

Factly Weekly

Compilation

2023

**For UPSC CSE Prelims
Exam**

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Subject: POLITY and NATION

UGC to bring out a new curriculum for PG programmes, offers flexibility to students

Why in the News?

The University Grants Commission (UGC) has released a draft document titled “Curriculum and Credit Framework for Postgraduate Programmes”.

What are the key provisions of the UGC Draft Curriculum on Postgraduate Programmes?

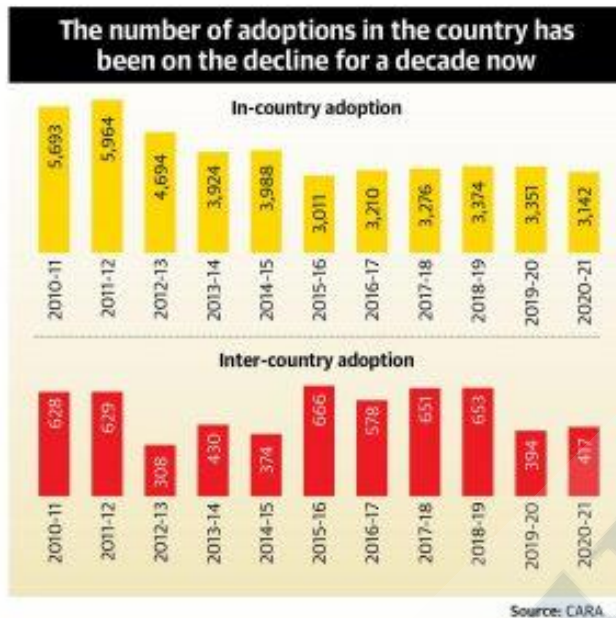
Specifications	Details
Programme Types	UGC plans to introduce three postgraduate programme options: 1) Two-year program with the second year dedicated to research (for graduates of three-year undergraduate programs). 2) One-year program (for graduates of four-year undergraduate courses). 3) Integrated five-year Bachelor’s/master’s programme.
Exit Options	Students in the two-year PG program will have a single exit opportunity after the first year, receiving a Postgraduate Diploma upon exit.
Online Learning	UGC proposes an entirely online postgraduate program to enable participation alongside current responsibilities. This facilitates earning a postgraduate degree while working.
Flexibility in choosing programmes	Irrespective of the major or minor disciplines chosen by a student in a UG programme, a student is eligible for admission in any discipline of master's programmes if the student qualifies the National level or University level entrance examination in the discipline of the master's programme.
Two Programmes simultaneously	Students are allowed the flexibility to simultaneously pursue two academic programs provided there is no overlap of class timings.
Aligned with the credit system	The postgraduate framework will be in sync with the National Credit Framework (NCrF) for the “creditisation” of all learning and assignment, accumulation, storage, transfer and redemption of credits.

Central Adoption Resource Authority (CARA): India's adoption regulation body

Why in the News?

The Supreme Court has expressed concern over the delay in India's child adoption process.

What is the Central Adoption Resource Authority (CARA)?



Source: The Hindu

Specifications	Details
Type	Statutory Body
Established in	1990
Nodal Ministry	Ministry of Women & Child Development
Parent Act	Juvenile Justice (Care and Protection of Children) Act, 2015
Mandate	To oversee child adoption procedures for Indians and non-resident Indians living abroad.
Inter country adoptions	To facilitate inter country adoptions, India has ratified the Hague Convention (1993) in 2003.
Laws governing adoption in India	Adoption is governed by two laws in India – the Hindu Adoption and Maintenance Act, 1956 (for Hindus, Jains, Sikhs and Buddhists) and the Juvenile Justice (Care and Protection of Children) Act, 2015.

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	CARA plays a role in the adoption under the Juvenile Justice Act.
Recent amendments in adoption process	1) 2015: Setting up an e-governance system called CARINGS to facilitate adoption. It also allows prospective parents to track applications and set out times for domestic and inter-country adoptions. 2) 2022: Authorized local District Magistrates (DMs) to issue adoption orders in order to ensure speedy disposal of cases and enhance accountability. The DMs would also be charged with inspecting the functioning of local childcare institutions, child welfare committees, juvenile justice boards, etc.
Proposed measures	CARA should be governed by a “child-centric, optional, enabling and gender-just” special adoption law.

National Pharmacy Commission Bill 2023

Why in the News?

The Union Health Ministry has sought comments from the public on the proposed National Pharmacy Commission Bill, 2023.

What is the National Pharmacy Commission Bill, 2023?

Prepared by	Union Ministry of Health and Family welfare.
Objective	To repeal the Pharmacy Act of 1948 and replace the Pharmacy Council of India with a national commission.
Other key provisions in the bill	1. National Pharmacy Commission -The head office of the commission shall be in New Delhi. Composition - It shall consist of a Chairperson, thirteen ex officio Members and Fourteen part-time members. 2. Comprehensive pharmacy education system - To provide for a pharmacy education system that improves access to quality and affordable pharmacy or pharmaceutical education, ensures availability of adequate and high-quality pharmacy professionals in all parts of the country that promotes equitable and universal healthcare to all citizens. 3. Adoption of latest research - The proposed Bill encourages pharmacy professionals to adopt latest pharmacy research in their

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	work and to contribute to research. 4. Periodic and transparent assessment -It calls for a periodic and transparent assessment of pharmacy institutions and enforcing high ethical standards in all aspects of pharmacy services. 5. National Pharmacy Register- The Pharmacy Ethics and Registration Board will maintain a National Pharmacy Register which will have details of pharmacy professionals to ensure transparency. 6. Grievance redressal mechanism - It provides for an effective grievance redressal mechanism
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What is the Pharmacy Council of India?

1. The Pharmacy Council of India (PCI) is a **statutory body, established under the Pharmacy Act, 1948.**
2. It functions under the Ministry of Health and Family Welfare, Government of India.
3. It is **constituted by the central government every five years.**
4. **Objective**
 - To prescribe the minimum standard of education required for qualifying as a pharmacist.
 - To regulate the profession and practice of pharmacy.

Governor's right to withhold assent

Why in the News?

Recently Tamil Nadu's Governor R N Ravi's decision to withhold assent to 10 pending Bills has raised fresh legal questions on the powers of the Governor.

What are the Constitutional Provisions regarding Governor's assent to Bills?

Article 163	It deals with the powers of the Governor. Discretionary Power (Article 163) - If any question arises on whether a matter falls within the governor's discretion or not, the decision of the governor is final and the validity of anything done by him cannot be called in question on the ground that he ought or ought not to have acted in his discretion.
Article 200	1. It specifically deals with the issue of granting assent to Bills. 2. As per Article 200, when a Bill is passed by the state legislature, the Governor has four options- (a) grant assent to the bill; (b) withhold assent to the bill (Absolute Veto); (c) return the bill for reconsideration, if it is not a Money Bill (Suspensive Veto); If the legislature passes the bill again, with or

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	without amendments, the Governor must give his assent. (d) reserve the bill for the consideration of the President- It also stipulates that the Governor shall reserve for the President's consideration any Bill that, in the Governor's opinion, would diminish the powers of the High Court.
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Can a Governor delay clearing bills indefinitely?

No provision for a Time Limit: Article 200 states that the Governor must return the Bill "as soon as possible" but does not prescribe a specific timeframe to decide. Thus, he/she can exercise an indefinite Pocket Veto (A pocket veto is when a President or a Governor essentially prevents a Bill from being passed by taking no action on the Bill (i.e. "keeping it in their pocket")).
– Governors have exploited this ambiguity to sit on Bills indefinitely without returning them to the state legislature, in effect paralysing the elected government.

PARAKH conducts State Educational Achievement Survey 2023

Why in the News?

PARAKH has conducted the State Educational Achievement Survey 2023.

What is the State Educational Achievement Survey 2023?

Specifications	Details
Conducted by	PARAKH
Aim	To assess the baseline learning competencies of students at the end of each educational stage, i.e., foundational, preparatory and middle with a primary focus on Language and Mathematics.
Coverage	The survey assessed educational competencies among students at the block level at grades 3, 6, and 9.
Significance	1) The insights gained from this survey will lead to evidence-based decision-making and the implementation of initiatives aimed at improving the education system. 2) Shift in focus from district level to block level will include larger number of students and give greater depth to our understanding.

What is PARAKH?

Specifications	Details
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What is it	It is India's first National Assessment Centre
Full Form	Performance Assessment, Review, and Analysis of Knowledge for Holistic Development
Constituent of	NCERT
Launched as part of	Implementation of the National Education Policy (NEP), 2020
Functions	<ol style="list-style-type: none">1) To set norms, standards and guidelines for student assessment and evaluation for all recognized school boards of India.2) To guide the State Achievement Survey (SAS)3) To undertake the National Achievement Survey (NAS)4) To monitor achievement of learning outcomes and5) To encourage and help the school boards to shift their assessment patterns towards meeting the skill requirements of the 21st century.
Significance	<ol style="list-style-type: none">1) Helps bring uniformity in assessments across states and UTs.2) Helps remove disparities among the marks of students enrolled in different school boards.3) Will put an end to the emphasis on rote learning.4) Progressive shift towards a more scientific approach to education.

SATHEE Portal: To encourage use of online coaching platform

Why in the News?

The Ministry of Education has asked States to encourage aspirants to utilize the newly launched portal for exam preparation named SATHEE.

What is SATHEE?

Specifications	Details
What is it	It is an open learning platform available to students at no cost.
Launched by	Ministry of Education in association with IIT Kanpur
Full Form	Self-Assessment Test and Help for Entrance Exams
Aim	To help students gain access to training and coaching for competitive examinations for free.
Key Features	<ol style="list-style-type: none">1) Learning from in-depth video lectures by professors from IIT, AIIMS, etc.2) Get access to forums/mentors for doubt clearing and problems

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	solution. 3) Test your knowledge with topics /subjects /complete tests. 4) Integrated AI chatbot helps students align their learning needs.
Languages available in	Currently, digital learning material on the platform is available in four languages – English, Hindi, Odia, and Telugu. plan is to extend it to 13 languages.
Significance	1) The platform will help the students who are not able to afford the costly entrance exam guidance and coaching. 2) The initiative is in line with the National Education Policy, with the goal of providing inclusive and high-quality education.

National Medical Commission (NMC) clarifies norms for foreign medical graduates

Why in the News?

The National Medical Commission (NMC) has clarified the rules under which foreign medical graduates, especially students from Ukraine and the Philippines, can register, work and study in India.

What are the rules released by the National Medical Commission (NMC) for foreign medical graduates?

1. Graduates from foreign medical institutes who completed their courses offline need to obtain provisional registration from the State Medical Council and must undergo a compulsory one-year rotating medical internship. Such students are eligible to work in India.
2. NMC has extended the Academic Mobility Programme started in 2022. **Under this programme, medical graduates from Ukraine can continue their study from a different country (except India).**
3. The degree will be awarded by the university to which they migrate. This migration option must be utilized within three months from the date of the public notice's issue.
4. **The time limit for appearing in Foreign Medical Graduates Examination (FMGE) or the NExT will be 10 years from the completion of their course overseas.** At present, there is no such time limit for appearing in FMGE.

What is the National Medical Commission (NMC)?

Specifications	Details
Type	Statutory Body
Created under	National Medical Commission Act, 2019
Replaced	Medical Council of India (MCI)

Functions	<ol style="list-style-type: none"> 1) Framing policies for regulating medical institutions and medical professionals 2) Assessing the requirements of healthcare related human resources and infrastructure 3) Ensuring compliance by the State Medical Councils of the regulations made under the act. 4) Frame guidelines for determining fees for up to 50% of seats in private medical institutions and deemed universities governed by the act.
Composition	25 members appointed by the central government.

Subject: INTERNATIONAL RELATIONS

Indo-Pacific Economic Framework for Prosperity (IPEF): India signs agreement with IPEF members on supply chain resilience

Why in the News?

India has signed an agreement with the US and 12 other members of the Indo-Pacific Economic Framework for Prosperity (IPEF) to reduce its dependence on China and safeguard against supply chain disruptions.

What is the Indo-Pacific Economic Framework for Prosperity (IPEF)?

Specifications	Details
Launched in	2022 in Tokyo, Japan.
Aim	To strengthen economic partnership among participating countries to enhance resilience, sustainability, inclusiveness, economic growth, fairness and competitiveness in the Indo-Pacific region.
Member Countries	14 (US, India, Australia, Brunei Darussalam, Fiji, Indonesia, Japan, Republic of Korea, Malaysia, New Zealand, Philippines, Singapore, Thailand and Vietnam)
Pillars	<p>Pillar I: Trade</p> <p>Pillar II: Supply chains</p> <p>Pillar III: Clean economy</p> <p>Pillar IV: Fair economy (issues like tax and anti-corruption).</p>
India	India has joined 3 pillars except the trade pillar to protect its domestic agricultural, labour and digital sectors.
Significance	1) IPEF accounts for about 40% of the world's GDP and 28% of the world's trade in goods and services.

	2) It is also seen as an economic and trade strategy backed by the US to counter China's economic influence in the region.
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Innovation Handshake: India and US launch 'Innovation Handshake' to deepen bilateral tech ties

Why in the News?

India has signed a memorandum of understanding (MoU) with the US on "Enhancing Innovation Ecosystems through an Innovation Handshake".

What is an Innovation Handshake?

Specifications	Details
Launched by	India and US
Launched under	It is a concept developed under the US-India Commercial Dialogue
Aim	To bring the two governments together with venture capitalists, entrepreneurs and industry players. They will have open discussions to explore opportunities and tackle challenges in key sectors highlighted in the US-India Critical and Emerging Technology initiative.
Objectives	1) To connect the two sides' dynamic startup ecosystems 2) To address specific regulatory hurdles to cooperation 3) To share information and best practices for startup fundraising 4) To promote innovation and job growth, particularly in critical and emerging technologies (CET)

What is US-India Commercial Dialogue?

Commercial Dialogue (CD) is a dialogue at Ministerial level between India and the U.S. It involves regular government-to-government meetings to be held alongside private sector meetings.

Aim: To facilitate trade and maximize investment opportunities across a broad range of economic sectors.

NATO Suspends CFE Treaty After Russia's Pullout

Why in the News?

NATO has formally announced the suspension of Treaty on Conventional Armed Forces in Europe (CFE), a key Cold War-era security treaty in response to Russia's pullout from the deal.

What is the Treaty on Conventional Armed Forces in Europe (CFE)?

Aspect	Details
What is it?	The CFE treaty is a cold war era treaty that aimed to prevent massing of conventional armed forces by NATO and Warsaw Pact countries near mutual borders during the Cold War.
Signed on	It was signed in 1990 and fully ratified in 1992.
Significance	It placed limits on the deployment of conventional military forces in Europe and played a significant role in reducing tensions and arms build-up in the region.

What is Warsaw Pact?

Aspect	Details
What is it?	The Warsaw Pact, formally known as the Treaty of Friendship, Cooperation, and Mutual Assistance, was a collective defence treaty established by the Soviet Union and seven other Soviet satellite states in Central and Eastern Europe.
Signed on	14 May 1955
Countries involved	The Soviet Union, Albania, Poland, Czechoslovakia, Hungary, Bulgaria, Romania, and the German Democratic Republic.
Significance	The Soviet Union formed this alliance as a counterbalance to NATO.

What are other cold war era NATO and USSR treaties?

1. The North Atlantic Treaty (1949)
2. The Four Power Agreement in Berlin (1971)
3. The Intermediate-Range Nuclear Forces (INF) Treaty (1987)
4. The Strategic Arms Limitation Talks (SALT) and START Treaties (First in 1972)
5. The Helsinki Accords (1975)

India-Australia Economic Cooperation and Trade Agreement (ECTA): 77% utilization by Indian exporters in 9 months

Why in the News?

Indian exporters have benefitted from the India-Australia ECTA. For the first nine months, the utilization rate was 77%.

What is Utilization Rate in Free Trade Agreements (FTAs)?

1. The utilization rate in Free Trade Agreements (FTAs) refers to the extent or percentage to which the benefits and provisions offered by the agreement are actually utilized or taken advantage of by the participating countries or entities.
2. It **measures how much of the trade or economic activity between countries occurs** using the preferential terms offered in the FTA.
3. A **higher utilization rate indicates that a larger portion of trade is taking place** under the terms and benefits outlined in the FTA.
4. According to the Asian Development Bank, India's FTA utilization rate has remained under 25%, among the lowest in Asia. In contrast, FTA utilization by developed countries averages 70-80%.
5. The reasons for India's low utilization rate of FTAs are the difficult process of getting a certificate of origin, low awareness about FTAs in the industry and non-tariff barriers, amongst others.

What is the India-Australia Economic Cooperation and Trade Agreement (ECTA)?

Specifications	Details
Signed in	2022
Aim	To provide an institutional mechanism to encourage and improve trade between the two countries.
Significance	1) It is the 1st such agreement for India with a developed country in over a decade. 2) The deal has the potential to raise bilateral trade between India and Australia to nearly \$50 billion in the next five years and create at least 10 lakh jobs in the start-up economy. 3) Provide a model for future FTA with other developed countries.
Progress of India-Australia ECTA	Indian exporters have benefitted from the India-Australia ECTA. For the first nine months, the utilization rate was 77%. For Indian exporters, sectors that have benefited from the deal include iron and steel products, linens, agri products and electrical conductors.

Voice of Global South Summit: PM expresses concern for civilians caught in Israel-Hamas conflict, calls for restraint

Why in the News?

India recently hosted the 2nd Voice of Global South Summit in a virtual format.

What is the Voice of the Global South Summit?

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1. Voice of the Global South Summit is an Indian initiative to provide a common platform for the countries of the Global South to share their perspectives and priorities on several major issues.
2. **India hosted the first Voice of the Global South Summit in January 2023 under the theme 'Unity of Voice, Unity of Purpose'.**
3. The second Voice of the Global South Summit is being hosted under the theme **"Together for Everyone's Growth, Together for Everyone's Trust'.**

What are the key highlights from the second Voice of the Global South Summit?

1. The Prime Minister launched DAKSHIN. It is a Global Centre for excellence for the Global South countries.
2. He also called for 5 'Cs' for the Global South: consultation, cooperation, communication, creativity and capacity building.

What is Global South?

1. **The Global South refers to countries often characterized as developing, less developed, or underdeveloped, primarily located in Africa, Asia, and Latin America.**
2. These nations have higher levels of poverty, income inequality, and challenging living conditions compared to the wealthier nations of the Global North.
3. The Global North are richer nations that are located mostly in North America and Europe, with some additions in Oceania and elsewhere.

What is Brandt Line?



Figure 1. Source: Wikipedia

1. The Brandt Line was proposed by Willy Brandt in the 1980s.
2. It is a visual depiction that categorizes the world into richer countries mainly in the Northern Hemisphere and poorer countries mostly in the Southern Hemisphere.
3. The line basically shows the socio-economic divide between northern countries and southern countries.

Operation Karuna

Why in the News?

India launched 'Operation Karuna' to assist Myanmar which has been devastated by Cyclone Mocha.

What is Operation Karuna?

1. India has launched "Operation Karuna" to **provide humanitarian assistance for people in Myanmar, which is affected by Cyclone Mocha.**
2. The Indian Navy ships carried emergency food items, tents, essential medicines, water pumps, portable generators, clothes, sanitary and hygiene items, etc.
3. It has caused widespread devastation in Bangladesh and Myanmar, causing widespread loss of life and property in both these countries.

What is Cyclone 'Mocha'?

1. Cyclone Mocha is a tropical cyclone that **originated in the Bay of Bengal.**
2. The India Meteorological Department (IMD) has classified it as a very severe cyclonic storm.
3. The **name of the storm 'Mocha' has been suggested by Yemen.**
4. The cyclone has been **named after a Red Sea port city known for its coffee production.** The city also gave its name to the popular beverage, café Mocha.

Where is Myanmar and what are its features?



Source- WorldAtlas

Where is it?	Myanmar (previously known as Burma) is the north-westernmost country of mainland Southeast Asia.
Geographical Features	<ol style="list-style-type: none"> 1. Border countries– Bangladesh, India, China, Laos and Thailand. 2. The country is nestled between several mountain ranges with the Arakan Mountains in the west and the Shan Plateau dominating the east. 3. Rivers

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	<ul style="list-style-type: none">-The Irrawaddy River is one of the main rivers and flows from north to south through the Central Burma Basin.- The Mekong River runs from the Tibetan Plateau through China's Yunnan and northeastern Burma into Laos.
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International Tropical Timber Organisation (ITTO)

Why in the News?

The 59th International Tropical Timber Council (ITTC) being held in Thailand recently concluded.

What is the International Tropical Timber Council (ITTC)?

International Tropical Timber Council (ITTC) is the governing body of the International Tropical Timber Organisation (ITTO).

Aim: To promote sustainable management and conservation of tropical forests.

Meeting: At least once a year.

What is the International Tropical Timber Organisation (ITTO)?

Specifications	Details
Type	Intergovernmental Organization
Constituted in	1986
Aim	Developing internationally agreed policy guidelines and norms to encourage sustainable forest management (SFM) and sustainable tropical timber industries and trade.
Members	85 (37 producing and 38 consuming members) - Membership represents about 90% of the global tropical timber trade and more than 80% of the world's tropical forests.
India	India is one of the producing members
Headquarters	Yokohama, Japan

RISE Accelerator: AIM- NITI Aayog launches it to support Australian and Indian circular economy startups

Why in the News?

The Atal Innovation Mission (AIM) under NITI Aayog has launched a new accelerator program called Rapid Innovation and Startup Expansion (RISE).

What is the RISE accelerator Program?

Specifications	Details
Launched by	India and Australia
Aim	To support startups and small to mid-sized enterprises (SMEs) working on circular economy technologies and solutions in India and Australia
Partnership between	CSIRO, Australia's National Science Agency and Atal Innovation Mission (AIM).
Focus themes	1) Climate Smart Agriculture 2) Clean Economy 3) Waste and Circular Economy 4) Climate Smart Mobility
Benefits given	1) There is no charge for startups to participate in the program. 2) Participating startups may also be eligible for up to INR 40 lakhs in non-equity grants.
Significance	1) It will help in addressing common challenges in environment and climate technology areas. 2) It will help create jobs and reduce waste. 3) Strengthen diplomatic ties between the two countries.

Subject: INDIAN ECONOMY

All Efforts on to Stop Coal Import by 2025-26; Focus on Producing 100 million Tonne from Underground Mines by 2030: Union Minister

Why in the News?

The Ministry of Coal has launched the eighth round of the commercial coal mines auction process.

What is the data on Coal Production in India?

1. Coal is the most important and abundant fossil fuel in India. It is found in the form of sedimentary rocks and is often known as 'Black Gold'.
2. Coal is classified as a nonrenewable energy source because it takes millions of years to form.

Occurrence of Coal in India:

1. **Gondwana Coal Fields:** Gondwana coal comprises about 98 percent of the total reserves and 99 percent of the production of coal in India. Gondwana coal is said to be about 250 million years old.

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2. **Tertiary Coal Fields:** Its share is only about 1% of the total production in India. It bears coals of younger age; from 15 to 60 million years.
3. **Lignite Coal Fields:** Tertiary coal is lignite coal. The coal is of inferior quality, with around 30 to 50% carbon. India's largest lignite deposits are at Neyveli in Tamil Nadu.
4. **India Coal Reserves:** India is the world's second-largest coal producer and 5th largest country in terms of coal deposits.
5. **Major Coal Producing States:** During 2022-2023, the four major coal producing states were Odisha (24.52%), Chhattisgarh (20.70%), Jharkhand (17.52%) and Madhya Pradesh (16.35%). These four states together contributed about 79.08% of the total coal production in the country.
India's Coal Imports: The 5 major coal importers to India are Indonesia, Australia, South Africa, USA & Russia.
 - India has plans to stop the import of coal by 2025-26.
 - The focus is on producing 100 million Tonne from Underground Mines by 2030.

Gold drives trade deficit to new high

Why in the News?

In October, 2023 India's exports increased by 6.2% to \$33.6 billion, but imports surged to a record \$65.03 billion, leading to highest monthly trade deficit of \$31.46 billion. This happened due to an increase in the import of gold and other commodities like oil and electronics.

Why have gold imports increased?

The sharp increase in gold imports could be because of the rise in domestic demand for gold jewellery due to the festive season.

What is the data on Gold Production worldwide and in India?

1. **Global Gold Production:** China is the largest gold producer. The other major countries are Australia, Russia and the United States
 - India's share in the global gold production is less than 0.05%.
2. **Gold Reserves in India:** The largest resources of gold ore (primary) in India are in Bihar (44%) followed by Rajasthan (25%), Karnataka (21%), West Bengal (3%), Andhra Pradesh (3%) and Jharkhand (2%)
3. **India's Gold Market:** Gold supply in India is primarily met through imports.
 - The countries from which India imports most of its gold are Switzerland and UAE.

Risk Weighted Assets: RBI raises risk weights on consumer credit exposure of banks, NBFCs to 125%

Why in the News?

Reserve Bank of India (RBI) has increased the risk weights of assets for the unsecured lending issued by banks and non-banking financial companies (NBFCs).

What is Risk Weighted Assets (RWA)?

1. Risk-weighted assets are used to determine the minimum amount of capital a bank must hold in relation to the risk profile of its lending activities and other assets.
2. This is done in order to reduce the risk of insolvency and protect depositors. The more risk a bank has, the more capital it needs to hand.
3. The capital requirement is based on a risk assessment for each type of bank asset. For example, a loan that is secured by a letter of credit is considered to be riskier than a mortgage loan that is secured with collateral and thus requires more capital.

Why has RBI increased the Risk Weighted Assets (RWA) on unsecured loans?

Indian Banks are experiencing a significant increase in unsecured loans, particularly in personal loans and credit cards. This increase is happening faster than the overall growth of bank credit. That's why RBI has increased the risk weighted assets on unsecured loans.

Impact of this move: Loans may become a bit expensive.

Consumer Price Index Numbers for Agricultural and Rural Labourers – October 2023

Why in the News?

The All-India Consumer Price Index Number for Agricultural Laborers (CPI-AL) and Rural Labourers (CPI-RL) for the month of October 2023 has been released.

What is the Consumer Price Index (CPI)?

1. Consumer Price Index (CPI) is an index measuring retail inflation in the economy by collecting the change in prices of most common goods and services used by consumers.
2. It is **calculated for a fixed list of items including food, housing, apparel, transportation, electronics, medical care, education etc.**
3. **In 2014, RBI adopted CPI as the key measure for determining inflation.**

What are the different types of Consumer Price Index (CPI)?

Index	CPI for Industrial Workers (IW)	CPI for Agricultural Labourer (AL)	CPI for Rural Labourer (RL)	CPI (Rural/Urban/Combined)
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Factly Compilation for the Month of November (Third Week) 2023

Released by	Labour Bureau (Ministry of Labour and Employment)	Labour Bureau	Labour Bureau	National Statistical Office (NSO), Ministry of Statistics and Programme Implementation (MoSPI)
Base Year	2016	1986-87	1986-87	2012
Purpose	Measures the relative changes in retail prices of fixed basket of goods and services consumed by industrial workers over a period.	confined to households of the agricultural labourers	covers the households of rural labourers which includes agricultural labourers households also.	-
Used for	Utilized for regulation of wages & dearness allowance of workers & employees in the country.	MGNREGA wage rates are fixed according to changes in the CPI-AL.	-	Used by RBI to determine inflation rates and its monetary policy.

Subject: SCIENCE & TECHNOLOGY

Four Fundamental Forces of the Universe

Why in the News?

Recently an assistant professor of theoretical physics at the Centre for High Energy Physics in the Indian Institute of Science, Bengaluru published an article on that topic.

What is the concept of 'Force'?

1. Force is an agent that **induces an object to change its velocity**, according to Newton's second law.
2. The forces we have encountered in our daily lives – tension, friction, van der Waals force, weight, etc. – come from just four fundamental types of interactions between elementary particles (subatomic particles).

What are the four fundamental forces of the Universe?

1. **Gravity**– The force that pulls us to the surface of the Earth, keeps the planets in orbit around the Sun and causes the formation of planets, stars and galaxies.
2. **Electromagnetic force**– Electromagnetism is the force responsible for the way matter generates and responds to electricity and magnetism.
3. **Weak force**– It is responsible for certain kinds of radioactive decay. For example, the kind of decay measured by archaeologists when they perform radiocarbon dating. It **operates only up to distances of 10⁻¹⁸ m – about one-thousandth the size of a proton.**
4. **Strong force**– It **ranges over somewhat longer distances, around 10⁻¹⁵ m.** It **keeps the nucleus of an atom bound together**, rather than flying apart, and sustains the nuclear fusion that powers the sun.

What is the key concept that defines these interactions of forces in Universe?

Force carrier

1. A force-carrier is any species of particle that **mediates the interactions between particles that experience that force**, for example- the Higgs boson, discovered in 2012.

Force	Force Carrier
Gravity	Graviton
Electromagnetism	Photon
Weak force	W Boson and Z Boson
Strong force	Gluons

Saturn's rings disappearing!

Why in the News?

Saturn's rings will not disappear permanently by 2025. Although they will become almost invisible from Earth during that time, it is a regular occurrence due to the thinness of the rings.



Figure 2. Source- The Conversation

What are Saturn rings?

1. The planet's enormous **ring system, comprised of bits of ice, dust and rocks**, spreads out over a huge distance – just **over 280,000km from the planet**.
2. The rings orbit directly above Saturn's equator, and they too are tilted to the plane of Saturn's orbit.

Why will Saturn rings disappear?

1. Saturn's rings will become almost invisible from Earth in 2025 due to the edge-on perspective from our viewpoint.
2. This phenomenon occurs because the rings

are so thin that, when seen from a distance, they appear to vanish when viewed edge-on.

3. **This happens regularly. The last time was in 2009** and the rings gradually became visible again, over the course of a few months.

Ixchiq: How was the first vaccine for chikungunya approved?

Why in the News?

The United States (US) has approved the world's first vaccine for chikungunya named **Ixchiq**.

What is Chikungunya?

Specifications	Details
What is it	Mosquito borne Viral Disease
Caused by	Chikungunya virus (CHIKV), an RNA virus in the alphavirus genus of the family Togaviridae.
Transmitted through	Mosquitoes most commonly Aedes (Stegomyia) aegypti and Aedes (Stegomyia) albopictus which can also transmit dengue and Zika viruses.
First Identified in	United Republic of Tanzania in 1952 and subsequently in other countries
Symptoms	Fever and joint pain, headache, muscle pain, joint swelling or rash
Treatment	Currently, there is no cure, only symptomatic relief with medicines.

What is Ixchiq?

Specifications	Details
What is it	World's first vaccine for chikungunya
Vaccine Type	Contains a live, weakened version of the chikungunya virus
Administration	Single dose, administered by injection into the muscle
Side Effects	Headache, fatigue, muscle pain, joint pain, fever, nausea and tenderness at the injection site.
Significance	This approval will help in deployment of the vaccine especially in countries with high chikungunya prevalence like Brazil, Paraguay, and India. As per the National Centre for Vector Borne Diseases Control, India had 93,455 suspected chikungunya cases until September in 2023.

'Kill Switch' to eliminate Cancer Cells

Why in the News?

Recently scientists from UC Davis Comprehensive Cancer Center, California discovered a 'kill switch' that triggers the death of cancer cells.

What is the 'Kill Switch'?

1. Scientists have identified Kill Switch, **as a protein on a receptor that can be designed to kill cancer cells.**
2. Scientists have **identified this protein on a receptor CD95 (CD95 receptors-also known as 'fas') .**

What are the key findings of the discovery of kill switch?

1. Kill Switch **reside on cell membranes.**
2. Kill Switch can be designed to induce self-destruction in cancer cells when activated.

What is the Significance of this discovery?

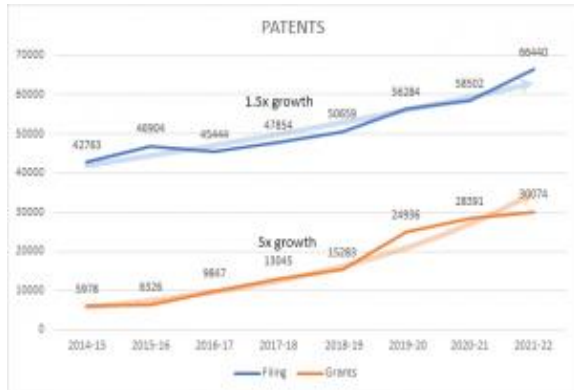
1. **Discovery is part of CAR T- cell therapy**, involving the collection of T cells from the patient's blood, genetic modification in a lab to produce chimeric antigen receptors (CARs), and then injecting the modified cells back into the patient's body.
2. The therapy has shown promising efficacy against liquid cancers like leukaemia.
3. **Limitation-** It has demonstrated limited success against solid tumours such as breast, lung, and bowel cancer.
4. **Future-** The research team is hopeful that the therapy can evolve to target solid cancers in the future. The identified epitope on CD95 receptors offers a potential therapeutic path to target 'Fas' in tumours.

Patents: Prime Minister acknowledges highest ever number of patents granted so far in 2023-24

Why in the News?

The Prime Minister has acknowledged the highest ever number of patents granted so far in 2023-24.

What is Patent?



Source: PIB

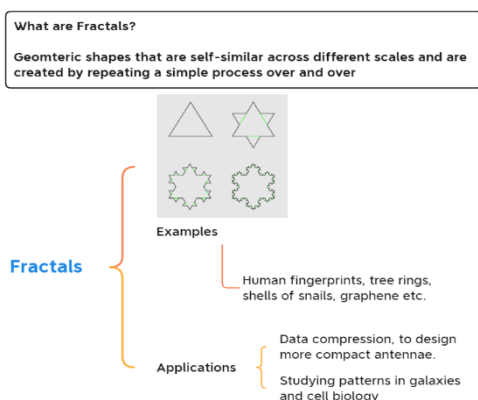
Specifications	Details
What is it	A patent is an exclusive set of rights granted for an invention, which may be a product or process that provides a new way of doing something or offers a new technical solution to a problem.
Legal framework	Patent Act,1970
Term for Patent	20 years from the date of filing of application.
Is Patent Protection valid worldwide	No. Patent protection is a territorial right and therefore, it is effective only within the territory of India.
Criteria of Patentability	An invention is patentable subject matter if it meets the following criteria: 1) It should be novel. 2) It should have inventive step, or it must be non-obvious. 3) It should be capable of Industrial application. 4) It should not attract the provisions of section 3 and 4 of the Patents Act 1970.

Fractals to study Quantum Systems

Why in the News?

Physicists are using fractal geometry to study quantum systems, providing a unique perspective on the uncertainties of quantum physics.

What are Fractals?



1. **Fractals are geometric shapes that are self-similar across different scales.** They are created by repeating a simple process over and over in an ongoing feedback loop. **Example- Koch snowflake**– a shape that begins as an equilateral triangle, and in each subsequent step, every side becomes the base for a new triangle.

2. Fractal patterns are extremely familiar, since nature is full of fractals. For instance: human fingerprints, tree rings, shells of snails, graphene etc.

What are the applications of fractality?

1. The first attempt to apply fractal analysis in physics was for Brownian motion – the rapid, random, zigzagging motion of small particles suspended in a liquid medium, like pollen in water.
2. Fractals can be applied in data compression, to design more compact antennae.
3. Some have used it for studying patterns in galaxies and cell biology.

Thus, they provide a unique tool to understand complex systems and patterns in nature.

WHO and the Ministry of Ayush signed the Traditional and Complementary Medicine 'Project Collaboration Agreement'

Why in the News?

The Ministry of Ayush and the World Health Organization (WHO) have signed Traditional and Complementary Medicine 'Project Collaboration Agreement'.

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This marks the third collaboration between the Ministry of Ayush and the WHO (the last two collaborations being in 2016 and 2017).

What is the purpose of the 'Project Collaboration Agreement' signed between WHO and the Ministry of Ayush?

Specifications	Details
Objective	To mainstream Traditional and Complementary Medicine into India's National Health System and serve the global health objectives This objective will be achieved through the Traditional Medicine Global Strategy 2025-34 to be prepared jointly by the WHO and the Ministry of Ayush.
Major Goals of the agreement	1) Strengthening of training and practice in the field of the Traditional Medicine System, specifically 'Siddha.' 2) Formulation of guidelines for the listing of Traditional and Complementary Medicines and safety protocols. 3) Develop an International Herbal Pharmacopoeia focusing on herbs found in South-East Asia. 4) Conservation and management of biodiversity and medicinal plants.
Significance	1) This will help give India a global identity in the field of healthcare services and promote medical tourism in India. 2) It will also help in preserving India's rich heritage by addressing bio-piracy issues.

Indian researchers detect X-Ray Polarization in Extragalactic black hole

Why in the News?

Researchers from the IIT Guwahati and the UR Rao Satellite Centre of ISRO have achieved a groundbreaking discovery by detecting polarized emissions from a black hole source outside our Milky Way Galaxy.

What are Polarized Emissions?

- Polarized emissions are like light waves that prefer to move in a specific direction.**
- Imagine a crowd of people walking in straight lines instead of all directions. When light or other types of energy travel this way, it means they're aligned in a particular direction, giving us clues about the source they came from and how they traveled through space.

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This helps scientists understand more about what's happening in distant objects, like black holes, far away in the universe.

How did the researchers detect polarized emissions from a black hole?

1. Researchers utilized a technique called X-ray polarimetry to study the binary star system 'Large Magellanic Cloud X-3 (LMC X3)'.
2. The findings were observed using NASA's Imaging X-ray Polarimetry Explorer (IXPE) and other missions.

What is Large Magellanic Cloud X-3 (LMC X3)?

1. Large Magellanic Cloud X-3 (LMC X3) was discovered in 1971. It is a binary star system consisting of a black hole and a 'normal' star that is much hotter, bigger, and more massive than the Sun.
2. It is located in a satellite galaxy of our Milky Way, nearly 200,000 light-years away from Earth.

What is XPoSat Mission?

Specifications	Details
To be launched by	ISRO
Full Form	X-Ray Polarimeter Satellite (XPoSat)
Purpose	To study various dynamics of bright astronomical X-ray sources in extreme conditions.
Payloads	The spacecraft will carry two scientific payloads in a low earth orbit: 1) POLIX (Polarimeter Instrument in X-rays): It will measure the polarimetry parameters (degree and angle of polarization). 2) XSPECT (X-ray Spectroscopy and Timing): It will give spectroscopic information (on how light is absorbed and emitted by objects).It will observe several types of sources, such as X-ray pulsars, blackhole binaries, low-magnetic field neutron stars, etc.
Significance	It is India's first and the world's second polarimetry mission. The other such major mission is NASA's Imaging X-ray Polarimetry Explorer (IXPE) that was launched in 2021.

Unusual Nitrogen-9 Isotope: Strong evidence' unusual nitrogen-9 nucleus exists, scientists say

Why in the News?

Scientists have discovered “strong evidence” for the existence of the unusual nitrogen-9 isotope.

What is Nitrogen-9?

Atoms of the nitrogen-9 isotope are characterized by seven protons and two neutrons.

Why is Nitrogen-9 special?

1. Nitrogen-9 is special **because it has seven protons and only two neutrons, which is an unusually high ratio of protons to neutrons.**
2. This ratio significantly affects its stability, making its decay and behavior different from what's expected. Its high proton count also puts it outside the typical stability range.

What are Isotopes?

1. Atoms with the **same number of protons but different numbers of neutrons** are called Isotopes.
2. There are stable isotopes, which do not emit radiation and there are unstable isotopes which do emit radiation. The latter are called radioisotopes.

What are Drip Lines?

1. In the world of nuclear physics, there are stability limits. The ratio of protons-neutrons determines an atom's stability. Physicists make sense of such stability using drip lines. These lines mark the boundary beyond which adding more particles to a nucleus makes it unstable.
2. Physicists have a good handle on the neutron drip line for the first 10 elements. For example, oxygen's heaviest particle-bound isotope is oxygen-24, with 16 bound neutrons. Beyond that 16, the nucleus becomes far too unstable.

What are Nuclides?

1. A Nuclide is a **specific type of atom characterized by the number of protons and neutrons in the nucleus which approximates the mass of the nuclide.** For example, carbon-12 is a nuclide of carbon with 6 protons and 6 neutrons.
2. Scientists have developed an analogous table which is a two-dimensional graph of isotopes of the elements. This is known as the nuclide chart.

Tantalum, the rare metal found in Sutlej

Why in the News?

A team of researchers from the Indian Institute of Technology (IIT), Ropar has found the presence of tantalum in the Sutlej River sand in Punjab.

What is Tantalum?



Source: Wikipedia

Specifications	Details
What is it	A rare metal.
Atomic Number	73
Discovered in	1802 by Anders Gustaf Ekenberg in minerals obtained from Ytterby, Sweden.
Named after	Greek mythological figure Tantalus.
Properties	<ol style="list-style-type: none"> 1) Grey, heavy and very hard metal 2) Highly corrosion resistant as it forms an oxide layer on exposure to air which is extremely difficult to remove. 3) Ductile when pure which means it can be stretched, pulled or drawn into a thin wire or thread without breaking. 4) Immune to most chemical attacks below 150°C. It can be attacked only by hydrofluoric acid, acidic solutions containing the fluoride ion, and free sulphur trioxide. 5) Extraordinarily high melting point, only surpassed by tungsten and rhenium.
Uses	<ol style="list-style-type: none"> 1) Tantalum capacitors store more electricity in smaller sizes with minimal leakage. This makes it ideal for portable electronics like smartphones, laptops, and cameras. 2) Due to its high melting point, it is used as a substitute for platinum, which is more expensive. 3) Used to make components for chemical plants, nuclear power plants, aeroplanes and missiles. 4) Used in surgical equipment and implants due to inertness with bodily fluids. 5) Tantalum carbide (TaC) and graphite composite is one of the hardest materials. This is used on the cutting edges of high-speed machine tools.

The Langlands Program

Why in the News?

Langlands Program provides a beautifully intricate set of connections between various areas of mathematics, pointing the way toward novel solutions for old problems in mathematics.

What is the Langlands Program?

Aspect	Details
What is it?	<ol style="list-style-type: none"> 1. It is the world's biggest maths project and can be likened to building bridges across mathematical cultures with different objects and languages. 2. It is named after Robert Langlands, a mathematician at the Institute for Advanced Study in Princeton. 3. In 2018, he was awarded the Abel Prize for "his visionary program connecting representation theory to number theory"
Objective	<p>To find connections between two far-flung areas of mathematics – number theory and harmonic analysis.</p> <p>– It seeks to do this by connecting every Galois group with automorphic functions, allowing mathematicians to investigate polynomial equations using tools from calculus.</p>
Initiation	1967
Significance of the program	<ol style="list-style-type: none"> 1. Solving old Maths problems– In 1994, Andrew Wiles and Richard Taylor applied Langlands' conjectures to prove Fermat's last theorem. 2. Creating new functions– It can help mathematicians create new automorphic functions from preexisting ones. Such efforts could be crucial to prove the Ramanujan conjectures (speculations), many of which remain unsolved. 3. Can evolve into new fields of mathematics– For example, Geometric Langlands. It investigates connections between algebraic geometry and representation theory. 4. Multidisciplinary significance– Mathematicians have suggested connections between Geometric Langlands and physics, particularly for studying electromagnetic waves.

Note-

1. **Number theory:** It is the arithmetic study of numbers and the relationships between them. For example, the pythagoras theorem.
2. **Harmonic analysis:** It is interested in the study of periodic phenomena. Unlike number theorists, who deal with discrete arithmetic's (like integers), harmonic analysts deal with mathematical objects

more continuous in nature (like waves).

3. **Galois group:** In 1832, mathematician Évariste Galois concluded that it is impossible to have a general formula to find the precise roots of polynomial equations and instead suggested focusing on symmetries between roots as an alternate route. Galois group is a collection of such symmetries of the roots of a polynomial equation.

4. **Automorphic functions:** Functions that turn back into themselves when the variables are changed by some processes are called automorphic functions. The sine function is a simple example.

Amyloidosis: Scientists fabricate 2D protein monolayer that can help to study diseases like Amyloidosis

Why in the News?

Scientists have created a 2D protein monolayer by assembling lysozyme molecules. This can help study diseases such as Amyloidosis.

What is Amyloidosis?

Specifications	Details
Definition	It is a rare disease that occurs when a protein called amyloid builds up in organs. This amyloid buildup can make the organs not work properly.
Affected organs	Organs that may be affected include the heart, kidneys, liver, spleen, nervous system and digestive tract.
Causes	Secondary to a different health condition or can develop as a primary condition. Sometimes it is due to a mutation in a gene.
Types	AL (primary) amyloidosis: People with conditions such as multiple myeloma or a bone marrow illness are more likely to have this.
	AA (secondary) amyloidosis: It is caused by fragments of amyloid A protein and affects the kidneys in about 80 percent of cases.
	Transthyretin amyloidosis (ATTR): It can be inherited from a family member. People of African descent may be more likely to carry the gene. Note: Transthyretin is a protein that is also known as prealbumin. It is made in the liver.
Treatment	Chemotherapy, Bone Marrow Transplant and medications.

What is Lysozyme?

1. Lysozyme is a protein present in mucosal secretions. It is found in various bodily fluids like tears, saliva, mucus and human milk.

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2. It plays a crucial role in the body's defense system by breaking down bacterial cell walls and acting as an antimicrobial agent.
3. Large amounts of lysozyme can be found in egg white.
4. It can be regarded as a model protein in studying diseases like Amyloidosis.

International Space Station turns 25

Why in the News?

The International Space Station has completed 25 years of its journey since the first module launched into orbit in 1998.

What is the International Space Station?



Source- NASA

Specification	Details
What is the ISS?	<ol style="list-style-type: none">1. The ISS is the largest modular space station in low Earth orbit.2. It is the largest human made structure in space, serving as a laboratory for new research and technological developments and also serves as an observation platform.
Launched on	20 November 1988 from Kazakhstan
Agencies involved	Five space agencies: the United States' NASA, Russia's Roscosmos, Japan's JAXA, Europe's ESA, and Canada's CSA
Orbit	It orbits earth at an average altitude of 400 km and circles the globe every 90-93 minutes at a speed of 28,000 km/h.
Construction Components	<p>&</p> <ol style="list-style-type: none">1. The ISS was constructed piece by piece in orbit. The first module, The Zarya, lifted off in November 1998.2. The station is divided into two sections:<ul style="list-style-type: none">- The Russian Orbital Segment (ROS), which is operated by Russia.- The United States Orbital Segment (USOS), which is run by the United States and other countries.3. The ISS consists of pressurised habitation modules, structural trusses, photovoltaic solar arrays, thermal radiators, docking ports, experiment bays and robotic arms.

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Size	It weighs almost 450 tonnes and covers an area of a football field.
Significance	It serves as a microgravity and space environment research laboratory in which scientific research is conducted in astrobiology, astronomy, meteorology, and various other fields needed for future human space exploration. More than 3,000 experiments have been conducted aboard ISS.
Notable success	1. Medical discovery – Research on ISS led to advancements in osteoporosis treatments and understanding muscle atrophy. 2. Dark matter – The most notable ISS experiment is the Alpha Magnetic Spectrometer (AMS), which is intended to detect dark matter and answer other fundamental questions about our universe.
Mission life	It is expected to operate till 2030.
India's mission	1. India plans to have own space station by 2035 which would weigh 20 tonnes and maintain an orbit of approximately 400 kilometers above the Earth, where astronauts could stay for 15–20 days. 2. NASA and ISRO have agreed to a joint mission to the International Space Station in 2024.
Other mission countries	China's Tiangong space station (launched in 2021) is a permanently crewed space station constructed by China and operated by China Manned Space Agency in low Earth.

Note- Russia has announced in 2022 that it has decided to quit the International Space Station after 2024 and focus on building its own space station.

Subject: ENVIRONMENT

ASCI moots guidelines to check 'greenwashing' by companies

Why in the News?

The Advertising Standards Council of India (ASCI) released various guidelines to avoid 'greenwashing' by companies.

What is 'greenwashing'?

It's a **deceitful marketing gimmick used by companies to exaggerate their environmentally friendly actions**. It is intended to mislead consumers who prefer to buy goods and services from environmentally conscious brands.

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What is Advertising Council of India?

What is it?	It is a “voluntary, self-regulatory council” which has been registered as a non-profit company .
Aim	It aims to protect consumers from misleading claims made by companies with descriptive trademarks, which may be false and dishonest.
Established in	In the year 1985 under Section 25 of the Companies Act, 1956 .
Composition	1. The ASCI team consists of a Board of Governors, members of the Consumer Complaints Council and a Secretariat . 2. ASCI has 16 members in its Board of Governors, four each representing the key sectors such as Advertisers, advertising agencies, media etc.
Important Function	It invites complaints from consumers against any such unfair and false claims and advertisements; all such complaints are examined independently by the Consumer Complaints Council.

Note– The proposed guidelines issued directions to companies regarding claiming of their product impact which must be supported with a high level of substantiation.

NEST Initiative: IGBC launches certification initiative ‘Nest’ to promote eco-friendly housing

Why in the News?

Indian Green Building Council (IGBC) has launched Nest Initiative. It will also be organizing the annual Green Building Congress 2023 in Chennai, Tamil Nadu.

What is the Nest Initiative?

Specifications	Details
Launched by	Indian Green Building Council (IGBC)
Purpose	It is a rating and certification initiative developed for residential units to build green homes.
Aim	To encourage individual house owners and the residential sector to adopt green building measures in a big way. It emphasizes bringing down electricity consumption, water usage and creating a healthy living space.

What is Green Building Congress 2023?

Specifications	Details
Organized by	Indian Green Building Council (IGBC)
Aim	To provide a platform for the construction industry stakeholders in the country to create a sustainable building environment for achieving net zero carbon emission goals.
Partner State	Tamil Nadu
Supporting Partner	World Green Building Council
Theme	Advancing Net Zero through decarbonization

What is the Indian Green Building Council (IGBC)?

Specifications	Details
Formed in	2001
Part of	Confederation of Indian Industry (CII)
Aim	To enable a sustainable built environment for all and facilitate India to be one of the global leaders in the sustainable built environment by 2025.
Services offered	It offers a variety of services like developing new green building rating programmes, certification services and green building training programmes.
Significance	It is India's premier body for green building certification and related services.
Headquarters	Hyderabad

Sea Buckthorn: Ladakh's sea buckthorn gets GI tag

Why in the News?

Ladakh's Sea Buckthorn has been granted the [Geographical Indication \(GI\)](#) tag.

What is Sea Buckthorn?



Source: Wikipedia

Specifications	Details
What is it	It is a shrub that produces an orange yellow coloured edible berry.
Found in	In India, it is generally found in dry areas such as the cold deserts of Ladakh and Spiti.
Local Names	In Ladakh, it is popularly known as the 'Wonder Plant', 'Ladakh Gold', 'Golden Bush', or 'Gold Mine' of cold deserts. In Himachal Pradesh, it is locally called Himalayan chharma.
Medicinal Benefits	1) Used as a medicine for treating stomach, heart, and skin problems. 2) Rich in vitamins, carotenoids, and omega fatty acids. 3) It can also help in acclimatizing to high-altitude.
Ecological Benefits	1) Important source of fuelwood and fodder. 2) It is a soil-binding plant that prevents soil erosion. Furthermore, it checks siltation in rivers and helps preserve floral biodiversity.
Commercial Benefits	1) Used in making juices, jams, nutritional capsules among others. 2) It is also used in the manufacturing of cosmetics and anti-ageing products.

Emissions Gap Report: World set to get warmer by nearly 3°C by end of century

Why in the News?

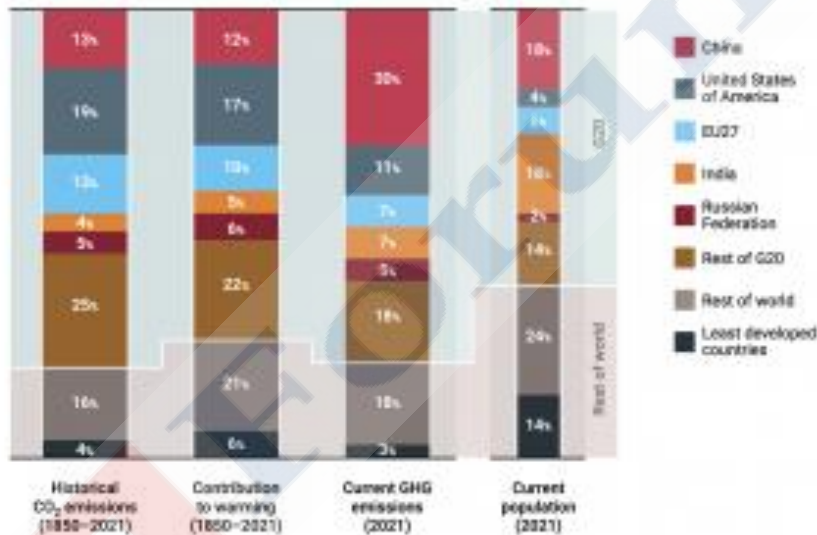
The Emissions Gap Report 2023 titled “Broken Record – Temperatures hit new highs” has been released.

What is the Emissions Gap Report?

Specifications	Details
Released by	UN Environment Programme (UNEP)
Purpose	It tracks the gap between where global emissions are heading with current country commitments and where they ought to be to limit warming to 1.5°C.

What are the key findings of Emissions Gap Report 2023?

Current and historic contributions to climate change (% share by countries or regions)



Source: UNEP

Specifications	Details
Increasing temperatures	In 2022, we had 86 days that surpassed the 1.5-degree Celsius temperature mark due to a record-breaking rise in global greenhouse gas emissions.

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<p>Progress made since Paris Agreement</p>	<p>There has been progress since the Paris Agreement was signed in 2015. Greenhouse gas emissions in 2030 were projected to increase by 16% at the time of the agreement's adoption. Today, the projected increase is 3 percent.</p> <p>However, predicted 2030 greenhouse gas emissions still must fall by 28% for the Paris Agreement 2°C pathway and 42% for the 1.5°C pathway.</p>
<p>Historical Inequality in emissions</p>	<p>Country wise: The United States of America accounts for 4 percent of the current world population but contributed 17 percent of global warming from 1850 to 2021 including the impact of methane and nitrous oxide emissions. India, by contrast, accounts for 18 percent of the world population, but till date only contributed 5 percent of warming.</p> <p>Population wise: Globally, the 10 percent of the population with the highest income accounted for nearly half (48 per cent) of emissions with two thirds of this group living in developed countries. The bottom 50 percent of the world population contributed only 12 percent of total emissions.</p>
<p>Carbon Dioxide Emissions</p>	<p>Global GHG emissions increased by 1.2 per cent from 2021 to 2022 to reach a new record of 57.4 gigatons of CO₂ equivalent (GtCO₂e).</p>
<p>Emissions of biggest emitters</p>	<p>The emissions of three biggest emitters China, United States and India has increased in 2022.</p> <p>But the emissions of the European Union, Russia and Brazil have gone down a bit.</p>
<p>Covid-19 impact</p>	<p>The Covid-19 slowdown in 2020 only reduced emissions by 4.7% from 2019, showing the limited impact of this pause.</p>
<p>Impact of inaction against Climate Change</p>	<ol style="list-style-type: none"> 1) 2023 all set to emerge as the hottest ever, overtaking the previous record of 2016. 2) Almost every month of the year has set one or the other temperature record, with September emerging as the hottest month ever. 3) According to an assessment by the World Meteorological Organisation, one of the next four years is almost certain to breach the 1.5-degree Celsius threshold for the annual average as well.

Gambusia fish remain popular to beat mosquitoes

Why in the News?

Recently, various government and non-governmental organizations in Andhra Pradesh, Odisha, and Punjab have released mosquitofish into local water bodies to address the problem of mosquitoes.

What is Mosquitofish?



Source: The Hindu

1. **Mosquitofish is the name given to *Gambusia affinis* and *Gambusia holbrooki*.**
2. These fishes are **native to the waters of the North America**, particularly the southeastern coast of United States.
3. They have been a **part of mosquito-control strategies** for over a century in various parts of the world. A single full-grown mosquitofish eats about 100 to 300 mosquito larvae per day.
4. However, these fishes are known for their detrimental ecological impact as they feed on native fauna leading to the extinction of native fish, amphibians and various freshwater communities.
5. Aided by their robust adaptability and high tolerance for fluctuating environmental conditions, they have become some of the most widely dispersed freshwater fish.

When was Mosquitofish introduced in India?

1. In 1928, Mosquitofish was first introduced in India during British rule.
2. Various governmental organisations, such as the ICMR (which plays a significant role in mosquito management in the country), the National Institute of Malaria Research (NIMR), local municipal corporations, alongside other private organisations in India, took over as part of their efforts to combat malaria.
3. Today, it has become widespread in India, establishing self-sustaining populations in various habitats.

Is Mosquitofish still used for mosquito control?

Factly Compilation for the Month of November (Third Week) 2023

1. In 1982, the World Health Organisation (WHO) withdrew Gambusia as a mosquito control agent.
2. In 2018, National Biodiversity Authority of the Government of India labeled Gambusia as an invasive alien species.
3. Despite these actions, both government and non-governmental organizations in India still release Gambusia for mosquito control purposes.

What are the measures needed to control the use of Mosquitofish?

1. **Enforcement Measures:** Stricter enforcement is needed to prevent further introduction of mosquitofish into freshwater ecosystems.
2. **Recommendation Removal:** The National Centre for Vector Borne Diseases Control (NCVBDC), of the Ministry of Health and Family Welfare, should remove the recommendation on its website for use of Gambusia in mosquito control.
3. **Local Solutions for Mosquito Control:** Focus on local solutions such as compiling lists of native fish species that are capable of controlling mosquito larvae. These fishes can be released into the environment to manage mosquitoes avoiding ecological risks from invasive species.

Draft Mineral Auction Rules,2023: Single bidder allowed in second attempt

Why in the News?

Government of India has released the Draft Mineral (Auction) Second Amendment Rules, 2023.

What are the key provisions of Draft Mineral (Auction) Second Amendment Rules, 2023?

Specifications	Details
Changes in Mining Contract Auction Rules	<ol style="list-style-type: none">1) First round of bidding still requires a minimum of three bidders. If fewer than three technically qualified bidders, the first attempt of the auction gets canceled.2) But for second auction, the proposed amendment allows the contract to be given even if only one technical bidder participates.3) This is done to streamline the process especially when participation is limited.
Prohibits affiliate bidders	The rules prohibit any affiliate associated with a bidder from submitting bids in the same auction where the bidder has already placed a bid.
Oversight Committee	The State governments are required to establish a committee to identify suitable areas for granting exploration licenses within the state.
Ceiling Price	State governments must define the maximum percentage share known as the 'ceiling price,'. Ceiling price is the percentage of revenue to be shared with the government. The ceiling price set by the government should not be less than 25%.

Are private players allowed in exploring minerals?

- 1) Recently, the Government of India gave permission for private sector involvement in exploring important and deeply embedded minerals in the country.
- 2) Both national and international private mining companies, known as junior explorers, are allowed to take part in risky exploration ventures.
- 3) This has been done as there is a lack of expertise among existing players in mining deeply embedded minerals.

Subject: SCHEMES & PROGRAMMES

PM Particularly Vulnerable Tribal Groups (PM PVTG) Mission: PM launches ₹24,000-crore project for development of vulnerable tribal groups

Why in the News?

The Prime Minister has launched the ₹24,000-crore Pradhan Mantri Particularly Vulnerable Tribal Groups (PM PVTG) Mission.

What is Pradhan Mantri Particularly Vulnerable Tribal Groups (PM PVTG) Mission?

Specifications	Details
Nodal Ministry	Ministry of Tribal Affairs
Announced in	Union budget 2023-24
Aim	To improve socio-economic conditions of the particularly vulnerable tribal groups (PVTGs)
Features	Under the mission, basic facilities such as road and telecom connectivity, electricity, safe housing, clean drinking water and sanitation, improved access to education, health and nutrition and sustainable livelihood opportunities will be provided to areas where PVTGs live.
Collaboration with Ministries	The mission will be implemented through the convergence of 11 interventions from nine Ministries. These schemes include Pradhan Mantri Gram Sadak Yojana, Pradhan Mantri Gramin Awas Yojana, National Sickle Cell Disease Elimination Mission among others.

Who are Particularly Vulnerable Tribal Groups (PVTGs)?

Specifications	Details
Who are they	PVTGs are the more vulnerable groups among tribal communities

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Origin	In 1973, the Dhebar Commission created Primitive Tribal Groups (PTGs) as a separate category, which are less developed among the tribal groups. In 2006, the Government of India renamed the PTGs as PVTGs.
Criteria for Identifying PVTGs	1)pre-agricultural level of technology 2)Low level of literacy 3)Economic backwardness 4)A declining or stagnant population.
PVTGs in India	1) Currently, there are 75 PVTGs in India. Of these, the highest number of PVTGs are found in Odisha (13), followed by Andhra Pradesh (12). 2) The largest PVTG is Odisha's Saura community.

Viksit Bharat Sankalp Yatra

Why in the News?

The Prime Minister has launched the Viksit Bharat Sankalp Yatra.

What is the Viksit Bharat Sankalp Yatra?

Specifications	Details
Aim	To promote and publicize government welfare schemes. To enroll potential beneficiaries of these schemes by collecting details during the yatra.
Features	The schemes that will be publicized through the yatra include Ayushman Bharat; PMJAY PM Garib Kalyan Anna Yojana; Deendayal Antyodaya Yojana among others.
IEC Vans to publicize schemes	Five specially designed IEC (Information, Education and Communication) Vans will carry the message of the Government's flagship welfare programmes.
Target	The target is to cover over 2.55 lakh Gram Panchayats and over 3,600 urban local bodies by 25th January 2024.

Annapurna Certificate Programme

Why in the News?

Annapurna Certificate Programme has recognized six Indian restaurants worldwide for promoting Indian culinary traditions.

What is Annapurna Certificate Programme?

Specifications	Details
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Factly Compilation for the Month of November (Third Week) 2023

Launched by	Indian Council for Cultural Relations (ICCR)
Aim	To recognize Indian restaurants abroad that are promoting Indian culture through their culinary contributions.
Significance	This certification will help the people abroad identify authentic Indian restaurants.

What is the Indian Council for Cultural Relations (ICCR)?

Specifications	Details
Type	It is an autonomous body under the administrative control of the Ministry of External Affairs
Founded in	1950 by Maulana Abul Kalam Azad who was the first Education Minister of independent India.
Objectives	1) To formulate and implement policies and programmes pertaining to India's external cultural relations 2) To strengthen cultural relations and mutual understanding between India and other countries 3) To promote cultural exchanges with other countries and people and to develop relations with nations.
Significance	ICCR has been assigned the responsibility of facilitating the celebration of the International Day of Yoga by Indian Missions/Posts abroad since 2015.
Headquarters	New Delhi

National Health Claim Exchange (NHCX): National Health Authority (NHA) organizes Accelerator Workshops on ABDM Integration and NHCX Adoption in association with IRDAI

Why in the News?

The National Health Authority (NHA) and the Insurance Regulatory and Development Authority of India (IRDAI) collaborated to operationalize the National Health Claim Exchange (NHCX).

What is the National Health Claim Exchange (NHCX)?

Developed by: National Health Authority

Purpose: It is a digital health claims platform that serves as a gateway for exchanging claims-related information among various stakeholders in the healthcare and health insurance ecosystem.

Significance: This will enhance efficiency and transparency in health claims processing.

What is the National Health Authority (NHA)?

Factly Compilation for the Month of November (Third Week) 2023

Specifications	Details
Established in	2019
Nodal Ministry	It is an attached office of the Ministry of Health and Family Welfare with full functional autonomy.
Replaced	National Health Agency
Mandate	1)Responsible for implementing Ayushman Bharat Pradhan Mantri Jan Arogya Yojana 2)To oversee the design, technological infrastructure and implementation of the “National Digital Health Mission”
Governing Board chairman	Union Minister for Health and Family Welfare.

National Technical Textiles Mission: India targets \$40-bn in technical textiles

Why in the News?

According to the Ministry of Textiles’ Joint Secretary, India’s market for technical textiles could grow from the current \$23 billion to \$40 billion by 2030.

What are Technical Textiles?

Technical textiles are defined as textile materials and products used primarily for their technical performance and functional properties rather than their aesthetic or decorative characteristics.

Some examples of day-to-day use of technical textile products

Sr. No.	Applications	Products
1	Kitchen	Wipes, Floor Mops, Tea Bags, Coffee Filters
2	Clothe	Collar / Cuff Interlinings, Shoulder Pads, Waddings in Jackets
3	Shoe	Lining, Insoles, Toe Stiffners, Synthetic Uppers
4	Car	Carpets, Roof-liners, Insulations, Air Filters
5	Civil Engineering	Geotextiles in Roads, Railway Tracks, Soil Erosion, Slope Stabilisation
6	Furnishing	Carpets, Vertical Blinds, Wall Coverings
7	Factory	Dust Collection Filter Bags, Liquid Filtration, Clean Air

Source: Ministry of Textiles

What is the National Technical Textiles Mission?

Specifications	Details
Nodal Ministry	Ministry of Textiles
Aim	To position the country as a global leader in Technical Textiles

Factly Compilation for the Month of November (Third Week) 2023

Duration	2020-21 till 2026
Components	<ol style="list-style-type: none">1) Research, development and innovation of technical textiles.2) Promotion and development of the market for technical textiles.3) Export promotion of technical textiles.4) Education, training and skill development.
Implementation	<ol style="list-style-type: none">1) Mission Steering Group: It is chaired by the Union Minister of Textiles. It is empowered to approve all financial norms in respect of all schemes, components and programmes of the mission.2) It will also approve all scientific and technological research projects under the mission.
	<ol style="list-style-type: none">2) Empowered Programme Committee: It is chaired by the Secretary, Ministry of Textiles. It will approve all projects (except research projects) within the financial limit of each programme as approved by the Mission Steering Group.
	<ol style="list-style-type: none">3) Committee on Technical Textiles on Research, Development & Innovation: It is chaired by Member (S&T), Niti Aayog. It will identify and recommend all research projects related to strategic sectors such as defence, paramilitary, security, space, and atomic energy to the Mission Steering Group for approval.

AGNI Initiative to Promote Innovations by Ayurveda Practitioners

Why in the News?

The Central Council for Research in Ayurveda Sciences (CCRAS) has launched the Ayurveda Gyan Naipunya Initiative (AGNI).

What is the AGNI Initiative?

Specifications	Details
Launched by	Central Council for Research in Ayurveda Sciences (CCRAS), Ministry of AYUSH.

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Objectives	<p>1) To promote the culture of reporting evidence-based practices among the Ayurveda Practitioners.</p> <p>2) To provide a platform to the Ayurveda practitioners for reporting their innovative practices & experiences in various disease conditions.</p> <p>3) To document successful treatments for various diseases for the purpose of education and academics.</p> <p>4) To identify interested practitioners for collaboration and capacity building through training in research methods and clinical practices.</p> <p>5) To undertake research for mainstreaming pragmatic practices through scientific validation and evidence-based appraisal.</p>
Collaboration with different Institutions	<p>CCRAS will document and publish reported medical practices and therapeutic regimens in consultation with NCISM (National Commission for Indian System of Medicine) for educational and academic purposes.</p>

What is the Central Council for Research in Ayurveda Sciences (CCRAS)?

Specifications	Details
What is it	An autonomous body under the Ministry of AYUSH.
Aim	To formulate, coordinate, develop and promote research on scientific lines in Ayurveda and Sowa-Rigpa systems of medicine.
Other Initiatives of CCRAS	<p>Studentship Program for Ayurveda Research Ken (SPARK): It aims to support the research ideas of young undergraduate students enrolled in Ayurveda colleges across India.</p> <p>Scheme for Training in Ayurveda Research for PG Scholars (PG-STAR): It aims to promote good quality research in Ayurveda students pursuing post-graduation courses.</p> <p>Scope for Mainstreaming Ayurveda Research in Teaching Professionals (SMART): It aims to boost scientific research through Ayurveda colleges and hospitals.</p>

Subject: REPORTS & INDICES

World Governance Index: Need for World Bank's governance indicators to be transparent

Why in the News?

The Chief Economic Advisor has raised concerns over the use of Worldwide Governance Index Indicators in ratings assessment by credit ratings agencies. He has called for the World Governance Index to be more transparent and less subjective.

What is the World Governance Index?

Specifications	Details
Published by	World Bank
Purpose	It provides a ranking of 215 countries territories based on six dimensions of governance: 1)Voice and Accountability 2)Political Stability and Absence of Violence 3)Government Effectiveness 4)Regulatory Quality 5)Rule of Law 6)Control of Corruption
Sources	WGI aggregates information from over 30 data sources provided by various institutions like survey institutes, think tanks, NGOs, international organizations, and private sector firms. Examples include the Economist Intelligence Unit (EIU), Varieties of Democracy (V-Dem) Project and Freedom House.
Significance	WGI plays a key role in deciding the sovereign credit rating of any country.

India's heft in MSCIEM index: what it means

Why in the News?

India's weightage on the MSCI Emerging Markets (EM) index will rise after inclusion of nine Indian stocks.

What is MSCI Emerging Markets Index?

Factly Compilation for the Month of November (Third Week) 2023

Aspect	Details
What is it?	It is a NYSE (New York Stock Exchange) listed global index that is designed to track the financial performance of key companies in fast-growing nations.
Launched by	MSCI Inc., formerly Morgan Stanley Capital International in 1988.
Significance	<ol style="list-style-type: none"> 1. Its stock indices are widely tracked by global asset managers, banks, insurance companies, corporates and various other entities to allocate funds across global markets. 2. The MSCI Emerging Markets Index reflects the performance of large-cap and medium-cap companies in 25 nations. 3. It is also used by emerging market Exchange Traded Funds and mutual funds as a benchmark to measure their own performance.
How are stocks included?	<ol style="list-style-type: none"> 1. The stock weight on the EM index is based on free float market capitalization (capital available for trade in the stock market). 2. The higher the market capitalization, the higher the weight and the allocation by investors.



Source- Live mint

How India performed in the Index?

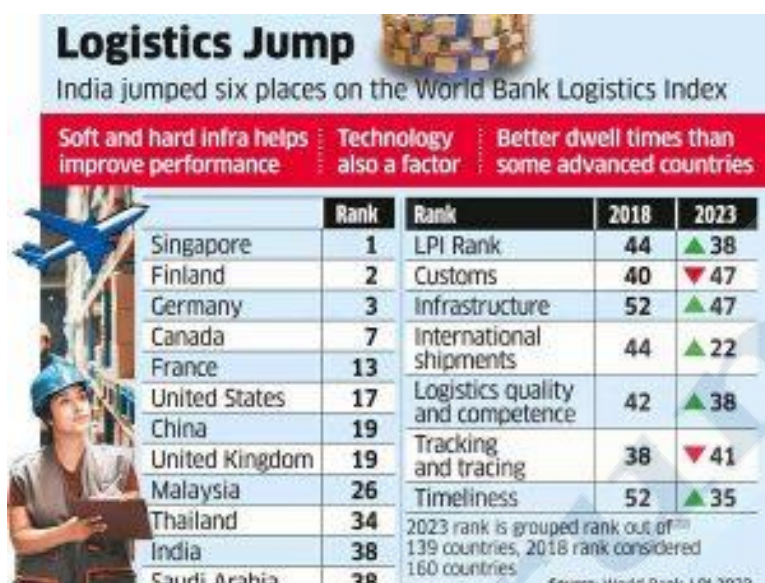
1. India **included in the index in 1994.**
2. After inclusion of nine Indian stocks, India's current representation in MSCI EM index will be reached to 131 stocks.
3. India has the **second-highest weightage in the index after China's.**

Logistics Performance Index (LPI): 11 Stakeholder Ministries/Departments meets on Measures Taken and Action Plan for Improving India's Logistics Performance Index (LPI) Ranking

Why in the News?

Several Ministries recently held discussions on measures taken and action plans needed for improving India's ranking in the World Bank's Logistics Performance Index (LPI).

What is the Logistics Performance Index (LPI)?



Source: Economic Times

Specifications	Details
Released by	World Bank
Aim	It is a tool created to help countries identify the challenges and opportunities they face in their performance on trade logistics and what they can do to improve their performance.
Parameters	<p>There are six parameters:</p> <ol style="list-style-type: none"> 1) Customs performance 2) Infrastructure quality 3) Ease of arranging shipments 4) Logistics services quality 5) Consignment tracking and tracing

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	6) Timeliness of shipments
Duration of release	It is a biennial report (once every 2 years) that started in 2010 with the exception of 2020 due to COVID-19 pandemic. A restructured index was released in 2023.
India's rank in LPI 2023	38 among 139 countries. This is a significant improvement from its previous ranking of 44th in 2018 and 54th in 2014.
India's Target	India's National Logistics Policy has fixed a target to take up India's ranking in top 25 by 2030.

What are the measures India is taking to improve its Logistics Performance Index (LPI) ranking?

- PM Gati Shakti initiative:** Launched in 2021, it is a national master plan for multimodal connectivity. It aims to reduce logistics costs and boost the economy by 2024-25.
- National Logistics Policy (NLP):** It was introduced in 2022 to solve transport issues, optimize manufacturing efficiency, and speed up last-mile delivery in the logistics sector.
- Land Port Management System (LPMS):** It was implemented by the Land Ports Authority of India (LPAI) to digitize operations and facilitate a secure electronic flow of information between all stakeholders at the Integrated check posts (ICPs). It has been successful in reducing the dwell time from 57 days to less than 24 hours.
– Note: Dwell time refers to the amount of time a ship or cargo spends at a port or terminal before being loaded or unloaded onto a vessel.
- Ministry of Railways:** It discussed railway initiatives including 100% electrification of railway tracks, increased CAPEX of INR 2.6 lakhs in FY24 and Eastern and Western dedicated freight corridors.
- Ministry of Ports:** It has taken several initiatives such as automation of weightbridges, improving scanning facilities at the ports and simplifying processes by creating Standard Operating Procedures (SoPS) across all the ports.

Global Talent Competitiveness Index 2023: India Slides Sharply, Worst Among the BRICS Group

Why in the News?

The Global Talent Competitiveness Index 2023 has been released.

What is the Global Talent Competitiveness Index?

Factly Compilation for the Month of November (Third Week) 2023

Figure 1
The GTCI 2023 model



Source: INSEAD

Specifications	Details
Published by	INSEAD, in collaboration with Descartes Institute for the Future.
Aim	To measure how countries and cities grow, attract and retain talent.
Coverage	134 countries
Parameters	The index is calculated based on two sub-indices: 1) Input framework: It measures countries' regulatory and business environments, as well as what they are doing to attract, grow and retain talent. 2) Output framework: It measures the quality of talent in a country.

What are the key rankings of Global Talent Competitiveness Index 2023?

Specifications	Details
Topped by	Switzerland, Singapore and the United States are the top three ranked countries.
India's rank	103 out of 134 countries. Note: India's rank was 83 ten years ago.
BRICS countries	China remained the leading member of the BRICS group at rank 40. India's performance is the worst amongst that of the BRICS countries.

What are the reasons for India's fall in GTCI 2023?

1. India's business sentiment declines affected talent attraction domestically and internationally. This impacted 'External Openness' and 'Internal Openness' rankings.
2. Challenges persist in aligning available skills with market demands. This resulted in lower rankings for 'Employability' and 'Vocational and Technical Skills'.

Subject: Art and Culture

Constantine Joseph Beschi (Veeramamunivar)

Why in the News?

Recently Emerald Publishers released the English translation of the first biography of Veeramamunivar (known as Constantine Joseph Beschi) in Tamil written by A. Muttusami Pillei.

Who is Constantine Joseph Beschi?



Source- The Hindu

1. Constantine Joseph Beschi, the **Italian Jesuit missionary and Tamil scholar**
2. He had also **maintained a close friendship with Chanda Sahib, the Nawab of the Carnatic.**
3. He had even **acted as his Dewan.**

What are the views of Muttusami Pillei on Constantine Joseph Beschi?

1. He was a **religious devotee and an Italian Jesuit missionary.**
2. **Office of Dewan**– By appointing him to the office, the Nawab of the Carnatic also gifted the Italian Jesuit four villages in Tiruchi district, which yielded a revenue of ₹12,000 a year.
3. He held the office of Dewan in Tiruchi till 1740.

4. He **abstained from the “use of flesh and fish”**.
5. He also **studied Sanskrit, Telugu, and Tamil** assiduously and became a master of these languages, especially Tamil.

Indian miniature painting

Why in the News?

Indian art historian and critic Brijinder Nath Goswamy, best known for his scholarship on Indian miniature painting tradition, passed away.

What was Goswamy’s contribution?

1. His contribution lies in revealing that painting styles were family-dependent rather than region-dependent.
2. He reconstructed family networks of renowned artists, such as Pandit Seu and his sons Nainsukh and Manaku.

What are Miniature Paintings?



Source- Wikipedia

What is it?	Miniature painting is an intricate form of art involving highly detailed paintings on a small scale.
Evolution	<ol style="list-style-type: none">1. The history of Indian miniature paintings tradition go back to the Buddhist Pala dynasty from 8th till 11th century.2. It flourished under Mughal empire in the early 1500s but declined during Aurangzeb reign.3. With the migration of artists, different schools of miniature painting emerged in Rajasthan, Himachal Pradesh, etc.

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<p>Techniques of miniature Paintings</p>	<p>Executed in the traditional tempera technique-</p> <ol style="list-style-type: none"> 1. The painting shouldn't be larger than 25 square inches. 2. The subject of the painting should be painted in not more than 1/6th of the actual size. 3. In these paintings there are very few human characters with visible front faces. Most of the human characters are seen with side profiles.
<p>Features</p>	<ol style="list-style-type: none"> 1. Big eyes, pointed nose and slim waist, The skin colours of human being are Brown and fair. 2. The colour of the hair and eyes is black. Women characters have long hair. Men and women wear the traditional Indian dress, slippers and shoes. Men wear turbans on their head. 3. Mostly Natural colours have been used in these paintings. Black, red, white, brown, blue, and yellow colours are used to decorate the paintings.

What are different schools of Indian Miniature Painting?

<p>Pala School of Art</p>	<ol style="list-style-type: none"> 1. Mostly palm leaf and paper were used. 2. The prominent painters were Dhimman and Vitapala.
<p>Apabhramsa School of Art</p>	<ol style="list-style-type: none"> 1. This school traces its origin to Gujarat and Mewar region in Rajasthan. 2. This school is divided in two phases- <ul style="list-style-type: none"> - Illustrations made on palm leaf - Illustrations made on paper 3. Features-fish shaped bulging eyes, a pointed nose and a double chin, animal and bird figurines in the paintings are represented as toys. 4. Most famous example -Kalpasutra and the Kalakacharya Katha from 15th century
<p>Miniature Art during Delhi Sultanate</p>	<ol style="list-style-type: none"> 1. Developed an Indo-Persian style of painting that drew heavily from schools in Iran and Jain paintings. 2. Features- Groups of people standing in rows and identical poses, narrow bands of decoration running across the width of the painting. 3. The manuscript called the Nimat Nama depicts scenes of food preparation. 4. Another style called Lodi Khuladar was also prevalent during this period.

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Mughal Era Miniature Painting	<ol style="list-style-type: none">1. The Mughal paintings are characterized by their subtleness and naturalism. They are considered unique because of the use of brilliant colors.2. Early Mughal painter- Bizzhad3. Akbar established 'tasvir khana'.4. Famous painters of this period include Daswanth, Basawan and Kesu.5. Prominent illustrated manuscripts during Akbar's reign are Tutinama, Hamzanama, Anvar-i-Suhaili and Gulistan of Sadi.
Rajput Paintings	<ol style="list-style-type: none">1. The Rajput paintings flourished under the patronage of the Hindu Rajput rulers of Rajputana and Punjab Himalayas during the period 1500 CE to the middle of the 19th century.2. Themes of Ramayana, the Mahabharata, Puranas, and Gita etc. was prominent.
Pahari school of Painting	<ol style="list-style-type: none">1. These paintings were largely done in miniature painting forms throughout the era of the 17th to 19th centuries2. Based on their regional diversity, Pahari paintings in India can be divided into two groups. Basohli and Kullu Style - Chaurapanchasika style Guler and Kangra Style - Calm colours and modification3. Nainsukh was a famous master of the mid-18th century4. The central theme of Pahari painting is depiction of eternal love of Hindu deities Radha and Krishna
Rajasthani School of Painting	<ol style="list-style-type: none">1. Rajasthani paintings are those works that have been executed in Rajputana, from Bikaner to the border of Gujarat and from Jodhpur to Gwalior and Ujjain.2. The themes of the paintings were mostly religious and love subjects, based on Lord Rama and Lord Krishna.3. Characteristic- Old outlines and brilliant colours.

Subject: GEOGRAPHY and PLACES IN NEWS

E prime layer: Surface Water Dives Deep and Transforms Earth's Core's Outer Layer

Why in the News?

Researchers from Arizona State University and an international team discovered the origin of the previously known E prime layer in the Earth's interior, which until now remained a mystery.

What is the E prime layer?

The E prime layer is a distinct layer formed at the outermost part of Earth's core. This layer is formed by surface water penetrating deep into the planet over billions of years.

Composition: It is a **hydrogen-rich and silica-depleted layer**.

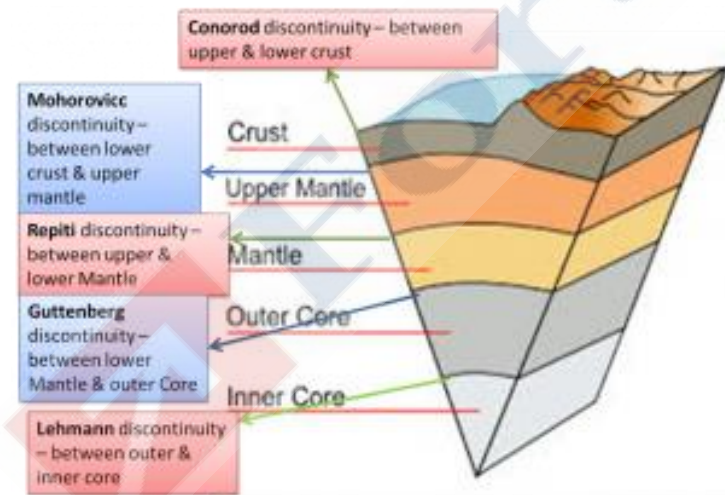
How is the E prime layer formed?

1. Over billions of years, surface water has been transported deep into the Earth by descending tectonic plates.
2. Upon reaching the core-mantle boundary about 1,800 miles below the surface, this water chemically reacts with core materials.
3. This reaction leads to the formation of a hydrogen-rich, silicon-depleted layer at the outer core, resembling a film-like structure. This is known as the E prime layer.
4. The reaction also generates silica crystals which rise and integrate into the mantle, impacting the overall composition.

What is the significance of this study?

1. These findings also have significant implications in understanding Earth's internal processes, heat generation and plate tectonics.
2. These findings point to a dynamic core-mantle interaction, suggesting substantial material exchange.
3. It also indicates a more extensive global water cycle than previously acknowledged.

What are the Various Layers in Earth's Interior?



Source: Slideshare

Discontinuities	Transition zone between
Conrad Discontinuity	Upper crust and the lower crust
Mohorovicic Discontinuity	Crust and Mantle.

Repetti Discontinuity	Outer mantle and Inner mantle.
Gutenberg Discontinuity	Mantle and Core.
Lehmann Discontinuity	Outer core and Inner core.

Subject: Miscellaneous

Igla-S Missile: Russia to supply Igla-S anti-aircraft missiles to India

Why in the News?

Russia has signed a deal to provide Igla-S anti-aircraft missiles to India and authorized the local production of Igla-S under license.

What is Igla-S?



Source: News18

Specifications	Details
What is it	Igla-S is a man-portable air defence system (MANPADS) that can be fired by an individual or crew to bring down an enemy aircraft.
Developed by	Russia
Features	It has the capability of bringing down low-flying aircraft. It can also identify and neutralize air targets such as cruise missiles and drones.
Comprises of	The missile comprises 9M342 missile, 9P522 launching mechanism, 9V866-2 mobile test station and 9F719-2 test set.
Range	500m to 6 km
Target Altitude	Upto 3.5 kms
Speed	400 meters per second
Significance	This will boost India's defence capabilities along Pakistan and China's borders.

Note: Russia is India's largest arms supplier. According to Stockholm International Peace Research Institute (SIPRI), Russia accounted for 45% of India's arms imports between 2018 and 2022 followed by France at 29% and United States at 11%.

Exercise MITRA SHAKTI: India-Sri Lanka Joint Military Exercise

Why in the News?

The Ninth Edition of Joint Military exercise “Exercise MITRA SHAKTI-2023” has started in Pune, India.

What is Exercise MITRA SHAKTI?

Specification	Details
Conducted between	India and Sri Lanka
Type	Military Exercise
Started in	2012
Conducted	Annually
Aim	To jointly rehearse sub-conventional operations under Chapter VII of the United Nations Charter which authorizes the UN Security Council to take enforcement measures including the use of military force, to address threats to international peace and security.
Other exercises between India and Sri Lanka	Exercise SLINEX: It is a bilateral naval exercise between the Indian and Sri Lankan Navy. It started in 2005. The 10th edition of the exercise was held in April 2023 in Colombo.

United Service Institution of India to organize Annual UN Forum 2023 on ‘International Humanitarian Law & Peacekeeping’ in New Delhi

Why in the News?

United Service Institution of India (USI) is organizing its Annual UN Forum 2023 on ‘International Humanitarian Law and Peacekeeping’ in New Delhi.

What is the Annual UN Forum?

Specifications	Details
Organized by	United Service Institution of India in collaboration with the International Committee of the Red Cross and the Centre for UN Peacekeeping Operations.
Purpose	To discuss the applicability and limitations of implementing International Humanitarian Law frameworks in UN peace operations through an interactive, multi-stakeholder approach.

What is United Service Institution of India (USI)?

Specifications	Details
What is it	It is a national security and defence services think tank
Established in	1870 (It is India's oldest think-tank)
Aim	To research and debate on national security and military affairs.
Based in	New Delhi
Significance	The studies and discussions conducted by USI enable deeper examination of national security issues and help in evidence-based policy making.

Exercise VAJRA PRAHAR: INDIA-USA JOINT EXERCISE

Why in the News?

The 14th Edition of the Exercise "VAJRA PRAHAR" has started at Umroi, Meghalaya.

What is Exercise VAJRA PRAHAR?

Specifications	Details
What is it	It is a joint exercise between Indian Army and US Army Special Forces.
Started in	2010
Aim	To share best practices and experiences in areas such as joint mission planning and operational tactics.
Significance	1) Evolved as a mechanism to exchange ideas and share best practices between the Special Forces of both the nations. 2) It is a platform to enhance interoperability and strengthen defense cooperation between two countries.
Other Exercises between India and US	1) Exercise Yudh Abhyas: It is a military exercise between India and the US. 2) Exercise Tiger Triumph: It is a tri-service military exercise between India and the US. 3) Exercise Cope India: It is a series of bilateral Air Force exercises between India and the United States.

Exercise AUSTRAHIND-23: Indian Army contingent departs for Australia

Why in the News?

The Indian Armed Forces contingent has departed to take part in the second edition of Joint Military Exercise AUSTRAHIND-23 being held in Perth, Australia.

What is Exercise AUSTRAHIND?

What is it	It is a joint military exercise between India and Australia.
Instituted in	2022 (The first edition was conducted in Mahajan, Rajasthan)
Conducted	Annually
Aim	To foster collaborative partnership and share best practices between the two sides.
Significance	The exercise will help promote exchange of ideas and jointly rehearse tactics, technique and procedures for conducting tactical operations.
Other Exercises between India and Australia	1) Exercise AUSINDEX: It is a biennial bilateral maritime exercise between the Indian Navy and Royal Australian Navy (RAN). The first edition of the exercise took place in 2015. 2) Exercise Pitch Black: It is a biennial multilateral air combat exercise hosted by the Royal Australian Air Force (RAAF) since 1981. The Indian Air Force had taken part in the exercise for the first time in 2018.