Science & Technology · GS - III

The emergence of physical AI and humanoid robotics is reshaping the relationship between human labour and automation. Examine the potential benefits and challenges of this transition for the future of work.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 13/11/2026	GS - III	Science & Technology

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Physical AI, humanoid robotics, human-machine collaboration, productivity gains, occupational displacement, reskilling and upskilling, workplace safety, algorithmic accountability, employment transition, inclusive technological development.

Model Answer

Introduction

Physical AI integrates artificial intelligence with machines capable of interacting with the real world. Humanoid robots and autonomous systems are increasingly entering industrial and service-sector operations, creating new forms of human-machine collaboration.

Potential Benefits

Robots can perform repetitive, hazardous and physically demanding tasks, improving productivity and workplace safety. Human supervisors can monitor operations, troubleshoot failures and manage exceptional situations. This may generate new occupations in robotics maintenance, AI supervision and system integration.

Challenges

Automation may displace workers in routine occupations and widen skill-based inequalities. The transition requires substantial investment in reskilling and technical education. Safety failures, cybersecurity vulnerabilities and unclear liability for autonomous decisions also raise concerns. Excessive dependence on automation may weaken human capabilities in certain tasks.

Way Forward

India should strengthen vocational training, promote industry-academia collaboration and establish safety and accountability standards for human-robot workplaces. Social protection must support workers affected by technological transitions.

Conclusion

The objective should not be complete human replacement but productive human-machine collaboration that combines technological efficiency with employment security and human oversight.

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