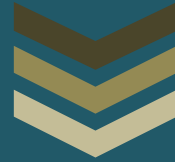


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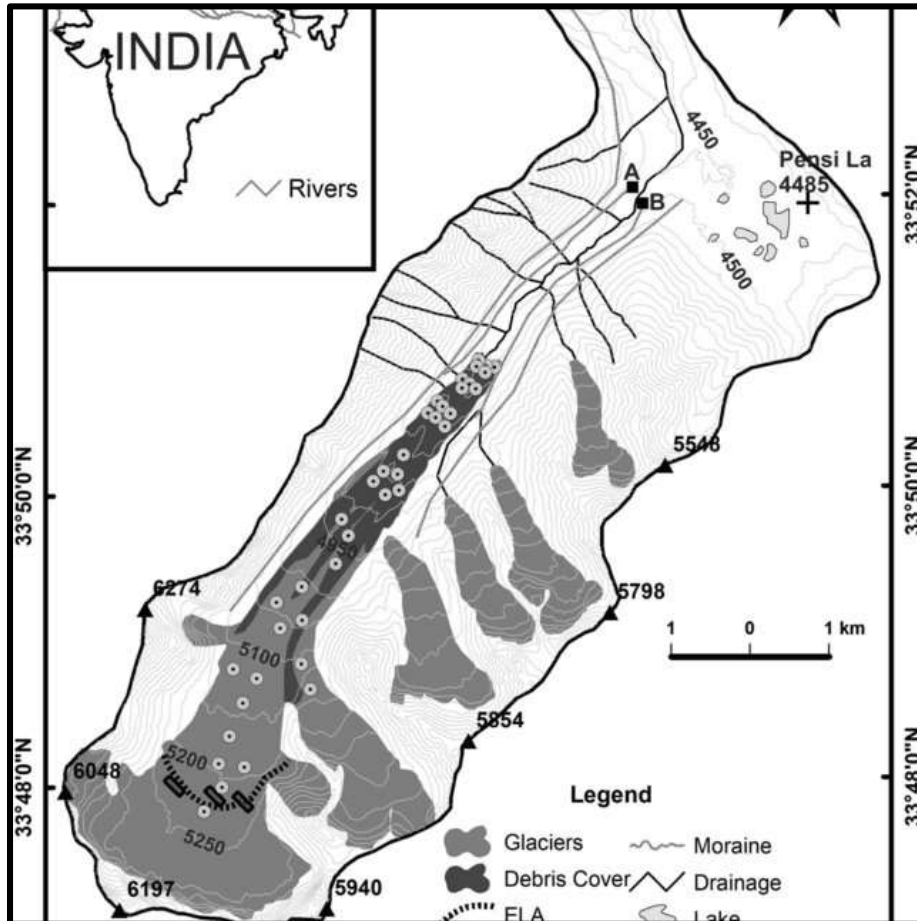
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Success is born of action...

Topic 1. LADAKH GLACIER RETREAT DUE TO WARMING LOW WINTER PRECIPITATION

Importance for Prelims: Geography



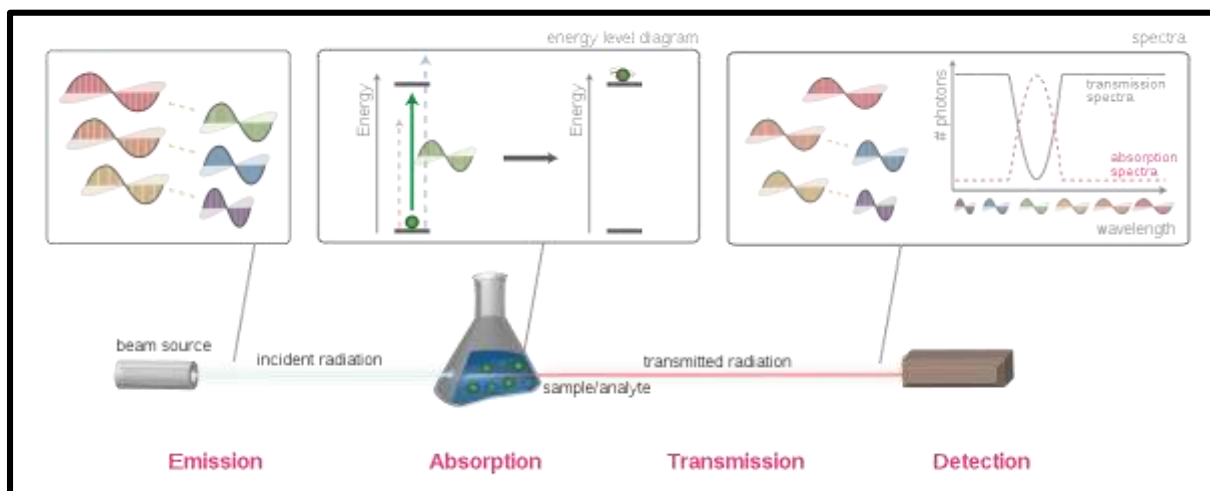
The Pensilungpa ice mass set in Ladakh's Zaskar depression is receding thanks to increase in temperature and reduce in precipitation throughout winters, a recent study has found. Since 2015, the Wadia Institute of Himalayan earth science (WIHG) at Dehradun, associate degree autonomous body beneath the Department of Science and Technology, has been engaged on numerous aspects on glaciology – ice mass health (mass balance) watching, dynamics, discharge, past atmospheric condition, speculation for future global climate change and its impact on glaciers during this region. About

The study:

- The observations for four years (2015–2019) showed that the glacier is now retreating at an average rate of 6.7 plus/minus 3 metre per annum. There is significant influence of debris cover on the mass balance and retreat of the glacier's endpoint.
- Due to continuous rise within the air temperature in line with the world trend, the melting would increase, and it's attainable that the precipitation of summer periods at higher altitudes can modification from snow to rain, which could influence the summer and winter pattern.
- Impact of Melting Glaciers Glacial Melting can cause international ocean levels to rise, threatening already species just like the cat and Tiger and dramatically modification the roof of the planet. Melting Glaciers can increase stream flows through the years 2050 to 2060, pushing up the danger of high altitude lakes explosive their banks and engulfing communities.
- From the 2060s, stream flows can move into decline.
- Lower flows will cut the power from Hydro dams that generate much of the Region's electricity.

Topic 2. ABSORPTION SPECTROSCOPY

Importance for Prelims: Science and Technology



In news: Researchers from IIT Madras and IISER city have developed a way to notice minute quantities of chemicals in resolution.

- They use a variation of absorption spectrum analysis that surpasses the general limits obligatory by typical absorption spectrum analysis.
- With this method, they can, in theory, illuminate the insides of cells and notice minuscule quantities of drugs gift there.
- The work was published in Nanoscale.

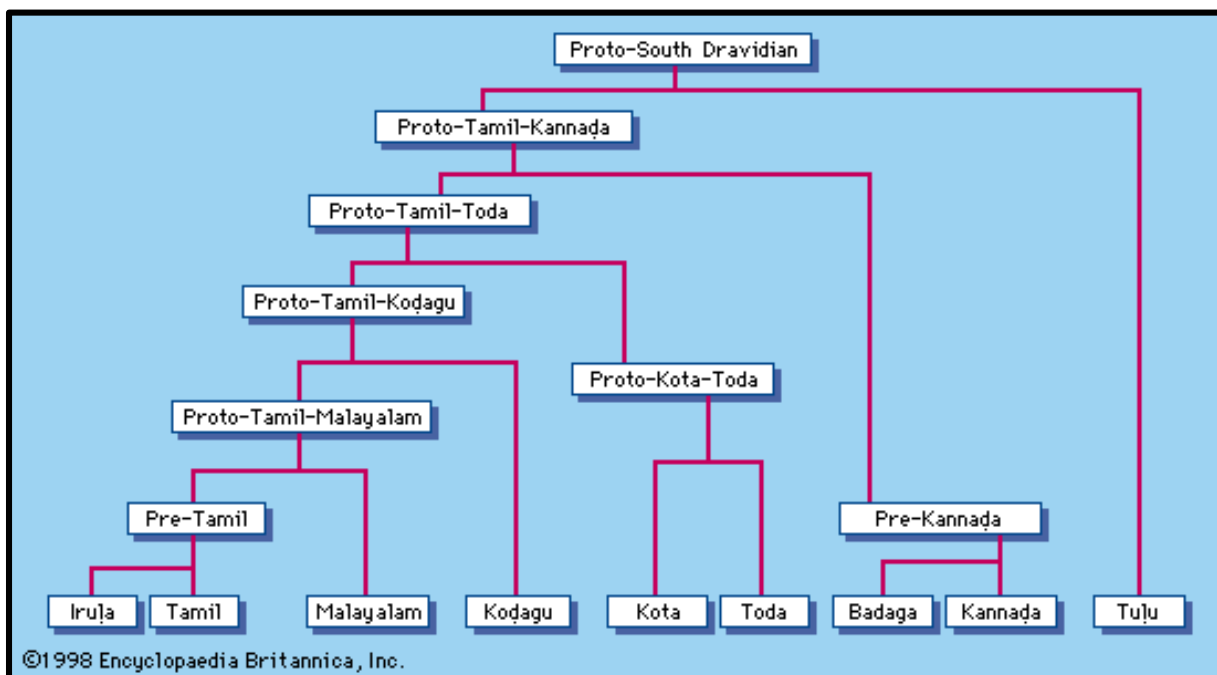
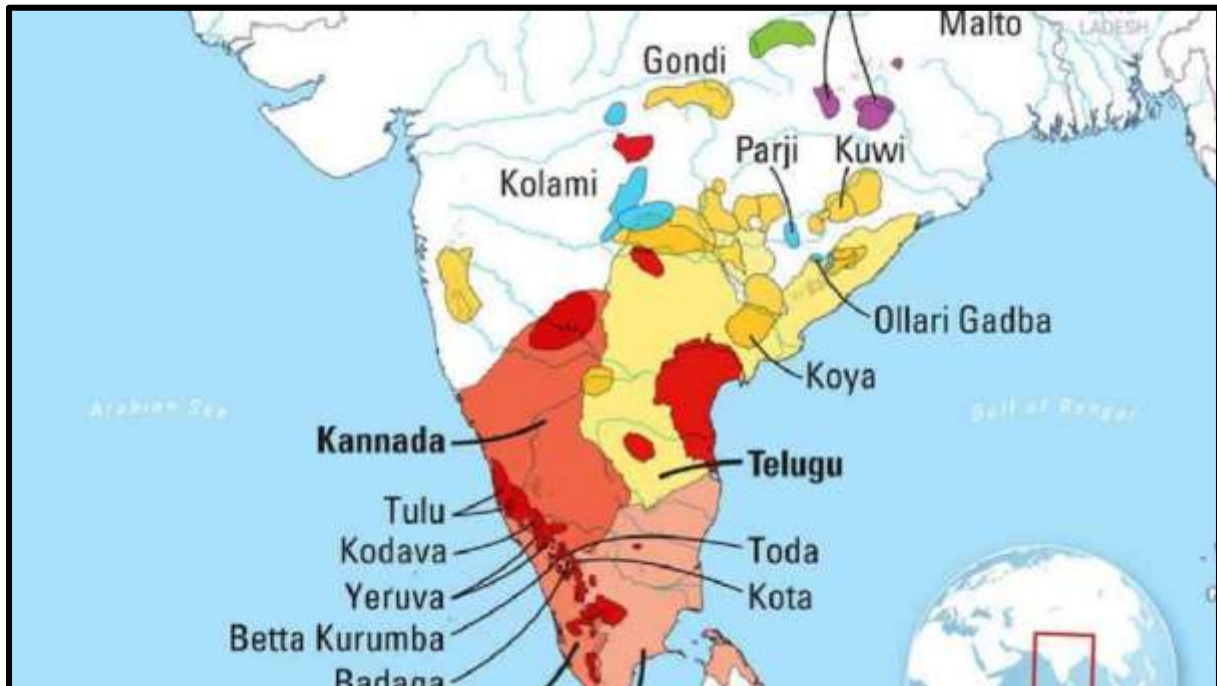
About **Absorption Spectroscopy**:

- Absorption spectroscopy is a tool to detect the presence of elements in a medium.
- Usually in absorption spectrum analysis, the principle used is that light-weight, owing to its crinkly nature, shows optical phenomenon patterns, that is, dark and lightweight fringes, once it scatters off any object.
- A related concept called the Abbe criterion sets a natural limit on the size of the object being studied.
- Absorption spectroscopy is performed across the electromagnetic spectrum.

- Absorption spectroscopy is also employed in studies of molecular and atomic physics, astronomical spectroscopy and remote sensing.
- **Applications:** Infrared gas analyzers can be used to identify the presence of pollutants in the air, distinguishing the pollutant from nitrogen, oxygen, water and other expected constituents. Remote Sensing.
- **Following are the major types of absorption spectroscopy:** Sr. No
Electromagnetic Radiation Spectroscopic type
 - 1 X-ray X-ray absorption spectroscopy
 - 2 Ultraviolet–visible UV–vis absorption spectroscopy
 - 3 Infrared IR absorption spectroscopy
 - 4 Microwave Microwave absorption spectroscopy
 - 5 electromagnetic wave neutron spin resonance qualitative analysis
Nuclear resonance qualitative analysis

Topic 3. DRAVIDIAN LANGUAGES

Importance for Prelims: History



A recent publication has provided crucial proof that Ancestral Dravidian languages were probably spoken by a major population within the Indus depression civilisation.

Dravidian cluster of Languages:

- The Dravidian languages are initial genuine within the ordinal century BCE as Tamil-Brahmi script inscribed on the cave walls within the Madurai and Tirunelveli districts of Madras.
- Proto dravidian gave rise to twenty one dravidian languages.

These are classified into three categories.

Northern:

- Brahui (Balochistan), malto (tribal areas of geographical area and odisha) and kurukh (bengal, odisha, bihar, madhyapradesh) are the most languages. Southern: Kanarese, Tamil, Malayalam, Tulu, Kodagu, Toda and Kota.
- Tamil is that the oldest amongst these.

Central:

- It consists of eleven languages i.e. gondi, Khond, Kui, Telugu.
- Only Telugu became a civilised language and is spoken in Andhra Pradesh and Tamil Nadu.
- Telugu is numerically the most important of all dravidian languages, Malayalam is smallest and youngest of the dravidian cluster.
- **Only two Dravidian languages are spoken exclusively outside the post-1947 state of India:** Brahui in the Balochistan region of Pakistan and Afghanistan; and Dhangar, a dialect of Kurukh, in parts of Nepal and Bhutan.
- Dravidian place names on the sea coasts and Dravidian grammatical influence like clusivity within the Indo-Aryan languages, namely, Marathi, Gujarati, Marwari, and Sindhi, recommend that Dravidian languages were once spoken a lot of wide across the Indian landmass.

Topic 4. PLASTIC POLLUTION IN SUNDARBANS

Importance for Prelims: Environment

Several NGOs, experts, and even officials have pointed out that the plastic accumulating in the isolated islands of the fragile ecosystem are cause for great concern.

Concerns:

- Plastics would have a long-term ecological impact on the Sundarbans ecosystem.
- The presence of plastic in saline water can increase the toxicity of water bit by bit and conjointly there'll be eutrophication of water.
- Because of the presence of plastics in the water, there will be an increase in microplastics, which can slowly enter the food system.
- Sunderbans is connected to the sea and the increase of plastic in the region could lead to plastic water entering the ocean.
- Sunderbans, which is home to a population of 5 million, is largely dependent on fisheries and aquaculture, and any change in the delicate ecosystem can spell doom to livelihoods.

About Sundarbans:

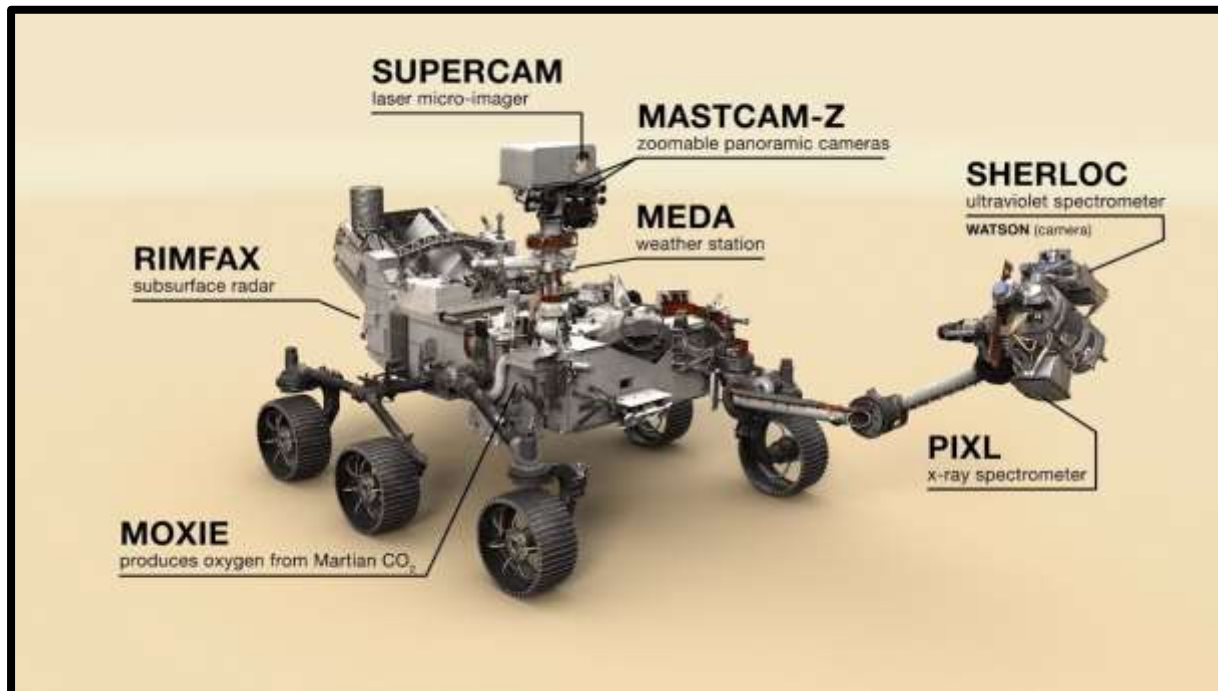
- It is a vast contiguous mangrove forest ecosystem in the coastal region of Bay of Bengal spread over India and Bangladesh on the world's largest delta of the Ganges, Brahmaputra and Meghna rivers.
- It contains the world's largest mangrove forests.
- **The Indian Sunderbans, a United Nations agency World Heritage website, is home to regarding a pair of, 626 fauna, together with Royal geographical area Tigers, Gangetic Dolphins, H2O crocodiles, and vulnerable species of fresh turtles.**
- It is also home to 428 bird species.
- Conservation efforts in India were stepped up with the creation of the

Sundarbans Tiger Reserve in 1973.

- Sunderbans was designated as a Biosphere Reserve by UNESCO in 2001.
- Sundarban Wetland, India was recognised as the **‘Wetland of International Importance’** under the Ramsar Convention in January 2019.
- The Sunderbans Delta is the **only mangrove forest in the world inhabited by tigers.**

Topic 5. PERSEVERANCE ROVER

Importance for Prelims: Science and Technology



NASA's Perseverance rover is exploring the Jezero Crater on Mars and making an attempt to gather its initial rock samples.

- NASA says that sampling Mars is one among the foremost sophisticated tasks and involves drilling holes, assembling and so storing the samples in take a look at tubes.
- Perseverance rover National Aeronautics and Space Administration (NASA) has launched its Mars 2020 Perseverance rover aboard a United Launch Alliance Atlas V.
- The launch took place from Cape Canaveral Air Force Station in Florida. The rover carries 43 titanium sample tubes and is supposed to collect samples from the Jezero Crater.
- Perseverance's sampling process is autonomous — its sampling and caching system uses a hollow coring bit and percussive drill that is fixed at the end of its 7- feet-long robotic arm.
- Perseverance will spend one Mars year (two years on Earth) on the planet

during which era it'll explore the landing website region.

- The Jezero Crater wherever it landed was once the positioning of AN ancient stream delta — scientists recognize this thanks to proof collected throughout previous landed and orbital missions that time to wet conditions on the world billions of years past.
- The rover is carrying with it seven instruments, which include an advanced camera system with the ability to zoom, a SuperCam, which is an instrument that will provide imaging and chemical composition analysis, and a spectrometer.
- One of the most interesting instruments aboard the rover is called MOXIE, which will produce oxygen from Martian atmospheric carbon dioxide.
- If this instrument is made, then future astronauts (as of currently, no individual has unbroken foot on Mars) will use it to burn charge for returning to Earth.
- The rover is additionally carrying Ingenuity, the primary heavier-than-air craft to wing Mars that may facilitate collect samples from the surface from locations wherever the rover cannot reach.
- Broadly, the rover is intended to review signs of ancient life, collect samples which may be sent back to Earth throughout future missions, and take a look at new technology which may profit future robotic and human missions to the world.
- If Mars once harboured a hotter atmosphere sanctionative water to flow in its ancient past (3.5-3.8 billion years ago), and if microorganism life had once existed on the terrestrial planet, it's attainable that it exists in “special regions” even nowadays.

Topic 6. CREW HEALTH AND PERFORMANCE EXPLORATION

ANALOG

Importance for Prelims: Geography

NASA is seeking applications for participation as a skilled worker for the primary annual long analog mission in a very home ground simulated to desire what staying on the surface of Mars would be like.

- This is the first of three analog missions called the Crew Health and Performance Exploration Analog (CHAPEA), which is related to Mars.
- The other three are scheduled to take place over the next four years. The second analog mission is scheduled for 2024 and the third is scheduled for 2025.
- Crew Health and Performance Exploration Analog (CHAPEA) The mission is about to start in Fall 2022 and can offer four prospering candidates the prospect to measure and add a one,700 square-foot module that's created by a 3D printer and is termed the Mars ridge Alpha.
- The simulated quarters embrace a room, areas for medical, recreation, fitness, work, crop growth, a technical work space and 2 bogs.
- Crew Health and Performance Exploration Analog (CHAPEA) The mission is ready to start in Fall 2022 and can offer four prosperous candidates the prospect to measure and add a one,700 square-foot module that's created by a 3D printer and is termed the Mars ridge Alpha.
- The simulated quarters embody a room, areas for medical, recreation, fitness, work, crop growth, a technical work space and 2 loos.
- This home ground can simulate what it appears like to hold out missions on Mars together with resource limitations, breakdown, communication delays and the other environmental stressors.

- The crew are expected to perform simulated spacewalks, research and use computer game and robotic controls and exchange communications.
- This analog mission can offer scientific knowledge that may facilitate in verifying the systems that may be used for actual missions to Mars and conjointly facilitate in finding issues for voyage analysis.
- CHAPEA isn't the sole analog mission, there square measure others together with Aquarius/NEEMO, Concordia, Desert RATS and Hestia.
- Analog missions square measure needed as a result of not all experiments may be done out in house as a result of resources and cash square measure restricted.

Topic 7. NCLT

Importance for Prelims: National organization

The Parliamentary committee on Finance has referred to as out the Ministry of company Affairs on persistent vacancies in National Company Law Tribunals (NCLTs) resulting in delays in company financial condition beneath the financial condition and Bankruptcy Code (IBC).

- The Parliamentary committee recommendations The committee has additionally counseled that the IBC be amended to stop silly proceedings and non-adherence to deadlines beneath the IBC that may cause worth destruction.
- The committee noted that delays in the admission of insolvency cases by NCLTs and the approval of resolution plans were the key reasons behind the non adherence of timelines under the IBC.
- The committee additionally counseled that the IBC be amended to supply small, tiny and medium enterprises (MSMEs), that area unit operational creditors beneath the IBC, with larger protection within the current economic setting.
- The IBC currently prioritises financial creditors over operational creditors.
- The committee called out the Ministry of Corporate Affairs on persistent vacancies in National Company Law Tribunals (NCLTs) leading to delays in corporate insolvency under the Insolvency and Bankruptcy Code (IBC).
- The combined strength of the current NCLT benches around the country is currently only 29 members against the total sanctioned strength of 63 members.
- **NCLT:** It is a statutory body constituted under the section 408 of the Companies Act, 2013.

- The current NCLT traces its formation to the recommendations of the Justice Eradi Committee that was came upon by Central Government within the year 1998.
- It may be a quasi-judicial authority incorporated for handling company disputes that square measure of civil nature arising underneath the businesses Act.
- It has power to manage its own procedures.
- The NCLT composition is of the President and different Judicial and Technical members, to exercise and discharge powers and functions as prescribed by the Act or the other power delegated to them by approach of the other enactment or a Notification by Ministry Of company Affairs.
- Appeals against the order of the NCLT can visit NCLAT, solely dedicated for this purpose.

It has been given jurisdiction over:

1. Board for Industrial and monetary Reconstruction. (“BIFR”)
2. The legal proceeding Authority for Industrial and monetary Reconstruction. (“AAIFR”)
3. Jurisdiction and powers relating to winding up restructuring and other such provisions, vested in the High Courts.
4. Company Law Board (“CLB”).
5. It has following power:
6. Most of the powers of the Company Law Board under the Companies Act, 1956.
7. All the powers of BIFR for revival and rehabilitation of sick industrial companies;
8. Power of High Court in the matters of mergers, demergers, amalgamations, winding up, etc.;

9. Power to order repayment of deposits accepted by Non-Banking Financial Companies as provided in section 45QA of the Reserve Bank of India Act, 1934;
10. Power to wind up companies;
11. Power to Review its own orders.

Topic 8. QUIT INDIA MOVEMENT

Importance for Prelims: History

Culture Minister Shree G. Kishan Reddy to inaugurate associate Exhibition on 'Quit Bharat Movement' on its 79th day

- In July 1942, the Congress operating Committee met at Wardha and resolved that it might authorise Gandhi to require charge of the non-violent mass movement.
- The resolution usually brought up because the 'Quit India' resolution, planned by statesman and seconded by Sardar Patel, it had been to be approved by the All Bharat Congress board meeting in Mumbai in August.
- The Quit Bharat Resolution was sanctioned at the Congress meeting at Gowalia Tank, Bombay, on August eight, 1942.
- The meeting additionally resolved to demand an instantaneous finish to British rule Bharat.
- Declare commitment of free {india|India|Republic of Bharat|Bharat|Asian country|Asian nation} to defend itself against every kind of political orientation and imperiali type a probationary Government of India once British withdrawal.
- sanction a direct action movement against British rule.
- The Quit Asian nation resolution was passed on August eight, 1942. ArunaAsaf Ali hoisted the flag on the Gowalia Tank ground and on August nine night, the senior leaders of the Congress were in remission.
- Many nationalists went underground and took to subversive activities.
- The participants in these activities were the Socialists, Forward coalition members, Gandhi ashramites, revolutionary nationalistsand native organisations in city, Poona, Satara, Baroda and different elements of Gujarat, Karnataka, Kerala, Andhra, United

Provinces, province and Delhi.

- The main personalities taking on underground activity were RammanoharLohia, Jayaprakash Narayan, ArunaAsaf Ali, Usha Mehta, BijuPatnaik, ChhotubhaiPuranik, AchyutPatwardhan, SuchetaKripalani and R.P. Goenka. Usha Mehta started AN underground radio in city.
- This part of underground activity was meant to stay up well-liked morale by continued to supply a line of command and steerage to distribute arms and ammunition.

Topic 9. DECLARING ANY NATURAL DISASTER AS A 'NATIONAL CALAMITY'

Importance for Prelims: Environment

Standing Committee on Water Resources recommends fixing a permanent National Integrated Flood Management cluster below the office of the Minister of Jal Sakti. No provision to declare any natural disaster as a 'National Calamity' says Panel report

- States have usually demanded natural calamities to be declared as national ones, particularly once floods in an exceedingly region.
 - But amazingly, there's no provision to declare any natural catastrophe as a 'National Calamity'.
- This was also confirmed by a Standing Committee report to the Department of Water Resources, River Development & Ganga Rejuvenation (DoWR, RD & GR).
- The Scheme of State Disaster Response Fund / National Response Fund of the Ministry of Home Affairs, there is no provision to declare any disaster including flood as a National Calamity, the DoWR, RD & GR However, whenever a calamity of 'severe nature' occurred, financial assistance was provided.
- It isn't sensible and economically possible to produce complete protection to any or all flood-affected areas.
- Therefore, reasonable economic security is given to reduce the damage caused by floods.
- Standing Committee report back to the Department of Water Resources, stream Development & Ganga Rejuvenation (DoWR, RD & GR)
- The committee also observed that in view of the existing constitutional and administrative classification, it appeared that the responsibility of

flood management lay with everyone and hence no one paid attention to it.

- This administrative approach needed to be changed.
- Hence, the Union Ministry of Jal Shakti should take up this important responsibility of flood control.
- It additionally suggested the central government ought to take the responsibility of control and coordination, keeping seeable the loss of life and property thanks to floods.
- It recommended fixing a permanent National Integrated Flood Management cluster beneath the billet of the Minister of Jal Hindu deity, with several state ministers to be a part of the cluster.
- The committee recommended meeting once a year.
- In its report, the committee additionally acknowledged that precipitation patterns had modified thanks to rising temperature.
- Rainfall in terms of days had bated. However, instances of maximum precipitation were on the increase

Topic 10. THE CONSTITUTIONAL 127TH AMENDMENT BILL

Importance for Prelims: Polity

In news: The Constitutional one27th change Bill can amend Articles 342 A — clauses 1 and a couple of — and can introduce clause 342 A (3) specifically authorising states to keep up their State List.

More regarding the Bill:

- The one27th Constitution change Bill can amend clauses 1 and a couple of of Article three42A and additionally introduce a brand new clause 3.
- The Bill will also amend Articles 366 (26c) and 338B (9).
- The 127th Amendment Bill is designed to clarify that the states can maintain the “**state list**” of OBCs as was the system prior to the Supreme Court judgment.
- Articles 366 (26c) defines socially and educationally backward categories. The “state list” are utterly taken out of the scope of the president and NCBC and can be notified by the state Assembly as per the projected Bill.

Why is the 127th Constitution Amendment Bill needed?

- The Supreme Court in its Maratha reservation ruling in May upheld the 102nd Constitutional Amendment Act.
- The 102nd Constitution Amendment Act of 2018 had inserted Articles 338B and Article 342A (with two clauses) after Article 342.
- Articles 338B deals with the structure, duties and powers of the National Commission for Backward Classes.
- Article 342A says that the president, in consultation with the governor, would specify the socially and educationally backward classes.
- The change is important to revive the powers of the state governments to keep up a state list of OBCs that was abstracted by a Supreme Court interpretation.

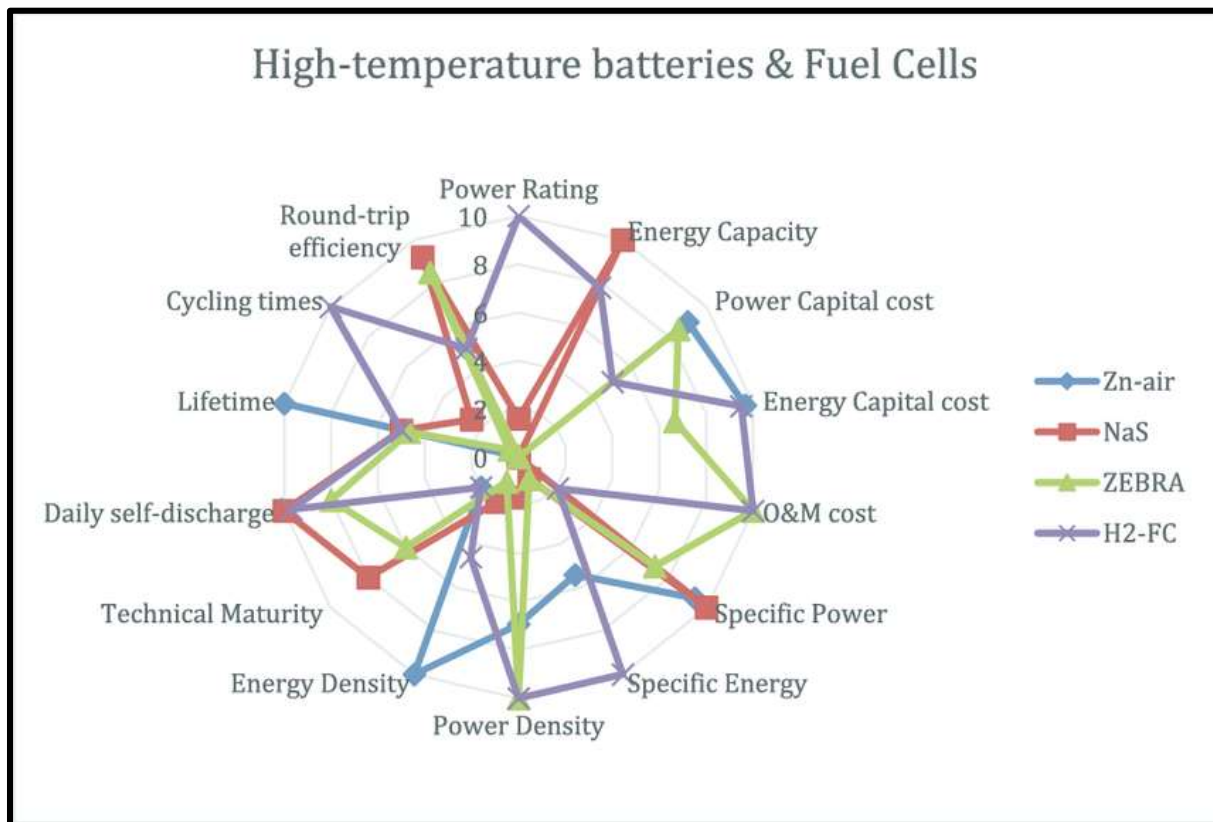
- If the state list gets abolished, nearly 671 OBC communities would lose access to reservations in educational institutions and in appointments.
- This would adversely impact nearly common fraction of the entire OBC communities. per the Constitution of Republic of India, Articles 15(4), 15(5) and 16(4) confer power on a state to spot and declare the list of socially and educationally backward categories.
- As a matter of follow, separate OBC lists are necessitated by the Centre and every state involved.

What is the procedure to induce the 127th Constitution change Bill passed?

- An change of the Constitution will be initiated solely by the introduction of a bill in either House of Parliament.
- The bill should then be passed in every House by a majority of the whole membership of that House and by a special majority of not but common fraction of the members gift and pick.
- In case of disagreement between the 2 homes, there's no provision for a joint sitting.
- If the change seeks to create any modification in any of the provisions mentioned within the provision to Article 368, it should be legal by the Legislatures of not but simple fraction of the states.
- Although there's no prescribed cut-off date for agreement, it should be completed before the amending bill is given to the president for his assent.

Topic 11. BATTERY CELL TECHNOLOGIES

Importance for Prelims: Science and Technology



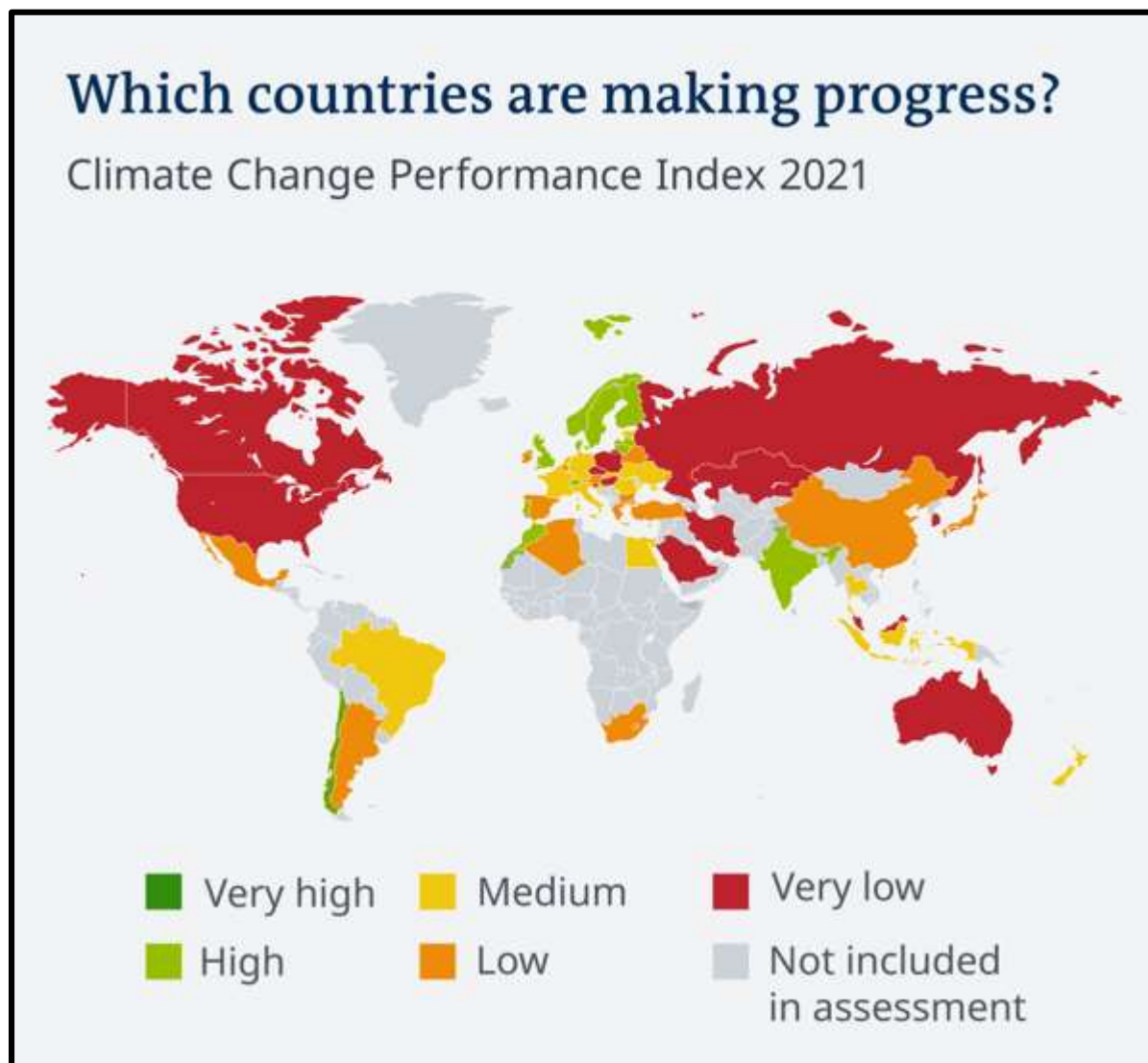
In news: The quality of some frontier battery technologies are seemingly to be evaluated by NITI Aayog and Ministry of Power supported the end-use application of the battery storage comes in electrical vehicles (EVs).

- The new technologies include a novel rechargeable iron-air battery developed by a US-based start-up for electricity grid storage that promises to deliver power at less than a tenth of the cost of lithium-ion batteries, alongside solid-state batteries that use alternatives to the aqueous electrolyte solutions, an innovation that could lower the risk of fires, sharply increase energy density and potentially take only 10 minutes to charge a battery, cutting the recharging time by two-thirds is being explored by mobility.
- It may probably change battery storage ecosystems to diversify faraway from the established Lithium-ion formula.

- **Iron Air Battery:** It leverages the concept of ‘reversible rusting’.
- The battery uses O from the air and converts iron metal to rust whereas discharging, and whereas charging, the appliance of associate degree electrical current transforms the rust back to iron and therefore the battery releases O into the air.
- But the matter with the technical school pertains to the battery’s size and weight, that makes its application impractical in electrical vehicles, one in all the most important use areas of batteries.
- **Energy storage policy in India:** IEA projects that India could have 140-200 GW of battery storage capacity by 2040, potentially a third of total battery storage capacity in the world by then.
- The Department of Science and Technology has launched a “Materials for Energy Storage” and “Materials for Energy Conservation and Storage Platform” programme, and set up centres on Batteries and Super capacitors with Indian Institute of Technology Bombay and Indian Institute of Science respectively, for developing energy materials for efficient electrochemical energy storage devices.

Topic 12. THE WORLD'S CLIMATE CHANGE PROGRESS

Importance for Prelims: Environment



In news: Back in 2019, over eleven,000 scientists declared a world climate emergency. The very important signs that impact or mirror the planet's health, like forest loss, fuel subsidies, ice mass thickness, ocean acidity and surface temperature have but modified since the initial publication, together with through the novel coronavirus malady (COVID-19) pandemic.

Climate Change progress since 2019:

- Fossil fuel divestment and fossil fuel subsidies have improved signalling an economic shift to a renewable energy future.

- Climate-related disasters have accrued since 2019 devastating flash floods within the South Kalimantan province of Indonesia, record heat waves within the south western U.S., extraordinary storms in Asian nation and, the 2019-2020 mega fires in Australia.
- In addition, 3 main greenhouse gases – carbonic acid gas, paraffin and inhalation general anesthetic — set records for region concentrations in 2020 and 2021.
- Carbon oxide concentration reached 416 components per million, the best monthly world average concentration ever recorded in Gregorian calendar month 2021.
- 2020 was additionally the second hottest year in recorded history, with the 5 hottest years on record all occurring since 2015.
- Ruminant stock — oxen, buffalo, sheep, and goats — currently range over four billion, and their total mass is over that of all humans and wild mammals combined.
- This may be a drawback as a result of these animals are accountable for impacting diversity, emotional vast amounts of paraffin emissions, and land continues to be cleared to create space for them.
- Ocean action is additionally close to associate degree incomparable record.
- There is growing proof we're obtaining on the point of or have already gone on the far side tipping points related to vital components of the world system, together with heat water coral reefs, the Amazon rain forest and also the West Antarctic and Gronland ice sheets.

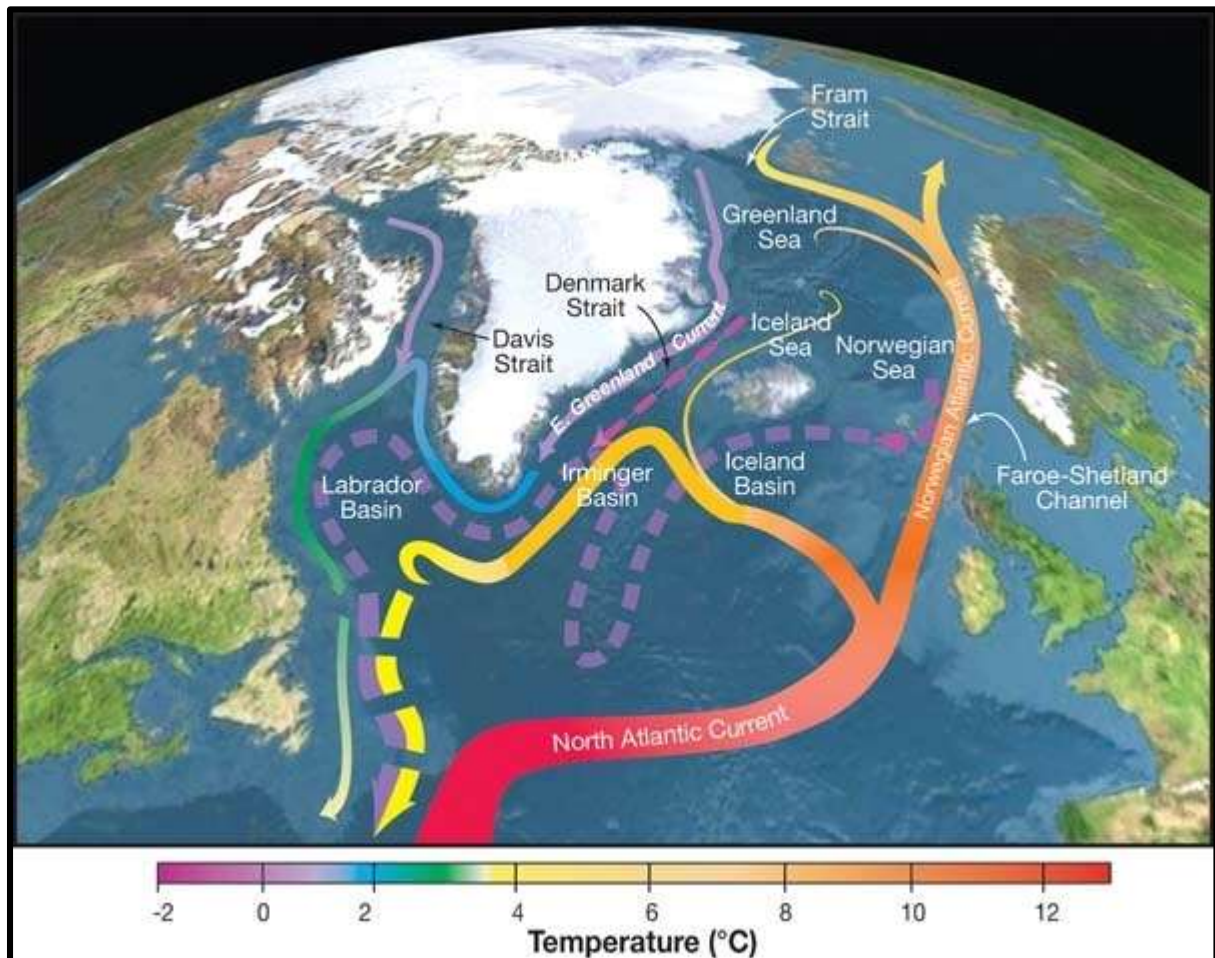
Six critical and interrelated steps governments can take to lessen the worst effects of climate change:

1. rank energy potency, and replace fossil fuels with low-carbon renewable energy.

2. cut back emissions of ephemeral pollutants like paraffin and soot
3. Curb land clearing to shield and restore the Earth's ecosystems
4. Reduce our meat consumption.
5. Move away from unsustainable ideas of ever-increasing economic and resource consumption.
6. Stabilise and, ideally, gradually reduce human populations while improving human well-being especially by educating girls and women globally.

Topic 13. ATLANTIC MERIDIONAL OVERTURNING CIRCULATION (AMOC)

Importance for Prelims: Geography



A recent study in Nature global climate change and therefore the IPCC's Report (AR6) notes that the Atlantic Meridional Overturning Circulation (AMOC) is losing its stability. Modelling studies have shown that AN AMOC ending would cool the hemisphere and reduce precipitation over Europe.

- Atlantic Meridional Overturning Circulation (AMOC) The AMOC could be a massive system of ocean currents.
- It is that the Atlantic branch of the ocean conveyor or Thermohaline circulation (THC), and distributes heat and nutrients throughout the world's ocean basins.
- AMOC carries heat surface waters from the tropics towards the Northern

Hemisphere, wherever it cools and sinks.

- It then returns to the tropics and so to the Atlantic as a bottom current.
- From there it's distributed to all or any ocean basins via the Antarctic circumpolar current.

What happens if AMOC collapses?

- Gulf Stream, an area of the AMOC, may be a heat current to blame for gentle climate at the west coast of North America moreover as Europe.
- Without a correct AMOC and ocean current, Europe are going to be terribly cold.
- It also can have an impact on the El Nino. Fresh from melting Kalaallit Nunaat ice sheets and also the Arctic region will build circulation weaker because it isn't as dense as brine and doesn't sink to very deep.

Why is the AMOC slowing down?

- Global warming can cause a weakening of the major ocean systems of the world.
- A part of the Arctic's ice called "**Last Ice Area**" has also melted.
- The freshwater from the melting ice reduces the salinity and density of the water.
- Now, the water is unable to sink as it used to and weakens the AMOC flow.
- As the Indian Ocean warms faster and faster, it generates additional precipitation.
- With most precipitation within the ocean, there'll be less precipitation within the Atlantic Ocean, resulting in higher salinity within the waters of the tropical portion of the Atlantic.
- This saltier water in the Atlantic, as it comes north via AMOC, will get cold much quicker than usual and sink faster.

Has the AMOC weakened before?

- AMOC and mind-altering drug strength has continuously been unsteady.
- The extreme glacial stages have seen weaker circulation and delay in AMOC, whereas the glacial terminations have shown a stronger AMOC and circulation.
- But the changes we have a tendency to expertise within the last 100-200 years area unit phylogenesis, and these abrupt changes area unit destabilising the AMOC, that might collapse the system.

Topic 14. 8888 UPRISING

Importance for Prelims: International Relations

Myanmar protesters on Sunday marked the anniversary of a 1988 prodemocracy uprising that brought Aung San Suu Kyi to prominence, with flash mobs and marches of defiance against the ruling junta

- The 8888 struggle conjointly referred to as the individuals Power struggle and therefore the 1988 struggle, was a series of nationwide protests, marches, and riots in Asian country (Myanmar) that peaked in August 1988.
- Key events occurred on eight August 1988 and thus it's usually referred to as the “8888 Uprising” The protests began as a student movement and were unionised for the most part by university students at the Rangoon Arts and Sciences University and therefore the Rangoon Institute of Technology (RIT).
- During the crisis, Aung San Suu Kyi emerged as a national icon. once the camp organized associate election in 1990, her party, the National League for Democracy but, the camp refused to recognise the results and continuing to rule the country because the State Law and Order Restoration Council.
- Aung San Suu Kyi was conjointly placed below confinement.
- The State Law and Order Restoration Council would be a cosmetic amendment from the Asian country Socialist Programme Party.
- Suu Kyi’s confinement was raised in 2010, once worldwide attention for her peaked Coup d’état 2021 A coup d’état in Asian country began on the morning of one February 2021, once democratically nonappointive members of the country’s ruling party, the National League for Democracy (NLD), were kick out by the Tatmadaw—Myanmar’s military—which

then unconditional power in a very stratocracy.

- The Tatmadaw declared a year-long state of emergency and declared power had been transferred to Commander-in-Chief of Defence Services Min Aung Hlaing.
- It declared the results of the November 2020 election invalid and declared its intent to carry a brand new election at the tip of the state of emergency. The coup d'état occurred the day before the Parliament of Asian country was to inaugurate the members nonappointive at the 2020 election, thereby preventing this from occurring.
- President Win Myint and State Counsellor Aung San Suu Kyi were detained, in conjunction with ministers, their deputies and members of Parliament.

Topic 15. HUMAN RIGHTS

Importance for Prelims: Polity

Chief Justice of India N.V. Ramana on Sunday said police stations pose the “highest threat” to human rights and dignity, which are “sacrosanct.

- About Human rights Human Rights area unit those rights which each and every person enjoys on the premise of equality regardless of caste, race, religion, and place of birth, sex or the other economic and social rank.
- The plan of human dignity and equality is embedded in vision of HRs.
- These Human rights are guaranteed under the constitution of India in the form of Fundamental Rights and Directive Principles of State Policy and International Instruments such as UDHR, ICCPR, ICESCR, UNCRPD etc.
- The Universal Declaration of Human Rights ordered down the terms for the post-war world, it enshrined the rights and therefore the freedoms of all individuals, living all over.
- **Characteristic of HRs:** Inalienable Indivisible, interdependent and interrelated Universal Three generation of Human Rights: The division of human rights into three generations was introduced in 1979 by Czech jurist Karel Vasak.

First generation:

- It dealt with the civil-political rights like liberty and participation in political life.
- By nature, they are individualistic and negative (limitation on the state).
- These are legitimated and given standing in law of nations by Articles three to twenty one of the Universal Declaration of Human Rights and therefore the 1966 International Covenant on Civil and Political Rights.

Second Generation:

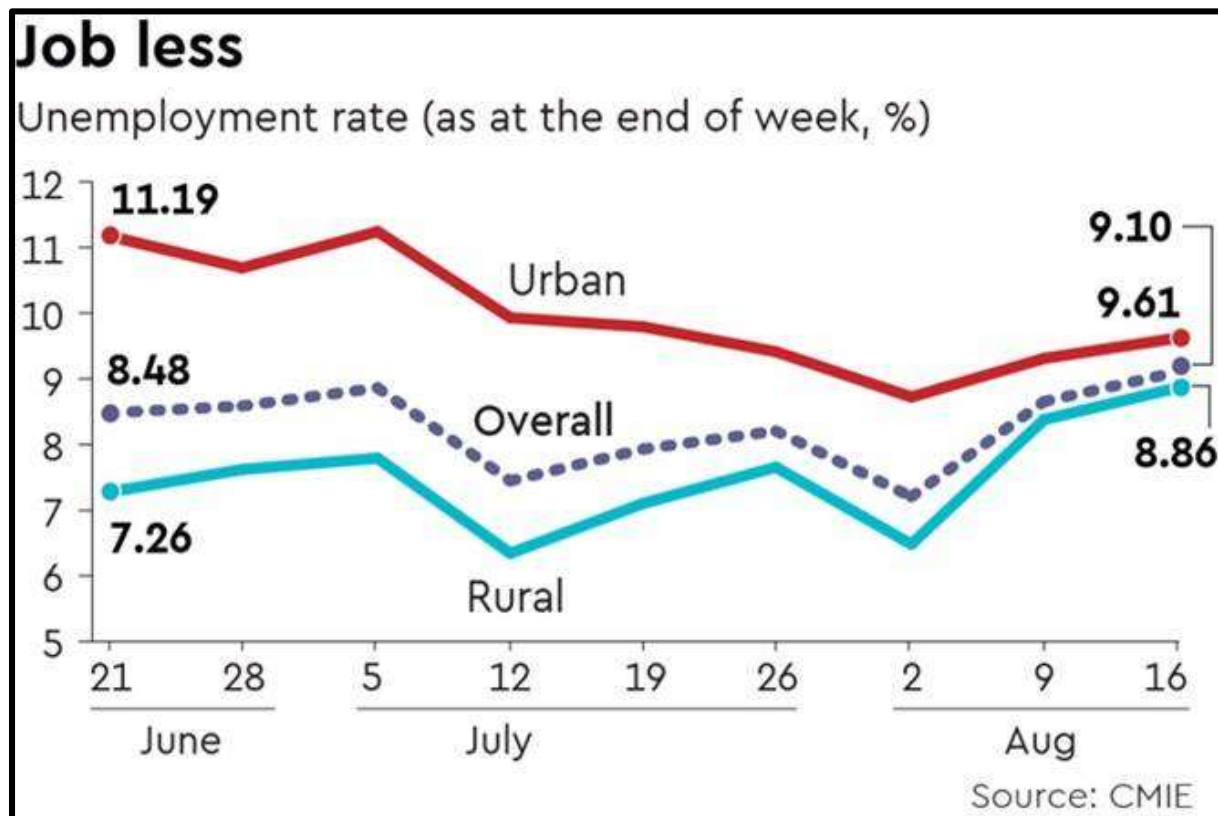
- These deal with the socio-economic rights that guarantee equal conditions and treatment.
- They are not rights directly possessed by individuals but constitute positive duties upon the government to respect and fulfil them.
- Major acknowledgement of those rights came post Second war and is found in Articles twenty two to twenty seven of the UDHR and therefore the International Covenant on Economic, Social, and Cultural Rights

Third generation:

- Collective-developmental rights or commonality rights of peoples and teams control against their individual states aligns with the ultimate religious doctrine of “fraternity”.
- Broad class of rights that have gained acknowledgment in international agreements and treaties but are more contested than earlier two.
- They can be found in documents like 1992 Rio Declaration on Environment and Development, and the 1994 Draft Declaration of Indigenous Peoples’ Rights.

Topic 16. THE EMPLOYMENT & UNEMPLOYMENT STATUS OF INDIA

Importance for Prelims: Economy



A quick explore the recently free Periodic Labour Force Survey (PLFS) reveals a decline within the percentage from five.8 per cent in 2018-19 to four.8 per cent in 2019-20.

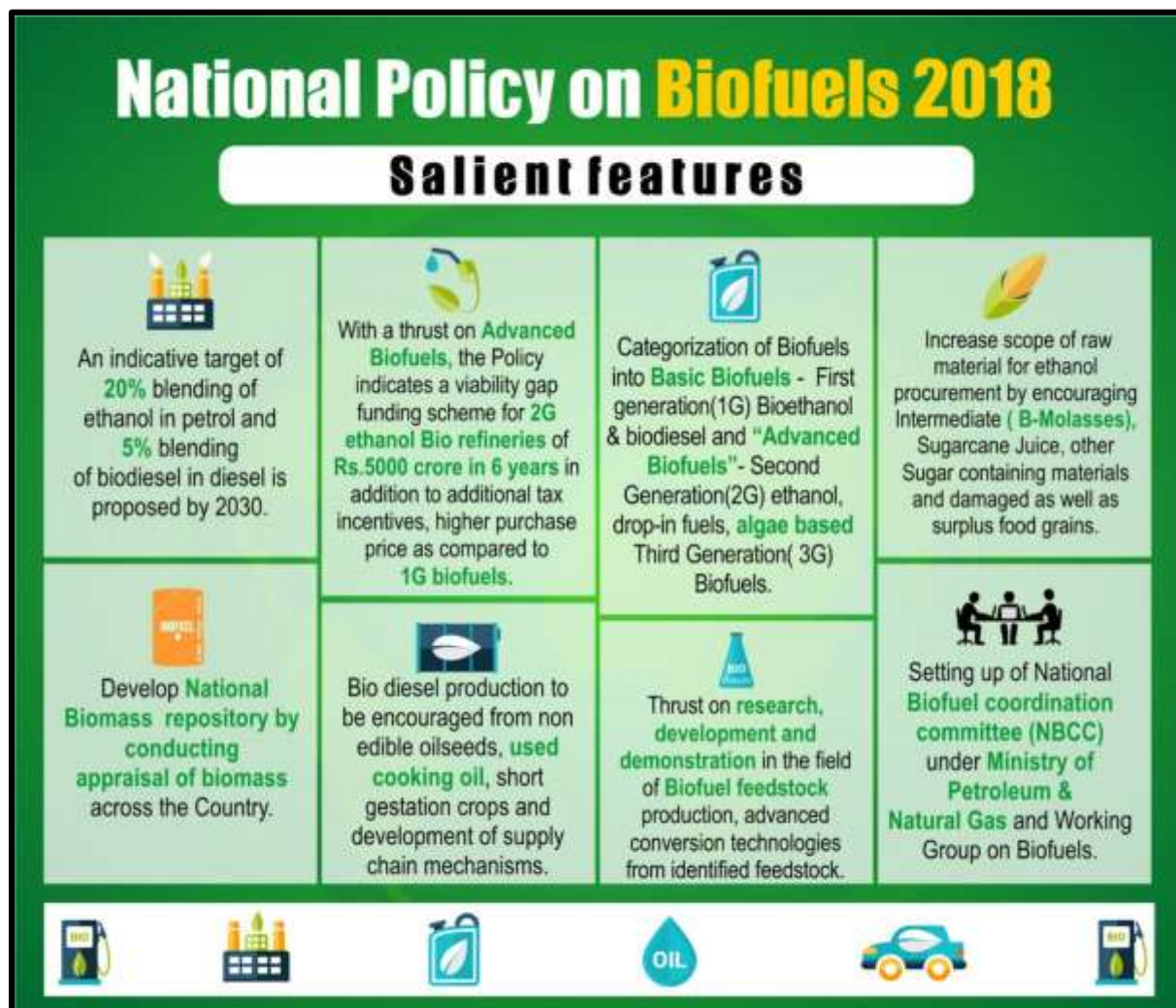
- The fall in the unemployment rate from the 45 year high of 6.1 per cent as reported in the first PLFS (2017-18) is indeed a respite.
- Causes of lower percentage the lower percentage (based on usual standing approach) seems to be a consequence of economic distress and lack of profitable employment opportunities that have pushed jobseekers into low productivity and low paying work, thereby exasperating the challenge of under-employment.
- Under-employment Underemployment is a measure of employment and labor utilization in the economy that looks at how well the labor force is

being used in terms of skills, experience, and convenience to figure.

- It refers to a scenario within which people are unit forced to figure in low-paying or low ability jobs. Visible underemployment and invisible underemployment are unit styles of underemployments.
- Underemployment will be caused by a range of things, from economic recessions to business cycles.

Topic 17. NATIONAL POLICY ON BIOFUELS

Importance for Prelims: Environment



The Minister of State for Petroleum and Natural Gas, Shri Rameswar Teli in a written reply to a question in the Lok Sabha today informed that the National Policy on Bio-fuels, 2018 envisages creation of a National Biomass Repository by conducting appraisal of biomass across the Country.

- Technology data, prognostication and Assessment Council (TIFAC), Associate in Nursing autonomous organisation beneath Department of Science and Technology (DST) has revealed a study report titled 'Estimation of Surplus Crop Residue in Asian nation for Biofuel Production' put together with Indian Agriculture analysis Institute (IARI).

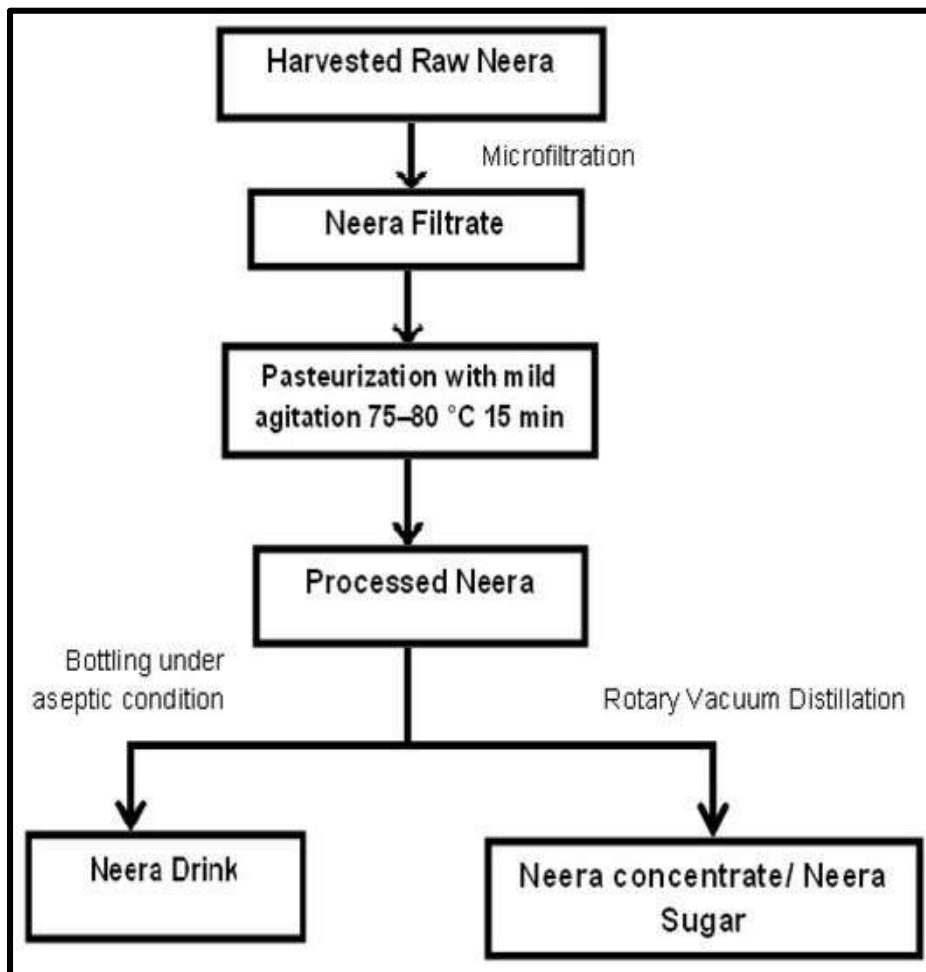
- TIFAC together with National Remote Sensing Centre (NRSC), Hyderabad has dispensed Associate in Nursing estimation of residual biomass and its energy potential on PAN Asian nation basis on an additional disaggregated at A level of one sq. kilometer through spatial data system.
- This has focussed on four major crops specifically rice, wheat, sugarcane and cotton.
- The Government has allowed acquisition of fermentation alcohol made from alternative nonfood feedstocks besides syrup, like plastic and lignocellulosic materials together with organic compound route.
- Oil PSUs have entered into memo of Understanding with State Governments and Technology suppliers for 2G fermentation alcohol bio-refineries.
- Oil Public Sector Undertakings (PSUs) have planned to line up second generation (2G) fermentation alcohol bio-refineries to enhance fermentation alcohol provides for fermentation alcohol blended gasoline (EBP) Programme at pitched battle in Haryana, Bathinda in Punjab, Bargarh in Odisha, Numaligarh in Assam and Davangere in Karnataka.
- Government has approved backing of Rs. one hundred fifty large integer every to four industrial comes at Bathinda (Punjab) of HPCL, Panipat (Haryana) of IOCL, Bargarh (Odisha) of BPCL and Numaligarh (Assam) of agency &Rs15 large integer to one demo plant at Panipat (Haryana) of IOCL below the Pradhan Mantri JI-VAN Yojana National Policy on Biofuels.
- The new National Policy on Biofuels had a target of twenty per cent mixing of ethyl alcohol in gasoline and five per cent mixing of

biodiesel in diesel by 2030.

- This was to be achieved by increasing production exploitation second generation biorefineries and developing new feedstock for biofuels.
- It allowed the assembly of ethyl alcohol from broken food grains like wheat and broken rice, that area unit unfit for human consumption.
- The new policy allowed the utilization of excess grain for ethyl alcohol in a very bounty crop year, farewell because the surplus is supported by the Union Ministry of Agriculture.
- The approval for this is often to lean by the National Biofuel Coordination Committee, chaired by the Union Minister oil and fossil fuel.
- It includes representatives from fourteen different central departments. ethyl alcohol mixing Programme the Ministry of oil & fossil fuel (MoP & NG) vide its notification dated twentieth Sept, twenty06 directed the Oil selling corporations (OMCs) to sell five-hitter ethyl alcohol emulsified gasoline subject to industrial viability as per Bureau of Indian Standards specifications in notified 20 States and four UTs with impact from first Gregorian calendar month, 2006.
- At gift, this programme has been extended to whole of Asian country except Union Territories of Andaman Nicobar and Lakshadweep islands with impact from 01st April, 2019 whereby OMCs sell gasoline emulsified with ethyl alcohol up to 100 percent.

Topic 18. NEERA & COCONUT SAP CHILLER

Importance for Prelims: Geography



An invention by the Kasaragod-based Central Plantation Crops analysis Institute (CPCRI) helps farmers to induce quality sap. ‘Coconut sap chiller’, CPCRI’s invention of collection neera from coconut axis below cool condition mistreatment ice box, has been granted a patent by property of Republic of India.

- One of the major uses of palm trees is the tapping of sap from it to be sold as a beverage.
- In the normal technique, the sap from coconut trees – called neera – is collected in open stuff pots, resulting in its contamination and its fermentation. Neera, additionally referred to as palm nectar, may be a sap extracted from the inflorescence of varied species of mixed drink palms.

and used as a drink.

- Neera extraction is generally performed before sunrise. It is sweet, translucent in colour.
- It is vulnerable to natural fermentation at close temperature inside a couple of hours of extraction.
- Once fermented, neera becomes toddy.
- Neera is widely consumed in India, Sri Lanka, Africa, Malaysia, Indonesia, Thailand, and Myanmar.
- Neera isn't the juice made of palm fruit. it's conjointly known as palm wine in Bharat.
- Neera needs neither mechanical crushing, as within the case of sugarcane, nor natural action, like beet-root; it's obtained by slicing the spathes of the coconut, sago, and palmyra palm (*Borassus flabellifer* L.) palm, and scraping the tendermost half, slightly below the crown.
- Neera is made in carbohydrates, extremely alcoholic largely saccharose, and includes a nearly neutral pH.
- The chemical proportion composition of neera varies, betting on such factors as place, form of palm, mode and season of assortment.
- In geographical area and Gujarat, neera is formed on the market through varied retailers referred to as "Neera Vikri Kendra" (Neera sale centre).
- In the on top of 2 states the neera is extracted from feather palm and pulmyrah trees.
- In the state like Mysore wherever there square measure abounding Coconut trees the Neera is being taped from coconut trees.
- The khaddar and Village Industries Commission (KVIC) promotes neera as a health drink.

- The Central Food Technological analysis Institute developed a technology to preserve neera for 2 months, and also the government plans to push neera as Associate in Nursing energy drink with medicative worth, prepackaged in sachets and bottles.
- In Tamil Nadu, neera which is called as “Padaneer” in Tamil, is traditionally extracted and sold which is also called as kallu. Neera syrup is used as a drink in Ayurveda.

Topic 19. RISING COST IN TEA INDUSTRY

Importance for Prelims: Geography



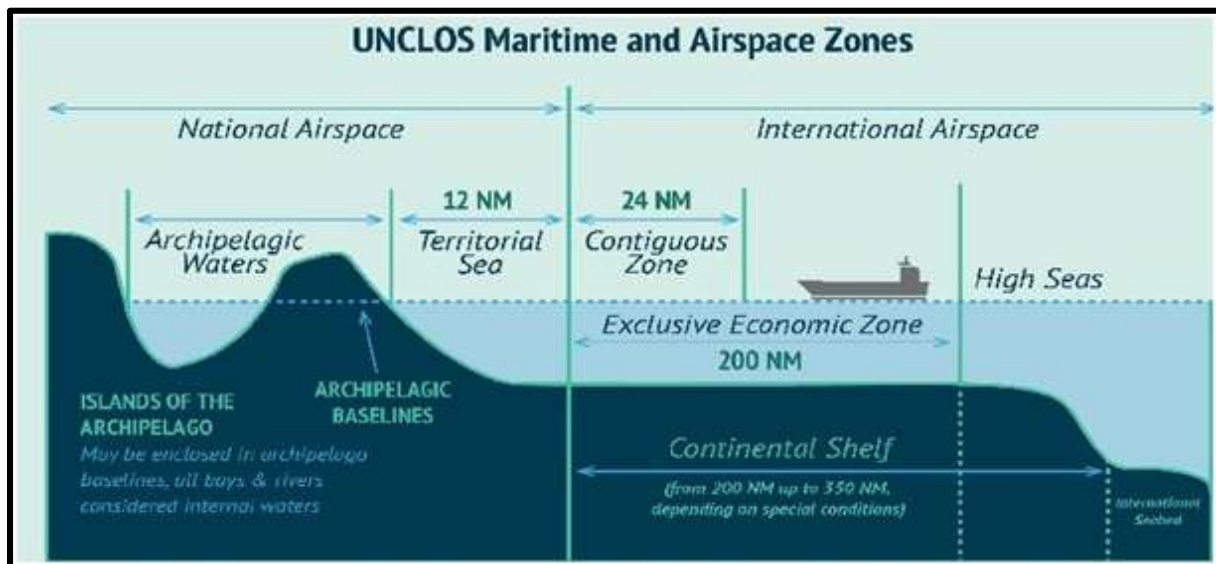
A majority of the majority tea manufacturing firms that operate estates in North Asian nation (Assam and West Bengal), are possible to witness a contraction in margins throughout the present business on the rear of Associate in Nursing multiplied price of production because of increment and call costs.

- The tea industry in North India, which registered 12-13 per cent decline in production last year, had its costs rising by ₹35- 40 a kg.
- However, the average price of tea increased by ₹60- 65 a kg last year Tea is a beverage made from the Camellia sinensis plant.
- It is that the world's most consumed drink, once water.
- It is believed that tea originated in northeast Asian nation, north Myanmar and southwest China, however the precise place wherever the plant 1st grew isn't proverbial.
- There is proof that tea was consumed in China five,000 years ago.
- **Economy:** Tea production and processing constitutes a main source of livelihoods and subsistence for millions in developing and least developed countries.
- It is a labour-intensive sector, providing jobs, especially in remote and economically disadvantaged areas.
- Tea will play a major role in rural development, financial condition reduction and food security in developing countries, being one amongst the foremost vital money crops.
- **Plantation condition:** Tea is a tropical and sub-tropical plant and grows well in moderately hot and humid climates.
- The ideal temperature for its growth is 20°-30°C and temperatures above 35°C and below 10°C are harmful for the bush.
- It requires 150-300 cm annual rainfall which should be well distributed throughout the year.
- The most fitted soil for tea cultivation is slightly acidic soil (without calcium) with porous sub-soil which allows a free percolation of water.
- The major tea-producing states in Asian country are: state, province, Tamil Nadu, Kerala, Tripura, Arunachal Pradesh, Himachal Pradesh,

Karnataka, Sikkim, Nagaland, Uttarakhand, Manipur, Mizoram,
Meghalaya, Bihar, and Orissa.

Topic 20. UN SECURITY COUNCIL ADOPTS FIRST-EVER OUTCOME DOCUMENT ON MARITIME SECURITY UNDER INDIA'S PRESIDENCY

Importance for Prelims: International Relations



The UNSC adopted a 'Presidential (India's) Statement' that reaffirmed that the global organization Convention on the Law of the ocean (UNCLOS) establishes the legal framework for maritime activities

- UNCLOS The United Nations Convention on the Law of the Sea (UNCLOS) is an international treaty which was adopted and signed in 1982.
- It replaced the four Geneva Conventions of April, 1958, that severally involved the territorial ocean and therefore the contiguous zone, the Davy Jones, the high seas, fishing and conservation of living resources on the high seas.
- The Convention has created 3 new establishments on the international scene: the International court for the Law of the ocean the International bed Authority the Commission on the boundaries of the Davy Jones UNCLOS because the presently prevailing law of the ocean is binding fully.

- There are 17 parts, 320 articles and nine annexes to UNCLOS the law of the sea provides for full rights to nations for a 200-mile zone from their shoreline.
- The ocean and oceanic bed extending this space is regarded to be Exclusive Economic Zone (EEZ) and any country will use these waters for his or her economic utilization.
- The U.S. has not accepted UNCLOS thanks to opposition from Republicans within the Senate, wherever treaties should be approved by a two-thirds' vote.

Topic 21. NATIONAL EDIBLE OIL MISSION – OIL PALM (NMEO-OP)

Importance for Prelims: Geography



Terming the government's call to launch a ₹11,000 large integer National Edible Oil Mission – feather palm (NMEO-OP) as a long-delayed one, the representatives from the edible oil sector have urged the Centre to hurry up the method of its implementation to bring down India's dependence on foreign edible oils.

- Current situation India's import bill of edible oils will top ₹1.20-lakh crore this year from ₹75,000 crore last year.
- According to SEA, the country has 3 lakh hectares of land under oil palm cultivation, producing around 2.80 lakh tonnes of crude palm oil (CPO) a year.
- There could be a potential to bring one.9 million hectares of land.

- It had urged the government to target additional 5 lakh hectares in the next five years India currently depends on imports for nearly two thirds of edible oil used in the country.
- “Palm oil accounts for nearly 55 per cent of edible oil imported by India National Edible Oil Mission – Oil Palm (NMEO-OP)
- This may be a large step for feather palm development within the country and towards ‘Atmanirbhar Bharat’ in edible oil Prime Minister Narendra Modi on weekday launched a ₹11,000 large integer National Edible Oil Mission-Oil Palm (NMEO-OP) to create Asian nation self-directed in edible oils.
- The NMEO proposal would aim to reduce import dependence from 60% to 45% by 2024-25, by increasing domestic edible oil production from 10.5 million tonnes to 18 million tonnes, a 70% growth target.
- It projected a 55% growth in oilseed production, to 47.8 million tonnes.
- The government will ensure that farmers get all needed facilities, from quality seeds to technology.
- Along with promoting the cultivation of feather palm, this mission also will expand the cultivation of our different ancient seed crops the NMEO-OP’s precursor was the National Mission on Oil Seeds and feather palm, that was launched at the tip of the UPA government’s tenure and later united with the National Food Security Mission.
- Laying out its achievements, oilseed production had grown 35% from 27.5 million tonnes in 2014-15 to 37.3 million tonnes by 2020-21.
- Although oilseed acreage rose only 8.6% over that six year period, yields rose more than 20% Oil Seed India is one of the major oilseeds grower and importer of edible oils.
- India’s vegetable oil economy is world’s fourth largest when USA, China & Brazil.

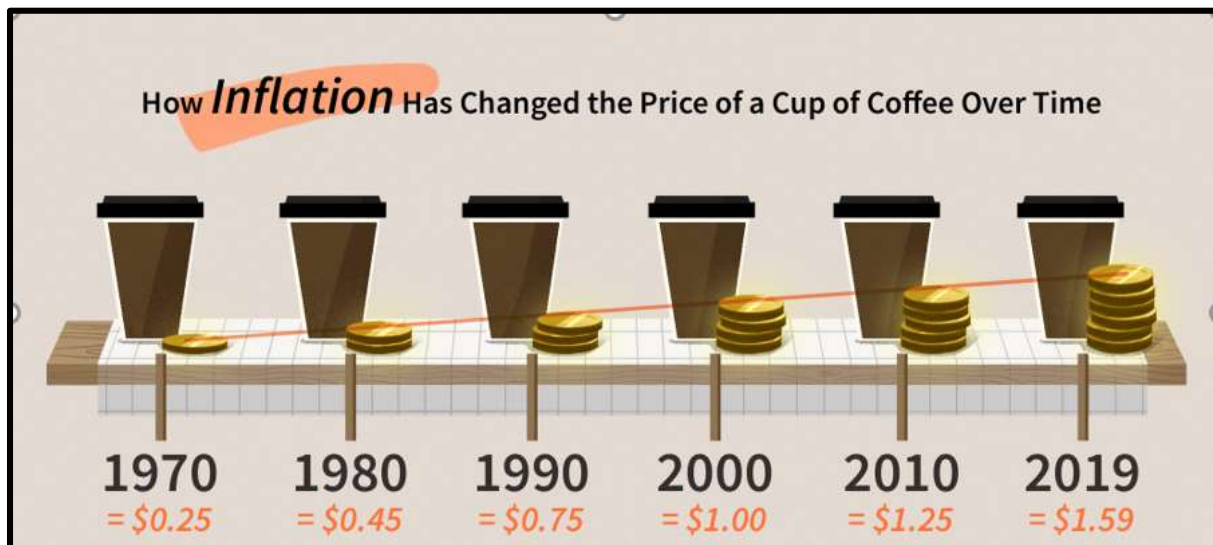
- The oilseed accounts for 13% of the Gross Cropped Area, 3% of the Gross National Product and 10% value of all agricultural commodities.
- The diverse agro-ecological conditions in the country are favourable for growing 9 annual oilseed crops, which include **7 edible oilseeds** (groundnut, rapeseed & mustard, soybean, sunflower, sesame, safflower and niger) and two non-edible oilseeds (castor and linseed).
- Oil seeds cultivation is undertaken across the country in about 27 million hectares mainly on marginal lands, of which 72% is confined to rainfed farming.
- Main oil-seeds created in Republic of India are groundnut, mustard, coconut, plant genus (til), Soyabean, castor seeds, cotton seeds, oilseed and flower. Groundnut may be a kharif crop and accounts for regarding half the key oilseeds created within the country.
- Major states Gujarat, Madhya Pradesh, Rajasthan, Gujarat, Maharashtra, UP
The policy impetus to seed production in Republic of India came for the primary time in 1986 once the govt launched Technology Mission on seed.
- This was a golden period for oilseed production in India when productivity jumped from 670 kg per hectare in the eighties to 835 kg per hectare in the nineties.
- To attain independency in edible oils production the govt. has launched many policy initiatives since the mid-1980s.
- They mainly include supply of high yielding oilseed cultivars, extension services and subsidised inputs; offering of minimum support prices (MSP); fixation of price band; import controls via canalisation; and promotion of oil palm cultivation.
- The outcome of those initiatives, called “Yellow Revolution”, were extremely encouraging. Between 1985 and 1994 the expansion rate

of space, production and yield of oilseeds exaggerated considerably.

- As a result, the proportion of foreign edible oils in total edible oil availableness declined from twenty six.72 per cent in 1985 to a pair of.17 per cent in 1993, thereby creating India nearly self-sufficing in edible drilling seed crops square measure the second most significant determinant of the agricultural economy, next solely to cereals among the phase of field crops.

Topic 22. INFLATION

Importance for Prelims: Geography



In news: There Visible signs of economic rejuvenation and reduced inflation pressures: FM Nirmala Sitharaman The inflation is cooling all the way down to five.78 % in Gregorian calendar month, when hovering round the vi.25-6.3 percent-mark in May-June. Infobahn market borrowing of the Centre and states is below the last business enterprise.

- A robust recovery in tax collections has been witnessed over the past couple of months.

Inflation & its causes in current scenario:

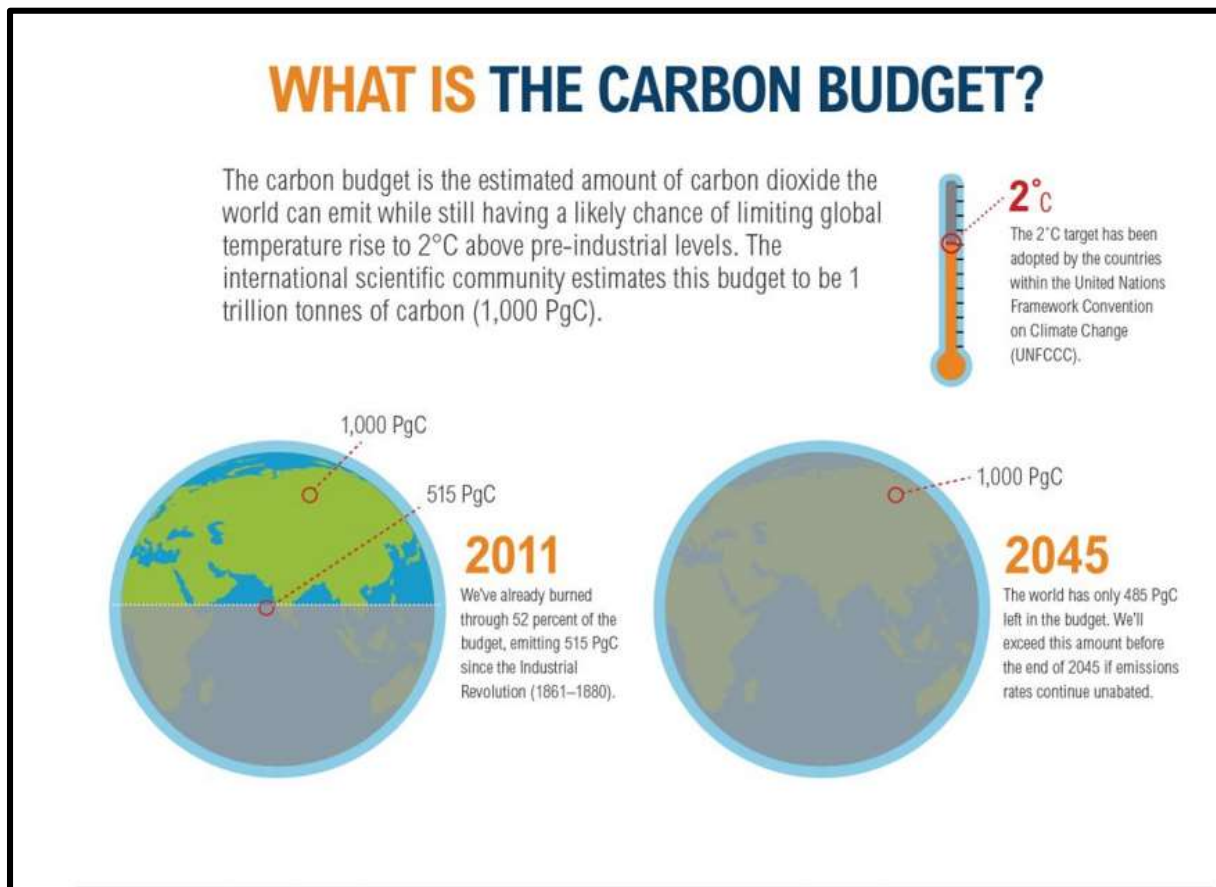
- Inflation refers to the increase within the costs of most product and services of daily or common use, like food, clothing, housing, recreation, transport, shopper staples, etc.
- Inflation is indicative of the decrease within the buying power of a unit of a country's currency.
- This may ultimately result in a retardation in economic process. However, a moderate level of inflation is needed within the economy to confirm that production is promoted.
- Current causes: Inflation in India is being imported through a

combination of high commodity prices and high asset price inflation caused by ultra-loose financial policy followed across the world.

- Foreign portfolio investors have directed a portion of the liquidity towards our markets.
- Compared to a developed capital market such as that of the U.S., India has a relatively low market capitalisation.
- It, therefore, cannot absorb the big capital flow while not quality costs inflating. in addition, provide chain bottlenecks have contributed to inflation.
- Essential merchandise have magnified in value thanks to scarce provide due to these bottlenecks caused by COVID-19 and its reactionary measures enforced . India's taxation policy on fuel has created things worse.
- Rising fuel prices percolate into the economy by increasing costs for transport.
- Furthermore, the rise in fuel costs also will result in an increase in wages demanded because the monthly expense of the overall public will increase.
- This leads to the dangerous cycle of inflation and depleting growth.

Topic 23. CARBON BUDGET

Importance for Prelims: Environment



The world can emit approximately 400 billion tonnes more of carbon dioxide before hitting the 1.5°C limit, as per the IPCC sixth Assessment report.

More about the Report:

- The world presently emits concerning forty GtCO₂ annually.
- The AR6 showed that the globe will emit solely concerning five hundred gigatonnes of dioxide (GtCO₂) beginning Jan one, 2020 for a fifty p.c probability of limiting warming to one.5°C. For a sixty seven p.c probability of avoiding one.5°C, the budget can come back all the way down to four hundred GtCO₂.
- For a fifty p.c probability of limiting temperatures to 2°C, the globe will emit one,350 GtCO₂; and one,150 GtCO₂ for a sixty seven per cent probability.

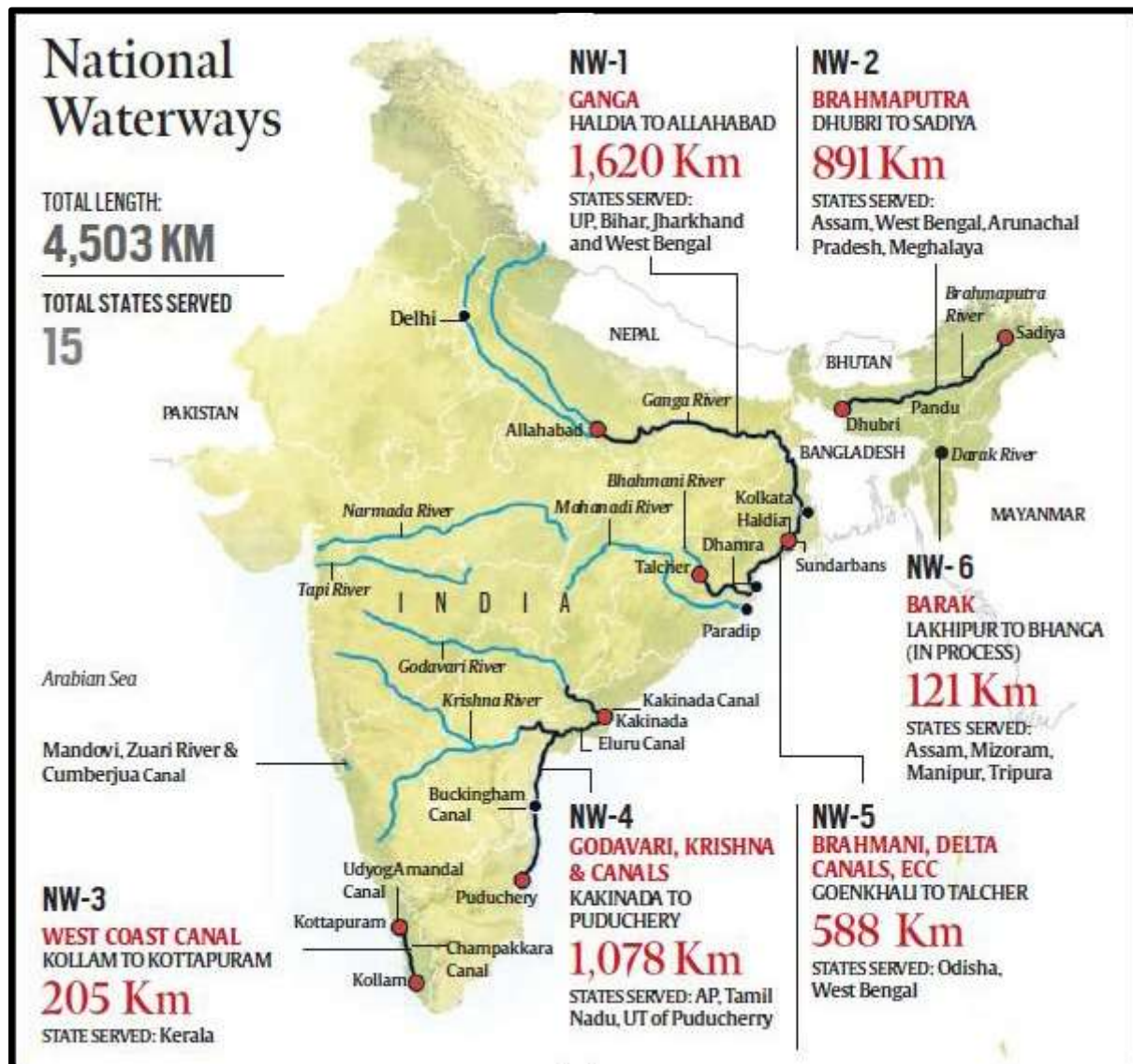
Current

trends additionally purpose to flush countries just like the us, the eu Union and China ingestion into a disproportionate share of the budget whereas developing countries are left with negligible 'carbon space' to enhance their standards of living.

- Economic growth is still inextricably linked to a rise in energy demand, which leads to higher emissions despite dubious claims of 'green growth' and decoupling of gross domestic product and energy use / emissions.
- **Carbon Budget:** A carbon budget is a cumulative amount of carbon dioxide (CO) emissions permitted over a period of time to keep within a certain temperature threshold.
- It is the maximum amount of carbon dioxide (CO₂) that can be emitted while still having a chance to limit warming to 1.5°C or 2°C.
- Carbon budgets are constructed on the premise that there is a near-linear relationship between rising global temperatures and the level of cumulative atmospheric CO₂.
- Carbon budgets are advanced estimates and are generally subject to many uncertainties like the result of non-CO₂ greenhouse gases (GHG) [methane and chemical element oxide]; the cooling result of aerosols; Earth-system feedbacks like carbon free by thawing ground that were typically not enclosed in climate models.

Topic 24. INLAND VESSEL BILL 2021

Importance for Prelims: Geography



The landlocked Vessels Bill, 2021 replaces the landlocked Vessels Act, 1917. It seeks to bring all landlocked waterways in India and movement of vessels on them for any purpose below a central regulative regime.

- **National Waterways** In 2016, the government notified 111 inland waterways as National Waterways of India under the National Waterways Act, 2016. Of these, 13 National Waterways are operational for shipping and navigation and cargo/passenger vessels are moving on them,

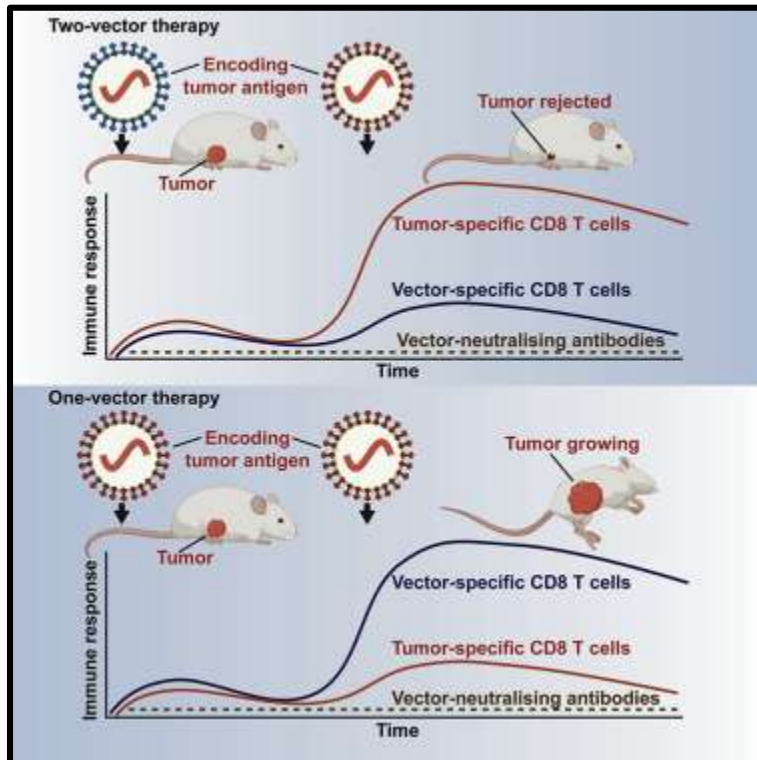
according to the government.

- 2 The Inland Waterways Authority of India under the Ministry of Shipping is developing the National Waterways for commercial navigation, including with assistance from the World Bank.
- National Waterways 1 or NW1 It starts from Allahabad (Prayagraj) to Haldia with a distance of 1620 km.
- The NW 1 runs through the Ganges, Bhagirathi, and Hooghly river system.
- It is the longest National Waterway in India. National Waterways 2 It is a stretch on the Brahmaputra River from Sadia to Dhubri in Assam state.
- The NW 2 is one of the major freight transportation waterways of northeast India and the third-longest Waterways with a total length of 891 km.
- National waterways 3 or the West Coast Canal It is located in Kerala state and runs from Kollam to Kottapuram.
- The 205 km long West Coast Canal is India's first waterway with an all time navigation facility.
- National Waterway 4 It is connected from Kakinada to Pondicherry through Canals, Tank, and River Godavari along with Krishna river.
- The NW 4 the second-longest waterway of India with a total length of 1095 km in Andhra Pradesh and Tamil Nadu.
- National Waterway 5 It connects Orissa to West Bengal using the stretch on Brahmani River, East Coast Canal, Matai river, and Mahanadi River Delta.
- The 623 metric linear unit long canal system can handle the traffic of payload like coal, fertilizer, cement, and iron.
- National waterway 6 It is the proposed waterway in Assam state and will connect Lakhimpur to Bhanga in river Barak.

- The 121 km long waterway will help in trading between the town of Silchar to Mizoram State.
- Inland Waterways Authority of India (IWAI) It was constituted in October 1986, for the development and regulation of inland waterways for shipping and navigation.
- The Authority undertakes numerous infrastructure development works on national waterways.
- It also carries out feasibility studies and prepares proposals for declaration of other waterways as National Waterways.
- It conjointly assists States in development of the IWT sector and provides subsidies to IWT operators for effort IWT fleet for transportation of payload and passengers. Its headquarters is found in Noida, UP.

Topic 25. HETEROLOGOUS BOOSTING

Importance for Prelims: Science and Technology



Mixing Covishield and Covaxin, the 2 main vaccines against Covid-19 in use in India, has found by a replacement ICMR study to be safe and additionally to produce higher immunity.

- **Heterologous boosting** The idea of heterologous boosting initially emerged in Europe, Vaccine platforms may vary in their ability to induce antibody and T-cell response.
- If one platform induces a preponderantly protein response, specialists say it will be followed by a platform that induces preponderantly a T lymphocyte response (e.g. vector and polymer vaccines). Such heterologous ways square measure being studied in HIV, malaria, animal virus (e.g. dengue), HPV, VHF and respiratory illness.
- **Mixing Covishield and Covaxin** Covishield is an adenovirus vector platform-based vaccine, while Covaxin is an inactivated whole virus vaccine.

- This study demonstrates that protection with a heterologous combination of AN animal virus vector platform-based immunogen followed by AN inactivated whole virus immunogen is safe and elicits higher immunogenicity than 2 doses of homologous vaccination, victimisation a similar vaccines Covishield can trigger solely AN opposing-spike supermolecule response (and after all anti - animal virus response).
- Covaxin used as a booster in principle should boost antispikes response further and generate a primary response against all other SARS-CoV-2 proteins which are part of the Covaxin preparation.
- The ICMR information within the preprint shows that heterologous vaccination will so trigger AN anti-N-protein response because of a lift with Covaxin.
- However any information are required to state that heterologous vaccination strategy for Covishield and Covaxin combination is helpful Impact consistent with the globe Health Organization, there's presently restricted information on the immunogenicity or effectiveness of a “mix and match” program.
- Experts caution that mixing should not be randomly done but should be based on understanding multiple issues.

Topic 26. ILLEGAL MIGRANT

Importance for Prelims: Polity

There area unit reports of some Rohingya migrants gratification in outlawed activities, consistent with a written reply from the Ministry of Home Affairs within the Lok Sabha on weekday

- Under the 1951 international organization Convention on the standing of Refugees and also the resultant 1967 Protocol, the word expatriate pertains to someone United Nations agency is outside their country of origin and unable or unwilling to come back as a result of tenable worry of maltreatment for reasons of race, religion, status, membership of a selected group or political opinion.
- Stateless persons may additionally be refugees during this sense, wherever country of origin (citizenship) is known as ‘country of former habitual residence’.
- Under the Citizenship Act AN “illegal migrant” is outlined as a foreigner United Nations agency has entered into India— while not a legitimate passport or alternative travel documents and such alternative document or authority as could also be prescribed by or below any law therein behalf; or with a legitimate passport or alternative travel documents and such alternative document or authority as could also be prescribed by or below any law therein behalf however remains in that on the far side the allowable amount of your time.
- An extrajudicial migrant is excluded from the acquisition of citizenship through birth, registration, or naturalization.
- There is not any program to grant citizenship to extrajudicial migrants or their kids. Bharat|Bharat|Asian country|Asian nation} & international organization convention India has welcome refugees within the past, and

on date, nearly 300,000 individuals here area unit categorized as refugees.

- But Asian country isn't a mortal to the 1951 international organization Convention on the standing of Refugees and therefore the succeeding 1967 Protocol.
- Nor will Asian country have a exile policy or a exile law of its own.
- The nighest Asian country has return to a exile policy in recent years is that the Citizenship modification Act, 2019, that discriminates between refugees on the premise of faith in providing them Indian citizenship.
- All foreign nationals (including refuge seekers) area unit ruled by the provisions contained within the Foreigners Act, 1946; the Registration of Foreigners Act, 1939; the Passport (Entry into India) Act, 1920 and therefore the Citizenship Act, 1955, and rules and orders created under it.

Topic 27. UJJWALA 2.0

Importance for Prelims: Government Schemes

Prime Minister Narendra Modi on Tuesday launched the second phase of the Ujjwala gas connection scheme for the poor, and said that it would provide the biggest relief to lakhs of migrant worker families in the country.

- Under the scheme, an adult woman belonging to a poor family not having LPG connection in her household, is an eligible beneficiary under the expanded scheme.
- It is to provide LPG (liquefied petroleum gas) connections to poor households.
- A deposit-free LPG association is given to the eligible house with monetary help of Rs one,600 per association by the Centre. Unleash of LPG association underneath this theme shall be within the name of the ladies happiness to the BPL family.
- The theme can cowl BPL families underneath all types of distributorship and for numerous sizes of cylinders (like fourteen.2 kg, 5 kg, etc.) betting on f the sector state of affairs.
- The association shall be issued by the OMC to the eligible beneficiaries by matching with SECC – 2011 info LPG infrastructure has distended manifold within the country because of the Ujjwala theme.
- In the last six years, more than 11,000 new LPG distribution centres have opened across the country.
- The LPG coverage in India is now very close to becoming 100 per cent.
- Under Ujjwala two.0 (Pradhan Mantri Ujjwala Yojana), migrant staff would now not ought to struggle to urge address proof documents to urge the gas connections.
- Only self-declaration currently migrant staff would solely be needed to submit a self-declaration of their residential address to urge the

gas association

Topic 28. SMILE – SUPPORT FOR MARGINALIZED INDIVIDUALS FOR LIVELIHOOD AND ENTERPRISE

Importance for Prelims: Science and Technology



The Ministry of Social Justice and management has developed a theme “SMILE – Support for Marginalized people for resource and Enterprise”, which has subschema – ‘Central Sector theme for Comprehensive Rehabilitation of persons engaged within the act of Begging’.

- A theme “SMILE – Support for Marginalized people for resource and Enterprise” developed which has sub theme – ‘Central Sector theme for Comprehensive Rehabilitation of persons engaged within the act of Begging’.
- Focus of the theme is on rehabilitation, provision of medical facilities, substance, basic documentation, education, ability development, economic linkages etc.
- Pilot projects initiated on Comprehensive Rehabilitation of Persons engaged in the act of Begging in ten cities namely Delhi, Bangalore, Chennai, Hyderabad, Indore, Lucknow, Mumbai, Nagpur, Patna and

Ahmadabad.

- This scheme covers several comprehensive measures including welfare measures for persons who are engaged in the act of begging.
- The scheme would be implemented with the support of State/UT Governments/Local Urban Bodies, Voluntary Organizations, Community Based Organizations (CBOs) institutions and others.
- Scheme provides for the use of the shelter homes available with the State/UT Governments and Urban local bodies for rehabilitation of the persons engaged in the act of Begging.
- In case of non-availability of existing shelter homes, new dedicated shelter homes are to be came upon by the implementing agencies.
- Under this theme, funds allotted for successive 5 years

Topic 29. TRIBAL SUB-PLAN (TSP)

Importance for Prelims: Government Schemes



Government is implementing Tribal Sub-Plan (TSP)/Schedule Tribe Component (STC)/Development Action Plan for Development of Scheduled Tribes (DAPSTs) for overall development of tribal people across the country including North Eastern Region (NER).

- Tribal Sub-Plan came into existence in 1974-75 as a technique for the event of areas having social group concentration.
- After merger of Plan and Non-Plan, the TSP was renamed as Scheduled Tribe Component (STC) by Ministry of Finance.
- 41 Central Ministries / Departments have been identified for earmarking of STC.

- Besides, State Governments are supposed to earmark TSP funds in proportion to ST population (Census 2011) in the State with respect to total State Plan.
- The monitoring of TSP plan was being done by erstwhile Planning Commission till 2017-18, it was only in FY 2018-19, the monitoring of STC plan was given to Ministry of Tribal Affairs.
- The Government allocates funds for various schemes/programmes across Ministries/ Departments for targeted monetary and physical advantages to the regular Tribes.
- Ministry of Tribal Affairs launched an online portal – Scheduled Tribe Component Management Information System (STCMIS) in 2018.
- The portal monitors the funds allocated/released for welfare of Scheduled Tribes in Union Budget.
- The basic objective of Schedule Tribe part is to channelize/monitor the flow of outlays and advantages from the overall sectors within the Central Ministries/Departments for the event of Schedules Tribes a minimum of in proportion to their population.
- Ministry of Development of North jap Region as per its TSP mandate of twenty seven.18% expenditure of its theme, by implementing variety of comes within the physical infrastructure with reference to facility, power, property, specially the comes promoting business and social sector for creation of infrastructure within the areas of primary and secondary sectors of education and health, ensuing upliftment of the social group population within the NER.

Topic 30. A CONFLICTING PICTURE BETWEEN FUNDAMENTAL RIGHT OF CHILDREN AND RIGHT OF MINORITY COMMUNITIES

Importance for Prelims: Polity

The National Commission for Protection of Child Rights (NCPCR) has released a report — The “Impact of Exemption below Article fifteen (5) with regards to Article 21A of the Constitution of India on Education of youngsters in Minority Communities”

- The National Commission for Protection of Child Rights has assessed minority schools (schools run by minority organisations) in the country.
- Minority faculties are exempt from implementing the correct Education policy and don't constitute the government's Sarva Shiksha Abhiyan.
- Through this report, the NCPCR has recommended that these schools be brought under both RTE and Sarva Shiksha Abhiyan.
- Conflicting picture between fundamental right of children and right of minority communities In 2002, the 86th Amendment to the Constitution provided the Right to Education as a fundamental right.
- The same amendment inserted Article 21A, which made the RTE a fundamental right for children aged between six and 14 years.
- The passage of the change was followed by the launch of the Sarva Shiksha Abhiyan (SSA), a central government theme enforced in partnership with the state governments that aimed to produce “useful and relevant, elementary education” to any or all youngsters between six and fourteen years. Article 21A that guarantees elementary right of education to any or all youngsters, and Article thirty that permits minorities to line up their own establishments with their own rules and Article fifteen (5) that exempts minority faculties from RTE – as” making a conflicting image between elementary right of

youngsters and right of minority communities’”.

- In 2006, the 93rd Constitution modification Act Inserted Clause (5) in Article fifteen that enabled the State to form special provisions, like reservations for advancement of any backward categories of voters like scheduled Castes and scheduled Tribes, altogether assisted or unaided instructional institutes, except minority instructional institutes.
- The government subsequently brought the Right to Education (RTE) Act, 2009, which centres around inclusive education for all, making it mandatory to include underprivileged children in schools.
- Section 12(1)(c) of the RTE Act provided for 25 percent reservation of seats in unaided schools for admission of children from economically weaker sections and disadvantaged groups.
- As hostile these Acts, Article thirty of the Constitution states the correct of minorities to determine and administer instructional establishments, with a read to supply opportunities to kids from completely different non secular and linguistic minority communities to possess and conserve a definite culture, script and language.
- Subsequently, in 2012, through associate modification, the establishments transmission non secular education were exempted from following the RTE Act.
- Later on, in 2014, whereas discussing the validity of exemption underneath Article fifteen (5), the Supreme Court declared the RTE Act unsuitable to colleges with minority standing with the read that the Act shouldn't interfere with the correct of minorities to determine and administer establishments of their selection.

Topic 31. ADJOURNMENT SINE DIE

Importance for Prelims: Polity

Both houses of Parliament were adjourned trigonometric function die weekday, 2 days before schedule, once a Monsoon Session that was unendingly noncontinuous by Opposition protests over the Pegasus snooping row, farm laws and alternative problems.

- Adjournment associate adjournment suspends the add a sitting for a fixed time, which can be hours, days or weeks. during this case, the time of refabrication is fixed.
- An adjournment solely terminates a sitting and not a session of the House.
- The power of adjournment lies with the presiding officer of the House.
- Adjournment trigonometric function Die Adjournment trigonometric function die suggests that terminating a sitting of Parliament for associate indefinite amount.
- In other words, when the House is adjourned without naming a day for reassembly, it is called adjournment sine die.
- The power of adjournment sine die lies with the presiding officer of the House.
- **Note:** The presiding officer of a House can call a sitting of the House before the date or time to which it has been adjourned or at any time after the House has been adjourned sine die.

Topic 32. EOS-03

Importance for Prelims: Science and Technology

GSLV-F10 / EOS-03		
ISRO		
GSLV-F10 FLIGHT SEQUENCE		
Events	Time	Inertial Velocity (m/s)
Strap-ons Ignition	-4.8 s	451.9
S139 Ignition	0	451.9
Strap-Ons Shut-off	2 min 29 s	2689.3
Second Stage Ignition	2 min 30 s	2689.9
First Stage Separation	2 min 31 s	2688.8
Payload Fairing Separation	3 min 55 s	3813.7
Second Stage Shut-Off	4 min 51 s	5187.6
Second Stage Separation	4 min 55 s	5206.5
Cryo Upper Stage Ignition	4 min 56 s	5206.0
Cryo Upper Stage Shut-Off	18 min 24 s	10204.9
Cryo Upper Stage Burn out	18 min 29 s	10204.6
EOS-03 Separation	18 min 39 s	10196.1

Since the start of the happening in March last year, Indian house analysis Organisation (ISRO) has managed simply 2 launches — the world observation satellite EOS-01 last November, and therefore the one in February this year once eighteen little satellites, primarily of alternative countries, were sent into house.

- An earth observation satellite can transport board a GSLV rocket may be a fairly routine event. EOS-03 is being sent prior to EOS-02, that has

been delayed.

- EOS-02 is now scheduled for a launch in September-October. That launch will try out a new rocket — SSLV, or small satellite launch vehicle. Though India has developed four rockets till now — SLV, ASLV, and different versions of PSLV and GSLV — only two are currently operational.
- The SSLV is meant to cater to the increasing demand for launch of little satellites, primarily from businesses and universities; it prices abundant less and consumes less energy.
- EOS-03, an earth observation satellite, into a geostationary orbit.
- The refrigerant higher stage has AN indigenously developed refrigerant engine fuelled by liquid element and atomic number 8 at terribly low temperatures
- EOS-03, a part of the new generation of earth-observation satellites, was meant to produce nearly period pictures of enormous elements of the country that would be used for observation of natural disaster like floods and cyclones, water bodies, crops, vegetation and forest cowl.
- This was the 14th launch involving a GSLV rocket and fourth failure.
- This rocket, the Mark-II version of GSLV, was last used to successfully launch GSAT-7A, a communication satellite, in December 2018.

Topic 33. EPONYMS IN ECONOMY

Importance for Prelims: Economy

Unexpected Eponyms

An eponym is a word derived from someone's name.
Many eponyms are obvious, but here are some not so obvious ones.

<h4 style="text-align: center;">Dunce</h4> <p>Originally '<i>Duns man</i>', from the followers of medieval Scottish theologian John Duns. During the English Reformation of the 1500s, the term was coined to disparage university students who studied his works.</p>	<h4 style="text-align: center;">Mesmerize</h4> <p>Derived from the name of German physician Franz Mesmer. In the 1700s, Mesmer developed a pseudoscientific theory called animal magnetism, which formed the basis for his hypnotic medical practices.</p>
<h4 style="text-align: center;">Pants</h4> <p>From Pantalone, a stock character of <i>commedia dell'arte</i>. The Pantalone character was a rich old man who, as part of his standard costume, wore a pair of red trousers, which were unusual leg wear at that time.</p>	<h4 style="text-align: center;">Masochism</h4> <p>Named after Austrian author and nobleman Leopold von Sacher-Masoch. In 1870 he published <i>Venus in Furs</i>, a semi-biographical novella about a masochistic man. The term was later coined by Richard von Krafft-Ebing based on the book.</p>

Modern language is simply peppered with eponyms. When you talk about

What is an eponym?

- A word derived from the proper name of a person most closely associated with the phenomenon is called an eponym '**Matthew's law**' is summarized by the adage "the rich get richer and the poor get poorer"
Hick's Law is a simple idea that says that the more choices you present your users with, the longer it will take them to reach a decision
Giffen good is a product that people consume more of as the price rises and vice versa—violating the basic law of demand in microeconomics.

Topic 34. CRYPTO TOKENS

Importance for Prelims: Economy



Hackers accomplished the most important ever crypto currency heist on Tues, stealing \$613 million in digital coins from token-swapping platform Poly Network, solely to come \$260 million value of tokens but twenty four hours later, the corporate aforesaid

- Poly Network Poly Network is a decentralized finance (DeFi) platform that facilitates peer-to-peer transactions with a focus on allowing users to transfer or swap tokens across different block chains Poly Network operates on the Finance Smart Chain, Ethereum and Polygon block chains.
- Tokens are swapped between the block chains using a smart contract which contains instructions on when to release the assets to the counterparties. Crypto tokens Crypto tokens are a type of crypto currency that represents an asset or specific use and resides on their block chain.

- Tokens can be used for investment purposes, to store value, or to make purchases.
- Crypto currencies are digital currencies used to facilitate transactions (making and receiving payments) along the block chain A crypto token is a virtual currency token or a denomination of a crypto currency.
- It represents a tradable asset or utility that resides on its own block chain, and allows the holder to use it for investment or economic purposes.
Purpose of Tokens Crypto tokens can be used to represent an investor's stake in the company or they can be used for an economic purpose, just like legal tender.
- This means token holders can use them to make purchases or they can trade tokens just like other securities to make a profit.
- Bitcoin is a crypto currency, which has virtual tokens or coins that can be used to trade or make purchases.
- Difference between a Crypto Coin and Token Crypto coins permit people to create payments exploitation their digital currency.
- People can use tokens, though, for trading, to hold and store value, and, of course, to use as a form of currency.
- Tokens that reside on block chains include reward tokens, currency tokens, utility tokens, security tokens, and asset tokens

Topic 35. 5G

Importance for Prelims: Technology

The launch of economic 5G in Asian nation has the potential to extend the median transfer speed by up to ten times compared to the transfer speeds offered presently by 4G-LTE (long term evolution) networks, international net testing Ookla aforesaid in a very report

- As per international net testing Ookla aforesaid in a very report fiveG can bring a substantial bump to overall speeds within the country The operator's median transfer speeds have enlarged from 5.96 Mbps in March 2021 to thirteen.08 Mbps in June
- The adoption of Open RAN system by the Indian operators will further aid in bringing down the overall cost of 5G rollout. 5G 5G or fifth generation is the latest upgrade in the long term evolution (LTE) mobile broadband networks.
- The first generation of networks allowed only mobile voice calls to be made, while the second generation allowed mobile voice calls as well as sending of short text messages.
- It was the third generation or 3G network that allowed net browsing on mobile devices, the speed and latency of that improved with fourth-generation or 4G networks.
- The 5G networks will have even faster speeds with latency down to between 1-10 milliseconds.
- **Note:** Latency is the time a device takes to communicate with the network, which stands at an average of up to 50 milliseconds for 4G networks across the world.

How does 5G work?

- All 5G networks chiefly operate on three spectrum bands.
- The low-band spectrum has been proven to have great coverage and

works fast even in underground conditions.

- However, the maximum speed limit on this band is 100 Mbps (Megabits per second).
- In the mid-band spectrum, tho' the speeds are higher, telcos across the planet have registered limitations once it involves coverage space and penetration of phone signals into buildings.
- The high-band spectrum offers the highest speed but has extremely limited network coverage area and penetration capabilities.
- The telcos using this band rely on the existing LTE networks and will need to install a number of smaller towers to ensure adequate coverage and high-speed performance.

Where will India stand on the readying of 5G?

- Companies, each telecommunication service suppliers and their instrumentality vendors, have completed research laboratory trials of 5G network parts however are nonetheless to start field trials, that were at the start regular to happen last year.
- For the same, telecom companies are awaiting allocation of test spectrum from the Department of Telecommunications (DoT).
- The service providers have already tied up with equipment makers like Nokia, Ericsson, etc. for deploying their 5G networks

Topic 36. PORT OF NINGBO

Importance for Prelims: Geography



In what might probably threaten international provide chains and impact maritime trade, China has part stop working the world's third-busiest instrumentation port when a employee there tested positive for Covid-19. The Meishan terminal at Ningbo-Zhoushan port, that is south of Shanghai, accounts for over a fourth of the instrumentation merchandise handled at the Chinese port.

- The Port of Ningbo-Zhoushan is a port that is the busiest in the world in terms of cargo tonnage.
- It handled 888.96 million tons of cargo in 2015.
- The port is found in Ningbo and Zhoushan, on the coast of the East China ocean, in Zhejiang province on the southeast finish of Hangzhou Bay, across that it faces the municipality of Shanghai Ningbo Port was established in 738.
- During the Tang Dynasty (618-907), it was known as one of the three major seaports for foreign trade under the name “Mingzhou”, along with Yangzhou and Guangzhou

- The port is at the crossroads of the north-south inland and coastal shipping route, including canals to the important inland waterway to interior China, the Yangtze River, to the north.
- The port consists of several ports which are Beilun (seaport), Zhenhai (estuary port), and old Ningbo harbor (inland river port).
- The Port of Ningbo-Zhoushan complex is a modern multi-purpose deep water port, consisting of inland, estuary, and coastal harbors.

Topic 37. GM SOYBEAN

Importance for Prelims: Science and Technology

GM Soybeans

- The US, in 1996, was the first country to plant GM soybeans. The US is the world's leading producer of soybeans, producing 33% of the soybeans overall in 2007. The US is followed by Brazil. GM soybean crops cover more than 60 million hectares of farm land around the world. These soybeans are genetically modified to be herbicide resistant such as the Roundup Ready® Soybean variety from Monsanto.
- The GM soybeans are mainly used as livestock feed. They are used in products of tofu and soy sauce. Soybeans are important for their use as an emulsifier, which aids in the mixture of oil and water, which is put in products such as ice cream, chocolate, and margarine.



<http://www.treehugger.com/gm-soybeans.jpg>



<http://www.foodmag.com.au/Uploads/PressReleases/food/Images-20090323/soya.jpg>

With the soya costs soaring, crossing the ₹1 hundred thousand (a tonne) mark, poultry breeders have written associate degree SOS to the govt., soliciting for permission to import gramme soyameal from the US, Brazil and Argentina

- GM soybean is one of the most widely planted genetically modified plants in the world today.
- The GM soybean, otherwise called as the Roundup Ready (RR) soybean, was developed by the biotech giant Monsanto and made it commercially available to farmers in 1996.
- It was developed to create the plant survive being sprayed on with the non-selective chemical, Roundup, which

might kill typical soybean plants. gramme Soybean was developed by introducing a duplicate of a factor from the bacteria genus sp. strain CP4.

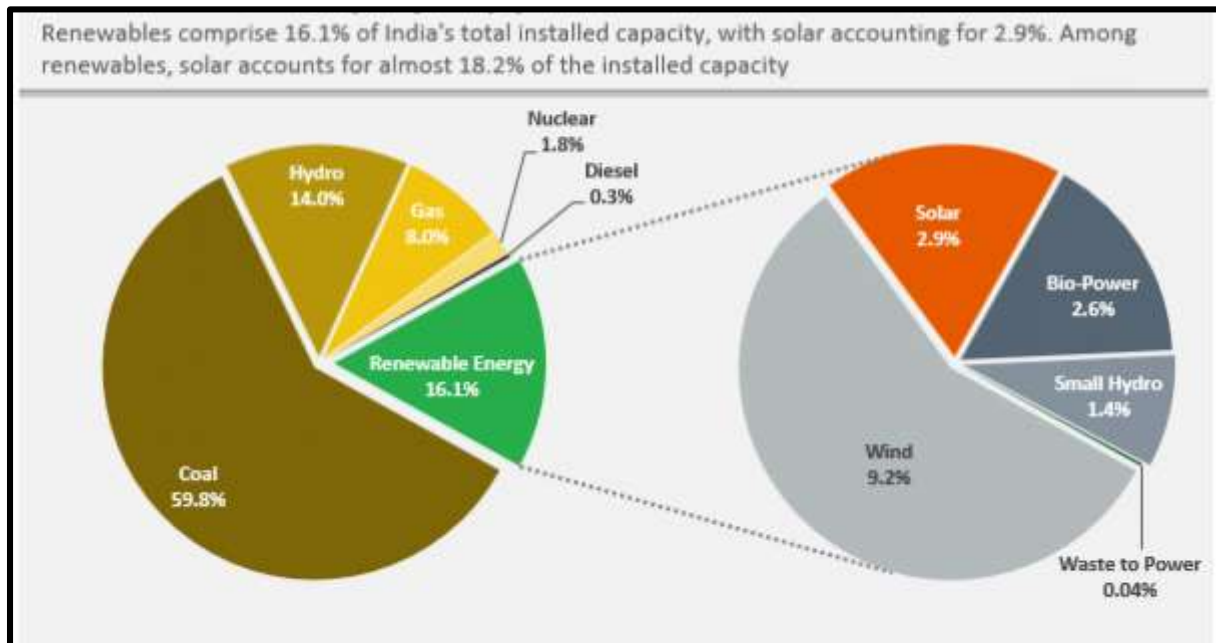
- Conventional soybean has a similar gene in its DNA but is sensitive to glyphosate, the active ingredient of the herbicide Roundup.
- With the insertion of the CP4 version of the cistron, the g soybean was ready to develop resistance to the Roundup weed killer.
- Need The rising prices of soya meal has put the poultry industry in a fix as it constitutes about 25 per cent of all the feed needs of a poultry farm.
- The natural event of COVID-19 has created a huge crisis that light-emitting diode to Associate in Nursing initial depletion of demand in chicken merchandise as a result of false news concerning the linkage between the virus and poultry merchandise.
- **Approval method for g crops in India:** The Union Ministry of Fisheries, farming and agriculture early this month, seeking permission to import concerning one.5 million tonnes of soybean plant de-oiled cake/meal extracted from the g soybean plant seed.
- The atmosphere Ministry aforementioned that it didn't have any objection (to import soybean plant meal) since it didn't contain any living changed organism.
- In India, the Genetic Engineering Appraisal Committee (GEAC) is the apex body that allows for commercial release of GM crops.
- Use of the unapproved GM variant can attract a jail term of 5 years and fine of Rs. 1 lakh under the Environment Protection Act, 1986.
- Food Safety and Standards Authority of India|Bharat|Asian country|Asian nation} (FSSAI) is that the authorised body to

manage the foreign crops in India.

- The FSSAI aforementioned that something that is non-food (not consumed by humans) isn't underneath our ambit
- The Union government has allowed poultry breeders to import one.5 million tonnes of de-oiled cake manufactured from genetically changed soybean plant.

Topic 38. STATUS OF THE TOTAL RENEWABLE ENERGY CAPACITY IN THE COUNTRY

Importance for Prelims: Economy



There has been a marked increase in new capability additions of wind and solar, significantly top side star, within the half-moon of FY21.

- Total renewable energy capability within the country was, as of Gregorian calendar month thirty one, a shade underneath the 1-lakh MW mark, which implies it may have well touched the mark as of nowadays.
- The performance of the rooftop solar sector, where the achievement of 1,924.44 MW is 96.2 per cent of the annual target. The total grid-connected installations at 5,099 MW.
- With these installations, India's cumulative renewable energy capacity, at 98,882.73 MW, accounts for 25.2 per cent of the country's total energy capacity, crossing the 25 per cent mark for the first time.
- It is not all of non-fossil fuel energy, because it doesn't count the large hydro capacity, which is another 46,367 MW.

- Together with wind and solar, total non-fossil fuel-based electricity installed capability accounts for thirty seven.54 per cent of the overall put in capability of three,86,888.15 MW.
- It is pertinent to note that in the 2015 Paris Agreement, one of the three commitments of India was that by 2030, 40 per cent of its electricity capacity would be of non-fossil fuels.
- If the government's policy on net-metering is more conducive, India could see rooftop installations of 5GW annually.
- Net metering is the system of netting-off any sale of surplus energy from a solar plant against the plant owner's consumption.
- The safeguard duty on imports from China has expired and the 40 per cent basic customs duty on solar modules will kick in from April 2022

Topic 39. CRYOGENIC ENGINE

Importance for Prelims: Science and Technology



The launch of Indian space Organisation (ISRO)'s much-anticipated first earth observation satellite, EOS-03, resulted in an unsuccessful mission when the GSLV's refrigerant higher stage did not ignite in area and carry the payload to its selected orbit.

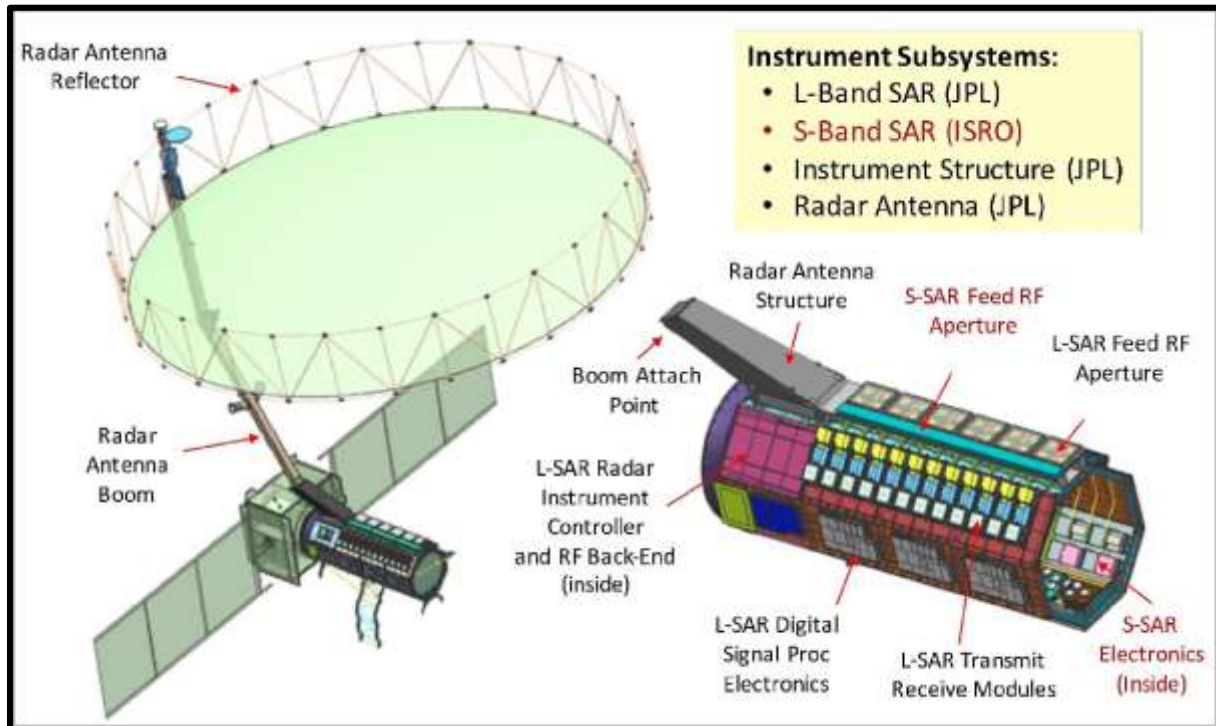
What is a cryogenic engine?

- Cryogenic engines are typically very powerful and carry liquid propellant at extremely low temperatures.
- They are a unit complicated however extremely economical and supply higher thrust for every metric weight unit of fuel burnt compared to the normal solid and liquid propellant rocket stages.
- Cryogenic engines were a vital part of National Aeronautics and Space Administration (NASA)'s Phobos Apollo missions to the moon, and were jointly utilized by the GSLV for the Chandrayaan-2 mission.

- **Only six countries have developed their own cryogenic engines:** the US, France/European Space Agency, Russia, China, Japan, and India. Cryogenic engine typically makes use of liquid oxygen (LOX), which liquifies at -183 deg C, and liquid hydrogen (LH₂), which liquefies at -253 deg C.
- LH₂ acts as the fuel while LOX acts as the oxidiser that explosively reacts with the hydrogen, producing thrust.
- When the engine ignites, the two liquids are pushed into a combustion chamber by booster pump continuously.
- ISRO's cryo stage, called the C25, came after the successful flights of the earlier versions developed for previous GSLV launchers.
- It was designed by the Liquid Propulsion Systems Center, together with Vikram Sarabhai house Centre, ISRO Propulsion complicated and Satish Dhawan house Centre. C25's tanks carry over twenty seven,000 metric weight unit of fuel and fireplace for about 720 seconds.
- During this point, the engine develops a thrust of seventy three.55kN in vacuum. Impact of failure of refrigerant engine Missions like Gaganyaan and Chandrayaan-3 are launched on GSLV Mk-III, a additional advanced version of the GSLV rocket that's designed to hold a lot of heavier payloads into house.
- GSLV Mk-III too uses AN indigenously-developed refrigerant engine within the higher stage, but, in contrast to the one in Mk-II, this is often not a reverse-engineered Russian engine.
- Instead, the cryogenic engine used in GSLV Mk-III, called CE20, has been the result of over three decades of research and development, starting from scratch, and uses a different process to burn fuel.
- It is closer to the designs used in the Arienne rockets that were used by ISRO earlier to send its heavier satellites into space.

Topic 40. NISAR MISSION

Importance for Prelims: Science and Technology



Thursday's failure, however, could be a massive reason behind worry for the NISAR mission NISAR stands for NASA ISRO artificial

- Aperture microwave radar Mission It aims to review the hazards and international environmental changes and slated to launch in 2020-21.
- NISAR could be a twin frequency (L & S Band) microwave radar Imaging Satellite.
- It are the primary microwave radar imaging satellite to use twin frequency.
- Will be launched in a very Sun Synchronous Low -Earth it's designed to watch and take measurements of a number of the planet's most advanced processes, as well as scheme disturbances, ice-sheet collapse, water level rise, and groundwater and natural hazards like earth quakes, tsunamis, volcanoes and landslides can|and can} support a number of alternative applications NISAR will observe Earth's land and

ice-covered surfaces globally with 12-day regularity on ascending and dropping passes, sampling Earth on the average each half dozen days for a baseline 3-year mission.

- The satellite is probably going to be launched from Asian country aboard associate Indian launch vehicle.

Topic 41. 'SON CHIRAIYA' BRAND LAUNCHED

Importance for Prelims: Government Schemes

“Son Chiraiya” brand has been launched by Secretary, Ministry of Housing and concrete Affairs. it's a complete for selling of urban assist cluster (SHG) product.

- DAY-NULM below the aegis of MoHUA, it's focussed on arming the urban poor girls with adequate skills and opportunities, and to modify them to push property small enterprises.
- It mobilises girls from urban poor households into SHGs and their federations to form a network for these girls.
- Over 5.7 large integer SHGs are fashioned across varied States/ UTs with virtually sixty large integer members.
- Many of those SHGs are engaged in resource activities, manufacturing merchandise like handicrafts, textiles, toys, eatables and then on.
- These were being sold primarily in native neighbourhood markets and sometimes faced barriers in achieving visibility and wide market access.
- To overcome these challenges, Ministry entered into Memorandum of Understandings (MoUs) with leading e-Commerce Portals viz.
- Amazon and Flipkart, with an underlying narrative of women empowerment.
- This initiative will definitely prove as a step towards accumulated visibility and international access for the product created by urban SHG girls.
- Ministry expects to link many more such SHG members, with variety of professionally packaged, hand-crafted ethnic products, reaching the doorsteps of the customers globally.

Topic 42. 'OPERATION BLUE FREEDOM'

Importance for Prelims: Government Schemes



It is a special initiative by Ministry of Social Justice and Empowerment.

- Under this initiative individuals with disabilities from across the country can undertake Associate in Nursing expedition until Siachen ice mass to make a brand new record for the most important team of individuals with disabilities to succeed in the world's highest parcel.
- The team of people with disabilities trained by 'Team CLAW' a team of Armed Forces veterans.
- **Siachen Glacier:** The Siachen Glacier is a glacier located in the eastern Karakoram range in the Himalayas at about 42°26'N 77°10'54'E, simply northeast of the purpose NJ9842 wherever the road of management between India and Islamic Republic of Pakistan ends.

- At seventy six klick (47 mi) long, it's the longest ice mass within the mountain range and second-longest within the world's non-polar areas.
- At seventy six klick (47 mi) long, it's the longest ice mass within the mountain range and second-longest within the world's non-polar areas.
- The Siachen ice mass lies at once south of the nice voidance divide that separates the Eurasian Plate from the Indian landmass within the extensively frozen portion of the mountain range generally known as the "Third Pole".
- The ice mass lies between the Saltoro Ridge at once to the west and therefore the main Karakorum Range to the east.

Topic 43. GM FOOD CROPS REGULATION

Importance for Prelims: Environment

GM CROPS IN INDIA A PRIMER

What is a GM crop?

A crop which has a gene artificially inserted into it from another species, even unrelated, to give it some desired properties. GM crops are mostly either pest-resistant or herbicide-tolerant

When did India get its first GM crop?

The first GM crop variety approved for commercialisation was Bt cotton. Bollgard-I, which provided immunity against the pink bollworm and developed by Monsanto, was given the go ahead in 2002. Monsanto released Bollgard-II in 2006. India has become the world's largest producer of cotton partly due to Bt cotton, which accounts for over 90% of the total cotton acreage in the country

Are there other GM crops in India?

No, the government has not approved commercial cultivation of other GM crops, though efforts have been made for brinjal and mustard

Regulation of gram food subject to life within it: Activists objurgate Centre's strange call.

- The surroundings (Protection) Act 1989 Rules for the Manufacture, Use, Import, Export and Storage of venturous small Organisms Genetically built Organisms (GMOs) or Cells area unit clearly applicable to not simply genetically built organisms or living changed organisms (LMOs), however additionally merchandise and substances associated with LMOs.
- Genetic Engineering Appraisal Committee (GEAC), that functions underneath the surroundings ministry, is accountable for the clearance to gram crops. GEAC ought to perform safety assessment on merchandise and substances derived from GMOs similarly.

- The GEAC couldn't vacate its responsibility towards regulation to safeguard the surroundings, nature and health.
- The Food and Safety Standards Authority of India or FSSAI told the ministry of fisheries that animal feed wasn't regulated underneath the FSSAI Act, 2006 as something that was non-food (not consumed by humans) wasn't a part of its mandate.

Topic 44. VEHICLE SCRAPPAGE POLICY LAUNCHED

Importance for Prelims: Infrastructure



Prime Minister whereas addressing the capitalist Summit in Gujarat via video conferencing launched the Vehicle Scrapping Policy/National Automobile Scrappage Policy. conception – The policy is calculable to hide fifty one 100000 light-weight motorized vehicles (LMVs) that square measure higher than twenty years archaic and another thirty four 100000 LMVs higher than fifteen years archaic.

What is the scrapping policy?

- The vehicle scrapping policy is aimed at creating an ecosystem for

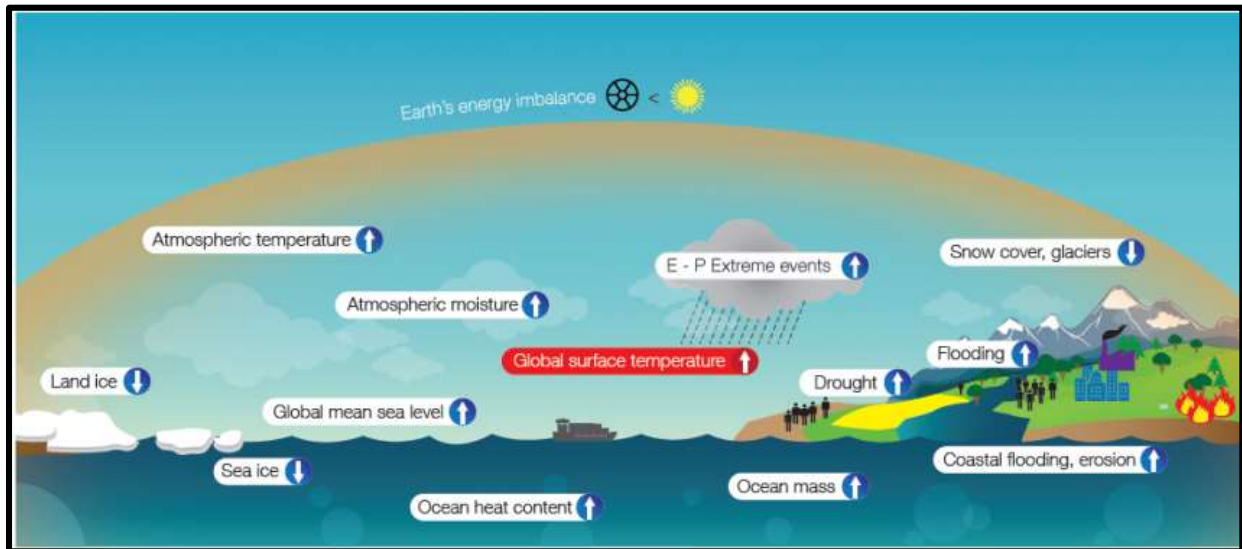
phasing out unfit and polluting vehicles in an environment friendly and safe manner.

- The policy intends to create scrapping infrastructure in the form of automated testing stations and registered vehicle scrapping facilities across the country.
- Guidelines Union minister Nitin Gadkari aforesaid that business vehicles over fifteen years recent and private vehicles over twenty years recent are marked for scrapping if they fail to pass the take a look at.
- The new regime, aimed at cleaner emissions, fuel efficiency and better safety, will start mandatory testing of heavy commercial vehicles from April 2023 and for other categories, in a phased manner, from June 2024.
- For vehicles owned by governments and allied entities like PSUs, the policy will kick in earlier, from April 2022.
- For now, vintage cars are exempted from this policy, separate pointers are later developed to manage them.
- Incentives- Vehicle scrapping policy provides incentives for purchase of latest vehicle against scrapping certificates of recent vehicle with road tax rebate up to twenty five per cent; relinquishment of registration fee; and discount by vehicle makers.
- **Provisions:** Fitness check – recent vehicles can need to pass a fitness check before reregistration and as per the policy government business vehicles quite fifteen years recent and personal vehicles that ar over twenty years recent are scrapped.
- Old vehicles will be tested at authorized Automated Fitness Center and will not be scrapped merely on the basis of age.
- Emission test, braking system, safety components will be tested and the vehicles which fail in the fitness test will be scrapped.

- If the old vehicle passes the test, the owner can continue to use it, but the charges for reregistration will be much steeper.
- The Union Road and Transport Ministry has also issued rules for registration procedure for scrapping facilities, their powers, and scrapping procedure to be followed.
- **Road Tax Rebate** – The state governments could also be suggested to supply a road-tax rebate of up to twenty fifth for private vehicles and up to fifteen for business vehicles to produce incentive to homeowners of recent vehicles to scrap recent and unfit vehicles.
- **Vehicle Discount** – Vehicle manufacturers will also give a discount of 5% to people who will produce the ‘Scrapping Certificate’ and registration fees will be waived off on the purchase of a new vehicle.
- **Disincentive** – As a deterrence, accrued re-registration fees would be applicable for vehicles fifteen years or older from the initial date registration.

Topic 45. WARMING OF OCEANS

Importance for Prelims: Environment



The latest Intergovernmental Panel on Climate Change (IPCC) report has warned that ocean warming will continue over the 21st century and is likely to continue until at least the year 2300 even if we minimise carbon emissions.

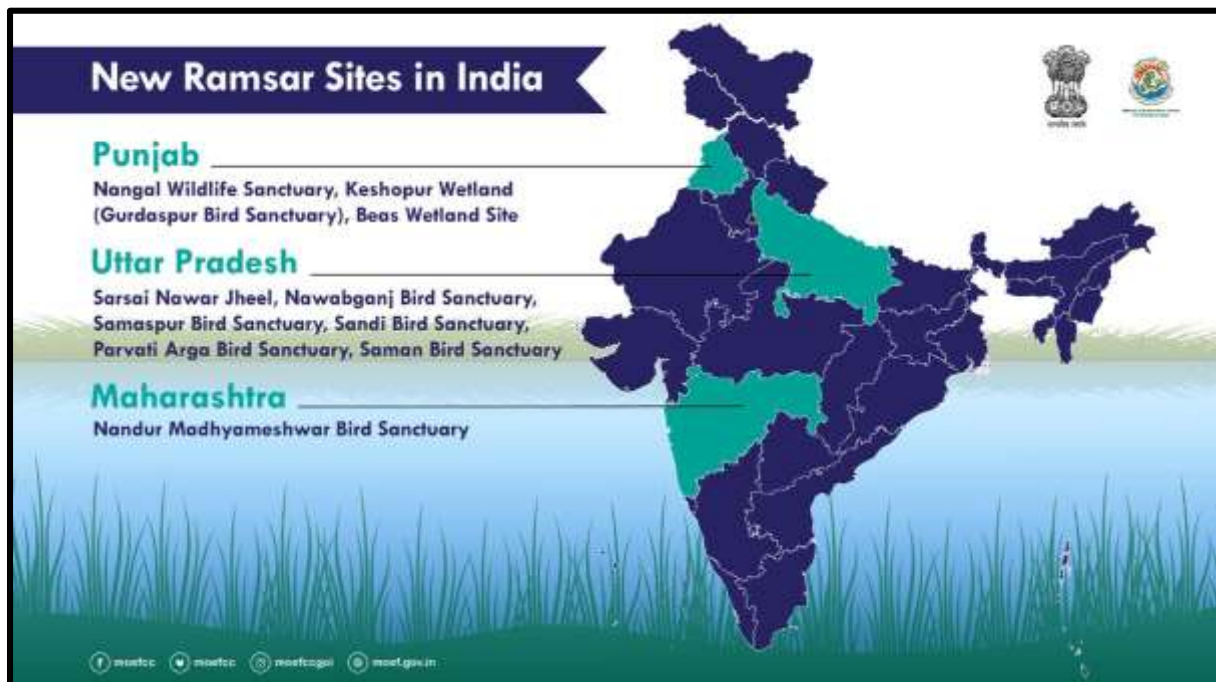
- The quantity of ocean warming determined since 1971 can possibly be a minimum of double by 2100 below a coffee warming situation and can increase by 4-8 times below a high warming situation,” warns the report, adding that human influence is that the main driver of the warming.
- This warming will facilitate produce each hypoxia (waters that don't have any dissolved chemical element) and hypoxic (low oxygen concentration) zones.
- The report adds that these chemical element deficient areas are expected to persist for thousands of years.
- Previous studies have noted that warming oceans can cause stress, decrease the range, increase diseases and even wipe out many commonly eaten fish.
- Last year, a study noted that Future Ocean warming and acidification may

drag down the commercial Arctic cod fishery by 2100. Several species were noted to migrate pole ward or to deeper waters to stay in their ideal temperature range.

- A new research published suggested that fish like sardines, pilchards and herring will become smaller in size and not be able to move to better environments.
- Though the team studied Clupeiforms – the order of ray-finned fish which incorporates anchovies, Clupea harangus, Japanese pilchard, Clupea harengus pallasii, and South yank pilchard – they note that the findings have implications for all fish.
- As temperature will increase, the demand for atomic number 8 of the many fish species can exceed their capability to extract atomic number 8 from the surroundings through their gills.
- As a result, the aerobic capability of fish decreases in warming waters, and this reduction is also a lot of vital in larger fishes.
- This tells us that global warming could limit the aerobic capacity of fish, impairing their physiological performance in the future.
- The trendy version of Darwin's plan of evolution by natural action posits that organisms with genes that favour survival and replica can tend to depart a lot of offspring than their peers, inflicting the genes to extend in frequency over generations.

Topic 46. NEW RAMSAR SITES

Importance for Prelims: Environment



Four additional wetlands from Asian country get recognition from the Ramsar Secretariat as Ramsar sites. These sites square measure Thol and Wadhvana from Gujarat and Sultanpur and Bhindawas from Haryana. Informing this during a tweet message, Union setting Minister

- The Ramsar Convention signed on 2nd February, 1971, is one of the oldest intergovernmental accord signed by member countries to preserve the ecological character of their wetlands of international importance.
- The aim of the Ramsar list is to develop and maintain a global network of wetlands that square measure vital for the conservation of world biological diversity and for sustaining human life through the upkeep of their scheme elements, processes and edges.
- The range of Ramsar sites in Asian country square measure forty six and also the area coated by these sites is currently one,083,322 hectares.
- Bhindawas Wildlife Sanctuary, It is the largest wetland in Haryana is a human-made freshwater wetland.

- Its first Ramsar sites of Haryana.
- Over 250 bird species use the sanctuary throughout the year as a resting and roosting site.
- The site supports more than ten globally threatened species including the endangered Egyptian Vulture, Steppe Eagle, Pallas's Fish Eagle, and Black-bellied Tern.
- Sultanpur parkland it's conjointly from Haryana supports quite 220 species of resident, winter migratory and native migratory water birds at essential stages of their life cycles.
- After Nalsarovar that was declared in 2012, these square measure the opposite Ramsar sites declared. quite 10 of those square measure globally vulnerable, together with the critically vulnerable sociable pewit, and therefore the vulnerable Neophron percnopterus, Saker Falcon, Pallas's sea eagle and Black-bellied larid.
- Thol Lake Wildlife Sanctuary It is from Gujarat lies on the Central Asian Flyway and more than 320 bird species can be found here.
- The ground supports a lot of thirty vulnerable waterfowl species, like the critically vulnerable White-rumped Vulture and Sociable Lapwing and the vulnerable Sarus Crane, Common Aythya ferina and Lesser White-fronted Goose.
- Wadhvana Wetland It is also from Gujarat is internationally important for its birdlife as it provides wintering ground to migratory water birds, including over 80 species that migrate on the Central Asian Flyway.
- They embrace some vulnerable or near-threatened species like the vulnerable Pallas's fish-Eagle, the vulnerable Common Aythya ferina, and therefore the near-threatened Dalmatian pelecaniform seabird, gray-haired Fish-eagle and Ferruginous

Duck.

Topic 47. NATIONAL COMMISSION FOR PROTECTION OF CHILD RIGHT (NCPCR)

Importance for Prelims: Polity



Set up in March 2007 below the Commission for defense of kid Rights Act, 2005. It works below the executive management of the Ministry of girls & kid Development.

Definition:

- The Child is defined as a person in the 0 to 18 years age group.
- The Commission's Mandate isto ensure that all Laws, Policies, Programmes, and Administrative Mechanisms are in consonance with the Child Rights perspective as enshrined in the Constitution of India and also the UN Convention on the Rights of the Child.
- Under the RTE Act, 2009, the NCPCR can: inquire into complaints about violation of the law.
- summon an individual and demand evidence. seek a magisterial enquiry. file a writ petition in the High Court or Supreme Court.

approach the govt. involved for prosecution of

the wrongdoer. suggest interim relief to those affected.

Composition:

- This commission has a chairperson and six members of which at least two should be women.
- All of them are appointed by Central Government for three years.
- The maximum age to serve in commission is 65 years for Chairman and 60 years for members.
- It monitors the implementation of Protection of Children from Sexual Offences (POCSO) Act, 2012.

Topic 48. INTERNATIONAL FINANCIAL SERVICE CENTRE (IFSC)

Importance for Prelims: Economy

The IFSC ought to flip its attention towards increasing the pool of investors in GIFT town.

- An IFSC caters to customers outside the jurisdiction of the domestic economy.
- Such centres deal with flows of finance, financial products and services across borders.
- An skilled panel headed by former International Bank for Reconstruction and Development social scientist Percy Mistry submitted a report on creating city a global money centre in 2007.
- However, the global financial crisis in 2008 made countries including India cautious about rapidly opening up their financial sectors.
- In India, IFSC has been outlined in SEZ Act, 2005. As per the act: The Central Government might approve the fixing of a global money Service Centre in a very Special Economic Zone and will inflict the wants for fixing and operation of such centre.
- The Central Government shall approve only one International Financial Services Centre in a Special Economic Zone.
- Since Bharat has several restrictions on the money sector, like partial capital account interchangeability, high SLR (statutory liquidity ratio) necessities and foreign investment restrictions, associate degree SEZ will function a laboratory for money sector reforms before they're unrolled within the entire nation. GIFT (Gujarat International Finance Tec-City), situated in Gandhinagar is India's 1st International money Services Centre.
- **Composition:** The Authority shall consist of a Chairperson, one Member each to be nominated by the Reserve Bank of India (RBI), the Securities

Exchange Board of India (SEBI), the Insurance Regulatory and Development Authority of India (IRDAI) and the Pension Fund Regulatory and Development Authority (PFRDA), two members to be dominated by the Central Government and two other whole-time or full-time or part-time members.

- **Functions:** The Authority shall regulate all such financial services, financial products and Financial Institutions in an IFSC.
- It may additionally suggest to the Central Government such alternative money merchandise, money services and money establishments which can be allowable within the IFSCs.
- **Powers:** All powers exercisable by the several money sector regulative (viz. RBI, SEBI, IRDAI, and PFRDA etc.) beneath the several Acts shall be only exercised by the Authority within the IFSCs in to this point because the regulation of economic merchandise, money services and FIs that square measure allowable within the IFSC square measure involved.
- **Transactions in foreign currency:** The transactions of economic services within the IFSCs shall be drained the foreign currency as such by the Authority in consultation with the Central Govt.
- The Union cupboard has approved International money Services Centres Authority Bill, 2019 that seeks to determine a unified authority for regulation all money services in International money Services Centres (IFSCs) in Bharat.

Topic 49. AYUSHMAN BHARAT – PRADHAN MANTRI JAN AROGYA YOJANA

Importance for Prelims: Governance

AB-PMJAY gave Rs.2794cr for COVID treatment

- Ayushman Bharat is a flagship initiative that attempts to move away from the sectoral and segmented approach of service delivery to a comprehensive needbased health care service.
- It has been launched by the govt. with AN aim to maneuver towards a provision of universal health care within the country.
- Ayushman Bharat adopts a two-pronged approach: Firstly, the creation of health and wellness centres to bring health care closer to homes.
- Secondly, the formulation of a Pradhan Mantri Jan Arogya Yojana (PMJAY) to protect poor and vulnerable families against financial risk arising out of catastrophic health episodes.
- PMJAY offers a sum insured of Rs.5 lakh per family for secondary care (which doesn't involve a super specialist) as well as tertiary care (which does).
- For the beneficiaries, this is a free scheme.
- It is associate entitlement-based theme that targets the beneficiaries as known by latest Socio-Economic Caste Census (SECC) knowledge.
- Individuals will walk into any empanelled hospital which will method cashless payments.
- Once known by the information, the beneficiary is taken into account insured.
- The insurance value is shared by the centre and also the state principally within the magnitude relation of 60:40.
- Empanelled hospitals comply with the prepacked rates beneath PMJAY—

there are regarding one,400 prepacked rates for varied medical procedures beneath the theme.

- These prepacked rates conjointly mention the quantity of average days of hospitalization for a process and supporting documents that are required.
- These rates are versatile, however once fastened hospitals will't amend it and beneath no circumstances can they charge the beneficiary.
- The theme conjointly has prescribed a daily limit for medical management.
- National Health Agency has been established as associate autonomous entity beneath the Society Registration Act, 1860 for effective implementation of PMJAY in alliance with state governments.

Topic 50. ONDC

Importance for Prelims: Economy



Union Minister of Commerce & business Shri Piyush Goyal these days chaired a gathering for the review of the Open Network for Digital Commerce (ONDC) initiative of DPIIT.

- Open Network for Digital Commerce christened ONDC is globally first-of-its-kind initiative that aims to democratise Digital Commerce, moving it from a platform centric model to an open-network.
- ONDC is for e-commerce in India. ONDC can alter, consumers Associate in Nursingd sellers to be digitally visible and interact through an open network, notwithstanding what platform/application they use.

- ONDC will empower merchants and consumers by breaking silos to form a single network to drive innovation and scale, transforming all businesses from retail goods, food to mobility
- The ONDC may be a project of the DPIIT, implementation is allotted to the standard Council of India (QCI) ONDC is anticipated to alter the whole price chain, standardise operations, promote inclusion of suppliers, derive potency in supply and enhance price for customers.
- Open Network for Digital Commerce (ONDC) project that is aimed at curbing “digital monopolies”.
- This is a step in the direction of making e-commerce processes open source, thus creating a platform that can be utilised by all online retailers It is expected to digitise the entire value chain, standardise operations, promote inclusion of suppliers, derive efficiency in logistics and enhance value for consumers.
- ONDC shall take all measures to ensure confidentiality & privacy of data in the network ONDC shall not mandate sharing of any transaction-level data by participants with ONDC.
- ONDC can work with its participants to publish anonymised combination metrics on network performance while not compromising on confidentiality and privacy
- ONDC will be compliant with the Information Technology Act, 2000 and designed for compliance with the emerging Personal Data Protection Bill.

Topic 51. INDIAN FLAG

Importance for Prelims: Polity

India celebrates seventy five year of its Independence

- The Indian flag was adopted in its gift kind throughout a gathering of the Constituent Assembly remained Gregorian calendar month twenty two, 1947.
- The initial ensign, that consisted of 3 horizontal stripes of red, yellow and inexperienced, is claimed to own been hoisted on August seven, 1906, at the religionist Bagan sq., close to Lower Circular Road, in Calcutta (now Kolkata).
- Later, in 1921, reformist Pingali Venkayya met nationalist leader and planned a basic style of the flag, consisting of 2 red and inexperienced bands.
- After undergoing many changes, the tricolor was adopted as our ensign at a Congress meeting in urban center in 1931.
- Rules governing the show of the tricolor – The earliest rules for the show of the ensign were originally ruled by the provisions of The Emblems and Names (Prevention of Improper Use) Act, 1950 and therefore the hindrance of Insults to National Honour Act, 1971.
- The hindrance of Insults to National Honour Act, 1971 prohibits the violation of or insult to the country's national symbols, together with the ensign, the Constitution, the anthem and therefore the Indian map.
- In 2002, the Flag Code of India came into effect which allowed the unrestricted display of the Tricolour as long as the honour and dignity of the flag were being respected.
- The flag code failed to replace the pre-existing rules governing the right show of the flag; it had been, however, a shot to collect all the

previous laws, conventions and practices.

- The Flag Code of 2002 is divided into three parts — a general description of the tricolour, rules on display of the flag by public and private bodies and educational institutions, and rules for display of the flag by governments and government bodies.
- It states that there will be no restriction on the display of the flag by public and private bodies and educational institutions except to the extent as laid down in the Emblems and Names (Prevention of Improper Use) Act, 1950 and the Prevention of Insults to National Honour Act, 1971.
- For official show, solely flags that adjust to the specifications as set down by the Bureau of Indian Standards and bearing their mark are often used. customary dimensions of the flag – The flag code states that the flag are often of 9 customary dimensions — 6300 x 4200, 3600 x 2400, 2700 x 1800, 1800 x 1200, 1350 x 900, 900 x 600, 450 x 300, 225 x one hundred fifty and one hundred fifty x one hundred (all sizes in mm).
- The flag ought to be rectangular in form and therefore the length-to-width quantitative relation should be 3:2.
- The allegory should be fabricated from hand-spun and hand-woven wool or cotton or silk material bunting.
- The flag code mandates that the flag should be clearly placed and will “occupy the position of honour”.
- The flag should be hoisted briskly and lowered slowly and ceremonially.

Topic 52. YASUKUNI SHRINE

Importance for Prelims: Art and Culture

Yasukuni shrine could be a moot image of Japan's war gift.

- Nearly eight decades when Japan's defeat in war 2, Tokyo's Yasukuni shrine remains a potent image of its time period gift in East Asia and a flashpoint for regional tension.
- Established in 1869 during a foliolate urban territory, the shrine is devoted to a pair of 5 million Japanese United Nations agency died in wars starting within the nineteenth century and as well as war 2.
- Funded by the govt till 1945, Yasukuni – its name shaped by combining the words for “peace” and “country” – was central to the state faith of Shinto that mobilised the time period population to fight within the name of a divine emperor.

Topic 53. INCEL MOVEMENT

Importance for Prelims: Governance

The movement came into the spotlight all over again within the UK's Plymouth, where a 22-year-old man named Jake Davidson shot dead 5 folks, as well as a tike, in what's wide being referred to as the worst incident of its kind in British history since 2010.

- The 'incel' movement, a dangerous on-line social group comprising men United Nations agency determine as 'involuntary celibates' and often specific deeply misogynistic views regarding ladies, is slowly changing into a threat to law and order, consultants have warned.
- Men United Nations agency area unit a part of this movement harbour a deep rancour towards each ladies and different men United Nations agency area unit sexually active.
- The blame women for their own lack of sexual and social status.
- An extreme section of Incels even advocate violence against ladies. However, not all members of the social group area unit violent, consultants say.
- The 'black pill' theory, typically related to incels, promotes the negativist concept that your fate is sealed at birth and in spite of what changes you are attempting to create, your sexual capital can't be altered. 'Red pillers', on the opposite hand, believe the globe is biased toward ladies, and see feminism as feminine control.
- They believe there's a general bias in favour of ladies.

Topic 54. END-TO-END ENCRYPTION

Importance for Prelims: Governance



Facebook is giving the choice of end-to-end coding of voice and video calls on FB traveller, together with updated controls for disappearing messages.

- End-to-end encryption (E2EE) is a secure line of communication that blocks third-party users from accessing transferred data.
- When the data is being transferred online, only the sender and recipient can decrypt it with a key.
- Encryption technology involves scrambling or jumbling of the info being transferred in such the way that it are often deciphered solely by the sender and therefore the receiver.
- End-to-end coding technology is far safer as a result of it do away with the need of third parties.
- Mechanism – In the first step, when a sender sends a message, it is in the form of Plaintext that is ordinary readable text.
- Second, as before long because the knowledge gets onto the network, it gets encrypted that's aprocess of changing standard clear text into a code with the assistance of special keys (a terribly long string of numbers

generated by the software).

- Third when the same data reaches its intended destination, it is decrypted that is a process of converting back the coded data to readable text with the help of special keys.
- Finally, the supposed receiver gets the message within the type of Cipher text that is that the clear text obtained when cryptography.

Topic 55. PRESIDING PANEL OR THE VICE-CHAIRMAN'S PANEL***Importance for Prelims: Polity***

Opposition RS members refuse to chair the House

- The Chairman shall, from time to time, nominate from amongst the members of the Council a panel of less than six Vice-Chairmen, anyone of whom could control over the Council within the absence of the Chairman and therefore the Deputy Chairman once thus requested by the Chairman, or in his absence, by the Deputy Chairman.
- A Vice-Chairman nominated under sub-rule (1) shall hold office until a new panel of Vice-Chairmen is nominated.

Topic 56. RICE FORTIFICATION

Importance for Prelims: Governance

FORTIFIED RICE

ODISHA MODEL TO BOOST MIDDAY MEALS

WHAT?

- Fortified kernels blended at ratio 1:100 with ordinary rice
- 100g of fortified rice has 10mg iron

HOW?

- Manufactured by combining rice powder with iron
- Powder converted into rice-like kernels
- Micronutrient fortified kernels resemble regular rice

WHERE?

- Fortified rice for on-site cooking in Odisha's Gajapati district
- Children across 1,449 schools in Gajapati covered



Addressing the state from the Red Fort on the seventy fifth Fourth of July, PM Modi said “Be it the rice distributed through ration retailers or the rice provided to youngsters within the mid-day meal, the rice offered through each theme are fortified by the year 2024”.

- Fortification is that the follow of deliberately increasing the content of an important substance, i.e. vitamins and minerals (including trace elements) in an exceedingly food, therefore on improve the nutritional quality of the food provide and supply a public health profit with least risk to health.
- Rice fortification is that the follow of accelerating the content of essential micronutrients in rice and to boost the nutritional quality of the rice.
- Food Safety and Standards Authority of India (FSSAI) has formulated a comprehensive regulation on fortification of foods namely ‘Food Safety and Standards (Fortification of Foods) Regulations, 2016’.
- These regulations set the standards for food fortification and

encourage the production, manufacture, distribution, sale and consumption of fortified foods.

- Rice is that the world's most vital staple food. AN calculable a pair of billion folks eat rice a day, forming the mainstay of diets across massive of Asia and Africa.
- Regular polished rice is low in micronutrients and serves primarily as a supply of macromolecule solely.
- The fortification of rice could be a major chance to boost nutrition. Fortified rice contains fat-soluble vitamin, Vitamin B1, cobalamin, Folic Acid, Iron and atomic number 30.
- According to the FSSAI norms, one kilo fortified rice shall contain iron (28mg-42.5mg), vitamin B complex (75-125 microgram) and sustenance B-12 (0.75-1.25 microgram).
- In addition, rice may be fortified with micronutrients, separately or together, at the level— zinc(10mg-15mg), fat-soluble vitamin (500-750 mcg RE), vitamin B1 (1mg-1.5mg), vitamin B2 (1.25mg-1.75mg), sustenance B3 (12.5mg-20mg) and B-complex vitamin (1.5mg-2.5mg) per kilo.

Topic 57. PRADHAN MANTRI MATSYA SAMPADA YOJANA***Importance for Prelims: Government Schemes***

The Department of Fisheries, Ministry of Fisheries, husbandry and agriculture organized a webinar on Quality Seed Production for salt water cultivation with special target shrimp cultivation nowadays, below the spot of Shri Jatindra Nath man, Secretary, Department of Fisheries

- The PMMSY are going to be enforced as associate umbrella theme with 2 separate parts particularly Central Sector theme (CS) and Centrally Sponsored theme (CSS).
- Under the Central Sector Scheme Component an amount of Rs. 1720 crores has been earmarked.
- Under the Centrally Sponsored theme (CSS) part, associate investment of Rs. 18330 crores has been envisaged, that successively is segregated into Non-beneficiary familiarized and Beneficiary oriented sub-components/activities below the subsequent 3 broad heads: sweetening of Production and Productivity Infrastructure and Post-harvest Management Fisheries Management and regulative Framework Cluster or area-based approach would be followed with requisite forward and backward linkages and finish to finish solutions.
- Thrust are going to be given for infusing new and rising technologies like Recirculatory cultivation Systems, Biofloc, Aquaponics, Cage Cultivation to boost production and productivity, quality, productive utilization of waste lands and water for cultivation.
- Special target Coldwater fisheries development and growth of cultivation in salt Water and Saline Areas.
- Activities like Mariculture, alga cultivation and decorative Fisheries having potential to come up with immense employment are going to

be promoted. centered attention would incline for fisheries development in Jammu and geographical region, Ladakh, Islands, Northeast, and Aspirational Districts through space specific development plans.

- PMMSY envisages promotion of high price species, establishing a national network of Brood Banks for all commercially necessary species, Genetic improvement and establishing Nucleus Breeding Center for independency in Shrimp Brood stock, organic cultivation promotion and certification, smart cultivation practices, finish to finish traceability from ‘catch to consumer’, use of Block Chain Technology, international Standards and Certification, enfranchisement of Brood banks, Hatcheries, Farms, residues problems and aquatic health management supported by a contemporary laboratory network.
- Collectivization of fishers and fish farmers through Fish Farmer Producer Organizations (FFPOs) to increase bargaining power of fishers and fish farmers is a key feature of PMMSY
- Aquaparks as hub of fisheries and cultivation activities with assured, affordable, quality inputs underneath one roof, post-harvest infrastructure facilities, business zones, support, business incubation centers, promoting facilities etc. Youth would be engaged in fisheries extension by creation of 3347 Sagar Mitras in coastal fisher villages.
- Major investments in construction and modernization of Fishing Harbours and Landing centers for sanitary handling of fish, urban promoting infrastructure to deliver quality and reasonable fish, development of state of the art whole sale fish markets, retail markets, E-marketing and E-trading of Fish etc.
- Pradhan Mantri Matsya Sampada Yojana (PMMSY) and also the sub-component supported underneath PMMSY for development

of salt water cultivation in coastal States and in inland saline water in North Indian States.

Topic 58. USHA MEHTA

Importance for Prelims: History

Usha Mehta (25 March 1920 – 11 August 2000) was a Gandhian and freedom fighter of India. In 1928, eight-year-old Usha participated in a protest march against the Simon Commission. She used to mobilize friends and organize Prabhatpheris along with them dressed in national tricolour.

- They also used to picket liquor shops. She met Mahatma Gandhi as a young girl and took a vow to wear khadi lifelong. She also began studying law, but ended her studies in 1942 to join the Quit India Movement.
- On fourteen August 1942, Usha and a few of her shut associates began the key Congress Radio, a hush-hush station.
- It went air on twenty seven August.
- Secret Congress Radio conjointly unbroken the leaders of the liberty movement in reality with the general public.
- The metropolis Bomb Raid, Jamshedpur strike and running of parallel governments in province and geographical area were a number of the key developments that the key broadcast to the plenty.
- However, the police found them on twelve Gregorian calendar month 1942 and in remission the organizers, as well as Usha Mehta. All were later jailed at Yeravda Jail in Pune.
- In March 1946, she was released, the first political prisoner to be released in Bombay, at the orders of Morarji Desai, who was at that time the home minister in the interim government.
- She continued to spread the Gandhian ideals and was honoured with Padma Vibhushan in 1998.