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MCQs

THE HINDU

Traditional diets shape unique gut microbes of Indian tribes

Prelims: General Paper 1

Current events of national and international importance.

Mains: General studies 2

Science and Technology- developments and their applications and effects in everyday life.

Why in Focus?

- A recent study in **Gut Microbes** highlights the **unique diversity of gut microbiomes** in India's tribal populations and its link with traditional diets
- It raises concerns about **loss of microbial diversity** and the need for preservation for future health applications

Key Highlights:

- The study analysed **gut microbiomes of 8 tribal communities** across India, showing strong links between **diet and microbial diversity**
- Tribal populations are **underrepresented (<1%)** in global microbiome research despite India's vast diversity
- Distinct dietary patterns observed
 - ◆ **Trans-Himalayan tribes** consume **grains and dairy**
 - ◆ Other tribes consume **fish, fruits, greens, and home-brewed beverages**

- Trans-Himalayan groups showed higher presence of **Bifidobacterium adolescentis** linked to **high dairy intake**
- Gut microbes help in **digestion and metabolism**, including production of **short-chain fatty acids (SCFAs)** important for gut health
- Tribal microbiomes were found to be **distinct from industrialised populations** (e.g., California), showing impact of **lifestyle and diet**
- Study identified **14 potentially new bacterial taxa**, and contributed to the **Indian Human Microbiome Initiative (IHMI)**

The **Indian Human Microbiome Initiative** is a national research project by the Department of Biotechnology to map the diverse microbial communities living in healthy individuals across India

Implications:

- Loss of microbial diversity** due to urbanisation and changing diets may reduce future health benefits
- Limited representation** of Indian and tribal populations in global research affects scientific understanding
- Generalisation of probiotics** may be ineffective as microbiomes vary based on diet and geography
- Small **sample size** limits broader conclusions, requiring further large-scale studies



- Lack of **biobanking infrastructure** risks permanent loss of rare microbial species
- Raises ethical concerns regarding **data ownership and use of indigenous biological resources**

Way Forward:

- Expand **Indian Human Microbiome Initiative (IHMI)** to cover more populations and regions
- Establish **microbial biobanks** to preserve unique gut microbiota for future research and clinical use
- Promote **region-specific probiotic research** instead of one-size-fits-all solutions
- Encourage **interdisciplinary research** combining biology, anthropology, and nutrition science
- Ensure **ethical guidelines and community participation** in research involving tribal populations
- Create awareness on the importance of **traditional diets and biodiversity conservation**

Mains Question:

“Gut microbiome diversity reflects the interaction between diet, culture, and biology.” Discuss in the context of tribal populations in India. Highlight its implications for public health and policy. (15 marks, 250 words)

Why is Jantar Mantar in Delhi facing scrutiny?

Prelims: General Paper 1

Current events of national and international importance.

Mains: General studies 2

Government policies and interventions for development in various sectors and issues arising out of their design and implementation

Why in Focus?

- The Delhi High Court raised concerns about continued protests at **Jantar Mantar** and their impact on the city
- The Supreme Court of India suggested shifting

the main protest venue to **Ramlila Maidan**, highlighting the issue of regulating protest spaces

Key Highlights:

- **Jantar Mantar** is located close to **Parliament**, allowing protesters visibility to policymakers while remaining outside high-security zones
- Before the 1990s, major protests were held at **Boat Club lawns** (a large open public ground along Rajpath/Kartavya Path in New Delhi), but large gatherings like the **1988 farmers' rally** led to security concerns and a shift in venues
- Jantar Mantar became a protest site through **executive practice** and was later formalised under **Delhi Police Standing Order 309 (2003)**
- Protest locations are decided based on **crowd size**, with smaller gatherings at Jantar Mantar and larger ones at **Ramlila Maidan, Burari, and Narela**
- In **2017**, the **National Green Tribunal (NGT)** restricted protests citing **noise pollution** and **residential area concerns**
- In **2018**, the Supreme Court allowed protests but directed authorities to frame **guidelines balancing rights and public order**
- At present, protests require **police permission** with rules on crowd size, duration, and noise; **Jantar Mantar is free** while **Ramlila Maidan involves cost**

Implications:

- There is a conflict between the **fundamental right to protest (Article 19)** and the **right of residents to peaceful living**
- Protests in central areas lead to **traffic congestion, noise pollution**, and pressure on **urban infrastructure**
- Proximity to Parliament and key institutions creates **security risks**
- Lack of a clear **statutory framework** leads to dependence on **executive orders** and discretionary regulation
- Charging fees at alternative venues may limit access for **smaller or weaker groups**
- Shifting protests away from central locations may reduce their **visibility and democratic impact**



Way Forward:

- A clear **legal framework** should be created to regulate protests instead of relying mainly on police orders
- Multiple **designated protest spaces** should be developed with proper infrastructure and **capacity-based allocation**
- Use of **technology** for permissions, **crowd monitoring**, and **traffic management**
- Enforce **reasonable time, place, and manner restrictions** without undermining democratic rights
- Ensure **affordable or subsidised access** to maintain inclusiveness
- Promote **stakeholder consultation** involving residents, civil society, and authorities

Mains Question:

The regulation of protest spaces in urban areas reflects a tension between democratic rights and governance challenges. Discuss in the context of the Jantar Mantar issue and suggest a balanced framework for managing public protests in India. (15 marks, 250 words)

Why are users worried about UPI charges?

Prelims : General Studies Paper I

Indian Polity and Governance-Constitution, Political System, Panchayati Raj, Public Policy, Rights Issues, etc.

Mains: General Studies 2

Government policies and interventions for development in various sectors and issues arising out of their design and implementation.

Why in Focus?

- The **Taxation and Other Laws (Amendment) Bill, 2026** seeks to empower the government to allow **MDR charges** on certain **UPI transactions**.
- This could change the existing model in which **UPI transactions are largely free of MDR charges**.

Key Highlights

- **Merchant Discount Rate (MDR)** is a **fee paid by merchants** to banks and payment processors for using payment networks.
- MDR generally includes **interchange fee, processing charges, network fee, and GST**.
- Since **2020**, **UPI and RuPay debit card transactions** have been exempt from **MDR charges**.
- The **Government** launched the **Incentive Scheme for Promotion of Low-Value BHIM-UPI Transactions (Person-to-Merchant)** to provide **subsidies to banks** for **UPI transactions below ₹2,000** at small merchants.
- Government spending on the subsidy rose from **₹1,389 crore (2021-22)** to **₹3,631 crore (2023-24)** and is budgeted at **₹2,000 crore for 2026-27**.
- The **Taxation and Other Laws (Amendment) Bill, 2026**, passed by the **Lok Sabha on August 6**, allows the government to **notify transactions on which MDR can be charged**.
- The government is reportedly considering MDR for **large merchants** and **UPI transactions above ₹2,000**, potentially excluding around **95% of current UPI transactions**.
 - ◆ The possible rate is **0.25%-0.4%**, but the final rate has **not been decided**.
- The proposed change aims to help **banks and fintech companies** invest in **infrastructure, innovation, and security**.

A **payment processor** is a company or service that **facilitates electronic payments** between businesses and customers, including **credit cards, debit cards, and digital wallets**. Examples: **PayPal, Razorpay**.

Interchange fee is a charge paid by the **merchant's bank** to the **bank that issued the customer's card**, for processing a **card payment**.

Implications

- **Merchants may pass MDR charges to consumers**, potentially making digital payments more expensive.
- Making UPI significantly more expensive could reduce its attractiveness and encourage some users to return to **cash payments**.
- There is a need to balance the **financial**



sustainability of the UPI ecosystem with digital and financial inclusion.

Way Forward

- Maintain the **affordability and accessibility** of UPI while ensuring adequate funding for its **infrastructure and security**.
- Design MDR charges carefully so that **small merchants and low-value transactions** remain protected.
- Ensure **transparency** regarding MDR rates and prevent unreasonable charges from being passed on to consumers.

Mains Question

“The proposed introduction of Merchant Discount Rate (MDR) on certain UPI transactions reflects the challenge of balancing the financial sustainability of digital payment systems with the objective of financial inclusion.” Discuss. (150 Words)

How does the SC handbook rethink gender sensitivity?

Prelims : General Studies Paper I

Indian Polity and Governance-Constitution, Political System, Panchayati Raj, Public Policy, Rights Issues, etc.

Mains: General Studies 2

Structure, organization and functioning of the Executive and the Judiciary—Ministries

Why in Focus?

- The **Supreme Court** has released a new report, ‘**Judgments and Gender: Sensitivity and Compassion in Writing Judgments**’, to improve **gender sensitivity** in judicial language and courtroom practices.
- It replaces the **2023 Handbook on Combating Gender Stereotypes** and focuses more on **practical training and trauma-informed justice**.

Key Highlights

- The report was prepared by an **expert committee headed by Justice Aniruddha Bose**, former Supreme Court judge and Director of the **National Judicial Academy**

(**NJA**), Bhopal.

- The committee examined **125 trial court judgments** from across India with assistance from **State Judicial Academies**.
- The report recommends replacing terms such as “**prosecutrix**” with “**victim**”, “**survivor**” or “**complainant**” to better reflect the experiences of persons approaching the justice system.
- Judges are advised to avoid language based on **morality, chastity, honour, or gender stereotypes** and instead focus on **legal injury, bodily autonomy, and trauma**.
- Courts should use **respectful and contemporary language** for people with diverse **sexual orientations and gender identities**.
 - ◆ The report recommends the globally recognised **Sexual Orientation, Gender Identity, Expression and Sex Characteristics (SOGIESC)** framework.
- **Rape and sexual-offence trials** should ordinarily be held **in camera**, with strict protection of survivors’ identities through **initials or pseudonyms**.
- Courts should avoid **repeated adjournments**, prolonged waiting, and insensitive treatment of witnesses, while ensuring that **indecent or offensive questions** are not used during cross-examination.
- A survivor’s **previous sexual history** should not be considered relevant in a rape trial.

Implications

- **Gender stereotypes** in judicial language can discourage survivors from reporting offences and weaken trust in the justice system.
- Judges may incorrectly draw conclusions from **delayed reporting, absence of physical injuries, inconsistencies in testimony**, or a survivor’s **demeanour**.
- Lack of **trauma-informed judicial practices** can place additional stress on survivors during legal proceedings.

Way Forward

- Provide judges with **practical training** on gender sensitivity and **trauma-informed adjudication**.



- Ensure **respectful judicial language** and avoid stereotypes in judgments and courtroom proceedings.
- Strengthen **victim protection**, including privacy, identity protection, and supportive courtroom practices.
- Apply legal safeguards consistently to ensure **dignity, fairness, and access to justice** for survivors.

Mains Question

“Gender-sensitive judicial practices are essential for ensuring access to justice for survivors of sexual offences.” Discuss the recommendations of the Supreme Court’s new report in this context. (150 Words)

KEYWORDS

E-Eye

- **E-Eye** is a **portable optical sensing device** developed by researchers at **IIT Guwahati** for rapid **on-site water-quality testing**.
- It can detect **toxic metals, fluoride, and bacteria** in **water samples**.
- The device has detected **arsenic, lead, iron, chromium, fluoride, and Escherichia coli** during laboratory tests.
- It uses a **chemical reaction** that produces a **coloured compound**, whose **colour intensity** changes with the concentration of the contaminant.
- **Optical sensing** analyses the colour, converts the reading into **digital data**, and displays the **contaminant concentration**.
- The device costs around **₹3,500**, with each test costing about **₹2**, and can **wirelessly transmit results** to water-treatment facilities.

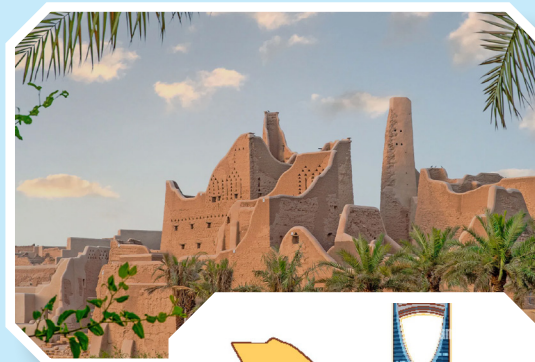
Pradhan Mantri Surya Sarovar Yojana (PM-SSY)

- **PM-SSY** is a scheme approved by the **Union Cabinet** to develop **Floating Solar Photovoltaic (FSPV) projects** with **Energy Storage Systems (ESS)**, with a total outlay of **₹5,070 crore**.
- The scheme aims to develop **5,000 MW** of floating solar capacity with a minimum storage capacity of **10,000 MWh**, using **reservoirs and industrial ponds to reduce** the need for land.
- Projects will be sanctioned from **FY 2026-27 to FY 2030-31**, with financial support continuing up to **FY 2032-33**.
- **Central Financial Assistance (CFA)** of **₹1 crore per MW** will be provided for eligible projects, with up to **₹50 lakh per project** for feasibility studies.
- The scheme is expected to reduce **CO₂ emissions by around 10 million tonnes annually**, strengthen **grid reliability**, promote **domestic manufacturing**, and support **Aatmanirbhar Bharat**.

Places in News

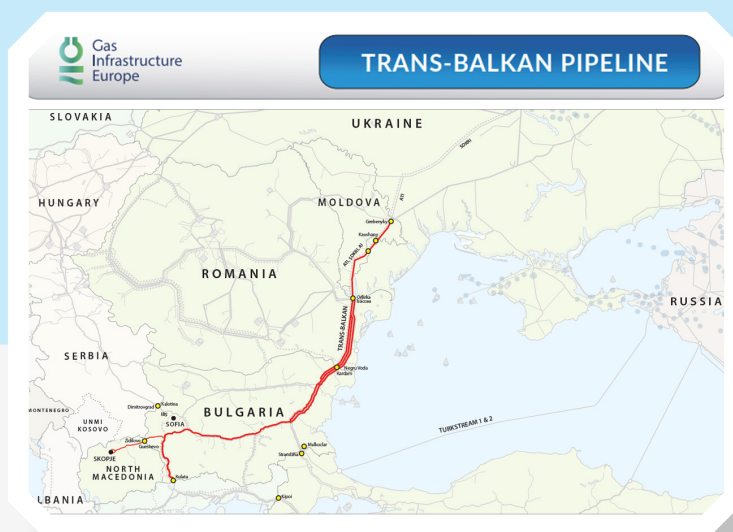
Diriyah

- Located on the **northwestern outskirts of Riyadh**, it holds **immense historical significance** as the **original home of the House of Saud** and the **capital of the First Saudi State**.
- At its core lies the **At-Turaif district**, designated a **UNESCO World Heritage Site (2010)** for its **well-preserved Najdi mud-brick architecture**.
- The ruins are situated along the **Wadi Hanifa valley** and are divided into **three main hilltop districts: Ghussaibah, Al-Mulaybeed, and Turaif**.
- Today, it is undergoing a massive **\$63.2 billion “giga-project”** under **Saudi Vision 2030**, led by the **Diriyah Gate Development Authority**, to develop it into a **global cultural, heritage, and tourism hub**.



Trans-Balkan Gas Pipeline

- The pipeline is in the news after a drone carrying a **“significant” amount of explosives** exploded near it at the **Bulgaria-Romania border**, with **Ukraine denying any involvement**.
- It is a major natural gas corridor linking **Türkiye to Ukraine**, passing through **Bulgaria, Romania, and Moldova**, with **branches to Greece and North Macedonia**.
- For decades, it operated in a **north-to-south direction**, serving as the **primary route for Russia’s Gazprom** to supply gas via **Ukraine to the Balkans and Türkiye**.
- It now supports **bi-directional (reverse flow)**, enabling **Eastern European countries (Bulgaria, Romania, Moldova, Ukraine, North Macedonia)** to import **Azerbaijani gas** and **Liquefied Natural Gas (LNG)** from **Greek and Turkish terminals**, thereby **reducing dependence on Russian energy**.
- It has a capacity of **about 17-27 billion cubic meters (bcm) per year**, making it a **key pillar of regional energy security** and **European gas market integration**.



Species In News

Anolis scriptus

- *Anolis scriptus*, commonly known as the **Turks and Caicos anole**, is in the news after a study showed it **rapidly evolved physical traits**-such as **larger toepads and shorter hind toes**-to maintain a **stronger grip on branches** after surviving **Hurricanes Irma and Maria (2017)**.
- It is a **small, arboreal lizard** belonging to the **family Dactyloidae** and is **endemic to the Bahamas and the Turks and Caicos Islands**.
- Adults measure about **40-65 mm (snout-to-vent length)**, with **females smaller than males**, and they mainly inhabit the **lower vegetation layers** of island ecosystems.
- The **IUCN (International Union for Conservation of Nature) Red List** classifies it as **“Least Concern”**, indicating a **relatively stable population** in its native range.
- Its adaptations are an important **case study in evolutionary biology**, showing how **extreme climate events** can drive **rapid natural selection and morphological change** in **isolated populations**.

