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VIDHVATH IAS KAS ACADEMY
&
STUDY CENTRE

DAILY MCQ'S

FOR UPSC CIVIL SERVICE EXAMINATION

DATE: 28/02/2026 (SATURDAY)

- **Static mcq's**
- **Current Affairs mcq's**
- **Mains Practice Questions**

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DAILY PRACTICE QUESTIONS FROM STATIC PART

Q1. Consider the following statements:

1. Graphene exhibits higher electrical conductivity than copper primarily due to its zero band gap and massless Dirac fermion behavior of charge carriers.
2. In graphene, electron mobility remains largely unaffected by temperature because phonon scattering is absent in its two-dimensional lattice.

Which of the above statements is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Answer: (a)

Explanation:

- **Statement 1 is correct:** Graphene shows exceptionally high electrical conductivity because its charge carriers behave as massless Dirac fermions and it has a zero band gap, enabling extremely fast charge transport.
- **Statement 2 is incorrect:** Although graphene has very high mobility, it is still affected by phonon scattering and temperature. Mobility decreases at higher temperatures; phonon scattering is not absent.

Q2. With reference to CRISPR-Cas genome editing technology, which one of the following statements is correct?

(a) It can edit mitochondrial DNA with the same efficiency as nuclear DNA because Cas9 functions in all cellular compartments.
(b) It requires a guide RNA complementary to the target sequence and a protospacer adjacent motif (PAM) in the target DNA.
(c) It introduces genetic material only through homologous recombination and cannot create gene knockouts.
(d) It is limited to prokaryotic organisms because CRISPR systems originate in bacteria.

Answer: (b)

Explanation:
CRISPR-Cas9 requires a guide RNA complementary to the target DNA and a PAM sequence adjacent to the target site for Cas9 binding and cleavage.

- (a) Incorrect: Editing mitochondrial DNA is difficult because delivery of Cas9 and guide RNA into mitochondria is inefficient.
- (c) Incorrect: CRISPR commonly creates gene knockouts via non-homologous end joining (NHEJ).
- (d) Incorrect: CRISPR is widely used in eukaryotic cells including plants and animals.

Q3. Consider the following statements regarding quantum dots:

1. Quantum dots exhibit size-dependent optical properties because of quantum confinement effects.
2. Smaller quantum dots emit light of longer wavelength due to increased band gap energy.
3. Quantum dots are used in biomedical imaging because their fluorescence is resistant to photobleaching compared to organic dyes.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

Answer: (b)

Explanation:

- **Statement 1 is correct:** Quantum confinement makes optical properties size-dependent.
- **Statement 2 is incorrect:** Smaller dots have larger band gaps and emit shorter wavelength (bluer) light, not longer.
- **Statement 3 is correct:** Quantum dots are highly photostable compared to organic fluorophores, making them useful in imaging.

Hence, **two statements (1 and 3)** are correct.

Q4. Consider the following statements about mRNA vaccines:

1. mRNA vaccines integrate into the host genome because reverse transcriptase activity exists in human cells.
2. Lipid nanoparticles in mRNA vaccines protect mRNA from degradation and facilitate cellular uptake.
3. mRNA vaccines can be rapidly redesigned for emerging variants because they require only sequence modification.
4. The immune response induced by mRNA vaccines is limited to humoral immunity and does not involve T-cell responses.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) Only three
(d) All four

Answer: (b)

Explanation:

- **Statement 1 is incorrect:** mRNA vaccines do not integrate into host DNA; they remain in the cytoplasm and degrade naturally.
- **Statement 2 is correct:** Lipid nanoparticles protect and deliver mRNA into cells.
- **Statement 3 is correct:** The mRNA platform allows rapid redesign by changing the sequence.
- **Statement 4 is incorrect:** mRNA vaccines induce both humoral (antibody) and cellular (T-cell) immunity.

Thus, **two statements (2 and 3)** are correct.

Q5. Assertion (A): Perovskite solar cells have achieved rapid efficiency improvements compared to silicon solar cells.

Reason (R1): Perovskite materials possess high absorption coefficients and long charge-carrier diffusion lengths.
Reason (R2): Perovskite solar cells operate exclusively through exciton-mediated charge transport unlike silicon p–n junction cells.

Select the correct answer using the code given below:

(a) A is correct, R1 is correct, R2 is correct; and both R1 and R2 explain A
(b) A is correct, R1 is correct, R2 is incorrect
(c) A is correct, R1 is incorrect, R2 is correct
(d) A is incorrect, R1 is correct, R2 is incorrect

Answer: (b)

Explanation:

- **Assertion is correct:** Perovskite solar cells have achieved rapid efficiency gains (over ~25% within about a decade), much faster than silicon historically.
- **R1 is correct:** High absorption and long diffusion lengths enable efficient charge collection even in thin films.
- **R2 is incorrect:** Perovskite solar cells do not operate exclusively via excitons; they predominantly generate free carriers similar to conventional semiconductors.

Therefore, **A and R1 are correct; R2 is incorrect.**

DAILY PRACTICE QUESTIONS FROM CURRENT AFFAIRS

Q1. Consider the following statements regarding the PM-RAHAT Scheme:

1. It provides ex-gratia assistance from the National Disaster Response Fund directly to migrant workers affected by notified disasters.
2. It mandates Aadhaar-seeded Direct Benefit Transfer (DBT) architecture to enable portability of relief across States.

Which of the above statements is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

Answer: (d)

Explanation:

- **Statement 1 is incorrect:** The PM-RAHAT framework is not an NDRF-based migrant ex-gratia programme. It is conceptualised as a relief assistance and humanitarian support framework distinct from statutory disaster compensation mechanisms.
- **Statement 2 is incorrect:** It does not mandate Aadhaar-seeded portability architecture across States; such portability features are typical of schemes like One Nation One Ration Card or certain DBT programmes.

Q2. With reference to the Startup India Fund of Funds 2.0, which one of the following statements is correct?

(a) It directly invests equity into DPIIT-recognized startups through SIDBI without intermediary Alternative Investment Funds (AIFs).
(b) It is a budgetary grant scheme that provides interest-free loans to incubators instead of startups.
(c) It expands the original Fund of Funds architecture with sector-focused daughter funds routed via SEBI-registered AIFs.
(d) It replaces all State startup funds and subsumes them into a single national sovereign venture fund.

Answer: (c)

Explanation:
Startup India Fund of Funds 2.0 builds upon the earlier Fund of Funds for Startups (FFS) model, wherein the Government (through SIDBI) invests in SEBI-registered AIFs, which in turn invest in startups. The 2.0 version emphasizes sector-specific and deep-tech focused daughter funds.

- (a) Incorrect: The Government does not directly invest in startups.
- (b) Incorrect: It provides equity support via AIFs, not loans to incubators.
- (d) Incorrect: It does not subsume State startup funds.

Q3. Consider the following statements about bio-based chemicals and enzymes:

1. Bio-based chemicals are necessarily biodegradable because they are derived from renewable biomass.
2. Industrial enzymes can enable lower-temperature chemical processes, thereby reducing lifecycle greenhouse gas emissions.
3. Second-generation bio-based chemicals primarily use lignocellulosic feedstock rather than food-based sugars or starch.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

Answer: (b)

Explanation:

- **Statement 1 is incorrect:** Bio-based origin does not guarantee biodegradability; some bio-based polymers are non-biodegradable.
- **Statement 2 is correct:** Enzymes act as biocatalysts enabling milder processing conditions and potentially lower emissions.
- **Statement 3 is correct:** Second-generation bio-chemicals rely mainly on non-food lignocellulosic biomass.

Hence, **two statements** are correct.

Q4. Consider the following statements regarding the Urban Challenge Fund (UCF):

1. It is designed as a competitive fiscal transfer to States linked to urban governance reforms and project readiness.
2. It replaces the Finance Commission-recommended urban local body grants with performance-linked infrastructure financing.
3. It prioritizes climate-resilient urban infrastructure such as flood mitigation, heat-action planning, and blue-green networks.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) All three
(d) None

Answer: (b)

Explanation:

- **Statement 1 is correct:** UCF is conceptualized as a competitive challenge-based funding mechanism tied to reforms and project readiness.
- **Statement 2 is incorrect:** It does not replace Finance Commission grants, which are constitutional transfers.
- **Statement 3 is correct:** Climate-resilient and sustainable urban infrastructure is a key focus.

Hence, **two statements** are correct.

Q5. Consider the following statements about CBDC-based Public Distribution System (PDS):

1. A retail CBDC-based PDS enables programmable subsidy transfer, ensuring funds are spent only on notified food items.
2. CBDC-based PDS eliminates the need for authentication mechanisms such as biometric or OTP verification at fair price shops.
3. Offline functionality of CBDC can facilitate last-mile subsidy delivery in low-connectivity regions.
4. CBDC-based PDS inherently removes price discovery distortions caused by Minimum Support Price procurement.

How many of the above statements are correct?

(a) Only one
(b) Only two
(c) Only three
(d) All four

Answer: (b)

Explanation:

- **Statement 1 is correct:** Programmable CBDC can restrict usage to specified goods/services.
- **Statement 2 is incorrect:** Beneficiary authentication mechanisms would still be required.
- **Statement 3 is correct:** Offline CBDC is intended to support transactions in low-connectivity environments.
- **Statement 4 is incorrect:** MSP-related distortions arise from procurement policy, not from the subsidy transfer mode.

Thus, **two statements (1 and 3)** are correct.

Q6. With reference to India's first underwater road-cum-rail tunnel under the Brahmaputra River, consider the following pairs:

Tunnel Location (Proposed Alignment) — Connecting Points

1. Guwahati — North Guwahati
2. Numaligarh — Majuli Island

3. Dibrugarh — Dhemaji

Which of the pairs given above is/are correctly matched?

(a) 1 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

Answer: (a)

Explanation:

- The proposed underwater road-cum-rail tunnel under the Brahmaputra is planned between **Guwahati and North Guwahati** to improve connectivity.
- **Numaligarh–Majuli** involves bridge-based connectivity proposals, not an underwater tunnel.
- **Dibrugarh–Dhemaji** connectivity is through the Bogibeel Bridge corridor, not via a tunnel.

Hence, **only Pair 1** is correct.

DAILY PRACTICE QUESTIONS FOR MAINS ANSWER WRITING PRACTICE

Q1. ***"The Industrial Revolution not only transformed economies but also reshaped social hierarchies and global power structures."*** **Critically examine. (GS-1: World History)**

Answer:
The Industrial Revolution (late 18th–19th centuries) marked a structural break in human history, transforming agrarian economies into industrial-capitalist systems. Its impact went far beyond technological change, fundamentally altering social hierarchies and global power balances.

Economic transformation:
Mechanization, steam power, and factory production dramatically increased productivity and output. Industries such as textiles and iron shifted from cottage-based production to centralized factories. Capital accumulation and industrial finance emerged, creating modern capitalism. Industrial economies achieved unprecedented growth, urbanization, and market integration.

Reshaping social hierarchies:
The Revolution created new classes—industrial bourgeoisie (factory owners, financiers) and the industrial proletariat (wage laborers). Traditional aristocratic land-based elites lost relative dominance, while wealth and influence shifted toward industrial capitalists. Urban working classes faced harsh conditions—long hours, child labor, and unsafe factories—sparking labor movements, trade unions, and socialist ideologies (Marxism). Thus, class consciousness and class conflict became defining features of modern societies.

Global power structures:
Industrialization enabled European powers to project military and economic dominance globally. Mechanized production required raw materials and markets, intensifying imperial expansion into Asia and Africa. Industrial military technologies (rifles, railways, steamships) ensured colonial superiority. Consequently, the global North–South divide widened, institutionalizing unequal trade patterns and dependency relationships that persist today.

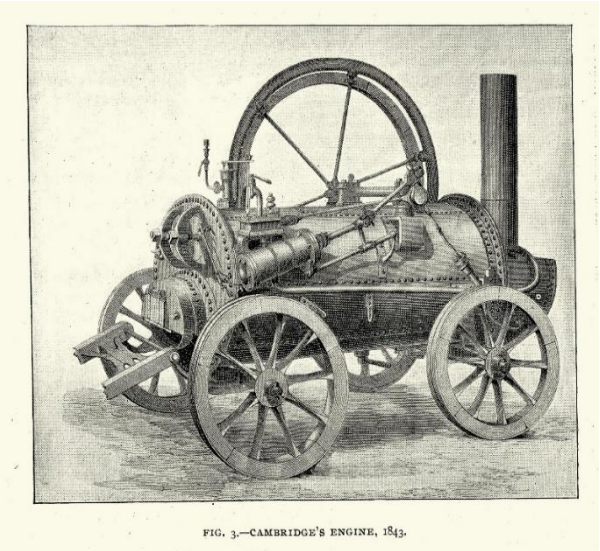
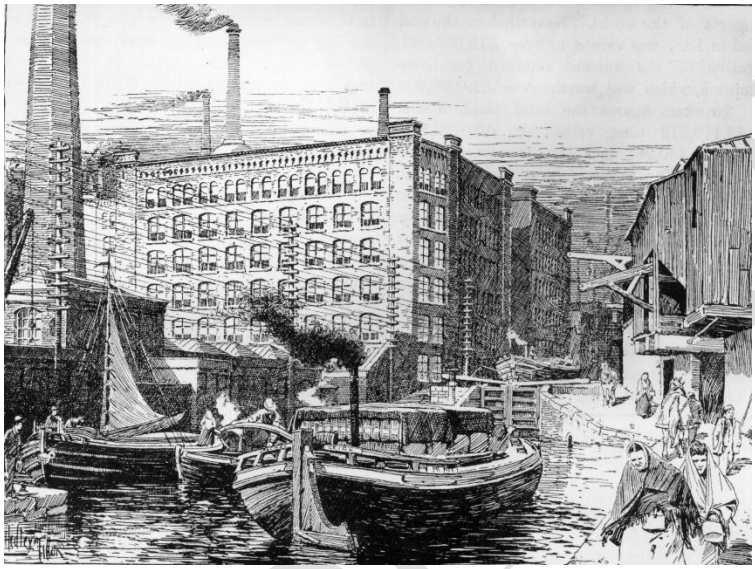


FIG. 3.—CAMBRIDGE'S ENGINE, 1843.

Long-term implications:
The Industrial Revolution laid foundations for modern nation-states, urban governance, public health systems, and education reforms. It also triggered environmental consequences—coal use, pollution, and resource extraction—foreshadowing contemporary climate challenges.



Critical assessment:
While it generated wealth and technological progress, benefits were unevenly distributed. Industrial capitalism produced exploitation, inequality, and colonial subjugation. Social reforms and welfare states emerged later to mitigate these effects. Hence, the Industrial Revolution must be seen as both a driver of modernization and a source of structural inequalities.

Conclusion:
The Industrial Revolution fundamentally reordered societies and global hierarchies. It replaced agrarian feudal orders with industrial capitalism and enabled Western dominance—transformations that continue to shape modern socio-economic and geopolitical realities.

Q2. Discuss the challenges of cooperative federalism in India in the context of fiscal relations and policy coordination. Suggest measures to strengthen it. (GS-2)

Answer:
Cooperative federalism in India refers to collaborative functioning between Union and States to achieve national objectives while respecting federal autonomy. Despite institutional mechanisms like the GST Council and NITI Aayog, significant challenges persist in fiscal relations and policy coordination.

Fiscal challenges:

First, vertical fiscal imbalance persists: the Union controls major tax bases while States bear expenditure responsibilities in health, education, and welfare. Although Finance Commissions recommend devolution, States depend heavily on transfers and centrally sponsored schemes (CSS).

Second, GST implementation altered fiscal autonomy. States surrendered indirect taxation powers; compensation cess disputes and delayed payments strained trust.

Third, tied grants under CSS restrict State flexibility, leading to "one-size-fits-all" policies unsuited to regional needs.

Policy coordination challenges:

Concurrent subjects (education, environment, agriculture marketing) require coordination, yet political differences often hinder consensus. Inter-State disparities in capacity and governance complicate uniform implementation of national missions (e.g., urban reforms, health insurance). Competitive federalism sometimes undermines cooperation, as States pursue divergent policies to attract investment.

Institutional limitations:

The Inter-State Council is underutilized; NITI Aayog lacks financial authority; GST Council decisions increasingly reflect majoritarian voting rather than consensus, raising federal concerns.

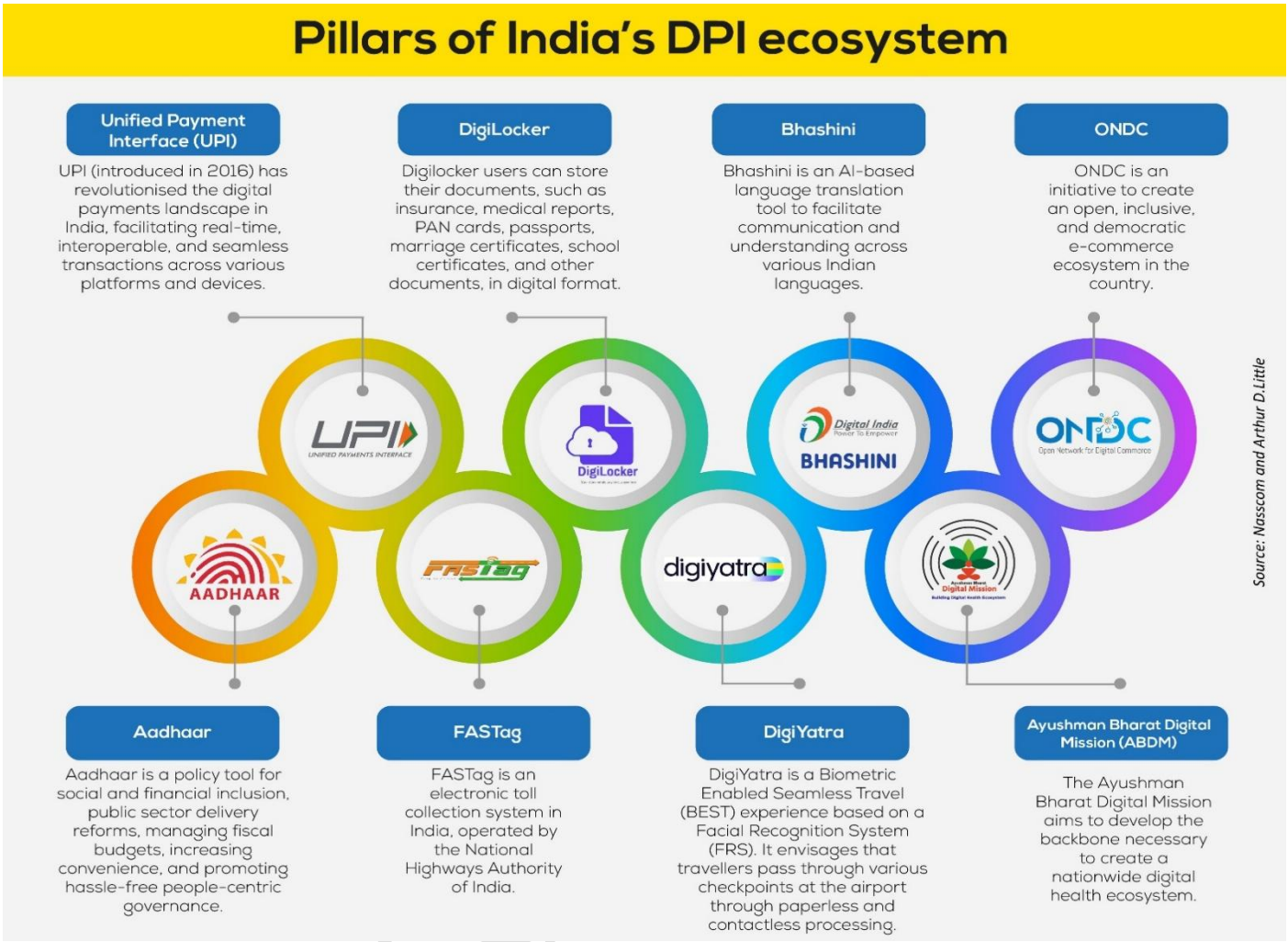
Measures to strengthen cooperative federalism:

1. **Enhance fiscal autonomy:** Increase unconditional tax devolution and rationalize CSS into block grants.
2. **Strengthen GST trust:** Ensure predictable compensation frameworks and greater State say in rate decisions.
3. **Revitalize Inter-State Council:** Regular meetings for dispute resolution and policy dialogue.
4. **Capacity equalization:** Support weaker States through technical assistance and outcome-based grants.
5. **Collaborative policy design:** Co-creation of national schemes with States rather than top-down mandates.
6. **Data-sharing federalism:** Integrated digital platforms for cooperative governance (health, agriculture markets).

Conclusion:

Cooperative federalism is essential in a diverse polity like India. Strengthening fiscal trust, institutional dialogue, and shared decision-making can transform Centre–State relations from hierarchical control to genuine partnership.

Q3. Examine how emerging digital public infrastructure (DPI) can enhance inclusive growth while posing new risks to economic security and privacy. (GS-3)



Answer:

Digital Public Infrastructure (DPI)—including Aadhaar, UPI, and DigiLocker—represents a transformative governance model enabling identity, payments, and data exchange at population scale. It has profound implications for inclusive growth but also raises economic and privacy concerns.

Enhancing inclusive growth:

DPI reduces transaction costs and barriers to participation. Aadhaar-enabled identification supports financial inclusion by simplifying KYC and expanding bank accounts (Jan Dhan). UPI democratizes digital payments, enabling micro-entrepreneurs and informal workers to access cashless transactions. Direct Benefit Transfers reduce leakage and ensure targeted welfare delivery, improving state capacity. DPI also fosters innovation ecosystems: fintech startups build services atop open platforms, generating employment and productivity gains. Rural areas gain access to credit, insurance, and markets via digital channels, narrowing regional disparities.

Economic security risks:
Dependence on digital infrastructure creates systemic vulnerabilities. Cyberattacks or outages in payments networks can disrupt commerce at scale. Concentration of data and platform power may enable monopolistic control or foreign influence in critical financial systems. Informal workers relying on digital platforms face algorithmic exclusion or sudden loss of access.

Privacy and surveillance concerns:
Large-scale biometric and transaction data raise risks of profiling and unauthorized surveillance. Data breaches can expose sensitive financial information. Lack of strong data protection enforcement or consent frameworks may undermine citizen trust. Digital exclusion also persists for elderly, remote, or technologically disadvantaged populations.

Balancing inclusion and safeguards:
Robust data protection laws, decentralized architectures, and privacy-by-design standards are essential. Cybersecurity investments and redundancy in payment systems enhance resilience. Digital literacy and assisted access models (banking correspondents, offline payments) can prevent exclusion. Competition regulation ensures open, interoperable ecosystems.

Conclusion:
DPI can be a powerful engine of inclusive growth and state efficiency, but only if accompanied by strong governance, privacy safeguards, and resilience measures. The challenge lies in harnessing scale without compromising rights and security.

Q4. "Integrity in public service requires not only adherence to rules but also commitment to ethical outcomes." Discuss with suitable examples. (GS-4: Ethics)

Answer:
Integrity in public service is traditionally associated with honesty, impartiality, and adherence to laws and procedures. However, ethical governance demands going beyond procedural compliance toward achieving just and beneficial outcomes for citizens.

Rules vs outcomes dilemma:
Strict rule-following may sometimes produce unjust results. For example, a welfare beneficiary lacking documentation may be denied aid despite genuine need. A purely procedural officer may reject the application; an outcome-oriented ethical officer seeks lawful alternatives (temporary certification, field verification) to ensure justice. Thus integrity involves moral reasoning within legal frameworks.

Ethical commitment dimensions:

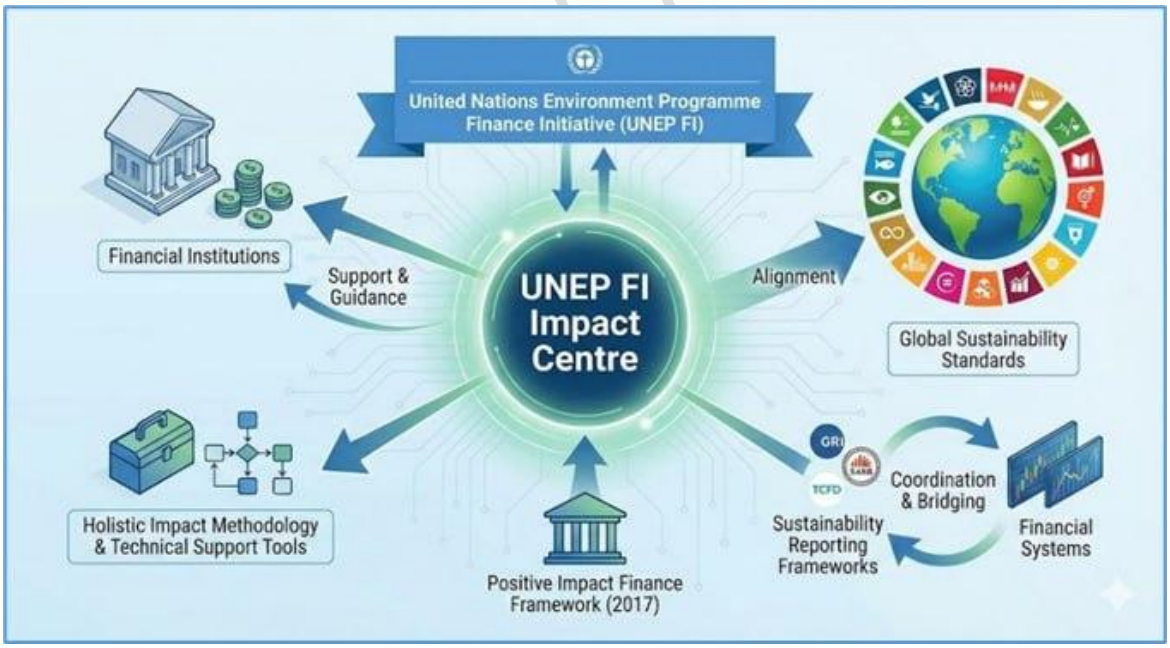
1. **Compassionate administration:** Sensitivity to vulnerable groups ensures policies achieve intended social objectives.
2. **Public interest orientation:** Decisions prioritize societal welfare over bureaucratic convenience.
3. **Moral courage:** Officers may resist political pressure or corrupt practices even when rules are ambiguous.
4. **Accountability and transparency:** Ethical outcomes require openness and responsiveness.

Examples:
During disasters, rigid procurement rules may delay relief. Ethical administrators use emergency provisions creatively yet lawfully to expedite aid. Similarly, innovative district officials enabling community kitchens or mobile health units demonstrate integrity aligned with outcomes. Whistleblowers exposing corruption illustrate commitment to ethical results beyond procedural silence.

Balancing legality and ethics:
Outcome-orientation must not justify arbitrary actions; legality remains foundational. Ethical integrity lies in interpreting rules purposively to realize constitutional values—justice, equality, dignity. Training in ethical reasoning and value-based leadership can strengthen this balance.

Conclusion:
True integrity in public service merges rule compliance with moral responsibility for citizen welfare. It transforms administration from mechanical governance to humane and just service delivery aligned with democratic ideals.

Q5. Explain the role of the UNEP Finance Initiative (UNEP FI) Impact Centre in aligning global finance with sustainability goals. Assess its relevance for developing countries like India. (Current Affairs)



Answer:
The UNEP Finance Initiative (UNEP FI) Impact Centre is a recent institutional effort to embed sustainability and impact considerations into global financial systems. It supports financial institutions in aligning investments with environmental and social goals such as the Sustainable Development Goals (SDGs) and climate targets.

Role and functions:
The Impact Centre develops methodologies, data tools, and standards to measure real-world sustainability outcomes of financial flows. It advances frameworks like impact analysis, portfolio alignment with climate pathways, and biodiversity risk assessment. By integrating ESG metrics with impact measurement, it shifts finance from risk-avoidance toward positive environmental and social outcomes. It also facilitates collaboration among banks, insurers, and investors to mainstream sustainable finance practices.

Global significance:
Traditional ESG approaches often focused on disclosure rather than measurable impact. The Impact Centre emphasizes outcome-based finance—assessing whether investments reduce emissions, protect ecosystems, or improve livelihoods. This supports global climate commitments (Paris Agreement) and biodiversity goals by directing capital toward green infrastructure, renewable energy, and sustainable agriculture.

Relevance for developing countries like India:
India faces massive financing needs for climate adaptation, renewable transition, and sustainable urbanization. The Impact Centre's tools can help Indian financial institutions assess climate risks and mobilize green capital efficiently. Impact-aligned finance can support sectors like solar energy, electric mobility, climate-resilient agriculture, and circular economy industries. It also enhances credibility in global sustainable finance markets, attracting foreign investment.

Challenges:
Data gaps, capacity constraints, and higher perceived risks in emerging markets may limit adoption. Aligning global standards with local development priorities is essential to avoid capital bias toward developed markets.

Way forward:
India can integrate Impact Centre methodologies into green taxonomy, sovereign green bonds, and banking regulations. Capacity building for financial institutions and improved sustainability disclosure frameworks will enhance effectiveness.

Conclusion:
The UNEP FI Impact Centre represents a shift toward outcome-oriented sustainable finance. For India, it offers an opportunity to align developmental finance with climate and SDG objectives, enabling a greener and more resilient growth pathway.