DAILY CURRENT AFFAIRS ANALYSIS

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1 – About OSIRIS-REx and Bennu:

GS III

Science and Technology

- **About:**

- For the past seven years, NASA's OSIRIS-REx robotic spacecraft has been travelling billions of kilometres away from Earth to gather and return samples from an asteroid named Bennu.

- **Regarding OSIRIS-Rex:**

- The continuing OSIRIS-REx mission of NASA visited the asteroid 101955 Bennu and took a sample from it.
- It recently brought the sample back to Earth.
- The asteroid Apophis, which will pass near Earth in 2029, is the spacecraft's next destination.

- **What is Bennu, the asteroid?**

- Smaller than planets, asteroids are stony objects that circle the Sun.
- Another name for them is small planets.
- Bennu is an asteroid roughly 200 million miles from Earth that is roughly as tall as the Empire State Building.
- Bennu bears the name of a god in Egypt.
- 1999 saw the discovery of the asteroid.
- As of right now, Bennu's classification as a B-type asteroid suggests that it is composed primarily of carbon and a variety of other minerals.
- When compared to a planet like Venus, which reflects over 65% of the light that strikes it, the asteroid, with its high carbon content, only reflects approximately 4% of the light that strikes it.
- Earth reflects roughly thirty percent.
- Scientists estimate that Bennu is about 4.5 billion years old, having formed in the first 10 million years of the solar system. Of Bennu's interior, 20–40 percent is empty space.
- Bennu is a Near Earth Object (NEO) that has the potential to strike Earth sometime in the next century, specifically between 2175 and 2199.
- NEOs are comets and asteroids that are propelled into orbits that let them pass through Earth's neighbourhood by the gravitational pull of neighbouring planets.

- Bennu is thought to have formed in the Main Asteroid belt between Mars and Jupiter. The asteroid is moving towards Earth due to gravitational pulls from other celestial bodies and a tiny push that occurs when asteroids release absorbed sunlight.

- **A sample return mission: what is it?**

- Most sample return missions are automated.
- Nevertheless, NASA's Apollo missions from 1969 to 1972 carried out human rock and soil collection in orbit.
- Sample return missions deploy spacecraft to land on a planet, moon, or asteroid in order to gather samples of rock, soil, and minerals.
- On Earth, the samples are examined in labs.

- **Upcoming missions:**

- The goal of Japan's Martian Moons eXploration (MMX) mission is to return rocks from the Martian area as the first sample return mission.
- MMX is slated to launch in 2024 with the goal of studying Phobos, Deimos, and Mars' moons and learning more about their creation.

- ***Source → The Hindu***

2 – Details of Conocarpus plants:

GS III

Environmental Conservation related issues

- **Context:**

- Citing ornamental Conocarpus trees' detrimental effects on the environment and human health, the Gujarati government has outlawed their planting in forested or non-forested areas.

- **Regarding the plant:**

- Conocarpus is a rapidly expanding alien species of mangrove.
- Two species of flowering plants in the family Combretaceae, native to tropical regions of the world, make up the genus Conocarpus.
- One of the species is a common mangrove, while the other is limited to a tiny region along the shores of the southern Red Sea, where it grows next to seasonal rivers.
- D. erectus is indigenous to the tropical American shores, starting in Bermuda.
- D. Linnaeus is a native of Somalia and Yemen; it is grown throughout the Arabian Peninsula, eastern and northern Africa.

- **Why is it prohibited?**

- Telangana had previously outlawed the species of plant.
- Studies have shown that this species has negative effects on the ecosystem and human health.
- This species' trees bloom in the winter and disperse pollen to neighbouring places.
- It has been discovered that this is the cause of illnesses like allergies, asthma, colds, and coughs.
- This plant' vast and deeply ingrained roots harm freshwater systems, drainage lines, and communication lines.
- It eliminates competition as well.
- In under ten years, it had completely taken over the Delhi Ridge, eradicating native trees such as flame-of-the-forest, acacia, dhak, kadamb, and amaltas.
- The wildlife, including birds, butterflies, leopards, porcupines, and jackals, vanished with the trees.
- Additionally, the tree lowers the water table in the area where it is planted.

- ***Source → The Hindu***

3 – About Matangini Hazra:

GS I

Modern Indian History

- **Context:**

- On the anniversary of her death, honour was recently given to the courageous Matangini Hazra.

- **Details about Mantangini Hazra:**

- At the age of 73, Matangini Hazra was shot by the British while organising a demonstration in Tamluk, Bengal, in 1942.
- She became a martyr and one of the first victims of the Quit India campaign after her death.
- Matangini Hazra was one of the millions of people who enthusiastically embraced the freedom movement after being seduced by the Mahatma's charisma and teachings.
- She was 61 years old when she was arrested in 1930 for her involvement in the Civil Disobedience Movement.
- She started spinning her own khadi, following in Gandhi's footsteps, and became an active member of the Indian National Congress during this period.
- Matangini's statue was the first to be erected to a female revolutionary in the Kolkata Maidan in 1977.

- ***Source → The Hindu***

4 – Details of Jewar Airport getting 'DXN' code:

GS III

Infrastructure related issues

- **Context:**

- The International Air Transport Association (IATA) has given the new Noida International Airport (NIA) in Jewar its own distinct international three-letter code, "DXN."

- **What codes do airports use?**

- Every airport is given a unique code that serves as an identifier.
- Although the majority of people are only familiar with the IATA codes, every airport has two distinct codes of its own:
- The International Civil Aviation Organisation (ICAO), a division of the UN, assigned the other.
- Both are employed, albeit in different situations, to correctly identify airports.

- In passenger-facing operations, such as on tickets, boarding cards, signage, etc., the three-digit IATA codes are utilised.
- Professionals in the aviation business, including pilots, air traffic controllers, planners, etc., use the four-digit codes that are assigned by the ICAO.
- In the very beginning of commercial flight, in the 1930s, airport code was first implemented.

- **How are airport codes assigned by IATA?**

- The way the airport wants to present itself.
- An airport authority has to lobby a lot behind the scenes to get a code that has some significance.
- Common bases for codes include place names, airport names, and city names.
- The code in question is available.
- The only reason the codes have meaning is that they are distinct.
- This implies that IATA codes cannot be shared by two airports.
- This is among the explanations for why the Ranchi airport—which is controlled by Ravenna, Italy—is not RAN.
- A few standard practises that vary by nation.
- The Ranchi airport's IXR designation also stems from an Indian custom that designates military airports that are opened to civilian traffic with codes that start with "IX."
- As an example, the airport codes for Agartala, Chandigarh, and Leh are IXA, IXC, and IXL, respectively.
- IATA Resolution 763 governs the assignment of these codes, which are released twice a year in the IATA Airline Coding Directory.

- **About IATA:**

- Founded in 1945, the International Air Transport group (IATA) is a global trade group for airlines.
- IATA has been called a cartel as it arranged tariff conferences that functioned as a venue for price fixing in addition to establishing technical standards for airlines.
- There are 300 airlines in total, representing 117 nations.
- The airlines that are members of the IATA transport over 83% of all air traffic with available seat miles.
- IATA assists in creating industry standards and policies and promotes airline activity.
- Its main office is in Montreal, Canada.
- It was established in 1919 in The Hague, Netherlands, and is the replacement for the International Air Traffic Association.

- ***Source → The Hindu***

5 – About Sycamore Gap:

GS III

Economy related issues

- **Context:**

- In what is believed to be an intentional act of vandalism, a teenage lad in England chopped down a 300-year-old tree that was renowned for its beauty and unusual placement.

- **Important information:**

- The sycamore tree was situated at a break in the Hadrian Wall, an ancient stone monument near the English-Scottish border, in a valley between two hills.
- The "gaps" are actually canals that were eroded naturally thousands of years ago by massive amounts of meltwater pouring beneath the ice sheets that once covered the region.

- **The Sycamore Roots:**

- As they get older, sycamore trees have the potential to grow to be as tall as 35 metres.
- Their leaves resemble those of maple trees, and they are frequently seen in the United Kingdom.
- A sycamore's lifespan can reach 400 years.
- Originating in central, eastern, and southern Europe, it is thought to have been brought to the United Kingdom either by the Romans or during the Tudor period in 1500.

- **UNESCO-designated site:**

- The Hadrian Wall is located in Germany and the United Kingdom and is a part of the broader "Frontiers of the Roman Empire" UNESCO World Heritage Site.
- The Roman Empire was one of the biggest empires in history in terms of its total area.

- It was surrounded by a network of borders that extended from middle Scotland in the north to the northern edge of the Sahara Desert in the south, and from the Atlantic Coast in the west to the Black Sea in the east, protecting the Mediterranean world and its environs.
- The Hadrian Wall stretches 118 kilometres along the greater frontier, among other pieces.

- ***Source → The Hindu***