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AIR 593
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DAILY CURRENT AFFAIRS-

1. **China's Export Curbs on Critical and Emerging Technologies**
2. **E-commerce: Why the Price You See Is Not What You Pay**
3. **INS Samarthak: India's First Indigenous Multi-Purpose Vessel**
4. **Delhi's AI-Powered Integrated Command and Control Centre (ICCC)**
5. **India's Export Surge and Economic Reforms**

1.China's Export Curbs on Critical and Emerging Technologies

Source: The Hindu, Page 1

Subject: Science & Technology | International Relations | Economy

Why in News?

- China announced draft Announcement No. 48 proposing export controls on more than 40 advanced technologies, including Artificial Intelligence (AI), biomedicine and photovoltaics.
- The proposal includes complete export prohibitions on 14 technologies and restrictions on 26 others.
- The move could affect India's efforts to develop domestic solar manufacturing capacity and reduce dependence on Chinese technology.

Key Features of China's Proposed Restrictions

- Complete export prohibition: Covers 14 technologies, including perovskite and tandem solar-cell module manufacturing technologies, certain cell and gene therapy platforms, and AI technology for generating malicious code.
- Restricted exports: Another 26 technologies face export restrictions, including polysilicon engineering technologies for solar-cell production lines with annual capacity of at least 30,000 tonnes.
- AI technologies: Controls cover 23 key technologies related to foundation models, intelligent agents and computing clusters. Most AI technologies are expected to remain freely exportable.
- National security rationale: China cited concerns over inappropriate proliferation and the growing applications of advanced technologies in aerospace, defence and unmanned systems.
- Open-source ecosystem: The proposal indicates continued facilitation of open-source AI innovation and certain overseas chip-fabrication activities.

Impact on India

- Solar manufacturing: Restrictions could delay access to advanced solar-cell manufacturing technologies and affect efforts to build domestic capacity, including the stated 15 GW target mentioned in the source.
- Technology dependence: Indian firms may face licensing delays and constraints on joint ventures or technology-transfer agreements with Chinese companies.
- Strategic vulnerability: Dependence on foreign technology can expose domestic industries to export controls and geopolitical tensions.
- Economic implications: Delays in technology acquisition could increase costs and slow the development of advanced renewable-energy manufacturing.

Critical and Emerging Technologies (CET)

- Emerging technologies: Technologies characterised by novelty, rapid development and disruptive potential, such as generative AI and neuromorphic computing.
- Critical technologies: Technologies essential for national security and economic resilience. Semiconductors are an example because they underpin modern industrial and digital systems.
- Significance for India:
    - Economic resilience through reduced dependence on imported high-end technologies.
    - Strategic autonomy by limiting exposure to technology-related coercion.
    - Defence modernisation and stronger domestic research and manufacturing capabilities.

India–US TRUST Initiative

- The supplied material describes the TRUST (Transforming the Relationship Utilizing Strategic Technology) initiative as succeeding the Initiative on Critical and Emerging Technology (iCET) in February 2025.
- Key areas identified include:
    - Semiconductors and resilient supply chains.
    - AI infrastructure and innovation.
    - Space and defence technology.
    - Critical minerals, including lithium and rare earth elements.
    - Next-generation telecommunications, including 6G and Open RAN.

Way Forward

- Strengthen domestic research, development and manufacturing of critical technologies.
- Diversify technology partnerships and supply chains to reduce dependence on a single country.
- Promote technology transfer, skill development and collaboration between industry and research institutions.
- Support indigenous solar manufacturing, semiconductor production and secure AI development.
- Balance national security with international technology cooperation.

UPSC Prelims Practice

Q. With reference to Critical and Emerging Technologies (CET), consider the following statements:

1. All critical technologies are necessarily at an early stage of development.
2. Semiconductors may be considered critical because of their importance to modern industry.
3. Export controls on advanced technologies can affect a country's strategic autonomy.

Which of the statements given above are correct?

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

Answer: (b) 2 and 3 only

Explanation: Criticality refers to strategic importance, not necessarily novelty. A mature technology can be critical to national security and economic resilience.

UPSC Mains Practice

Q."Control over critical and emerging technologies is increasingly becoming an instrument of geopolitical influence." Discuss its implications for India's strategic autonomy and technological self-reliance.

2.E-commerce: Why the Price You See Is Not What You Pay

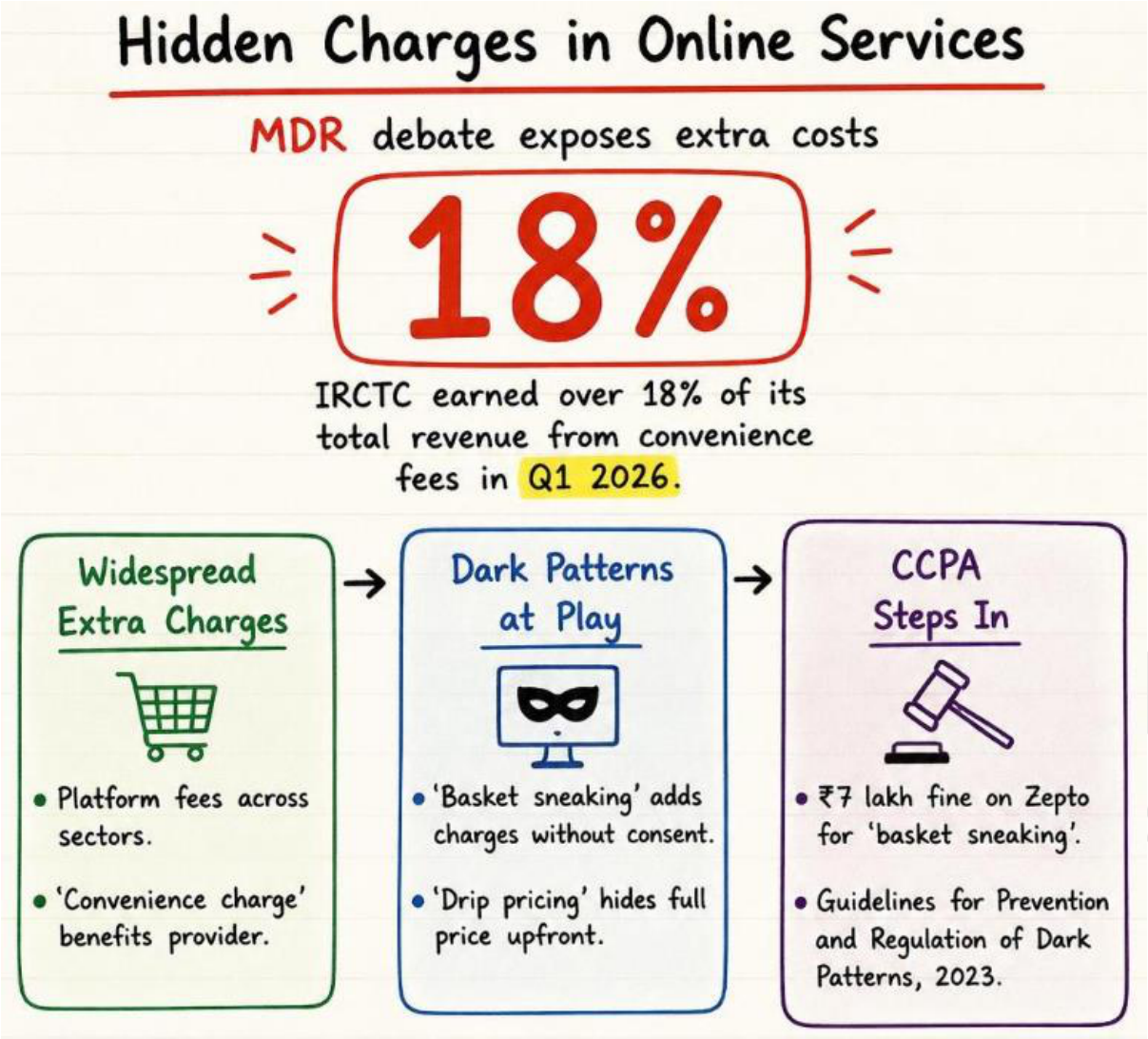
Source: The Hindu, Page 11

Why in News?

- Online platforms increasingly charge platform fees and convenience charges, while using dark patterns such as drip pricing that can obscure the final cost to consumers.
- The debate over the Merchant Discount Rate (MDR) on UPI transactions has brought attention to additional charges in digital services.

Key Highlights

- Platform and convenience fees are common across food delivery, e-commerce, entertainment, travel and ticket-booking services.
- IRCTC reportedly earned over 18% of its total revenue from convenience fees in the first quarter of 2026.
- The Central Consumer Protection Authority (CCPA) imposed a fine of ₹7 lakh on Zepto for basket sneaking, involving additional handling charges and membership fees added without explicit consent.
- Drip pricing is a dark pattern in which the full price is not disclosed upfront and mandatory charges are added progressively during checkout.
- Basket sneaking involves adding products, services or charges to a consumer's basket without clear consent.



Regulatory Framework

- The CCPA issued the Guidelines for Prevention and Regulation of Dark Patterns, 2023, under the Consumer Protection Act, 2019.
- The guidelines aim to curb deceptive online design practices that mislead consumers or manipulate their purchasing decisions.

What are Dark Patterns?

Dark patterns are deceptive User Interface (UI) or User Experience (UX) designs meant to mislead or trick users into doing something they did not intend to do—such as buying a subscription, sharing personal data, or paying for hidden costs.

Regulatory Framework in India

India has taken a proactive stance to curb these practices. The **Central Consumer Protection Authority (CCPA)**, under the **Consumer Protection Act, 2019**, notified the **Guidelines for Prevention and Regulation of Dark Patterns** in November 2023.

Key Aspects of the 2023 Guidelines:

1. **Applicability**: They apply to all platforms systematically offering goods or services in India, including advertisers and sellers.
2. **Definition**: Any practice that subverts or impairs consumer autonomy, decision-making, or choice.
3. **Classification**: These are officially classified as **Unfair Trade Practices** or **Misleading Advertisements**.

Specified Dark Patterns (CCPA List)

The government has categorized the most common deceptive designs to make enforcement easier:

- **False Urgency**: Creating an artificial sense of scarcity (e.g., "Only 2 rooms left!").
- **Basket Sneaking**: Adding extra items (like insurance or donations) to the cart without the user's explicit consent.
- **Confirm Shaming**: Using guilt-inducing language to nudge a user (e.g., "No, I like paying full price" instead of a simple "No").
- **Forced Action**: Requiring a user to buy something else or share data to access the primary service.
- **Subscription Trap**: Making it very easy to sign up but nearly impossible to cancel.
- **Drip Pricing**: Hiding the actual price and revealing unavoidable costs only at the very end of the checkout.
- **Bait and Switch**: Advertising one outcome but delivering another once the action is taken.

3.INS Samarthak: India's First Indigenous Multi-Purpose Vessel

Source: IE

Why in News?

- The Indian Navy commissioned INS Samarthak on 16 October 2026, marking a milestone in indigenous shipbuilding.
- The commissioning ceremony was presided over by Vice President C. P. Radhakrishnan.

Key Highlights

- INS Samarthak is the first indigenous Multi-Purpose Vessel (MPV), designed and constructed by L&T Shipyard.
- The vessel contains over 75% indigenous content, supporting the Aatmanirbhar Bharat initiative.
- It enhances the Navy's capabilities in maritime surveillance, reconnaissance, offshore patrolling and Humanitarian Assistance and Disaster Relief (HADR) operations.

- The vessel will support testing and training involving indigenously developed sensors and weapons.
- The project promotes domestic defence manufacturing, employment generation and the development of indigenous shipbuilding capabilities.

4.Delhi's AI-Powered Integrated Command and Control Centre (ICCC)

Source: IE

Why in News?

- The Delhi Pollution Control Committee (DPCC) launched an AI-enabled Integrated Command and Control Centre (ICCC) at Shastri Park, Northeast Delhi, to monitor air pollution in real time.
- Inaugurated by Chief Minister Rekha Gupta on 1 October, the centre operates 24/7 to identify pollution spikes and support swift enforcement action.

Key Highlights

- The centre integrates data from 56 air quality monitoring stations, meteorological sources and construction sites.
- AI-enabled cameras monitor over 700 construction sites, while GPS tracking monitors mechanical road sweepers and field teams.
- The system integrates data from CPCB, IITM, IMD, MCD and IARI through APIs.
- It generates real-time alerts for sudden AQI increases, offline monitoring stations and non-transmitting cameras. Alerts are classified as Priority 1 (P1) for immediate ground intervention and Priority 2 (P2) for issues such as significant PM10 increases.
- The centre uses the E-Datalens Air Quality Analytics platform, developed by Datalens Technologies Pvt. Ltd. with global technology partners.
- A key challenge is training the AI system, as human operators currently tag video feeds to help automate pollution-related issue classification.
- Future plans include integrating Automatic Number Plate Recognition (ANPR) cameras and monitoring traffic congestion hotspots to identify pollution sources.

AQI
The "Big Eight" Pollutants
The AQI in India is calculated based on the concentration of **eight major pollutants**. For an AQI to be representative, data for at least three pollutants (including one of PM10 or PM2.5) must be available.

1. **PM10** (Particulate Matter 10 microns or less)
2. **PM2.5** (Fine Particulate Matter 2.5 microns or less)
3. **Nitrogen Dioxide** (NO_2)

4. **Sulphur Dioxide** (SO_2)
5. **Carbon Monoxide** (CO)
6. **Ozone** (O_3)
7. **Ammonia** (NH_3)
8. **Lead** (Pb)

AQI Categories and Health Impact

The index is divided into six categories, each associated with a specific color code and health advisory.

AQI Range	Category	Color	Health Implications
0 – 50	Good	Dark Green	Minimal health impact.
51 – 100	Satisfactory	Light Green	Minor breathing discomfort to sensitive people.
101 – 200	Moderate	Yellow	Breathing discomfort to people with lungs, asthma, and heart diseases.
201 – 300	Poor	Orange	Breathing discomfort to most people on prolonged exposure.
301 – 400	Very Poor	Red	Respiratory illness on prolonged exposure.
401 – 500	Severe	Dark Red	Affects healthy people and seriously impacts those with existing diseases.

5.India's Export Surge and Economic Reforms

Source: The Hindu, Page 14

Why in News?

- India's merchandise exports rose by 23% to $44.4 billion in September, driven by engineering and electronic goods.
- Total exports reached approximately $259 billion during the first half of the financial year, while the trade deficit with China widened.

Key Highlights

- Engineering and electronic goods exports grew by 26% year-on-year, collectively contributing over $100 billion and nearly half of non-oil exports.

- Exports to the United States grew by 48% in September, while shipments to China increased by 36% year-to-date.
- India's trade deficit with China widened to $68.9 billion during April–September, highlighting the challenge of dependence on Chinese imports.
- Exports to Middle Eastern markets, including the UAE and Saudi Arabia, remained subdued.
- Rupee depreciation may improve the price competitiveness of Indian exports, while the Reserve Bank of India has intervened in foreign exchange markets to manage volatility.
- ICRA projected the current account deficit at $13–15 billion in the second quarter.

Way Forward

- The export surge provides an opportunity to advance economic reforms, expand Free Trade Agreements (FTAs) and strengthen domestic manufacturing.
- Diversifying export markets and reducing import dependence can help improve India's external trade position.

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