Science & Technology · GS - III

Analyse how intellectual property protection and technology security have become important dimensions of economic competitiveness and international trade relations.

EXAM YEAR	PAPER	SUBJECT
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MARKS	WORD LIMIT
15	~250 words

Answer Hint

Trade secrets, intellectual property rights, technology transfer, industrial espionage, cybersecurity, WTO-TRIPS, strategic competition

Model Answer

Introduction

In a technology-driven global economy, commercially valuable knowledge, proprietary designs and confidential industrial processes are strategic economic assets. Their protection influences innovation, investment and international trade relations.

Importance of Intellectual Property Protection

1. **Innovation incentives:** Patents, copyrights and trade secret protection encourage research and development by safeguarding the commercial value of innovation.

2. **Industrial competitiveness:** Protection of proprietary technologies enables enterprises to retain competitive advantages and recover investments in research.

3. **Foreign investment:** Strong intellectual property enforcement improves investor confidence and facilitates technology partnerships.

4. **International trade:** The WTO's TRIPS Agreement establishes minimum standards for intellectual property protection among member countries.

Emerging Challenges

1. **Industrial espionage:** Unauthorised acquisition of proprietary technologies can undermine corporate competitiveness and national economic interests.

2. **Cybersecurity vulnerabilities:** Digital networks increase the risk of theft of confidential designs, algorithms and research data.

3. **Geopolitical tensions:** Technology disputes, export restrictions and sanctions increasingly influence trade and diplomatic relations.

4. **Balancing interests:** Excessively restrictive intellectual property regimes may limit technology diffusion and access to essential innovations.

Way Forward for India

1. Strengthen trade-secret protection and specialised intellectual property enforcement.
2. Improve cybersecurity standards and corporate data-protection practices.
3. Promote domestic research, semiconductor capabilities and indigenous technology development.
4. Encourage international cooperation against technology theft while protecting legitimate technology transfer.
5. Maintain a balance between innovation incentives, competition and public interest.

Conclusion

Intellectual property and technology security are no longer merely commercial concerns; they are integral to economic sovereignty and strategic competitiveness. India needs a robust innovation ecosystem supported by effective legal protection and international cooperation.