Career Launcher UPSC CSAT

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Contents

1. Crimea matters to Russia

- The Crimean peninsula had been "handed to" Vladimir Putin by Barack Obama, but now, "Crimea will stay with Russia".
- Trump pressed Ukraine to accept a peace deal under which the US would reportedly recognise Crimea — which Russia seized in 2014 — as Russian territory.
- Formally accepting Crimea as part of Russia would reverse a major American foreign policy position.
- Experts have pointed out that while it may be acceptable — even reasonable under the circumstances — to concede an indefinite illegal occupation of Crimea, it is quite another thing to officially condone a change of Ukraine's national borders by force.

The importance of Crimea

Geography and Strategic Value of Crimea

- Geography plays a crucial role in determining the strategic importance of a place, and this is especially true in the case of Crimea.
- Crimea's strategic significance is not only rooted in its own geographical features but also in its relationship to the broader geography of the Russian Federation.
- Its location on the Black Sea makes it a vital maritime asset, crucial for Russia's military and economic interests.

Russia's Historic Quest for Warm Water Ports

- Russia possesses a vast coastline that stretches over 37,000 kilometers.
- However, a significant portion of this lies north of the Arctic Circle, where extreme cold and ice severely limit the usability of its ports during winter months.
- Consequently, Russia's foreign policy for centuries has been deeply influenced by the need to gain access to warm water ports — harbors that remain ice-free and operational year-round.

The Black Sea: Russia's Gateway to Global Waters

- Among the few warm water marine features available to Russia, the Black Sea stands out as the most significant.
- It offers direct access to the Mediterranean Sea through the Turkish-controlled Bosphorus and Dardanelles straits, which in turn link Russia to key regions such as southern Europe, Africa, and West Asia.
- This strategic corridor has long been recognized by Russian policymakers.
- As early as 1913, Russian Foreign Minister Sergey Sazonov underscored the vulnerability of Russia's southern economic development to foreign control of the straits.
- His warning to Tsar Nicholas II highlighted the geopolitical risks involved in losing access to these maritime chokepoints.
- Since the late 18th century, Russia has deployed its Black Sea Fleet to ensure its naval presence and protect its access to the Mediterranean, affirming the region's long-standing military and economic importance.

Sevastopol: The Crown Jewel of the Black Sea

- Within the Black Sea region, the port city of Sevastopol, located in Crimea, holds unique strategic value.
- Unlike other Russian ports in the area, such as Sochi and Novorossiysk, which are shallow and less suitable for large naval operations, Sevastopol offers deep water harbor facilities, making it ideal as the base for Russia's Black Sea Fleet.
- Following the collapse of the Soviet Union, the control of Sevastopol became a major point of contention between Russia and the newly independent Ukraine.
- In 1997, the Kharkiv Pact attempted to resolve tensions by granting Crimea to Ukraine while allowing Russia to lease Sevastopol until 2017.
- This lease was later extended to 2042 in 2010. However, Russia unilaterally withdrew from the agreement in 2014, following its annexation of Crimea.

Context in current war

- In 2014, a significant geopolitical shift occurred in Ukraine when a pro-Western movement, known as the Maidan Revolution, ousted President Viktor Yanukovych, widely seen as a pro-Russian leader.
- Facing mounting pressure and unrest, Yanukovych fled Ukraine on February 22, 2014.
- In the immediate aftermath, Russian forces swiftly took control of strategic sites in Crimea.
- By mid-March, after Crimean authorities declared independence and requested to join Russia, the peninsula was formally annexed by Moscow, a move rooted in critical strategic and security considerations.
- **First**, Russia was determined to secure control over Sevastopol, a key port and naval base on the Black Sea.
- The 2010 lease renewal allowing Russia to station its fleet there had become deeply unpopular among the new Ukrainian leadership and broader public.
- The Kremlin feared that the new regime in Kyiv might revoke the lease and oust Russia from this vital base.
- Acting quickly, Russia ensured it did not lose this geostrategic foothold before Ukraine's new government could consolidate power.

- **Second**, the newly formed pro-Western government in Ukraine was expected to pursue NATO membership, following the path of other former Soviet bloc countries like Romania and Bulgaria.
- From Russia's perspective, Ukraine's NATO accession would represent a direct threat, potentially surrounding Russia with hostile forces and eroding its influence in the Black Sea — once considered a "Soviet lake."
- Controlling Crimea would offer Russia not only a defensive buffer but also a launchpad for any future military operations in Ukraine, which eventually materialized with the full-scale invasion in February 2022.
- Another key factor behind Russia's actions was Crimea's dependence on water.
- The arid peninsula had relied heavily on the 400-kilometre North Crimean Canal, constructed during the Soviet era, which transported water from the Dnieper River in mainland Ukraine.
- When Crimea was annexed in 2014, Ukraine blocked the canal, cutting off up to 85% of the region's water supply. This created a long-term vulnerability for Russia's control of Crimea.
- Just two days into the 2022 invasion, Russian forces destroyed the dam obstructing the canal, aiming to restore water flow.
- To secure lasting control of the water supply, Russia sought to dominate the Kherson region, where the canal originates.
- While the city of Kherson remains under Ukrainian control, Russia holds significant territory east of the Dnieper, effectively controlling the North Crimean Canal's future.

QUESTIONS

1. Which of the following actions by Argentine President Javier Milei most directly contributed to his selection as the 2025 Genesis Prize laureate?

A. Launching economic reforms to stabilize Argentina's currency

B. Declaring Judaism the official religion of Argentina

C. Designating Hamas and Hezbollah as terrorist organizations

D. Hosting the World Jewish Congress in Buenos Aires

2. What best explains the strategic mission behind the establishment of the Genesis Prize, based on its founding vision?

A. To celebrate global Jewish excellence and strengthen bonds between Israel and the Diaspora

B. To provide financial aid to Israeli start-ups led by Jewish entrepreneurs

C. To commemorate the Holocaust through awarding Jewish survivors

D. To support religious conversion programs for Jews around the world

3. What distinguishes Javier Milei's Genesis Prize win from previous laureates such as Barbra Streisand or Michael Bloomberg?

A. He is the first non-Jewish recipient awarded solely for political support of Israel and Jewish values

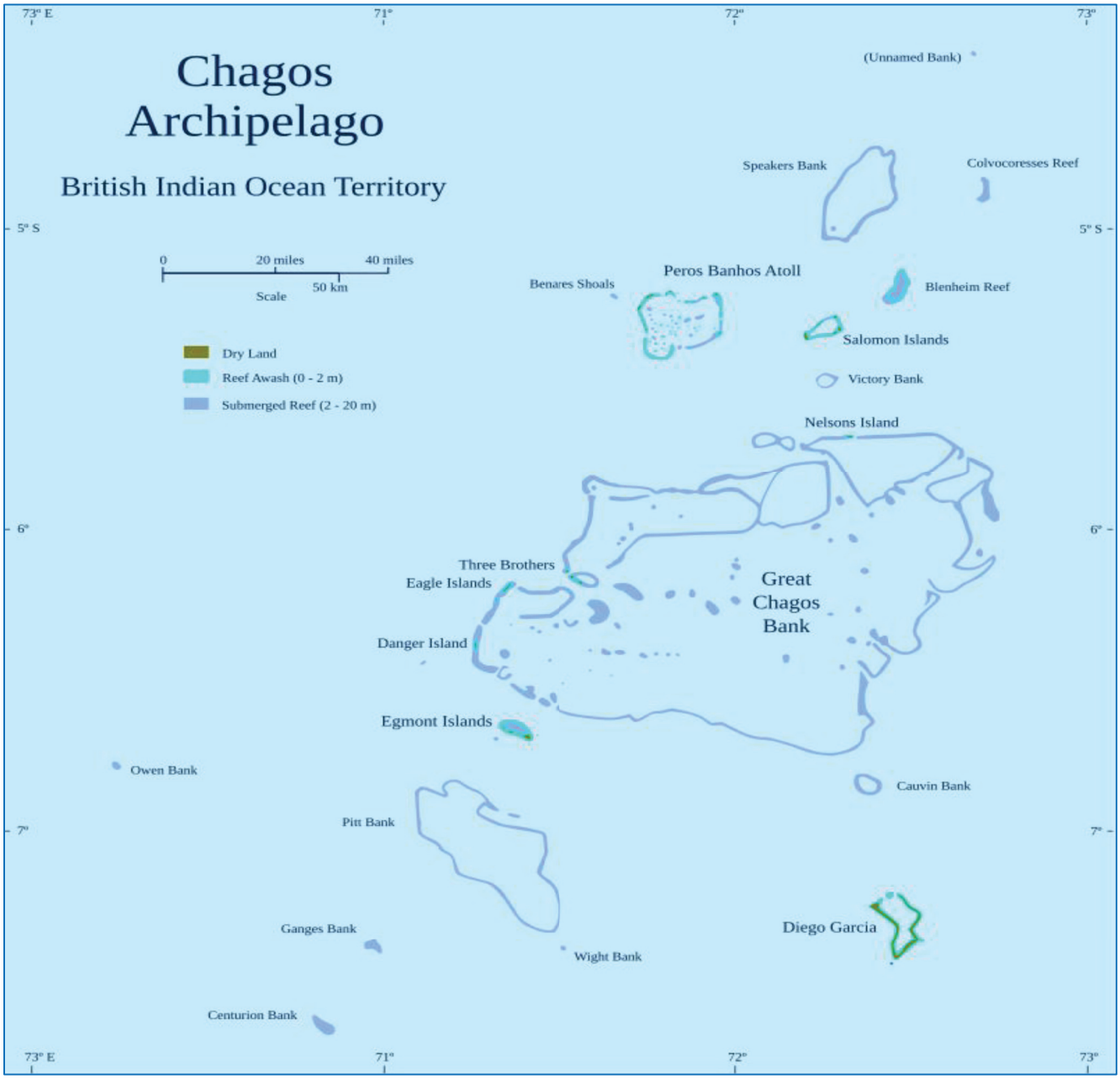
B. He is the only laureate to decline the monetary component of the award

C. He received the prize for contributions in science and technology

D. He was awarded despite opposition from the Genesis Prize Foundation

2. UK hands over Chagos Islands to Mauritius

- UK Prime Minister Keir Starmer signed a deal transferring sovereignty of the Chagos Islands to Mauritius, including the key Diego Garcia military base.
- The base, which plays a central role in UK-US defence operations in the Indian Ocean, will now be leased from Mauritius under a new 99-year lease.



Important Points:

- Under the deal, the UK will pay Mauritius an average of £101 million ($129m) per year — amounting to a total of £3.4 billion ($4.35 billion) over the course of the lease.

- Starmer also claimed the arrangement would cost less than operating an aircraft carrier annually.
- The US, which co-operates the Diego Garcia base with the UK, will shoulder the base's operational costs — which Starmer said exceed the UK's financial contribution.
- US President Donald Trump voiced his support for the deal in February following a meeting with Starmer in Washington.

Chagos Archipelago

- The Chagos archipelago comprises more than 60 low-lying islands in the Indian Ocean roughly 1,600 km to the northeast of the main island of Mauritius.
- Chagos has a land area of only 56.1 sq km, with Diego Garcia alone spread over 32.5 sq km — which is about the same as the land area of Lakshadweep.
- Including the lagoons within its atolls, however, Chagos has a total area of more than 15,000 sq km.
- The Great Chagos Bank, spread over 12,642 sq km, is the world's largest atoll structure.
- The Chagos islands remained uninhabited until the late 18th century, when the French brought in enslaved laborers from Africa and India to work on newly established coconut plantations.
- In 1814, under the Treaty of Paris, France ceded Mauritius—including the Chagos Archipelago—to the British.
- In 1965, the UK constituted the British Indian Ocean Territory (BIOT), of which the Chagos Islands were a central part.
- The BIOT was meant to provide the British (and by extension their Cold War allies, the Americans) with an overseas base in the Indian Ocean.
- Chagos was attached to Mauritius, another British colony in the Indian Ocean, for administrative purposes.
- But when Mauritius gained independence in 1968, Chagos remained with Britain.
- The UK government gave the newly-independent country a grant of 3 million pounds over the "detachment" of the Chagos archipelago.

Diego Garcia

- Diego Garcia is the largest island in the Chagos Archipelago, located in the Indian Ocean.
- In 1966, Britain signed an agreement with the US which made the BIOT available for the two countries' defence needs.
- Land was acquired in 1967, and four years later, the plantation on Diego Garcia was shut down.
- Diego Garcia became a fully operational military base in 1986.
- It has played a pivotal role in military operations, including US-UK strikes on Houthi targets in Yemen (2024–2025), humanitarian missions to Gaza, and earlier, bombing campaigns against the Taliban and al-Qaeda in Afghanistan in 2001.
- "Diego Garcia is the site of a joint U.S.-UK military facility that plays a vital role in national, regional, and global security.
- It enables the United States to support operations that demonstrate our shared commitment to regional stability, provide rapid response to crises, and counter some of the most challenging security threats we face." – Former U.S. President Joe Biden said this in October 2024.
- Notably, Diego Garcia is a coral atoll and southernmost member of the Chagos Archipelago. It is located 7 degrees south of the equator.

Major Military Base:

United States:

- **Fort Bragg (**North Carolina) – One of the largest military bases in the world, primarily housing the U.S. Army's airborne forces, including the 82nd Airborne Division.
- Camp Pendleton (California) – A major Marine Corps base located along the Pacific coast, known for amphibious operations.
- Naval Station Norfolk (Virginia) – The largest naval base in the world, serving as the home port for U.S. Navy ships and submarines.
- Joint Base Lewis-McChord (Washington) – A combined Army and Air Force base, known for its rapid deployment capability.
- Barksdale Air Force Base (Louisiana) – Home to the U.S. Air Force's Global Strike Command, which oversees strategic bomber and intercontinental ballistic missile operations.
- Guantanamo Bay **(Cuba)** – A U.S. military base known for housing the controversial detention facility.

Russia:

- **Khmeimim Air Base (Syria)** – A key Russian base used in support of operations in Syria, particularly during the Syrian Civil War.
- **Severomorsk (Russia)** – A significant naval base in the Russian Arctic, home to the Northern Fleet.
- **Ryazan Air Base (Russia)** – A major Russian airbase, known for housing long-range bombers.
- **Alakurtti (Russia)** – A base located near the Finnish border that serves as a strategic point for Russian air defense and military activity in the Arctic.

China:

- **Liaoning Province Naval Base** – China's primary naval base for the East Sea Fleet, located on the northeastern coast.
- **Shenyang Military Region (China**) – A key military command and base, overseeing much of China's northeastern defense perimeter.
- **Hainan Island Base** – A Chinese military base that includes a large naval and air force presence, located strategically in the South China Sea.

United Kingdom:

- **RAF Lakenheath (England)** – A major base for U.S. Air Force units in Europe, it hosts F-15 fighter jets.
- **HMNB Clyde (Scotland)** – A key base for the UK's submarine fleet, including nuclear submarines.
- **Camp Bastion (Afghanistan**) – The largest British military base in Afghanistan during the war, it was used for operations in Helmand province.

Germany:

- **Ramstein Air Base (Germany)** – The headquarters of the U.S. Air Forces in Europe, playing a critical role in NATO operations.
- **Grafenwoehr Training Area (Germany)** – A major U.S. Army training base, especially for heavy combat and tank warfare.
- **Wiesbaden Army Airfield (Germany)** – Serves as a U.S. Army command post and logistical hub.

France:

- **French Guiana Space Centre** – A launch site for European space missions, but also serves as a military base for French forces.

- **Barkhane Operation Base (Mali)** – A French-led counterterrorism operation base in Africa, especially for Sahel region stability.

Middle East:

- **Al Udeid Air Base (Qatar)** – A key U.S. Air Force base in the region, crucial for operations in the Middle East.
- **Bahrain Naval Base (Bahrain)** – A strategic U.S. naval base in the Persian Gulf, supporting operations in the region.
- **Ali Al Salem Air Base (Kuwait)** – Used by the U.S. military for operations in the region, especially related to the Iraq and Afghanistan conflicts.

QUESTIONS

4. Which of the following best explains General Waker-Uz-Zaman's opposition to the Rakhine Corridor proposal?
   A. It violates international humanitarian law by forcibly returning Rohingya refugees to Myanmar
   B. It risks undermining Bangladesh's sovereignty by creating a foreign-monitored zone on its periphery
   C. It benefits only the Myanmar junta, excluding Bangladesh from regional development projects
   D. It encourages illegal immigration into Bangladesh from conflict zones in Myanmar
5. Which of the following factors most complicates India's stance on the proposed Rakhine Corridor?
   A. Its historic role in the 2017 Rohingya crisis
   B. The corridor's potential to increase Western investment in India's northeast
   C. Possible growth of Chinese strategic assets near India's eastern border
   D. India's official recognition of the Rohingya as citizens of Myanmar
6. Why is the United States supportive of the Rakhine Corridor?
   A. It aims to enforce ICJ rulings on genocide against Myanmar
   B. It provides a route for direct military intervention in Myanmar
   C. It is a humanitarian gesture to resettle Rohingyas in the U.S.
   D. It views the corridor as a means to expand influence and counter China in the Bay of Bengal

3. Argentina's President Javier Milei to receive $1M Genesis Prize in Israel

- Argentine President Javier Milei is scheduled to visit Israel, where he will receive the prestigious Genesis Prize during a ceremony at the Israeli Knesset on June 11.
- The $1 million prize, often dubbed the "Jewish Nobel," was awarded to Milei in January 2025 in recognition of his strong support for Israel and commitment to combating antisemitism.
- Initially set for March, his visit was postponed and is now confirmed for June.

- Milei, a self-declared admirer of Jewish values and a vocal supporter of Israel, has taken several significant diplomatic steps that contributed to his recognition.
- Under his leadership, Argentina has reversed its long-standing pattern of anti-Israel voting at the United Nations, officially designated Hamas and Hezbollah as terrorist organizations, and reopened investigations into the 1990s bombings targeting Jewish and Israeli sites in Argentina.
- These bombings, including the 1992 Israeli embassy attack and the 1994 AMIA Jewish community center bombing, remain painful events in Argentina's history.
- The Genesis Prize Foundation highlighted Milei's bold foreign policy shifts and moral clarity as central to their decision.
- In a gesture of goodwill, Milei has pledged to donate the entire $1 million award to launch an initiative aimed at strengthening diplomatic ties between Israel and Latin American nations and fighting antisemitism in the region.
- Although Milei has promised to move Argentina's embassy from Tel Aviv to Jerusalem—aligning Argentina with a small group of nations including the United States that recognize Jerusalem as Israel's capital—this move is not expected during his upcoming visit.
- Past Genesis Prize laureates include a range of influential figures such as Michael Bloomberg, Barbra Streisand, Steven Spielberg, Robert Kraft, and Natan Sharansky, all recognized for their professional achievements and contributions to Jewish values or causes.
- Milei's visit underscores a significant shift in Argentina-Israel relations and highlights a broader effort to reshape Latin America's engagement with Israel.

Genesis Prize

- The Genesis Prize, often dubbed the "Jewish Nobel Prize," is an annual $1 million award established in 2012 to honor Jewish individuals who have achieved significant professional success and demonstrated a commitment to Jewish values and the Jewish community.

- The prize was founded by Russian-Jewish philanthropists Mikhail Fridman, Pyotr Aven, German Khan, Stan Polovets, and Alexander Knaster, with a $100 million endowment.
- It is administered by the Genesis Prize Foundation in partnership with the Israeli Prime Minister's Office and the Jewish Agency for Israel.

Purpose and Mission

The Genesis Prize aims to:

- Foster Jewish identity
- Inspire Jewish pride
- Strengthen the bond between Israel and the Diaspora
- It celebrates Jewish talent and achievement, honoring individuals for their accomplishments and commitment to Jewish values, inspiring Jews to connect to their heritage and to Israel.

Recent Laureates

- The Genesis Prize has recognized a diverse array of individuals for their contributions to various fields:
    - **2025:** Javier Milei, President of Argentina, for his unequivocal support of Israel during challenging times. He announced the relocation of Argentina's embassy to Jerusalem and pledged to combat antisemitism. Milei donated the $1 million prize to initiatives fighting antisemitism.
    - **2024:** Barbra Streisand, in recognition of her lifelong pursuit of social justice. She donated the prize money to nonprofit organizations working in women's health, climate change, voter education, and truth in the public sphere.
    - **2023:** Ukrainian Jewish activists and NGOs supporting Ukraine. The prize was awarded to organizations aiding those affected by the conflict.
    - **2022:** Albert Bourla, CEO of Pfizer, for his leadership during the COVID-19 pandemic. He donated the prize to initiatives combating the pandemic.
    - **2021:** Steven Spielberg, filmmaker, for his contributions to cinema and efforts to preserve the memory of the Holocaust. A posthumous Genesis Lifetime Achievement Award was also presented to Rabbi Lord Jonathan Sacks.
    - **2020:** Natan Sharansky, former Soviet dissident and human rights advocate. He donated the prize money to fund innovative solutions to the COVID-19 pandemic.
    - **2019:** Robert Kraft, owner of the New England Patriots, for his philanthropy and commitment to combating antisemitism. The prize money was donated to initiatives that combat antisemitism and prejudice.
    - **2018:** Natalie Portman, actress and social activist, for her commitment to social causes and deep connection to her Jewish and Israeli roots. She declined to attend the award ceremony in Israel due to political reasons.
    - **2017:** Anish Kapoor, sculptor, for his influence in contemporary art and advocacy for refugees.
    - **2016:** Itzhak Perlman, violinist, for his musical achievements and humanitarian work.
    - **2015:** Michael Douglas, actor, for his advocacy in human rights and nuclear disarmament.
    - **2014:** Michael Bloomberg, former Mayor of New York City, for his public service and philanthropic efforts.

Selection Process

- Laureates are chosen by a Selection Committee comprising leaders and supporters of Jewish causes.

- The process includes an annual public nomination and voting system, allowing individuals connected to the Jewish world to participate.

Impact and Philanthropy

- Since its inception, the Genesis Prize has leveraged the $1 million award into philanthropic initiatives totaling more than $50 million, supporting over 230 nonprofit programs in 31 countries.
- These initiatives address issues such as social entrepreneurship, women's equality, combating antisemitism, and humanitarian aid.

Argentina

- Argentina stands out in the world for a range of unique features, from its diverse geography and cultural richness to its economic potential and geopolitical relevance.

1. Geographical Diversity

- **Extremes in Landscape:** From the Andes Mountains in the west (home to Aconcagua, the highest peak in the Americas) to the Pampas grasslands, Patagonian deserts, and Iguazú Falls, one of the largest and most impressive waterfall systems in the world.
- **Antarctic Claim:** Argentina is one of the few countries with a permanent presence in Antarctica.
- **Biodiversity:** The country has a range of climates and ecosystems, supporting unique flora and fauna.

2. Cultural Richness

- **Tango:** A UNESCO-recognized cultural heritage, tango is not just a dance but a major symbol of Argentine identity.
- **Literature & Arts:** Home to influential figures like Jorge Luis Borges and Julio Cortázar, Argentina is known for its intellectual and literary contributions.
- **Cuisine:** Globally known for its beef, asado (Argentine BBQ), empanadas, and Malbec wine.

3. Football Legacy

- Home to football legends like Diego Maradona and Lionel Messi, football is a unifying national passion. Argentina has won multiple FIFA World Cups (1978, 1986, and 2022).

4. Scientific & Technological Contributions

- Argentina has a strong background in nuclear research, space science (like the CONAE space agency), and biotechnology.
- It was the first Latin American country to launch a satellite into space (Sac-B in collaboration with NASA).

IMPORTANCE OF ARGENTINA IN THE WORLD

1. Agricultural Powerhouse

- A top global exporter of soybeans, corn, beef, and wheat.
- Plays a key role in global food security.

2. Strategic Natural Resources

- Rich in lithium (part of the "Lithium Triangle" with Bolivia and Chile), essential for electric vehicle batteries.
- Has significant shale oil and gas reserves, particularly in the Vaca Muerta formation.

3. Geopolitical Role

- **G20 Member:** Represents Latin America in major global economic discussions.
- Active in regional blocs like Mercosur and has historical influence in South American diplomacy.
- Maintains strong ties with both Western countries and emerging powers like China.

4. Scientific Diplomacy

- Argentina is involved in international scientific cooperation, especially in climate research, Antarctica, and space exploration.

QUESTIONS

7. What is the strategic implication of Venezuela including a gubernatorial vote in the disputed Essequibo region during the 2025 elections?

A. It aims to legitimize Venezuela's claim over the region through international consensus

B. It marks the first step toward granting Essequibo autonomy from both Venezuela and Guyana

C. It escalates Venezuela's territorial claim over Guyana's internationally recognized land

D. It facilitates a refugee settlement plan supported by international observers

8. Why did the United States revoke Chevron's oil license and deportation protections for Venezuelan migrants after the 2025 election?

A. In response to Venezuela's withdrawal from the United Nations

B. Due to Venezuela's military deployment near the Essequibo border

C. As a sanction against Maduro's administration for conducting disputed and unfree elections

D. Because of a bilateral breakdown over the Paris Climate Agreement

9. Despite international isolation, how has Nicolás Maduro primarily retained power since his controversial re-election?

A. Through support from the Catholic Church and the IMF

B. By decentralizing power to regional opposition leaders

C. Via alliances with Cuba and Nicaragua, and loyalty from the military

D. By legalizing cryptocurrency and attracting Western investment

4. Rakhine Corridor sparks power struggle in Bangladesh

- The proposed Rakhine Corridor – a "humanitarian" passage from south-eastern Bangladesh into Myanmar's conflict-ridden Rakhine State – has ignited a significant political and military standoff within Bangladesh.
- Interim Chief Adviser Muhammad Yunus's endorsement of the corridor met with vehement opposition from Bangladesh Army Chief General Waker-Uz-Zaman, who deems it a threat to national sovereignty, and termed it a "bloody corridor".

The Yunus-Army rift: A nation divided

- Tensions between Bangladesh's interim government and its military leadership have escalated over the Rakhine Corridor proposal.
- General Waker-Uz-Zaman has publicly condemned the corridor, labelling it a "bloody corridor" and asserting that it could jeopardize Bangladesh's national security and regional stability.
- He criticized the interim government's decision-making process, particularly the lack of consultation with the military on such a critical issue.
- In response to the backlash, Yunus' administration has made a hasty retreat from the proposal, highlighting the deepening civil-military divide.

What is the Rakhine Corridor?

- The Rakhine Corridor refers to a proposed humanitarian and logistical passage connecting southeastern Bangladesh's Cox's Bazar region to Myanmar's Rakhine State, a conflict-ridden area that has witnessed years of unrest, particularly against the Rohingya Muslim minority.
- The concept gained traction amid renewed fighting in Myanmar and growing calls from international human rights groups to allow humanitarian access to civilians trapped in the region.
- The idea is to establish a protected, internationally monitored route that would enable the delivery of aid, evacuation of wounded civilians, and potentially the repatriation of Rohingya refugees who fled to Bangladesh after the 2017 ethnic cleansing campaign by Myanmar's military (Tatmadaw).
- The corridor would likely be coordinated by the United Nations or an international coalition, with logistical and security support from cooperating countries.
- However, while presented as a humanitarian initiative, the corridor is highly contentious due to its geostrategic location and the players involved. Geographically, the corridor would cut across territory under the control of Myanmar's junta and armed ethnic militias, making it not only risky but also politically sensitive.
- Bangladesh's military establishment fears that such a corridor—especially one initiated without its consent or involvement—could be used to establish a foreign-controlled buffer zone within its immediate neighbourhood, potentially undermining its sovereignty and regional influence.

China's strategic calculations

- China views Rakhine State as a linchpin in its Belt and Road Initiative (BRI), with significant investments like the Kyaukphyu deep-sea port and oil and gas pipelines.

- These projects provide Beijing with critical access to the Indian Ocean, bypassing the strategic chokepoint of the Strait of Malacca.
- The establishment of a humanitarian corridor backed by Western powers could be perceived by China as an encroachment on its sphere of influence, potentially prompting Beijing to bolster its support for Myanmar's military junta and increase its presence in the region.

The US perspective

- The United States has expressed support for the Rakhine Corridor, viewing it as an opportunity to expand humanitarian access and counter China's growing influence in the Bay of Bengal.
- By facilitating aid to Myanmar's pro-democracy movement, the US aims to establish a foothold in a region where China's presence is increasing.
- However, this approach risks entangling Bangladesh in broader geopolitical rivalries and may strain Dhaka's delicate balancing act between major powers.

India's concerns

- India, sharing borders with both Bangladesh and Myanmar, is closely monitoring developments related to the Rakhine Corridor.
- New Delhi's primary concerns revolve around regional stability, the potential for increased Chinese influence near its northeastern borders, and the implications for its Act East Policy.
- The corridor could also affect India's strategic interests in the Bay of Bengal and its efforts to counterbalance China's presence in the region.

Rohingya refugees

- The Rohingya refugees are a persecuted ethnic Muslim minority originally from Rakhine State in western Myanmar (Burma).
- Due to decades of systemic discrimination, statelessness, and violent military crackdowns, hundreds of thousands have been forced to flee Myanmar, especially since 2017.

1. Ethnic Background

- The Rohingya are a Muslim minority in a predominantly Buddhist country.
- Myanmar does not recognize them as one of its official ethnic groups.
- Most Rohingya are stateless — Myanmar denies them citizenship, labeling them as illegal immigrants from Bangladesh, despite generations of residence.

2. 2017 Crisis

- A major exodus occurred after the Myanmar military launched a brutal crackdown in August 2017, citing attacks by Rohingya insurgents.
- The UN and human rights organizations have described the campaign as ethnic cleansing or even genocide.
- Over 740,000 Rohingya fled to Bangladesh, especially to Cox's Bazar, which became the world's largest refugee camp.

3. Current Situation (as of 2024-2025)

- Over 1 million Rohingya refugees live in overcrowded camps in Bangladesh.
- They face poor living conditions, restricted movement, and lack access to formal education and employment.
- Many are also in refugee camps in Malaysia, India, Indonesia, and Thailand.
- Myanmar remains unsafe for return, and repatriation efforts have stalled.

4. International Response

- The international community has condemned Myanmar's actions.
- The International Court of Justice (ICJ) is hearing a genocide case brought by The Gambia against Myanmar.
- Aid agencies continue to call for increased funding, rights protection, and long-term solutions.

International Court of Justice (ICJ)

- The International Court of Justice (ICJ) is the principal judicial organ of the United Nations (UN). It is based in The Hague, Netherlands, and was established in 1945 by the UN Charter, beginning its work in 1946.

1. Purpose and Function

The ICJ has two primary roles:

- Settling legal disputes between states (countries) based on international law.
- Providing advisory opinions on legal questions referred by authorized international organizations and UN bodies.

2. Jurisdiction

- Only states (not individuals or companies) can be parties in cases.
- Jurisdiction is based on the consent of the states involved. Consent can be given:
    - By treaty,
    - By special agreement for a specific case, or
    - Through declarations accepting the ICJ's compulsory jurisdiction.

3. Structure

- The court has 15 judges, elected for nine-year terms by the UN General Assembly and the Security Council.
- Judges are chosen to represent the world's main legal systems and regions.
- No two judges may be from the same country.

4. Decisions

- ICJ decisions are binding on the parties involved in the case.
- There is no appeal, but parties may request interpretation or revision of a judgment under specific conditions.
- The court has no enforcement power; implementation depends on the UN Security Council, which may enforce ICJ decisions.

5. Difference from Other Courts

- Not to be confused with the International Criminal Court (ICC), which prosecutes individuals for crimes like genocide and war crimes. The ICJ deals only with states, not individuals.

6. Famous Cases

- **Nicaragua v. United States (1986):** The U.S. was found to have violated international law by supporting Contra rebels in Nicaragua.
- **Bosnia and Herzegovina v. Serbia and Montenegro (2007):** Concerning genocide during the Bosnian War.
- **Ukraine v. Russian Federation (ongoing):** Cases related to military actions and human rights issues.

QUESTIONS

10. What distinguishes the Bharat Forecast System (BFS) from global forecasting models like those used by the US, UK, and Europe?

A. BFS focuses solely on monsoon prediction, while global models cover all weather events

B. BFS operates at a finer spatial resolution of 6 km, enhancing local forecast precision

C. BFS is run entirely on analog computing rather than digital systems

D. BFS uses only satellite data, whereas global models rely on ground stations

11. What is the primary advantage of the BFS's 6-km grid resolution for sectors like agriculture and disaster management?

A. It allows the model to simulate underground water reserves

B. It enables AI-based crop genetic modification

C. It supports localized, high-precision forecasts for better decision-making

D. It eliminates the need for meteorological satellites

12. Which of the following statements correctly differentiates Pratyush from BFS?

A. Pratyush is a weather model, while BFS is a computer system for simulation

B. BFS is a weather forecasting model, while Pratyush is a supercomputing system supporting forecasting and climate modeling

C. Pratyush only handles earthquake predictions, unlike BFS

D. BFS was developed under NSM, while Pratyush was developed by ISRO

5. Venezuela's Maduro wins landslide in election boycotted by opposition

Maduro's Party Dominates in Boycotted Elections

- Venezuela's ruling United Socialist Party, led by President Nicolás Maduro, claimed a sweeping victory in parliamentary and regional elections.
- The party secured 23 out of 24 governorships and won 82.68% of the votes for National Assembly seats.

- However, the elections were marred by controversy and an opposition boycott.

Opposition Boycott and Allegations of Electoral Fraud

- The elections were boycotted by the main opposition alliance, spearheaded by Maria Corina Machado, who labeled the vote a "farce."
- Opposition candidate Edmundo Gonzalez Urrutia, currently in exile, called the boycott a "resounding declaration" of the people's desire for change.

Low Turnout and Public Disillusionment

- The CNE stated that just over 42% of Venezuela's 21 million eligible voters participated.
- Many citizens expressed a lack of faith in the electoral process after last year's presidential election, where Maduro was quickly declared the winner amid allegations of vote manipulation.
- The opposition's independent tally indicated that Gonzalez Urrutia had actually won that election.

Controversial Vote in Disputed Essequibo Region

- This election was also notable for including a gubernatorial vote in Essequibo, a resource-rich region internationally recognized as part of Guyana but claimed by Venezuela.
- This move heightened geopolitical tensions and drew international concern.

International and Economic Fallout

- The elections deepen Venezuela's isolation on the world stage.
- The U.S. has responded by revoking Chevron's license to extract Venezuelan oil and rescinding deportation protections for 350,000 Venezuelan migrants. Hundreds have already been deported to El Salvador.

Venezuela

- Venezuela is a country with a rich tapestry of cultural, geographical, and ecological uniqueness.

Geographical Uniqueness

Diverse Landscapes:

- **Angel Falls (Salto Ángel):** The world's tallest uninterrupted waterfall (979 meters/3,212 feet), located in Canaima National Park.
- **Gran Sabana:** A stunning region with tepuis (flat-topped mountains), unique to the Guiana Shield.
- **Los Roques Archipelago:** A Caribbean paradise of coral reefs and clear waters, ideal for ecotourism and marine life exploration.
- **Andes Mountains:** Run through the western part of the country with beautiful mountain towns like Mérida.
- **Orinoco River Basin:** One of South America's largest river systems, supporting vast biodiversity.

Biodiversity Hotspot:

- Venezuela is part of the Amazon rainforest and is among the world's most biodiverse countries, home to jaguars, anacondas, capybaras, and hundreds of bird species.

Cultural Richness

Multicultural Society:

- A vibrant mix of Indigenous, African, and Spanish influences.
- Over 30 Indigenous groups, including the Wayuu, Pemon, and Warao, each with their own languages and traditions.

Festivals and Traditions:

- **El Callao Carnival:** A colorful celebration infused with African-Caribbean music and dances.
- **Dancing Devils of Yare (Diablos Danzantes):** A UNESCO-recognized tradition blending Indigenous, African, and Catholic elements.

Music and Dance:

- Known for genres like Joropo, Gaita Zuliana, and Salsa.
- Instruments like the cuatro (small guitar), maracas, and harp are central to traditional music.

Culinary Specialties

- **Arepas:** Cornmeal cakes filled with cheese, meats, or beans—a staple food.
- **Pabellón Criollo:** The national dish, consisting of shredded beef, black beans, rice, and fried plantains.
- **Hallacas:** Traditional Christmas dish made with corn dough, meat, and other fillings wrapped in plantain leaves.
- **Cachapas:** Sweet corn pancakes filled with cheese, often enjoyed with local cream.

Natural Resources and Economy

- **Oil Reserves:** Home to one of the largest proven oil reserves in the world.
- **Gold and Diamonds:** Rich in natural resources beyond petroleum.
- **Ecotourism Potential:** With natural parks, beaches, and mountain ranges, Venezuela has strong potential for sustainable tourism.

Scientific and Environmental Significance

- **Unique Ecosystems:** Tepuis like Mount Roraima harbor species that exist nowhere else on Earth.
- **Lightning Capital:** Lake Maracaibo is known for Catatumbo lightning, a unique meteorological phenomenon occurring up to 260 nights a year.

Nicolás Maduro

- Nicolás Maduro is the current president of Venezuela, having assumed office in 2013 following the death of Hugo Chávez.
- Born on November 23, 1962, in Caracas, Venezuela, Maduro began his career as a bus driver and trade union leader before entering politics.
- He served as a member of the National Assembly from 2000 to 2005, Minister of Foreign Affairs from 2006 to 2013, and Vice President from 2012 to 2013.

- After Chávez's death, Maduro won the 2013 presidential election and has since been re-elected, including a controversial third term in 2025 .
- Under Maduro's leadership, Venezuela has faced a severe economic crisis characterized by hyperinflation, a collapsing currency, and critical shortages of essential goods.
- The country has also experienced significant political unrest, with widespread protests and a mass exodus of citizens seeking refuge abroad .
- The 2024 presidential election, which Maduro won, was widely criticized for alleged irregularities and lack of transparency.
- International observers and opposition leaders have called the election neither free nor fair, citing the government's control over institutions and repression of political opposition.
- As a result, many countries, including the United States, Canada, and members of the European Union, have imposed sanctions on Maduro and his government.
- The U.S. also announced a $25 million reward for information leading to his arrest .
- Despite these challenges, Maduro has maintained power through a combination of political maneuvering, alliances with countries like Cuba and Nicaragua, and support from military and security forces.
- His administration continues to face both domestic and international pressure for democratic reforms and respect for human rights.

QUESTIONS

13. Which of the following is true about the Chagos Archipelago transfer agreement signed by UK Prime Minister Keir Starmer?

A. The UK has permanently handed over all military operations to Mauritius
B. Diego Garcia will now host both Chinese and US forces
C. The UK retains operational control but under a lease agreement with Mauritius
D. Mauritius will dismantle all military facilities within a decade

14. Why is the Chagos Archipelago, especially Diego Garcia, considered strategically significant in global geopolitics?

A. It is the largest oil-producing region in the Indian Ocean
B. It provides a rare high-altitude base suitable for missile testing
C. It allows power projection and rapid crisis response in the Indo-Pacific region
D. It connects three major transnational railway networks

15. Which historical development allowed the UK to separate the Chagos Archipelago from Mauritius prior to its independence?

A. Atlantic Charter (1941)
B. Treaty of Rome (1957)
C. Treaty of Paris (1814)
D. Formation of British Indian Ocean Territory (BIOT) in 1965

6. What is the Bharat Forecast System: world's highest resolution forecasting model

- India has made a significant leap in meteorological science with the launch of the Bharat Forecast System (BFS), an indigenously developed high-resolution weather prediction model.
- Inaugurated by Union Minister of Earth Sciences Dr. Jitendra Singh at Vigyan Bhawan, the BFS stands out as the world's highest-resolution tropical weather forecast model, operating on a 6-kilometre grid.
- This marks a substantial improvement over the previous 12-km grid model, enabling more localised and accurate weather predictions.
- The BFS model, developed by Indian researchers including Parthasarathy Mukhopadhyay, was made possible with the deployment of 'Arka', a supercomputer installed at the Indian Institute of Tropical Meteorology (IITM).
- Arka, with a processing capacity of 11.77 petaflops and 33 petabytes of storage, performs forecasting computations in four hours—less than half the time required by its predecessor 'Pratyush'.
- This technological advancement allows India Meteorological Department (IMD) to issue precise weather forecasts at the panchayat level, particularly crucial for disaster management, agriculture, and water resource planning. The system uses data from a growing network of Doppler Weather Radars, currently 40 and soon expanding to 100. This network will also enhance nowcasting—short-term forecasts up to two hours in advance—across the country.
- The BFS covers the tropical region between 30° South and 30° North latitudes, which includes the entirety of the Indian mainland.
- Compared to global forecasting models used by the US, UK, and Europe, which have 9–14 km resolution, BFS offers finer spatial detail and improved prediction accuracy.
- Weather has a profound impact on India's economy, particularly in agriculture, which is sensitive to climate variability.
- The Economic Survey cited frequent extreme weather events—like heatwaves and unseasonal rains—as key contributors to rising food inflation. In 2024, crop damage due to such weather events surpassed levels from the previous two years.
- Between 2022 and 2024, heatwaves occurred on 18% of days, up from 5% in 2020–21.
- These disruptions affect food supply and price stability, prompting recommendations for climate-resilient crops, better data systems, and reduced post-harvest losses.
- The Reserve Bank of India (RBI) has also raised concerns about weather anomalies influencing vegetable prices, underscoring the need for temperature-resistant crops.
- In essence, the BFS enhances India's capability to respond proactively to weather-related challenges, aiming to safeguard both lives and livelihoods while supporting economic stability.

Bharat Forecasting System (BFS)

- The Bharat Forecasting System (BFS), launched on May 26, 2025, is India's most advanced weather prediction model, offering unprecedented precision in forecasting.

What Is the Bharat Forecasting System?

- Developed by the Indian Institute of Tropical Meteorology (IITM) under the Ministry of Earth Sciences, BFS operates on a 6-kilometer grid—making it the world's highest-resolution weather model.
- This fine-scale resolution allows for accurate predictions of localized weather phenomena such as thunderstorms, heatwaves, and urban microclimates.

Key Features

- **High-Resolution Forecasting:** Offers spatial resolution of 6 km, significantly improving forecast accuracy compared to the previous 12 km models.
- **Localized Predictions:** Enhances the ability to predict small-scale weather events, benefiting both urban and rural areas.
- **Enhanced Disaster Management:** Improves preparedness for extreme weather events, supporting better response strategies.
- **Agricultural Planning Support:** Provides more accurate weather information to assist in agricultural decision-making .

Technical Collaboration

- The BFS was developed by IITM in collaboration with the Indian Meteorological Department (IMD) and the National Centre for Medium Range Weather Forecasting (NCMRWF).
- NCMRWF, a Centre of Excellence under the Ministry of Earth Sciences, focuses on developing advanced numerical weather prediction systems to enhance forecasting capabilities over India and neighboring regions .

Global Significance

- With its 6 km resolution, BFS surpasses other global weather models in precision.
- This advancement positions India at the forefront of meteorological innovation, enabling more accurate and timely weather forecasts for its diverse regions .

Pratyush

- Pratyush is one of India's most powerful supercomputers, developed to aid in weather forecasting and climate research.
- It is housed at the Indian Institute of Tropical Meteorology (IITM), Pune, and is part of India's ambitious efforts to improve its climate prediction capabilities and research into atmospheric science.

1. Purpose:

- **Weather forecasting:** Pratyush is primarily used to enhance India's capabilities in weather prediction, both for short-term forecasts and for long-term climate modeling.
- **Climate studies:** It also plays a crucial role in understanding monsoon patterns, severe weather events (like cyclones), and changes in the global climate system.

2. Capabilities:

- **Performance:** Pratyush is capable of reaching peak performance in the multi-petaflop range (1 petaflop = 1 quadrillion floating-point operations per second), making it one of the most powerful systems in India.
- The system can handle a massive amount of data generated from satellite systems and weather models to predict local and global weather patterns with high accuracy.

3. Architecture:

- Pratyush consists of several interconnected processors that work in parallel to solve complex mathematical models used in meteorology. These processors are part of a larger high-performance computing infrastructure.
- It includes Intel Xeon processors and NVIDIA Tesla GPUs for computational efficiency in simulating weather and climate phenomena.

4. Impact:

- **Improved Weather Forecasts:** The enhanced computing power allows for more accurate weather forecasting for the country, helping in disaster preparedness and management.
- **Research:** Pratyush aids in climate studies like modeling global warming, studying the impact of human activities on the environment, and understanding tropical weather systems.
- **Global Collaboration:** As part of global climate modeling initiatives, it provides valuable insights to the worldwide scientific community.

5. Location:

- The supercomputer is hosted at the Indian Institute of Tropical Meteorology (IITM), Pune, which is a part of India's Ministry of Earth Sciences (MoES).

6. Development:

- The system was developed as part of India's National Supercomputing Mission (NSM), which aims to develop a network of supercomputers for research and national development.
- Pratyush was one of the first supercomputers under this mission.
- India has also developed other supercomputers, such as Mihir and Brahma, with Pratyush being one of the central pieces in weather and climate prediction.

QUESTIONS

16. Which of the following statements about the FATF grey list is incorrect?

A. Greylisted countries face increased monitoring due to serious deficiencies in their anti-money laundering frameworks.

B. Greylisting can lead to reduced foreign direct investment and reputational damage.

C. Greylisted countries are subject to the same international sanctions as blacklisted countries.

D. The grey list includes jurisdictions working with FATF to improve their compliance.

17. Which of the following accurately distinguishes between the grey list and the black list in FATF classifications?

A. Only blacklisted countries face reputational damage.

B. Greylist includes compliant countries; blacklist includes allies of FATF member states.

C. Blacklist subjects countries to international sanctions; greylist flags those under increased monitoring.

D. Countries are first blacklisted before being considered for the grey list.

18. Which of the following best describes the core functions of the Financial Action Task Force (FATF)?

A. Sanctioning countries violating WTO trade rules.

B. Promoting AI governance and digital privacy.

C. Monitoring global money laundering and terrorism financing and setting standards to counter them.

D. Conducting military inspections in high-risk financial jurisdictions.

7. What is the FATF, and why does Pakistan potentially being greylisted matter?

- India will submit a dossier to the Financial Action Task Force (FATF) which will make a case for putting Pakistan back in the "grey list".
- New Delhi will specifically point to the non-compliance of certain provisions that Islamabad had promised to adhere to when it was taken off the FATF grey list in 2022 Pakistan had been in the grey list for four years, between 2018 and 2022.

What is the FATF?

- The FATF is the global money-laundering and terror financing watchdog. It is an inter-governmental organisation with 40 members (including Russia whose membership was suspended in 2023).
- The body "researches how money is laundered and terrorism is funded, promotes global standards to mitigate the risks, and assesses whether countries are taking effective action".
- **MONITORING & INFORMING:** As a watchdog, the FATF's primary task is to monitor how criminals and terrorists "raise, use and move funds" and "raise awareness about the latest money laundering, terrorist financing and proliferation financing techniques".
- **SETTING STANDARDS**: Based on its research, the FATF has a set of recommendations to "ensure a co-ordinated global response to prevent organised crime, corruption and terrorism".
- These help countries to follow best practices to thwart money laundering and terror financing, and go after criminals engaged in these illegal practices.
- **FLAGGING NON-COMPLIANCE:** This is the context in which most lay people hear of the FATF.
- Put simply, those who do not comply to FATF standards are flagged and put in two categories, commonly referred to as the "grey and black lists".

What FATF's a grey/black list entail?

- The FATF identifies jurisdictions with weak measures to combat money laundering and terrorist financing (AML/CFT regimes) in two public documents that are issued three times a year — in February, June and October.
- The grey list, officially "Jurisdictions under Increased Monitoring", comprises countries that have significant deficiencies in their AML/CFT regimes but are actively working with the FATF to address these "within agreed timeframes".
- As the name suggests, countries in the grey list are subject to increased monitoring by the FATF.
- Currently, there are 24 countries in this list.
- Greylisting prompts countries to address AML/CFT deficiencies.
- It carries with it adverse economic and reputational impacts, which affect the inflow of foreign investment and international aid.
- Pakistan being on the grey list from 2018 to 2022 had helped curtail illicit fund flows into India, especially in Jammu & Kashmir.
- The black list, officially "High-Risk Jurisdictions subject to a Call for Action", comprises countries with "serious strategic deficiencies" in their AML/CFT regimes.

- Three countries are in the black list at the moment — North Korea, Myanmar, and Iran.
- They have been slapped with mandated economic sanctions by FATF member countries as a result.

QUESTIONS

19. Which of the following was a unique feature of the Konkan Railway project when it was originally commissioned?

A. It was India's first high-speed rail corridor.

B. It was the only railway built entirely underground.

C. It was the first railway line constructed under a Special Purpose Vehicle (SPV) model.

D. It used magnetic levitation technology for freight transport.

20. What was the original shareholding structure of KRCL when it was formed as a special purpose vehicle?

A. 100% owned by the Ministry of Railways.

B. Joint ownership: Government of India (51%), Maharashtra (22%), Karnataka (15%), Goa & Kerala (6% each).

C. Fully funded by a World Bank loan and private stakeholders.

D. Equally divided among the five coastal states.

21. Which of the following initiatives is not directly linked to Indian Railways' goal of achieving "Net Zero Carbon Emissions" by 2030?

A. Installation of bio-toilets in coaches

B. Electrification of all broad-gauge routes

C. Introduction of battery-powered steam engines

D. Deployment of solar panels at stations and offices

8. Konkan Railway to merge with Indian Railways

- The Maharashtra government last month officially agreed to merge the Konkan Railway Corporation Limited (KRCL) with Indian Railways.
- With Goa, Karnataka and Kerala having already approved the merger, Maharashtra's decision clears the way for the complete integration of one of India's most scenic and strategically vital railway lines into the larger national network.

What is the Konkan Railway? How did it come into existence?

- The Konkan Railway (KR) was established in 1990 as a special purpose vehicle in the Ministry of Railways to carry out the difficult task of constructing railway lines through the rocky Western Ghats.
- The project, which officially began operations in January 1998, sought to connect Roha in Maharashtra, Goa, Mangaluru in Karnataka and coastal Kerala, and become a lifeline for both goods and passenger movement across the Konkan coast.

- With a length of 741 km, this scenic but commercially valuable rail route substantially reduced travel time, and connected distant areas to the major towns and cities of the shareholder states.
- The KRCL was formed as a joint venture in which the Government of India held a 51% stake, Maharashtra 22%, Karnataka 15%, and Goa and Kerala 6% each.
- The line was commissioned and completed in the early 1990s and has been a major route ever since, with KRCL always existing as a distinct entity from the Indian Railways.

Why is the merger taking place now?

- While being operationally successful, KRCL has been suffering from financial woes for years. With lesser revenues and increasing infrastructure demands, the company found it difficult to finance expansion or afford major upgrades.
- The approval of the Maharashtra government was conveyed by Chief Minister Devendra Fadnavis through a letter addressed to Railway Minister Ashwini Vaishnaw.
- The merger thus can be a precursor to new projects along the route, improving connectivity, the frequency and quality of services, and ultimately benefiting local economies, tourism and employment in Maharashtra and beyond.
- Maharashtra's hold up thus far was due to the significant investment it had made for the establishment of the KRCL in 1990, and concerns about the Konkan route losing its importance if KRCL were to be merged with the Indian Railways.
- any merger is subject to two conditions: one, that the name "Konkan Railway" continues to be used even after the merger; and two, that Indian Railways reimburses Maharashtra with a sum of more than Rs 394 crore for the state's initial investment. The Centre has reportedly agreed to meet both these conditions.

How will passengers be affected?

- The ball now rests in the court of the Railway Board.
- With all parties approving a merger, the Board will eventually get the process underway, which could entail a number of administrative, financial, and legal steps before the merger is actually completed.
- According to sources, the process is likely to involve reworking employee hierarchies, operational areas and service contracts, and could take some months to come to reality.
- Once that happens, however, the passengers are likely to benefit from upgraded infrastructure, improved frequency of trains, better security measures, and increased connectivity with other routes of Indian Railways.
- **List of the Railway Zones in India along with their headquarters:**
    - Northern Railway (NR) – New Delhi
    - Southern Railway (SR) – Chennai
    - Eastern Railway (ER) – Kolkata
    - Western Railway (WR) – Mumbai
    - Central Railway (CR) – Mumbai
    - South Eastern Railway (SER) – Kolkata
    - North Eastern Railway (NER) – Gorakhpur
    - Northeast Frontier Railway (NFR) – Maligaon, Guwahati
    - South Central Railway (SCR) – Secunderabad

- South Western Railway (SWR) – Hubballi (Hubli)
- West Central Railway (WCR) – Jabalpur
- East Central Railway (ECR) – Hajipur
- North Central Railway (NCR) – Prayagraj (Allahabad)
- East Coast Railway (ECoR) – Bhubaneswar
- Metro Railway, Kolkata – Kolkata
- South East Central Railway (SECR) – Bilaspur
- North Western Railway (NWR) – Jaipur
- Western Central Railway (WCR) – Jabalpur (Sometimes counted with West Central Railway)
- Railway Electrification Zone (not a conventional zone, but a special unit)

Indian Railways: Major Initiatives & Developments (2014-2024)

1. Infrastructure Modernization

- **Electrification Drive:** Indian Railways aggressively pursued electrification, aiming for 100% electrified broad gauge routes.
- Over 40,000 km electrified in the last decade, reducing dependency on diesel and cutting carbon emissions.
- Dedicated Freight Corridors (DFC): Construction of two major DFCs:
  - Eastern DFC (Ludhiana to Dankuni)
  - Western DFC (Dadri to Jawaharlal Nehru Port Trust)
- These corridors aim to decongest existing routes, increase freight capacity, and boost efficiency.
- **High-Speed Rail (Bullet Train):** Launch of the Mumbai-Ahmedabad High-Speed Rail Corridor, India's first bullet train project, is underway with Japan's technical collaboration.

2. Passenger Services & Comfort

- **Vande Bharat Express:** Launched in 2019, India's first semi-high-speed, self-propelled trainsets, significantly improving travel time and passenger comfort.
- **Station Redevelopment:** Several major stations have been redeveloped to world-class standards, with better amenities, improved accessibility, Wi-Fi, and clean environments.
- **Onboard Services:** Introduction of improved catering, bio-toilets in trains, cleaner coaches, and upgraded classes like Executive Chair Cars and AC 3-tier with better features.
- **Real-time Information:** Implementation of apps and systems for live train tracking, e-ticketing, and passenger information to enhance convenience.

3. Safety Enhancements

- **Elimination of Unmanned Level Crossings:** Massive effort to remove all unmanned level crossings, replacing them with overbridges or underpasses.
- **Train Collision Avoidance Systems:** Introduction of the Train Collision Avoidance System (TCAS) and Automatic Train Protection (ATP) to prevent accidents.
- **Modern Signaling Systems:** Shift to electronic interlocking and centralized traffic control for improved safety and efficiency.

4. Digital Transformation

- **E-Ticketing Expansion:** IRCTC e-ticketing platform massively scaled up, processing lakhs of bookings daily.
- **Digital Payments:** Implementation of digital payment systems for tickets, food, and other services.
- **Railway Digital Ecosystem:** Initiatives like Digital India have encouraged adoption of IT solutions across railway operations, maintenance, and customer engagement.
- **AI & Analytics:** Using AI and data analytics for predictive maintenance, demand forecasting, and route optimization.

5. Sustainability & Green Initiatives

- **Renewable Energy Usage:** Railways has committed to becoming a net-zero carbon emitter by 2030. Solar panels installed at stations and on train rooftops.
- **Bio-toilets:** Installation of millions of bio-toilets on trains to reduce open discharge and improve sanitation.
- **Energy Efficiency:** Introduction of energy-efficient LED lighting in trains and stations, regenerative braking on locomotives.

6. Freight Operations

- **Freight Business Reforms:** Dynamic pricing, digital freight booking, and priority freight corridors to increase competitiveness.
- **Private Sector Participation:** Opening freight operations and infrastructure development to private players under various PPP models.
- **Multimodal Logistics Parks:** Development of logistics parks integrating rail, road, and waterways for efficient goods movement.

7. Social Initiatives

- **Women Empowerment:** Recruitment of women staff in various roles including drivers, guards, and station managers.
- **Accessibility:** Improved facilities for differently-abled passengers — ramps, reserved seats, adapted toilets.
- **Skill Development:** Training initiatives and collaborations with educational institutes for skill enhancement.

8. Policy & Organizational Changes

- **Corporate Restructuring:** Formation of specialized subsidiaries such as:
  - Rail Land Development Authority (RLDA) for land monetization
  - RailTel for telecom and broadband infrastructure
  - IRCTC for catering, tourism, and e-commerce
- **Investment Boost:** Significant capital investment through government budget allocations, multilateral funding (World Bank, ADB), and private investments.

Different Protection Initiatives by Indian Railways

- Indian Railways has undertaken several protection initiatives to ensure the safety of passengers, railway property, wildlife, and the environment. These initiatives cover diverse areas such as security, disaster management, environmental sustainability, and heritage preservation.

1. Passenger and Station Security

a. Railway Protection Force (RPF):

- Deployed for the safety of passengers and railway property.
- Conducts regular patrolling on trains and platforms.
- Operates the "Meri Saheli" initiative to ensure the safety of women passengers.

b. CCTV Surveillance:

- Over 6,000 stations are being equipped with CCTV cameras for real-time monitoring.

c. 139 Helpline:

- A nationwide 24x7 helpline for emergency passenger support and security concerns.

d. Integrated Security System (ISS):

- Includes baggage scanners, explosive detectors, metal detectors, and CCTV networks at major stations.

2. Environmental Protection

a. Green Initiatives:

- Electrification of broad-gauge routes to reduce carbon emissions.
- Installation of solar panels at stations and office buildings.
- Introduction of bio-toilets in coaches.

b. "Net Zero Carbon Emission" Goal by 2030:

- Indian Railways aims to become a net-zero carbon emitter by 2030.

c. Afforestation Drives:

- Large-scale tree plantation along railway tracks.

d. Water Recycling and Rainwater Harvesting:

- Installed at stations and railway colonies to conserve water.

3. Wildlife Protection

a. Elephant Corridors:

- Speed restrictions and alert systems in elephant movement zones.
- Installation of animal detection systems using sensors and AI.

b. Fencing and Underpasses:

- Constructed in wildlife-sensitive zones to avoid animal collisions.

4. Disaster and Accident Prevention

a. Kavach (Train Collision Avoidance System):

- An indigenous automatic train protection (ATP) system to prevent collisions.
- Works by automatically applying brakes in case of driver negligence or signal overshooting.

b. Fire and Smoke Detection Systems:

- Installed in trains to detect and prevent onboard fires.

c. Derailment Prevention Measures:

- Use of ultrasonic flaw detectors to monitor track integrity.

5. Heritage and Cultural Protection

a. Preservation of Heritage Trains and Stations:

- Restoration of vintage locomotives and colonial-era stations.

b. Museum Initiatives:

- Establishment of National Rail Museum and regional rail museums to conserve railway heritage.

QUESTIONS

22. Why is the asteroid Kamo‘oalewa of particular scientific interest for China’s Tianwen-2 mission?

A. It is the largest known near-Earth object.

B. It is believed to contain vast quantities of platinum.

C. It is classified as a quasi-satellite and may be a fragment of the Moon.

D. It has been confirmed to host microbial life.

23. Which of the following distinguishes China’s Tianwen-2 mission from Tianwen-1?

A. Tianwen-1 focused on Mars, while Tianwen-2 targets a near-Earth asteroid.

B. Tianwen-2 includes a lunar rover, while Tianwen-1 did not.

C. Tianwen-1 involved asteroid deflection, while Tianwen-2 does not.

D. Tianwen-2 is China's first interplanetary mission.

24. Why are sample-return missions from asteroids like those conducted by OSIRIS-REx, Hayabusa2, and planned by Tianwen-2 considered valuable for science?

A. They confirm the presence of alien life.

B. They allow testing of dark matter detection theories.

C. They enable analysis of pristine solar system material on Earth.

D. They are used to power future nuclear reactors.

9. Why China’s upcoming Tianwen-2 mission could be significant for finding clues about quasi-satellites

- China is set to launch its first mission, Tianwen-2, to survey and collect samples from a near-Earth asteroid named 469219 Kamo’oalewa.
- This asteroid orbits the Sun relatively close to Earth.
- If successful, China will join a select group of countries, including the United States and Japan that have successfully returned asteroid samples to Earth.
- Astrophysicist Amy Mainzer from UCLA described the mission as ambitious and highlighted the scientific interest in exploring this unique object.

What is the Kamo'oalewa asteroid?

- Kamo'oalewa, discovered in 2016 by the Pan-STARRS 1 telescope in Hawaii, is a rare near-Earth asteroid classified as a quasi-satellite.
- These unique objects orbit the Sun but remain close enough to Earth to be influenced by its gravity.
- Due to its highly elliptical orbit, Kamo'oalewa appears to alternate between leading and trailing Earth, creating the illusion of orbiting our planet.
- Quasi-satellites like Kamo'oalewa experience gradual changes in their orbits over time.
- This particular asteroid has maintained its current path for about 100 years and is projected to stay in it for another 300 years.

Why does China want to investigate Kamo'oalewa?

- Kamo'oalewa, a small near-Earth asteroid with an unusual orbit, has intrigued scientists due to its mysterious origin.
- Researchers believe studying it could reveal important insights into the formation and evolution of quasi-satellites.
- A 2021 study led by University of Arizona scientist Benjamin Sharkey proposed that Kamo'oalewa might be made of lunar material, possibly ejected from the Moon after a collision.
- This theory is based on light spectrum data that closely matches Apollo mission lunar samples.
- If proven, it could support the hypothesis that the Moon formed from a massive collision between Earth and another planet, with Kamo'oalewa potentially being a fragment of that event.
- However, definitive confirmation would require direct sample analysis in Earth-based laboratories.

How will Tianwen-2 retrieve samples?

- The Tianwen-2 mission aims to collect samples from the near-Earth asteroid Kamo'oalewa using two techniques: the "touch-and-go" method—similar to those used by NASA's OSIRIS-Rex and Japan's Hayabusa2—and a possible "anchor and attach" method involving robotic arms drilling into the surface.
- After collecting samples, the probe will return them to Earth and proceed to explore the main asteroid belt.
- However, experts highlight the challenge due to Kamo'oalewa's small size (40–100 meters in diameter), which demands highly advanced cameras, onboard computers, and control systems for successful navigation and sampling.

NASA's OSIRIS-REx

- NASA's OSIRIS-REx (Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer) is a space mission launched to study the near-Earth asteroid Bennu and return samples from it to Earth.

Mission Goals:

- **Study asteroid Bennu:** Understand its composition, geology, and history.
- **Sample collection:** Collect at least 60 grams of surface material (regolith) from Bennu and return it to Earth for detailed analysis.
- **Learn about solar system origins:** Bennu is a carbon-rich asteroid, a relic from the early solar system. Studying it can shed light on how planets formed and how organic molecules that could have led to life were delivered to Earth.
- **Assess impact hazards:** Bennu has a small chance of impacting Earth in the late 22nd century, so studying its orbit and physical properties helps improve impact risk predictions.
    - **Launch:** September 8, 2016.

- **Arrival at Bennu:** December 3, 2018.
- **Sample collection:** October 20, 2020, via a maneuver called TAG (Touch-And-Go).
- **Departure from Bennu:** May 2021.

- **Return to Earth:** Planned for September 24, 2023 — the sample capsule will land in the Utah desert.

Scientific Importance:

- Bennu is a primitive asteroid, meaning it has changed little since the formation of the solar system about 4.5 billion years ago.
- The returned samples will help scientists study organic molecules and water-bearing minerals that might be linked to the origins of life.
- Data helps improve asteroid deflection techniques for planetary defense.

Japan's Hayabusa2

- Japan's Hayabusa2 is a remarkable space mission by the Japan Aerospace Exploration Agency (JAXA), aimed at studying the asteroid Ryugu and bringing back samples to Earth.

Launch Date: December 3, 2014

- **Mission Goal:** To collect samples from asteroid Ryugu, a near-Earth asteroid classified as a C-type (carbonaceous) asteroid, to learn about the early solar system and the origins of water and organic compounds on Earth.
- **Asteroid Target:** Ryugu, about 900 meters in diameter, located between Earth and Mars.
- **Arrival at Ryugu:** June 2018
- **Sample Collection:** Hayabusa2 performed multiple touchdowns on the asteroid to collect surface material and also created an artificial crater by firing an explosive to access subsurface material.
- **Return to Earth:** The spacecraft released a capsule containing the samples, which landed in the Australian desert in December 2020.
- **Scientific Importance:** The samples could provide insights into the formation of the solar system, the building blocks of life, and how organic materials may have been delivered to Earth.

Why it's significant:

- Hayabusa2 followed the original Hayabusa mission, improving on technology and success rates.
- It was among the few missions to successfully return asteroid samples, joining NASA's OSIRIS-REx mission as a key effort in asteroid exploration.
- The mission's findings contribute to planetary defense and understanding potentially hazardous asteroids.

Tianwen-1

- Tianwen-1 is China's first independent Mars exploration mission, launched by the China National Space Administration (CNSA).
- **Launch Date:** July 23, 2020
- **Mission Type:** Mars orbiter, lander, and rover combined in a single mission

Objectives:

- To orbit Mars and map its surface and atmosphere
- To land a rover on Mars and explore the surface, including geology and climate
- To search for signs of water ice and analyze soil and rock composition
- To study Mars' magnetic field and space environment

Components:

- **Orbiter:** Circles Mars to relay data and perform remote sensing
- **Lander:** Carries the rover to the surface
- **Rover (Zhurong):** Named after a Chinese fire god, this rover landed on Mars in May 2021, conducting surface exploration, analyzing rocks, soil, atmosphere, and collecting data for understanding Martian conditions

Achievements:

- China became the second country after the U.S. to successfully land and operate a rover on Mars
- The mission marked China's first independent interplanetary exploration
- Zhurong rover conducted exploration for several months, sending valuable scientific data

Significance:

- It demonstrates China's growing capabilities in space exploration
- It advances global understanding of Mars' environment and history
- It opens the door for future missions, including potential sample return and manned missions

QUESTIONS

25. Why is Sevastopol considered a strategic asset for Russia in the Black Sea region?

A. It is the site of Russia's main shipbuilding industry.
B. It serves as Russia's only nuclear testing site.
C. It offers a deep-water port ideal for the Black Sea Fleet, unlike other shallow ports nearby.
D. It is located at the mouth of the Volga River, providing river-sea connectivity.

26. Which of the following was NOT a reason behind Russia's annexation of Crimea in 2014?

A. Fear of Ukraine joining NATO and losing strategic military advantage.
B. To secure control over water supply through the North Crimean Canal.
C. To eliminate US sanctions on Sevastopol's ports.
D. To prevent Ukraine from revoking Russia's lease of its Black Sea naval base.

27. What role did the North Crimean Canal play in post-2014 Crimea geopolitics?

A. It allowed Ukraine to divert Black Sea oil reserves.
B. It supplied electricity to Russian naval operations in Sevastopol.
C. It was a vital freshwater source, and Ukraine's blockage post-annexation created a severe water crisis in Crimea.
D. It facilitated the transport of military vehicles between Kherson and Crimea.

10. India's first gene-edited sheep developed by Kashmir university researchers

- Researchers at a Kashmir-based Agricultural university have produced India's first gene-edited sheep, marking a historic milestone in the field of animal biotechnology.
- The Sher-e-Kashmir University of Agricultural Sciences and Technology (SKUAST) has called it a "ground-breaking scientific achievement".
- The edited sheep contains no foreign DNA, distinguishing it from transgenic organisms and paving the way for regulatory approval under India's evolving biotech policy framework.
- The team of researchers led by Dean Faculty of Veterinary Sciences, SKUAST-Kashmir, Riaz Ahmad Shah achieved the feat after a research of around four years.
- Shah's team had previously cloned India's first Pashmina goat- 'Noori'- in 2012, a milestone that garnered global acclaim.
- The gene editing was performed using CRISPR-Cas9 technology and adhered to international biosafety protocols.
- Shah said the gene-edited lamb has been modified for the 'myostatin' gene - a regulator of muscle growth.
- "By disrupting this gene, muscle mass in the animal is enhanced by nearly 30 per cent, a trait naturally absent in Indian sheep breeds but known in select European breeds like the Texel,".

What is Gene Editing?

- Gene editing, also known as genome editing, is a group of technologies that allow scientists to precisely change an organism's DNA.
- These technologies enable the addition, removal, or alteration of genetic material at specific locations within the genome.
- The development comes on the heels of the recent release of India's first gene-edited rice variety, endorsed by Union Ministry for Agriculture, and further cements India's growing prowess in genomic science.
- "The introduction of this mutation through gene editing, and not through traditional crossbreeding, represents a technological leap akin to the revolution Artificial Intelligence is driving in the 21st century,".

Boosting its muscle weight

- With gene editing, we have the ability to bring precise, beneficial changes without introducing foreign DNA, making the process efficient, safe, and potentially acceptable to both regulators and consumers,".
- Through gene editing, the researchers targeted a gene in a sheep variety that helps in boosting its muscle weight and gives heavier, almost 30 per cent more weight than normal sheep.

CRISPR-Cas9

- CRISPR-Cas9 is a revolutionary gene-editing technology that allows scientists to alter DNA sequences and modify gene function with remarkable precision, efficiency, and flexibility.

What is CRISPR-Cas9?

- CRISPR stands for Clustered Regularly Interspaced Short Palindromic Repeats.
- Cas9 is an enzyme (a CRISPR-associated protein) that cuts DNA at specific locations.
- The system is based on a natural defense mechanism in bacteria, which use CRISPR sequences and Cas enzymes to recognize and cut viral DNA.

How It Works?

- **Guide RNA (gRNA):** A small piece of RNA is designed to match the DNA sequence you want to edit.
- **Cas9 Enzyme:** This acts like molecular scissors, cutting the DNA at the location specified by the gRNA.
- **DNA Repair:** Once the DNA is cut, the cell's repair mechanisms kick in. Scientists can use this to:
  - Disable genes (knockout)
  - Correct mutations
  - Insert new DNA sequences (gene insertion or replacement)

Applications:

Medicine

- Correcting genetic defects (e.g., sickle cell anemia, muscular dystrophy)
- Engineering immune cells to fight cancer (e.g., CAR-T cells)
- Developing treatments for infectious diseases (e.g., HIV)

Agriculture

- Creating disease-resistant and drought-tolerant crops
- Improving nutritional content of plants

Biotechnology

- Gene drives to control pests (e.g., mosquitoes to combat malaria)
- Engineering microbes for biofuel production

Ethical and Regulatory Issues

- Human germline editing (altering genes in embryos) is highly controversial and mostly banned.

Concerns include:

- Off-target effects (unintended mutations)
- Long-term consequences
- Equity and access to technology

Notable Milestones

- 2020 Nobel Prize in Chemistry awarded to Emmanuelle Charpentier and Jennifer Doudna for the development of CRISPR-Cas9.
- First clinical trials using CRISPR to treat genetic diseases like sickle cell and beta-thalassemia have shown promising results.

India's first cloned Pashmina goat

- Noori was India's first cloned Pashmina goat and the world's first cloned goat of the Changthangi breed, renowned for producing luxurious Pashmina wool.
- Born on March 9, 2012, at the Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir (SKUAST-K) in Shuhama, Srinagar, Noori's name means "light" in Arabic.
- She was created using somatic cell nuclear transfer (SCNT), a cloning technique where the nucleus of a somatic cell is transferred into an enucleated egg cell.
- In Noori's case, three goats were involved: one provided the egg, another the DNA, and a third served as the surrogate mother.
- The cloning project, led by Dr. Riaz Ahmad Shah and his team at SKUAST-K, aimed to preserve and multiply the rare Pashmina goat breed, native to the high-altitude regions of Ladakh.
- These goats produce fine Pashmina wool, essential to Kashmir's textile industry, which supports over 10 million people.
- Noori lived a healthy life and gave birth to seven kids—two females and five males—during her 11 years at the university's farm. She passed away on March 15, 2023, due to natural aging.

Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir (SKUAST-K)

- Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir (SKUAST-K) is a premier agricultural university located in Shalimar, Srinagar, Jammu and Kashmir, India.
- Established in 1982, the university was named in honor of Sheikh Mohammad Abdullah, popularly known as "Sher-e-Kashmir."
- Initially, SKUAST had jurisdiction over the entire state of Jammu and Kashmir.
- However, in 1998–99, the university was bifurcated, leading to the creation of Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu (SKUAST-J) for the Jammu Division, while SKUAST-K continued to serve the Kashmir Valley and Ladakh regions.

QUESTIONS

28. What distinguishes India's first gene-edited sheep developed by SKUAST-K from a transgenic organism?

A. It does not involve the use of any laboratory equipment.

B. It contains foreign DNA inserted from another species.

C. It was created by traditional selective breeding techniques.

D. It contains no foreign DNA, making it non-transgenic under regulatory terms.

29. Which of the following genes was targeted by CRISPR-Cas9 in India's first gene-edited sheep to increase muscle mass?

A. Pax6

B. Myostatin

C. Insulin

D. FTO

30. What is the primary function of the Cas9 enzyme in CRISPR-Cas9 technology?

A. It transports RNA into the cell nucleus.

B. It reverses genetic mutations through methylation.

C. It acts as a molecular scissor, cutting DNA at targeted sites.

D. It copies the genome to create synthetic chromosomes.

ANSWER KEY AND EXPLANATION

1. C Javier Milei was awarded the 2025 Genesis Prize primarily for his unequivocal support of Israel, including designating Hamas and Hezbollah as terrorist groups, reversing anti-Israel voting patterns at the UN, and reopening investigations into past antisemitic attacks in Argentina. These actions were directly cited by the Genesis Prize Foundation as evidence of his moral clarity and commitment to Jewish values.

2. A The Genesis Prize, often dubbed the "Jewish Nobel", was created to honor Jewish individuals for professional excellence and commitment to Jewish values. Its core purpose is to foster Jewish identity, inspire pride, and strengthen the Israel-Diaspora bond, as stated in its mission. It is not limited to financial aid, religious functions, or Holocaust remembrance, though it may align with related causes through donations by laureates.

3. A Javier Milei is not Jewish by birth, yet was awarded the 2025 Genesis Prize for his political support of Israel, his fight against antisemitism, and efforts to strengthen Israel-Latin America relations. Most earlier recipients were Jewish individuals recognized for professional excellence in arts, business, science, or activism, not foreign policy.

4. B General Waker-Uz-Zaman labeled the Rakhine Corridor a "bloody corridor" primarily because it risks establishing an internationally controlled zone near Bangladesh's borders without military consultation. This is seen as a threat to national sovereignty, especially if coordinated by foreign powers or the UN.

5. C India is concerned that China may respond to the corridor by deepening its military and infrastructure presence near India's northeastern frontier, thus complicating India's Act East Policy and regional influence.

6. D The U.S. supports the corridor to expand humanitarian access and more importantly, to counter China's growing regional footprint, especially near the Bay of Bengal, an increasingly strategic zone.

7. C By holding elections in the Essequibo region, Venezuela is asserting sovereignty over a territory internationally recognized as part of Guyana. This move escalates an ongoing territorial dispute, drawing international concern and increasing tensions in the region.

8. C The U.S. revoked Chevron's license and ended deportation protections in direct response to allegations of electoral fraud in Venezuela's 2025 elections, reflecting a policy of punishing authoritarian behavior and undermining illegitimate regimes.

9. C Maduro's regime survives largely due to alliances with sympathetic regimes like Cuba and Nicaragua, and more crucially, support from Venezuela's military and security forces, which act as a bulwark against internal dissent and external pressure.

10. B The BFS operates on a 6 km grid, whereas global models like ECMWF and GFS typically have 9–14 km resolution, making BFS the highest-resolution tropical weather model in the world, capable of fine-scale, localized forecasting.

11. C The 6-km grid enables detailed, localized forecasting, particularly useful for panchayat-level alerts related to rainfall, heatwaves, or floods, aiding agriculture, water management, and disaster preparedness.

12. B Pratyush is a supercomputer system hosted at IITM used for weather simulations and climate modeling, while BFS is a weather forecasting model that runs on such high-performance systems like Arka and previously Pratyush.

13. C The sovereignty of the Chagos Islands, including Diego Garcia, was transferred to Mauritius, but under a 99-year lease, the UK and US retain operational control. Mauritius will receive £3.4 billion over the lease period, but the military presence continues under current partnerships.

14. C Diego Garcia is a critical military hub for US-UK joint operations, enabling rapid deployment and support for operations across the Middle East, South Asia, and East Africa, including missions in Yemen, Afghanistan, and humanitarian aid to Gaza.

15. D The British Indian Ocean Territory (BIOT) was created in 1965, allowing the UK to retain the Chagos Archipelago before granting Mauritius independence in 1968. This move has been legally and politically contested ever since.

16. C Greylisted countries are not subject to the same mandatory international sanctions as blacklisted countries. Instead, they are under increased FATF monitoring and are expected to improve compliance within a timeframe. Sanctions apply primarily to blacklisted countries like North Korea, Iran, and Myanmar.

17. C Grey list = "Jurisdictions under Increased Monitoring"; these countries have AML/CFT deficiencies but are cooperating with FATF. Black list = "Call for Action"; countries here face mandatory international sanctions due to serious strategic deficiencies and lack of cooperation.

18. C The FATF is an inter-governmental body that functions as a global watchdog for money laundering and terrorism financing. It sets international standards (40 recommendations) and assesses countries' compliance. It does not engage in trade or military oversight.

19. C The Konkan Railway was the first major railway line in India to be constructed using an SPV model, which allowed joint ownership among central and state governments—an innovative funding mechanism for infrastructure development at the time.

20. B KRCL was a joint venture where: Government of India held 51%, Maharashtra 22%, Karnataka 15%, Goa and Kerala 6% each. This structure helped share the burden of constructing a route through difficult terrain like the Western Ghats.

21. C While bio-toilets, electrification, and solar panels are part of Indian Railways' green initiatives, the introduction of battery-powered steam engines is not a real or practical solution and is not part of Indian Railways' sustainability roadmap.

22. C Kamo‘oalewa is a quasi-satellite of Earth—meaning it orbits the Sun in a path that keeps it near Earth due to gravitational interactions. Spectral analysis has suggested that it may be composed of lunar material, possibly ejected from the Moon by a collision. Studying such an object can help understand the Moon’s history and planetary formation events.

23. A Tianwen-1 was China’s first Mars mission, including an orbiter, lander, and the Zhurong rover. Tianwen-2, by contrast, targets a near-Earth asteroid (Kamo‘oalewa) for sample return and later aims to explore the main asteroid belt, marking a shift toward small-body exploration.

24. C Asteroids like Bennu, Ryugu, and Kamo‘oalewa are primitive bodies, unchanged since the formation of the solar system. Sample-return missions bring back unaltered material for analysis in Earth labs, helping scientists understand the origin of planets, organic compounds, and possibly even precursors to life.

25. C Sevastopol has a deep-water harbor, making it ideal for hosting Russia’s Black Sea Fleet. In contrast, other regional Russian ports like Sochi and Novorossiysk are relatively shallow and less suited for large-scale naval operations.

26. C While securing military and water interests were major motives, eliminating U.S. sanctions was not a direct motivator for the annexation. In fact, sanctions were imposed by the U.S. after Russia annexed Crimea, not before.

27. C After Russia annexed Crimea in 2014, Ukraine blocked the North Crimean Canal, cutting off 85% of the region’s freshwater supply. Russia viewed this as a major vulnerability. In the 2022 invasion, one of Russia’s first military actions was destroying the dam and restoring water flow.

28. D The gene-edited sheep was produced through CRISPR-Cas9 technology that disrupted the myostatin gene but did not insert any foreign DNA, which distinguishes it from transgenic organisms that incorporate foreign genetic material.

29. B The myostatin gene regulates muscle growth. Disrupting this gene results in increased muscle mass, a trait that occurs naturally in breeds like the Texel sheep, and was replicated in the Indian sheep using gene editing.

30. C Cas9 is a CRISPR-associated enzyme that cuts DNA at locations specified by the guide RNA (gRNA), enabling precise edits. This targeted cutting is what allows scientists to knock out genes like myostatin.