

December - 28

## TNPSC BITS

- ❖ The World Health Organization added the R21/Matrix-M malaria vaccine, developed by Oxford University and manufactured by Serum Institute of India, to its list of prequalified vaccines.
- ❖ Invest India Agency hosted the 27th World Investment Conference (WIC) in New Delhi.
  - This year's conference is themed "Empowering Investors: IPAs Pioneering Future Growth".
- ❖ 'Viksit Bharat @2047: Voice of Youth' initiative was launched to provide a platform to the youth of the country to contribute ideas to the vision of Viksit Bharat @2047.
  - Viksit Bharat @2047 is the vision to make India a developed nation by 2047, the 100th year of independence.
- ❖ International Day of Epidemic Preparedness is observed on December 27 to raise public awareness on epidemics on all levels and prepare for future outbreaks.

## TAMIL NADU

### 6th Khelo India Youth Games



- ❖ The 6th Khelo India Youth Games will be held from 19 to 31 January 2024 in Tamil Nadu.

- ❖ Union Minister of Youth Affairs and Sports and Tamil Nadu Sports Minister released the mascot for the 6th Khelo India Youth Games in Chennai.
- ❖ The official logo, jersey, torch and theme song for the 6th Khelo India Youth Games were also launched on the occasion.
- ❖ The mascot of the games is Veeramangai Velu Nachiyar.
- ❖ For the first time, Squash will be included in these games.

## Climate Resilient Urban Development Program



- ❖ The World Bank's Board of Executive Directors has approved the \$300 million Tamil Nadu Climate Resilient Urban Development Program.
- ❖ It will provide around 2 million people with more and better access to water and sewerage services in cities.
- ❖ It will help 21 Urban Local Bodies (ULBs) update their delivery systems and provide quality and efficient water supply and sewerage services to consumers.

- ❖ IBRD will use the blended financing instrument of Program-for-Results (PforR) with Investment Project Financing (IPF) to link disbursement of funds directly to the achievement of results while providing technical assistance.
- ❖ The Program loan has a maturity of 32 years with a grace period of 7 years.

## NATIONAL

### YUVAi initiative

- ❖ India, the Chair of the Global Partnership on Artificial Intelligence (GPAI), successfully hosted the GPAI Summit New Delhi.
- ❖ YUVAi-Youth for Unnati and Vikas with AI'- is a collaborative initiative of National e-Governance Division (NeGD) and Intel India.
- ❖ This programme, designed and unveiled in this event, is to equip the youth with essential AI skills.
- ❖ YUVAi is aimed to foster a deeper understanding of AI, to enable school students from class 8 to 12 across the nation with AI skills and empower them to become human-centric designers and users of AI.



### New Delhi Declaration on GPAI

- ❖ The Global Partnership on Artificial Intelligence (GPAI) with 28 countries unanimously adopted the New Delhi declaration.
- ❖ This initiative is poised to direct the course of AI development, prioritising the harnessing of opportunities while mitigating potential risks.
- ❖ The declaration also agreed to support AI innovation in the agriculture sector as a new “thematic priority”.

- ❖ The declaration stands out as a contrast from the agreement signed at the United Kingdom AI Safety Summit at Bletchley Park, Buckinghamshire



### **BRAHMA-2D: Indigenous River Model**

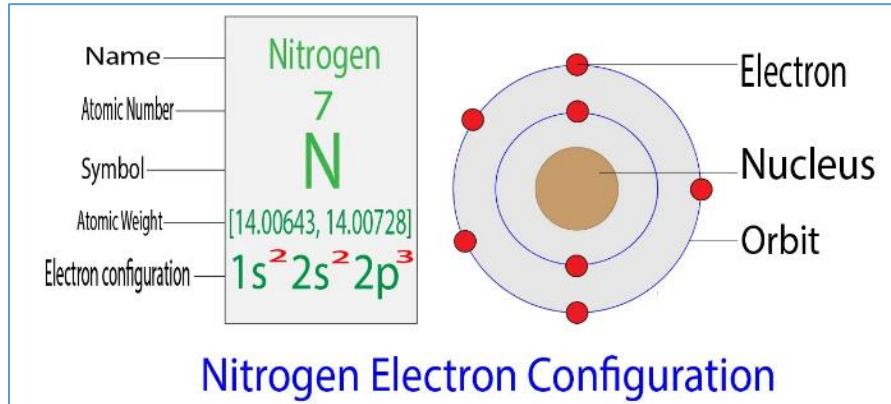


- ❖ The IIT Guwahati has developed a mathematical model to gauge the flow of large braided rivers like the Brahmaputra.
- ❖ The indigenous river model was named BRAHMA-2D (Braided River Aid: Hydro-Morphological Analyzer).

- ❖ It may be helpful in the design of sustainable hydraulic structures like spurs, revert and other river bank protection measures in order to check river bank erosion.

## SCIENCE AND TECHNOLOGY

### Unusual nitrogen-9 nucleus

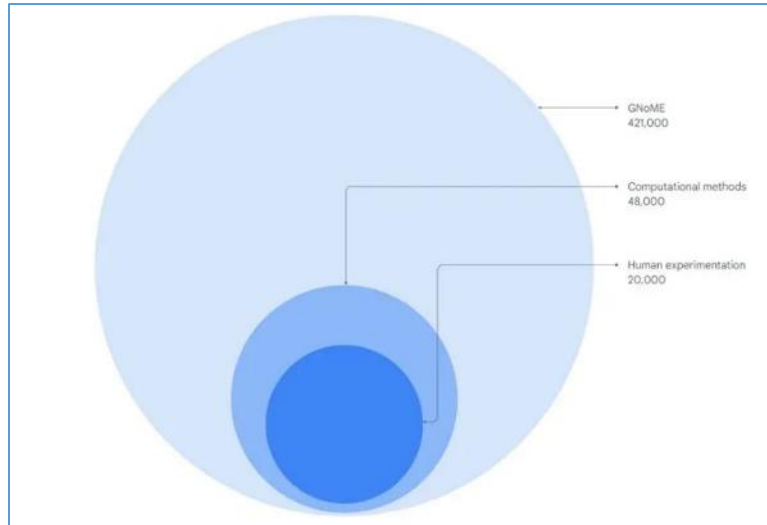


- ❖ Scientists have just caught their first glimpse of an ultra-rare version of nitrogen containing five more protons than it can stably hold.
- ❖ Scientists discovered hints of the new isotope, called nitrogen-9.
- ❖ Atoms of the nitrogen-9 isotope are characterised by seven protons and two neutrons – which is an unusually high proton-to-neutron ratio.
- ❖ Generally, nitrogen comes as the isotope nitrogen-14, with seven protons and seven neutrons.
- ❖ This disparity has a critical effect on the isotope's stability, influencing its decay processes as well as overall behaviour.
- ❖ For one, the high proton content places nitrogen-9 atoms beyond the conventional stability thresholds.
- ❖ There are 118 elements. Each element is unique by virtue of the different numbers of electrons, protons, and neutrons its atoms contain.
- ❖ Isotopes are atoms of a given element that vary only in the number of neutrons.

### Graph Networks for Materials Exploration

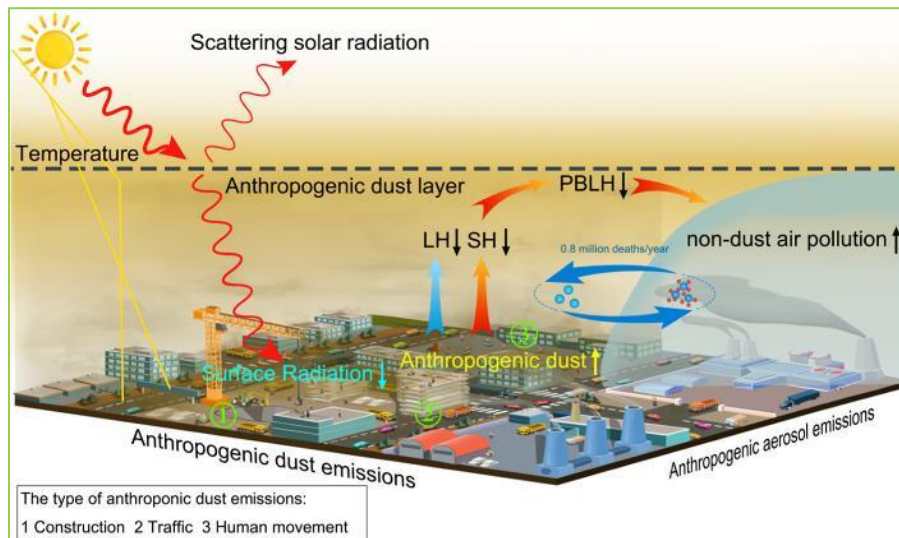
- ❖ Google DeepMind and Lawrence Berkeley National Laboratory researchers recently introduced Graph Networks for Materials Exploration (GNoME).
- ❖ It is an AI tool to discover new materials and predict material stability.

- ❖ So far, GNoME have discovered over 2.2 million new materials, including 380,000 stable materials.
- ❖ It is equivalent to nearly 800 years' worth of knowledge.



## ENVIRONMENT

### Impact of Human Activities on Global Dust Emissions

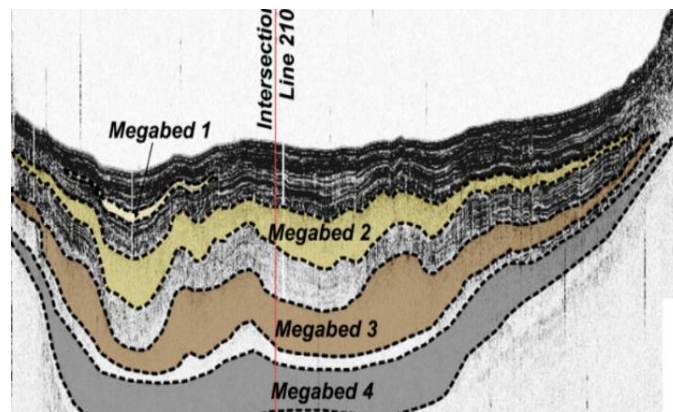


- ❖ The Food and Agriculture Organization released a report named “Sand and dust storms: A Guide to Mitigation, Adaptation, Policy, and Risk Management Measures in Agriculture”.
- ❖ Human activities contribute 25 per cent of global dust emissions, with agriculture being the main anthropogenic source.

- ❖ Every year, more than two billion tonnes of sand and dust travel over thousands of kilometres through the Earth's atmosphere.
- ❖ Sand and dust storms are a meteorological phenomenon characterised by strong and turbulent winds lifting an ensemble of small particles to great heights.
- ❖ They are known to have adverse impacts on human health, the environment and economies.
- ❖ Sand and dust storms present a formidable challenge to achieving 11 of the 17 Sustainable Development Goals.
- ❖ Anthropogenic factors such as land-use change, agriculture, water diversion and deforestation contribute to the 25 per cent.

## MISCELLANEOUS

### Megabeds from ancient volcanic eruptions

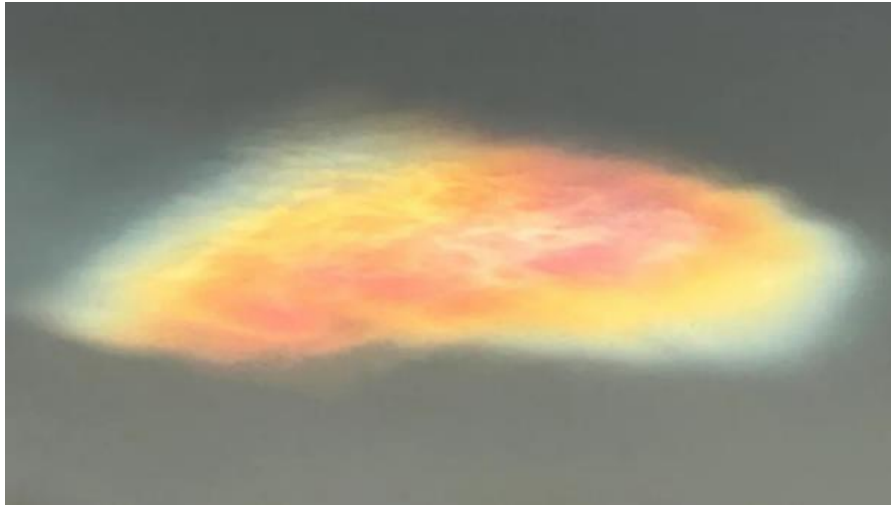


- ❖ Scientists have discovered "megabeds" from ancient volcanic eruptions at the bottom of the Mediterranean Sea.
- ❖ It is showing the evidence of several millennia of catastrophic events that hit the region in every few thousand years.
- ❖ The oldest layer was found to be around 40,000 years old, the next oldest was 32,000 years old, and the third was 18,000 years old.
- ❖ The youngest sediment core was formed about 8,000 years ago.
- ❖ Megabeds refer to deposits of substances formed in marine basins due to events of catastrophic nature such as the volcanic eruptions.

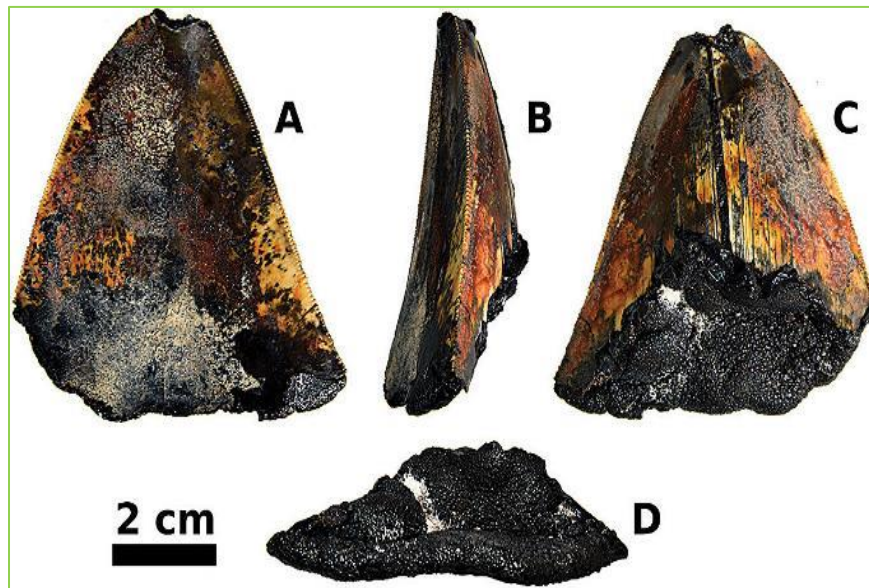
### Iridescent clouds

- ❖ The Nacreous cloud forms in very cold conditions over polar regions and within the stratosphere, about 12 to 19 miles high, far above normal clouds.

- ❖ The polar stratospheric clouds, which form only below  $-78^{\circ}\text{C}$ , are best known for the beautiful pastel light.
- ❖ It was formed while tiny ice crystals refract sunlight, and gives the cloud pearly colours - the reason why it is also called mother-of-pearl.
- ❖ Because of the height and temperature needed this cloud is also known as Polar Stratospheric Cloud.



### **Megalodon Tooth in Deep Sea**



- ❖ A fossilised megalodon tooth in the deep sea has been discovered by a small team of oceanographers.
- ❖ This is the first time that the tooth has been found in the location where it originally settled after leaving the mouth.





- ❖ Megalodon, is said to be one of the greatest predators of all time.
- ❖ It may roam the oceans between 4 and 20 million years ago.

