Science & Technology · GS - III

Examine how industrial robotics has emerged as a strategic technology in the global economy. Discuss the implications of national security-based investment screening for international technology trade and India's technological ambitions.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 06/11/2026	GS - III	Science & Technology

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Industrial automation, productivity and precision manufacturing, robotics and artificial intelligence, strategic technology control, foreign investment screening, supply-chain security, technology transfer, global competition, India's manufacturing ecosystem, indigenous research and development.

Model Answer

Introduction

Industrial robotics is transforming manufacturing through automation, precision and improved productivity. It has also become strategically important because of its applications in advanced manufacturing and defence-related industries.

Strategic Significance

Robotics combines mechanical engineering, electronics, sensors, control systems and artificial intelligence. Access to advanced robotic technologies can strengthen industrial competitiveness and reduce dependence on manual processes. Proprietary software, industrial data and critical components have therefore acquired strategic value.

Implications of Investment Screening

Governments increasingly scrutinise foreign acquisitions involving sensitive technologies to protect national security, critical supply chains and technological capabilities. However, excessive restrictions may discourage investment, limit technology transfer and fragment global supply chains.

Way Forward for India

India should strengthen domestic robotics research, semiconductor and sensor manufacturing, technical education and industry-academia collaboration. Transparent investment regulations and international partnerships can help balance security concerns with technological development.

Conclusion

Strategic autonomy in robotics requires domestic innovation alongside responsible global cooperation. India must develop technological capabilities while remaining integrated with international technology networks.

BECOME IAS
AI POWERED UPSC PREP