Indian Economy · GS - III

“Control over critical technologies and supply chains has emerged as an important instrument of geopolitical power.” Discuss in the context of China's proposed export restrictions and examine their implications for India.

EXAM YEAR	PAPER	SUBJECT
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MARKS	WORD LIMIT
10	~150 words

Answer Hint

Export controls, technological dominance, US–China rivalry, solar manufacturing, artificial intelligence, biotechnology, critical minerals, global supply chains, Atmanirbhar Bharat, technology transfer, strategic autonomy.

Model Answer

Introduction

Technological capabilities and control over critical supply chains have become important instruments of economic and geopolitical power. China's consideration of additional export restrictions in sectors such as solar manufacturing, artificial intelligence and biotechnology reflects the growing securitisation of technology amid US–China rivalry.

Main Body

Global implications

1. Supply-chain disruptions: Restrictions may increase costs and delay access to essential technologies and components.
2. Geopolitical competition: Countries may use export controls to preserve strategic advantages and influence rival economies.
3. Green transition: Restrictions on solar technologies and critical materials could slow renewable-energy deployment.
4. Technological fragmentation: Competing restrictions may divide global technology markets and weaken international cooperation.

Implications for India and the way forward

1. Reduce excessive dependence on imported critical technologies and processed minerals.
2. Strengthen domestic solar manufacturing, semiconductor capabilities and AI research.
3. Diversify import sources through strategic partnerships.
4. Promote research and development, technology transfer and resilient supply chains.

Conclusion

China's proposed restrictions highlight the link between technological leadership and national security. India must combine domestic innovation with international cooperation to strengthen strategic autonomy, protect economic interests and ensure reliable access to critical technologies.

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