucose, it can be easily produced and made available in plenty in the country.
- How does the drug work?

- The drug comes in powder form in sachet, which is taken orally by dissolving it in water. It accumulates in the virus infected cells and prevents virus growth by stopping viral synthesis and energy production. Its selective accumulation in virally infected cells makes this drug unique.
- In the ongoing second COVID-19 wave, a large number of patients are facing severe oxygen dependency and need hospitalisation. The drug is expected to save precious lives due to the mechanism of operation of the drug in infected cells. This also reduces the hospital stay of COVID-19 patients.

5.6 B.1.617 declared by WHO as Variant of Concern:

- The World Health Organization (WHO) has classified the coronavirus variant first found in India last year as a "variant of global concern".
- It said preliminary studies show the B.1.617 mutation spreads more easily than other variants and requires further study.
- The variant has already spread to more than 30 countries, the WHO says.
- Three other variants from the UK, South Africa and Brazil have been given the same designation.
- A mutation is elevated from a "variant of interest" to a "variant of concern" (VOC) when it shows evidence of fulfilling at least one of several criteria, including easy transmission, more severe illness, reduced neutralisation by antibodies or reduced effectiveness of treatment and vaccines.

What is the B.1.617?

- The B.1.617 variant of SARS-CoV-2 carries two mutations, E484Q and L452R. Both are separately found in many other coronavirus variants, but they have been reported together for the first time in India.
- The two mutations are found in the virus's spike protein. The spike protein helps the virus to bind itself to the human cell's receptors and gain entry into a host cell.
- The E484Q mutation is similar to E484K, a mutation found in the United Kingdom (lineage B.1.1.7) and South Africa (B.1.351) variants of the coronavirus.
- The L452R mutation has been found in fast spreading variants in California (B.1.427 and B.1.429). It can increase the binding power of spike proteins with ACE2 receptors on human cells, making it more transmissible. L452R can also potentially enhance viral replication.
- Together, E484Q and L452R are more infectious, and can evade antibodies.

5.7 Mucormycosis:

- A number of Covid-19 patients are developing a serious fungal infection known as Mucormycosis also called black fungus.

About mucormycosis:

- Mucormycosis is a very rare infection. It is caused by exposure to mucor mould which is commonly found in soil, plants, manure, and decaying fruits and vegetables.
- It affects the sinuses, the brain and the lungs and can be life-threatening in diabetic or severely immune compromised individuals, such as cancer patients or people with HIV/AIDS.

Types of Mucormycosis:

- Rhinocerebral (Sinus and Brain).
- Pulmonary (Lung).
- Gastrointestinal.
- Cutaneous (Skin).

Reasons for its spread in covid-19 patients:

- Use of steroids to treat lung infections, reduces immunity and leads to increase in blood sugar levels in diabetic and non-diabetic patients.
- Diabetes lowers the body's immune defences, coronavirus exacerbates it, and then steroids which help fight Covid-19 act like fuel to the fire.

Symptoms:

1. Stuffy and bleeding nose.
2. Swelling of and pain in the eye.
3. Drooping of eyelids.
4. Blurred and finally, loss of vision.
5. Black patches of skin around the nose.

Treatment:

- Amphotericin B is an antifungal medication that fights infections caused by fungus. Amphotericin B is used to treat serious, life-threatening fungal infections.
- It is not for use in treating a minor fungal infection such as a yeast infection of the mouth, esophagus, or vagina.

5.8 National Technology Day:

- May 11 is celebrated as National Technology Day to mark a significant milestone in the country's history of technological innovations.
- On this day in 1998, India successfully test-fired five nuclear bombs at the Indian Army's Pokhran test range in Rajasthan, which catapulted India to become the sixth country to join the 'nuclear club.'

- Technology Development Board — a part of the Government of India's Department of Science and Technology — commemorates National Technology Day by honouring several innovators and entrepreneurs.

Theme for National Technology Day 2021:

- With the COVID-19 pandemic wreaking havoc across India, this year's theme is 'Science and Technology for a Sustainable Future'.

5.9 Colonial pipeline Ransomware Attack:

- One of the USA's largest pipelines, which carries refined gasoline and jet fuel from Texas up the East Coast to New York, was forced to shut down after being hit by ransomware in a vivid demonstration of the vulnerability of energy infrastructure to cyberattacks.
- The attack was carried out by a cybercrime gang called Darkside.



About Darkside:

- DarkSide is a ransomware-as-a-service platform that vetted cybercriminals can use to infect companies with ransomware and carry out negotiations and payments with victims.
- DarkSide sells its ransomware product to partners, which can then buy access to organizations from other hackers as a way to deploy the actual ransomware.
- DarkSide also claims to have a certain code of conduct in which it promises not to attack hospitals, schools, government institutions, nonprofits and non-commercial organizations. The group's Dark Web page even states: "Our goal is to make money, and not creating problems for society."
- The group has offered an apology for the attack and has claimed that one of its partners may have been behind the attack and promising to do a better job vetting potential victims in the future.

About Ransomware:

- Ransomware is a form of malware that encrypts a victim's files. The attacker then demands a ransom from the victim to restore access to the data upon payment.

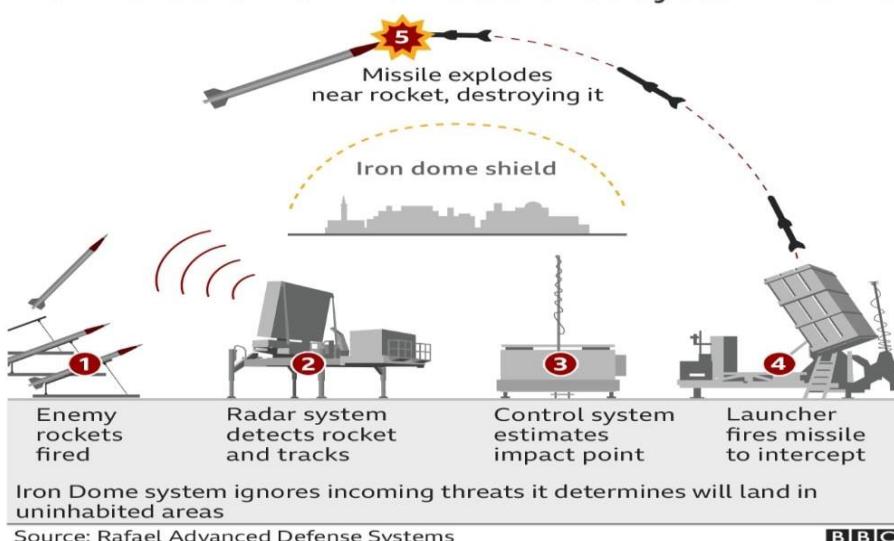
- Users are shown instructions for how to pay a fee to get the decryption key. The costs can range from a few hundred dollars to thousands, payable to cybercriminals in Bitcoin.

5.10 Iron Dome: An all-weather partner

- Developed by Israel's Rafael Advanced Defense Systems and Israel Aerospace Industries, it is capable of being used in all weather conditions.
- Iron Dome is a ground-to-air, short-range air defence system that consists of a system of radar, battle management, and weapon control system (BMC), and a missile firing.
- The three-component system provides a shield over the area where it is deployed by using its interceptor batteries that denotes its Tamir interceptor missiles, a radar that tracks the rocket fired across the border, and then advanced software that predicts the rocket's trajectory.



How Israel's Iron Dome defence system works



- There are three different approaches by the interceptors

The Side Approach:

- The interceptors approach the incoming aerial threat by targeting the side of the rocket, on occasion, it hits the warhead (explosive head of a missile) of the enemy's rocket.

The Front Approach:

- Considered as the most effective approach to nullify the incoming aerial threat, the front approach strikes the enemy's rocket warhead and blows it up.

The Rear Approach:

- Under this approach, the interceptors' missile chases the aerial threat from behind to destroy it before getting near the warhead.

The genesis of Iron Dome:

- The genesis of the Iron Dome can be tracked back to 2006, when Israel started the air-defence program after its war with Lebanon's Hezbollah when nearly 5,000 rockets were rained down on northern Israel, taking 44 lives. The following year, Israel initiated that its state-run Rafael Advance Systems along with Israel Aerospace Industries to make a new air defence system to protect its cities and people.
- In 2011, Iron Dome was inducted by the Defence force of Israel, while manufacturer Rafael claimed a success rate of over 90%, with more than 2,000 interceptions, experts agree the success rate is over 80%. Rafael's website mentions that "Iron Dome protects deployed and maneuvering forces, as well as the Forward Operating Base (FOB) and urban areas, against a wide range of indirect and aerial threats".
- Iron Dome's every battery, or the full unit, can cost up to \$50 million, and one interceptor Tamir missile costs nearly \$80,000. At one go, the air defense system fires two Tamir missiles to intercept each rocket.

5.11 NASA's OSIRIS-REx Mission:**Why in news?**

- On May 11, NASA's Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer (OSIRIS-REx) spacecraft departed asteroid Bennu, and started its two-year long journey back to Earth.
- It is NASA's first mission to visit a near-Earth asteroid, survey its surface and collect a sample from it.



About OSIRIS-REx Mission:

- It was launched in 2016 with an aim to bring back samples from asteroid named ‘Bennu’. It landed on the asteroid in October, 2020 and collected samples.
- Significance:
- Scientists will use the asteroid samples to study the formation of the solar system and of habitable planets such as Earth.
- NASA will also distribute a part of the samples to laboratories worldwide and will reserve about 75% of the samples for future generations who can study it with technologies not yet created.

About asteroid Bennu?

- Bennu is considered to be an ancient asteroid that has not gone through a lot of composition-altering change through billions of years, which means that below its surface lie chemicals and rocks from the birth of the solar system.
- Bennu is named after an Egyptian deity.
- The name was suggested by a nine-year-old boy from North Carolina in 2013, who won NASA’s “Name that Asteroid” competition.
- It is known that this asteroid is a B-type asteroid, implying that it contains significant amounts of carbon and various other minerals.
- Because of its high carbon content, it reflects about 4% of the light that hits it, which is very low when compared with a planet like Venus, which reflects about 65% of the light that hits it. Earth reflects about 30%.
- Bennu offers scientists a window into the early solar system as it was first taking shape billions of years ago and tossing ingredients that could have helped seed life on Earth.
- Significantly, Bennu hasn’t undergone drastic changes since its formation over billions of years ago and therefore it contains chemicals and rocks dating back to the birth of the solar system. It is also relatively close to the Earth.

5.12 National Dengue Day:

- May 16 is observed as National Dengue Day to create awareness about the disease. Measures to prevent and preparing to control the spread of dengue are among a few things that are discussed and shared on this day.



About Dengue:

- Dengue is transmitted by bite of Aedes aegypti mosquito infected with any one of the four dengue viruses.
- Person develops symptoms 3-14 days after the infective bite.
- Patients who are already infected with the dengue virus can transmit the infection to other via Aedes mosquitoes during 4-5 days of onset of symptoms.

Symptoms:

- Sudden, high fever
- Severe headaches
- Pain behind the eyes
- Severe bone, joint, and muscle pain
- Fatigue
- Nausea
- Vomiting
- Breathlessness
- Skin rash, which appears two to five days after the onset of fever
- Mild bleeding (such as a nose bleed, bleeding gums, or easy bruising).

Diagnosing dengue infection

- Doctors can diagnose dengue infection with a blood test to check for the virus or antibodies to it.

Treatment

- There is no specific medicine to treat dengue infection. If you think you may have dengue fever, you should use only Paracetamol for fever. "Avoid medicines with aspirin, Ibuprofen, Nemuslide, pain killers, etc. (NSAIDS), which could worsen bleeding. You should also rest, drink plenty of fluids, and see your doctor.

Preventing dengue fever

- There is no vaccine to prevent dengue fever yet. The best way to prevent the disease is to prevent bites by infected mosquitoes.

#NationalDengueDay

DBT's Efforts on DENGUE VACCINE DEVELOPMENT

Vaccine development for infectious diseases is a major thrust area of the Department of Biotechnology (DBT). Efforts for Dengue vaccine development are being supported under two major initiatives of the Department, viz., the Indo-US Vaccine Action Programme (VAP) and the National Biopharma Mission (NBM).

The Indo-US Vaccine Action Programme (VAP), a bilateral programme being jointly implemented by DBT, and the National Institutes of Health (NIH), since 1987, is the most significant international partnership that contributed immensely towards development of indigenous vaccine science in India. The Cabinet approved National Biopharma Mission (NBM), is being implemented, by BIRAC, with 50% co-funding via World Bank loan, for strengthening the ecosystem for affordable product and biopharmaceutical development.

- ICgeb in collaboration with Sun Pharma is developing a sub-unit dengue vaccine candidate (DSV4), a recombinant Virus Like Particle (VLP) based vaccine expected to protect against all four Dengue strains endemic to India. The vaccine is being supported under NBM for pre-clinical and clinical trials and is currently in advanced pre-clinical stage of development.
- A Live attenuated tetravalent Dengue Vaccine candidate TV003/TV005 licensed from NIH is being developed by Indian Immunologicals Pvt Ltd. The pre-clinical toxicity studies have been completed and the application for Phase I clinical trial has been submitted to CDSO. The candidate is being supported under NBM.
- Support to Panacea Biotech, under NBM, is under consideration for Phase III clinical trial of live attenuated vaccine candidate, licensed from NIH.


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- Stay away from heavily populated residential areas, if possible.
- Use mosquito repellents, mosquito repellents cream, while going out and even indoors.
- When outdoors, wear long-sleeved shirts and long pants tucked into socks.
- Use mosquito nets.
- If you have symptoms of dengue, speak to your doctor.
- Avoid collection of water in places where mosquitoes can breed. These include old tires, cans, or flower pots that collect rain. Regularly change the water in cooler, outdoor bird baths and pets' water dishes.
- If someone in your home gets dengue fever, be especially vigilant about protecting yourself and other family members from mosquitoes.

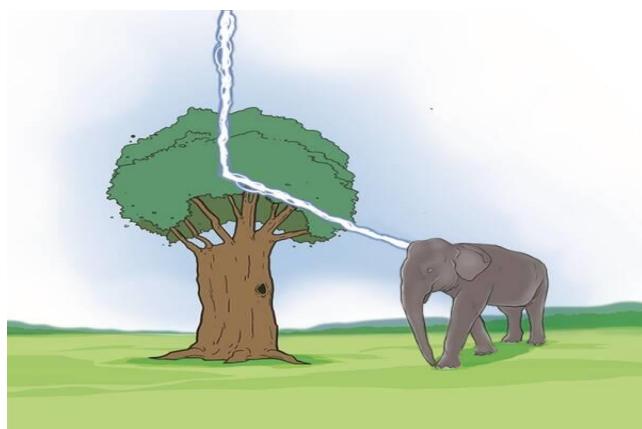
5.13 Lightning strike killing animals:

- Preliminary enquiry related to death of 18 elephants in Assam lead to a baffling conclusion- they died due to lightning strike.

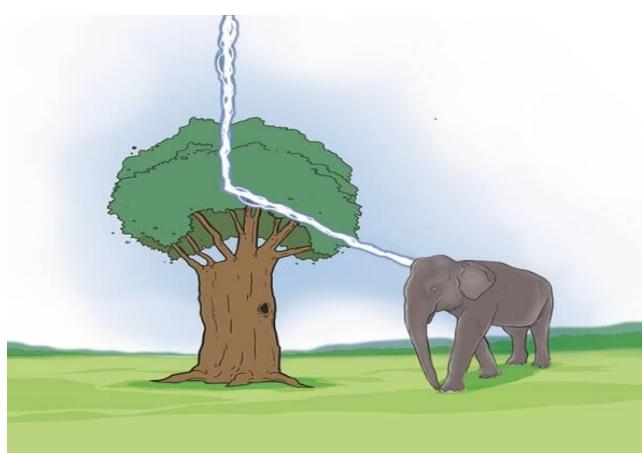


Can animals as large as elephants die due to lightning strike?

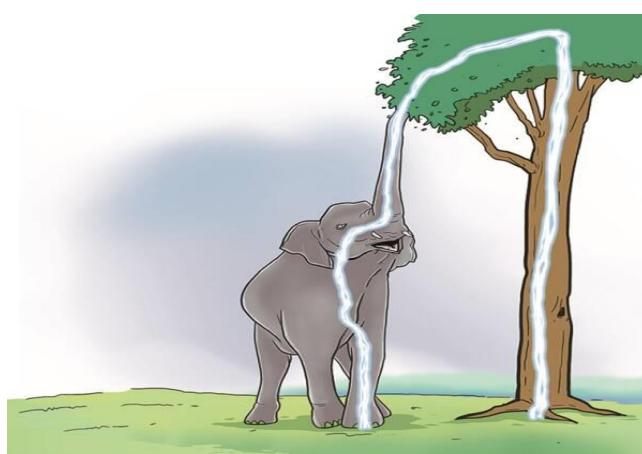
- Experts believe elephants are more vulnerable to lightning strike, there are various ways in which this can happen. Some of these ways are listed below.
- **DIRECT FLASH:** An animal in an open field may be struck directly by lightning if part of its body protrudes over other objects in the vicinity. Taller animals are more vulnerable.



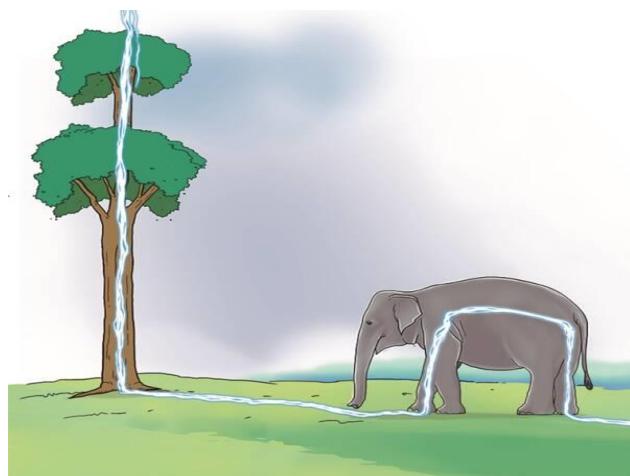
SIDE FLASH: When lightning strikes a tall object such as a tree, it may generate a side flash that can strike an animal standing underneath the tree.



TOUCH POTENTIAL: If one part of a tall animal's body is in contact with the ground while another part, at a higher elevation, comes in contact with a lightning-struck object, a partial current may pass through its body.



STEP POTENTIAL: The most common lightning hazard among four-legged animals. When an animal's front and hind feet are far enough apart, a partial current may pass through the body in certain circumstances.



Which of these could have happened in Assam, assuming it was indeed lightning that killed the elephants?

- According to a member of the team that conducted the post-mortem, it is possible that the elephants were killed by current flowing through the ground. That would be 'step potential'.

But can so many elephants be killed in one flash of lightning?

- It can happen because in a single lightning flash, the current flows to the ground several times. "These are termed subsequent strokes. This is why we see a flash of lightning flickering."
- The Bamuni Hill in Assam, where the elephants died, has no tall trees that could have taken the brunt of the lightning strike. A number of smaller trees were found burnt and split down in the middle, indicating that the area had indeed been struck by lightning. Some of the elephants, too, had burnt ears, charred bellies, and burn marks on the scapular region.

Are elephants particularly vulnerable?

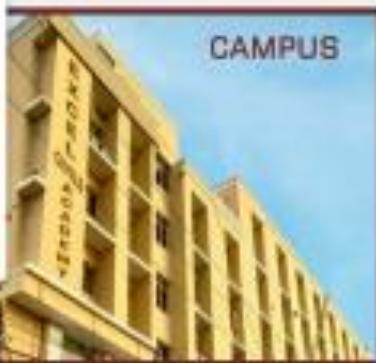
- Since an elephant's front and hind feet are wide apart, it would appear to make it more vulnerable than a smaller animal, such as a rat.
- The potential difference increases with increasing distance between the two feet. The larger the potential difference, the greater the current through the body.

5.14 Sophisticated Analytical & Technical Help Institutes: SATHI:

- Several centers are being set up by the Department of Science and Technology to house major analytical instruments to provide common services of high-end analytical testing, thus avoiding duplication and reduced dependency on foreign sources.
- Three such centers set up at IIT Kharagpur, IIT Delhi and BHU Varanasi, are being operated with a transparent, open access policy.
- DST is planned to set up five SATHI Centers every year for the next four years.

About SATHI:

- The Department of Science & Technology (Ministry of Science and Technology) has launched a unique scheme called Sophisticated Analytical & Technical Help Institutes (SATHI).
- SATHI will address the problems of accessibility, maintenance, redundancy and duplication of expensive equipment in our Institutions, while reaching out to the less endowed organizations in need, e.g., industry, MSMEs, startups and state universities.
- This will also foster a strong culture of collaboration between institutions and across disciplines to take advantage of developments, innovations and expertise in diverse areas.



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