

Mains PYQs - GS-III (2025) (Q. 4 - 6)

4. Elaborate on the scope and significance of supply chain management of agricultural commodities in India. (150 words, 10 marks)

Direction: Intro----- scope and significance of supply chain management-----Conclusion.

Introduction:

Describe supply chain management - planning, sourcing and logistics.

Main Body

Scope of supply chain management of agricultural commodities

- Multimodal logistics
- Storage & cold chain facilities
- Primary post-harvest works - Sorting, grading, and packaging.
- Processing and value addition
- Digital marketing.

Significance of supply chain management of agricultural commodities

- Reduces postharvest losses
- Enhanced farmer's income
- Improves food security
- Price stabilization
- Promotes agri-exports and sustainable agriculture.
- Strengthens rural economy.

Conclusion:

Give a positive conclusion - An efficient agricultural supply chain is essential for transforming Indian agriculture from a production-centric to a market-oriented and value-driven sector.

5. The fusion energy programme in India has steadily evolved over the past few decades. Mention India's contributions to the international fusion energy project - International Thermonuclear Experimental Reactor (ITER). What will be the implications of the success of this project for the future of global energy? (150 words, 10 marks)

Direction: Intro-----India's contribution + Implications-----Conclusion.

Introduction:

Describe India's fusion energy programme (or) the International Thermonuclear Experimental Reactor (ITER).

Main Body

India's contribution

- India is a full partner in the ITER project, contributing 9% of its in-kind components and funding while gaining 100% access to all generated intellectual property.
- Material contribution
- Cryostat
- In-wall shielding blocks
- Cryogenic & cooling system
- On-site assembly and support

Implications

- Reduce fossil fuel dependence
- Promotes energy security – limitless fuel source.
- Produce minimal waste.
- Promotes India's R&D ecosystem
- Helps achieve India's net zero target.
- Strengthen international scientific cooperation.
- Enhanced operational safety.

Conclusion:

Conclude in a progressive manner – linking India's contribution and growth.

6. How can India achieve energy independence through clean technology by 2047? How can biotechnology play a crucial role in this endeavour? (150 words, 10 marks)

Direction: Intro-----Achieving India's energy independence + Role of biotechnology-----Conclusion.

Introduction:

Describe India's energy independence.

Main Body

How can India achieve energy independence?

- Expanding renewable energy capacity – solar, wind, etc.
- Scale up green hydrogen production
- Promotes EV's and battery manufacturing.
- R&D support under Atmanirbhar Bharat.
- Expanding indigenous nuclear energy production.
- Implement smart grids & digitisation.

Crucial role of biotechnology

- Production of 2G and 3G biofuels
- Production of biogas and bio-CNG
- Produce climate-resilient and energy-efficient crops.
- Enhanced carbon sequestration using engineered microbes.
- Use microbes for treating industrial and agricultural waste.

Conclusion:

Conclude in a positive and progressive manner.

