

24 March 2024

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What is ISIS-K? Why did it attack a Moscow theater? | Explained (GS Paper II: IR)



A massive blaze is seen over the Crocus City Hall on the western edge of Moscow, Russia, Friday, March 22, 2024. Several gunmen have burst into a big concert hall in Moscow and fired automatic weapons at the crowd, injuring an unspecified number of people and setting a massive blaze in an apparent terror attack. | Photo Credit: AP

While the attack by ISIS-K in Russia on March 22 was a dramatic escalation, experts said the group has opposed Russian President Vladimir Putin in recent years

- ISIS-K stands for Islamic State Khorasan, which is the Afghan branch of the Islamic State militant group.
- It emerged in **eastern Afghanistan** in late 2014.
- ISIS-K quickly gained a reputation for extreme brutality.
- It is named after an old term for the region that included parts of **Iran, Turkmenistan, and Afghanistan**.
- ISIS-K has been one of the most active regional affiliates of the Islamic State group.
- However, its membership has declined since peaking around 2018 due to **heavy losses inflicted by the Taliban and U.S. forces**.
- The United States has stated that its ability to gather intelligence against extremist groups like ISIS-K in Afghanistan has decreased since the withdrawal of U.S. troops from the country in 2021.

What attacks has the group carried out?

- ISIS-K, or Islamic State Khorasan, has carried out several attacks, including:
- Twin bombings in Iran earlier this year, resulting in nearly 100 deaths.
- A deadly suicide bombing at the Russian embassy in Kabul in September 2022.
- An attack on Kabul's international airport in 2021, killing 13 U.S. troops and numerous civilians during the chaotic U.S. evacuation from Afghanistan.
- There are concerns that ISIS-K could target U.S. and Western interests outside of Afghanistan within the next six months, according to the top U.S. general in the Middle East.

ISIS-K attacked Russia because:

- The group has been **critical of Russian President Vladimir Putin** in its propaganda.
- ISIS-K perceives Russia as **complicit in activities that oppress Muslims**.
- **Some members of ISIS-K**, particularly from Central Asia, **have their own grievances against Moscow**.

- The Chechen struggle for independence has deep historical roots, marked by centuries of resistance to Russian rule.

- Virtually all Chechens are Sunni Muslims, with Islam playing a central role in their identity and culture.
- **Soviet Era:** During World War II, Stalin forcibly deported the entire Chechen population on false accusations of collaborating with Nazis, resulting in immense suffering and resentment.
- **Chechen Republic of Ichkeria:** After the collapse of the Soviet Union in 1991, Chechnya declared independence as the Chechen Republic of Ichkeria.

The Chechen Wars

- **First Chechen War (1994-1996):** Russia brutally attempted to regain control of Chechnya. Guerilla warfare and widespread human rights abuses characterized the conflict. Despite early losses, Chechen forces ultimately repelled the Russian invasion, resulting in a de-facto independent Chechnya.
- **Second Chechen War (1999-2009):** Russia, under Vladimir Putin, renewed its war to suppress the separatist movement. This time, Russia was more successful, establishing pro-Moscow rule in Chechnya. The conflict was exceptionally brutal with extensive human rights violations on both sides.

Islamist Influence

- **Radicalization of the insurgency:** The wars and instability gave rise to radical Islamist elements within the Chechen insurgency, fueled by foreign fighters and ideologies. This led to brutal terrorist attacks, including the Beslan school siege.
- **Counter-insurgency tactics:** Russia employed brutal methods to suppress the insurgency, including collective punishment, disappearances, and the use of pro-Moscow Chechen militias.

Current Situation

- **Ramzan Kadyrov:** Chechnya is now ruled by Ramzan Kadyrov, a pro-Moscow strongman with vast autonomy in exchange for loyalty.
- **Suppression of dissent:** While large-scale conflict has diminished, human rights abuses, suppression of dissent, and a climate of fear persist.
- **Spillover:** The Chechen insurgency has connections to Islamist militants in the North Caucasus region and beyond, contributing to regional instability.

Does a specific bacteria subtype drive colorectal cancer progression? (GS Paper III: Basic Science)

- A type of microbe commonly found in the mouth can travel to the gut and grow within **colorectal cancer tumors**.
- This microbe is responsible for driving cancer progression and can lead to worse outcomes for patients after cancer treatment.
- The discovery could help improve therapeutic approaches and early screening methods for colorectal cancer, which is the second leading cause of cancer deaths in adults in the U.S.
- Researchers examined colorectal cancer tumors from 200 patients and measured levels of **Fusobacterium nucleatum**, a bacterium known to infect tumors.
- In about 50% of the cases, only a specific subtype of the bacterium was elevated in the tumor tissue compared to healthy tissue.
- The microbe was also found in higher numbers within stool samples of colorectal cancer patients compared to stool samples from healthy individuals.

- Patients with colorectal tumors containing this bacterium have **poorer survival and prognosis compared** to those without the microbe.
- The predominant group of *Fusobacterium nucleatum* in colorectal cancer tumors, initially thought to be a single subspecies, is actually composed of two distinct lineages known as clades.

Why is the DGCA firm on new rest rules for pilots? | Explained (GS Paper III)

What are the changes to pilots' rest norms introduced by the Directorate General of Civil Aviation? Why were they brought about? When is the deadline for implementation? Why are the airlines unhappy? What are the pilots saying?

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- The Directorate General of Civil Aviation (DGCA) has declined airlines' request to postpone implementing new pilot duty norms.
- The revised rules are set to take effect from June 1, as notified by the DGCA in January.

What are the new rules?

- The new rules aim to improve pilot safety and reduce fatigue by enhancing weekly rest periods.
- Pilots will now be **entitled to 48 hours of weekly rest**, increased from the previous 36 hours.
- **Night-time flying has been reduced** under the new rules to mitigate fatigue, as **it disrupts the circadian rhythm and affects alertness levels**.
- Earlier, pilots could conduct **six landings during night-time flying, but now it's reduced to two**.
- The **night-time shift has been extended to 6 a.m. from midnight to 5 a.m.**
- The **maximum flight duty period for flights overlapping night-time is reduced from 10 hours to eight hours**.
- Pilots had requested a **ban on consecutive night duties** due to the stress and fatigue it causes, but this was not included in the new rules.
- **Flying consecutive nights without resetting the circadian rhythm leads to sleep debt accumulation and increased fatigue**.
- **Airlines are required to publish crew rosters "sufficiently in advance,"** but the specific timeframe hasn't been clearly defined.
- Previously, the draft rules suggested finalizing rosters seven days in advance, but it's unclear if this proposal was included in the finalized regulations.
- The DGCA requires airlines to submit **a quarterly analysis of fatigue reports** from pilots along with an action taken report.
- They plan to implement a new fatigue management system called the **Fatigue Risk Management System (FRMS)**.
- FRMS is a data-driven approach aimed at improving the **monitoring and reporting of flight crew fatigue**.
- Pilots are concerned that FRMS could lead to reductions in the rest periods currently mandated by regulations.

Why are the airlines opposed to it?

- **The Federation of Indian Airlines (FIA)**, representing Air India, IndiGo, and SpiceJet, requested the DGCA to postpone the June 1 deadline for implementing new pilot duty norms.
- They expressed concerns about the immediate and significant **impact on both business and customers**, as **airlines would need to hire 15% to 25% more pilots**.
- The FIA warned that meeting the June 1 deadline could **lead to the cancellation of 15%-20% of flights and even some long-haul international flights**.
- A senior DGCA official accused the airlines of scaremongering by suggesting flight cancellations during the peak summer travel season.
- **A six-month time frame for implementation was provided** keeping in mind that a commercial pilot licence holder, who has completed his training on a specific type of aircraft such as an A320 or Boeing 737 MAX, **did not need more than four months to be cleared for flying**.

Is fatigue mounting?

- Instances include the **death of IndiGo pilot Manoj Balasubramani, who fell unconscious at the boarding gate** in August 2023 and passed away.
- Pilots note **an increase in flying over the past five years**, especially with a growing route network beyond metros.
- **More strenuous flights involve increased landings**, such as combining international flights with additional domestic flights.
- **Red-eye flights to short-haul destinations**, like the Gulf and Singapore, have also become more common.
- **Pilots face uncertainty in their rosters**, sometimes receiving flight assignments with only a **12-hour notice**.
- **Refusal to accept duty** in such situations can lead to **disciplinary action**.
- Pilots recall a time when printed rosters were strictly followed, contrasting with current practices where malpractices like **exceeding maximum duty hours or inadequate rest periods** occur.
- The DGCA fined Air India ₹80 lakh for such lapses discovered during a spot check in January.

How many pilots are registered with DGCA?

- As of December 2023, Indian airlines collectively had **771 aircraft**.
- The Directorate General of Civil Aviation (DGCA) had **9,524 commercial pilots registered**.
- Additionally, there were **67 foreign pilots enlisted due to shortages**, particularly in roles like commanders for aircraft such as the Boeing 777.
- CAPA data suggests that India's commercial airline fleet is expected to **almost double in size by the fiscal year 2029-30**.
- This expansion would necessitate the addition of approximately **10,900 more pilots by 2030, equating to nearly 1,600 new pilots annually**.
- In the previous year, the DGCA issued 1,272 commercial pilot licenses to address these demands.

How bad is the humanitarian crisis in Gaza? | Explained (GS Paper II: IR)

Why are several U.N. agencies warning about a severe food shortage and famine in the war-torn Palestinian enclave? What is the state of Gaza's economy? Why is more aid not being allowed? What is Israel's stand? What lies ahead?

- Gaza is facing a humanitarian crisis due to a prolonged war with Israel.
- The EU's foreign policy chief called Gaza the "**largest open-air graveyard**".
- The U.N. warns of **an imminent famine in Gaza**.

What is the situation in Gaza?

- The conflict started after Hamas attacks in Israel in October 2023.
- **Over 32,000 Palestinians**, mostly women and children, have been killed.
- More than **74,000 people** have been injured.
- Gaza lacks hospitals, medical professionals, medicines, clean water, and healthcare facilities.
- The World Health Organization describes a dire situation with patients suffering from hunger and diseases.

Internally Displaced People (IDPs):

- Approximately **two million** IDPs are residing in makeshift camps in southern Gaza.
- Conditions in these camps are dire, with shared facilities leading to poor sanitation and rampant diseases like hepatitis A, diarrhea, and other infections.

Food Security Crisis:

- The situation in Gaza is described as "**catastrophic**" by the **Integrated Food Security Phase Classification (IPC)**.
- Before the conflict, Gaza had enough food to feed its population, and **malnutrition** was rare.
- However, now over **a million people are at risk of facing catastrophic hunger** unless more food is allowed into Gaza.
- The percentage of **acutely malnourished children under five** has risen significantly since October 7, from **0.8% to 12.4% to 16.5%** in February.
- Children are dying due to malnutrition and disease, with the situation worsening over the past five months.

Impact of Border Restrictions:

- Northern Gaza, **home to around 300,000 people**, has been severely affected as **Israel sealed off most border crossings, except one**.
- **Limited aid enters Gaza through checkpoints** in the south, exacerbating the humanitarian crisis.

Criteria for Determining Famine:

- Experts consider extreme lack of food access, **high levels of acute malnutrition, and child deaths as key indicators of famine**.

Impact on Gaza's Economy:

- Before October 7, around 600 trucks entered Gaza daily, with approximately 150 carrying food supplies.
- The **war has devastated Gaza's economy**, with **half of the croplands in the north**, a major food source, damaged during the conflict.
- **Continuous bombings by Israel have also damaged Gaza's port, crippling the fishing industry**, a vital source of income.

Dependence on Aid:

- **Government institutions are non-functional, and economic activities have ceased**, forcing the majority of the population to **rely on aid**.
- **Demand for supplies has surged, but the average number of trucks entering Gaza** has significantly decreased, exacerbating the crisis.

Humanitarian Tragedy:

- In February, **Israeli forces fired on a crowd near an aid convoy**, resulting in a stampede that killed over 100 Palestinians.
- Urgent calls for a ceasefire and increased supplies have been issued by the UN and several global powers in response to the escalating humanitarian crisis in Gaza.

Humanitarian Efforts:

- The US, along with some European and Arab countries, **increased airdrops of aid to Gaza to alleviate the crisis**.
- Tragically, **a pallet of aid crashed onto people waiting for food due to a failed parachute, resulting in the death of at least five individuals**.
- **World Central Kitchen sent supplies via the sea to Gaza as Israel's refusal to permit more aid aggravated the crisis**.

Long-term Solutions:

- The US plans to construct **a pier on Gaza's coast to facilitate aid delivery, but it will take several months for this initiative to become operational**.
- The **UN criticized Israel's restrictions on aid entry**, warning that such actions could be viewed as using starvation as a "weapon of war."

Need for Ceasefire:

- Various UN agencies emphasize that ending the war is crucial to rapidly improving the situation in Gaza.
- **Gaza is experiencing its worst humanitarian tragedy**, with a devastated economy, battered population, and insufficient aid distribution due to ongoing fighting.
- The **UN, which lost over 100 employees, faces staffing shortages, and its workers are also suffering from hunger**.

Who may vote from home in LS elections? (GS Paper II: Election)

Is this the first time such a facility has been rolled out? Why are activists calling for the rules to be amended?

Extension of 'Vote-From-Home' Facility:

- The Election Commission has extended the 'vote-from-home' facility for the Lok Sabha elections to **persons with disabilities and senior citizens aged 85 and above.**
- This move enables more than **85 lakh senior citizens and 88.4 lakh persons with disabilities** to cast their votes through postal ballots.

Eligibility Criteria:

- Eligible individuals must have a disability certified by the concerned authority, with a **benchmark disability of not less than 40%.**
- **Those who opt for postal ballots this year cannot vote directly at the polling station on polling day.**
- The Election Commission has expanded the upper age limit for **elderly voters from 80 to 85** years for the upcoming Lok Sabha elections.

Rationale Behind the Initiative:

- The initiative aims to **make participation in elections more inclusive**, particularly for those who may face challenges in visiting polling stations.
- It **provides flexibility for senior citizens** who may prefer to vote from the **comfort of their homes**, especially during the summer heat.

Previous Implementation:

- The 'vote-from-home' facility was **previously tested during Assembly elections** in select regions, benefiting people with disabilities, senior citizens, and individuals affected by COVID-19.

Extension of Postal Ballot Option:

- The **postal ballot option has also been extended to media personnel covering polling day activities, individuals in essential services such as metros, railways, and healthcare, and service voters such as armed forces personnel and embassy staff.**

Availing the Facility:

- Voters can avail of the 'vote-from-home' facility by **submitting Form 12D to the Assistant Returning Officer (ARO).**
- **Form 12D can be downloaded from the ECI website or obtained from the representative district officer of a parliamentary constituency.**
- The form must be **filled and submitted within five days of the notification of the polling date.**

Procedure:

- Once filed, **two polling officials, along with a videographer and security personnel**, will visit the **elector's home to oversee the postal ballot voting process.**
- The **voter will receive intimation about the visit date and time via SMS or post.**
- The **home voting option will be attempted twice, and a second visit will be scheduled if the elector is not available during the first visit.**

- During the visit, the **polling team will ensure adherence to the protocol under the Conduct of Elections Rules, 1961.**
- Each polling team is tasked with **issuing postal ballots, briefing the elector on the voting procedure, ensuring the secrecy of voting, and preventing any influence on the elector's choice.**

Concerns and Suggestions:

- Dr. Satendra Singh, a disability justice activist, highlights **awareness gaps and procedural challenges in the policy implementation.**
- Electors are required to deposit the form to **the Booth Level Officers (BLO) or the ARO**, a “problematic” requirement for people with disabilities
- He suggests **allowing online submission of Form 12D for people with disabilities.**
- **People with blindness or physical disabilities can nominate a companion to assist them during home voting.**

Regulations for Home Voting:

- Regulations specify that electors must vote without external influence and maintain the secrecy of their vote.
- Individuals with disabilities are permitted to have a companion assist them during the home voting process.

Logistical Challenges:

- Dr. Singh anticipates **logistical hiccups** in **coordinating requests, scheduling, and moving equipment around.**
- There may be concerns about the **capacity of existing machinery** to fulfill the requirements of the scheme.

Awareness Generation:

- The scheme requires a **massive level of awareness generation among both voters and polling officers** to align the facilities with people's needs.
- The **Election Commission has launched a Voter's Guide** outlining the provisions and procedural details available to persons with disabilities and senior citizens.

Arvind Kejriwal | The prophet of probity (GS Paper IV: Ethics)

- The concept of the "common man" in India was popularized by cartoonist R.K. Laxman's iconic character.
- In recent times, Arvind Kejriwal, the leader of the Aam Aadmi Party (AAP), has emerged as a new symbol of the common man.

Similarities with Laxman's Common Man:

- Kejriwal's appearance, demeanor, and anti-corruption stance bear similarities to Laxman's common man.
- Both are seen as representatives of the average Indian and critics of the prevailing system.

Contrasts with Laxman's Common Man:

- While Laxman's character was portrayed as a passive observer, Kejriwal is known for his activism and desire to reform the political system.

Current Situation:

- Despite his anti-corruption stance, Kejriwal himself faces investigations by the Enforcement Directorate (ED) in a money laundering case.
- He has been remanded to ED custody till March 28 by the Rouse Avenue Court.

Background of Arvind Kejriwal:

- Born in 1968 in Haryana, Kejriwal pursued electrical engineering at IIT-Kharagpur.
- He worked briefly at Tata Steel before joining the civil services, where he eventually settled for the Indian Revenue Services (IRS).
- Disillusioned by corruption, he left the IRS and became a full-time activist, winning the **Ramon Magsaysay Award in 2006** for his anti-corruption efforts.
- **Involvement in Activism:**
 - Kejriwal played a key role in launching the India Against Corruption (IAC) movement in 2010, advocating for transparency and accountability in governance.
- **IAC Movement and Lokpal Demand:**
 - Arvind Kejriwal was a key figure in the India Against Corruption (IAC) movement.
 - The movement demanded the creation of a powerful anti-corruption institution called the Lokpal, with authority over bureaucrats and elected representatives.

Involvement with Manmohan Singh Government:

- The Manmohan Singh government, facing corruption allegations, engaged with Kejriwal and the IAC.
- The National Advisory Council drafted a Lokpal Bill, which the IAC rejected as inadequate.
- Kejriwal was included in a committee to draft the Jan Lokpal Bill but resigned due to perceived lack of influence.

Escalation of Protests:

- The campaign against the government intensified, leading to mass protests in Delhi.
- Anna Hazare and Kejriwal were prominent figures in these protests.

Formation of AAP:

- The Aam Aadmi Party (AAP) was formed on November 26, 2012, with Kejriwal at the forefront.
- Many former leaders of the IAC movement, including Hazare, were sidelined.

Comparison with Other Parties:

- AAP's rise to power in its first attempt is compared to parties like Telugu Desham Party and Asom Gana Parishad, which also succeeded early.
- However, AAP lacked clear ideological foundations beyond its stance against corruption.

Kejriwal's View on Ideology:

- Kejriwal is said to dislike the term "ideology," preferring pragmatic approaches over dogmatic beliefs.
- Despite this, some associates claim that Kejriwal embodies an ideology, particularly highlighted after his arrest.
- **Political Position:**
 - Kejriwal is not strictly aligned with leftist or right-wing politics.
 - Critics suggest that the India Against Corruption movement, which he spearheaded, received support from the right wing.
- **Shift in Rhetoric:**
 - While Kejriwal's economic outlook leans towards a welfare state, his rhetoric in recent years has aligned with the BJP.
 - He has made public trips to temples, promised free tours to pilgrimage sites, and encouraged participation in Hindu rituals like Lakshmi Puja on Deepavali.
- **Policy Positions:**
 - The AAP supported the abrogation of Article 370 and the Bill stripping Jammu & Kashmir of statehood in 2019.
 - However, it opposed the Delhi Services Bill, which granted control of the Delhi bureaucracy to the Lt. Governor, four years later.
- **Political Successes:**
 - The AAP achieved a significant victory in Punjab in 2022.
 - After 11 years since its formation, it gained national party status in September 2023 based on its performance in **Delhi, Goa, Punjab, and Gujarat**.
- **Current Political Affiliations:**
 - The AAP is part of the INDIA bloc, along with the Congress, despite Kejriwal's past criticism of the party.
 - Even the Congress expressed support for Kejriwal after his arrest by the Enforcement Directorate (ED).
- **Challenges Ahead:**
 - Kejriwal's arrest poses a significant challenge to the AAP, as the party largely revolves around his leadership.
 - Observers are questioning whether the party can survive this challenge in his absence.

K. Ponmudy | Stalin's man (GS Paper I: Post Independence India: Personalities)

- Tamil Nadu Governor R.N. Ravi staged a walkout in protest against a resolution seeking to retain part of his customary address that he skipped in January 2023.
- During the incident, Higher Education Minister K. Ponmudy made a gesture, "get lost," towards the Governor.
- **Recent Development:**
 - In 2024, the Governor refused to read his customary address, leading to a personal confrontation between Mr. Ponmudy and Mr. Ravi.
 - Mr. Ponmudy had already been divested of his portfolios after being sentenced to three years in jail in a disproportionate assets case.
- **Swearing-in Delay:**
 - Despite the Supreme Court staying his conviction, the Governor refused to swear in Mr. Ponmudy.
 - Only after the Chief Justice of India intervened and criticized the Governor for "defying the Supreme Court of India" did the swearing-in take place on March 22.
- **Political Background:**
 - Mr. Ponmudy is known for his association with the Dravidian Movement, particularly as a follower of Periyar, the movement's founder.
 - He was a student at Annamalai University, known for its association with the Communist and Dravidian Movement, and served as the secretary of the Dravida Manavar Kazhagam at the university.

Erode Venkatappa Ramasamy Naicker (also known as Periyar or Thanthai Periyar)

Years: 1879-1973

Key Movements and Ideologies

- **Self-Respect Movement:** Founded in 1925, it **emphasized rationalism, rejection of caste-based hierarchies, women's rights, and social equality**. Periyar saw **self-respect as essential for freedom and dignity**.
- **Dravidian Movement:** Grew out of the Justice Party, advocating for a separate Dravidian identity for the non-Brahmin communities of South India and opposing what was seen as North Indian and Aryan cultural domination.
- **Anti-Caste Activism:** Periyar was a vociferous critic of the caste system and the oppression perpetuated by it. He believed in the complete eradication of caste and fought for social justice for marginalized communities.
- **Rationalism and Atheism:** Periyar strongly opposed superstitious beliefs and advocated for a rational, scientific outlook. He was a vocal atheist and questioned religious dogma.
- **Women's Empowerment:** A champion of women's rights, Periyar supported education for women, encouraged widow remarriage, and opposed practices like child marriage and the dowry system.

Controversial Views:

- **Separatism:** Periyar initially demanded a separate Dravida Nadu (land of the Dravidians), causing friction with Indian nationalists. He later modified his stance.
- **Hindi Opposition:** Vehemently opposed the imposition of Hindi as the national language, viewing it as a symbol of northern domination.

Legacy:

- **Social Reform:** Periyar's work significantly transformed Tamil society, leading to greater social equality and the empowerment of marginalized groups.
- **Political Influence:** The Dravidian Movement and its offshoots continue to shape Tamil Nadu's political landscape, with parties like the DMK and AIADMK tracing their origins to Periyar's ideology.

Dispersal out of Africa may have occurred during arid period (GS Paper I: Ancient History)

- **Migration out of Africa:** The movement of humans from Africa, which happened around **100,000 years ago**, might have occurred during a dry period after the **Toba Supervolcano eruption in Indonesia**.
- **Typical belief:** People usually think that humans left Africa during **wet periods** that allowed easy movement, known as '**green corridors**'.
- **Impact of aridity:** **Dry periods restricted human movement** and led to food insecurity, making it challenging for people to migrate.

'Increased reliance'

- **Site in Ethiopia:** Researchers led by Dr. John Kappelman investigated a site near the **Shinfa River in northwest Ethiopia**.
- **Evidence found:** They found chipped stone tools and animal remains, indicating human presence.
- **Chemical analysis:** **Glass shards in sediment samples** revealed they were from the **Toba supereruption**, dating human presence to around **74,000 years ago, during the Middle Stone Age (roughly 280,000 to 50,000 thousand years ago)**.
- **Environmental conditions:** Oxygen isotopes from ostrich eggshells and fossil mammal teeth showed that the **environment was very dry at that time**.
- **Increased reliance on fish:** Despite the aridity, the site showed an increased reliance on fish, possibly **because during the dry season, fish were trapped in waterholes, making them easy targets for hunters perhaps using bows and arrows**.
- **Transformation of rivers:** This adaptive foraging along **dry-season waterholes** may have **turned seasonal rivers into 'blue highway' corridors**, aiding a potential out-of-Africa dispersal, even during dry periods.
- The dry conditions likely caused movement, driven by the **characteristics of seasonal rivers**.
- The **ability to adapt behaviorally**, as seen at the site, **was crucial for humans to survive** after the supervolcano eruption.
- **This adaptability would have been essential for modern humans** as they spread out of Africa and adapted to various climates and environments worldwide.

Anaemia prevalence in eight States found to be overestimated (GS Paper III: Basic Science)

The overall prevalence of iron deficiency was just 18.4%, it was highest among adolescent girls (31.5%) followed by adult women (27.7%), and elderly women (13.6%); even among anaemic women, only about a third was due to iron deficiency



Venous blood reveals true anaemia prevalence

The NFHS surveys measured haemoglobin using capillary blood leading to overestimation of anaemia

blood while drawing the blood sample leading to dilution, thus reducing the haemoglobin value

adolescent girls

- The prevalence of anaemia among women was highest in Assam (78.3%) and lowest in Meghalaya (14.6%)
- Only about a fifth of anaemia in elderly women was due to iron deficiency, and 45% among adolescent girls
- The major proportion of anaemia is from unknown causes. But iron deficiency is wrongly assumed to be main driver of anaemia in India
- Providing iron supplementation for the entire population needs reconsideration, particularly as excess iron intake can be harmful

Blood diagnosis: The WHO recommends that anaemia be diagnosed from venous blood and not capillary blood. SPECIAL ARRANGEMENT

- Red blood cell count in the capillary blood is a little lower than venous blood. Tissue fluid gets mixed with capillary
- Anaemia prevalence was found to be predominantly mild across eight States. 18.4% were mildly anaemic, 14.7% moderately anaemic, and 1.8% severely anaemic
- Anaemia prevalence was 44%, 41% and 45% in adolescent girls, adult and elderly women, respectively. As per the NFHS surveys, anaemia prevalence was 60.8% for women and 62.6% for

Findings:

- Previous surveys may have overestimated anemia prevalence due to differences in blood sampling methods.
- The study found that overall anemia prevalence was 18.4%, with 14.7% moderately anemic and 1.8% severely anemic.
- Anemia prevalence was higher in women compared to men.
- Assam had the highest overall anemia prevalence (69.8%), while Meghalaya had the least (12.1%).

- **Iron Deficiency:**
 - Iron deficiency prevalence was 18.4% overall, with variations across different demographic groups.
 - Only about one-third of anemic women and one-fifth of elderly women had iron deficiency as the cause.
 - In Assam, despite high anemia prevalence, iron deficiency was relatively low (12.3% overall).
- **Policy Implications:**
 - The focus on iron deficiency as the main cause of anemia needs reconsideration, as other factors like vitamin B12, folate deficiency, and inflammation also contribute.
 - Policies promoting iron supplementation should be reviewed due to risks of excess iron intake.
 - Diversifying diets, particularly with millets containing higher iron and calcium, is recommended to address nutrient deficiencies exacerbated by climate change and declining nutrient content in cereals.

Using AI to classify neem fruits based on azadirachtin content (GS Paper III: S&T)

- Researchers at Jawaharlal Nehru University, New Delhi, developed an Artificial Intelligence (AI) tool to predict the level of metabolite content in neem fruits.
- This tool eliminates the need for **expensive and cumbersome equipment** like **high-performance liquid chromatography (HPLC)**.
- The AI-based approach analyzes images of neem leaves and fruits to determine whether the metabolite content is low or high.
- **Azadirachtin is the key metabolite in neem fruits, used as a biopesticide**, but its content varies between trees.
- Currently, assessing azadirachtin content requires sampling and **HPLC analysis, which is time-consuming and costly**.
- The AI model was trained using images of neem leaves and fruits along with corresponding metabolite values determined by HPLC.
- Synthetic image augmentation during training ensured the model's accuracy.
- The sensitivity of the AI model in correctly classifying fruits as low or high in azadirachtin content was 83% and 82%, respectively.
- When considering all five metabolites, sensitivity improved by 9% and 6% for low and high classes, respectively.
- The AI model achieved 100% specificity for both low and high classes when using multi-analyte data.
- An Android App called Fruit-in-Sight was developed based on the predictive model.
- Fruit pickers can use the app to take pictures of neem leaves and fruits, and it will instantly determine whether the fruit has high or low azadirachtin content.
- This technology empowers villagers to pick fruits from trees with high azadirachtin content, enhancing the efficiency of the neem industry without additional cost or effort.

MAINS PRACTICE QUESTION: GS PAPER IV:

Question: Discuss the ethical dilemmas faced by political parties in balancing the need for electoral funding with the risks of compromising integrity and accountability, especially in the context of electoral bond controversies and undisclosed funding sources. (250 Words/15 Marks)

ANSWER APPROACH

- Introduce the answer with recent context of Supreme Court Judgement.
- Then bring the ethical dilemmas faced by political parties is the trade-off between financial support and maintaining integrity in governance.
- Further bring Implications due to nature of scheme such as Electoral Bond
- Conclude with a comprehensive suggestive note.

ANSWER

Political parties and overall political system in India often face significant ethical dilemmas when it comes to balancing the need for electoral funding with the risks of compromising integrity and accountability. While electoral funding is essential for parties to finance their campaigns and activities, the manner in which these funds are raised and utilized can raise serious ethical concerns. These dilemmas are particularly pronounced in the context of controversies surrounding electoral bonds and undisclosed funding sources as it was reflected the Supreme Court Judgement on case challenging the Electoral Bond.

Trade-off between financial support and maintaining integrity in governance

- One of the primary ethical dilemmas faced by political parties is the trade-off between financial support and maintaining integrity in governance.
- On one hand, parties need substantial funds to contest elections effectively, reach out to voters, and convey their message.
- However, this dependence on funding creates a risk of undue influence by donors, potentially compromising the party's commitment to the public interest.
- This dilemma becomes more acute when parties receive donations from undisclosed or anonymous sources, as it raises questions about transparency and accountability.

Bring Implications due to nature of scheme such as Electoral Bond

- The introduction of electoral bonds complicated this ethical landscape.
- While proponents argue that electoral bonds provide a legal and transparent mechanism for political funding, critics have raised concerns about the anonymity of donors and the potential for **quid pro quo arrangements**.
- The lack of disclosure requirements for electoral bonds exacerbates these concerns, as it hampers efforts to track the sources of funding and hold parties accountable for their financial transactions.
- Moreover, the use of undisclosed funding sources can undermine public trust in the political process and erode the legitimacy of democratic institutions.

- When parties rely on opaque financing mechanisms, it **fosters perceptions of corruption and cronyism**, leading to disillusionment among voters and weakening the democratic fabric of the country.
- This ethical dilemma highlights the tension between **short-term electoral gains and long-term democratic values**, challenging parties to prioritize integrity and accountability over immediate financial needs.
- When parties prioritize fundraising over ethical governance, they risk prioritizing the interests of donors over those of the general public, compromising the integrity of the democratic process.

Thus, the ethical dilemmas faced by political parties in balancing electoral funding with integrity and accountability are complex and multifaceted. The rise of electoral bond controversies and undisclosed funding sources has brought these dilemmas into sharp focus, highlighting the need for greater transparency and accountability in political financing. To address these challenges, parties must prioritize ethical governance, uphold democratic values, and promote transparency in their fundraising practices. Only by doing so can they regain public trust and ensure the integrity of the electoral process.

Question 1: The term "Khorasan" in the name ISIS-K refers to:

- (a) A historical region encompassing parts of Afghanistan, Iran, and Central Asia
- (b) The modern capital city of Jordan.
- (c) A key Muslim pilgrimage site in the region
- (d) The name of a prominent ISIS leader

Question 2: Which of the following states had the highest overall anemia prevalence in the study?

- (a) Meghalaya
- (b) Assam
- (c) Bihar
- (d) Gujarat

Question 3: Consider the following ideologies:

1. Socialism
2. Atheism
3. Rationalism
4. Brahminical Dominance

How many of the above ideology/Ideologies was/were strongly opposed by Periyar?

- a. Only one
- b. Only two
- c. Only three
- d. All the four

Question 4: Periyar's ideas and activism played a significant role in shaping the political landscape of which Indian state?

- (a) Karnataka
- (b) Telangana
- (c) Tamil Nadu
- (d) Kerala

Question 6: Traditional methods for determining azadirachtin content in neem involve:

- (a) Visual inspection of fruits
- (b) High-performance liquid chromatography (HPLC)
- (c) Measuring fruit size
- (d) Soil testing

Question 7: What is the primary application of azadirachtin?

- (a) Fertilizer
- (b) Biopesticide
- (c) Antibiotic
- (d) Biofuel

Question 8: Azadirachtin is a key metabolite found in which part of the neem tree?

- (a) Bark
- (b) Leaves
- (c) Fruits
- (d) Roots

Question	Explanation
<p>Question 1: The term "Khorasan" in the name ISIS-K refers to:</p> <ul style="list-style-type: none">(a) A historical region encompassing parts of Afghanistan, Iran, and Central Asia(b) The modern capital city of Jordan.(c) A key Muslim pilgrimage site in the region(d) The name of a prominent ISIS leader	<p>Answer: a</p>
<p>Question 2: Which of the following states had the highest overall anemia prevalence in the study?</p> <ul style="list-style-type: none">(a) Meghalaya(b) Assam(c) Bihar(d) Gujarat	<p>Answer: (b) Assam had the unfortunate distinction of the highest anemia prevalence at 69.8%.</p>
<p>Question 3: Consider the following ideologies:</p> <ol style="list-style-type: none">1. Socialism2. Atheism3. Rationalism4. Brahminical Dominance <p>How many of the above ideology/Ideologies was/were strongly opposed by Periyar?</p> <ul style="list-style-type: none">a. Only oneb. Only twoc. Only threed. All the four	<p>Answer: (a)</p> <p>Periyar vehemently opposed the caste system and the social hierarchies it perpetuated, seeing them as the root cause of inequality in India.</p>
<p>Question 4: Periyar's ideas and activism played a significant role in shaping the political landscape of which Indian state?</p> <ul style="list-style-type: none">(a) Karnataka(b) Telangana(c) Tamil Nadu(d) Kerala	<p>Answer: (c) Tamil Nadu</p> <p>Explanation: The Dravidian movement Periyar spearheaded and its subsequent offshoots (like DMK and AIADMK) continue to dominate politics in Tamil Nadu.</p>
<p>Question 5: Consider the following criterion:</p>	<p>Answer: a</p>

<ol style="list-style-type: none"> 1. Students living away from their hometowns 2. Media personnel covering polling day activities. 3. General public residing outside the country. 4. Individuals between the age of 60 to 80 Years. <p>How many of the above criteria is/are made as eligibility to opt for postal ballots in the upcoming Lok Sabha elections as per the recent extension by the Election Commission?</p> <ol style="list-style-type: none"> a. Only one b. Only two c. Only three d. All the four 	<p>The postal ballot option has been extended to media personnel covering polling day activities, along with other categories such as individuals in essential services and service voters.</p>
<p>Question 6: Traditional methods for determining azadirachtin content in neem involve:</p> <ol style="list-style-type: none"> (a) Visual inspection of fruits (b) High-performance liquid chromatography (HPLC) (c) Measuring fruit size (d) Soil testing 	<p>Answer: (b) High-performance liquid chromatography (HPLC) Explanation: HPLC is a complex laboratory technique used to precisely measure the concentration of azadirachtin in neem samples.</p>
<p>Question 7: What is the primary application of azadirachtin?</p> <ol style="list-style-type: none"> (a) Fertilizer (b) Biopesticide (c) Antibiotic (d) Biofuel 	<p>Answer: (b) Biopesticide Explanation: Azadirachtin's insecticidal properties make it a valuable component of biopesticides, offering a more eco-friendly alternative to synthetic chemicals.</p>
<p>Question 8: Azadirachtin is a key metabolite found in which part of the neem tree?</p> <ol style="list-style-type: none"> (a) Bark (b) Leaves (c) Fruits (d) Roots 	<p>Answer: (c) Fruits Explanation: Azadirachtin is a naturally occurring compound with insecticidal properties found in higher concentrations within neem fruits.</p>