

April - 05

TNPSC BITS

- ❖ Kamal Kishore (55) has been appointed as assistant secretary-general and special representative of the secretary-general for disaster risk reduction.
- ❖ The central government has introduced the 'Anuvadini' app, an Artificial Intelligence-based platform.
 - It aims to make study materials for all school and higher education courses available in digital form, specifically in Indian languages listed in the 8th Schedule of the Indian Constitution.

NATIONAL

Plastic Waste Management (Amendment) Rules, 2024



- ❖ The Environment Ministry has introduced new set of amendments to India's Plastic Waste Management (Amendment) Rules, 2024.
- ❖ It defines the biodegradable plastics as not only capable of "...degradation by biological processes in specific environment such as soil, landfill..." but also as materials that do not leave "any microplastics..."
- ❖ Biodegradable plastic involves plastic goods being treated before they are sold.
- ❖ When discarded, the material is expected to decompose naturally over time though there are no tests yet to determine if such plastics completely degrade.

- ❖ Compostable plastics, on the other hand, do degrade, but require industrial or large municipal waste management facilities to do so.
- ❖ Microplastics are defined as any solid plastic particle insoluble in water, with dimensions between 1 μm and 1,000 μm (1 μm is one-thousandth of a millimetre).

'One Vehicle, One FASTag' initiative

- ❖ The 'One Vehicle, One FASTag' initiative of the National Highways Authority of India (NHAI) has been implemented from April 1, 2024.
- ❖ This concept aims to deter the practice of using a single FASTag for multiple vehicles or associating multiple FASTags with one vehicle.
- ❖ Now, the vehicle owner is permitted to have only one active FASTag for one vehicle.

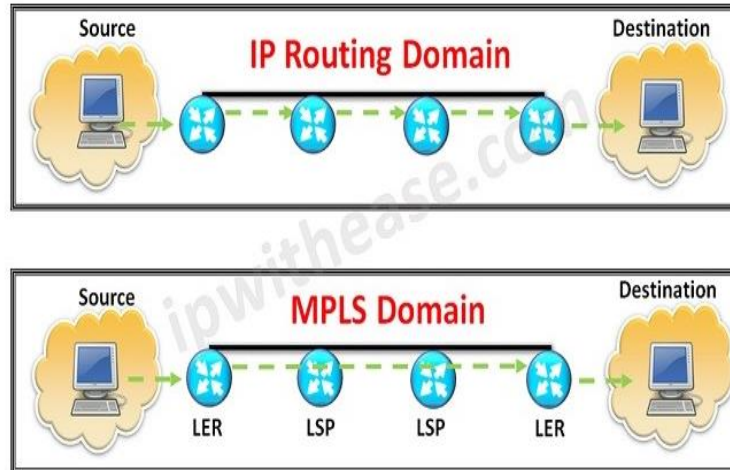


India's Fastest Indigenous IP/MPLS Router

- ❖ India's fastest and indigenously designed IP/MPLS (Multiprotocol Label Switching) router was launched in Bengaluru.
- ❖ This secure core router, with a capacity of 2.4 Terabits per second (TBPS).
- ❖ MPLS is a routing technique in telecommunications networks that directs data from one node to the next, based on labels rather than network addresses.
- ❖ The multiprotocol label switching (MPLS) technique was first developed in the 1990s.

- ❖ Its main function is to speed up network connections by sending packets along predetermined network paths.

MPLS vs IP ROUTING



Wed in India concept



- ❖ Prime Minister urged couples to 'wed in India' so that the wealth remains within the country.
- ❖ Unofficial estimates suggest that around 5,000 destination weddings are held abroad every year.
- ❖ The total spending is ranging from ₹ 75,000 crore to ₹ 1 lakh crore.
- ❖ In the last wedding season, around ₹ 4.25 lakh crore, involved in six lakh weddings, circulated in the market through wedding purchases, according to the Confederation of All India Traders (CAIT).

- ❖ He had urged industrialists to organise at least one wedding in the family in Uttarakhand each year.
- ❖ It would help push the hill state as a wedding destination.

Extension RoDTEP Scheme

- ❖ The government has extended export benefits under the RoDTEP scheme to companies in the special economic zones (SEZs) and export-oriented units (EOUs).
- ❖ These sectors constituting about 25 per cent of the total shipment.
- ❖ RoDTEP stands for Remission of Duties and Taxes on Exported Products.
- ❖ The government, in August 2021, announced the rates of tax refunds under the export promotion scheme for 8,555 products like marine goods, yarn and dairy items.
- ❖ SEZs and EOUs were kept out of the scheme in the list notified at that time.

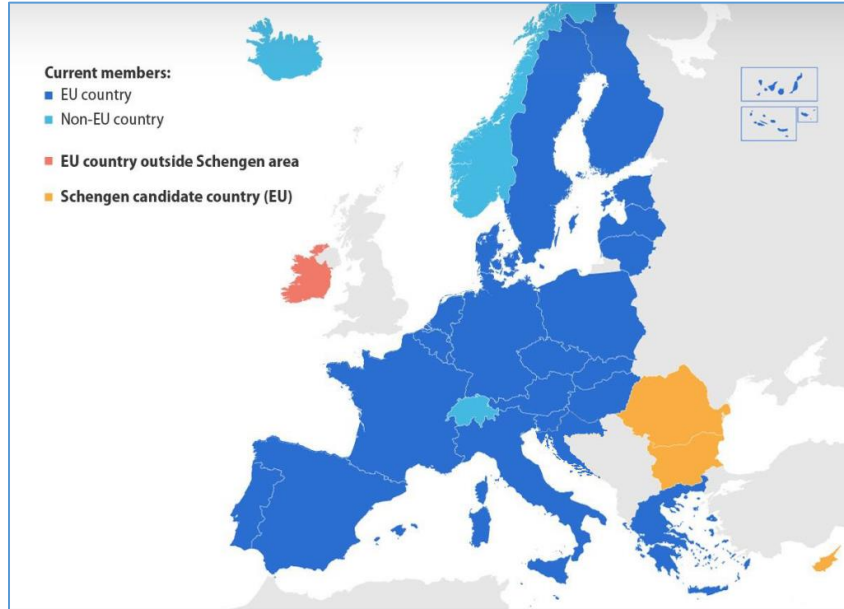


INTERNATIONAL

New Joiners to Schengen Area

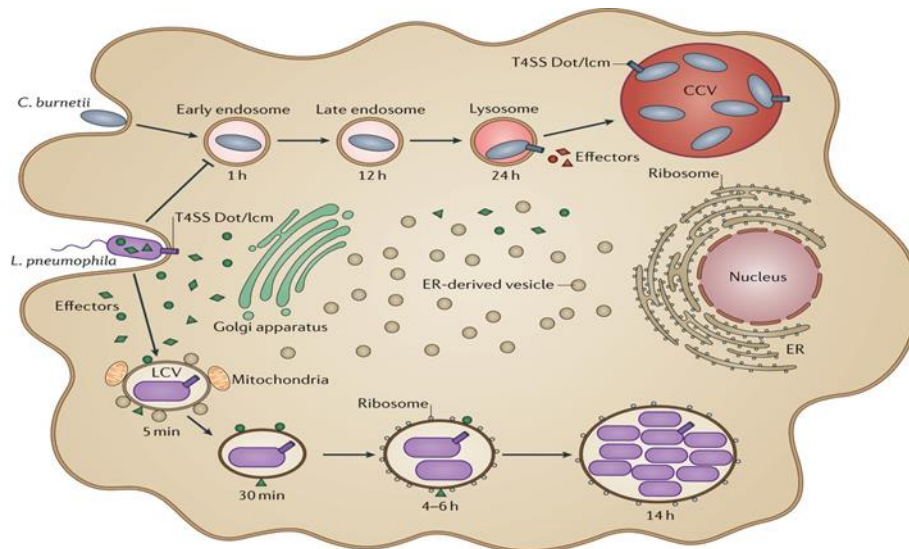
- ❖ Bulgaria and Romania have partially joined Europe's Schengen area of free movement.
- ❖ Despite the partial membership, the two countries' air and sea borders has lifted its controls.

- ❖ Created in 1985, the Schengen area allows more than 400 million people in the European Union to travel freely without internal border controls.
- ❖ As partial members, the Schengen zone now comprises 29 members – 25 of the 27 EU member states as well as Switzerland, Norway, Iceland and Liechtenstein.



SCIENCE AND TECHNOLOGY

Mitochondrial Coxiella Effector

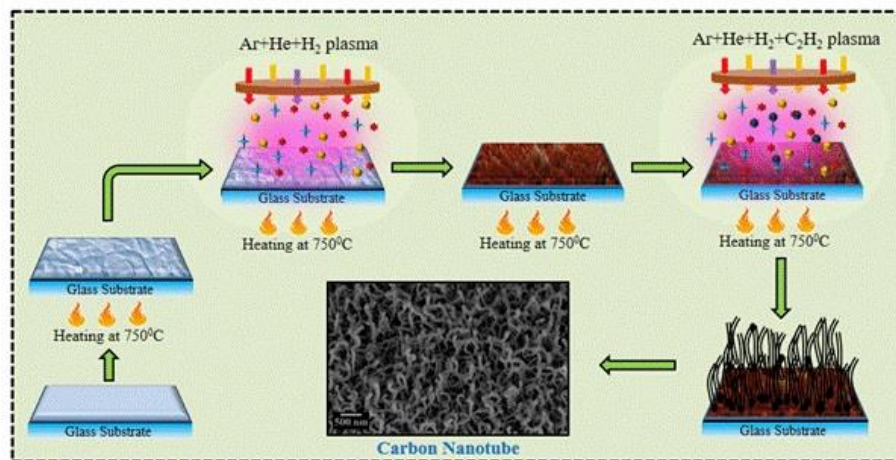


- ❖ The Researchers recently discovered a previously unidentified protein named mitochondrial coxiella effector F (MceF).

- ❖ It is an antioxidant protein produced by the Gram-negative intracellular bacterium *Coxiella burnetii*.
- ❖ MceF supports human cell health despite a heavy bacterial load.
- ❖ Invading host cells, *Coxiella burnetii* releases MceF, interacting with glutathione peroxidase 4 (GPX4) in mitochondria.
- ❖ This interaction enhances mitochondrial function, preventing cell damage and death associated with pathogen replication in mammalian cells.

Sodium catalyzed synthesis of carbon nanotubes

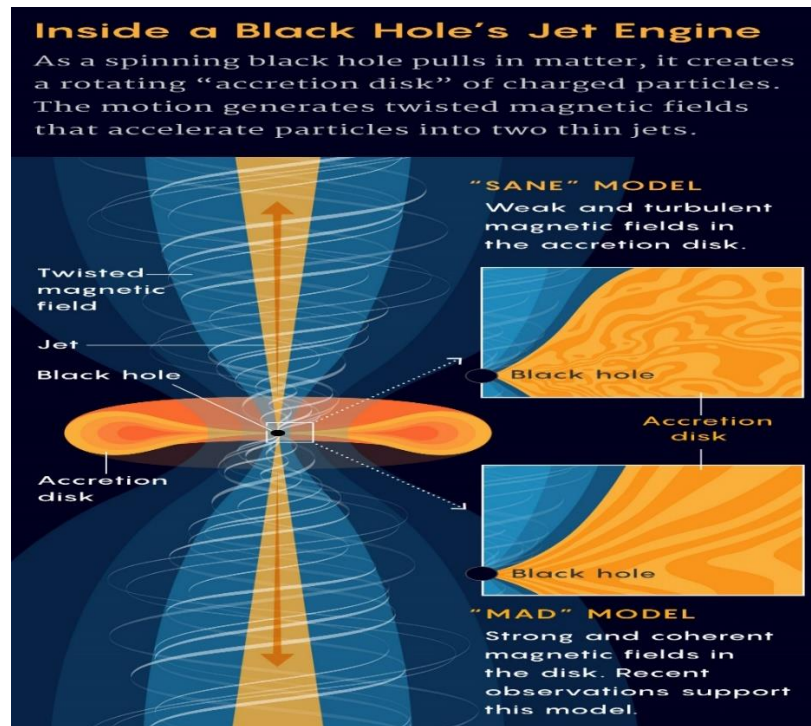
- ❖ Researchers have pioneered a novel method for directly synthesizing CNTs on glass substrates at a temperature of 750°C.
- ❖ Carbon nanotubes (CNTs) are pivotal in advancing modern technology by showcasing extraordinary properties.
- ❖ Conventional CNT synthesis methods require high temperatures (~1000 °C) and metal catalysts (Fe, Co, and Ni).
- ❖ These catalysts pose biocompatibility concerns for the potential biomedical applications.



Twisted magnetic field

- ❖ Astronomers have detected a strong and organised magnetic field twisted in a spiral pattern around the Milky Way's supermassive black hole.
- ❖ The structure of the magnetic field emanating from the edge of the black hole called Sagittarius A*, or Sgr A*.
- ❖ It closely resembles one surrounding the only other black hole ever imaged.
- ❖ A larger one residing at the centre of a nearby galaxy is called Messier 87, or M87.

- ❖ This indicates that strong magnetic fields may be a feature common to black holes.
- ❖ The magnetic field around the M87 black hole, called M87*, enables it to launch powerful jets of material into space.
- ❖ This indicates that while such jets have not been detected to date around Sgr A*, they might exist - and might be observable in the near future.
- ❖ Sgr A* possesses 4 million times the mass of our sun and is located about 26,000 light-years - the distance light travels in a year, 5.9 trillion miles (9.5 trillion km) - from Earth.

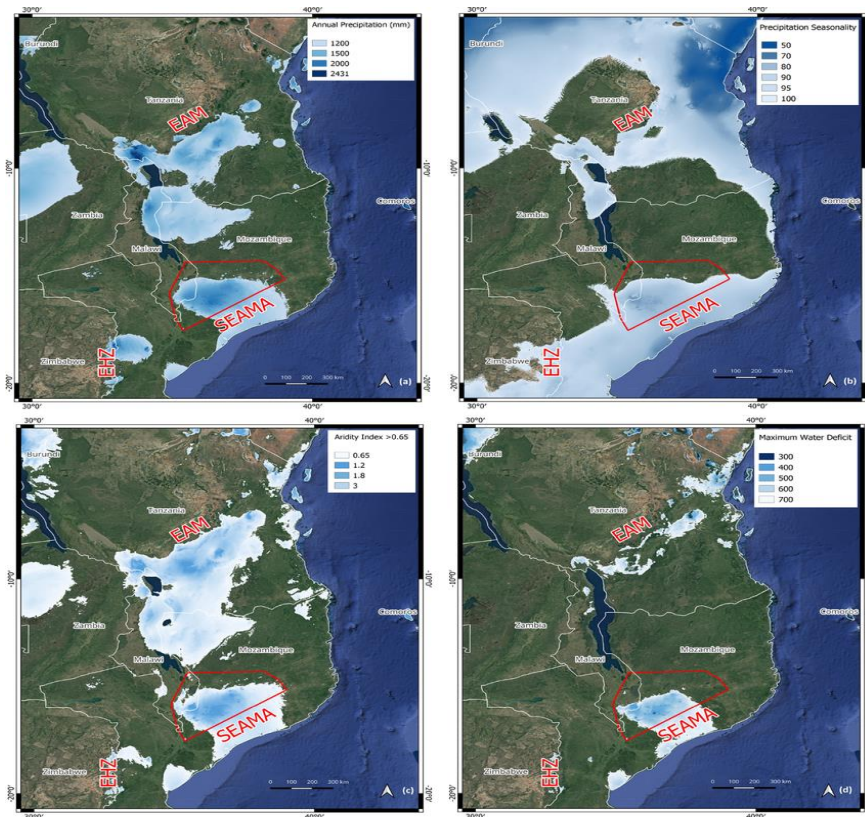


ENVIRONMENT

South East Africa Montane Archipelago Study

- ❖ A recent study in southern Africa, has unearthed a previously undocumented biodiversity in a newly recognised ecoregion called the South East Africa Montane Archipelago (SEAMA).
- ❖ The mountainous SEAMA stretches across northern Mozambique to Mount Mulanje in Malawi, southern Africa's second highest mountain.
- ❖ The researchers recognised at least 30 sites (nine in Malawi, 21 in Mozambique) in the core of the SEAMA ecoregion.

- ❖ The study documents 127 plants, 45 vertebrates (amphibians, reptiles, birds, mammals) and 45 invertebrate species (butterflies, freshwater crabs) as well as two endemic genera of plants and reptiles.
- ❖ There are 22 strictly endemic reptile species. Of these, 19 are forest-dependent and the others occur mainly in upland grasslands and on rock faces.
- ❖ SEAMA has distinctly higher annual rainfall and humidity, especially in the dry season, compared to surrounding regions.
- ❖ Ecological regions (ecoregions) are widely used to inform global conservation priorities.



18 New Geoparks Network

- ❖ UNESCO's Executive Board has endorsed the addition of 18 sites to the UNESCO Global Geoparks network.
- ❖ This brings the total number of geoparks to 195 in 48 countries.
- ❖ Two UNESCO Member States join the network: New Zealand and the Philippines.
- ❖ The UNESCO Global Geopark label was created in 2015. It recognizes geological heritage of international significance.

- ❖ Geoparks serve local communities by combining the conservation of their significant geological heritage with public outreach and a sustainable approach to development.



PERSONALITIES, AWARDS, AND EVENTS

Daniel Kahneman

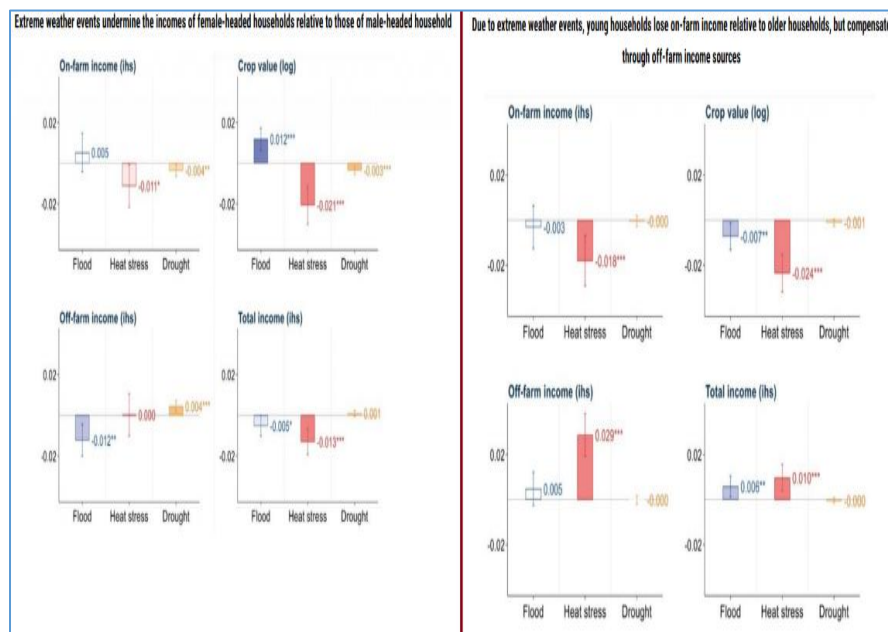


- ❖ One of the pioneers of psychology and economics research, Daniel Kahneman, passed away recently.
- ❖ His 2011 book 'Thinking, Fast and Slow' is among the best-selling books in psychology and business.

- ❖ He did some of his best-known work with Amos Tversky, a mathematical psychologist who passed away in 1996.
- ❖ Kahneman also made substantial contributions to the study of happiness and well-being.
- ❖ He is also known for his work in behavioural economics.
- ❖ For which he was awarded the 2002 Nobel Memorial Prize in Economic Sciences shared with Vernon L. Smith.

REPORTS AND INDICES

The Unjust Climate: FAO Report



- ❖ Women-headed households experience losses 8 per cent higher due to heat stress and 3 per cent higher due to floods, compared to men-headed households.
- ❖ Households headed by young people (younger than 35) were found to be more likely to lose agricultural income due to extreme weather events, relative to those headed by older people.
- ❖ The income loss due to climate stressors like heat and floods for women-headed households translates to a per capita reduction of \$83 due to heat stress and \$35 due to floods, totalling \$37 billion and \$16 billion, respectively.
- ❖ If the average temperatures were to increase by just 1°C, these women would face a staggering 34 per cent greater loss in their total incomes compared to men.

- ❖ Only 7.5% of tracked climate finance in 2017-18 went towards climate change adaptation, with less than 3% allocated to agriculture, forestry, and other land uses.
- ❖ In 2023, about 80% of agricultural policies from 68 low- and middle-income countries did not consider women and climate change.

SPORTS

Hockey India Awards 2023



- ❖ Indian hockey stars Hardik Singh and Salima Tete were named the men's and women's Player of The Year.
- ❖ This was the sixth edition of the annual Hockey India Awards, which celebrates the outstanding Indian hockey players from each calendar year.
- ❖ Munich 1972 Olympic bronze medallist Ashok Kumar was honoured with the Hockey India Lifetime Achievement Award, named after his father Dhyan Chand, for his contribution to the sport.
- ❖ Other award winners:
 - Hockey India Baljit Singh Award for Goalkeeper of the Year: PR Sreejesh
 - Hockey India Pargat Singh Award for Defender of the Year: Harmanpreet Singh



- Hockey India Ajit Pal Singh Award for Midfielder of the Year: Hardik Singh
- Hockey India Dhanraj Pillay Award for Forward of the Year: Abhishek
- Hockey India Asunta Lakra Award for Upcoming Player of the Year (Women – Under 21): Deepika Soreng
- Hockey India Jugraj Singh Award for Upcoming Player of the Year (Men – Under 21): Arajjeet Singh Hundal.

