www.vishnuias.com

VISHNU IAS

JUNE

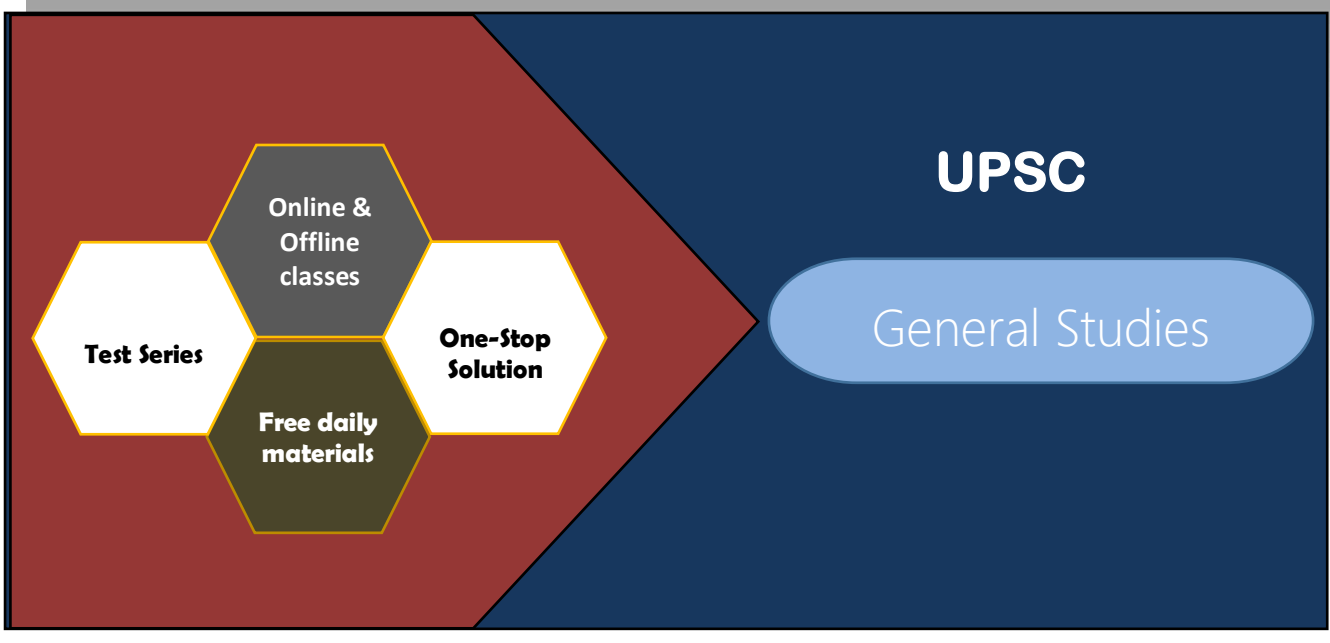
05.06.2021

CURRENT AFFAIRS

A MAGAZINEFOR CIVILSERVICESPREPARATION

JOIN OUR TELEGRAM:https://t.me/vishnuiasmentor

Articles of the day
THE HINDU & INDIAN EXPRESS



THE HINDU

GS 2 : Polity, Governance, International Relations

1. 17 cases of use of chemical weapons by Syria: OPCW

Context:

The head of the **Organisation for the Prohibition of Chemical Weapons (OPCW)** told the UN Security Council that its experts have investigated 77 allegations against Syria, and concluded that in 17 cases chemical weapons were likely or definitely used.

Details:

- In **September 2013, Syria acceded to the convention** as part of an agreement for the destruction of Syria's chemical weapons.
- He called it a disturbing reality that eight years after Syria joined the Chemical Weapons Convention, many questions remain about its **initial declaration of its weapons, stockpiles and precursors and its ongoing programme.**

Organisation for the Prohibition of Chemical Weapons:

- Organisation for the Prohibition of Chemical Weapons (OPCW) is the **international chemical weapons watchdog.**
- It is an intergovernmental organisation and the **implementing body for the Chemical Weapons Convention**, which entered into force on 29 April 1997.
    - Chemical Weapons Convention is an arms control treaty.
    - It prohibits the large-scale use, development, production, stockpiling and transfer of chemical weapons and their precursors, except for very limited purposes.
- The organisation **promotes and verifies the adherence to the Chemical Weapons Convention,** which **prohibits the use of chemical weapons** and **requires their destruction.**
    - Verification consists both of evaluation of declarations by member states and onsite inspections.
- The main office of OPCW is in **The Hague, Netherlands.**
- In 2013, OPCW was awarded the **Nobel Peace Prize.**
- It has the **power to report on whether chemical weapons were used in an attack** it has investigated.

- It has the **power to send inspectors to any signatory country to search for evidence of production of banned chemicals.**
- It also can **send experts to help countries to investigate crime scenes where chemical agents may have been used.**

Note:

India established the **National Authority for Chemical Weapons Convention (NACWC)** under the Chemical Weapons Convention Act, 2000 for implementing the provisions of the Chemical Weapons Convention

2. Delta variant led to most post-vaccine infections in Delhi

Context:

Research study by scientists in Delhi on the B.1.617.2 Coronavirus Delta variant. The study is yet to be peer-reviewed.

Details:

- The study is authored by scientists at the CSIR-Institute of Genomics and Integrative Biology (CSIR-IGIB) and the National Centre of Disease Control.
    - These are the **two key labs of the Indian Sars Cov-2 Genomic Consortium (INSACOG)** that **tracks the emergence of key variants** of the coronavirus.
- **International variant Alpha**, which in previous studies has been associated with a spike in cases in Delhi was **absent** in vaccination breakthrough-cases analysed.
- 27 instances of breakthrough infections were analysed. It was found that **two lineages dominated.**
    - **1.617.1 (Kappa)** comprised 8%, **Delta** was 76% and the remaining linked to variants that belonged to broader **"B.1 lineages".**

Concerns:

- **1.617.2, also known as the delta variant,** is now the **most dominant one in India.**
- It has **12 mutations** in its spike proteins as compared to SARS-CoV-2.
- There appeared to be **more ACE2 enzymes aiding the entry of coronaviruses** around these mutations L452R and T478K that characterised the variant.
    - This helps the new variant better infiltrate human cells.

- The variant is characterised by **high transmissibility, an accelerated surge in infections.**

3. No decision on indemnity to vaccine makers yet

Context:

The Union government has still not taken a final decision on the indemnity to either foreign or local COVID-19 vaccine manufacturers.

Background:

- Pfizer and Moderna have been **demanding indemnity as a pre-condition to enter into supply contracts with India.**
- Local manufacturer Serum Institute of India (SII) is also seeking the same.
- The government said it was **considering the requests,** and is **yet to take a decision.**

What is indemnity?

- The indemnity will **protect manufacturers from any potential civil-legal liability or immunity from being sued by people for any unforeseen complications arising from their COVID-19 vaccine**.

Why are manufacturers demanding indemnity?

- The **vaccines were developed at record speed** and were **approved for emergency use**.
- As the processes were expedited, there is a possibility of **potential unknown side-effects**.
- Therefore, the vaccine makers have demanded the **governments to support them by providing them indemnity.**

Pfizer enjoys such immunity in the US, UK and most other countries where it is supplying COVID-19 vaccines.

What happens in case the Government allows indemnity?

- Indemnity is only a contractual arrangement between the vaccine manufacturer and the government will be privy.
- In case people suffer from a grave injury, disability and death linked to the vaccine, **indemnity doesn't stop people from suing the manufacturer.**
- Liability under the legislation will be intact. They can **recover the losses contractually from the government.**

Way Forward:

- There is a need to strengthen **adverse event following immunisation (AEFI) reporting and investigations.**
- Government must be more **transparent on indemnity arrangements.**
- At present, there is no compensation mechanism available for COVID-19 vaccine linked serious adverse events or for that matter any vaccine.
- Public health activists say the government should **create a compensation mechanism.**

Note:

COVAX and the WHO have crafted indemnification agreements for countries considered Advanced Marketing Commitment Participants, or those who will be receiving donated vaccines.

4. DAC nod for building 6 conventional submarines

Context:

The **Defence Acquisition Council (DAC), headed by Defence Minister** has **approved** the issuance of a Request For Proposal (RFP) for the **construction of six conventional submarines** under **Project-75I** at an **estimated cost of ₹43,000 crore.**

Significance:

- This is a landmark approval. It is the **first case processed under the Strategic Partnership (SP) model**.
    - The SP model of the Defence Procurement Procedure (DPP) aims to **promote the role of Indian industry in manufacturing** and **build a domestic defence industrial ecosystem.**
- It would be one of the largest **'Make in India' projects** and it will **create a tiered industrial ecosystem for submarine construction in India.**
- India would be enabled to achieve its **30-year submarine construction programme** envisioned by the government to **acquire national competence in their building and for Indian industry to independently design and construct them.**
- As per the Navy's requirements, the submarines, all of which will be built in India, should be **equipped with Air Independent Propulsion (AIP) modules** and be able to **fire land-attack cruise missiles.**

Note:

- It also approved the **procurement of air defence guns and ammunition for the Army** at an approximate cost of ₹6,000 crore.

5. Two cheers

Context:

NITI Aayog has launched the **third edition of the Sustainable Development Goals (SDG) India Index 2020.**

Issues:

- While India has scored better in the latest SDG Index, the **methodological changes** in the latest edition make a **comparison between some SDGs over previous years difficult.**
- The 2020-21 Index **drops several economic indicators and gives greater weightage to social equality indicators.**
- Methodological issues on measuring other SDGs have been flagged before, but the **lack of adequate measurement of economic inequality seems to be a glaring miss.**
- **Stark differences between the southern and western States** on the one **hand and the north-central and eastern States** on the other in their performance on the SDGs, point to **persisting socio-economic and governance disparities.**
    - These differences if left unaddressed, will **aggravate federal challenges and outcomes**, as seen in the public health challenges during the second wave across some of the worse-off States.

Way Forward:

While the better score for India in its endeavour to achieve SDGs brings cheer, governments must work on addressing pressing issues such as increased inequality and economic despair.

GS 3 : Economy, Science and Technology,Environment

6. Saving biodiversity, securing earth's future

India's vast and rich biodiversity gives the nation a unique identity. The country has varied ecosystems across land, rivers, and oceans. The country is home to nearly **8% of global biodiversity on just 2.3% of global land area**, and containing sections of **four of the 36 global biodiversity hotspots**. The editorial talks about the

need for **rebuilding the relationship with nature, saving biodiversity with a view to securing Earth's future.**

Value of forests:

- While it is not possible to arrive at the precise economic value of all ecosystem services provided by biodiversity, according to estimates, **forests alone yield services worth more than a trillion rupees per year.**
- The **value would be much greater** with grasslands, wetlands, freshwater, and marine added.

Concerns:

- Present times are witnessing **worldwide declines in biodiversity.**
- Globally, **7% of intact forests have been lost since 2000.**
- Recent assessments indicate that over a **million species might be lost forever** during the next several decades.
- **Climate change and the pandemic** add to the existing stresses on the natural ecosystems.
- The pandemic has exposed the **dysfunctional relationship between humanity and nature**.
- Some of the issues that have come to the fore are:
    - the emergence of infectious diseases
    - lack of food and nutritional security
    - rural unemployment
    - climate change, with all its stresses on nature, rural landscapes, and public health.

National Mission on Biodiversity and Human Well-Being (NMBHWB):

- In 2018, **the Prime Minister's Science, Technology and Innovation Advisory Council (PM-STIAC)** in consultation with the Ministry of Environment, Forest, and Climate Change and other Ministries approved an ambitious **National Mission on Biodiversity and Human Well-Being (NMBHWB)**.
- A Bengaluru-based Biodiversity Collaborative is **working with the National Biodiversity Authority** to hold consultations and prepare road maps of the Mission.
- The mission will be steered by a core of the country's leading biodiversity science and conservation organisations, from public, academic, and civil society sectors.

Significance of the Mission:

- Mission programmes offer **nature-based solutions to numerous environmental challenges**, including degradation of rivers, forests, and soils, and ongoing threats from climate change, with the goal of creating climate-resilient communities.
- **Scientific inputs,** especially related to geospatial informatics and policy, **can guide the development of strategies** for conservation and ecosystem management.
- The Mission will:
    - strengthen **the science of restoring, conserving, and sustainably utilising** India's natural heritage
    - **embed biodiversity as a key consideration** in all developmental programmes, particularly in agriculture, ecosystem services, health, bio-economy, and climate change mitigation
    - establish a **citizen and policy-oriented biodiversity information system**
    - enhance capacity across all sectors for the **realisation of India's national biodiversity targets** and United Nations Sustainable Development Goals (**UN SDGs**).
- It will allow India to emerge as a **leader in demonstrating the linkage between the conservation of natural assets and societal well-being.**
- The Mission's comprehensive efforts will empower India to restore, and even increase natural assets by millions of crores of rupees.
- Mitigation programmes will lessen the impacts of climate change and other natural disasters, such as pandemics and floods.

Way Forward:

- One of the ways to mitigate climate change and curtail future outbreaks of infectious diseases is to **repair the dysfunctional relationship with nature**.
- The concept of **One Health for all living organisms**, including the invisible biota in soils that sustain the agricultural systems must be rethought and reimagined.
    - **Integrating human health with animal, plant, soil and environmental health** has both the preventive potential to curtail future pandemics along with the interventional capability for unexpected public health challenges.
- India can **rejuvenate agricultural production systems** and **increase rural incomes** from **biodiversity-based agriculture**.
    - It will also help create millions of green jobs in restoration and nature tourism.
- There is a need for an **extensive cadre of human resources** required to meet the enormous and complex environmental challenges.

  - This will require **training professionals in sustainability and biodiversity science**, along with an **investment in civil society outreach**.
- **Preserving biodiversity** is directly **relevant to the social, economic, and environmental well-being** of people.

7. RBI's view on cryptocurrency stays, have major concerns: Das

What's in News?

The Reserve Bank of India Governor's comments on cryptocurrencies.

- RBI Governor made it clear that the RBI's view on cryptocurrencies such as Bitcoin remains unchanged and it continues to have **'major concerns' on the volatile instruments.**
- In 2018, the RBI had first come out with a circular, cautioning people against investing in **cryptocurrencies, that do not have sovereign character.**
  - It had barred entities regulated by it from dealing in such instruments.
- However, in 2020, the Supreme Court struck down the circular.

Issue:

Some of the cryptocurrencies have seen a massive dip in their per-unit trading prices lately, leading to erosion of investor wealth.

8. HC imposes fine on Juhi Chawla in 5G case

Context:

The Delhi High Court rejected actor Juhi Chawla's suit against the rollout of 5G technology in India, terming it a publicity stunt done without any personal knowledge of the issue.

Background:

- The actor had moved the Delhi High Court **against the rollout of 5G technology** in India.
- In her plea, she alleged that **no person, animal, bird, insect & plant will be able to avoid exposure to levels of RF radiation** that are 10 to 100 times greater than what exists today.
- The plea also demanded that the department concerned should certify that 5G technology is safe for humans and also animals and birds.
- This recent lawsuit by the actor and environmental activist has **rekindled the debate on the possible harmful effect of 5G on humans.**

What is 5G technology, and how is it different?

- 5G stands for **5th generation mobile network.**
- It is a new global wireless standard after 1G, 2G, 3G, and 4G networks.
- The new network has been designed for **enhanced connectivity across devices –** cell phone or an IoT device in a smart home.
- The wireless technology is **meant to deliver much higher data transfer speeds** than what was possible on 4G. Also, **5G uses higher frequency waves than earlier mobile networks.**
- Higher frequency means a shorter wavelength.
    - 5G waves are able to travel a shorter distance than 4G waves.
    - Therefore, an extensive network of 5G requires more ground-based transmitters.

What are the concerns?

- 5G emits its own electromagnetic radiation like all other radio waves. The concern is that these radiations can be harmful to humans and other organisms.
- Besides, critics and studies claim that the **increased number of transmitters** will further **increase exposure** to the radiation, potentially **impacting a much wider number of people and animals.**

Arguments against the claims:

- Though the studies are accurate in their own regard, **none of them conclusively points out an impact to humans from Radio Frequency Radiations.**
- While the case that 5G is harmful to humans is not as strong, there are concrete understandings of radiations that suggest **no such connection is possible.**
    - Radio wave band that is used for mobile phone networks (including 5G) **is non-ionising**. Such radio waves **lack sufficient energy to cause cellular damage** by breaking DNA apart.

Existing guidelines:

- **Higher energy radiation** levels such as medical x-rays and gamma rays are known to **have health risks with extended exposure.**
    - For such energy waves, there are **strict advisory limits for exposure.**
- Guidelines on the use of radio waves are also in place, and the 5G spectrum falls easily under those limits.

9. The time to limit global warming is melting away

Context:

The world is facing two momentous challenges: COVID-19 and climate change. Both these challenges require all the countries to come together to find a way forward. In 2015, the world signed the Paris Agreement, to **limit global temperature rises to well below 2°C, aiming for 1.5°C**, as it is expected to avoid the worst effects of climate change. The article talks about the need for strong action to avert the harmful effects of climate change.

India's response:

- India has a strong record of tackling climate change.
- It has set impressive **domestic targets to have 450GW of renewable energy by 2030.**
- It was instrumental in initiating the **International Solar Alliance and the Coalition for Disaster Resilient Infrastructure (CDRI).**
- India played a critical role in delivering the landmark **Paris Agreement.**
- India has **quadrupled wind and solar capacity** in the last decade.

COP26:

- The 2021 United Nations Climate Change Conference, also known as COP26, is the **26th United Nations Climate Change Conference.**
- It is scheduled to be held in the **city of Glasgow from 1 to 12 November 2021** under the **presidency of the United Kingdom.**
- This provides a platform to get the world on track to address the enormous threat of climate change and build a cleaner, brighter future for everyone.

What is the way forward?

- In terms of limiting warming, every fraction of a degree makes a difference.
- The **Climate Action Tracker** estimates that countries' current emissions reduction targets would still **result in average temperature rises of 2.4°C.**
- To limit warming to 1.5°C, **global emissions must be halved by 2030**. This is what makes COP26 so critical.
- To keep 1.5°C within reach, globally, **net zero must be reached by the middle of this century.** Strong action must be taken over the next decade.
- Another major goal is to **protect people and nature from the worst effects of climate change.**
    - The two cyclones, Tauktae and Yaas, that hit India show that the country must work on the real need for **flood defences, warning systems and other vital efforts** to minimise, avert and address the loss and damage caused by climate change.

- **Developed countries must deliver the $100 billion** they promised **annually to support developing countries.**
- **The entire globe must come together to deliver on these goals.**
    - That includes **building consensus among governments** for an ambitious, balanced and inclusive outcome.
    - There is a need for **bringing businesses and civil society on board** and building up **international collaboration in critical sectors.**

COP26 provides a strong platform for keeping alive hopes of limiting global warming to 1.5°C. It is a great chance to act towards building a brighter future with green jobs and cleaner air.

10. RBI holds rates, cuts GDP forecast

What's in News?

The Reserve Bank of India (RBI) has left the benchmark interest rates unchanged.

- The **policy repo rate** remains unchanged at **4%.**
- It has reiterated that it would **retain its accommodative stance** for as long as necessary to revive and sustain growth on a durable basis.
- Also, it **cut its GDP growth forecast** for the fiscal year 2021-22 **by 100 basis points to 9.5%.**
- It **marginally raised its projection for CPI inflation** during 2021-22 to **5.1%.**

THE INDIAN EXPRESS

GS 2 : Polity, Governance, International Relations

1.Corbevax Covid-19 Vaccine

Why in News

India has placed an advance order to block 300 million doses of a new **Covid-19** vaccine, **Corbevax.**

Key Points

- **Corbevax:**
  - **About:** It is India's indigenous **Covid-19 vaccine** which is currently **undergoing Phase 3 clinical trials.**
  - **Working:**
    - It is a **"recombinant protein sub-unit"** vaccine.
      - It means it is made up of a **specific part of SARS-CoV-2** - the **spike protein** on the virus's surface.
    - The **spike protein allows the virus** to enter the cells in the body so that it can replicate and cause disease.
    - However, when this **protein alone is given to the body,** it is not expected to be harmful as the rest of the virus is absent.
    - The body is expected to **develop an immune response** against the injected spike protein.
    - Therefore, when the real virus attempts to infect the body, it will already have an immune response ready that will make it unlikely for the person to fall severely ill.
- **Difference between Corbevax and Other Covid-19 Vaccines:**
  - They are either **mRNA vaccines** (Pfizer and Moderna), **viral vector vaccines** (**Covishield** and **Sputnik V**) or **inactivated vaccines** (**Covaxin**, Sinovac-CoronaVac and Sinopharm's Vero Cell).
  - **Viral vector and mRNA** vaccines **use a code to induce our cells** to make the spike proteins against which the body has to build immunity.
    - In the case of Corbevax, protein itself is given.
    - **mRNA vaccines** work by using messenger RNA (mRNA), which is the molecule that essentially puts DNA instructions into action. Inside a cell, mRNA is used as a template to build a protein.
    - **Viral vector vaccines** use a modified version of a different virus (the vector) to deliver important instructions to our cells.
  - **Inactivated vaccines include killed particles of the whole SARS-CoV-2 virus,** attempting to target the entire structure of the virus.
    - Corbevax, like the mRNA and viral vector Covid-19 vaccines, targets only the spike protein, but in a different way.

Other Types of Vaccine

- **Live-attenuated Vaccines:**
  - Live vaccines use a **weakened (or attenuated) form of the germ** that causes a disease.
  - Because these vaccines are so **similar to the natural infection** that they help prevent, they create a strong and long-lasting immune response.
  - The limitation of this approach is that these vaccines usually **cannot be given to people with weakened immune systems.**
  - Live vaccines are used against: **Measles, mumps, rubella (MMR combined vaccine), Rotavirus, Smallpox** among others.
- **Subunit, recombinant, polysaccharide, and conjugate Vaccines:**
  - They **use specific pieces of the germ -** like its protein, sugar, or capsid (a casing around the germ). They give a very strong immune response.
  - They can also be used on people with weakened immune systems and long-term health problems.
  - These vaccines are used to protect against: **Hib** (Haemophilus influenzae type b) disease, **Hepatitis B**, **HPV (Human papillomavirus), Pneumococcal disease** among others.
- **Toxoid Vaccines:**
  - Toxoid vaccines **use a toxin made by the germ that causes a disease.** Toxoid vaccines are used to protect against: **Diphtheria, Tetanus.**

2.Council of Scientific and Industrial Research

Why in News

Recently, the Prime Minister chaired a meeting of the **Council of Scientific and Industrial Research (CSIR) Society** through video conference.

- Earlier **CSIR Floriculture Mission** was approved for implementation in 21 States and Union Territories of India.
- It is also planning to **undertake genome sequencing of** a sample of nearly 1000 Indian **rural youth to determine unique genetic traits, susceptibility (and resilience) to disease.**

Key Points

- **About:**
  - It is the **largest research and development (R&D) organisation in India.** It has a **pan-India presence** and has a dynamic network of **37 national laboratories, 39 outreach centres, 3 Innovation Complexes and 5 units.**

- It is **ranked 37th among 1587 government institutions worldwide** and is the only Indian organization among the top 100 global government institutions, according to the **Scimago Institutions Ranking World Report 2021.**
  - CSIR holds the **7th rank in Asia and leads the country at the first position.**
- The **Prime Minister** is the **President** (Ex-officio) and the **Union Minister of Science and Technology** is the **Vice President** (Ex-officio).

- **Funding:**
  - CSIR is funded by the **Ministry of Science and Technology** and it operates as an autonomous body through the **Societies Registration Act, 1860.**
- **Established:**
  - September 1942.
- **Located:**
  - New Delhi.
- **Objectives:**
  - **Scientific and industrial/applied research of national importance.** It covers a wide spectrum of streams such as: Radio and space physics, oceanography, **biotechnology**, **nanotechnology**, information technology, etc.
  - It **provides significant technological intervention** in many areas with regard to societal efforts which include the environment, health, drinking water, food, housing, energy, farm and non-farm sectors.
- **Some Initiatives:**
  - **Covid-19:**
    - CSIR has set up **five technology verticals** for addressing the emerging situation due to **pandemic**:
      - Digital and Molecular Surveillance.
      - Rapid and Economical Diagnostics.
      - Repurposing of Drugs, Vaccine and Convalescent Plasma Therapy.
      - Hospital Assistive Devices and PPEs (Personal Protective Equipment).
      - Supply Chain and Logistics Support Systems.
  - **Strategic:**
    - **Head-Up-Display (HUD):** It developed indigenous Head-Up-display (HUD) for Indian Light Combat Aircraft, **Tejas**. HUD **aids the pilot in flying the aircraft and in critical flight maneuvers including weapon aiming.**
  - **Energy & Environment:**
    - **Solar Tree**: It occupies **minimum space to produce clean power.**

- **Lithium Ion Battery**: India's **first lithium ion battery fabrication facility** based on indigenous novel materials for making 4.0 V/14 h standard cells has been established.

- **Agriculture:**
  - **Samba Mahsuri Rice Variety:** It developed a **Bacterial Blight Resistant Rice.**
  - **Rice Cultivar (Muktashree):** A rice variety has been developed which **restricts assimilation of Arsenic within permissible limits.**
  - **White-fly resistant Cotton variety:** Developed a **transgenic cotton line** which is resistant to whiteflies.
- **Healthcare:**
  - **Genomics and other omics technologies for Enabling Medical Decision – GOMED:** It has been developed by the CSIR which provides a platform of disease genomics to solve clinical problems.
- **Food & Nutrition:**
  - **Ksheer-scanner:** It detects the **level of milk adulteration** and adulterants in 45 seconds at the cost of 10 paise.
  - **Double-Fortified Salt:** Salt **fortified with iodine and iron** having improved properties developed and tested for **addressing anaemia in people.**

3.World Environment Day 2021

Why in News

The **World Environment Day** is observed on the **5th of June annually** to encourage awareness and environmental protection.

Key Points

- **World Environment Day:**
  - **History:**
    - The **United Nations Assembly** established World Environment Day in 1972, which was the first day of the **Stockholm Conference** on the human environment.
  - **Theme for 2021:**
    - **'Ecosystem Restoration'.**
      - It will kick off the **UN Decade on Ecosystem Restoration (2021-2030) -** a global mission to revive billions of hectares, from forests to farmlands, from the top of mountains to the depth of the sea.

- The theme for this year's in India is **'promotion of biofuels for a better environment'.**

- **Host Nation:**
  - Pakistan will be the global host for 2021.
- **Initiatives Taken by India:**
  - **E-100 pilot project** has been launched in Pune for the production and distribution of ethanol across the country.
  - The government is **releasing the E-20 notification** that will allow oil companies to sell 20% ethanol blended petrol from 1st April, 2023, and BIS specifications for ethanol blends E12 and E15.

Ecosystem Restoration

- **Ecosystem:**
  - It is **a community of plants and animals interacting with each other in a given area,** and also with their **non-living environments.** The non-living environments include weather, earth, sun, soil, climate and atmosphere.
  - The ecosystem **relates to the way** that all these different organisms live in close proximity to each other and how they interact with each other.
- **Ecosystem Restoration:**
  - Ecosystem restoration means **assisting in the recovery of ecosystems** that have been degraded or destroyed, as well as **conserving the ecosystems** that are still intact.
    - It involves reviving old water bodies, building natural forests, providing space to wildlife and reducing water pollution to restore aquatic life.
  - Healthier ecosystems, with richer biodiversity, **yield greater benefits** such as more fertile soil, bigger yields of timber and fish, and larger stores of greenhouse gases.
- **Need of Restoration:**
  - Ecosystem loss is **depriving the world of carbon sinks,** like forests and wetlands, at a time when humanity can least afford it.
  - **Global greenhouse gas emissions** have grown for three consecutive years and the planet is one place for potentially catastrophic climate change.
- **India's Restoration Initiatives:**
  - **National Afforestation Programme (NAP)**: It focuses on the rehabilitation of degraded forests and afforestation around forests.
  - **National Mission for a Green India (GIM)**: It is under the **National Action Plan on Climate Change (NAPCC)** and aimed at improving and increasing tree cover as a climate adaptation and mitigation strategy.

- **National Biodiversity Action Plan**: It has been launched to implement strategies for the reduction in rates of degradation, fragmentation and loss of natural habitats.
- **Rural Livelihood Schemes:** Recognition of natural resources intrinsically linked to rural livelihoods is also reflected in flagship schemes like the **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)** and the **National Rural Livelihood Mission (NRLM).**
    - Potential for restoration through MGNREGA lies in its plantation and rejuvenation of water bodies subcomponents, through which provisions for livelihoods in afforestation, tree plantation, horticulture, and construction of new ponds have been made.
    - Similarly, schemes under NRLM, bifurcated into farm and non-farm livelihoods, focus on interventions to enhance natural capital and present opportunities for ecosystem restoration.

4.Seniorcare Aging Growth Engine Initiative

Why in News

Recently, the **Ministry of Social Justice and Empowerment** virtually launched the **SAGE (Seniorcare Aging Growth Engine) initiative** and **SAGE portal** for **elderly persons.**

- An amount of **Rs. 100 crore** has been assigned for the **promotion of the silver economy.**

Silver Economy

- Silver economy is the system of **production,** distribution and consumption **of goods and services aimed at using the purchasing potential of older and ageing people** and satisfying their consumption, living and health needs.
- The silver economy is **analyzed in the field of social gerontology** (study of aging) **not as an existing economic system but as an instrument of ageing policy** and the political idea of forming a potential, needs-oriented economic system for an aging population.
- Its **main element is gerontechnology** (Technology pertaining to aged people) as a new scientific, research and implementation paradigm.

Key Points

- **About:**
    - The **SAGE portal** will be **a "one-stop access" of elderly care products and services by credible start-ups.**

- It has been launched with a view to **help such persons who are interested in entrepreneurship in the field of providing services for elderly care.**
- The **SAGE project aims to identify,** evaluate, verify, aggregate, and deliver products, solutions and services directly to the stakeholders. The **Ministry will act as a facilitator,** enabling the elderly to access the products through identified start-ups.

- **Features:**
  - **Start-ups can apply** for being a part of SAGE through a dedicated portal.
  - The start-ups selected under SAGE will be those which will provide new innovative products and services to elderly persons in **various areas like health, travel, finance, legal, housing, food among others.**
  - An allocation of **Rs. 25 crores** has been made for the SAGE project in the current financial year i.e **2021-22.**
- **Need for the Initiative:**
  - The **share of elders**, as a percentage of the total population in the country, is expected **to increase from around 7.5% in 2001 to almost 12.5% by 2026,** and surpass **19.5% by 2050.**

- **Other Government Initiatives for Elderly people:**
  - **Integrated Programme for Older Persons (IPOP):**
    - The main objective of the scheme is to improve the quality of life of older persons by providing basic amenities like shelter, food, medical care and entertainment opportunities, etc.
  - **Rashtriya Vayoshri Yojana (RVY):**
    - This is a **central sector scheme** funded from the **Senior Citizens' Welfare Fund.** The fund was notified in the year 2016.
    - It aims to provide **aids and assistive living devices to senior citizens belonging to Below Poverty Line (BPL) category** who suffer from age-related disabilities such as low vision, hearing impairment, loss of teeth and locomotor disabilities.
  - **Pradhan Mantri Vaya Vandana Yojana (PMVVY):**
    - PMVVY was **launched in May 2017** to provide social security during old age.
    - It is a **pension scheme for senior citizens** that comes with guaranteed returns on monthly, quarterly, half-yearly or on an annual basis for a period of 10 years. It is **exclusively available to those who are 60 years of age and above.**
  - **Vayoshreshtha Samman:**
    - Conferred as a **National award,** and given to eminent senior citizens & institutions under various categories for their

contributions on **International day of older persons on 1st October.**

- **Maintenance and Welfare of Parents and Senior Citizens (MWPSC) Act, 2007:**
  - To ensure need-based maintenance for Parents and Senior Citizens and their welfare.

GS 3 : Economy, Science and Technology,Environment

5.Bamboo Market Window on GeM Portal

Why in News

Recently, the government of India has dedicated a window **'The Green Gold Collection'** on the **GeM (Government e-Marketplace) portal** for the **marketing of Bamboo Goods.**

- This window is the collective work of the **National Bamboo Mission (NBM)** and **GeM.**

Key Points

- **About:**
  - It showcases a range of exquisitely handcrafted bamboo and bamboo products, handicrafts, disposals and office utility products on the GeM portal.
  - It **aims to** provide bamboo artisans, weavers and entrepreneurs in rural areas with market access to Government buyers.
  - It seeks **to promote** the adoption and **use of bamboo products** among Government buyers and usher a sustainable rural economy for an **Atmanirbhar Bharat**.
- **National Bamboo Mission:**
  - **Launch:**
    - The **restructured NBM** was launched in **2018-19** for the holistic development of the complete value chain of the bamboo sector and is being **implemented in a hub & spoke model.**
      - **"Hub & Spoke"** model wherein the **Mentor Institution**, called the **"Hub"** is centralized and will have the responsibility of guiding the **Mentee institution** through

the secondary branches the **"Spoke"** i.e. through the services provided to the mentee for self improvement.

- **Objectives:**
  - **Connecting farmers to markets** so as to enable farmer producers to get a ready market for the bamboo grown and to increase the supply of appropriate raw material to the domestic industry.
  - It also endeavours **to upgrade skills** of traditional bamboo craftsmen as per the requirement of contemporary markets with a tie-up with enterprises and premier institutes.
- **Nodal Ministry:**
  - Ministry of Agriculture and Farmers Welfare.

- **Government e-Marketplace:**
  - **About:**
    - **GeM** is **a one-stop National Public Procurement Portal** to facilitate online procurement of common use Goods & Services required by various Central and State Government Departments/Organizations /Public Sector Undertakings (PSUs).
    - The procurement of goods and services by Ministries and the Central Public Sector Enterprises (CPSEs) is **mandatory for goods and services available on GeM.**
    - It also provides the tools of **e-bidding and reverse e-auction** to facilitate the government users achieve the best value for their money.
    - At present, GeM has more than **30 lakh products**, over Rs. 10 lakh crore worth of transactions have happened so far at the portal.
  - **Launch:**
    - It was launched **in 2016** to bring transparency and efficiency in the government buying process.
  - **Nodal Ministry:**
    - Ministry of Commerce and Industry.

Bamboo

- **18th September** is observed as **World Bamboo Day by the World Bamboo Organisation.**
- **India is the world's second-largest cultivator of bamboo** after China, with **136 species** and **23 genera** spread over 13.96 million hectares, according to the **State of Environment report 2018.**
- **Green Gold**, as bamboo is often known, is **found everywhere in India.**

- Known as **'poor man's timber'**, bamboo is omnipresent in tribal cultures and community living. Rural communities engage with bamboo handicrafts, textiles, artifacts, and household utilities.
    - **Examples** include **Tripura bamboo silks**, heritage cuisines with roasted and pickled bamboo shoots, cultural symbols like the **Assamese 'Jaapi'** (made of bamboo, cane, and palm), widely popular bamboo tree houses, machans, besides modern sustainable architectural concepts and musical instruments.
- **Initiatives Taken:** National Bamboo Mission, **Bamboo Clusters**, Removal of Bamboo from 'Tree' Category (**Indian Forest Act 1927** was amended in 2017),

6.CIBER-2: Counting of Stars

Why in News

A **NASA** (National Aeronautics and Space Administration) **funded CIBER-2 sounding rocket's** launch window will open at the **White Sands Missile Range** in New Mexico, USA.

- The **aim** of CIBER-2 mission is **to look for evidence of extra stars** that may have been missed in stellar head counts.
- The **ESA (European Space Agency) infrared space observatory Herschel** also counted the number of galaxies in infrared and measured their luminosity previously.

Key Points

- **Sounding Rocket:**
    - Sounding rockets take their name from the nautical term **"to sound,"** which means to **take measurements.**
    - Since 1959, NASA-sponsored space and earth science research has used sounding rockets to test instruments used on satellites and spacecraft and to provide information about the **Sun, stars, galaxies** and **Earth's atmosphere and radiation.**
- **About CIBER-2 (Cosmic Infrared Background Experiment-2):**
    - The mission is the **latest in a series of sounding rocket launches** that began in 2009. The count from the first CIBER mission paved the way to reorganize the research and give the counting of stars another run.
    - The CIBER-2 instrument will **launch aboard a sounding rocket,** a small suborbital rocket that will carry scientific instruments on brief trips into space before it falls back to Earth for recovery.

- Once above Earth's atmosphere, CIBER-2 will **survey a patch of sky about 4 square degrees -** for reference, the full Moon takes up about half a degree – that includes dozens of galaxy clusters.
- It **will not actually count individual stars** but it will instead detect the **extragalactic background light,** which is all of the light that has been emitted throughout the history of the Universe.
- From all of this extragalactic background light, the CIBER-2 **will focus on a portion of this called cosmic infrared background,** which is emitted by some of the most common stars.
    - Essentially, this approach is aiming to look at how bright this light is to give scientists an estimate of how many of these stars are out there.

- **Rough Estimate of Stars:**
    - To get a rough estimate of the total number of stars in the universe, scientists have calculated the **average number of stars in a galaxy –** some estimates put it at about **100 million,** though it could be 10 or more times higher.
    - **Multiplying it by the number of galaxies,** taken to be about **2 trillion** (also very tentative), there are **one hundred quintillion stars (or 1 with 21 zeros after it).**
    - But this calculation **assumes that all stars are inside galaxies,** which might not be true and this is what the **CIBER-2 instrument will try to find out.**
    - The European Space Agency (ESA) says **there could be 100 thousand million stars in the Milky Way alone.**

7. Government Securities Acquisition Programme (GSAP 2.0)

In a bid to infuse more liquidity in the market, the Reserve Bank of India (RBI) has announced undertake Government Securities Acquisition Program (G-SAP) 2.0 during the second quarter of FY22 and conduct secondary market purchase operations of Rs 1.20 lakh crore.

What are Government Securities?

- These are debt instruments issued by the government to borrow money.
- The two key categories are:

1. Treasury bills (T-Bills) – short-term instruments which mature in 91 days, 182 days, or 364 days, and
2. Dated securities – long-term instruments, which mature anywhere between 5 years and 40 years

Why G-Secs?

- Like bank fixed deposits, g-secs are not tax-free.
- They are generally considered the safest form of investment because they are backed by the government. So, the risk of default is almost nil.
- However, they are not completely risk-free, since they are subject to fluctuations in interest rates.
- Bank fixed deposits, on the other hand, are guaranteed only to the extent of Rs 5 lakh by the Deposit Insurance and Credit Guarantee Corporation (DICGC).

How blind people can navigate better using Echolocation

A technique used by animals such as dolphins, whales, and bats to navigate their surroundings can also be used by blind people to get around better and have greater independence and well-being, researchers at Durham University in the UK have shown.

What is Echolocation?

- Echolocation, also called biosonar, is a biological sonar used by several animal species.
- Echolocating animals emit calls out to the environment and listen to the echoes of those calls that return from various objects near them.
- They use these echoes to locate and identify the objects.

What has the new study found?

- The same technique can help blind people locate still objects by producing clicking sounds from their mouth and hands.
- The researchers organized a 10-week training programme, in which 12 blind and 14 sighted volunteers aged between 21 and 79 were taught click-based echolocation.
- The volunteers were trained in distinguishing between the size of objects, orientation perception and virtual navigation.
- At the end of the training, the participants had been able to improve their ability to navigate using clicking noises either from one's mouth, walking cane taps or footsteps.

Prelims Practice Questions

1. With reference to 'Blue-finned Mahseer', consider the following statements:

1. It is only found in the Mota Mola river east of Pune.
2. It's IUCN status is critically endangered.
3. The species is threatened by habitat manipulation and over harvesting

Which of the statements given above is/are correct ?

A 1 and 3 only
B 2 only
C 1 and 2 only
D 1, 2 and 3

Answer :B

Explanation

- 'Blue-finned Mahseer' is mainly found in the **Mota Mola river east of Pune.** This species is **also found in other rivers** of the Deccan Plateau. **Hence, statement 1 is not correct.**
  - The species is migratory; moving upstream during rains. It prefers clean, fast flowing and well oxygenated waters
- Recently, the International Union for Conservation of Nature (IUCN) has moved Blue-finned Mahseer from **Endangered to the Least Concern' status** on its Red List. **Hence, statement 2 is not correct.**
- The species is threatened by **habitat manipulation, over harvesting and competition** from other fish species. **Hence, statement 3 is correct.**
- **Significance:**
  - It is very sensitive to dissolved oxygen levels, water temperature and sudden climatic changes. It just cannot bear pollution.
  - They have cultural and religious significance as well as they are protected in 'temple sanctuaries' across India.

2. Red Tourism is being promoted by which of the following countries?

- a. Bangladesh
- b. Philippines
- c. China
- d. Japan

Answer : c

Explanation:

Red Tourism

- Launched in 2004, Red Tourism involves visiting places that are of historical and cultural importance to the Communist Party's history, while also providing an impetus to tourism and local businesses.
- It reminds people of the sacrifices made by the leaders of the Communist party to forge a modern China.

3. Consider the following:

1. Genetically Modified crops
2. Quarantine system
3. Germ warfare

Which of the above methods can be deployed as the Pest Controlling Methods?

A 1 only
B 2 only
C 2 and 3 only
D 1, 2 and 3

Answer : D

Explanation

- The most popular methods of containing the pest include the use of **Genetically Modified (GM)** crops and pesticides.
- Natural approaches, including breeding predators such as wasps, to be released into fields when necessary, as well as developing a **"germ warfare"** that isolates diseases to which the caterpillar (armyworm) is prone, are being explored by the scientists.
- A **quarantine system**, under which imports of grains and plants that can host such insects are inspected at shipping ports, airports and land border crossings is the first line of defence taken by the countries across the world. **Hence, option D is correct.**
    - The quarantine system in India is governed by the Plant Quarantine (Regulation of Import into India) Order of 2003, which is notified under the Destructive Insects and Pests Act of 1914.

4. Consider the following statements:

1. The International Thermonuclear Experimental Reactor (ITER) is located in France.
2. China's Experimental Advanced Superconducting Tokamak (EAST) is a part of ITER.
3. India is not a member of ITER Project.

Which of the statements given above is/are correct?

A 1 only
B 2 and 3 only
C 1 and 2 only
D 3 only

Answer : C

Explanation

- **International Thermonuclear Experimental Reactor (ITER)** is a collaboration of 35 nations launched in 1985. It is located in **France. Hence, statement 1 is correct.**
  - It aims to build the world's largest tokamak to prove the feasibility of fusion as a large-scale and carbon-free source of energy.
  - The tokamak is an experimental machine designed to harness the energy of fusion. Inside a tokamak, the energy produced through the fusion of atoms is absorbed as heat in the walls of the vessel.
  - Like a conventional power plant, a fusion power plant uses this heat to produce steam and then electricity by way of turbines and generators
- China's **Experimental Advanced Superconducting Tokamak (EAST)** is part of the **International Thermonuclear Experimental Reactor (ITER) facility**, which will become the world's largest nuclear fusion reactor when it becomes operational in 2035. **Hence, statement 2 is correct.**
- The ITER Members include China, the European Union, India, Japan, Korea, Russia and the United States. **Hence, statement 3 is not correct.**

5. With reference to Mega Food Park Scheme, consider the following statements:

1. It is implemented by the Ministry of Agriculture and Farmers Welfare.
2. The scheme is based on the "Cluster" approach.
3. It envisages a mechanism to link agricultural production to the market.

Which of the statements given above are correct?

A 1 only

B 2 only
C 2 and 3 only
D 1, 2 and 3 only

Answer : C

Explanation

- **Mega Food Park Scheme** was launched in 2008-09 to give a major boost to the food processing sector by adding value and reducing food wastage at each stage of the supply chain with a particular focus on perishables.
    - The **Ministry of Food Processing Industries** is implementing the Mega Food Park Scheme in the country. **Hence, statement 1 is not correct.**
- The Scheme is based on the **"Cluster" approach and envisages creation of state of art support infrastructure** in a well-defined agri/horticultural zone for setting up of modern food processing units in the industrial plots provided in the park with a well-established supply chain. **Hence, statement 2 is correct.**
- The **scheme envisages to provide a mechanism to link agricultural production to the market** by bringing together farmers, processors and retailers so as to ensure maximizing value addition, minimizing wastage, increasing farmers income and creating employment opportunities particularly in the rural sector. **Hence, statement 3 is correct.**

6. State of Finance for Nature is released by which of the following organizations?

- a. United Nations Environment Programme (UNEP)
- b. United Nations Development Programme (UNDP)
- c. World Wide Fund for Nature (WWF)
- d. The Nature Conservancy

Answer : a

Explanation:

State of Finance for Nature

- The report was jointly produced by the United Nations Environment Programme (UNEP), the World Economic Forum and the Economics of Land Degradation.
- It analyzes the investment flow in nature-based solutions (NbS).
- It also identifies the future investment needed to meet the climate change, biodiversity and land degradation targets (set in three Rio Conventions).

- The NbS refers to sustainable management and use of nature to tackle socio-environmental challenges, which range from disaster risk reduction, climate change and biodiversity loss to food and water security as well as human health.
- NbS creates harmony between people and nature, enables ecological development and represents a holistic, people-centred response to climate change.

Mains Practice Questions

1Q. The condition of women in a society is an index of that society's place in civilization. Discuss. (150 words)

Approach

- Introduce by 'opening up' this statement a bit more to provide base for the main body of answer.
- Briefly elaborate the key words and substantiate the points keeping in mind the direction and intent of the answer.
- After putting across the rationale of the statement, move on to condition in India.

2Q. Examine the background and the objectives that were laid in the Cripps Mission Plan, 1942 and the reasons for its failure. (250 words)

Approach

- Give a brief background and objectives of Cripps mission.
- Mention the main proposals of the mission.
- Explain the objections of Congress, Muslim League and other groups which led to failure of the mission.