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DAILY NEWS DIARY

Of

07.10.2021

FOR PRELIMS AND MAINS

Warm Greetings.

- DnD aims to provide every day news analysis in sync with the UPSC pattern.
- It is targeted at UPSC – Prelims & Mains.
- Daily articles are provided in the form of Question and Answers
- To have a bank of mains questions.
- And interesting to read.
- Providing precise information that can be carried straight to the exam, rather than over dumping.

Enjoy reading.

THE HINDU - TH
INDIAN EXPRESS - IE
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TIMES OF INDIA - TOI



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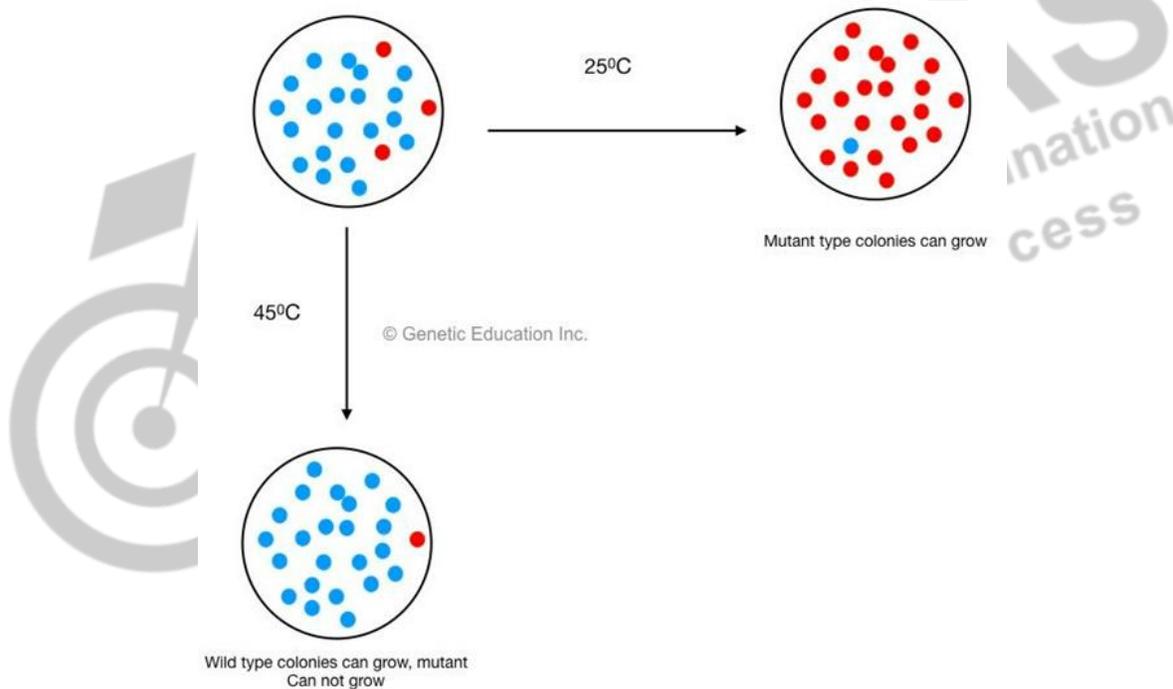
ESSAY PAPER

Editorial

Q) Explain the genetic mutations in cellular mechanism of temperature?

Context: This year's Nobel Prize for Physiology or Medicine was awarded to the researchers, David Julius and Ardem Patapoutian. Their seminal work is in identifying the gene and understanding the mechanism through which our body perceives temperature and pressure.

Significance of the study: Our ability to sense touch and temperature (particularly noxious temperature) is essential for our survival and determines how we interact with our internal and external environment; chronic pain results when the pain response goes awry.



Process of the study:

- Dr. Julius utilised capsaicin, a key ingredient in hot chilli peppers that induces a burning sensation, to identify a sensor in the nerve endings of the skin and the cellular mechanism that responds to uncomfortably hot temperatures.
- The receptor for heat gets activated only above 40° C, which is close to the psychophysical threshold for thermal pain, thus allowing us to react to external heat.

- In 2002, five years after the heat sensor was discovered, the two laureates, and independently, used menthol to discover the receptor that senses cold temperatures.
- Recent studies have found that discrimination between warm and cool temperatures is possible only through simultaneous activation of warmth-sensing nerve fibres and inhibition of cold-sensing nerve fibres.
- Using pressure-sensitive cells, Dr. Patapoutian discovered a novel class of mechanical sensors that responds to pressure on the skin and internal organs, and the perception of touch and proprioception — the ability to feel the position and movement of our body parts.
- The cellular mechanism that senses touch also regulates important physiological processes. Besides laboratory work, insights have been gained by studying people carrying genetic mutations in the cellular mechanism of temperature, pain, touch and pressure sensation.

Impact of the study:

The discovery of pain receptors and the cellular mechanism have attracted pharmaceutical companies as these could be targets for novel medicines. Though there are challenges to be addressed before such drugs can be clinically meaningful, the hope is that newer approaches may one day bypass the hurdles. Further research will help in understanding the functions of the receptors in a “variety of physiological processes and to develop treatments for a wide range of disease conditions”.

Conclusion:

This year’s Prize once again underscores the great contributions refugees fleeing war-torn countries can make to science and other fields. Dr. Patapoutian, who is of Armenian origin, grew up in Lebanon during the country’s prolonged civil war and fled to the U.S. in 1986 as an 18-year-old. From being blissfully unaware about science as a career in Lebanon, he not only “fell in love doing basic research” but has also excelled in it to produce path-breaking discoveries in medicine.

Q) Explain the crisis facing by WTO?

Background: The World Trade Organization (WTO), the global trade body, is facing a serious existential crisis. The upcoming WTO ministerial meeting scheduled for next month in Geneva provides an opportunity to rescue this critical global institution from irrelevance.

About WTO:

Created in 1995, during the heyday of neoliberalism, the WTO became a shining example of triumphant free-market capitalism. Critics of neoliberalism chastised the WTO for pushing the

American imperialist agenda. Paradoxically, more than two-and-a-half decades later, the United States seems to have lost interest in it. The feeling in Washington is that the WTO hasn't served the American national interest by failing to stem China's rise and regularly indicting the U.S. in several trade disputes. President Joe Biden has continued with the same policy towards the WTO that Donald Trump practised.

Impact of US policy on WTO:

- The continuation of the U.S. policy on the WTO is most evident in the sustained crippling of the Appellate Body (AB).
- The AB is part of the WTO's dispute settlement mechanism.
- It is a permanent body with seven members and acts as an appellate court hearing appeals from the decisions given by WTO panels.

However, since December 2019, the AB has stopped functioning due to rising vacancies. Over the years, the U.S. has consistently blocked the appointment of AB members. The U.S. also vetoes proposals to find solutions to this impasse, including stalling the proposal of the European Union to establish an alternative interim appellate arbitration mechanism. The number of pending appeals to the AB has increased sharply to around 20 cases. Countries now have an easy option not to comply with the WTO panel decisions by appealing into the void.

Other challenges:

Additionally, there are four other challenges that the WTO faces.

- First, no solution has been found to the public stockholding for food security purposes despite a clear mandate to do so in the 2015 Nairobi ministerial meeting. This is of paramount concern for countries like India that use Minimum Support Price (MSP)-backed mechanisms to procure foodgrains. The WTO rules allow countries to procure, stock and distribute food. However, if such procurement is done at an administered price such as the MSP that is higher than the external reference price, then the budgetary support provided shall be considered trade-distorting and is subject to an overall cap. With rising prices and the need to do higher procurement to support farmers and provide food to the poor at subsidised prices, India might breach the cap. Although countries have agreed that legal suits will not be brought if countries breach the cap, it is imperative to find a permanent solution such as not counting MSP-provided budgetary support as trade-distorting.
- Second, the WTO member countries continue to disagree on the need of waiving the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement for COVID-19 related medical products. It was exactly a year back when India and South Africa proposed a TRIPS waiver to overcome intellectual property (IP)-related obstacles in increasing

accessibility of COVID-19 medical products, including vaccines. The WTO needs to adopt a waiver in the upcoming ministerial meeting.

- Third, the WTO is close to signing a deal on regulating irrational subsidies provided for fishing that has led to the overexploitation of marine resources by countries like China, which is the largest catcher and exporter of fish. However, this agreement should strike a balance between conserving ocean resources and the livelihood concerns of millions of marginal fishermen. An effective special and differential treatment provision that accords adequate policy space is what India and other developing countries should insist on.
- Fourth, the gridlock at the WTO has led to the emergence of mega plurilateral trade agreements like the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) — a treaty between 11 countries. Another key trade treaty is the Regional Comprehensive Economic Partnership (RCEP) agreement between Asian economies and countries down under. These plurilateral agreements not only fragment the global governance on international trade but also push the multilateral order to the margin, converting the WTO to what some call an “institutional zombie”.

Conclusion:

Prime Minister Narendra Modi, during his recent U.S. visit, rightly pleaded for a rule-based global order. Institutional multilateralism would be the ideal antidote to unilateralism and economic nationalism. Notwithstanding its flaws, the WTO is the only forum where developing countries like India, not party to any mega plurilateral trade agreements, can push for evolving an inclusive global trading order that responds to the systemic imbalances of extant globalisation. What is at stake is the future of trade multilateralism and not just an institution.

GS-3

❖ Science & Technology

Q) WHO recommends first anti-malarial vaccine. Elaborate.

Background:

In a historic move, the World Health Organization (WHO) has endorsed the first anti-malarial vaccine, as mankind enters a key turning point in a battle waged relentlessly over decades between man and mosquito, the vector.

Mosquirix:

- RTS, S/AS01 (RTS.S), trade name Mosquirix acts against *P. falciparum*, the deadliest malaria parasite globally, and the most prevalent in Africa.

- The vaccine was able to prevent approximately 4 in 10 cases of malaria over a 4-year period in Africa.
- This is the first malaria vaccine that has completed the clinical development process.
- It is also the first malaria vaccine to be introduced by three national ministries of health through their childhood immunization programs — more than 800,000 children in Ghana, Kenya, and Malawi.
- have been vaccinated and are benefiting from the added protection provided by the vaccine as part of a pilot program.

Advantage of Vaccine:

- WHO's recommendation is based on the advice of its two global advisory bodies, one for immunization and the other for malaria.
- WHO has recommended that in the context of comprehensive malaria control, the RTS, S/AS01 malaria vaccine be used for the prevention of *P. falciparum* malaria in children living in regions with moderate to high transmission as defined by it.
- The malaria vaccine should be provided in a schedule of 4 doses in children from 5 months of age for the reduction of malaria disease and burden.

Q) Chemistry Nobel to duo for developing Organo-Catalysis. Explain.

Context: The Nobel Prize for chemistry has been awarded to German scientist Benjamin List of the Max Planck Institute and Scotland-born scientist David WC MacMillan of Princeton University for their work on developing an organo-catalyst.



David MacMillan



Benjamin List

What are Catalysts?

When two or more compounds react to form new compounds, the process is often aided by other chemicals that do not change themselves but help speed up the reaction. These catalysts have been known at least since the middle of the 19th century, and are used in virtually every chemical process these days. Till around 2000, only two kinds of chemicals were known to act as effective catalysts: metals, mainly heavier metals; and enzymes, naturally occurring heavy molecules that facilitate all life-supporting biochemical processes. Both these sets of catalysts had limitations.

Issues with conventional catalysts:

- Heavier metals are expensive, difficult to mine, and toxic to humans and the environment.
- Despite the best processes, traces remained in the end product; this posed problems in situations where compounds of very high purity were required, like in the manufacture of medicines.
- Also, metals required an environment free of water and oxygen, which was difficult to ensure on an industrial scale.
- Enzymes on the other hand, work best when water is used as a medium for the chemical reaction.
- But that is not an environment suitable for all kinds of chemical reactions.



Nobel Prize in Chemistry 2021

DEVELOPMENT OF ASYMMETRIC ORGANOCATALYSIS



THE LAUREATES

Benjamin List (Germany) and **David MacMillan** (UK-US)
for the development of a new tool for molecule building

Their work has helped make chemistry greener and has improved pharmaceutical research

Discovery of a **new kind of catalyst**: asymmetric catalysis (using small organic molecules), that is more environmentally friendly and more efficient than the other two catalysts, metals and enzymes

CATALYST

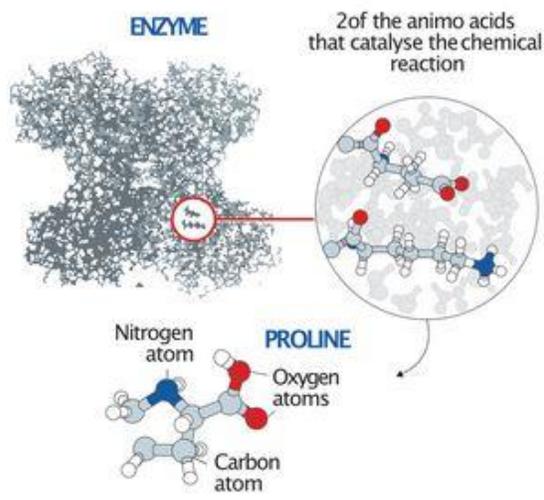
Substance that controls and accelerates chemical reactions, without becoming part of the final product

Frequently used, particularly when producing pharmaceuticals

- Allows drug makers to streamline the production of medicines for depression and respiratory infections, among others
- Isolates the active molecules to reduce undesirable effects in drugs

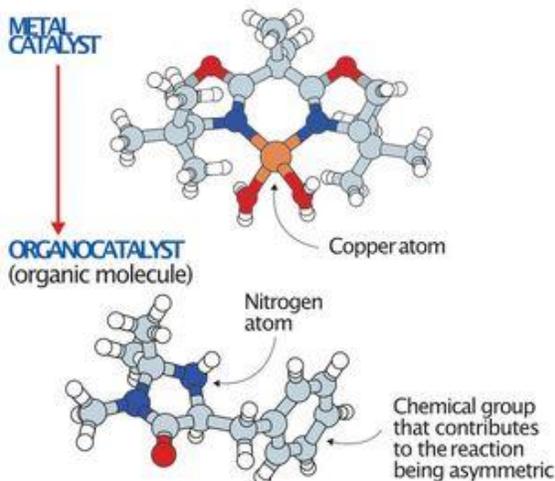
LIST'S CONTRIBUTION

Demonstrated that proline, an amino acid present in enzymes already used as a catalyst, allows the production of asymmetric molecules



MACMILLAN'S CONTRIBUTION

Sought to develop a catalyst less sensitive than metal ones, by elaborating a simple molecule containing two copper atoms, necessary for catalysis



Significance of their discovery:

- The new catalysts, derived from naturally occurring chemicals, were greener and cheaper and ensured that the end product of the chemical reaction was of a specific variety.
- The end product need not go through a purification process to yield the desired type of compound.
- The discovery being awarded the Nobel Prize in Chemistry 2021 has taken molecular construction to an entirely new level.
- Its uses include research into new pharmaceuticals, and it has also helped make chemistry greener.

❖ ECONOMY

Q) Explain the significance of the PM MITRA scheme.

Background: The Union Cabinet approved the setting up of seven Mega Integrated Textile Region and Apparel (PM MITRA) Parks at an outlay of ₹4,445 crore. The mega parks scheme will include brownfield and greenfield projects, spread over five years, said Textiles Minister Piyush Goyal.

Resources to develop the parks:

The parks would be developed by a Special Purpose Vehicle (SPV) owned by the Central and State governments and would get two kinds of support. Development Capital Support, aimed at helping develop infrastructure, would fund 30% of the project cost with a cap of ₹500 crore for greenfield projects and ₹200 crore for brownfield projects. A separate Competitiveness Incentive Support would be limited to ₹300 crore per park.

States interested:

As many as 10 States including Tamil Nadu, Telangana and Gujarat had already shown interest, Textiles Secretary Upendra Prasad Singh told The Hindu. States offering the cheapest land (contiguous and encumbrance-free land of minimum 1,000 acres) and facilities such as adequate electricity and water would be selected through a transparent challenge route.

The SPV would select a Master Developer to set up and maintain the park for a specified period. Of the park's area, 50% would be earmarked for manufacturing activity, 20% for utilities, and 10% set aside for commercial development. The parks are expected to generate 7 lakh direct jobs and provide indirect jobs to almost 14 lakh people.



Q) Building 'Kalyana Mandapas' was a notable feature in the temple construction in the kingdom of which of the following rulers:

- a. Chalukya
- b. Chandela
- c. Rashtrakuta
- d. Vijayanagara



Q) The '13th amendment' to the Sri Lankan Constitution, often seen in the news, deals with which of the following?

- a. Non-interference by other nations in internal affairs of Sri Lanka
- b. Power devolution to provincial councils established to govern the nation's nine provinces
- c. Universal adult franchise
- d. Control over the nation's Exclusive Economic Zone

Answer: b

Explanation:

The Thirteenth Amendment is an amendment to the Constitution of Sri Lanka, passed in 1987, which created Provincial Councils in Sri Lanka. 13th Amendment mandates some degree of power devolution to the provincial councils established to govern the island's nine provinces.

It is an outcome of the Indo-Lanka Accord of July 1987, signed by the then Prime Minister Rajiv Gandhi and President J.R. Jayawardene, in an attempt to resolve Sri Lanka's ethnic conflict that had aggravated into a full-fledged civil war, between the armed forces and the Liberation Tigers of Tamil Eelam, which led the struggle for Tamils' self-determination and sought a separate state.

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