World History · GS - II

Examine the strategic importance of semiconductor manufacturing in the global economy. What opportunities and challenges does the industry present for India?

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 02/11/2026	GS - II	World History

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Artificial intelligence; semiconductor foundries; advanced packaging; global supply chains; technological sovereignty; geopolitical risks; capital-intensive manufacturing; India Semiconductor Mission

Model Answer

Introduction

Semiconductors are essential components of modern electronics, artificial intelligence, telecommunications, automobiles and defence systems. Taiwan Semiconductor Manufacturing Company (TSMC) is a major foundry in the global chip supply chain.

Strategic Importance

1. Economic Transformation

Advanced chips support AI computing, automation, data centres and next-generation communication technologies, increasing productivity and enabling innovation.

2. Geopolitical Significance

Concentration of advanced manufacturing in a limited number of locations creates supply-chain vulnerabilities. Geopolitical tensions, export controls and disruptions can affect industries worldwide.

Opportunities for India

India can expand semiconductor manufacturing, chip design, assembly, testing and advanced packaging. Domestic capabilities can generate skilled employment, attract investment and strengthen technological resilience.

Challenges

Semiconductor fabrication requires substantial capital, reliable electricity and water, specialised infrastructure, skilled workers and advanced equipment. International competition and rapid technological change add further risks.

Way Forward

India should maintain policy stability, develop specialised skills, support research and development, strengthen infrastructure and encourage collaboration between industry, universities and global technology firms.

Conclusion

Semiconductor self-reliance requires sustained investment across the value chain. India can strengthen its strategic position through innovation, skills and resilient international partnerships.

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