

1. UDAN Scheme

Topic: Government Scheme



In News: UDAN Regional Connectivity Scheme (RCS) which was launched to stimulate regional air connectivity and making air travel affordable to masses has completed five years.

More on the Topic:

- The scheme **UDAN envisages providing connectivity to un-served and under-served airports of the country** through revival of existing air-strips and airports.
- UDAN has a unique market-based model **to develop regional connectivity.**
- Interested airline and helicopter operators can start operations on hitherto un-connected routes by submitting proposals to the Implementing Agency.
- The operators could seek a **Viability Gap Funding (VGF)** apart from getting various concessions.
- All such route proposals would then be offered for competitive bidding through a reverse bidding mechanism and the route would be awarded to the participant quoting the lowest VGF per Seat.

Achievements of UDAN Scheme:

- **Operation airports increased from 74 to 141 by now.** With 425 new routes initiated under scheme, UDAN has provided air connectivity to more than 29 States/ UTs.
- 220 destinations (airports/heliports/water aerodromes) under UDAN are targeted to be completed by 2026 with 1000 routes.

Source: Indian Express

2. The warming of Arctic Ocean and its impact on India

Topic: Environment and Ecology



In News: The Finnish Meteorological Institute researchers published their study concluding that the Arctic is heating four times faster than the rest of the planet.

More on the Topic:

- The warming is more concentrated in the Eurasian part of the Arctic, where the Barents Sea north of Russia and Norway is warming at an alarming rate — seven times faster than the global average.

What is Arctic amplification? What causes it?

- While changes are witnessed across the planet, any change in the surface air temperature and the net radiation balance tend to produce larger changes at the north and south poles.
- This phenomenon is known as polar amplification; these changes are more pronounced at the northern latitudes and are known as the Arctic amplification.

The Causes:

- Among the many global warming-driven causes for this amplification, **the ice-albedo feedback, lapse rate feedback, water vapour feedback and ocean heat transport are the primary causes.**



- Sea ice and snow have high albedo (measure of reflectivity of the surface), implying that they are capable of reflecting most of the solar radiation as opposed to water and land. In the Arctic's case, global warming is resulting in diminishing sea ice.
- As the sea ice melts, **the Arctic Ocean will be more capable of absorbing solar radiation**, thereby driving the amplification.
- The lapse rate or the rate at which the temperature drops with elevation decreases with warming.
- Studies show that the ice-albedo feedback and the lapse rate feedback are responsible for 40% and 15% of polar amplification respectively.

The consequences of Arctic warming?

- **The causes and consequences of Arctic amplification are cyclical**, what might be a cause can be a consequence too.
- Greenlandic ice sheet holds the second largest amount of ice, after Antarctica, and therefore it is crucial for maintaining the sea level.
- If the sheet melts completely, **the sea level would rise by seven metres, capable of subsuming island countries and major coastal cities.**
- The warming of the Arctic Ocean and the seas in the region, **the acidification of water, changes in the salinity levels, is impacting the biodiversity**, including the marine species and the dependent species.
- The warming is also increasing the incidence of rainfall which is affecting the availability and accessibility of lichens to the reindeer. The Arctic amplification is causing widespread starvation and death among the Arctic fauna.
- The permafrost in the Arctic is thawing and in turn releasing carbon and methane which are among the major greenhouse gases responsible for global warming.

What is the impact on India?

- Scientists found that **the reduced sea ice in the Barents-Kara sea region can lead to extreme rainfall events** in the latter half of the monsoons in September and October.
- The changes in the atmospheric circulation due to diminishing sea ice combined with the warm temperatures in the Arabian Sea **contribute to enhanced moisture and drive extreme rainfall events.**
- In 2014, **India deployed IndARC, India's first moored-underwater observatory** in the Kongsfjorden fjord, Svalbard, to monitor the impact of the changes in the Arctic Ocean on the tropical processes such as the monsoons.
- According to the World Meteorological Organization's 'State of Global Climate in 2021', sea level along the Indian coast is rising faster than the global average rate.
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Source: Indian Express

3. Emergency Credit Line Guarantee Scheme

Topic: Economy



- Interlinking Udyam, E-Shram, NCS, ASEEM Portals
- Extending ECLGS with focus on Hospitality & Related Enterprises
- Revamping CGTMSE with additional credit of 2 lakh crore
- Rolling out of RAMP Programme: Raising & Accelerating MSME Performance with outlay of 6000 crore over 5 years

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In News: The Union Cabinet has approved an additional infusion of Rs 50,000 crore under the Emergency Credit Line Guarantee Scheme (ECLGS) to ensure low-cost credit flow to hospitality and related segments hit hard by the COVID-19 pandemic.

More on the Topic:

- The ECLGS was announced in May 2020 in wake of the outbreak of COVID-19 to help various sectors, especially in the MSME segment, to get credit at a concessional rate of 7 per cent.
- As a part of the same, government officials provide a 100% credit guarantee on behalf of the National Credit Guarantee Trustee Company (NCGTC).
- The ECLGS loan amount offered is up to 20% of the borrower's total outstanding loan of up to ₹50 Crores, which means the maximum loan amount will be ₹10 Crores.

National Credit Guarantee Trustee Company Limited:

- National Credit Guarantee Trustee Company Limited (NCGTC) is a **Union Government Company**. It is classified as a company limited by shares.
- It was set up by the Government of India to, inter alia, act as a common trustee company to manage and operate various credit guarantee trust funds.

Source: Hindu

4. Hayabusa-2 probe

Topic: Science and Technology



In News: The Hayabusa-2 probe brought 5.4 grams of rocks and dust from the asteroid Ryugu to Earth in December 2020. New study related to the materials suggest that water and organic materials might have been brought to our planet from the outer edges of the solar system.

More on the Topic:

- The Hayabusa-2 mission was launched in December 2014 when the spacecraft was sent on a six-year voyage to study the asteroid Ryugu.
- The spacecraft arrived at the asteroid in mid-2018 after which it deployed two rovers and a small lander onto the surface.
- In 2019, the spacecraft fired an impactor into the asteroid's surface to create an artificial crater with a diameter of a little more than 10 metres, which allowed it to collect the samples.
- In December 2020, Hayabusa-2 delivered a small capsule that contained the rock and dust samples when it was 220,000 km from the Earth's atmosphere, which safely landed in the South Australian outback.
- Hayabasu2's predecessor, the Hayabusa mission, brought back samples from the asteroid Itokawa in 2010.

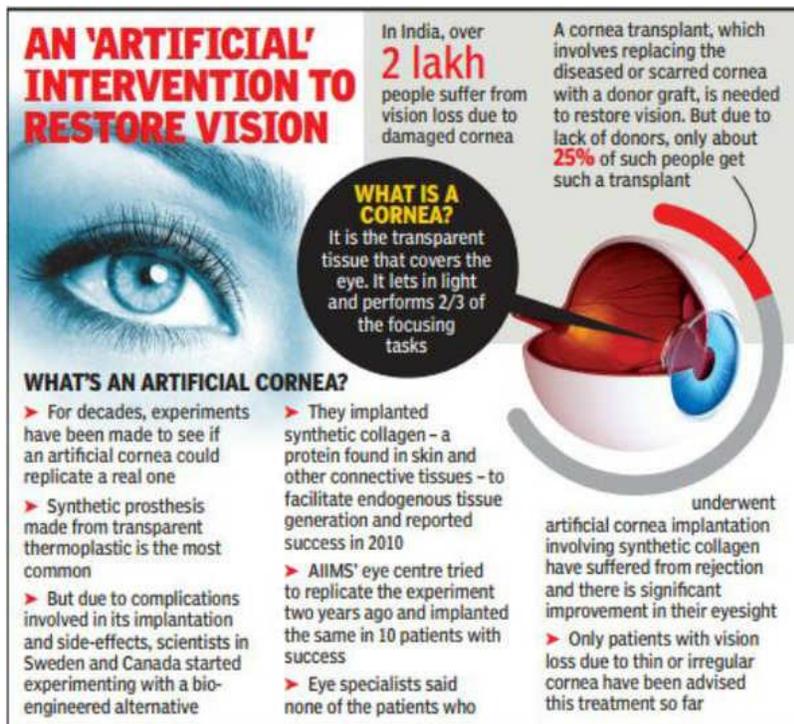
What is an asteroid?

- Asteroids are rocky objects that orbit the Sun, much smaller than planets. They are also called minor planets.
- According to NASA asteroids are the remnants from the formation of the solar system over 4.6 billion years ago.
- Asteroids are divided into three classes. **First are those found in the main asteroid belt between Mars and Jupiter.**
- **The second group is that of trojans**, which are asteroids that share an orbit with a larger planet.
- **The third classification is Near-Earth Asteroids (NEA)**, which have orbits that pass close to the Earth.

Source: Indian Express

5. Bio Engineered Cornea

Topic: Science and Technology



AN 'ARTIFICIAL' INTERVENTION TO RESTORE VISION

In India, over **2 lakh** people suffer from vision loss due to damaged cornea

A cornea transplant, which involves replacing the diseased or scarred cornea with a donor graft, is needed to restore vision. But due to lack of donors, only about **25%** of such people get such a transplant

WHAT IS A CORNEA?
 It is the transparent tissue that covers the eye. It lets in light and performs 2/3 of the focusing tasks

WHAT'S AN ARTIFICIAL CORNEA?

- For decades, experiments have been made to see if an artificial cornea could replicate a real one
- Synthetic prosthesis made from transparent thermoplastic is the most common
- But due to complications involved in its implantation and side-effects, scientists in Sweden and Canada started experimenting with a bio-engineered alternative
- They implanted synthetic collagen – a protein found in skin and other connective tissues – to facilitate endogenous tissue generation and reported success in 2010
- AIIMS' eye centre tried to replicate the experiment two years ago and implanted the same in 10 patients with success
- Eye specialists said none of the patients who

underwent artificial cornea implantation involving synthetic collagen have suffered from rejection and there is significant improvement in their eyesight

- Only patients with vision loss due to thin or irregular cornea have been advised this treatment so far

In News: A new study has found out that Corneas bioengineered from pig collagen can restore sight.

More on the Topic:

- For the first time, researchers in Sweden have been able to create a successful alternative bioengineered cornea implants made of collagen derived from pig skin. The implant was used to successfully restore the vision of 20 people in India and Iran.

- The results show that it is possible to develop a biomaterial that meets all the criteria for being used as human implants, which can be mass-produced and stored up to two years and thereby reach even more people with vision problems.

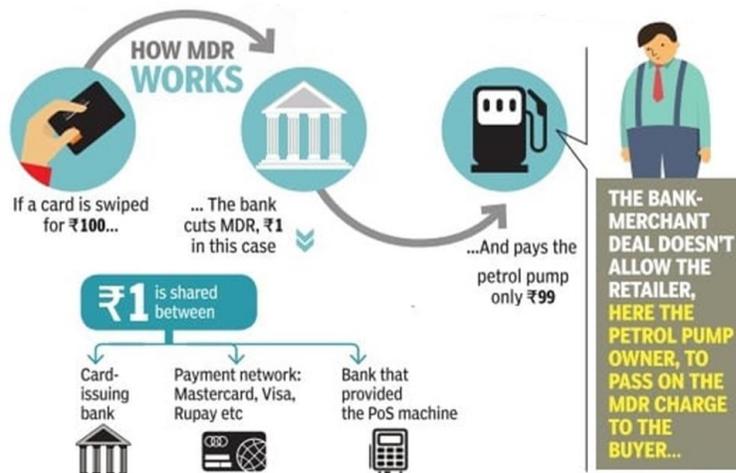
Bioengineering:

- Biological engineering, also known as bioengineering, is the application of biological principles and engineering tools to create usable, tangible, and economically viable products.
- Bioengineering is the application of engineering knowledge to the fields of medicine and biology.

Source: Business Standard

6. Merchant Discount Rate

Topic: Economy



In News: Reserve Bank of India (RBI) is seeking opinions of stakeholders regarding reintroduction of Merchant Discount Rate.

More on the Topic:

- MDR is **the rate charged to a merchant for payment processing services on various it is charged as percentage of transaction value.**
- Simply put, **it is a charge to a merchant by a bank for accepting payment from their customers in credit and debit cards every time a card gets swiped in their stores.**
- Similarly, **MDR also includes the processing charges** that a payments aggregator has to pay to online or mobile wallets or indeed to banks for their service.
- The charge collected will be distributed between **bank that enables the transaction, vendor installs point of sale (PoS) machine, and card network provider such as Visa, MasterCard, etc.**

Source: Hindu