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Hyperloop Centre

- Hyperloop is the 5th mode of transportation.
- Hyperloop works on a technology that would use magnetic levitation in low-pressure tubes to transport people and goods at airplane-like speeds.
- A Hyperloop model has been proposed by Team Avishkar of IIT Madras
- It can achieve a top speed of over 1,200 km per hour.
- The team is spearheading Hyperloop Tube research in India and has already patented a novel and cost-effective tube design.
- Now the Ministry of Railways has accorded its approval for funding of Rs 8.34 crore to IIT Madras to participate in a collaborative project on Hyperloop technology.
- The low energy requirement and its contribution towards Carbon neutrality makes Hyperloop an attractive proposition for Indian Railways.
- The team is aiming to build the world's largest student-developed Hyperloop testing facility at IIT Madras.
- It is hoping to complete the construction of this 500-metre long facility by this year at Discovery Campus.
- Under the project a centre of excellence for Hyperloop technology will be set up at IIT Madras.
- Overall aim is to indigenously develop and validate Hyperloop technology based transportation system and its subsystems.

Reference

1. <https://indianexpress.com/article/india/railways-iit-madras-to-develop-indias-own-hyperloop-7926719/#:~:text=The%20Indian%20Railways%20and%20IIT,travel%20at%20aeroplane%2Dlike%20speeds.>
2. <https://theprint.in/india/rlys-to-collaborate-with-iit-madras-for-development-of-indigenous-hyperloop-system/962889/>

Centre, states have equal power to make laws on GST

The Supreme Court of India has made the following observations with respect to Goods and Services Tax (GST).

- Article 246A gives the States power to make laws with respect to GST
- It treats both the Union and the States as “equal units”.
- So, both Union government and states have equal and co-ordinate power to legislate on matters of Goods and Services Tax (GST)
- There are no provisions in the Goods and Service Tax Act, 2017 (GST Act) that deal with situations where there is repugnancy between the laws drawn up by the Centre and states.
- In case of repugnancy it is for the GST Council to advise them suitably.
- However the recommendations of the GST Council are not binding on the Centre and states
- Its recommendations only have a persuasive value.
- GST council must work in harmonious manner to achieve workable solution.

Reference

1. <https://www.thehindu.com/business/Economy/recommendations-of-gst-council-not-binding-on-centre-states-supreme-court/article65429432.ece#:~:text=The%20Supreme%20Court%20on%20Thursday,GST%20Council%20are%20not%20binding>
2. <https://www.hindustantimes.com/india-news/centre-states-have-equal-power-to-make-laws-on-gst-supreme-court-101652941425696-amp.html>

Naval Anti-Ship Missile

The Defence Research and Development Organisation (DRDO) and Indian Navy jointly conducted the successful maiden flight-test of indigenously-developed Naval anti-ship missile.

- It is the first indigenous air launched anti-ship missile system developed for the Indian Navy.
- The missile was launched from a Seaking 42B Naval helicopter
- The test was conducted at the Integrated Test Range (ITR) in Chandipur off the coast of Odisha.
- The missile employed many new technologies, including an indigenously developed launcher for the helicopter.
- The missile guidance system includes state-of-the-art navigation system and integrated avionics
- This is significant step towards achieving self-reliance in niche missile technology and reaffirms the Indian Navy's commitment to indigenisation.

Reference

1. <https://www.thehindu.com/news/national/indian-navy-successfully-test-fires-naval-anti-ship-missile/article65425605.ece>
2. <https://indianexpress.com/article/india/indian-navy-successfully-test-fires-naval-anti-ship-missile-7923548/>

Downpour in Bengaluru

Bengaluru witnessed rains for two consecutive weeks in May, even before the onset of the southwest monsoon in June.

- The volume of rainfall is unusual for the time of the year.
- Generally such extreme rainfall is not expected in the pre-monsoon period
- **Possible Causes** - Very warm conditions in the Arabian Sea could have resulted in heavy rains.
- Usually Arabian Sea used to be cooler than 28 °C. Since 1950s the temperature has risen by 1.2-1.4°C in parts of the Arabian Sea which is quite large.
- Cumulonimbus clouds, known to produce hail, thunder and lightning, are forming on the Western Coast due to the warming sea.
- These clouds are a relatively new phenomenon.
- **Additional factors** - Increased urbanisation can intensify extreme rainfall.
- The urban region has more pollution. Aerosols emitted from industry, power plants and transportation can seed cloud formation thereby intensifying the rainfall.

Reference

1. <https://www.downtoearth.org.in/news/climate-change/why-this-downpour-now-in-bengaluru--82919>

