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Endeavour Spacecraft and Crew Dragon capsule

- Recently SpaceX launched two astronauts to the International Space Station.
- The mission was initially supposed to be launched on May 27 but was delayed due to poor weather conditions at the last minute.
- The Falcon 9 rocket lifted off from NASA's Kennedy Space Center carrying SpaceX's Crew Dragon capsule into orbit.
- The mission 'historic' because this is the first-ever time that a private spacecraft company, Space X used its own rocket to put humans into space.
- The astronauts have named the commercial spacecraft after one of the retired winged orbiters, 'Endeavour'.
- The crew chose the name Endeavour is "because of this incredible endeavor that NASA, SpaceX and the United States has been on since the end of the space shuttle program back in 2011.

International Space Station

- The International Space Station (ISS) is a modular space station (habitable artificial satellite) in low Earth orbit.
- The ISS programme is a multi-national collaborative project between five participating space agencies:

1. NASA (United States),
2. Roscosmos (Russia),
3. JAXA (Japan),
4. ESA (Europe),
5. CSA (Canada).

- The ownership and use of the space station is established by intergovernmental treaties and agreements.
- The ISS serves as a microgravity and space environment research laboratory in which scientific experiments are conducted in astrobiology, astronomy, meteorology, physics, and other fields.
- The station is suited for testing the spacecraft systems and equipment

required for possible future long-duration missions to the Moon and Mars.
- It is the largest artificial object in space and the largest satellite in low Earth orbit, regularly visible to the naked eye from Earth's surface.
- The ISS circles the Earth in roughly 93 minutes, completing 15.5 orbits per day.

G7 Grouping

- The Group of Seven (G7) is an international intergovernmental economic organization consisting of the seven largest IMF- advanced economies in the world:

1. Canada,
2. France,
3. Germany,
4. Italy,
5. Japan,
6. United Kingdom,
7. United States.

- The European Union is an invitee to G7.
- As of 2018, the seven countries involved represent 58% of the global net wealth and more than 46% of the global gross domestic product (GDP) based on nominal values.
- The annual G7 Summit includes the 7 heads-of-government from these 7 countries.

G7 Artificial Intelligence Group

- G7-Global Partnership on AI launched recently through a virtual meeting between national technology ministers.
- It was nearly two years after the leaders of Canada and France announced they were forming a group to guide the responsible adoption of AI based on shared principles of "human rights, inclusion, diversity, innovation and economic growth."
- Recently USA joined the partnership, an international panel for setting ethical guidelines for the use of artificial intelligence.
- US involvement is important because of the large role that American tech firms play globally and its historic advocacy for human rights

Cultural places affected by Amphan Cyclone in Bengal

- Super cyclone Amphan swept through south Bengal, it had severely

damaged some of its centuries-old heritage structures.

- Few prominent buildings that were damaged during the cyclone are as follows

1. **St. Andrew's Church -** It is the only Scottish church in Calcutta, It was only open to the public in 1818, and the first stone was laid by the Marquis of Hastings in 1815.
2. **Serampore College -** Serampore College was established in 1818 years back by William Carey, a cultural anthropologist who played a significant role in the spread of western education, it is one of the oldest educational institutes in India that is still functional.
3. **Dupleix Palace -** The Dupleix Palace at Chandannagar, built by French Governor-General Joseph Francois Dupleix - Dupleix palace has preserved French antiques like painting (that of Mughal courts), clay model utensils of French times.
4. **Hooghly Imambara** – It is a Shia Muslim congregation hall and mosque it was established by Muhammad Mohsin in 1841-1861.
5. **Jatar Deul -** It is an early medieval brick temple located in Sundarbans settlements, dating back to the 11th and 12th century CE, it belongs to a small sub-group of Bengal temples, with architectural suggestions from Odisha.
6. **Metcalfe Hall -** It was built between 1840-1844 in honor of Metcalfe, the Governor-General of India for his efforts towards a free press, it is visually similar to ancient Greek temples.
7. **Currency Building -**.The building was named as the Currency Building when the Government occupied a large portion of it for its Currency Department in 1868 from the Agra Bank Limited.

INTACH

- INTACH was founded in 1984 in New Delhi with the vision to create a membership organization to stimulate and spearhead heritage awareness and conservation in India.
- The Indian National Trust for Art and Cultural Heritage (INTACH) is a non-profit charitable organization registered under the Societies Registration Act, 1860.
- Since 1984, INTACH has pioneered the conservation and protection of India's natural and cultural heritage and is today the largest membership organization in the country dedicated to conservation.
- In 2007, the United Nations awarded INTACH a special consultative status with United Nations Economic and Social Council.

- Today it has chapters in 170 Indian cities, as well as chapters in Belgium and the United Kingdom.

Solar Eclipse

- When the Sun, Earth, and the Moon align in a straight line (or form an almost straight configuration), either a solar eclipse or a lunar eclipse is witnessed depending on the position of the Earth.
- A solar eclipse happens during the New Moon when the Moon moves between Earth and the Sun to cast a shadow on the Earth blocking the rays of Sun.
- There are three kinds of solar eclipses Total, partial, and annular along with rare hybrid that is a combination of an annular and a total eclipse.
- There are between two and five solar eclipses every year.
- This year, there will be two solar eclipses one is scheduled for Jun 21 and the other one is expected to occur on December 14.

Lunar Eclipse

- A lunar eclipse happens during a Full Moon when the Earth comes between the Sun and the Moon blocking the Sun’s rays from directly reaching the Moon.
- Just like solar eclipses, lunar eclipses are also of three kinds– total, partial, and penumbral.
- The year 2020 has been listed to hold four lunar eclipses– one of which has been already witnessed in January.
- The remaining eclipses have been scheduled to occur in June, July, and November.
- Also, just like the first lunar eclipse, the upcoming lunar eclipse of the year will be penumbral ones, which means the Moon travels through the faint penumbral portion of Earth’s shadow.

Umbra, Penumbra and Antumbra

- Like any other opaque objects illuminated by a light source, the Moon and the Earth cast shadows into space as they block the sunlight that hits them. Each shadow has 3 different areas: the umbra, the penumbra, and the antumbra.
- **Penumbra -** It is the lighter outer part of a shadow, the Moon's penumbra causes partial solar eclipses, and the Earth's penumbra is involved in penumbral lunar eclipses.

- The penumbra is a half-shadow that occurs when a light source is only partly covered by an object – for example, when the Moon obscures part of the Sun's disk.
- **Umbra -** The shadow's dark center portion.
- **Antumbra -** The lighter part of the shadow that begins where the umbra ends.

Dibru-Saikhowa National Park

- Dibru-Saikhowa National Park is a national park in Assam, India, located in Dibrugarh and Tinsukia districts.
- It was designated a Biosphere Reserve in July 1997.
- The park is bounded by the Brahmaputra and Lohit Rivers in the north and Dibru river in the south.
- It mainly consists of moist mixed semi-evergreen forests, moist mixed deciduous forests, canebrakes and grasslands.
- It is the largest salix swamp forest in north-eastern India, with a tropical monsoon climate with a hot and wet summer and cool and usually dry winter.
- Annual rainfall ranges from 2,300 to 3,800 mm (91 to 150 in). I
- t is a haven for many endangered species and rich in fish diversity.

Maguri Motapung Beel

- Maguri Beel is a large wetland located 3.8 Km away from Guijan Ghat- Assam, gateway of the Dibru-Saikhowa National Park and Biosphere Reserve.
- A small channel connects Maguri Beel with the Dibru River to the North.
- It has grown importance because it is home to some of the rarest of the bird species and attracts varied species of birds from around the globe for which it has already been declared as an Important Birding Site (IBA) by Birdlife International.
- The beel is also very rich in aquatic life and this has led to development of many fishing camps near it.
- The nearby areas of the beel displays grassland environment, creating a safe haven for grassland birds.
- Some of the migratory bird species visiting the beel includes the Ruddy Shelduck, Baikal Teal, Bar-Headed Goose, Falcated Duck, Ferrigunuous Duck, Northern Pintail, Eurasian Wegion, Common Teal, Black- Headed Ibis, Glossy Ibis, Eurasian Curlew etc.

Scorpionfish

- Scorpionfish belong to the family Scorpaenidae which are mostly marine fish that includes many of the world's most venomous species.
- It is commonly found in the Indo-West Pacific region of the world.
- It is a biogeographic region of Earth's seas, comprising the tropical waters of the Indian Ocean, the western and central Pacific Ocean, and the seas connecting the two in the general area of Indonesia.
- It is a nocturnal feeder and lays motionless in the sea bottom and waits for the prey to come close to it.
- Nocturnal species are those which prefer to be active at night and sleep during the day. E.g. Bats.

Scorpaenopsis Neglecta

- Recently, researchers at the Central Marine Fisheries Research Institute (CMFRI) have found a rare Scorpionfish (Scorpaenopsis neglecta) from Sethukarai coast in the Gulf of Mannar.
- This for the first time the particular species is discovered alive in Indian waters.
- It has been deposited in the National Marine Biodiversity Museum of the CMFRI.
- Characteristics of Scorpaenopsis neglecta includes

1. **Powerful sensory system:**

- Unlike other fish, this band-tail Scorpion fish uses its lateral sensory system instead of eyes to hunt its prey.
- Lateral sensory system is a system of sense organs found in fishes which is used to detect movement, vibration, and pressure gradients in the surrounding water.

2. **Colour changing -** The fish has the ability to change colour and camouflage to escape from predators and while catching a prey.
3. **Camouflage:** It is a defense or tactic that organisms use to disguise their appearance, usually to blend in with their surrounding environment - This allows prey to avoid predators, and for predators to sneak up on prey.
4. **Neurotoxic -** The fish is called ‘scorpionfish’ because its spines contain neurotoxin - Neurotoxins are chemical substances that are poisonous to the nervous system - Generally snakes i.e. King Cobra and marine snakes have these types of venom, thus Eating the fish would also lead to death.

Central Marine Fisheries Research Institute

- It was established by the Government of India in 1947 under the Ministry of Agriculture and Farmers Welfare and later it joined the Indian Council of Agricultural Research (ICAR) family in 1967 .
- It is a leading tropical marine fisheries research institute in the world, headquartered in Kochi, Kerala.
- The objectives of CMFRI are as follows

1. Marine Fishery Resource Assessment.
2. Productivity and Production Enhancement through Mariculture.
3. Conservation of Marine Biodiversity.
4. Transfer of Technology and etc.

Source: The Hindu, Down to Earth, Indian Express

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