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PRESS INFORMATION BUREAU (PIB) IAS UPSC – 18th April to 25th April – 2021

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Khajuraho – Temples of Architectural Splendour

(Topic: Ancient History)

- Made in the tenth century; UNESCO World Heritage Site
- Temples are famous for their nagara-style architectural symbolism and their erotic sculptures
- The erotic expression is given equal importance in human experience as spiritual pursuit, and it is seen as part of a larger cosmic whole. Many Hindu temples therefore feature mithun (embracing couple) sculptures, considered auspicious. Usually, they are placed at the entrance of the temple or on an exterior wall or they may also be placed on the walls between the mandapa and the main shrine.
- **Socio-economic status of women:** Khajuraho complex of temples is yet another excellent example of sculptures representing women in different roles. For example on Kandariya laxmana temple we can see a women with a purse in hand purchasing stuff from market showcases economic independence and her ability to make choice. We can also see women are supremely confident when it comes to exploring their sexuality. Practice of polyandry is evident on temple walls

The other notable example at Khajuraho is Kandariya Mahadeo temple dedicated to Lord Shiva.

There are many temples at Khajuraho, most of them devoted to Hindu gods.

There are some Jain temples as well as a Chausanth Yogini temple, which is of interest. Predating the tenth century, this is a temple of small, square shrines of roughly-hewn granite blocks, each dedicated to esoteric deities or goddesses associated with the rise of Tantric worship after the seventh century. Several such temples were dedicated to the cult of the yoginis across Madhya Pradesh, Odisha and Tamil Nadu.

- Hindu Temples: Kandariya Temple, Mahadev Temple, Devi Jagadamba Temple, Chitragupta Temple, Vishwanatha Temple, Parvati Temple Lakshmana or Chaturbhuja Temple, Varaha Temple, Chaunsat Yogini Temple
- Jain Temples – Parshvanatha and Ghantai temple

The Lakshmana temple

- Dedicated to Vishnu is the grandest temple of Khajuraho, built in 954 by the Chandela king, Dhanga. Its construction was completed by 954, the year as per the inscription found at the base of the temple, by Yashovarman, the seventh ruler of the Chandella dynasty.
- The temples at Khajuraho are all made of sandstone. They were patronized by the Chandella dynasty.
- The temple plan is of a panchayana type.
- The temple is constructed on a heavy plinth. It consists of an ardhamandapa (porch), mandapa (porch), the maha mandapa (greater hall) and the garbhagriha with vimana.
- Many erotic sculptures are carved on the plinth wall. Some erotic sculptures are carved on the actual wall of the temple.
- An image of Chaturmukha Vishnu is in the garbhagriha.
- There are images of Vishnu in three shrines and Surya in one, which can be identified by the central image on the lintel of the shrine-doors.
- A nagara temple, it is placed on a high platform accessed by stairs. There are four smaller temples in the corners, and all the towers or shikharas rise high, upward in a curved pyramidal fashion, emphasising the temple's vertical thrust ending in a horizontal fluted disc called an amalaka topped with a kalash or vase. The crowning elements: amalaka and kalash, are to be found on all nagara temples of this period.
- The temple also has projecting balconies and verandahs

GS-2

Cabinet approves

A. Amendments to the Finance Bill, 2021

- The Government amendments to the Finance Bill, 2021 shall provide equity and inclusiveness to all the taxpayers by addressing stakeholders concerns arising out of amendments proposed in the Bill.
- The Government amendments to the Finance Bill, 2021 are tax proposals which shall generate timely revenue for the Government and streamline existing provisions by addressing grievances of the taxpayers.

B. Memorandum of Understanding between the Institute of Chartered Accountants of India and Chartered Accountants Australia and New Zealand

The MRA intends to develop mutually beneficial relationship in the best interest of members, students and their organizations and is expected to provide an opportunity to the ICAI members to expand their professional horizons and to foster working relations between the two accounting institutes. The two accountancy institutes will have an opportunity to play the leadership role in addressing new challenges facing the profession in a globalized environment.

Benefits: The engagement between the two Institutes is expected to result in greater employment opportunities for Indian Chartered Accountants and also greater remittances back to India.

C. MoU between Competition Commission of India (CCI) and Administrative Council for Economic Defense of Brazil (CADE): Section 18 of the Competition Act, 2002 permits CCI to enter into any Memorandum or arrangement with any agency of any foreign country for the purpose of discharging its duties or performing its functions under the Act. Accordingly, CCI has entered into the following six MoUs:

- Federal Trade Commission (FTC) and Department of Justice (DOJ), USA
- Director General Competition, European Union
- Federal Antimonopoly Service, Russia
- Australian Competition and Consumer Commission and
- Competition Bureau, Canada and
- BRICS Competition Authorities.

MoU between the India and Bangladesh on the establishment of a framework of cooperation in the area of trade remedial measures

The primary objective of the MOU is to promote cooperation between the two countries in the area of Trade Remedies, covering the broad activities related to exchange of information, undertaking capacity building activities and activities in accordance with various provisions of World Trade Organization in the area of anti-dumping, countervailing and safeguard measures in bilateral trade between India and Bangladesh.

The MOU seeks to foster better cooperation between the relevant authorities of both the countries so as to discourage unfair trade practices and promote rule based bilateral trading between the two countries.

India and Germany sign agreement on 'Cities combating plastic entering the marine environment'

(Topic: India and its relations with Germany)

The Ministry of Housing and Urban Affairs (MoHUA), Government of India and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH India on behalf of the German Federal Ministry of Environment, Nature Conservation and Nuclear Safety signed an agreement on Technical Cooperation titled 'Cities Combating Plastic Entering the Marine Environment'.

- This project is envisaged under the contours of the Joint Declaration of Intent regarding cooperation in the field of 'Prevention of Marine Litter' signed between Republic of India and Federal Republic of Germany in 2019.
- The project, aimed at enhancing practices to prevent plastic entering the marine environment, will be undertaken at the national level (at MoHUA), select states (Uttar Pradesh, Kerala and Andaman & Nicobar Islands) and in the cities of Kanpur, Kochi and Port Blair for a period of three and a half years.

The importance

Marine litter threatens ecosystems and adversely affects fishery and tourism industries around the globe. In addition to negative economic impact, it affects public health with increased concerns about micro-plastic and risk of particles entering the food chain. In recent times, the level of plastic waste that has accumulated in our oceans and marine ecosystems through the increasing production and use of durable synthetic materials has alarmed the public and policy makers alike. It is estimated that 15-20% of all plastics are entering oceans via riverine ecosystems of which 90% are contributed by 10 of the world's most polluting rivers. Two of these river systems are located in India, namely Ganga and Brahmaputra.

Whilst accurate data on plastic waste and marine litter in particular is largely unavailable for most parts of the country, this project will support the Swachh Bharat Mission-Urban's implementation with special focus on preventing plastic litter entering the rivers and water bodies at source. To this end, cities will be enabled to improve collection, segregation and marketing of plastic waste, to prevent plastic disposal to water bodies, and to improve handling of port and marine waste. This will be combined with data management and reporting systems, civil society involvement and increased cooperation with recyclers and the recycling industry through a digital platform. This is expected to foster improvements in segregation, collection, transportation, treatment and disposal of waste in municipalities, thereby establishing an efficient system, which ensures no waste finds its way into rivers or oceans.

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Leaders' Summit on Climate

(Topic: Climate change)

The Summit is a part of a series of global meetings focusing on climate issues, being held in the run up to COP26 in November 2021.

Launch of the India-US Clean Energy Agenda 2030 Partnership – The Partnership will proceed along two main tracks: the Strategic Clean Energy Partnership and the Climate Action and Finance Mobilization Dialogue, which will build on and subsume a range of existing processes. Through this collaboration, India and the United States aim to demonstrate how the world can align swift climate action with inclusive and resilient economic development, taking into account national circumstances and sustainable development priorities.

The US

- Pledged to cut emissions by 50 to 52 per cent of its 2005 levels by 2030. This is double the 2015 goal set by former President Barack Obama.
- The US rejoined the Paris Agreement three months ago, after former President Donald Trump's decision to leave the multilateral forum made it the only country in the world to do so. Biden's announcements re-assert the US's commitment in the run-up to the United Nations Climate Change Conference (COP26) in November in Glasgow.
- US will double its public climate financing development to developing countries and triple public financing for climate application in developing countries by 2024.

China

- We must be committed to the principle of common but differentiated responsibilities... Developing countries now face multiple challenges to combat Covid-19, grow the economy, and address climate change. We need to give full recognition to developing countries' contribution to climate action and accommodate their particular difficulties and concerns.
- Developed countries need to increase climate ambition and action. At the same time, they need to make concrete efforts to help developing countries strengthen the capacity and resilience against climate change, support them in financing, technology, and capacity building, and refrain from creating green trade barriers, so as to help developing countries accelerate the transition to green and low-carbon development.
- Promoted China's "green Belt and Road Initiative" and announced efforts to "strictly control coal-fired power generation projects" and phase down coal consumption.
- China, the world's largest emitter of greenhouse gases, has pledged that its emissions will peak by around 2030. From that point, the country will then aim to get down to net zero emissions by 2060. China has also laid out some concrete targets, such as getting one-quarter of its electricity from low-carbon sources like wind, solar or nuclear power; planting vast new forests; and curbing the use of hydro-fluorocarbons, a powerful greenhouse gas used as a refrigerant.

Britain

- Britain was first country to pass legislation for net zero, have the biggest offshore wind capacity of any country in the world. The country is halfway to net zero.
- The UK had announced a target of 78 per cent emission reductions by 2035 (compared to 1990 levels).

Germany

The country wants to reduce emissions by 55 per cent by 2030 as compared to 1990 levels.

PM Modi –

“Together we will help mobilise investments, demonstrate clean technologies, and enable green collaborations... India’s per capita carbon footprint is 60 per cent lower than the global average. It is because our lifestyle is still rooted in sustainable traditional practices. Today, I want to emphasize the importance of lifestyle change in climate action. Sustainable lifestyles and guiding philosophies and back to basics must be an important feature of our economy in the post-Covid era,” Modi said.

“We in India are doing our part. Our ambitious renewable energy target of 450 gigawatt by 2030 shows our commitment. Despite our development challenges, we have taken many bold steps on clean energy, energy efficiency, deforestation, and biodiversity. That is why we are among the few countries whose NDCs are 2 degrees Celsius compatible.”

Emphasized India’s encouragement of global initiatives such as the International Solar Alliance and the Coalition for Disaster Resilience Infrastructure.

Note:

- Nationally Defined Contributions (NDCs) are each country’s goals towards achieving the Paris Agreement target of limiting rising temperatures to less than 2 degrees Celsius.
- Currently, the United States uses far more fossil fuels per person than almost any other country in the world, although China is quickly narrowing the gap.

Promotion of Hydrogen based technologies

(Topic: Climate change; New technology)

Eminent Experts, Scientists, and Technocrats from India and Japan discussed the most recent innovations, trends, concerns, and solutions adopted in the field of decarbonisation and promotion of Hydrogen based technologies at the India-Japan Webinar on Decarbonisation: Exploring the Hydrogen Prospects and Innovative Technologies.

Why with Japan: Japan is the first country to formulate a basic hydrogen strategy. Hydrogen is included in the fifth Energy plan of Japan. The country thus has a good ecosystem for R&D and commercialization, which could be used by the Scientific and Commercial Communities of the two countries. India and Japan have strategic relationships, and this has to be elevated to a strategic partnership enabling sharing of knowledge without any inhibition on Hydrogen and utilization of H₂ in future

What has happened so far in India – DST, GoI has initiated several programmes to develop technologies to reduce the cost of hydrogen production, distribution, storage, diversify the feedstock available for hydrogen production, for example, biomass, agricultural waste and so on. DST has supported about 30 projects in last few years related to Hydrogen production, distribution, and storage at a cost of 5 Million US\$, looking into new catalysts like producing hydrogen from water splitting.

Hydrogen has a potential role to play in major sectors in India. Given the scale of future demand, India should be proactive in manufacturing electrolyzers to produce green hydrogen. A greater cross-sectoral coordination between the governments can help realize the economy benefits of hydrogen fuel. The key industries need to come together to catalyse decarbonisation allowing risk-sharing and minimizing the burden at the individual company level

Hydrogen Energy Mission (Hydrogen Economy)

To be launched in 2021-22 for generating hydrogen from green power sources

The demand: Demand for hydrogen is at around 6 metric tonne (MT) per annum, mainly from industry sectors, such as fertilizers and refineries. This can increase to around 28 MT by 2050 mainly due to cost reductions in key technologies and a push to reduce carbon footprint. Demand will mainly grow in steel and road transport, shipping and aviation sectors. The report also projected that India would require 40 MT of green hydrogen to achieve net zero carbon emissions by 2060.

Production: Typically, hydrogen can be produced in one of three ways, i.e., from fossil fuels (grey hydrogen), through carbon capture utilisation & storage (CCUS) application and fossil fuels (blue hydrogen), or by using renewable energy (green hydrogen). In the case of green hydrogen, electricity generated from renewable energy is used to split water into hydrogen and oxygen in an electrolyser. This is by far the cleanest and perhaps the most expensive method of producing hydrogen at the moment. Majority of the hydrogen production in India takes place via fossil fuels and is used primarily in the chemical and petrochemical sectors.

Focussing on the production of green hydrogen in India would mean significantly ramping up the current renewable energy infrastructure across the country.

Hydrogen Fuel

- Hydrogen **does not occur freely** in nature in useful quantities.

- It can be **made from natural gas** or it can be made **by passing electric current** through water.
- When hydrogen is burned, it only emits water vapour and **carbon dioxide (CO₂) is not produced**.
- It is more efficient than internal combustion engine.
- Although hydrogen is a clean molecule, the process of extracting it is energy-intensive. Also, manufacturing hydrogen fuel based vehicle is expensive.

The sources and processes by which hydrogen is derived, are categorised by colour tabs.

- Hydrogen produced from fossil fuels is called **grey hydrogen**; this constitutes the bulk of the hydrogen produced today.
- Hydrogen generated from fossil fuels with carbon capture and storage options is called **blue hydrogen**;
- Hydrogen generated entirely from renewable power sources is called **green hydrogen**. In the last process, electricity generated from renewable energy is used to split water into hydrogen and oxygen.

The case for green hydrogen

Green hydrogen has specific advantages.

- **Environment Friendly:** Green Hydrogen as energy source is seen as the next big thing as its usage would lead to zero emissions
- **Potential to Decarbonise various sectors:** It is a clean burning molecule, which can decarbonise a range of sectors including iron and steel, chemicals, and transportation.
- **Efficient utilization of Renewable Energy:** Renewable energy that cannot be stored or used by the grid can be channelled to produce hydrogen.
- **Reduced Dependence on Rare Minerals:** Green Hydrogen also holds the key to clean electric mobility that doesn't depend on rare minerals. Green Hydrogen helps achieve long-term vision of reduced dependency on minerals and rare-earth element-based battery as energy storage.
- **Helps Achieve Paris Goal:** Green hydrogen energy is vital for India to meet its Nationally Determined Contributions and ensure regional and national energy security, access and availability
- **Energy Security:** Green energy helps reduce import dependency on fossil fuels

Prelims-oriented News

EXERCISE VARUNA – 2021: Indian and French Navy bilateral exercise

World Liver Day: 19th April; According to the Health Ministry, India has become the **first country** in the world to identify the **need for action for Non-Alcoholic Fatty Liver Disease**.

- Operational guidelines have been launched for the integration of NAFLD with the National Programme for Prevention & Control of Cancer, Diabetes, Cardiovascular Diseases, and Stroke.
- NAFLD is an umbrella term for a range of liver conditions affecting people who drink little to no alcohol.
- Main characteristic of NAFLD is too much fat stored in liver cells.
- It is becoming increasingly common around the world, especially in Western nations.
- Some individuals with NAFLD can develop non-alcoholic steatohepatitis (NASH).
- NASH is an aggressive form of fatty liver disease, marked by liver inflammation which may progress to advanced scarring (cirrhosis) and liver failure.

India's Agriculture trade grows during 2020-21

- Despite the pandemic export of Agri and allied commodities during Apr, 2020 – Feb, 2021 shows an increase of 18.49%
- India has witnessed tremendous growth of 727% for Wheat export and 132% for (Non-Basmati) Rice export during 2020-21

Launch of e-property cards under SWAMITVA scheme

- 4.09 lakh property owners were given their e-property cards on this occasion, which also marked the rolling out of the SVAMITVA scheme for implementation across the country.
- SVAMITVA, a Central Sector Scheme of Ministry of Panchayati Raj was launched by the Prime Minister on National Panchayati Raj Day, 24th April 2020.
- The scheme aims to provide the 'record of rights' to village household owners in rural abadi areas and issuance of Property cards.

Startup India Seed Fund Scheme

- The Fund aims to provide financial assistance to startups for proof of concept, prototype development, product trials, market entry, and commercialization.
- Rs. 945 Crore corpus will be divided over the next 4 years for providing seed funding to eligible startups through eligible incubators across India. The scheme is expected to support an estimated 3,600 startups through 300 incubators.
- SISFS will Secure seed funding, Inspire innovation, Support transformative ideas, Facilitate implementation, and Start startup revolution.
- Will create a robust startup ecosystem, particularly in Tier 2 and Tier 3 towns of India, which are often deprived of adequate funding.

12th National Panchayati Raj Day

24th April, 1993 marks a defining moment in the history of decentralization of power to the grassroots, with the institutionalization of Panchayati Raj, through the Constitution (73rd Amendment) Act, 1992 which came into force with effect from that day. Ministry of Panchayati Raj commemorates 24th April of every year as the National Panchayati Raj Day (राष्ट्रीय पंचायती राज दिवस) (NPRD), as the 73rd Constitutional Amendment came into

force on this date. This occasion provides an opportunity for direct dialogue with Panchayat representatives from all over the country as well as recognizing their achievements to empower and motivate them further.

Every year, on this occasion, Ministry of Panchayati Raj has been awarding the best performing Panchayats/States/UTs across the country under the Incentivization of Panchayats in recognition of their good work for improving delivery of services and public goods. Awards are given under various categories namely, Deen Dayal Upadhyay Panchayat Sashaktikaran Puraskar (DDUPSP), Nanaji Deshmukh Rashtriya Gaurav Gram Sabha Puraskar (NDRGGSP), Child-friendly Gram Panchayat Award (CFGPA), Gram Panchayat Development Plan (GPDP) Award and e-Panchayat Puraskar (given to States/UTs only).

Mahavir Jayanti

The festival is considered to be the most important one for Jains and marks the birth anniversary of Lord Mahavir.

Lord Mahavir was one of the most charismatic and influential spiritual leaders to have walked the earth. His messages of nonviolence, truth, honesty, selflessness and sacrifice are timeless and full of universal compassion. He preached the gospel of universal love and emphasized that all living beings, including plants and animals, are equal and deserved to be treated with love and respect.

We must draw inspiration from Lord Mahavir's life, his practice of austerity, his stress on the need to adopt a positive attitude towards life and his messages of love, tolerance and peace, especially now, when humanity is facing a formidable health crisis of the spread of COVID-19.

- Lord Mahavira was born at Kundagrama, Vaishali in present day Bihar. Siddhartha and Trishala are parents of Mahavira
- Mahavira was associated with Makari Gosala Putta for 6 years, but later departed due to serious philosophical differences.
- Then Mahavira joined Nigrantha sect, while Makari Gosala Putta started Ajivika religion.
- After Mahavira, Jainism came under the control of 11 disciples of Mahavira, namely Ganadharas
- Associated symbol: Lion

The **three principles** of Jainism, also known as **Triratnas (threegems)**, are:

- Right faith
- Right knowledge
- Right conduct

Note:

- Jainism predates Buddhism, while Buddha was older than Mahavira.

- According to Mahavira, a person is born in a high or in a lower varna in consequence of the sins or the virtues acquired by him in the previous birth.
- The Hathigumpha Inscription proves that Jainism entered Orissa and probably became the state religion within 100 years of death of Mahavira.
- The teachings of the Parshvanatha are collectively known as Chaturyama. It is the the “four-fold teaching” of the Parshvanath.
- **The Mahamastakabhisheka**, refers to the abhisheka of the Jain images when held on a large scale. The most famous of such consecrations is the anointment of the Bahubali Gommateshwara Statue located at Shravanabelagola in Karnataka, India. It is an important Jain festival held once in every 12 years.

Spread of Jainism

- Through Sangha, Mahavira spread his teaching that consists of women & Men in the organized sangha.
- Under the patronage of Chandragupta Maurya, Kharaveli of Kalinga and the royal dynasties of south India such as the Gangas, the Kadambas, the Chalukyas and the Rashtrakutas.
- There are two sect of Jainism- Svetambar (White Clad) and Digambar (Sky clad or Naked).
- **First Jain Council** was convened at Patliputra presided by Sthaulabhadra who was the leader of Shwetambar during 3rd century BC. It resulted in the compilation of 12 Angas replacing the lost 14 Purvas.
- **Second Council** – Second Jain Council was held at Vallabhi under the chairmanship of Devardhi in 521 A.D.

Additionally – What is Tirtha?


- A Tirtha is a religious pilgrim place.
- Most tirths in India of any religion are based upon the banks of Rivers.
- The idea of a Tirtha is to cross the river of human miseries.
- A Tirthankara is a founder of a Tirtha. He achieves the enlightenment and then shows the path to others.
- A Tirthankara achieves Moksha or liberation at the end of his human life.

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The Government of National Capital Territory (GNCTD) Amendment Act, 2021

(Topic: Constitutional Amendments)

The Government of National Capital Territory (GNCTD) Amendment Act, 2021 has come into force after being passed by the Lok Sabha, by the Rajya Sabha, and after the assent of the President of India. The Amendment Act has the effect of amending Sections 21, 24, 33 and 44 of the Act.

Objectives of the Amendment Act:

- To make it more relevant to the needs of the Capital
- Further define the responsibilities of the elected Government and the Lt. Governor (LG)
- Create a harmonious relationship between the Legislature and the Executive.

The Amendment would ensure better governance in the NCT of Delhi and lead to improved implementation of schemes and programmes meant for the common people of Delhi.

The amendments are consistent with the existing legal and constitutional provisions, and are in line with the judgements of the Hon'ble Supreme Court dated 04.07.2018 and 14.02.2019.

The amendments to the GNCTD Act, 1991, in no way alter the constitutional and legal responsibilities of the elected Government to take necessary action, in respect of the subjects transferred to them in the State and Concurrent Lists of the Constitution of India, including subjects such as health, education, etc.

Project DANTAK completes 60 years in Bhutan

(Topic: India and Neighborhood relations)

Project DANTAK is commemorating its Diamond Jubilee in Bhutan. It was a fitting tribute to the sacrifices made by personnel of DANTAK in strengthening the bonds of friendship between India and Bhutan. It may be recalled that over 1,200 DANTAK personnel laid down their lives while constructing important infrastructure in Bhutan.

Project DANTAK was established on April 24, 1961 as a result of the visionary leadership of His Majesty the Third King and then Prime Minister Jawahar Lal Nehru. Identifying the utmost **importance of connectivity** in spurring the socio-economic development and growth of Bhutan, DANTAK was tasked to **construct the pioneering motorable roads in the Kingdom**. DANTAK completed the road connecting Samdrup Jongkhar to Trashigang in 1968. In the same year, Thimphu was connected to Phuentsholing by DANTAK. Many Bhutanese had also volunteered to work with DANTAK.

Some other notable projects executed by the project include the construction of Paro Airport, Yonphula Airfield, Thimphu – Trashigang Highway, Telecommunication & Hydro Power Infrastructure, Sherubtse College, Kanglung and India House Estate.

The medical and education facilities established by DANTAK in far flung areas were often the first in those locations. The food outlets along the road introduced the Bhutanese to Indian delicacies and developed a sweet tooth in them. The famous Takthi Canteen midway between Phuentsholing and Thimphu has been a compulsory stop for travelers.

As DANTAK celebrates six decades in Bhutan, the project reaffirms its commitment to support the march of Bhutan towards realising the dreams of His Majesty Druk Gyalpo, the plans of the Royal Government of Bhutan and aspirations of the people of the kingdom.

Australia-India-Japan Trade Ministers' Joint Statement on Launch of Supply Chain Resilience initiative

(Topic: India and other countries)

The Trade Ministers of India, Japan and Australia formally launched the Supply Chain Resilience initiative in a Trilateral Ministerial Meeting –

The Ministers acknowledged that the COVID-19 pandemic was having an unprecedented impact in terms of lives lost, livelihoods and economies affected, and that the pandemic had revealed supply chain vulnerabilities globally and in the region. The Ministers also noted that some supply chains have been left vulnerable due to a range of factors.

Based on the high level consultations among Australia, India and Japan since September last year, the Ministers noted the **importance of risk management and continuity plans** in order to avoid supply chain disruptions and affirmed their commitment to strengthen resilient supply chains. Possible policy measures may include:

- (i) Supporting the enhanced utilization of digital technology; and
- (ii) Supporting trade and investment diversification.

The Ministers hereby launch the Supply Chain Resilience Initiative (SCRI) – The Ministers instructed their officials to implement the following as initial projects of SCRI and further develop the Initiative:

- (i) Sharing of best practices on supply chain resilience; and
- (ii) Holding investment promotion events and buyer-seller matching events to provide opportunities for stakeholders to explore the possibility of diversification of their supply chains.

The Ministers further

- Decided to convene at least once a year to provide guidance to the implementation of the SCRI as well as to consult on how to develop the Initiative
- Noted the important role of business and academia for the Initiative
- The SCRI aims to create a virtuous cycle of enhancing supply chain resilience with a view to eventually attaining strong, sustainable, balanced and inclusive growth in the region. The Ministers consented that expansion of the SCRI may be considered based on consensus, if needed, in due course.

Cabinet approves Agreement between the Government of India and the Government of the United Kingdom of Great Britain and Northern Ireland on Customs Cooperation and Mutual Administrative Assistance in Customs Matters

The Agreement will help in

- Availability of relevant information for the prevention and investigation of Customs offences
- Facilitate trade and ensure efficient clearance of goods traded between the countries

Background:

The Agreement would provide a legal framework for sharing of information and intelligence between the Customs authorities of the two countries and help in the proper application of Customs laws, prevention and investigation of Customs offences and the facilitation of legitimate trade. The draft text of the proposed Agreement has been finalized with the concurrence of the two Customs Administrations. The Agreement takes care of Indian Customs' concerns and requirements, particularly in the area of exchange of information on the correctness of the Customs value, tariff classification and origin of the goods traded between the two countries.

GS-3

Agriculture Infrastructure Fund

(Topic: Agriculture)

Agriculture Infrastructure Fund is bringing together the collective power of all stakeholders in the Agriculture ecosystem.

Agriculture Infrastructure Fund has crossed the Rs. 8000 crore mark after receiving 8,665 applications worth Rs. 8,216 crores. The largest share of the pie is contributed by Primary Agricultural Credit Societies (PACS) (58%), agri-entrepreneurs (24%) and individual farmers (13%). These investments are for a wide range of projects which will unlock value for farmers across the country.

These initiatives have led to not only an overall increase in applications but an increase in interest in innovative infra types such as custom hiring centers & farm machinery banks (130 applications worth ~25 crores) and infra for smart & precision agriculture (200 applications worth ~1,300 crores). AIF has brought farmers & agribusinesses together with newer partnership models emerging for the creation of distributed infra near farm-gate in a hub & spoke model. The agribusinesses are increasing awareness about AIF & newer agri-tech amongst FPOs and supporting them in application & adoption.

About Agriculture Infrastructure Fund

- The Agriculture Infrastructure Fund is a medium – long term debt financing facility for investment in viable projects for post-harvest management infrastructure and community farming assets through interest subvention and credit guarantee.
- This fund will be used to build post-harvest storage and processing facilities, largely anchored at the Farmer Producer Organisations (FPOs), but can also be availed by individual entrepreneurs.
- The fund will also be used to provide loans, at concessional rates, to FPOs and other entrepreneurs through primary agriculture credit societies (PACs). NABARD will steer this initiative in association with the Ministry of Agriculture and Farmers Welfare.
- The duration of the scheme is from FY2020 to FY2029 (10 years).

- Under the scheme, Rs. 1 Lakh Crore will be provided by banks and financial institutions as loans with interest subvention of 3% per annum and credit guarantee coverage under CGTMSE for loans up to Rs. 2 Crores.
- Eligible beneficiaries include farmers, FPOs, PACS, Marketing Cooperative Societies, SHGs, Joint Liability Groups (JLG), Multipurpose Cooperative Societies, Agri-entrepreneurs, Start-ups, and Central/State agency or Local Body sponsored Public-Private Partnership Projects.

Community service centre to make data from India's first solar space mission accessible for analysis

(Topic: Space and Technology)

A community service centre has been set up to bring all data on board **India's first dedicated solar space mission** to a single web-based interface enabling the users to quickly look at the data and identify the interesting science cases.

- The service centre called Aditya-L1 Support Cell (AL1SC), a joint effort of Indian Space Research Organisation (ISRO) and Aryabhata Research Institute of Observational Sciences (ARIES) an autonomous institute of the Department of Science & Technology, Government of India will be used by the guest observers in analyzing science data and preparing science observing proposals.
- AL1SC set up at the transit campus of ARIES at Haldwani, Uttarakhand, will jointly work with ISRO to maximize utilization of science data from Aditya-L1 and facilitate India's first dedicated solar space mission- Aditya-L1.

The centre will

- Act as conduit between the users (student and faculty members from research Institutes/ Universities/ Colleges etc.) and payload teams of Aditya-L1 and solar astronomy research community at large.
- Slated to develop specific tools to assist guest observers/researchers to prepare observing proposals for Aditya-L1 observations and will assist ISRO with the design and development of the required analysis software for handling scientific data.
- Provide the co-aligned data from other observatories around the world that can complement the data obtained from Aditya-L1 allowing users to accomplish the science goals beyond the capabilities of the Aditya-L1. Combining data from other observatories will be helpful in building a solar features event knowledgebase which will be the compendium of different solar features seen on the surface of the Sun and in the heliosphere. This knowledge base will be immensely useful for the scientific community in connecting the features in heliosphere to the surface of the Sun.

- Build capacity by establishing periodic training of the national user community on data analysis and proposal preparation. Short workshops of 2-3 days durations at different locations in India will be held focusing on universities who do not have access for downloading and analyzing the Aditya-L1 data. Further, AL1SC has also planned to schedule frequent E-workshops and tutorials using online platforms.

The centre will expand reach of Aditya-L1 not only within India, but also increase the visibility of the mission at the international level. It will allow every interested individual to be able to perform scientific analysis of the data.

Study by Indian Astronomers provides clues to explosion mechanism of supernovae that are key measure of cosmological distances

(Topic: Space and Technology)

In 2011, the Nobel Prize was awarded to three scientists for discovering that the Universe is expanding at an ever-accelerating rate through observations of distant supernovae. Now a team of Indian astronomers observing such distant supernovae have narrowed down the possible mechanisms of explosion of such supernovae which provide key measures of cosmological distances.

Their detailed study of a supernova called SN 2017hpa, a particular type of supernovae called I a supernova, which exploded in 2017 helped narrow down the explosion mechanism of the supernovae by observations of unburned carbon in the early phase spectra.

The explosive death of a star as a supernova is one of the most spectacular and catastrophic events in the Universe. Type Ia supernovae are the result of explosions of white dwarfs that exceed their mass beyond the Chandrasekhar limit through accretion of matter. Their homogeneous nature makes them extremely good standardizable candles to measure cosmological distances. However, the explosion mechanisms which create these supernovae (SNe), and the exact nature of their progenitor systems (star which is at the origin of a supernova phenomenon) are still not yet clearly understood. While most SNeIa are homogeneous, a good fraction of these events show diversity in both their light curve as well as spectral properties.

The burning front in the white dwarf moves or propagates at speeds less than speed of sound which leaves behind unburned material. The expansion velocity calculated using these unburned features can provide an essential hint towards the velocity structure of the ejected material. It is generally expected that the unburned material will be present in the outermost layers of the ejecta and expand with velocity higher than velocity of the outer most layer of the star called photospheric velocity. In this study, the authors have shown that the unburned layer is moving with photospheric velocity indicating that mixing of the explosion materials is dominant within the ejected material.

Cosmic rays propagating through Milky Way interact with matter producing excess antimatter counterpart of electron

(Topic: Space and Technology)

High energy particles are generally lower in number in the cosmic universe. But the excess number of high energy particles of the antimatter counterpart of the electrons, called positrons have intrigued scientists for long.

Over the years astronomers have observed an excess of antimatter counterpart of the electron or positrons having an energy of more than 10 giga-electronvolts, or 10 GeV. For an estimate, this is the energy of a positively charged electron accelerated across a 10,000,000,000 volt battery! Positrons with energy more than 300 GeV, however, are lower in comparison to what astronomers expect. This behaviour of positrons between 10 and 300 GeV is what astronomers call the 'positron excess'.

Researchers from the Raman Research Institute (RRI), Bengaluru, have resolved the mystery in a new study published. Their proposal is simple — *cosmic rays while propagating through the Milky Way galaxy interact with matter producing other cosmic rays, primarily electrons and positrons.*

The Milky Way consists of giant clouds of molecular hydrogen. They are the seats of the formation of new stars and can be as massive as 10 million times the Sun's mass. They can extend up to 600 light-years, the distance that would take light 600 years to travel. Cosmic rays, produced in supernovae explosions propagate through these clouds before they reach the Earth. Cosmic rays interact with molecular hydrogen and can give rise to other cosmic rays. As they propagate through these clouds, they decay from their original forms and intermix, lose their energy by energising the clouds, and may also get re-energised. The researchers from RRI studied all these astrophysical processes via a code they set up on the computer, using a publicly available code.

The combined catalogue consists of ten molecular clouds in the immediate neighbourhood of our Sun. These galactic clouds provide the astronomers a crucial input — the number of giga-electronvolt cosmic rays. These help them determine the excess number of positrons that reach the Earth. The computer code the researchers used, by taking into account the exact number of nearby galactic molecular clouds, was successfully able to reproduce the observed number of positrons at giga-electronvolt energies.

Importance of Integrated Solar Dryer and Pyrolysis plant

(Topic: Environment)

A Solar Dryer and Pyrolysis pilot plant at Chennai will soon offer an innovative approach for smart cities to transform urban organic waste into biochar and energy.

The pilot is part of the **Indo-German project 'Pyrasol'** launched to **transform urban organic waste into biochar and energy** in smart cities.

- The project will ultimately lead to technology development for the joint processing of Fibrous Organic Waste (FOW) and Sewage Sludge (SS) of Indian smart cities into hygienic and highly valuable biochar associated with energy recovery, carbon sequestration and environmental improvement.
- IGSTC through its flagship program '2+2 Projects', catalyses innovation centric R&D projects by synergising the strength of research and academic institutions and public/private industries from India and Germany.
- **'Pyrasol: Smart Cities integrated energy supply, carbon sequestration and urban organic waste treatment through combined solar sludge drying and pyrolysis'**: The project focuses on managing and organising collection, treatment, and disposal systems of urban wastes in Indian Smart Cities as well as in other urban centres with an integrated and interactive approach. Through this Pyrasol project, simple and robust processing technologies for urban organic waste will be combined in a synergetic manner and further developed to improve sanitation and welfare, supply regenerative energy, convert waste into products and reduce the carbon footprint of smart cities by an innovative organic waste drying system using the solar natural chimney effect followed by a high efficient single-chamber pyrolysis.

Prelims-oriented News

Demise of Padma Shri Dadudan Gadhvi: Veteran Gujarati poet and folk singer; he was also known as **Kavi Dad**. He was awarded the Padma Shri in 2021 for his contribution in literature and education. Besides, he had written songs for 15 Gujarati films.

EPFO Launches Aadhaar based e- nomination: In order to facilitate EPF subscribers, EPFO has launched one more e-initiative i.e., Aadhaar based e – nomination. The physical filing of nomination is done through submission of 'Form 2 (Revised)', now with the launch of e-nomination facility; members themselves can file their nomination online, using this e-Nomination facility available in member portal.

DRDO conducts maiden trial of Python-5 Air to Air Missile: Tejas, India's indigenous Light Combat Aircraft, added the 5th generation Python-5 Air-to-Air Missile (AAM) in its air-to-air weapons capability. Trials were also aimed to validate enhanced capability of already integrated Derby Beyond Visual Range (BVR) AAM on Tejas.

Codex Committee on Spices and Culinary Herbs (CCSCH) finalizes quality standards for 4 more spices: The Codex Committee on Spices and Culinary Herbs (CCSCH) has finalised and recommended quality standards for four spices; **cloves, oregano, basil, and ginger**, during its fifth session held virtually. The committee forwarded these four new standards to the Codex Alimentarius Commission (CAC) for adoption at final step 8, as full -fledged Codex standards.

ABOUT CCSCH & CAC

- To develop and expand worldwide standards for spices and culinary herbs, and to consult with other international organisations in the standards development process CCSCH was formed in 2013 with support of more than a hundred countries with India as the host country and Spices Board as the Secretariat for organising the sessions of the committee.
- Since its inception, the Codex Committee on Spices and Culinary Herbs has been successful in developing harmonised global Codex standards for spices and herbs.
- Set up in 1963, the Codex Alimentarius Commission (CAC) is an intergovernmental body established jointly by the UN's Food and Agriculture Organisation (FAO) and the World Health Organisation (WHO), within the framework of the Joint Food Standards Programme to protect the health of consumers and ensure fair practices in the food trade.

DRDO develops Single Crystal Blades for helicopter engine application: Defence Research and Development Organisation (DRDO) has developed single crystal blades technology and supplied 60 of these blades to Hindustan Aeronautics Limited (HAL) as part of their indigenous helicopter development program for helicopter engine application.

- Helicopters used in strategic and defence applications need compact and powerful aero-engines for their reliable operation at extreme conditions. To achieve this, state-of-the-art Single Crystal Blades having complex shape and geometry, manufactured out of Nickel based superalloys capable of withstanding high temperatures of operation are used.
- Very few countries in the world such as USA, UK, France and Russia have the capability to design and manufacture such Single Crystal (SX) components.
- Special ceramic composition had to be formulated for making strong ceramic moulds which can withstand metallostatic pressure of liquid CMSX-4 alloy at 1500°C and above during casting operation. The challenge of maintaining the required temperature gradient has also been overcome by optimising the casting parameters. A multi-step vacuum solutionising heat treatment schedule for complex CMSX-4 superalloy to achieve the required microstructure and mechanical properties has also been established. Further, a stringent non-destructive evaluation (NDE) methodology for the blades along with the technique for determining their crystallographic orientations has been developed.

New high-yielding and pest-resistant variety of soybean can help boost countrywide production

- Indian Scientists have developed a high-yielding and pest-resistant variety of soybean. This newly developed variety called **MACS 1407** is suitable for cultivation in the states of **Assam, West Bengal, Jharkhand, Chhattisgarh and North-Eastern states** and its seeds will be made available to farmers for sowing during the 2022 Kharif season.
- In 2019, India produced around 90 million tons of soybean, widely cultivated as oil seeds as well as a **cheap source of protein for animal feed** and many packaged meals and is striving to be among the **world's major producers of soybean**.
- High-yielding, disease resistant varieties of the legume can help achieve this target.

Soyabean

- The soybean or soya bean (*Glycine max*) is a species of legume native to East Asia, widely grown for its edible bean.
- Traditional unfermented food uses of soybeans include soy milk, from which tofu and tofu skin are made.
- Soybeans contain significant amounts of phytic acid, dietary minerals, and B vitamins.
- Soy vegetable oil, used in the food and industrial applications, is another product of processing the soybean crop.
- Soybean is the most important protein source for feed farm animals, which in turn, yields animal protein for human consumption.
- **Cultivation conditions:** Climates with hot summers, with optimum growing conditions in mean temperatures of 20 to 30 °C; temperatures of below 20 °C and over 40 °C stunt growth significantly.
- They can grow in a wide range of soils, with optimum growth in moist alluvial soils with good organic content.
- Soybeans, like most legumes, perform nitrogen fixation by establishing a symbiotic relationship with the bacterium *Bradyrhizobium japonicum*.

Kharif season

- The Kharif season varies by crop and region, starting at the earliest in May and ending at the latest in January.
- In India, the season is popularly considered to start in June and to end in October.
- Kharif crops are usually sown with the beginning of the first rains during the advent of the south-west monsoon season, and they are harvested at the end of monsoon season (October-November).

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Government takes steps to ramp up availability of Amphotericin B – to fight Mucormycosis

(Topic: Health)

A sudden increase in demand has been observed in some states for Amphotericin B which is being actively prescribed by the physicians to patients suffering from Mucormycosis, a post COVID complication. The Government of India is therefore engaging with the manufacturers to ramp up production of the drug. The supply position is expected to improve with extra imports of this drug and increase in its production domestically.

Mucormycosis

- Mucormycosis is also called Black Fungus or Zygomycosis.
- It is a serious but rare fungal infection caused by a group of molds called mucormycetes.
- It occurs through inhalation, inoculation, or ingestion of spores from the environment.
- Mucormycosis does not spread between people or between people and animals.
- It usually occurs in people who have health problems or take medicines that lower the body's ability to fight germs and sickness.
- **Symptoms:** One-sided facial swelling and numbness, headache, nasal or sinus congestion, black lesions on nasal bridge or upper inside of the mouth, fever, abdominal pain, nausea and gastrointestinal bleeding.
- It needs to be treated with prescription antifungal medicine.
- Often, mucormycosis requires surgery to cut away the infected tissue.
- There is no vaccine to prevent it.
- Early detection can prevent loss of eyesight, nose or jaw through clinical intervention.

Amphotericin B injection is used to treat serious and potentially life-threatening fungal infections.

- It is in a class of medications called antifungals.
- It works by slowing the growth of fungi that cause infection.
- It is typically given by injection into a vein.
- Amphotericin B was isolated from *Streptomyces nodosus* in 1955 and came into medical use in 1958.
- It is on the World Health Organization's List of Essential Medicines.

Threefold increase in production of Remdesivir in the country

(Topic: Health)

Drugs such as Remdesivir are given to patients who have 'moderate or moderate progressing towards severe' COVID-19 infection.

How does it work?

Once the virus enters the human cell, it releases its genetic material, which is then copied using the body's existing mechanism. At every stage of infection, various human proteins, virus proteins, and their interactions come into play. At the replication stage, the key viral protein, called RdRp, becomes the engine of the virus. Remdesivir acts by directly attacking RdRp. With Remdesivir replacing the 'feeding' material it needs, the virus fails to replicate further.

When should Remdesivir ideally be used?

Remdesivir was the first drug approved by the USFDA for treating the SARS-CoV-2 virus. It was claimed to be effective in the severe and critical stages of COVID-19. But, it was also understood to be 'hepatotoxic', damaging to the liver cells.

Practically viral replication ends in the first 1-7 days, complications that occur in critical and severe COVID-19 post 7-8 days are due to an inflammatory response (SIRS). So this drug ideally should be used in the early stages, between the second and tenth day when viral replication is happening.

What patients need to know

According to a WHO study, Remdesivir fails to prevent deaths among patients, but may reduce the length of hospital stay by 1-3 days. It should not be used on patients who are asymptomatic, mildly symptomatic or who are severely ill and have suffered multi-organ dysfunction. It can, however, be used between the second and tenth day of infection to improve its effectiveness among patients who have moderate or moderate progressing-towards-severe infection.

Liquid Medical Oxygen

(Topic: Health)

We know 65% of human body is oxygen. Yes, oxygen is vital for respiration, the process that transfers energy from glucose to cells. In fact, every cell in our body requires oxygen. When we breathe air in, oxygen molecules enter the lungs and pass through lung walls into our blood.

Oxygen is crucial for the treatment of patients with severe COVID-19, since the disease affects lung functioning. Shortness of breath or difficulty of breathing is one of the most common symptoms in patients with severe COVID-19. It also hampers the supply of oxygen to various parts of the body. They hence need oxygen therapy, to be supplied through medical oxygen.

One of the ways in which this oxygen can be supplied is through Liquid Medical Oxygen (LMO). LMO is nothing but high purity oxygen used for medical treatment, and is developed for use in the human body.

Why in liquid state

Due to its low melting and boiling points, oxygen is in a gaseous state at room temperature. Liquification enables storage in larger volume and easier transportation.

How Liquid Medical Oxygen is produced

There are several methods. The most common production method is separation of oxygen in what are known as Air Separation Units or ASUs. ASUs are basically plants that separate large volumes of gases. They use a method called Fractional Distillation

Method to produce pure oxygen from atmospheric air, which consists mostly of nitrogen and oxygen – 78% nitrogen, 21% oxygen and remaining 1% other gases including argon, carbon dioxide, neon, helium, and hydrogen.

In this method, gases from the air are separated into various components after cooling them into a liquid state and then liquid oxygen is extracted from it.

Atmospheric air is first cooled to -181°C . Oxygen liquifies at this point. Since, the boiling point of Nitrogen is -196°C , it remains in a gaseous state. But Argon has a boiling point similar to that of oxygen (-186°C) and hence a significant amount of Argon liquifies along with Oxygen.

The resultant mixture of Oxygen and Argon is drained, decompressed and passed through a second low-pressure distillation vessel for further purification. We then get the output as final purified liquid oxygen, which is then transported using cryogenic containers.

What are cryogenic containers?

Cryogenics is the production and behaviour of materials at very low temperatures. A cryogenic liquid is defined as a liquid with a normal boiling point below -90°C . Cryogenic liquid containers are specially designed for safe and economic transportation and storage of liquefied gases at cryogenic temperatures, lower than -90°C . These containers are highly insulated, in which liquid gases are stored at very low temperatures.

What is Pressure Swing Adsorption Technique?

Oxygen can also be produced non-cryogenically, in gaseous form, using selective adsorption. This method leverages the property that under high pressure, gases tend to be attracted to solid surfaces. The higher the pressure, the more the adsorption of gas.

If a gas mixture such as air is passed under pressure through a vessel containing an adsorbent bed of 'zeolite' that attracts nitrogen more strongly than oxygen, a part or all of the nitrogen will stay in the bed, and the gas exiting the vessel will be richer in oxygen, relative to the mixture entering the vessel.

Hospitals can also opt for on-site generation of oxygen by this method, where oxygen is produced from ambient air by concentrating it. Producing oxygen near hospitals has the additional advantage of eliminating need for transportation. In addition to the above sources of medical oxygen, there are also portable oxygen generators known as Oxygen Concentrators that can be used at home.

India-UK Virtual Summit

(Topic: International Relations)

UK Prime Minister Boris Johnson announced new UK-India trade and investment worth 1 billion pounds, including an investment of 240 million pounds by the Serum Institute of India for its vaccine business in Britain.

The key takeaways from the virtual summit between Indian Prime Minister and the UK Prime Minister –

A. The UK-India trade and investment package:

- The package includes over 533 million pounds of new Indian investment into the UK, in vital and growing sectors such as health and technology, British exports to India worth more than 446 million pounds, while 200 million pounds of these deals will support low carbon growth.
- The investments include 240 million pounds to be pumped in by the Serum Institute for its vaccine business in Britain, and a new sales office.

B. ‘Roadmap 2030’

- To elevate bilateral ties to a ‘Comprehensive Strategic Partnership’.
- It will pave the way for a deeper and stronger engagement over the next ten years in the key areas of people to people contacts, trade and economy, defence and security, climate action and health.

C. ‘Enhanced Trade Partnership’ (ETP)

- It sets an ambitious target of more than doubling bilateral trade by 2030.
- As part of the ETP, India and the UK agreed on a roadmap to negotiate a comprehensive and balanced FTA, including consideration of an Interim Trade Agreement for delivering early gains.

D. India-UK ‘Global Innovation Partnership’

- It aims to support the transfer of inclusive Indian innovations to select developing countries, starting with Africa
- Cabinet gives ex-post facto approval to MoU between India and UK on Global Innovation Partnership

E. A comprehensive partnership on migration and mobility

- It will facilitate greater opportunities for the mobility of students and professionals between the two countries.
- Cabinet approves MoU between India and United Kingdom of Great Britain and Northern Ireland on Migration and Mobility Partnership

India-EU Leaders’ Meeting

(Topic: International Relations)

At the invitation of the President of the European Council, Indian Prime Minister participated in the India-EU Leaders' Meeting.

Key takeaways

- The meeting was held in a hybrid format.
- Leaders of all the 27 EU Member States, President of the European Council and the European Commission participated.
- This is the first time that the EU hosted a meeting with India in the EU+27 format.
- It will further build on the momentum witnessed in the relationship since the 15th India-EU Summit in July 2020.
- During the meeting, the leaders exchanged views on three key thematic areas: i) foreign policy and security; ii) COVID-19, climate and environment; and iii) trade, connectivity and technology.

Do you know?

- India and the EU launched an ambitious and comprehensive 'Connectivity Partnership' which is focused on enhancing digital, energy, transport and people-to-people connectivity.
- India welcomed the EU's decision to join CDRI.
- India and the EU also agreed to enhance bilateral cooperation on digital and emerging technologies such as 5G, AI, Quantum and High-Performance Computing including through the early operationalization of the Joint Task Force on AI and the Digital Investment Forum.
- A finance contract of Euro 150 million for the Pune Metro Rail Project was signed by the Ministry of Finance and European Investment Bank.

India participates in the 3rd Arctic Science Ministerial

(Topic: International Relations)

The first two meetings—ASM1 and ASM2—were held in the USA in 2016 and Germany in 2018, respectively. ASM is a global platform for discussing cooperation and research in the Arctic Region. The first Arctic Science Ministerial was held in the US in 2016 and the second one was in Germany in 2018. The third was jointly organized by Japan and Iceland and was held in Asia.

Objective: The Arctic Science Ministerial aims at providing opportunities to various stakeholders, which include indigenous communities, academia, policymakers, and governments, to enhance their collective understanding of the Arctic Region. It also emphasizes and engages in the constant monitoring and strengthening of observations.

India will continue to continue to play a positive role in deepening the shared understanding of the Arctic through research, observation, international cooperation, and capacity building.

- India shared its plans of contributing to the observing systems in the Arctic, both by remote-sensing or on-site.
- India will be deploying open ocean mooring in the Arctic Region. It will be for the long-term monitoring of the upper ocean variables and marine meteorological parameters.
- India talked about the growing evidence of a connection between the Indian Ocean and the Arctic region, which modulates the Indian Monsoon. It added that improving the understating of physical processes and measuring the impact of Arctic ice melt on India's monsoon is significant.
- **NASA-ISRO Synthetic Aperture Radar Satellite Mission:** Informed that the launch of the NASA-ISRO Synthetic Aperture Radar Satellite Mission, in collaboration with the United States is also underway. The mission by India and the US aims at conducting global measurements of the consequences and cause of the land surface changes with the use of advanced radar imaging.
- Contributions to the **Sustained Arctic Observational Network (SAON)** would continue. It is a joint activity of the International Arctic Science Committee (IASC) and the Arctic Council. The purpose is to support and strengthen the development of multinational engagement for sustained and coordinated pan-Arctic observing and data sharing systems.

India's engagement with the Arctic dates back to **1920** with the signing of the **Svalbard Treaty** in Paris.

- India has had a permanent research station in the Arctic Region called Himadri at NyAlesund, Svalbard Area in Norway, since July 2008.
- It has also deployed a multi-sensor moored observatory known as IndARC in Kongsfjorden fjord since July 2014.
- India's research in the Arctic Region is conducted, coordinated, and promoted by the National Centre for Polar and Ocean Research, Goa. It comes under the Ministry of Earth Sciences.
- Recently, India drafted a new Arctic policy that aims at expanding scientific research, sustainable tourism and exploration of mineral oil and gas in the Arctic region

GS-3

Agarbatti sector to bring back livelihoods for local communities

(Topic: Agriculture)

National Bamboo Mission has launched an MIS (Management Information Systems) based reporting platform for **agarbatti stick production** to collate the locations of stick making units, availability of raw material, functioning of the units, production capacity, marketing, etc.

With the help of this module, the linkages with the industry will be synergised better to enable seamlessly procurement from production units and information gaps can be plugged. All NBM States are in the process of documenting all the units to assess better how further support can be given for 'Vocal for Local' and 'Make for the World' since Indian agarbatti are much sought after in global markets.

National Bamboo Mission (NBM), Ministry of Small and Medium Enterprises (MSME), Khadi and Village Industries Commission (KVIC) schemes as well as States, together with industry partners have stepped up focused support to enable India to become Atma Nirbhar in the agarbatti sector, **to bring back livelihoods for the local communities while at the same time modernising the sector** too. The agarbatti sector traditionally provided **large scale employment to the local workforce**, which however dwindled due to various factors including the ingress of cheap imports of round sticks and raw batti.

A comprehensive study was carried out by NBM in 2019 following which policy measures taken by the Government of moving raw batti imports from free to restricted category in Aug 2019 and increasing import duty on round stick uniformly to 25% in June 2020 came as a boost to the domestic units.

Background of NBM

The restructured National Bamboo Mission (NBM) was launched in 2018-19 for holistic development of the bamboo sector through a cluster-based approach in a hub (industry) and spoke model to harness the opportunities by providing backward and forward linkages among the stakeholders – linking farmers to markets.

There is a huge potential to place Indian bamboo products in the domestic as well as global markets with the latest technologies, modern processing and by generating awareness on compliance requirements for destination countries. The Mission is streamlining its interventions to enhance domestic industrial activities as well as augmenting the farmer's income with support from technical agencies and facilitative steps. Direct subsidy of 50% is given to farmers at Rs 1.00 lakh per ha, 100% to Government agencies and also to entrepreneurs for setting up various product development units, etc.

The Mission is presently being executed by 21 States, including all the 9 States of NER through the respective State Bamboo Missions. NBM is also advising States to make available quality planting material to the farmers out to carry out plantations of commercially required species, set up common facility centres and other post-harvest units in complete sync with the requirement of existing and sunrise industries for a win-win situation for farmers and Indian bamboo industry.

Ministry of Food Processing Industries issues guidelines for 'Production Linked Incentive Scheme for the Food Processing Industry'

(Topic: Economy)

Government of India has approved a new Central Sector Scheme namely 'Production Linked Incentive Scheme for Food Processing Industry' for implementation during 2021-22 to 2026-27 with an outlay of Rs. 10,900 crore.

Objective: To support creation of global food manufacturing champions commensurate with India's natural resource endowment and support Indian brands of food products in the international markets.

Ministry of Food Processing Industries is inviting applications for availing sales based incentives and grants for undertaking Branding & Marketing activities abroad under the scheme from three categories of Applicants:

- **Category-I:** Applicant under this category could undertake Branding & Marketing activities abroad also and apply for grant under the scheme with a common application.
- **Category-II:** SMEs Applicants manufacturing innovative/ organic products who apply for PLI Incentive based on Sales.
- **Category-III:** Applicants applying solely for grant for undertaking Branding & Marketing activities abroad

Cabinet approves Production Linked Incentive scheme "National Programme on Advanced Chemistry Cell Battery Storage"

(Topic: Economy)

Aim: To achieve a manufacturing capacity of 50 GigaWatt Hour of ACC and five Giga Watt Hour of Niche ACC with an outlay of 18,100 crore.

- ACCs are the new generation of advanced storage technologies that can store electric energy either as electrochemical or as chemical energy and convert it back to electric energy as and when required.
- It will also give a big push to electric mobility, benefiting three-wheelers, four-wheelers and heavy vehicles.
- India is currently importing Battery Storage Equipment
- The scheme will be helpful in making the country self-reliant (Atmanirbhar).

Biodegradable yoga mat developed by 6 young girls from Assam may save lakes from water hyacinth menace

(Topic: Environment)

The girls belong to the fishing community living in the fringe of the **Deepor Beel**, a permanent freshwater lake in south west of Guwahati city, recognised as a **Ramsar Site** (a wetland of international importance) and a bird wildlife sanctuary. The lake has been a source of livelihood for 9 villages of the fishing community who shared this biome for centuries, but over the years suffered from excessive growth and accumulation of water hyacinth.

The innovation by the girls, whose families are directly dependent on the wetland for survival, could contribute significantly towards the environmental conservation and sustainability of Deepor Beel and also ensure local livelihood. The mat called '**Moorhen Yoga Mat**' will soon be introduced to the world market as a unique product; named after **Kam Sorai** (Purple moorhen, a resident bird of Deepor Beel Wildlife sanctuary).

The intervention was triggered through an initiative by North East Centre for Technology Application and Reach (NECTAR), an autonomous body under Department of Science & Technology (DST), Govt. of India to involve the entire women community associated with a collective called 'Simang' meaning dream, led by the 6 girls to create wealth from water hyacinth plants.

Considering all aspects of water hyacinth's properties and the functional requirements of a product like a mat, a hand-woven 100% biodegradable and 100 % compostable mat to be used for doing Yoga was ideated as a means to provide multiple ecological and social benefits.

- The mat developed through fiber processing and technological interventions could improve the aquatic ecosystem of the wetland through removal of water hyacinth, help sustainable production of utility products with community engagement and generate of livelihood for indigenous communities to become completely 'Atamanirbhar'.
- As the collection, drying and preparation of the water hyacinth before using it for weaving is the most important process, small interventions of technology were introduced like using 'solar dryer' which reduced the drying time to about 3 days. It could also compensate for the loss in time due to heavy rains that take place very frequently in this part of the country over a six month long rainy season (May-October).
- The women wove water hyacinth using traditional Assamese loom with the help of different combinations of techniques, materials and tools to develop a high quality, comfortable and thoroughly biodegradable and compostable Yoga Mat. It has resulted in engagement of 38 women from 3 fringe villages (Keotpara, Notun Basti and Borbori). Technology intervention could also increase the production rate.

Prelims-oriented News

Statehood Day of Gujarat and Maharashtra: 1st May

Assam CM: Shri Himanta Biswa Sarma

National Technology Day: 11th May

India's first Olympic-bound Fencer: Bhavani Devi

Cyclone Tauktae: Cyclone 'Tauktae', which lay as a deep depression over the Arabian Sea close to Lakshadweep, was likely to intensify into a 'very severe cyclonic storm' bringing heavy to very heavy rain to many parts of the western coast



Sovereign Gold Bond Scheme 2021-22: The Central Government in consultation with the RBI, has decided to issue Sovereign Gold Bonds.

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

Section 142 of the Social Security Code – 2020 Notified: Section 142 of the Social Security Code, 2020 has been notified by Ministry of Labour & Employment covering applicability of Aadhaar. The notification of section will enable Ministry of Labour and Employment to collect Aadhaar details for the database of beneficiaries under various social security schemes.

National Data Base for unorganised workers (NDUW) is at an advanced stage of development by National Informatics Centre. The portal is aimed at collection of data for unorganised workers including migrant workers for the purpose of giving benefits of the various schemes of the Government. An inter-state migrant worker can register himself on the portal on the basis of submission of Aadhaar alone.

Release of the new framework for implementation of SVAMITVA Scheme: The SVAMITVA Framework developed by the **Ministry of Panchayati Raj** provides a detailed roadmap and guidelines for the various States in terms of the Scheme objectives, coverage, various components involved, year-wise funding pattern, survey approach and methodology, stakeholders involved and their roles and responsibility, monitoring and evaluation, and deliverables.

- Property cards have been distributed in more than 7400 villages and more than 7,00,000 beneficiaries have been benefited from the Scheme across the country. The scheme will benefit rural residents by providing them with property cards that can be used for taking loans and the creation of accurate land records for rural planning.
- SVAMITVA Scheme aims to provide property rights to the residents of rural inhabited areas in India by using Drone survey and CORS Networks which provides mapping accuracy of 5 cms. It was launched by the Prime Minister on the occasion of National Panchayati Raj Day on 24th April 2021 after successful completion of the pilot phase of the Scheme in 9 States.
- The Ministry of Panchayati Raj (MoPR) is the Nodal Ministry for implementation of the SVAMITVA scheme. In the States, the Revenue Department/Land Records Department will be the Nodal Department and shall carry out the scheme with the support of State Panchayati Raj Departments.

Government of India and European Investment Bank sign finance contract for second tranche of Euro 150 million for Pune Metro Rail project: The project aims to provide efficient, safe, economic and pollution-free Mass Rapid Transit System in densely populated area in the city of Pune served with heterogeneous traffic options. The financing from EIB will help to fund construction and operation of Corridor 1 (North-South) – Pimpri Chinchwad Municipal Corporation (PCMC) to Swargate and Corridor 2 (West-East) – Vanaz (Kothrud) to Ramvadi, totaling about 31.25 kilometers (km) and related purchase of a related fleet of metro cars. Further, the project will serve large population which consisting working class in providing urban mobility for their livelihood.

Boost to India's rice exports potential: First consignment of non-basmati rice exports from Paradip port, Odisha flagged off to Vietnam;

- This is the first time in the history of Paradip Port, non-basmati rice will be exported.
- The rice exports through PICT would hugely boost India's exports of non-basmati rice to south-east countries while boosting income of at least two lakh farmers from Odisha and adjoining states

India begins exports of organic millets grown in Himalayas to Denmark: In a major boost to organic products exports from the country, first consignment of millets grown in Himalayas from snow-melt water of Ganges in Dev Bhoomi (Land of the God), Uttarakhand would be exported to Denmark.

- The exports of millets to Denmark would expand exports opportunities in European countries.

- The exports would also support thousands of farmers that are getting into organic farming.
- Millets are gaining a lot of popularity globally because of high nutritive values and being gluten free also.

About Millet:

- Millets are considered as 'superfood' and 'eat smart' strategies.
- High protein content, short growing season, climate change resilience and low water requirement make millets an ideal crop for the State.
- Millets can grow in poor soil conditions with less water, fertiliser and pesticides. They can withstand higher temperatures, making them the perfect choice as 'climate-smart' cereals.

Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme

- Under this programme, vulnerable landholding farmer families, having cultivable land, will be provided direct income support at the rate of Rs. 6,000 per year.
- This income support will be transferred directly into the bank accounts of beneficiary farmers, in three equal installments of Rs. 2,000 each.

Objectives of PM KISAN scheme:

- To supplement the financial needs of small and marginal farmers for procuring various inputs related to agriculture and allied activities.
- To give a boost to rural consumption.
- To augment government efforts in aim of doubling farmers income by 2022.

Features of PM KISAN Scheme:

- PM KISAN is a Central Sector scheme with 100% funding from Government of India
- Under the scheme income support of Rs.6000/- per year in three equal instalments will be provided to small and marginal farmer families
- Definition of the family for the scheme is husband, wife and minor children.
- State Government and UT Administration will identify the farmer families which are eligible for support as per scheme guidelines.
- The fund will be directly transferred to the bank accounts of the beneficiaries.

Significance of PM KISAN Scheme

- It provides support to small and marginal farmers who are largely involved in subsistence farming and struggles to invest in agriculture inputs or technology,
- It will boost the rural consumption and positive for agriculture and allied sectors.
- Poverty reduction: Cash transfer programmes are an important tool of social protection and poverty reduction. They have an immediate impact on reducing hunger and rural poverty.

- Better use: This can increase productive investment, increase access to markets and stimulate local economies. Income support can be used to make a repayment or at least activate a bank account which can then receive a loan.
- Rural development: It can serve as an important complement to a broader rural development agenda, including a pro-poor growth strategy focusing on agriculture.

Asiatic Lions housed in Hyderabad zoo infected with SARS-COV2 recovering well:

Further analyses of the samples have revealed that the infection was not caused by any variant of concern. The eight lions have been isolated and due care and necessary treatment has been provided. All the eight lions have responded well to the treatment and recovering. They are behaving normally and eating well.

- Preventive measures are already in place for all zoo staff and the zoo has been closed to visitors to avoid minimal external contact.
- Based on experience with zoo animals elsewhere in the world that have experienced SARS-COV2 positive last year, there is no factual evidence that animals can transmit the disease to humans any further.

Asiatic Lion

- It is a *Panthera leo leo* population in India.
- Its current range is restricted to the **Gir National Park** and environs in the Indian state of Gujarat.
- It is **one of five** pantherine cats inhabiting India. Others are:
 - Bengal tiger
 - Indian leopard
 - Snow leopard
 - Clouded leopard
- It is also known as the “Indian lion” and the “Persian lion”.
- **Status:**
 - Listed in Schedule I of Wildlife (Protection) Act 1972
 - Appendix I of CITES
 - Endangered on IUCN Red List.
- It is **slightly smaller** than African lions.
- The most striking morphological character is a longitudinal fold of skin running along belly of Asiatic Lions.

Van Dhan Yojana

- It is an initiative of the **Ministry of Tribal Affairs and TRIFED**, launched in 2018, to improve tribal incomes through the value addition of tribal products.
- It is a **Market Linked Tribal Entrepreneurship Development Program** for forming clusters of **tribal Self-Help-Groups (SHGs)** and strengthening them into Tribal Producer Companies
- It aims to set-up tribal community owned Minor Forest Produce (MFP)-centric multi-purpose Van Dhan Vikas Kendras.

- The Kendras would act as **common facility centres for procurement cum value addition to locally available MFPs**.
- One typical Van Dhan Vikas Kendra comprises of 15 Self Help Groups, each consisting of 20 Tribal gatherers.
- These SHGs will get training on sustainable harvesting/collection, primary processing & value addition and also provided with working capital to conduct their business.

SUTRA model: Scientists working for charting the trajectory of COVID-19 using a mathematical model

Nitrogen generating plants to be converted to generate oxygen: Considering the requirement of medical oxygen amidst the COVID-19 pandemic situation, the Government of India explored the feasibility of conversion of existing nitrogen plants to produce oxygen.

- The process of converting the existing Pressure Swing Absorption (PSA) nitrogen plants for production of oxygen was discussed. In the nitrogen plants Carbon Molecular Sieve (CMS) is used whereas Zeolite Molecular Sieve (ZMS) is required for producing oxygen. Therefore, by replacing CMS with ZMS and carrying out few other changes such as oxygen analyzer, control panel system, flow valves etc. existing nitrogen plants can be modified to produce oxygen.
- On deliberation with the industries, so far 14 industries have been identified where conversion of plants is under progress. Further 37 Nitrogen plants have been also identified with the help of industry associations.
- A nitrogen plant modified for the production of oxygen can be either shifted to a nearby hospital or, in case it is not feasible to shift the plant, it can be used for on-site production of oxygen, which can be transported to hospital through specialized vessels/cylinders.

IIT develops portable tech-traditional eco-friendly mobile cremation system: Indian Institute of Technology, Ropar has developed a prototype of a moveable electric cremation system which claims to be using first of its kind technology that involves smokeless cremation despite using wood.

It uses half of the wood otherwise required for the cremation and still is eco-friendly because of the technology that uses combustion air system.

It is based on wick-stove technology in which the wick when lighted glows yellow. This is converted into smokeless blue flame with the help of combustion air system installed over the wicks.

The cart-shaped incinerator has wheels and can be transported anywhere without much efforts. The cart is equipped with combustion air for primary and secondary hot air system. The disposal of the body is completed within 12 hrs including cooling time as against 48 hours required in the normal wood-based cremation.

Personality in News

Guru Tegh Bahadur (1621–1675) – 400th Birth Anniversary (Prakash Purab)

The period of history in India in the last four centuries cannot be imagined without the influence of Guru Tegh Bahadur, the ninth Sikh Guru.

- Guru Tegh Bahadur was the ninth of ten Gurus of the Sikh religion. Born at Amritsar in 1621, was the youngest son of Guru Hargobind.
- One hundred and fifteen of his hymns are in Guru Granth Sahib.
- There are several accounts explaining the motive behind the **assassination** of Guru Tegh Bahadur on **Aurangzeb's orders**. He stood up for the **rights of Kashmiri Pandits** who approached him against religious persecution by Aurangzeb.
- He was publicly killed in 1675 on the orders of Mughal emperor Aurangzeb in Delhi for himself refusing Mughal rulers and defying them.
- Gurudwara Sis Ganj Sahib and Gurdwara Rakab Ganj Sahib in Delhi mark the places of execution and cremation of his body.

Impact of his martyrdom: The execution hardened the resolve of Sikhs against religious oppression and persecution. His martyrdom helped all Sikh Panths consolidate to make the protection of human rights central to its Sikh identity. Inspired by him, his nine-year-old son, Guru Gobind Singh Ji, eventually organized the Sikh group into a distinct, formal, symbol-patterned community came to be known as Khalsa (Martial) identity.

Gurudev Rabindranath Tagore

- Also known by his pen name Bhanu Singha Thakur (Bhonita), and also known by his sobriquets Gurudev, Kabiguru, and Biswakabi, was a polymath, poet, musician, artist and ayurveda-researcher from the Indian subcontinent
- He is sometimes referred to as “the Bard of Bengal”
- Author of the “profoundly sensitive, fresh and beautiful verse” of Gitanjali, he became in 1913 the first non-European to win the Nobel Prize in Literature
- As a humanist, universalist, internationalist, and ardent anti-nationalist, he denounced the British Raj and advocated independence from Britain. As an exponent of the Bengal Renaissance, he advanced a vast canon that comprised paintings, sketches and doodles, hundreds of texts, and some two thousand songs; his legacy also endures in the institution he founded, Visva-Bharati University.
- Gitanjali (Song Offerings), Gora (Fair-Faced) and Ghare-Baire (The Home and the World) are his best-known works, and his verse, short stories, and novels were acclaimed—or panned—for their lyricism, colloquialism, naturalism, and unnatural contemplation.
- His compositions were chosen by two nations as national anthems: India's Jana Gana Mana and Bangladesh's Amar Shonar Bangla. The Sri Lankan national anthem was inspired by his work.

- Tagore's Nobel Prize was stolen from the safety vault of the Visva-Bharati University, along with several other of his belongings on March 25, 2004. However, on December 7, 2004, the Swedish Academy decided to present two replicas of Tagore's Nobel Prize, one made of gold and the other made of bronze, to the Visva-Bharati University. It inspired the fictional film Nobel Chor.
- In the year 2011, to mark and honour Gurudev's 150th birth anniversary, the Government of India had issued five rupee coins.
- It was Tagore who conferred the title of 'Mahatma' on MK Gandhi in 1915. Although Tagore is said to have admired Gandhi, he differed with him on certain issues.
- Rabindranath Tagore and Albert Einstein met four times between 1930 and 1931 and mutually revered each other for each other's contributions.

Gopal Krishna Gokhale (1866-1915)

A protégé of Ranade and influenced by the British philosopher-parliamentarian Edmund Burke, Gokhale worked towards realising constitutional ideals in India for three decades and abjured the use of reactionary or revolutionary ways.

Gokhale first arrived on the national scene after cross-examining British colonial expenditure at the Welby Commission of 1897 in England. Gokhale's work earned him praise in India as he laid bare British military financing policies that heavily burdened Indian taxpayers much to the chagrin of then **Viceroy Lord Curzon** — regarded among the most vituperative of racists to occupy that post.

In 1899, Gokhale joined the Indian National Congress, emerging as one of the main leaders of its 'moderate' wing, and gave up teaching three years later to work as a lawmaker for the remainder of his life.

At Bombay, Gokhale opposed the British government's onerous land revenue policies, advocated free and compulsory primary education, and asked for the creation of equal opportunities to fight against untouchability. At the Imperial legislature, Gokhale played a key role in framing the Morley-Minto reforms of 1909 and advocated for the expansion of legislative councils at both the Centre and the provinces. A critic of British imperial bureaucracy, Gokhale favoured decentralisation and the promotion of panchayat and taluka bodies.

He also spoke for the Indian diaspora living in other parts of the British Empire and opposed tooth and nail the indentured labour system, raising their problems in the Imperial legislature as well as at Congress sessions.

Gokhale became Congress president at its **Banaras session in 1905**. This was also the time when bitter differences had arisen between his group of 'Moderates' and the 'Extremists' led by Lala Lajpat Rai and Bal Gangadhar Tilak among others. Matters came to a head when the two factions split at the **Surat session of 1907**. Historians note that despite ideological differences, Gokhale maintained cordial relations with his opponents. In 1907, he fervently campaigned for the release of Lala Lajpat Rai, who was imprisoned that year by the British at Mandalay in present-day Myanmar.

After Mahatma Gandhi's return to India, he joined Gokhale's group before going on to lead the independence movement. Gandhi regarded Gokhale as his political mentor, and wrote a book in Gujarati dedicated to the leader titled '**Dharmatma Gokhale**'.

Maharana Pratap

The 13th king of Mewar, a region in north-western India in the present-day state of Rajasthan

Rana Pratap's defiance of the mighty Mughal empire, almost alone and unaided by the other Rajput states, constitute a glorious saga of Rajput valour and the spirit of self-sacrifice for cherished principles.

Battle of Haldighati was fought between **Akbar** and Maharana Pratap Singh.


Note: Maharana Pratap Sagar, also known as Pong Reservoir or Pong Dam Lake was created in 1975, by building the highest earthfill dam in India on the Beas River in the wetland zone of the Siwalik Hills of the Kangra district of the state of Himachal Pradesh. Named in the honour of Maharana Pratap (1540–1597), the reservoir or the lake is a well-known wildlife sanctuary and one of the 26 international wetland sites declared in India by the Ramsar Convention

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GS-2

New Recommendations of NEGVAC on COVID-19 Vaccination has been accepted by Union Ministry of Health

(Topic: COVID-19 Management)

These recommendations have been based on the evolving situation of the COVID-19 pandemic and emerging global scientific evidence & experience.

Deferring the COVID-19 vaccination in the following scenario:

1. Individuals having lab test proven SARS-2 COVID-19 illness: COVID-19 vaccination to be deferred by 3 months after recovery.

2. SARS-2 COVID-19 patients who have been given anti-SARS-2 monoclonal antibodies or convalescent plasma: COVID-19 vaccination to be deferred by 3 months from the date of discharge from the hospital.
3. Individuals who have received at least the 1st dose and got COVID-19 infection before completion of the dosing schedule: the 2nd dose should be deferred by 3 months after clinical recovery from COVID-19 illness.
4. Persons with any other serious general illness requiring hospitalization or ICU care should also wait for 4-8 weeks before getting the COVID-19 vaccine.

An individual can donate blood after 14 days of either receipt of COVID-19 vaccine or testing RT-PCR negative, if suffering from COVID-19 disease.

COVID-19 vaccination is recommended for all lactating women.

There is no requirement for screening of the vaccine recipients by rapid antigen test (RAT) prior to COVID-19 vaccination.

Regarding COVID-19 Vaccination of pregnant women, the matter is under discussion and further deliberation by the National Technical Advisory Group on Immunization (NTAGI).

Ministry of Tribal Affairs and Microsoft sign MoU on Joint initiative for Digital Transformation of Tribal Schools

(Topic: Education)

Vision: To build an inclusive, skills-based economy

Under affirmative action initiative, Microsoft will make **AI curriculum available to tribal students** in both English and Hindi at all EMRS schools under the Ministry to **skill educators and students in next-generation technologies** including Artificial Intelligence.

Features

- Under this program in the first phase, 250 EMRS schools have been adopted by Microsoft out of which 50 EMRS schools will be given intensive training and 500 master trainers would be trained in the first phase.
- Under the partnership, students from schools under the Ministry will be mentored on projects that involve AI applications for societal good and the UN's Sustainable Development Goals (SDGs). Students will also be trained and exposed to gamified environments on Minecraft to help build design thinking skills. To enable inclusion and access, Microsoft will make AI curriculum available to the schools and students in both English and Hindi.

- Teachers across states in India will be trained in a phased manner for using productivity technologies like Office 365 and AI applications in teaching, helping them deliver blended or remote learning experiences to students in a more personalized, productive and secure manner. Teacher trainings will introduce them to the world of virtual collaboration and how teaching can be augmented with virtual field trips or remote sessions with experts.
- The program will also offer opportunities for teachers to earn professional e-badges and e-certificates from the Microsoft Education Centre.

Amidst the pandemic, India achieved new milestones in Rural Development

(Topic: Rural Development)

Despite COVID pandemic, 1.85 crore persons have been offered work in May 2021 under **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)**. The work offered is 52% higher than the one offered during the same period in May 2019, which was 1.22 crore persons per day. As on 13th May, 2021, 2.95 crore persons have been offered work in FY 2021-22 completing 5.98 lakh assets and generating 34.56 crore person-days.

To fight against COVID-19 in rural areas, training has been provided to trainers on COVID-19 appropriate behaviours, vaccination and vaccine hesitancy and encourage good health-seeking behaviours and immunity building measures from 8-12th April 2021 under **Deendayal Anyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM)**. Under the initiative, 13,958 state, district and block level nodal persons trained as master trainers in 34 SRLMs, 1,14,500 Community Resource Persons (CRP) trained by master trainers and 2.5 Crore women SHG members trained by CRPs. State and district nodal persons have also been trained for capacity building and social development on COVID management under DAY-NRLM.

With an aim to provide relief and generate employment, **Revolving Fund and Community Investment Fund** amounting to approximately Rs. 56 Crore released to women Self Help Groups in FY 2021 as compared to approximately Rs. 32 Cr. in the same corresponding period in FY 2020. Online trainings have been continuing for the staff and community cadres on farm and non-Farm based livelihoods and promotion of Agri-Nutri gardens by SHG households has also been continued in this period.

Pradhan Mantri Awaas Yojana – Gramin scheme like other rural development schemes has been severely affected by COVID-19 pandemic, however, due to streamlined workflows the Ministry has been able to log an expenditure of Rs. 5854 Cr in this financial year as compared to Rs. 2512 Cr. in 2020-21 and Rs. 1411 Cr. in 2019-20, which are 43% and 24% respectively of the 2021-22 expenditure in the comparable period.

Despite lockdown across over 20 States/UTs and resultant difficulties in availability and movement of men, machine and materials, this year **highest length of road** has been completed in the comparable period over the last 3 years.

Government releases Rs. 5,968 Crore Central grant to 15 States under Jal Jeevan Mission for financial year 2021-22

(Topic: Government Schemes and Programmes)

Government of India has released Rs. 5,968 Crore to 15 States for the implementation of Jal Jeevan Mission in the financial year 2021-22. This is the first tranche of the four to be released in this financial year. Other 17 States/ UTs have been asked to send their proposals to National Jal Jeevan Mission for release of funds.

Out of the Central fund allocated under Jal Jeevan Mission –

- 93% of the fund is to be utilized on developing water supply infrastructure
- 5% on support activities
- 2% on water quality monitoring & surveillance activities

The Central funds are released by Government of India based on the **output in terms of tap water connections** provided in the States/ UTs and the utilization of available Central and matching State share.

The States have to transfer Central fund released along with matching State share to the single Nodal Account within 15-days of release of Central fund. The States have to make provision for matching State share and ensure that there is no shortage of funds to the implementing agencies, proper expenditure plan prepared so that expenditure is evenly spread throughout the year.

Increase in Budget

- The budgetary allocation of Jal Jeevan Mission has increased significantly to Rs. 50,011 Crore in 2021-22.
- In addition to this, 15th Finance Commission tied-grants of Rs. 26,940 Crore will also be available to PRIs for 'water and sanitation' services.
- In addition, fund is also available through matching State share and externally aided projects.

Thus, in 2021-22, more than Rs. 1 lakh Crore is planned to be invested in the country on ensuring tap water supply to rural homes. It is expected that this kind of investment is likely to continue over the next three years to achieve the goal of 'Har Ghar Jal'.

This enhanced budgetary allocation will have huge impact on rural economy in terms of employment generation both skilled and unskilled required for creation as well as operation and maintenance of drinking water supply infrastructure, grey water treatment & its reuse.

- It will boost massive infrastructure creation activities leading to productive assets in the villages.
- Increase in demand for motors, faucets, taps, pipes, etc. under JJM will give huge push to manufacturing sector as work commences in all remaining villages.

- To develop and maintain in-village water supply systems, skilling of village people to prepare a cadre of masons, plumbers, pump operators, etc. taken up for providing huge employment opportunities.

Jal Jeevan Mission: Aims to provide assured tap water supply to every rural home by 2024

GS-3

World Bee Day

(Topic: Agriculture and allied activities)

Celebrated on: 20th May

Launch of Honey Testing Laboratory Project at the Indian Agricultural Research Institute, Pusa, New Delhi for quality testing of honey and other products of beekeeping under the National Beekeeping and Honey Mission.

2021 theme: Bee Engaged – Build Back Better for Bees

Efforts by the Indian government

- Government is promoting Beekeeping as part of its aim to double farmers' income.
- Rs. 300 crore has been approved for the overall promotion of National Beekeeping & Honey Mission (NBHM), development of scientific beekeeping and achieving the target of "sweet revolution".
- 30 lakh farmers have been trained in beekeeping.
- Rs 500 crore has been allocated to NBHM by the Centre under the Atmanirbhar Bharat Campaign.
- A world-class state of art Honey Testing Lab has been established at National Dairy Development Board (NDDB), Anand with the help of Rs 5 crore.
- Two more regional / big testing laboratories have been sanctioned with an amount of Rs. 8 crore each for honey and other products of beekeeping.
- Aiming at the development of this sector, 13 mini / satellite district level laboratories for honey and other products of beekeeping and projects related to online registration and development of traceability sources of honey and other products and other important projects have also been approved.
- The Madhu Kranti portal for online registration and traceability system to track the source of honey and other bee products has also been launched two months ago.
- Steps have also been initiated for making of FPOs of beekeepers alongwith other efforts to promote scientific beekeeping. Total 10 thousand FPOs are being made across the country.

Do you know?

- India is among the world's top five honey producers.

- Compared to 2005-06 honey production has risen by 242% and exports have increased by 265%.

As per Food and Agricultural Organization database, in 2017-18, India ranked 8th in the world in terms of honey production (64.9 thousand tonnes) while China stood first (551 thousand tonnes).

Honey Mission

- **Aim of the Honey Mission:** Creating employment for farmers, Adivasis, women and unemployed youth by roping them with beekeeping and increasing India's honey production.
- **Launched by:** KVIC 3 years ago
- Under the Honey Mission, KVIC provides training and 10 bee boxes with live colonies to beneficiaries including farmers, beekeepers and unemployed youth.
- KVIC also runs beekeeping training programmes and courses.

Related articles: [Guidelines to Support Artisans in Beekeeping & Pottery Activities released](#)

Kharif Strategy 2021

(Topic: Agriculture)

Aim: To achieve self-sufficiency in the production of oilseeds

Under the strategy, the Government of India has approved an ambitious plan for the free distribution of high yielding varieties of seeds to the farmers for the Kharif season 2021 in the form of mini-kits. The special Kharif programme will bring an additional 6.37 lakh hectare area under oilseeds and is likely to produce 120.26 lakh quintals of oilseeds and edible oil amounting to 24.36 lakh quintals.

To become Aatmanirbhar in oilseeds, emphasis is also being put on enhancing the productivity of oilseeds by increasing the availability of high yielding varieties of seeds for the farmers to use on their fields.

About National Mission on Oilseeds and Oil Palm: The Government of India through the National Mission on Oilseeds and Oil Palm has the objective to augment the availability of edible oils and reduce the import of edible oils by increasing the production and productivity of oilseeds and oil palm. To this end a multi-pronged strategy is being adopted which includes the following:

- Increasing the seed replacement ratio with focus on varietal replacement
- Increasing irrigation coverage
- Nutrient management
- Intercropping with cereals/pulses/sugarcane
- Productivity improvement and adoption of proven and climate-resilient technologies
- Area expansion through diversification of low yielding food grains.

- Targeting rice fallow areas and high potential districts
- Promotion in non-traditional states
- Encouraging mechanization
- Research projects
- Training of farmers and extension officials
- Supporting cluster demonstrations for the adoption of good agricultural practices
- Creation of 36 oilseed hubs with a focus on regional approach for larger availability of quality seeds
- Post-harvest management at farm and village level
- Formation of Farmer Producer Organisations

As a result of the above efforts, the production of oilseeds has increased from 27.51 million tonnes in 2014-15 to 37.31 million tonnes in 2020-21 (2nd advance estimates), while the area has increased from 25.99 million hectares to 28.82 million hectares and yield from 1075 kg/hectares to 1295 kg/hectares during the same corresponding period.

BRICS countries underline importance of enhancing collaboration among astronomers

(Topic: Space and Technology)

Delegates from BRICS nations highlighted the importance of enhancing collaboration among astronomers from the countries at the seventh meeting of the BRICS Astronomy Working Group Meeting.

Under the Science, Technology, and Innovation track of the BRICS 2021 calendar, **India hosted** the seventh meeting of BRICS Astronomy Working Group (BAWG) meeting of Brazil, Russia, India, China, and South Africa, as well as astronomers from these countries in online mode from 19 to 20th May 2021.

The delegates deliberated on strategic and operational matters and recommended

- The networking of existing Telescopes in BRICS countries and create regional Data Network. They agreed to develop flagship project in this area.
 - The members of the working group also indicated future directions of research in this area such as building network of intelligent telescope and data network, study of transient astronomical phenomena in universe, big data, artificial intelligence, machine learning application to process the voluminous data generated now a days due to enhance multi-wavelength telescope observatory.
 - The BAWG which provides a platform for BRICS member countries to collaborate in the field of astronomy recommended that the focal points in each country should present the scientific results of the work being carried out in each country.
 - This will help seek funding support to realize the flagship project whenever funding opportunity announced by BRICS funding agencies. BAWG noted the importance of enhancing collaboration among astronomers from the BRICS countries.
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Theory by Indian Scientists to shed light on mystery behind complex phenomena in Plasma– the fourth state of matter

(Topic: Science and Technology)

Indian Scientists have recently developed a theory that helps understand the complicated nature of Sun-Earth interaction's happening in the magnetosphere– an area of space around Earth that is controlled by the Earth's magnetic field. This new theory has opened up a plethora of opportunities to unlock the mysteries of the ion-hole structures (a localized plasma region where the ion density is lower than the surrounding plasma). They are now working towards a detailed study of the ion hole structures observed in various space and astrophysical environments using the developed theory.

They have completely ruled out the necessity of the upper limit in the temperature ratio between ions and electrons for the generation of a special kind of wave called Bernstein Green Kruskal (BGK) waves, named after the scientists who predicted this wave. They revealed that the electrons that are not part of ion hole dynamics also play a vital role.

On November 2, 2017, NASA's latest expedition to unlock Sun-Earth interaction's complicated nature, the MMS spacecraft, observed negative monopolar potential (electric field potentials which can be visualized in the form of single-humped pulse-type structures). The scientific community suddenly recognized its importance, and publications were presented. However, none of the available theories could explain the characteristics of these structures due to the exotic background conditions. The new theory developed by the IIG team provides a better understanding of their characteristics and sheds light on the generation of these structures leading to the unraveling of nature's greatest mystery that causes phenomena —plasma transport and heating of plasma — the fourth state of matter after solid, liquid, and gas, which is the most natural and widely observed state of matter in the entire universe.

Magnetospheric Multiscale (MMS) Mission: A NASA robotic space mission to study the Earth's magnetosphere and theoretical predictions.

Scientists develop magnetometer for low cost, reliable & real-time measurements of magnetic fields

(Topic: Science and Technology)

Researchers have demonstrated a low-cost digital system to efficiently measure unknown magnetic fields.

Digital signals are the **backbone of communication systems** processed by hardware systems that transmit and receive the signals with the help of intermediate systems called 'digital receiver systems' or DRS. When magnetic matter creates signals, analysing them with DRS lets scientists study the magnetic fields. Analysing the properties of the signals, for example, how they vary with time, scientists can measure the fields and study their small fluctuations.

In a new study, scientists from Raman Research Institute (RRI), Bengaluru, an autonomous institute of the Department of Science & Technology, Government of India, have devised a **more efficient, faster, and low-cost digital receiver system that can make precise measurements of magnetic fields**.

The hardware of digital receiver systems are built with standard silicon-based memory devices. Computer codes are implemented that make these devices perform mathematical operations on the signal they receive, enabling DRS systems to measure fundamental properties of matter like 'Spin'. The spin of electrons determines the magnetism of most of the objects around us.

The electrons' spin is not constant at room temperatures. They fluctuate. These spin fluctuations cause what scientists call 'spin-noise'. By measuring the tiny fluctuations in the magnetic field, the researchers can infer the spin-noise accurately.

One of them uses a widely-used mathematical function, the '**Fourier transform**' of the signal, named after its inventor **Joseph Fourier**. The Fourier transform of the signal lets them calculate how the rubidium atom's energies vary, from which they can directly infer the magnetic field. A standard method of measuring the magnetic field analyses small frequency ranges of the signal separately. The researchers showed that their method speeds up the calculations compared to the standard method. Their improved method also increased their confidence in how the electrons' energies vary more than ten times.

Sometimes, while measuring magnetic fields, the DRS may receive signals only for a short time. In such scenarios, it is essential to record the signal as it gets created without losing any part of it. The researchers successfully implemented this ability with the help of a combination of standard hardware and computer codes. They measured a magnetic field of 800 microgauss — roughly a thousand times smaller than the Earth's magnetic field, within a tenth of a second.

Prelims-oriented News

International Museum Day 2021: 18th May

- To raise awareness about the fact that Museums are an important means of cultural exchange, enrichment of cultures and development of mutual understanding, cooperation and peace among peoples.
- Theme: The Future of Museums: Recover and Reimagine

India & Oman renew MoUs: On military cooperation & maritime issues

ELDERLINE (14567): Toll Free Helpline for elderly persons

SAMVEDNA: With an objective of providing psychological first-aid and emotional support to children affected during COVID-19 Pandemic, National Commission for Protection of Child Rights (NCPCR) is providing Tele-Counselling to children through

SAMVEDNA(Sensitizing Action on Mental Health Vulnerability through Emotional Development and Necessary Acceptance) – a Toll-Free Helpline launched to provide psycho-social mental support for Children affected during COVID 19 Pandemic.

Government takes historic pro-farmer decision of hiking fertiliser subsidy

The price of fertilisers is undergoing an increase due to the rising prices of phosphoric acid, ammonia etc internationally. PM stressed that farmers should get fertilisers at old rates despite the international rise in prices.

A historic decision was taken to increase the subsidy for DAP fertiliser from Rs. 500 per bag to Rs. 1200 per bag, which is an increase of 140%. Thus, despite the rise in international market prices of DAP, it has been decided to continue selling it at the older price of Rs.1200 and the central government has decided to bear all the burden of price hike. The amount of subsidy per bag has never been increased so much at once.

Exports of GI certified Gholvad Sapota (chikoo)for Maharashtra to UK begins

In a major boost to exports of Geographical Indication (GI) certified products, a consignment of **Dahanu Gholvad Sapota** from Palghar district of Maharashtra was shipped to the United Kingdom.

- GI certification of **Gholvad Sapota** is held by **Maharashtra Rajya Chikoo Utpadak Sangh** and the fruit is known for its sweet and unique taste. It is believed that the unique taste is derived from **calcium rich soil of Gholvad village**.
- Currently in the Palghar district, around 5000 hectares of land is under sapota or plantation. Out of 5000 farmers who grow Sapota, 147 farmers are authorized GI users.
- Sapota is grown in many states- Karnataka, Gujarat, Maharashtra, Tamil Nadu, West Bengal and Andhra Pradesh. Karnataka is known to be the highest grower of the fruit, followed by Maharashtra. It can be used in fruit salads, blended into milk or yogurt, as a smoothie or processed to make a jam out of it.

Anti Covid drug 2-DG launched

- 2-deoxy-D-glucose (2-DG) developed by DRDO in collaboration with Dr. Reddy's Lab
- The drug has the potential to become a game changer in our response against COVID pandemic as it reduces the dependence of patients on oxygen administration and has the potential of getting absorbed differentially and in a selected manner. In the COVID infected cells, it inhibits virus synthesis and energy production for the process.
- Drug to reduce average recovery time by 2.5 days and oxygen demand by 40%

DST funded start-up's Electrochemical ELISA test would help rapid & accurate estimation of total antibody concentration of COVID 19: A Bangalore-based start-up has developed a novel, point-of-care Electrochemical ELISA test that enables fast and accurate estimation of total antibody concentration of COVID 19 in clinical samples.

- While Qualitative analysis detects constituent elements in the sample, semiquantitative analysis gives an approximate estimation of their concentrations.
- This novel technology and product was supported by the Department of Science and Technology (DST), Government of India, under its initiative on Centre for Augmenting WAR with COVID-19 Health Crisis (CAWACH).
- The novelty of the technology is based on the measurement of electrochemical redox activity of IgM and IgG antibodies specific to SARS-CoV-2 Spike Glycoprotein (S1). The S1 protein hosts the Receptor Binding Domain (RBD), which latches to the ACE2 receptors on the cells before infection. Hence the antibody tests targeting S1 spike protein are more representative of an immune response against infection compared to other antibody tests targeting Nucleocapsid (N) protein.

The Pradhan Mantri Van Dhan Yojana (PMVDY)

It was launched in 2018. The scheme is run by the Tribal Cooperative Marketing Development Federation of India (TRIFED).

- It is an initiative targeting **livelihood generation** for **tribals** by harnessing the wealth of forest i.e. Van Dhan.
- The programme aims to tap into traditional knowledge & skill sets of tribals by adding technology & IT to upgrade it at each stage.
- The initiative shall provide enhanced livelihood to about 45 lakhs tribal gatherers in one year.
- Tribal community owned Minor Forest Produce (MFP)-centric multi-purpose **Van Dhan Vikas Kendras** (the Kendra) are set up.
- Essential Features of the PMVDY:
 - The State Nodal Department will have the flexibility to appoint any State Implementing Agency / District Implementing Unit for implementation of the PMVDY in the State and District levels.
 - The Kendras would act as common facility centres for procurement cum value addition to locally available MFPs.
 - A typical Van Dhan Vikas Kendra shall constitute of 15 tribal Van Dhan Self Help Groups (SHG)

Launch of NMMS app and Area officer monitoring App: The NMMS App permits taking real time attendance of workers at Mahatma Gandhi NREGS worksites along with geotagged photograph, which will increase citizen oversight of the programme besides potentially enabling processing payments faster. Area Officer Monitoring App facilitates them to record their findings online along with time stamped and geo-coordinate tagged photograph for all the schemes of Deptt of Rural Development- Mahatma Gandhi NREGS, PMAYG, PMGSY. This would also enable not only better record keeping of inspections by field and supervisory officials but also facilitate analysis of the findings for better programme implementation.

Personality in News

Late Shri Sunderlal Bahuguna – Chipko movement pioneer

A Padma Vibhushan and Padma Shri awardee, he was a Gandhian to the core. A legend in his own right, he made conservation a people's movement.

Chipko Movement: The environmentalist had fought for the preservation of forests in the Himalayas for years. He (along with local women), is hugely credited for the success of the Chipko movement that began in 1973 at the foothills of the Himalayas in Uttarakhand (then a part of Uttar Pradesh), to prevent the felling of trees in the ecologically sensitive zones.

- The movement's success led to enactment of a law to ban the felling of trees in ecologically sensitive forest lands.
- He also coined the Chipko slogan: 'ecology is permanent economy'.
- People associated with the movement hugged the trees (hence chikpo in Hindi) to prevent them from being axed.

His commitment to the cause was such that in 1981 he refused to accept the Padma Shri since the felling of trees was rampant in the Himalayas. He also undertook a near-5000 km march across the Himalayas where he saw the pace of deforestation and devastation brought by developmental projects and submitted his findings in reports to the United Nations.

Opposed the construction of Tehri Dam: Mr. Bahuguna led the charge against the construction of big dams in the Himalayas in the 1980s. He was fervently opposed to the construction of the Tehri dam.

Referred to as a 'Gentle Warrior', Bahuguna undertook many fasts to protest construction of dams and felling of trees.

In a letter to worried friends, he wrote, "Himalaya is a land of penance. Nothing in the world can be achieved without penance. I am doing this on behalf of all who are striving to save our dying planet. Why should a river, a mountain and forest or the ocean be killed, while we cling to life?"

Raja Ram Mohan Roy

Raja Rammohan Roy is rightly known as "the Father of Modern India" in recognition of his epoch making social, political and educational reforms.

(Though his father Ramakanto was very orthodox but he wanted his son to have higher education and after the basic formal education in Sanskrit and Bengali in the village school, Ram Mohan was sent to Patna to study Persian and Arabic in a madrasa. After that he went to Benares (Kashi) for learning the intricacies of Sanskrit and Hindu scripture, including the Vedas and Upanishads. He learnt English language at the age of 22 years.)

Educational Reforms: Ram Mohan viewed education as a medium to implement the social reforms. He came to Calcutta and started an English college from his own savings. He was well aware that the students should learn the English language and scientific

subjects and that's why he criticized the government's policy of opening only Sanskrit schools. According to him, Indians would lag behind if they do not get to study modern subjects like Mathematics, Geography and Latin. Government accepted this idea of Ram Mohan and also implemented it but not before his death. Ram Mohan was also the first to give importance to the development of the mother tongue. His 'Gaudiya Byakaran' in Bengali is the best of his prose works.

Political Reforms: Ram Mohan Roy was a staunch supporter of free speech and expression and fought for the rights of vernacular press. He also brought out a newspaper in Persian called 'Miratul- Akhbar' (the Mirror of News) and a Bengali weekly called 'Sambad Kaumudi' (the Moon of Intelligence). In those days, items of news and articles had to be approved by the government before being published. Ram Mohan protested against this control by arguing that newspapers should be free and that the truth should not be suppressed simply because the government did not like it.

Social Reforms: Among his efforts, the abolition of the sati-pratha-a practice in which the widow was compelled to sacrifice herself on the funeral pyre of her husband-was the prominent. His efforts were also instrumental in eradicating the purdah system and child marriage. In 1828, Ram Mohan Roy formed the Brahmo Samaj, a group of people, who had no faith in idol-worship and were against the caste restrictions.

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