



DAILY CURRENT AFFAIRS-

1. India-Australia Civil Nuclear Cooperation
2. Ethanol Blending Programme (EBP)
3. China's LineShine Supercomputer: Lessons for India's Semiconductor Mission
4. India's Stand on WTO E-commerce Agreement
5. Dixon–Vivo Joint Venture for Smartphone Manufacturing

1. India-Australia Civil Nuclear Cooperation

Source: *The Hindu*

Subject: International Relations | Energy Security

Why in News?

- India and Australia have **operationalised the 2014 Civil Nuclear Cooperation Agreement** by finalising the administrative arrangements, enabling **long-term uranium supplies** from Australia to support India's expanding **civil nuclear energy programme**.

Key Highlights and Significance

- It operationalises the **India-Australia Civil Nuclear Cooperation Agreement (2014)** through the finalisation of administrative arrangements.
- It enables **long-term uranium exports** from Australia to India exclusively for **peaceful civilian purposes** under **IAEA safeguards**.
- It strengthens India's **energy security** by ensuring reliable fuel supplies for nuclear power generation.

- It supports India's target of achieving **100 GW of nuclear power capacity by 2047** as part of its clean energy transition.
- It deepens the **India-Australia Comprehensive Strategic Partnership** and reinforces cooperation in the **Indo-Pacific**.

Strategic Importance

- It diversifies India's uranium import sources and reduces supply vulnerabilities.
- It enhances cooperation in **critical minerals, clean energy, maritime security, defence, cyber security and resilient supply chains**.
- It strengthens collaboration between two **Quad members** committed to a **free, open and rules-based Indo-Pacific**.
- It contributes to India's **Net Zero by 2070** commitment by promoting low-carbon nuclear energy.
- It complements domestic nuclear sector reforms, including greater private sector participation under the proposed **SHANTI framework**.



About the India-Australia Civil Nuclear Agreement (2014)

- It was signed in **2014** after Australia lifted its long-standing ban on uranium exports to India.
- It permits the supply of **Australian uranium** for India's **civilian nuclear reactors**.
- It mandates that uranium supplied by Australia shall be used **only for peaceful purposes**.
- It requires compliance with **International Atomic Energy Agency (IAEA) safeguards** and India's separation of civilian and strategic nuclear facilities.
- It strengthens bilateral cooperation in **civil nuclear energy and clean energy security**.

Way Forward

- It requires timely implementation of uranium supply arrangements to support India's expanding nuclear capacity.
- It should deepen bilateral cooperation in **advanced nuclear technologies, Small Modular Reactors (SMRs)** and nuclear fuel cycle management.
- It needs stronger collaboration in **critical minerals, renewable energy and clean technology**.
- It should further strengthen India-Australia strategic cooperation under the **Comprehensive Strategic Partnership** and the **Quad**.

About the International Atomic Energy Agency (IAEA)

- **Established:** 1957
- **Headquarters:** Vienna, Austria
- **Parent Organisation:** United Nations system (independent international organisation)
- **Objective:** Promote peaceful uses of nuclear energy and prevent its diversion for military purposes through safeguards and inspections.

UPSC Prelims MCQ

Q. With reference to the India-Australia Civil Nuclear Cooperation Agreement, consider the following statements:

1. It permits Australia to export uranium to India for peaceful civilian purposes.
2. Uranium supplied under the agreement is subject to International Atomic Energy Agency (IAEA) safeguards.
3. Australia is among the world's major uranium producers.

Which of the statements given above are correct?

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

Answer: (d)

UPSC Mains Question (15 Marks)

"Civil nuclear cooperation has emerged as an important pillar of the India-Australia Comprehensive Strategic Partnership." Discuss its significance for India's energy security, clean energy transition and Indo-Pacific strategy.

2.Ethanol Blending Programme (EBP)

Source: *The Hindu*

Subject: Economy | Energy | Environment

Why in News?

- The Union Government has defended the nationwide rollout of **E20 (20% Ethanol Blended Petrol)**, promoted **flex-fuel technology**, and reiterated the use of **ethanol and methanol** to reduce fossil fuel imports and improve energy security.

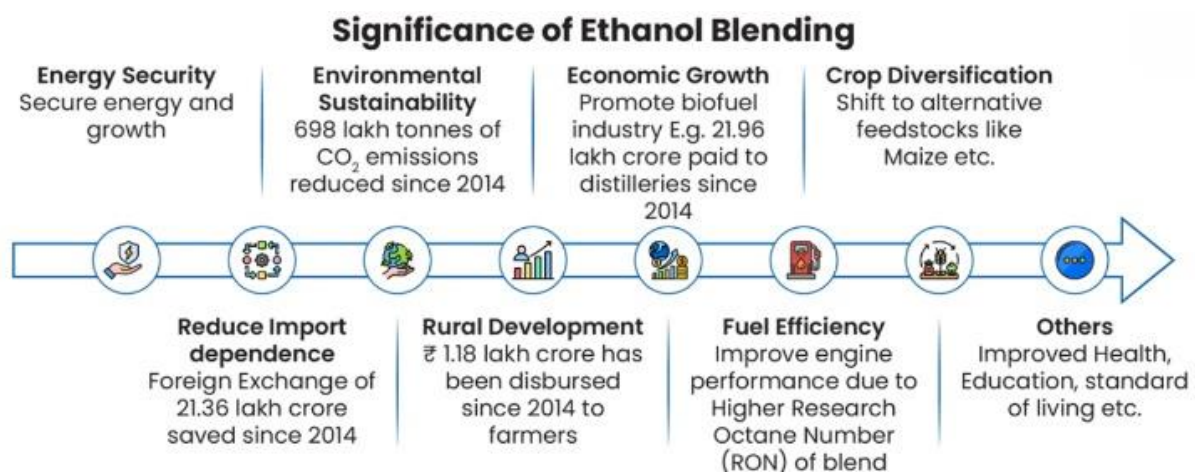
Key Highlights

- It has increased **ethanol blending in petrol from 10% to 20% (E20)** over the last three years.
- It has introduced **E20 fuel nationwide** after approval from the **Automotive Research Association of India (ARAI)** and vehicle manufacturers.
- It has promoted **flex-fuel vehicles (FFVs)** capable of operating on varying ethanol-petrol blends.
- It has encouraged the use of **methanol and iso-butanol** as alternative fuels for road and marine transport.
- It has signed **Long-Term Offtake Agreements (LTOAs)** between Oil Marketing Companies (OMCs) and ethanol producers to ensure a stable supply.

Significance

- It has reduced India's **dependence on imported crude oil**, strengthening energy security.

- It has supported **farmers' income** by creating demand for ethanol feedstocks such as sugarcane, maize and surplus food grains.
- It has lower carbon emissions and improved air quality compared to conventional petrol.
- It has high octane value and superior anti-knocking properties, improving engine performance.
- It has promoted indigenous alternative fuels, contributing to **Atmanirbhar Bharat** and India's climate goals.
- It has diversified transport fuels through **ethanol, methanol, flex-fuel and hybrid technologies**.



Challenges

- It has lower calorific value than petrol, leading to a marginal reduction in fuel economy.
- It has compatibility concerns for older vehicles, requiring modifications such as replacement of metal washers with rubber components.
- It has dependence on sustainable feedstock availability while balancing food security concerns.
- It has required expansion of ethanol production, storage and distribution infrastructure.
- It has needed greater consumer awareness to address misconceptions regarding engine damage.

About the Ethanol Blended Petrol (EBP) Programme

- **Launched:** 2003
- **Nodal Ministry:** Ministry of Petroleum and Natural Gas

- **Objective:** Promote blending of ethanol with petrol to reduce crude oil imports, improve energy security and lower emissions.
- **National Policy on Biofuels, 2018:** Set an indicative target of **20% ethanol blending (E20)**, which has been achieved ahead of schedule.
- **Feedstocks:** Sugarcane juice, molasses, maize, damaged food grains and surplus rice.

About Flex-Fuel Vehicles (FFVs)

- They are vehicles capable of operating on **multiple ethanol-petrol blends**, including high ethanol blends.
- They use sensors and engine control systems to automatically adjust fuel injection and combustion.
- They provide consumers with flexibility to use the most economical fuel available.
- **Brazil** is the global leader in large-scale deployment of flex-fuel vehicles.

UPSC Prelims MCQ

Q. With reference to the Ethanol Blended Petrol (EBP) Programme, consider the following statements:

1. Ethanol has a higher octane number than petrol.
2. Flex-fuel vehicles can operate on varying ethanol-petrol blends.
3. The Automotive Research Association of India (ARAI) evaluated E20 fuel before its nationwide rollout.

Which of the statements given above are correct?

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

Answer: (d)

UPSC Mains Question (15 Marks)

Discuss the significance of the Ethanol Blended Petrol (EBP) Programme in enhancing India's energy security, reducing carbon emissions and promoting sustainable transportation. Also examine the challenges associated with higher ethanol blending.

3.China's LineShine Supercomputer: Lessons for India's Semiconductor Mission

Source: *The Hindu*

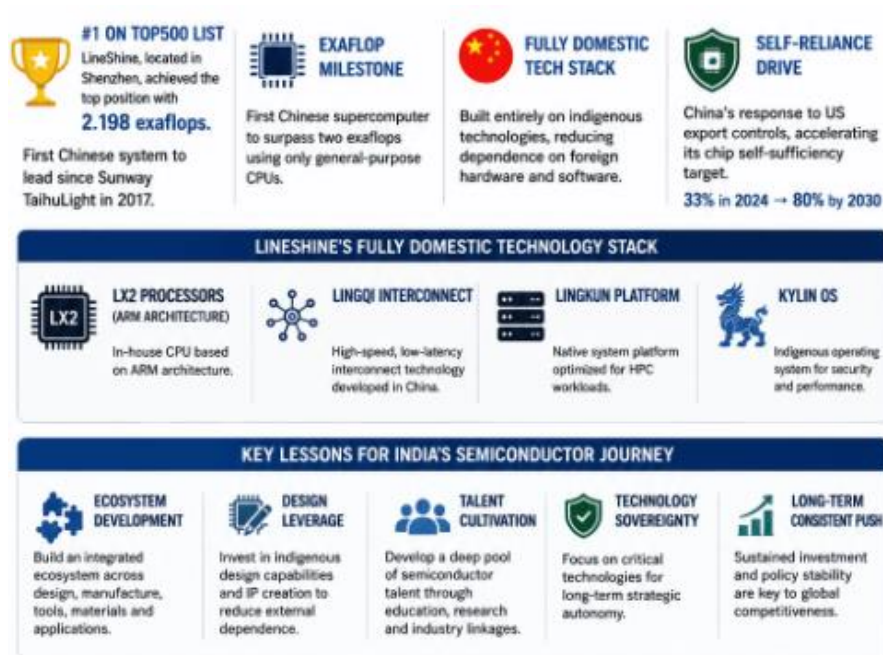
Subject: Science & Technology | Semiconductor | Supercomputing

Why in News?

- China's **LineShine** supercomputer has become the world's fastest supercomputer, demonstrating China's technological self-reliance despite export restrictions and offering important lessons for India's semiconductor ecosystem.

Key Highlights

- It has become the **world's fastest supercomputer**, achieving **2.198 exaflops**, surpassing the US **El Capitan** system.
- It has become the first Chinese system since **Sunway TaihuLight (2017)** to top the **TOP500** global supercomputer rankings.
- It has been built entirely on a **domestic technology stack**, including **LX2 processors, LingQi interconnect, LingKun platform, and Kylin Operating System**.
- It has demonstrated China's progress towards **semiconductor self-sufficiency**, targeting **80% domestic chip production by 2030**.
- It has highlighted the strategic impact of technology sanctions in accelerating indigenous innovation.



Significance

- It has strengthened China's technological sovereignty in high-performance computing.
- It has reduced dependence on foreign semiconductor technologies and supply chains.
- It has enhanced capabilities in **Artificial Intelligence, climate modelling, defence, drug discovery and scientific research**.
- It has demonstrated the importance of an integrated ecosystem comprising chip design, fabrication, software and supercomputing infrastructure.
- It has provided important lessons for strengthening India's **India Semiconductor Mission (ISM)**.

India Semiconductor Mission (ISM)

- **Launched:** 2021
- **Nodal Ministry:** Ministry of Electronics and Information Technology (MeitY)
- **Initial Outlay:** ₹76,000 crore.
- **ISM 2.0:** Approved with an outlay of about **₹1.25 lakh crore**.
- It has promoted semiconductor fabrication, ATMP/OSAT facilities, chip design, display manufacturing and semiconductor research.

- It has approved multiple semiconductor projects, including the **Tata-Powerchip semiconductor fabrication facility at Dholera, Gujarat**.
- It has leveraged India's strength in semiconductor design through global R&D centres of companies such as **Intel, NVIDIA and Qualcomm**.

Challenges & Way Forward

- It has high dependence on imported semiconductor equipment, advanced fabrication technology and critical raw materials.
- It has required development of indigenous semiconductor manufacturing capabilities across the value chain.
- It has needed greater investment in R&D, skilled manpower and advanced chip design.
- It has required stronger industry-academia collaboration and long-term policy support.
- It has needed resilient semiconductor supply chains through international partnerships while strengthening domestic capabilities.

About TOP500

- It is the **global ranking of the world's fastest supercomputers**.
- It ranks systems based on performance using the **High-Performance LINPACK (HPL) Benchmark**.
- It is updated **twice every year**

UPSC Prelims MCQ

Q. With reference to the India Semiconductor Mission (ISM), consider the following statements:

1. It was launched to develop semiconductor manufacturing and design capabilities in India.
2. It is implemented by the Ministry of Electronics and Information Technology (MeitY).
3. It supports semiconductor fabrication, chip design and advanced packaging facilities.

Which of the statements given above is/are correct?

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

Answer: (d)

UPSC Mains Question (15 Marks)

Discuss the strategic importance of semiconductor self-reliance for India. In the light of recent advances in China's supercomputing capabilities, examine the challenges and opportunities before the India Semiconductor Mission (ISM).

4.India's Stand on WTO E-commerce Agreement

Source: *The Hindu*

Subject: Economy | International Trade

Why in News?

- India has challenged the **interim pathway** adopted for the **Joint Statement Initiative (JSI) on E-commerce** at the **World Trade Organization (WTO)**, arguing that it bypasses the multilateral consensus required under WTO rules.

Key Highlights

- It has questioned the legal basis of the **Joint Statement Initiative (JSI) on E-commerce**, negotiated by **66 WTO members**.
- It has opposed the inclusion of the agreement under **Annex 4 of the WTO Agreements** without the consensus of all WTO members.
- It has argued that attempts to include the agreement in **Annex 4** have failed twice due to the absence of consensus.
- It has raised concerns over the use of **WTO Secretariat resources** and the role of the **WTO Director-General** in facilitating an agreement lacking full membership approval.
- It has reiterated that plurilateral initiatives should not undermine the WTO's **multilateral and consensus-based framework**.



Significance

- It has highlighted India's commitment to preserving the **multilateral trading system**.
- It has sought to protect the **policy space** of developing countries in the digital economy.
- It has raised concerns over the continuation of the **e-commerce moratorium**, which may reduce customs revenue on electronic transmissions.
- It has emphasized the principle of **consensus-based decision-making** within the WTO.
- It has reflected India's broader strategy of ensuring equitable and inclusive global digital trade rules.

About the Joint Statement Initiative (JSI) on E-commerce

- **Launched:** 2017 at the WTO by a group of interested members.
- **Objective:** Develop global rules governing digital trade and e-commerce.
- It has covered issues such as **paperless trading, electronic contracts, online consumer protection, cross-border data flows and customs duties on electronic transmissions**.
- It has been negotiated as a **plurilateral initiative**, involving only participating members.

About Annex 4 of the WTO Agreement

- It contains **Plurilateral Trade Agreements** that are binding only on participating members.
- It requires **consensus of all WTO members** before any new agreement can be added.

- It differs from **multilateral agreements**, which are binding on the entire WTO membership.
- It has created divisions between developed and developing countries on digital trade governance.
- It has raised concerns regarding data sovereignty, digital industrialisation and revenue implications.
- It has highlighted the absence of consensus on incorporating plurilateral agreements into the WTO framework.
- It has increased pressure on balancing digital trade liberalisation with domestic regulatory autonomy.

UPSC Prelims MCQ

Q. With reference to the World Trade Organization (WTO), consider the following statements:

1. Annex 4 of the WTO Agreement contains plurilateral trade agreements.
2. Addition of a new agreement to Annex 4 requires the consensus of all WTO members.
3. The Joint Statement Initiative (JSI) on E-commerce is a multilateral agreement binding on all WTO members.

Which of the statements given above is/are correct?

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

Answer: (b)

UPSC Mains Question (15 Marks)

Discuss India's concerns regarding the Joint Statement Initiative (JSI) on E-commerce at the World Trade Organization (WTO). How can global digital trade rules be balanced with the developmental interests of developing countries?

5. Dixon–Vivo Joint Venture for Smartphone Manufacturing

Source: *The Hindu*

Subject: Economy | Industry | Electronics Manufacturing

Why in News?

- The Government has approved the **Dixon Technologies–Vivo Mobile India Joint Venture** under **Press Note 3 (2020)** and announced **customs duty exemptions** on key electronics manufacturing inputs to strengthen domestic production.

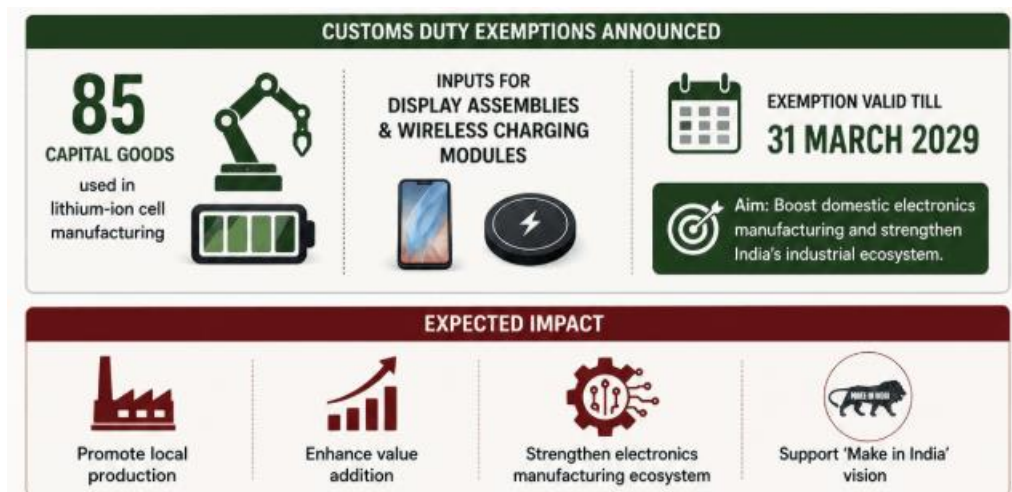
Key Highlights

- It has approved the **joint venture between Dixon Technologies (India) Ltd. and Vivo Mobile India Ltd.** for manufacturing smartphones and electronic devices.
- It has granted approval under **Press Note 3 (2020)**, which requires prior government approval for investments from countries sharing a land border with India.
- It has exempted **customs duty on 85 capital goods** used in **lithium-ion cell manufacturing**.
- It has exempted customs duty on inputs used for **display assemblies** and **wireless charging modules** until **31 March 2029**.
- It has aimed to promote domestic manufacturing, increase value addition and strengthen India's electronics supply chain.

Significance

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- It has strengthened India's electronics manufacturing ecosystem and **Make in India** initiative.
- It has encouraged higher domestic value addition in smartphones, batteries and electronic components.
- It has reduced dependence on imported manufacturing equipment and components.
- It has accelerated investment in **lithium-ion battery manufacturing**, supporting electric mobility and consumer electronics.
- It has complemented the **Production Linked Incentive (PLI) Scheme** for large-scale electronics manufacturing.

- It has contributed to employment generation and export competitiveness in the electronics sector.



About Press Note 3 (2020)

- **Issued by:** Department for Promotion of Industry and Internal Trade (DPIIT).
- **Issued:** April 2020.
- It mandates **prior Government approval** for Foreign Direct Investment (FDI) from countries sharing a **land border with India**.
- It also covers any transfer of ownership that results in beneficial ownership falling within such countries.
- It aims to prevent **opportunistic takeovers** of Indian companies while safeguarding national security.

Challenges & Way Forward

- It has dependence on imported semiconductor chips, display panels and advanced manufacturing equipment.
- It has required deeper localisation of the electronics value chain beyond final assembly.
- It has needed stronger domestic capabilities in semiconductor fabrication, battery technology and component manufacturing.
- It has required greater investment in R&D, skilled workforce and supply-chain resilience.

- It has needed stable policy support to position India as a global electronics manufacturing hub.

UPSC Prelims MCQ

Q. With reference to Press Note 3 (2020), consider the following statements:

1. It requires prior Government approval for Foreign Direct Investment (FDI) from countries sharing a land border with India.
2. It was introduced to prevent opportunistic takeovers of Indian companies.
3. It was issued by the Department for Promotion of Industry and Internal Trade (DPIIT).

Which of the statements given above is/are correct?

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

Answer: (d)

UPSC Mains Question (15 Marks)

Discuss the role of the Production Linked Incentive (PLI) Scheme and Press Note 3 (2020) in promoting self-reliance and strengthening India's electronics manufacturing ecosystem.

