UPSC CURRENT AFFAIRS NOTES 01-03-2024

Regulatory Sandbox scheme

Recently, the Reserve Bank tweaked guidelines for the Regulatory Sandbox (RS) scheme.

It refers to live testing of new products or services in a controlled regulatory environment.

It acts as a "safe space" for business as the regulators may or may not permit certain relaxations for the limited purpose of testing.

It can provide a structured avenue for the regulator to engage with the ecosystem and to develop innovation-enabling or innovation-responsive regulations that facilitate delivery of relevant, low-cost financial products.

It is potentially an important tool which enables more dynamic, evidence-based regulatory environments which learn from, and evolve with, emerging technologies.

Objectives

It provides an environment to innovative technology-led entities for limited-scale testing of a new product or service that may or may not involve some relaxation in a regulatory requirement before a wider-scale launch.

The RS is, at its core, a formal regulatory programme for market participants to test new products, services or business models with customers in a live environment, subject to certain safeguards and oversight.

The proposed financial service to be launched under the RS should include new or emerging technology, or use of existing technology in an innovative way and should address a problem, or bring benefits to consumers.

To foster responsible innovation in financial services, promote efficiency and bring benefit to consumers.

The RBI had issued the 'Enabling Framework for Regulatory Sandbox' in August 2019, after wide ranging consultations with stakeholders.

The recently updated framework requires:

The sandbox entities to ensure compliance with provisions of the Digital Personal Data Protection Act, 2023.

The timelines of the various stages of the Regulatory Sandbox process have been revised from seven months to nine months

The target applicants for entry to the RS are fintech companies, including startups, banks, financial institutions, any other company, Limited Liability Partnership (LLP) and partnership firms, partnering with or providing support to financial services businesses.

SWAYAM Plus platform

Recently, the Union Minister of Education and Skill Development and Entrepreneurship launched the 'SWAYAM Plus' platform.

About SWAYAM Plus platform

It offers **courses developed collaboratively with the industry**.

This platform aims to enhance employability of both college students and lifelong learners.

It will offer programmes in sectors like Manufacturing, Energy, Computer Science and Engineering/IT/ITES, Management Studies, Healthcare, Hospitality and Tourism besides Indian Knowledge Systems.

Objectives

It primarily focuses on building an ecosystem for all stakeholders in professional and career development, including learners, course providers, industry, academia, and strategic partners.

It enables a mechanism that provides credit recognition for high-quality certifications and courses offered by the best industry and academia partners.

Reaching a large learner base by catering to learning across the country, with a focus on reaching learners from tiers 2 and 3 towns and rural areas.

It also envisions bringing in features such as access to mentorship, scholarships and job placements as value-added services in due course of time, thus building a digital ecosystem for learners to pursue upskilling and re-skilling at all levels, namely certificate, diploma or degree.

It features innovative elements such as multilingual content (available in 12 major Indian languages of the country), AI-enabled guidance, credit recognition, and pathways to employment.

These employability and professional development-focused programmes have been developed with industry players including L&T, Microsoft and CISCO.

The Indian Institute of Technology Madras (IIT Madras) will be operating this Platform.

Vikramaditya Vedic Clock

The Prime Minister recently inaugurated the Vikramaditya Vedic Clock, which is mounted on an 85-foot tower within Jantar Mantar in Ujjain.

About Vikramaditya Vedic Clock

It is the world's first 'Vedic Clock', designed to display time according to the ancient Indian traditional Panchang (time calculation system).

It has been positioned on an 85-foot tower within Jantar Mantar in Ujjain, Madhya Pradesh.

It also provides information on planetary positions, Muhurat, astrological calculations, and predictions.

In addition to this, it also indicates Indian Standard Time (IST) and Greenwich Mean Time (GMT).

The clock will calculate time from one sunrise to another.

The period between the two sunrises will be divided into 30 parts, whose one hour consists of 48 minutes, according to ISD.

The reading will start from 0:00 with the sunrise functions for 30 hours (an hour of 48 minutes).

It has been developed by Lucknow-based Sanstha Arohan, using digital interventions, enabling it to be connected to the internet and provide a wide range of features through a mobile app named after the clock.

Why Ujjain?

Ujjain's rich heritage in timekeeping dates back centuries, with the city playing a pivotal role in determining India's time zones and time difference.

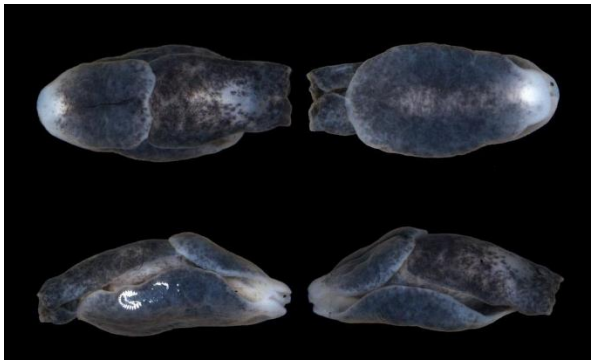
Ujjain is located at the precise point of interaction with zero meridian and Tropic of Cancer.

Before 82.5E longitude was adopted for IST, Ujjain (75.78E) was considered as Bharat’s time meridian.

The Vikrami Panchang and Vikram Samvat calendars are also released from Ujjain, which makes Ujjain the ideal location to have the Vaidik Clock.

Greenwich Mean Time or GMT is the mean (average) solar time at the Greenwich Meridian or Prime Meridian, 0 degrees longitude. The time displayed by the Shepherd Gate Clock at the Royal Observatory in Greenwich, London, is always GMT. When the sun is at its highest point exactly above the Prime Meridian at the Royal Observatory, it is 12:00 noon at Greenwich.

Melanochlamys Droupadi



Researchers of the Zoological Survey of India (ZSI) recently discovered a new species of head-shield **sea slug** from Odisha and the West Bengal coast named 'Melanochlamys Droupadi'

About Melanochlamys Droupadi

It is a new marine species of head-shield sea slug with ruby red spot.

This species belonging to Melanochlamys genus was discovered from Digha of West Bengal coast and Udaipur of Odisha coast.

Features:

It is a small invertebrate with a maximum length of up to 7 mm.

Habitat: It inhabits wet and soft sandy beaches.

It is brownish black in colour with a ruby red spot in the hind end.

This particular species of sea slug is hermaphrodite (having both male and female reproductive parts); however, they need another sea slug for reproduction.

It has a shell inside the body. It has a posterior, accounting for 61 percent of its body length.

It continuously secretes transparent mucus to form a sheath that prevents sand grains from entering parapodial space.

It crawls beneath smooth sand to form a moving capsule where the body is rarely visible, leaving behind a trail like a turtle.

What are Sea Slugs?

Sea slugs are a group of molluscs that live primarily in marine habitats and are slug-like.

They can be found from the shallow intertidal to the deep sea and from the polar regions to the tropics.

The sea slugs are rapid hunters and feed upon mobile prey such as other shelled and unshelled sea slugs, roundworms, marine worms, and small fishes.

So far, 18 species have been discovered across the globe.

They are distributed in temperate regions of the Indo-Pacific Oceanic realm, but three species are truly tropically distributed, Melanochlamys papillata from the

Gulf of Thailand, Melanochlamys bengalensis from West Bengal and Odisha coast and the present species.

Very Short-Range Air Defence System (VSHORADS)

The Defence Research and Development Organisation (DRDO) successfully conducted two flight tests of the Very Short-Range Air Defence System (VSHORADS) missile.

About Very **Short-Range Air Defence System (VSHORADS)**

VSHORADS is a fourth-generation Man Portable Air Defence System (MANPAD) specially designed to counter low-altitude aerial threats over short distances.

These are short-range, lightweight, and portable surface-to-air missiles that can be fired by individuals or small groups.

It has been designed and developed indigenously by DRDO's Research Centre Imarat (RCI), Hyderabad, in collaboration with other DRDO laboratories and Indian industry partners.

Features:

It is designed to provide short-range air defence capabilities to protect ground forces and critical assets from aerial threats, including helicopters and low-flying aircraft.

It has a range of up to 6-km.

The missile incorporates many novel technologies, including a Dual-band IIR Seeker, a miniaturised Reaction Control System, and integrated avionics.

It is propelled by a dual-thrust solid motor.

The missile and its launcher were designed by the DRDO to be portable, which enables their quick deployment over difficult terrain.

Juice jacking

Recently, the Reserve Bank of India (RBI) has issued a cautionary message to mobile phone users about juice jacking.

About Juice jacking

The term **"juice jacking"** was first coined in 2011 by investigative journalist Brian Krebs.

It is a form of cyberattack where a public USB charging port is tampered with and infected using hardware and software changes to steal data or install malware on devices connected to it.

The attack is used by hackers to steal users' passwords, credit card information, addresses, and other sensitive data stored on the targeted device.

This type of attack has been a growing concern, with incidents reported in various public spaces such as airports, hotels, and shopping centres.

RBI emphasised the importance of protecting personal and financial data while using mobile devices.

How to prevent such attacks?

To protect themselves from juice jacking and other cyber threats, mobile phone users have to use their personal chargers and avoid connecting their devices to public USB ports.

Additionally, using a virtual private network (VPN) and ensuring that devices have the latest security updates installed can help mitigate the risk of cyberattacks.

BioTRIG

A recent study has claimed that BioTRIG, a new waste management technology could help rural Indians.

About BioTRIG

It is a new waste management technology based on the pyrolysis system.

It works by sealing the waste inside an oxygen-free chamber and heating it above 400 degrees Celsius. Useful chemicals are produced in the process.

In the study, the researchers outlined that three products of pyrolysis bio-oil, syngas and biochar fertiliser could help rural Indians live healthier and greener lives.

Significance

The syngas and bio-oil facilitate heat and power the pyrolysis system in future cycles and surplus electricity is utilized to power local homes and businesses.

The clean-burning bio-oil to replace dirty cooking fuels in homes and using biochar to store carbon, while improving soil fertility.

Computer simulations showed that the BioTRIG system could also be effective in real-world applications.

It could help reduce greenhouse gas emissions from communities by nearly 350 kg of CO2-eq per capita per annum.

It could help rural Indians cut indoor air pollution, improve soil health, and generate clean power

CRITICAL AND STRATEGIC MINERALS

The Union Cabinet approved the amendment of Second Schedule to the Mines and Minerals (Development and Regulation) Act, 1957 ('MMDR Act') for specifying rate of royalty in respect of 12 critical and strategic minerals, viz., Beryllium, Cadmium, Cobalt, Gallium, Indium, Rhenium, Selenium, Tantalum, Tellurium, Titanium, Tungsten and Vanadium.

Critical minerals

Critical minerals are those minerals that are essential for economic development and national security.

A mineral is labelled as critical when the risk of supply shortage and associated impact on the economy is (relatively) higher than the other raw materials. The risk of supply shortage would ideally capture import dependence, recycling potential, and substitutability of the mineral in question.

Significance

Critical minerals are the foundation on which modern technology is built. From solar panels to semiconductors, wind turbines to advanced batteries for storage and transportation, the world needs critical minerals to build these products.

Simply put, there is no energy transition without critical minerals, which is why their supply chain resilience has become an increasing priority for major economies.

India's future economic prosperity will depend on how well we can use our vast energy and mineral resources to play to our strengths, and how well we can adapt to follow the global market shift towards zero emissions.

India's perspective

The Indian economy has undergone a transformative process of New Age reforms in the last decade. These diverse policies converge toward improving the economy's overall efficiency and realizing its growth potential.

The use of technology, in particular digital technology, underpins the reforms. The future global economy will be powered by technologies that depend on minerals such as lithium, graphite, cobalt, titanium and rare earth elements.

These are essential for the advancement of many sectors, including hightech electronics, telecommunications, transport, and defence.

They are also vital to power the global transition to a low-emission economy, and the renewable energy technologies that will be required to meet the 'Net Zero' commitments.

Geo -political situation and the supply chain

The evolving geo-political situation presents an opportunity for India to benefit from the diversification of global supply chains.

The last few years have exposed multinational firms and countries to unprecedented risks due to global trade tensions, pandemic-induced supply chain disruptions, and the conflict in Europe.

Firms were exposed to the risk of concentrating their production in a single country. Therefore, given the global policy uncertainty, multinational firms are gradually exploring strategies to diversify their production bases and supply chains.

The United Nations Conference on Trade and Development (UNCTAD), in one of its reports, mentions that 'reshoring, diversification, and regionalization will drive the restructuring of global value chains in the coming years'.

Critical Minerals in India

Rare Earth Elements (REEs): India possesses significant reserves of rare earth elements essential for high-tech industries such as electronics, renewable energy, and defence. **Monazite**, found in beach sands along the eastern and southern coasts, **is a primary source of REEs.**

Cobalt: With increasing demand for cobalt in lithium-ion batteries for electric vehicles and electronics, India is exploring opportunities to secure cobalt resources. While domestic reserves are limited, efforts are being made to diversify sources through international partnerships and investments.

Graphite: Graphite is indispensable for lithium-ion batteries, steelmaking, and lubricants. India has substantial graphite reserves, primarily in Madhya Pradesh, Jharkhand, and Odisha, making it a potential key player in the global graphite market.

Platinum Group Metals (PGMs): PGMs like **platinum, palladium, and rhodium** are critical for catalytic converters in automobiles, fuel cells, and jewelry. India relies heavily on imports for PGMs, prompting initiatives to explore domestic reserves and invest in recycling technologies.

Lithium: As the demand for lithium-ion batteries surges with the rise of electric vehicles and renewable energy storage, securing a stable supply of lithium is paramount. India is actively exploring lithium reserves in states like **Karnataka and Rajasthan** and fostering partnerships with lithium-rich countries.

Tantalum: Tantalum is essential for electronic components, particularly capacitors in smartphones and computers. While India doesn't have significant tantalum deposits, efforts are being made to ensure a sustainable supply chain through responsible sourcing practices.

Copper: Copper is fundamental for electrical wiring, electronics, and construction. India, being one of the largest consumers of copper globally, is focused on optimizing domestic production, recycling, and diversifying import sources.

India's challenges in this situation

With enabling policy frameworks, India presents itself as a credible destination for capital diversifying out of other countries.

To build competitive value chains in India, the discovery of mineral wealth and identifying areas of its potential by use of advanced technologies is essential.

Identification of critical minerals will help the country to plan for the acquisition and preservation of such mineral assets taking into account the long term need of the country.

This will also in turn reduce the import dependency as India is 100% import dependent for certain elements.

37th AFRICAN UNION SUMMIT

Context: African leaders at the 37th African Union Summit stressed the need for changes to the global financial system to better address the specific needs of African countries, particularly regarding climate change and development.

The 37th African Union (AU) Summit concluded with a strong emphasis on the need for reform in the global financial system to address the pressing issues of climate change and development in African countries.

Launch of Alliance of African Multilateral Financial Institutions, 'Africa Club'

The 'Africa Club' was established, comprising African-owned and controlled multilateral financial institutions.

Its objective is to align financial functions with Sustainable Development Goals (SDGs) and the AU's Agenda 2063, introduce innovative financial instruments, and foster collaboration to address African countries' specific needs.

Establishing African Union Financial Institutions

Leaders reiterated the need for establishing an African Monetary Union through the creation of three AU financial institutions: the African Central Bank, the African Monetary Fund, and the African Investment Bank.

A proposal was made to assess the feasibility of creating a Pan-African Stock Exchange, although the creation of these institutions has faced challenges in the past.

African Leaders' Demands for Financial System Reforms

Leaders outlined priorities for addressing structural imbalances in the global financial architecture, including:

Creating solutions to the debt crisis.

Increasing grant and concessional money to Africa.

Re-channelling Special Drawing Rights (SDR) issued by the International Monetary Fund (IMF) to African financial institutions.

Increasing African representation and power in global decision-making bodies.

Committing to an ambitious green growth agenda for Africa.

Presidential Dialogue on Africa’s Agenda for Global Financial Architecture Reform

Heads of state discussed strategies to address Africa's financial needs, emphasizing the necessity to triple concessional resources from the IMF and World Bank to African development banks.

Advocated for re-channeling IMF SDRs to multilateral development banks for financing climate action and including middle-income countries in the G20 Common Framework for debt restructuring.