Science & Technology · GS - III

Examine how advances in large language models and agentic artificial intelligence are transforming software development and digital services. Discuss the associated opportunities and governance challenges.

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

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Computational efficiency, context windows, automated coding, multi-step task execution, human-AI collaboration, productivity gains, algorithmic bias, data privacy, cybersecurity, accountability, responsible AI governance.

Model Answer

Introduction

Advances in large language models (LLMs) are expanding artificial intelligence from conversational assistance towards complex task execution. Agentic AI represents this transition by enabling systems to plan and perform multi-step activities.

Transformative Potential

LLMs can assist in software development through code generation, debugging and documentation. Larger context windows allow models to process extensive codebases and documents. Agentic systems can interact with external tools, execute workflows and evaluate intermediate results. These capabilities can improve productivity, accelerate innovation and make digital services more accessible.

Challenges and Concerns

AI-generated code may contain security vulnerabilities or errors. Excessive dependence can weaken human oversight and technical skills. Data privacy, intellectual property disputes, algorithmic bias and unclear accountability pose additional challenges. High computational requirements also raise concerns regarding energy consumption and unequal access.

Way Forward

India needs robust data protection, cybersecurity standards, transparent AI systems and human supervision in high-impact applications. Investment in indigenous research and AI skills is equally important.

Conclusion

Agentic AI offers significant productivity gains, but its sustainable adoption requires responsible innovation, effective regulation and meaningful human oversight.

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