

Germany's debt trade rule

- Germany's constitutional court on November 15 ruled unlawful a government move to reallocate €60 billion, unused from the sums initially earmarked for the pandemic emergency, to a "climate and transformation fund" (KTF).
- The coalition government led by Chancellor Olaf Scholz's centreleft Social Democrats (SPD) was in breach of the fiscal deficit limits enshrined in 2009 on two counts, the Karlsruhe court ruled.
- The first was the move to channel underutilized allocations from one sector to another and the second, the rollover of debt from one fiscal year to the next.

What is the debt brake rule?

- The debt brake rule, or the balanced budget rule, sets a cap on how much governments can borrow to finance various public projects.
- It restricts the federal government in Berlin from running a fiscal deficit in excess of 0.35% of Gross Domestic Product (GDP) and in effect prohibits the country's 16 regions from any deficit spending whatsoever.
- The measure was enshrined into law in 2009 by the grand coalition

government of the centre right Christian Democratic Union (CDU), its sister party in the state of Bavaria the Christian Social Union (CSU) and the SPD, through an amendment to the German constitution

Eliza effect

What is the ELIZA effect?

- ELIZA effect is the phenomenon in which people think computer programs or similar systems have become capable of human emotions or functions because of the way they respond to user input.
- It is named after a 1960s computer program which also responded to users, albeit with very basic sentences that echoed their original words.
- This program was credited to MIT professor Joseph Weizenbaum.
- In computer science, the ELIZA effect is the tendency to project human traits such as experience, semantic comprehension or empathy into computer programs that have a textual interface.



Cauvery basin

- Natural vegetation on nearly 12,850 sq. km of land in the Cauvery basin was lost in the 50 years from 1965 to 2016, stated a paper published by scientists and researchers at the Indian Institute of Science (IISc), Bengaluru.
- Karnataka has lost much more than any other State in the basin.
- It accounts for three fourths of the lost cover, while Tamil Nadu's share is around one fifth, the study added.
- Pointing out that natural vegetation cover went down by around 46% all these years,
- The quantum of reduction of dense Vegetation was 35% (6,123 sq. km) and that of degraded vegetation, 63% (6,727 sq. km).
- Areas that suffered adverse changes in the extent of forest cover include the Brahmagiri Wildlife Sanctuary,

Bandipur National Park, Nagarhole National Park and the Cauvery Wildlife Sanctuary.

In respect of the Bannerghatta National Park, the moist deciduous forest area, which was about 50% in 1973, stood at 28.5% in 2015 due to “anthropogenic pressure” on the National Park and its environs

Vishwakarma scheme

- scheme that will benefit individuals skilled in traditional craftsmanship.
- Named the ‘PM Vishwakarma Yojana’, the scheme was launched on the occasion of Vishwakarma Jayanti on September 17, 2023, at the India International Convention and Expo Centre in Dwarka, New Delhi.
- The objective of the scheme is to support the people engaged in traditional crafts.
- This objective is driven by the desire to support the artisans and craftspeople financially as well as to keep the age-old traditions and diverse heritage alive through local products, art and crafts
- A significant section of the workforce of the Indian economy consists of artisans and craftspeople, people who work with their hands and tools, are usually self-employed and are

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generally considered to be a part of the informal or unorganized sector of the economy.

- These traditional artisans and craftspeople are referred to as 'Vishwakarma' and are engaged in occupations like blacksmiths, goldsmiths, potters, carpenters, sculptors, etc.
- These skills or occupations are passed from generation to generation following a guru-shishya model of traditional training, both within the families and other informal groups of artisans and craftspeople.
- PM Vishwakarma Yojana aims to strengthen the Guru-Shishya Parampara or family-based practice of traditional skills by artisans and craftspeople working with their hands and tools.
- The scheme also aims at improving the quality as well as the reach of products and services of artisans and craftspeople.
- The scheme is tasked with ensuring that the Vishwakarmas of India are integrated with the domestic and global value chains.
- PM Vishwakarma Yojana is expected to reach and bring prosperity to 30 lakh families.

- Eighteen traditional trades will be covered initially under PM Vishwakarma Yojana.

- The Hindu

Fractal geometry

A fractal is a never-ending pattern.

- Fractals are infinitely complex patterns that are self-similar across different scales.
- They are created by repeating a simple process over and over in an ongoing feedback loop.
- Driven by recursion, fractals are images of dynamic systems the pictures of Chaos. Geometrically, they exist in between our familiar dimensions.
- Fractal patterns are extremely familiar, since nature is full of fractals. For instance: trees, rivers, coastlines, mountains, clouds, seashells, hurricanes, etc
- Physicists use the fractal geometry approach to study quantum systems in dimensions like 1.55 or 1.58, or in fact anything between one and two dimensions
- On the macroscopic scale, fractals can be seen as irregular, complex patterns at all scales and in all views, near or far.

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- Some remarkable examples include human fingerprints, stumps of trees, human veins, river networks as seen from above, veins in a plant leaf, the edges of a snowflake, and so on
- The value of fractals is that they describe a new kind of order in systems that we may have overlooked.
- They pave the way to potential new insights from otherwise familiar shapes like lines, planes, and points, in the unfamiliar milieu of a space with no integer dimensions
- The dimensionality of a quantum system is an important thing to bear in mind when physicists study its properties.
- For instance, electrons in a one dimensional system form a Luttinger liquid (not a liquid per se but a model that describes the electrons' liquid like behaviour);
- in a two dimensional system, the particles exhibit the Hall effect (the conductor develops a side to side voltage in the presence of a top to bottom electric field and a perpendicular magnetic field).

Pinna Nobili's



Pinna nobilis, whose common name is the noble pen shell or fan mussel, is a large species of Mediterranean clam, a marine bivalve mollusc in the family Pinnidae, the pen shells. It reaches up to 120 cm of shell length.

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- It produces a rare manganese-containing porphyrin protein known as pinnaglobin
- A huge clam that was on the verge of extinction has made a comeback, with a surge in numbers in waters off Croatia, marine biologists say.
- The clam, known as the noble pen shell or pinna Nobili's, started dying out as a deadly pathogen spread in parts of the Mediterranean around 2016.
- Numbers plummeted across the region and, until recently, scientists in Croatia only knew of around 10 surviving in their corner of the Adriatic,
- The Hindu
- World real GDP growth has also fallen, leading to reduced demand for global exports.
- Many countries including India want to reduce their dependence on imported petroleum due to supply uncertainties and price volatility
- India will have to rely relatively more on domestic growth drivers.
- To achieve and sustain a 7% plus real growth in particular, domestic savings will be critical.
- We estimate the nominal saving rate in 202223 to be about 29%.
- One area of concern relates to the recently noted fall in the household sector's savings in financial assets which declined to 5.1% of GDP in 202223 from an average of 7.8% during the preCOVID19 period of 201516 to 201920 a fall of 2.7% points.

Indian economy

- There is a movement towards deglobalisation.
- Many ongoing geopolitical conflicts such as the Russia Ukraine war and the Israel Hamas war have created a climate of sanctions, leading to breaks in supply chains as well as disruptions in international settlements due to non access to systems such as SWIFT for the sanctioned countries.
- India would find itself in a unique position in the next three decades with a large potentially employable population seeking jobs in the presence of progressively more labour saving innovations and technologies.
- According to United Nations population projections, the share of India's working age population is projected to peak at 68.9% in 2030

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while its overall dependency ratio would be at its lowest at 31.2%.

- Employment growth is critically dependent on GDP growth and the structure of output
- Going forward, nonagricultural growth will have to be high enough to absorb labour released from agriculture
- It should also be able to absorb the labour substituting impact of new technology.
- Facilitating absorption of productivity enhancing technologies including Artificial Intelligence (AI) and Generative AI would add to overall growth.
- India has committed to certain targets to reduce carbon emissions in view of global climate concerns.
- In the COP26 Summit, in 2021, India had committed to reducing total carbon emissions by one billion tonnes between 2021 to 2030 and achieving the target of net zero emissions by 2070.
- India's own initiatives include the Green Grids Initiative (GGI) and One Sun One World One Grid (OSOWOG).
- It is also placing an emphasis on the use of electric vehicles and ethanol based and hydrogen fuels.
- Climate promoting technological changes may reduce the potential growth rate.
- This adverse impact can be minimized by emphasizing service sector growth which is relatively climate friendly.
- The Hindu