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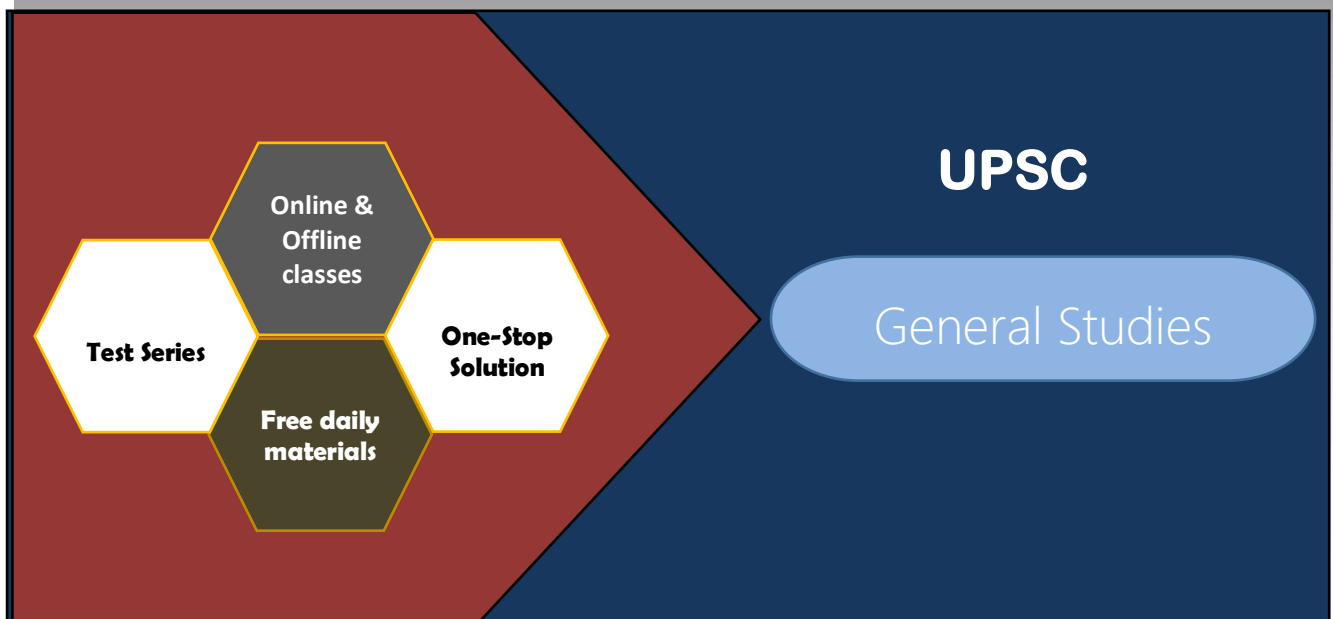
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# **CURRENT AFFAIRS**

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**Articles of the day  
THE HINDU & INDIAN EXPRESS**



## **GS 2 : Polity, Governance, International Relations**

### **1. NSA against three for selling COVID drug at higher rates**

#### **Context:**

The police in Kanpur have said they will slap the **National Security Act (NSA) against three persons** who were arrested on charges of **allegedly smuggling and selling Remdesivir** (an injectable drug used in the treatment of COVID-19) at higher rates.

#### **The National Security Act:**

- The National Security Act of 1980 provides for the provision of **preventive detention in certain cases**.
- The Act empowers the **Central Government and State Governments to detain a person to prevent him/her from acting in any manner prejudicial to the national security of India, the relations of India with foreign countries, the maintenance of law and order, or the maintenance of supplies and services essential to the community**.
- The act also gives power to the governments to **detain a foreigner** in a view to regulate his/her presence **or expel from the country**.

### **2. Steep climb**

#### **Background**

The demand for a separate state of Gorkhaland (West-Bengal) has been simmering for the past few decades now and its cause lies in the fight for distinct identity between the Nepali speaking population and the Bengali speaking population of West Bengal.

#### **Gorkhaland- Origin, Geography and Demography**

- Gorkhaland is mainly composed of the Nepali-speaking people of Darjeeling, Kalimpong, Kurseong and other hilly districts of West-Bengal. The people belonging to these areas have ethical, cultural and language differences with the Bengali community of West-Bengal.
- The demand of Darjeeling as a separate administrative region is as old as 1907. However, the agitation by Subhash Ghising led Gorkha National Liberation Front (GNLF), further brought this issue in focus and the term "Gorkhaland" was coined in 1980.

- The Gorkhaland Movement is chiefly concerned with the demand for a separate state of Gorkhaland which falls under the Darjeeling Hills of West Bengal.
- The area covers Duars and Terai region of West Bengal and is known for its popular tea cultivation.

### Who are the Gorkhas?

- They are a mixture of castes and tribal-ethnic clans.
- The caste groups include the Khas Parbatiyas including Bahun (Brahmins), Chhetri, Kami, Damai, Sarki, etc.
- The ethnic group (mostly falling under Schedule Tribes or Other Backward Class groups) include Gurung, Magar, Tamang, Thami, Shrerpa etc
- Although each of them has their own language (belonging to the Tibeto-Burman or Indo-Aryan languages), the lingua franca among the Gorkhas is the Nepali language with its script in Devnagari.
- The Nepali language, which is one of the official languages of India, is the common binding thread of all Gorkha castes and clans.

### Reasons for demanding a separate state

- Differences in ethnicity, culture and language.
- Nepali-Indian Gorkha ethnic culture is different from the Bengali culture.
- Poverty, skewed development policies and politicisation of the issue.
- According to some scholars, it was a failure of governance combined with politicisation that bred the Gorkhaland issue.
- Due to the historical trend, especially post-independence, where the issue erupts only when it's pampered by political aspirations, the demand has got even more leverage

### 3. Girls face more pressure during pandemic: study

#### What's in News?

A study titled '**COVID In Her Voice: A Girl-led and Centred Participatory Research Study**' conducted by girls aged 13-24 from Ahmedabad, Alwar, Bareilly, Delhi, Lucknow, Mumbai and Pune within their communities.

- The study was supported by the **U.K. government** and conducted by **EMpower**, a global philanthropy focused on at-risk youth in emerging markets.

#### Challenges Faced by Girls:

- **Inability to attend online school.**
- **Increase in household chores, resulting in lesser or no time to study online.**
- **Lack of access to resources and technology.**
- With households from marginalised communities facing **financial stress** due to the economic impact of COVID-19, the **pressure to get married increased.**
- Almost 90% of girls reported experiencing **mental distress and despair with no access to information about coping mechanisms.**

On concluding the field research, leaders finalised a list of **recommendations** including **establishing girl-friendly spaces within the community** such as skills training centres and violence-free spaces.

#### **4. The roots of a decentred international order**

##### **Introduction**

- According to International Institute for Strategic Studies, the overall estimate of China's military budget is at \$230 billion.
- China's defence spending has in recent years evolved to reflect its military might and to close the gap with the United States.
- The primary geopolitical rivals of the US, namely Russia and China may possibly provide the strategic and tactical counterbalance to the hegemony of America.

##### **Rising powers and an agenda**

- From the Renaissance period onwards, 14th-15th century Europe began its hegemonic ambitions through trade and commerce, taking almost 500 years to colonise and influence nations across the world.
- British imperialism was slowly on the ebb and the United States ascended in the aftermath of the Suez Crisis (1956). Pax Britannica gave way to Pax Americana.
- It was the Bandung Conference of 1955, a meeting of Asian and African states, most of which were newly independent, that set the scheme for the rise of Asia, politically and economically.
- With China's rise and increase in budget spending, it may not be in a position to surpass the United States in its military prowess, but it is focusing on an agenda which is to aggressively build a parallel economic order envisaging new centres of hegemonic power.

##### **Dents to American supremacy**

- America in all likelihood will continue to play a prime role in international affairs though its image representing universal brotherhood had sharply

declined during the Trump regime, particularly his foreign policy of threatening to withdraw from the North Atlantic Treaty Organization (NATO) and withdrawing from the Paris Agreement on climate change.

- Other threats such as terrorism, ethnic conflicts and the warning of annihilation owing to climate change necessarily demand joint international action where American “exceptionalism” is inconsistent with global plans.
- Further, the Trump administration was obsessed with racism and marginalized immigrants. Immigrants were not respected and faced violation of their human rights leaving the democratic world aghast.
- The rising tide of far-right ultra-nationalism and ethnic purity experienced in the Brexit phenomena has set in motion the wearing down of liberal democracy.
- This indeed has chipped away the American global supremacy.

### **Impact**

- As a result, the world is set to witness a more decentred and pluralistic global order, a rather compelling vision of the empowerment of liberal forces standing up for an international order incentivised by long-term structural shifts in the global economy.

### **Direction by China**

China is said to be spearheading Asian regionalism. However, it is beset with challenges.

- One, China’s self-enhancing economic and military greed reflecting its personal economic rise. This has created doubts about the intentions of China’s agenda.
- Two, its Belt and Road Initiative and the Silk Road project has indeed provoked an understandable clash with India and Japan.

### **Recommendation**

- China must strengthen the opposition to the West through the promotion of regional multilateral institutions.
- More than having individual partners or allies, China must embrace and give a push to multilateral affiliations in order to not further exacerbate regional tensions.

### **Conclusion**

- Thus, a kind of dualism persists in the world order with no clear hegemony that can be bestowed on one single nation.

- The emphasis, therefore, would be a move towards restructuring and advancement, as well as adopting an oppositional posture as a robust replacement of subservience to western hegemony.
- It is feared that there could be a possibility of a multipolar world turning disordered and unstable, but it is up to the rising nations to attempt to overcome territorial aspirations and strike a forceful note of faith on cultural mediation, worldwide legitimacy, and the appeal of each society in terms of its democratic values.

## 5. Vaccine diplomacy that needs specific clarifications

### Introduction- A look at Stats

- As of April 13, India had supplied over 65 million vaccines to 90 countries.
- Of these more than 10 million were sent as grants, almost 36 million on a commercial basis and about 19 million under the COVAX programme. These estimates are based on the Ministry of External Affairs statistics.

### Science diplomacy

- **Diplomacy** is defined as “the art and practice of conducting negotiations between nations”.
- **Science diplomacy** is applying scientific expertise, making efforts to solve international problems collaboratively while balancing economic prosperity.
  - Meeting foreign policy objectives with scientific advice.
  - Facilitating international science cooperation.
  - Using science cooperation to improve international relations between countries.
- A subset of science diplomacy is called **vaccine diplomacy**, which involves the **convergence of vaccine development, import and export** for furthering a country’s diplomatic goals.

### ‘Why’ send vaccines to other countries?

It is a crucial query as India is in need of precious vaccines.

- Modi during his address to the Raisina Dialogue “...we in India have tried to walk the talk. We have tried to protect our own 1.3 billion citizens from the pandemic. At the same time, we have also tried to support the pandemic response efforts of others.”
- The External Affairs Minister S. Jaishankar said, “I think equitable access (to vaccines) is critically important in this. Because we all know that no one will be safe till everyone is safe.”



- Earlier he had also asked, “Tell me, how many vaccines have internationalist countries given? Which one of these countries (Western/developed countries) have said while I do (vaccinate) my people, I will do (inoculate) other people who need it as much as we do”?
- These actions signal that India is a responsible global power that does not self-obsessively think of itself alone.

### **The world is one family**

- This desire to be a good global citizen can be traced to the Objective Resolution moved by Jawaharlal Nehru in the Constituent Assembly. It noted, inter alia, “This ancient land attains its rightful and honoured place in the world and make its full and willing contribution to the promotion of world peace and the welfare of mankind.”
- Modi followed this vision when he also told the Raisina Dialogue, “And we must think of the entire humanity not merely of those who are on our side of the borders. Humanity as a whole must be at the centre of our thinking and action” and the Government has invoked the ancient phrase ‘Vasudhaiva Kutumbakam’.

### **Merits**

- India’s gifting of vaccine is going to polish its global image and earn it goodwill.
- Importantly, Vaccine Maitri will serve as a powerful soft power tool to counter China’s considerable influence in South Asia, Africa and elsewhere.
- India’s gesture of sharing its vaccine supplies with other countries stands in sharp contrast to several rich countries that are cornering, even hoarding vaccine supplies.

### **Foreign Policy Imperatives**

- These steps are usually taken to meet the international obligations, emphasize a country’s tradition of altruism and to achieve self-interest.
- However, the Government eventually has to justify it to its own people on the basis of tangible short- or long-term strategic and economic interests. This is particularly so in times of shortages when the welfare of a country’s own citizenry is directly and obviously at stake.

### **Conclusion**

- Thus, all in all, vaccines sent abroad were for general foreign policy considerations for which there is some justification. But that is insufficient.

- Specific clarifications are needed to convince the people that these exports have not been made at the cost of their health.

## 6. India badly placed to tackle infections: Fitch

### Context:

According to Fitch Solutions, despite several healthcare reforms, **India remains badly placed to tackle** the current wave of **COVID-19 infections**.

### Concerns:

- The virus has started spreading rapidly, due to **complacency on the social distancing measures** and **mask-wearing policies**.
- Several **hospitals** are **stretched beyond their capacities**.
- With **5 hospital beds per 10,000 population** and **8 physicians per 10,000**, the **healthcare sector is not equipped** for such a crisis.
- **States** bearing the maximum load of the pandemic, are already **falling short of health infrastructure and equipment**, ranging from oxygen to ventilators.
- **More than 80% of the population does not have** any significant **health insurance coverage**.
- Approximately **68% has limited or no access** to **essential medicines**.
- **India lags far behind in immunisations per capita** having vaccinated only about **one in 25 people**, compared with almost **one in two in Britain** and **one in three in the United States**.
- India's soaring virus cases puts its **position as a global supplier [of vaccines] at risk** as it has had to hold back vaccine exports in order to maintain domestic supply.

### Way Forward:

- The low level of public spending on health is both a cause and an exacerbating factor accounting for the poor quality, limited reach and insufficient public provisioning of healthcare.
- The crisis has brought out the **critical importance of the public sector in health provisioning** and highlighted the **need to increase investment in healthcare**.

## GS 3 : Economy, Science and Technology, Environment

## 7. China's GDP grew record 18.3% in Q1



## What's in News?

**China's economy expanded** at a record pace in the **first quarter**.

- The country witnessed an **18.3% expansion in gross domestic product**.
- This is the fastest pace since quarterly records began three decades ago.

## 8. India in US Currency Practices Monitoring List

### Why in News

Recently, the United States (US) placed 11 countries, including India in the **Currency Practices Monitoring List (Currency Manipulators Watch List)**.

- India was **on the list in the December 2020 report** as well. In 2019, the US Treasury Department had **removed India from its currency manipulator watch list** of major trading partners.

### Key Points

- **Currency Manipulators:**
  - This is a **label given by the US government** to countries it feels are engaging in **"unfair currency practices"** by **deliberately devaluing their currency** against the dollar.
  - The practice would mean that the **country in question is artificially lowering the value of its currency to gain an unfair advantage** over others.
  - This is because the **devaluation would reduce the cost of exports** from that country and artificially show a reduction in trade deficits as a result.
- **Currency Manipulator Watch List:**
  - The US Department of Treasury releases the **semi-annual report where it has to track developments in international economies** and inspect foreign exchange rates.
    - It reviews **currency practices of the US' 20 biggest trading partners**.
- **Criteria:**
  - An economy meeting two of the three criteria in the **Trade Facilitation and Trade Enforcement Act of 2015** is placed on the Watch List. This includes:

- A **“significant” bilateral trade surplus with the US** – one that is at least USD 20 billion over a 12-month period.
- A material **current account surplus equivalent** to at least 2% of **Gross Domestic Product (GDP)** over a 12-month period.
- **“Persistent”, one-sided intervention** – when net purchases of foreign currency totalling at least 2% of the country’s GDP over a 12 month period are conducted repeatedly, in at least six out of 12 months.
- Countries **that meet all three of the criteria are labeled as currency manipulators** by the Treasury.
- **Current List:**
  - **Countries on the List:**
    - The other 10 countries on the list with India that merit “close attention to their currency practices” are **China, Japan, Korea, Germany, Ireland, Italy, Malaysia, Singapore, Thailand, and Mexico.**
  - **Questionable Chinese Growth:**
    - The **Chinese economic growth in 2020 exceeded that of other large economies** but has been driven by the early resumption of manufacturing and increased external demand, especially for medical supplies, personal protection equipment and electronics.
    - **Questions remain about the continued strength of the Chinese recovery** absent a sustained increase in household consumption.
    - **China's failure to publish foreign exchange intervention and lack of transparency** of its **exchange rate mechanism** and the activities of state-owned banks warrant close monitoring of renminbi (China’s currency) developments going forward.
- **India’s Status:**
  - India **met two of the three criteria** that is the **trade surplus** criterion and the **“persistent, one-sided intervention”** criterion.
- **Consequence:**
  - Inclusion in the list **does not subject to any kind of penalty and sanctions** but it **deteriorates the global financial image** of the country in the financial markets in terms of foreign exchange policies including undervaluation of currencies to gain export advantages.

## 9. How to face a rising sea? Maldives bets on artificial islands

The government of Maldives is developing **three artificial islands** to tide over the rising sea-levels due to climate change according to a report by the National Aeronautics and Space Administration (NASA).

### Highlights of the report:

- **Hulhumale** is a prominent example.
  - It is located to the northeast of the archipelago's capital, Male.
  - It has been created by **pumping out sand from the seafloor onto a submerged coral platform** and is now **Maldives's fourth-largest island**.
- Hulhumale, that rises 2m above sea level, could become a **refuge for Maldives's population**.
- The government had started constructing Hulhumale **in 1997** on a lagoon to accommodate the capital's population swell.
  - Now, the island covers an area of 4 square kilometres and is home to 50,000 people.
  - Its population could grow to 200,000 in the future.
- Maldives government has also explored plans **to purchase land on higher ground in other countries** as an insurance policy against sea level rise.
- Since the 1990s, the government has also expanded **two other coral atolls – Thilafushi and Gulhifalhuea** – through land reclamation.
  - They are currently being used as industrial areas or landfills.
- The natural properties of these coral atolls to resist sea-level rise offers a glimmer of hope.
  - Most of these reefs in Maldives and elsewhere have remained stable or even grown larger in recent decades.
- There are a couple of theories to explain this phenomenon.
  1. Storms and flood that sweep the islands can deposit sediments scooped up from other land masses and elevate these islands.
  2. The coral reefs can produce excess sediment and grow taller, outpacing the rise in sea levels.
- The report warned of human activities that interfere with the natural processes of the coral reefs.

### Key Facts:

- Maldives is one of the most low-lying terrains in the world.
- About 80 per cent of Maldives's 1190 coral islands are at an **elevation of less than 1 metre (m)** above sea level.

- Globally, the **annual sea-level rise is recorded at 3-4 millimetres** and has been accelerating. At this rate, it is only a matter of time that many of the islands are submerged.
- 2018 United States Geological Survey study concluded that low-lying islands will become **uninhabitable by 2050** due to flooding and scarcity of freshwater.
- Sea-level will rise **half a metre by 2100** if greenhouse gas emissions are drastically reduced, or by 1m if they continue to rise.

### Causes of sea level rise:

- The main cause of global warming caused by climate change, which causes sea level rise in three different ways:
- **Thermal expansion:** water, when heated by temperature rise, tends to expand, i.e., oceans take up more space.
- **Melting of the iced territories of Greenland and West Antarctica** accelerates global warming.
  - This process is negatively influenced by freshwater seepage from the surface, which acts as a lubricant for the ice streams and helps them to slide faster. **That is, fresh filtered water to the base of the ice sheets melt, weaken and slide them into the sea.**
- **Large formations of ice in glaciers and ice caps melt** and won't then return to its original shape.
  - Because of global warming, the snowfall is softer, winters delay and springs anticipate, so ice does not reattach in the same manner and amount.
  - Usually these structures partially crumbled during the summer, but recovered its solid state when winter temperatures returned.

### Implications of sea level rise:

- Water is increasingly invading coastal areas, causing **soil erosion and threatening farmland**, housing or recreation areas.
- The flooding of wetlands and pollution of aquifers also occur, affecting the **flora and fauna of each place, causing the loss of habitat for fish, birds, plants** and many other species.
- A higher sea level causes heavy rains and strong winds, **unleashes severe storms and other big atmospheric phenomena** that can be a real threat to places that might be on its way.
- Constant threat of sea level rise **menaces hundreds of millions of people living in coastal communities.**

- They will be forced to abandon their homes and move to another area, with the corresponding demographic problem. This is **known as forced migration** resulting from climate change.
- Low-lying islands would be **swallowed by the oceans**, leading to the disappearance of large land areas and even some countries.



## **GS 2 : Polity, Governance, International Relations**

### **1. Inaugural Edition of the Hydrogen Economy**

The Energy Forum (TEF) and the Federation of Indian Petroleum Industry (FIPI) organised “Hydrogen Economy- the Indian Dialogue-2021” in a virtual mode recently.

#### **Aim:**

- To discuss **emerging hydrogen ecosystems** and **exploring opportunities** for collaboration, cooperation and coalition.

#### **Major Highlights:**

- The Hydrogen Roundtable comprised a **High-level Ministerial Session**, followed by five Panel Discussions by eminent policy makers, experts and industry leaders around world.
- The focus was on **policy roadmaps** and mapping demand and supply of Hydrogen.

#### **National Hydrogen Energy Mission:**

- The Union Budget for **2021-22** has announced a National Hydrogen Energy Mission (NHM).
- For the current financial year, the **Ministry of New and Renewable Energy** has been allotted Rs 25 crore for research and development (R&D) in hydrogen.
- The mission will draw up a **road map for using hydrogen** as an energy source.
- It would put forward **specific strategy** for the short term (4 years), and **broad principles** for the long term (10 years and beyond).

#### **Objective:**

- To lay down vision, intent and direction for hydrogen energy and suggest strategies for realizing it.
- To develop India into a global hub for the manufacturing of hydrogen and fuel cells technologies across the value chain.



**Major activities envisaged under the Mission include:**

- Creating volumes and infrastructure
- Demonstrations in niche applications (including for transport, industry)
- Building a robust framework for standards and regulations for hydrogen technologies.

**Hydrogen:**

- Hydrogen is the **lightest** and **first element** on the **periodic table**.
- It is one of the **most abundant elements** on Earth.
- The weight of hydrogen is **less than air**.
  - So, it rises in the atmosphere and is **rarely found in its pure form, H<sub>2</sub>**.
- It is a nontoxic, non-metallic, odourless, tasteless, colourless, and highly combustible diatomic gas, at standard temperature and pressure.
- Hydrogen (zero-carbon fuel) is an alternate source to **conventional fuels** which can **bridge energy gaps**.
- It can be **produced from various sources** like natural gas, nuclear power, biomass, and renewable power like solar and wind.

**Types of Hydrogen:**

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

- **Grey Hydrogen:** Hydrogen produced from fossil fuels (bulk of the hydrogen produced today).
- **Blue Hydrogen:** Hydrogen generated from fossil fuels with carbon capture and storage options.
- **Green Hydrogen:** Hydrogen generated entirely from renewable power sources. Electricity generated from renewable energy is used to split water into hydrogen and oxygen.

**Significance of hydrogen fuel:**

- Hydrogen fuel cells are **cleaner** and **more efficient than traditional combustion-based engines and power plants**.
- Hydrogen and fuel cells can also be used in mobile applications to **power vehicles and mobile power packs**.

**The benefits of fuel cells are:**

- Reduced greenhouse gas emissions
- High Reliability
- Flexibility in installation and operation

- Development of renewable energy resources
- Reduced demand for foreign oil
- Improved environmental quality

### Challenges of using hydrogen fuel:

#### 1. Storage capability:

- Weight and volume of hydrogen storage systems are too high as compared to fossil fuelled vehicles.

#### 2. High flammability:

- Hydrogen can quickly catch fire & can also lead to an explosion.
- The **invisibility of Hydrogen is concern** because when it catches fire, the flames are very dim and hard to counter.

#### 3. Liquid hydrogen:

- Hydrogen is usually stored in the liquid form which is compressed at high pressure.
- The **liquid hydrogen is extremely cold**, and any leak from its storage tank can cause **severe frostbite in the skin**.

## 2. Global Diabetes Compact: WHO

### Why in News

The **World Health Organization (WHO)** launched a **Global Diabetes Compact** to better fight the disease while marking the centenary of the discovery of **insulin**.

- The programme was **launched at the Global Diabetes Summit** co-hosted by the Government of Canada.

### Key Points

- **Global Diabetes Compact:**
  - The Global Diabetes Compact has the **vision of reducing the risk of diabetes**, and ensuring that all people who are diagnosed with diabetes have **access to equitable, comprehensive, affordable and quality treatment and care**.
  - It will also **support the prevention of type 2 diabetes** from obesity, unhealthy diet and physical inactivity.
  - It will set standards for tackling the diseases in the form of '**global coverage targets**' for ensuring a wider reach of diabetes care.

- A key aim of the program is to unite key stakeholders from the public and private sectors, and, critically, people who live with diabetes, around a common agenda, to generate new momentum and co-create solutions.
- **Diabetes:**
  - **Diabetes** is a **Non-Communicable Disease (NCD)** that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar, or glucose), or when the body cannot effectively use the insulin it produces.
  - It is classified into two types:
    - **Type 1 Diabetes:** It occurs when the pancreas fails to produce sufficient insulin.
    - **Type 2 Diabetes:** Type 2 diabetes is the most common type of diabetes. In this condition the body does not use insulin properly. This is called insulin resistance. The main reason for the occurrence of type 2 diabetes is due to obesity and lack of exercise.

## Insulin

- Insulin is a peptide hormone secreted by Pancreas which helps in maintaining normal blood glucose levels by facilitating cellular glucose uptake, regulating carbohydrate, lipid and protein metabolism and promoting cell division and growth through its mitogenic effects.
- It was **discovered in 1921** by orthopedic surgeon Dr. Frederick Banting and medical student Charles Best, from the University of Toronto.
- Dr. Banting later won the Nobel Prize for this discovery in 1923 along with Professor McLeod who was a Professor of Carbohydrate Metabolism.
- **Global Burden of Diabetes:**
  - Today, approximately 6% of the world's population – more than 420 million people – live with either **type 1 or type 2 diabetes**.
  - It is the only major non-communicable disease for which the risk of dying early is going up, rather than down.
  - It has emerged as one of the major comorbid conditions linked to severe Covid-19 infections.
    - The International Diabetes Foundation Diabetes Atlas, in 2019, placed India among the top 10 countries for people with diabetes.
- **Steps Taken by Government of India:**

- India's National **Non-Communicable Disease (NCD)** Target is to prevent the rise in obesity and diabetes prevalence.
- National Programme for Prevention and Control of Cancers, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS) in 2010, to provide support for diagnosis and cost-effective treatment at various levels of health care.

### 3. EatSmart Cities Challenge and Transport 4 All Challenge Launched

Ministry of Housing & Urban Affairs launched the EatSmart Cities Challenge and Transport 4 All Challenge at an online event.

#### About the EatSmart Cities Challenge:

- **Aim:** To motivate Smart Cities to develop a plan that supports a healthy, safe and sustainable food environment supported by institutional, physical, social, and economic infrastructure along with the **application of 'smart solutions'** to combat food related issues.
- The challenge will have a **positive impact on the lives of urban population** by motivating them to eat right.
- It will be a game changer in **creating social and behavioural change** towards food safety, hygiene and nutrition.
- The challenge is **envisioned as a competition among cities** to recognize their efforts in adopting and scaling up various initiatives **under Eat Right India**.
  - The 'Eat Right India' movement **initiated by FSSAI** in 2018 under the aegis of Ministry of Health & Family Welfare.
- This unique challenge, in partnership with Smart Cities Mission will urge to make better food choices in India's major cities and can set an example for other cities to follow.
- The challenge is **open to all Smart Cities**, capital cities of States /UTs, and cities with a population of more than 5 lakh.
- At the end of first phase of the challenge, **11 cities will be selected for deeper engagement** for an extended period to implement their vision.

#### About 'Transport4All Digital Innovation Challenge':

- The Ministry of Housing and Urban Affairs launched the Transport 4 All challenge in collaboration with ITDP.

**Aim:** To develop digital solutions that will make public transport safe, affordable, comfortable, and reliable for all.

- It aims to bring together cities, citizen groups, and start-ups to **develop solutions that improve public transport** to better serve the needs of all citizens.
- Citizens who will define the problems for which solutions shall be created and help start-ups and cities to refine the solutions to meet their needs are at the core of the Challenge.
- **Focus of first edition:** Digital innovation
- Cities and start-ups will **receive guidance to develop and test various solutions**, learn from them, and scale them to build people's trust in public transport and enhance their mobility.
- The solutions will make public transport – formal as well as informal – safe, convenient, and affordable for all.
- **Eligibility:** All the Smart Cities Mission cities, capitals of states and union territories (UTs), and all cities with a population of over 5 lakhs.
- Cities, as part of the challenge shall form a **Transport4All Task Force (TTF)** consisting of key stakeholders vis. Municipal Corporation, Smart City SPV, city bus undertaking, metro and suburban rail, Intermediate Public Transport (IPT) unions, NGOs etc.

### Three Stages of the Challenge:

- **Stage I Problem Identification:** Key recurring problems that citizens and public transport operators face
- **Stage II Solution Generation:** Prototypes of solutions to improve public transport with inputs from cities and NGOs
- **Stage III Pilot Testing:** Cities engage start-ups for large-scale pilots and refine the solutions based on citizen feedback

## GS 3 :Economy, Science and Technology,Environment

### 4.Whitest Ever Paint Reflects 99% of Sunlight

Why in News

The team of researchers from Purdue University have created an ultra-white paint.

- The newer paint is whiter and **keeps the surface areas it is painted on cooler** and thus can act as a breakthrough in **combating the woes of global warming**.

## Key Points

### ▪ **About:**

- The new ultrawhite white paint **reflects 99% of all light** that hits it, remaining significantly cooler than the ambient temperature, even when sitting in full sunlight.
- **Typical commercial white paint gets warmer instead of cooler** and paints currently available in the market reflect only 80-90% of the sunlight and therefore, they can't make surfaces cooler than their surroundings.
- **Older formulations of white paints were made of calcium carbonate**, while the **new one is made up of barium sulphate** making it more white.
  - Barium Sulphate is used to make photo paper and cosmetics white. Different sized particles of this chemical compound, helps in scattering different amounts of light. This allows for light to scatter in a broad range, resulting in the highest reflectance.
- The paint could be the **closest equivalent to the blackest black paint Vantablack**, which is able to absorb 99.9% of visible light.
  - Vantablack has a diverse range of applications including high performance infrared cameras, sensors, satellite borne calibration sources etc.
  - Its ability to absorb light energy and convert it to heat is also of relevance in solar power development.

### ▪ **Reflection or Absorption of a Light by a Color:**

- Every object is seen by the eye because of absorption or reflection of light.
- The **light is made up of seven different colours** (Violet, Indigo, Blue, Green, Yellow, Orange and Red or VIBGYOR). Specifically, light is made up of wavelengths of different colours.
- The **colour of any object or thing is determined by the wavelength the molecules are not able to absorb**.
  - This is **dependent on how electrons are arranged in an atom** (the building block of life, an atom is made up of electrons, protons and neutrons).



- For example, if an individual is looking at a sofa that is green, this is because the fabric or material it is made up of is able to absorb all the colours except green (reflect the green coloured wavelengths).
- If **an object is black**, it is because **it has absorbed all the wavelengths and therefore no light is reflected from them.**
  - This is the reason that darker objects, as a result absorbing all wavelengths **tend to heat up faster** (as during absorption the light energy is converted into heat energy).
- **Significance:**
  - The new paint technology will help buildings covered by this paint to be cooler for longer, eliminating the effects of **Urban Heat Island.**
  - The paint could help in the **fight against global warming** by reducing our reliance on electrically powered air conditioning.
    - As **Air conditioning** injects heat into Earth's atmosphere in multiple ways, including pushing hot air out of buildings, the heat of running the machines, and the usually fossil fuel-generated electricity that runs them that contributes to carbon dioxide emissions.
  - It can not only prevent heat-related deaths and illnesses but also limit water quality depletion that is caused by heated ground.
- **India's Related Initiative:**
  - India is one of the first countries in the world to develop a comprehensive **Cooling Action plan** which has a long term vision to address the cooling requirement across sectors and lists out actions which can help reduce the cooling demand.

### Way Forward

- With climate change leading to a rise in temperatures and rapid concretisation exacerbating global warming, it has become important to develop adaptation strategies to reduce and combat heat stress.
- Key actions include cooling buildings naturally through better design, improving efficiency of cooling appliances, promoting renewable energy-based energy efficient cold chains and investing in research and development (R&D) of refrigerant gases that do not harm or warm the planet.

- Plant trees and other vegetation, space in urban areas might be limited, but one can easily integrate small green infrastructure practices into grassy or barren areas, vacant lots, and street rights-of-way.
- Greener rooftops, light-coloured concrete, making the road surface greyish or even pinkish can also be used as they absorb less heat and reflect more sunlight.

## 5. NEFT & RTGS Direct Membership for Payment System Operators

### Why in News

Recently, the **Reserve Bank of India (RBI)** has **proposed to enable**, in a phased manner, **payment system operators** to take **direct membership in RTGS and NEFT**.

- **Real Time Gross Settlement System (RTGS) and National Electronic Fund Transfer (NEFT)** are the **Centralised Payment Systems (CPSs)** of the RBI.
- **Non-bank payment system operators**, regulated by the RBI, will be allowed to take direct membership in CPSs.

### Centralised & Decentralised Payment Systems

- The **centralised payment systems** will include **Real Time Gross Settlement (RTGS) System and National Electronic Fund Transfer (NEFT) system** and any other system as may be decided by RBI from time to time.
  - **RTGS:** It enables real-time transfer of funds to a beneficiary's account and is primarily meant for large-value transactions.
    - Real time means the processing of instructions at the time they are received and gross settlement implies that settlement of funds transfer instructions occurs individually.
  - **NEFT:** It is an electronic fund transfer system in which the transactions received up to a particular time are **processed in batches**.
    - It is **generally used for fund transfers of up to Rs. 2 lakh**.
  - The **decentralised payment systems** will include **clearing houses managed by RBI** (Cheque Truncation System (CTS) centres) as well as other banks (Express Cheque Clearing System (ECCS) centres) and any other system as decided by RBI from time to time.

## Key Points

- **Direct Membership of NEFT & RTGS to Payment System Operators:**
  - **About:**
    - This is **expected to minimise settlement risk in the financial system and enhance the reach of digital financial services** to all user segments.
    - These entities will, however, **not be eligible for any liquidity facility** from RBI to facilitate settlement of their transactions in these **Centralised Payment Systems (CPSs)**.
    - This will be subject to an overall limit of **Rs. 2 lakh for non-banks**.
  - **Non- Bank Entities becoming the Members of CPS:**
    - **Prepaid Payment Instrument (PPI) issuers, Card Networks, White Label ATM operators, Trade Receivables Discounting System (TReDS) platforms** are going to become members of CPS.
    - **Mobile wallets** like Google Pay, Mobikwik, etc. can provide NEFT and RTGS facilities etc to their customers.
      - Transfer will be allowed only to **KYC (know your customer)-compliant entities**.
- **Facility of Cash Withdrawal:**
  - RBI has also **proposed to allow the facility of cash withdrawal**, subject to a limit, to non-bank entities – full-KYC PPIs of non-bank PPI issuers.
  - **Currently, cash withdrawal is allowed only for full-KYC PPIs issued by banks** and this facility is available through ATMs and Point of Sale terminals.
  - Holders of such PPIs, **given the comfort that they can withdraw cash, are less incentivised to carry cash and consequently more likely to perform digital transactions**.
- **Advantages:**
  - **Increase Digital Transactions:**
    - Just as use of **Unified Payment Interface (UPI)** increased over the last 4-5 years since it was opened to third-party aggregators, opening the

payment system to non-banks would increase digital payments and transactions significantly.

- It will **enable non-banks to go for full KYC compliance and interoperability.**
- **Better Record of Transactions:**
  - It will prepare a **digital trail of all individuals doing digital transactions on channels outside the banking system**, which could help the overall financial system.
- **Increase in Market Size:**
  - Interoperability of the PPI wallet will **expand the market size and will be beneficial to the end consumers.**
- **Financial Inclusion:**
  - This will **open new opportunities for PPI issuers** as they will be able to provide RTGS and NEFT services to the wallet users. Overall, this will take financial inclusion deeper in the country.
- **Concerns:**
  - The opening up of fund transfer and cash withdrawal through non-banks is certainly a sign of a changing banking horizon. **Traditional brick-and-mortar banking is slowly disappearing** with non-banks entering the space.
  - The RBI says **India is on the way to becoming Asia's top FinTech hub with an 87% FinTech adoption rate as against the global average of 64%.**
    - **Fintech (Financial technology)** refers to the integration of technology into offerings by financial services companies in order to improve their use and delivery to consumers.
  - The FinTech market in India was valued at **Rs. 1.9 lakh crore in 2019 and is expected to reach Rs. 6.2 lakh crore by 2025** across diversified fields such as **digital payments, digital lending, peer-to-peer (P2P) lending, crowd funding, block chain technology, distributed ledgers technology, big data, RegTech and SupTech.**

### Way Forward

- In a world where FinTech companies are leading in terms of the volume of digital transactions and playing a more active role in the banking and finance

industry, it is important that commercial banks adapt to the technological changes and work in tandem with these entities so that in future they are part of the ecosystem rather than competing with FinTech companies for business.

## 6. Multisystem Inflammatory Syndrome in Children

Why in News

Recently, doctors in the United States have reported **neurological symptoms in children with Multisystem Inflammatory Syndrome in Children (MIS-C)**.

Key Points

- **Multisystem Inflammatory Syndrome in Children (MIS-C):**
  - MIS-C is a rare but severe **hyperinflammatory condition in children and adolescents** that typically **occurs 2-6 weeks after a Cov id-19 infection**.
  - It is a **potentially deadly condition** where **different body parts can become inflamed**, including the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal organs.
  - Children with MIS-C **may have a fever and various symptoms**, including abdominal (gut) pain, vomiting, diarrhea, neck pain, rash, bloodshot eyes, or feeling extra tired.
- **MIS-C with Neurological Complications:**
  - In a recent study, **young people with the MIS-C syndrome have shown neurological issues** which were life-threatening such as strokes or severe encephalopathy (any brain disease that alters brain function or structure).
  - Neurological symptoms include hallucinations, confusion, speech impairments, and problems with balance and coordination.
  - The new findings **strengthen the theory** that the syndrome is related to a surge of inflammation triggered by an immune response to the virus.
- **Causes of MIS-C:**
  - As the Syndrome is less researched, there are varied theories as to what causes MIS-C.
  - While some researchers believe that MIS-C is a **delayed response to the coronavirus** which in turn causes massive inflammation in the body and as a result damages organs.

- Some believe that it can also be a result of the children's immune response **making antibodies against the virus.**
- There **may be a genetic component as not every child develops MIS-C** and the presenting symptoms are so varied.
- **Treatment:**
  - It **involves symptomatic relief such as supportive care** or use of various medicines to treat inflammation.





## **MAINS PRACTICE QUESTIONS**

**1Q. What do you understand by 'frontier technologies'? Discuss the possible impact of frontier technologies on developing countries like India. (250 words)**

### **Approach:**

- Explain the meaning of Frontier Technologies.
- Discuss the impact of such technologies on India.
- Conclude suitably.

**2Q. Genome India Project provides an opportunity for India to make great progress in the fields of biotechnology, agriculture and healthcare. Discuss. (250 words)**

### **Approach:**

- Briefly explain Genome India Project
- Highlight the project's applicability in biotechnology, agriculture and healthcare sector, and how such will present opportunity for India towards progress/contribution.
- Highlight some challenges to the project.
- In conclusion, give some measures to overcome these challenges.