

Atlantification

❖ Context

- According to a recently published study, **parts of the Arctic region near Norway are warming** at as much as **seven times** the rate of warming in the rest of the world.

❖ Key Highlights

- The study was published by the **Norwegian Meteorological Institute** in the journal Scientific Reports.
- It said the region around the **northern Barents Sea** has been warming two to two-and-a-half times the average warming of the Arctic region and five to seven times the warming in the rest of the world.

❖ About Barents Sea

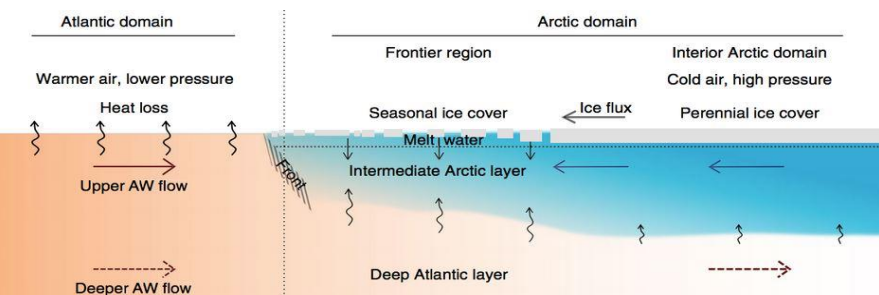
- The Barents Sea is a **marginal sea of the Arctic Ocean**.



- It is bounded by **Norway, Russia,** and the islands of **Novaya Zemlya, Spitsbergen,** and Franz Josef Land
- It is divided between **Norwegian and Russian territorial waters.**

❖ Atlantification

- Scientists have uncovered “hotspots” where some parts of the **Barents Sea are starting to more closely resemble the Atlantic.**



• Process of Atlantification:

- **Streams of warmer water** from the Atlantic Ocean **flow into the Arctic** at the Barents Sea.
- This warmer, saltier Atlantic water is usually fairly deep under the more buoyant Arctic water at the surface.
- Lately, however, the Atlantic water has been creeping up.
- That heat in the Atlantic water is helping to **keep ice from forming and melting existing sea ice from below.**
- This process is called “Atlantification”.
- The ice is now getting hit both from the top by a warming atmosphere and at the bottom by a warming ocean.

• Reasons:

- The Arctic sea ice extent and thickness have been dropping for decades as **global temperatures rise.**
- As the Arctic loses ice and the ocean absorbs **more solar radiation**, global warming is amplified.

• Consequences:

- It affects **ocean circulation**, weather patterns and Arctic ecosystems spanning the **food chain**, from phytoplankton all the way to top predators.

NIPUN Project

❖ Context

- The **Ministry of Housing and Urban Affairs** has launched the **National Initiative for Promoting Upskilling of Nirman workers (NIPUN)** project.

- The project has been launched under **Deendayal Antyodaya Yojana-National Urban Livelihoods Mission.**

❖ Objective

- The aim is to :
 - Provide skill training, both fresh and upskilling, to **1,00,000 construction workers.**
 - Provide them with work opportunities in foreign countries.

❖ Other Benefits

- Provide trainees with ‘**Kaushal Bima**’, a three-year accidental insurance with coverage of ₹2 lakhs.
- Digital skills such as cashless transactions and the BHIM app.
- Orientation about entrepreneurship.
- Facilities under Employee Provident Fund and Building and Other Construction Workers Act.

❖ Implementation

- The **National Skill Development Corporation (NSDC)**, the nodal agency under the Ministry of Skill Development & Entrepreneurship (MSDE), will be the Implementation Partner for the project NIPUN.
- The project implementation is divided into three parts :
 - Training through recognition of prior learning (RPL) at construction sites.
 - Training through fresh skilling.
 - International placement through industries, builders and contractors.
- **Onsite skill training** will be provided to around **80,000 construction workers** through industry associations under the **RPL certification**, co-branded with MoHUA.
- **14,000 candidates** will receive fresh skilling through plumbing and infrastructure **Sector Skill Council (SSC)** in trades having promising placement potentials.

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News in Between the Lines

Anti-gravity Suit



❖ Context

- Experts at the **All India Institute of Medical Sciences (AIIMS-Delhi)** have developed an anti-gravity bodysuit, in collaboration with **NIT-Jalandher**, that will allow astronauts to perform yoga in space.

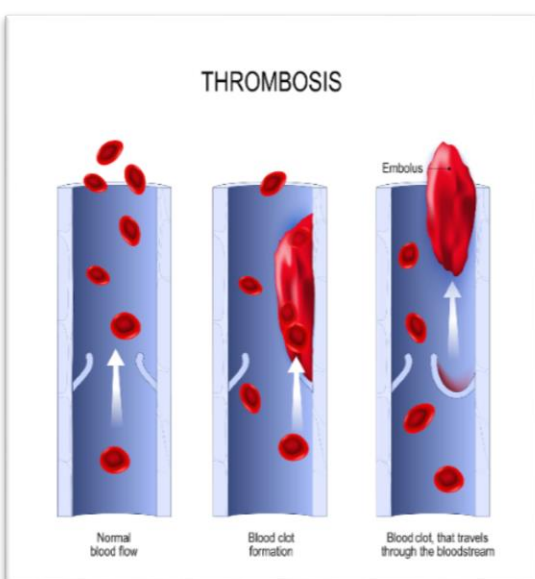
❖ Key Highlights

- AIIMS said this is **India's first bodysuit for astronauts** and that it will **increase their weight by more than 70% in space** to prevent them from floating.
- AIIMS also informed that no country in the world has this unique kind of body suit for astronauts which has the facility of grounding and loading.
- The anti-gravity gear will help astronauts to strengthen antigravity musculature and will also prevent atrophy.

❖ Microgravity and Atrophy

- The space journey of astronauts adversely affects the functioning of muscles and bones as they don't have to support the body's mass (weight on Earth).
- Without Earth-like exercise, astronauts would experience bone and muscle loss or atrophy (**a health condition in which the size of the body part decreases**) during their stays in space.
- Bone and muscle atrophy also occurs from **normal ageing, sedentary lifestyles and illnesses**.

Thrombosis



❖ Context

- According to data provided by BMC, **Mumbai** has witnessed an over **six-fold rise** in monthly **deaths related to heart attack** in the Jan-July 2021 compared to previous years.

❖ Key Highlights

- Between January and June 2021, a total of 17,880 succumbed to heart attacks in the city.
- According to experts - there may be three major reasons for the surge in deaths related to heart attack:
 - Possibility of development of thrombosis among recovered Covid-19 patients,
 - Delay in diagnosis of patients during the pandemic.
 - Better recording of data.

❖ About Thrombosis

- A **blood clot that forms and stays in a blood vessel** is called a thrombus.
- There are two main types of thrombosis.
 - **Arterial thrombosis** refers to a blood clot that blocks an artery.
 - **Venous thrombosis**, also known as venous thromboembolism or VTE, refers to a blood clot in a vein.

❖ COVID & Thrombosis

- In August 2021, the **Lancet reported** that the risk of a first heart attack increased by three to eight times in the week after a Covid-19 diagnosis.
- Virus interacts with the **ACE2 receptors** in the host body. So, all the organs with a predominance of ACE2 receptors, including the endothelium, get affected.
- The **endothelium** is the inner lining of all vascular structures in the body, which includes the arterial and venous system.
- Covid-19 typically causes **inflammation** of the endothelium, which is coined as **Covid endotheliitis**.
- This endotheliitis is the cause of increased thrombotic events, thereby leading to increase in cardiac mortality and morbidity.

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Declining Rupee and its Impact on Indian Economy



❖ Context

- Recently, the Indian Rupee hit an all-time low of **78.29** to the dollar.

❖ Causes

- Exit of **foreign portfolio investors** in the wake of central banks of different countries raising interest rates.
- Rising cost of **international crude oil prices**.
- Strong dollar.

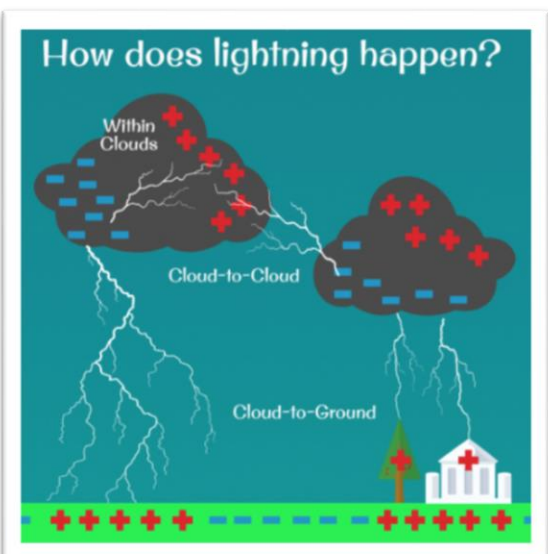
❖ Impact on Indian Economy

- **Inflation** - According to RBI's April Monetary policy report, a **5% decline from 76 per dollar level would raise inflation by 20 basis points**.
- **Businesses** - Higher import costs; Interest payments of borrowings to rise.
- **Worsening Current Account Deficit (CAD)** - It can touch 3% of GDP against 1.2% in April-December 2021.

❖ What is RBI Doing?

- RBI has been selling dollars from its reserves and buying rupee.
- If RBI hadn't intervened, the dollar could have touched Rs. 80.
- However, RBI cannot keep doing this. Since October last year, **India's forex reserves have fallen by around \$40 BN**.

Lightning



❖ Context

- Many people were recently killed by lightning in Bihar.

❖ What is Lightning?

- It is a rapid and massive discharge of electricity in the atmosphere.
- 15-20% of the discharge is directed towards the earth.
- **While earth is a good conductor of electricity, it is electrically neutral.**
- However, during building up of charge in clouds, with respect to the middle layers of the clouds, it becomes positively charged.

❖ How do Charges Develop Inside the Cloud?

- Discharge is created in giant moisture bearing clouds that are **10-12 km tall**. The base of these clouds lie within 1-2 km of the Earth's surface.
- Temperature in the top layer of these clouds are in the range of **-35 to -45 degree celsius**.
- Water droplets change into ice at such temperatures. They continue to move up, gathering mass until they are so heavy that they start to fall on earth.
- This leads to a system in which simultaneously smaller ice crystals are moving up and bigger crystals are coming down.
- This led to the **collisions of the crystals which trigger the release of electrons**. Free moving electrons cause more release of more electrons through collision and thus a **chain reaction** occurs.
- As a result, the **top layer gets positively charged, while the middle layer gets negatively charged**.
- The electric potential difference is to the order of **1 BN to 10 BN volts**. In very little time, a massive current of the order of **1 lakh to 10 lakh amperes** flows between layers.

❖ Lightning Prone Areas in India



- According to a recently released report of an NGO which works closely with IMD, Madhya Pradesh has reported the largest number of cloud to ground lightning strikes followed by Chhattisgarh, Maharashtra, Odisha and West Bengal.

- More than 96% lightning deaths happen in rural areas.
- **Lightning is not classified as a natural disaster in India**. But an early warning system has been set up.

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Language Model for Dialogue Applications (LaMDA)



❖ Context

- Recently, a Google engineer claimed that **LaMDA** had become sentient because its answers allegedly hint that it understands what it is.

❖ About LaMDA

- LaMDA is a **machine-learning language model** created by **Google** as a chatbot that is **supposed to mimic humans in conversation**.
- Like BERT, GPT-3 and other language models, **LaMDA is built on Transformer**, a neural network architecture that Google invented and open-sourced in 2017.
 - A **neural network** is an AI tech that attempts to mimic the web of neurons in the brain to learn and behave like humans.
- This architecture produces a model that **can be trained to read many words while paying attention to how those words relate to one another** and then predict what words it will think will come next.
- But what makes LaMDA different is that **it was trained on dialogue**, unlike most models. LaMDA is designed to be able to **engage in free-flowing conversations** about a virtually endless number of topics.

Strawberry Supermoon



❖ Context

- The **Strawberry Supermoon** was seen worldwide in different time zones from Sunday evening to Wednesday morning i.e 19th June to 22nd June 2022.

❖ Key Highlights

- Historically, the **last full moon of June is called the “Strawberry Moon”** because its appearance coincides with the ripening of **June bearing strawberries that are traditionally harvested by Native American tribes** of northeastern US around mid-June.
- However, since in some places the enlarged moon appears red or pink in color, its association with the strawberry became even more popular.
- The full moon is known by different names across the world, including the **Strawberry Supermoon, the Mead, Honey, or Rose Moon**.

❖ About Supermoon

- The **term supermoon** was coined by astrologer **Richard Nolle** in 1979.
- A supermoon appears when the **Moon’s orbit is closest (perigee) to Earth at the same time as the Moon is full**.
- With the Moon orbiting the Earth in an elliptical path, the **farthest point in this ellipse is called the apogee** and is about 4,05,500 kilometers) from Earth on average.
- When a full moon appears at perigee it is **slightly brighter and larger** than a regular full moon and that's where we get a "supermoon."

Balika Panchayat



❖ Context

- The country’s first-ever **Balika Panchayat** in **Kutch** aims to promote the social development of girls and ensure the active participation of girls in politics.

❖ Background

- Balika Panchayat is a panchayat of girls between the **age of 10 and 21 years**,
- The Panchayat has started in **Kunaria, Maska, Motagua, and Vadsar villages of the Kutch district**.

❖ Objectives

- The initiative aims to promote the **social and political development** of the girls and ensure their **active participation in politics**.
- This initiative has been taken by the **Women and Child Development Welfare Department** of the Gujarat Government under the '**Beti Bachao Beti Padhao**' campaign.
- It also seeks to remove evil practices like **child marriage and dowry system** from **society and decision-making process** in Panchayat.
- **The Women and Child Development Ministry** is planning to start a girl panchayat across India.

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