Science & Technology · GS - III

Examine the role of biotechnology startups in strengthening India’s innovation ecosystem and bioeconomy.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 26/10/2026	GS - III	Science & Technology

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Healthcare innovation, precision medicine, agritech, drug discovery, employment, funding, R&D, biosafety regulation.

Model Answer

Introduction:

Biotechnology combines biological sciences with technology to develop solutions in healthcare, agriculture, industry and environmental management.

Role of Biotechnology Startups

- Healthcare: Develop diagnostics, vaccines, therapies and genomics-based solutions.
- Agriculture: Promote improved crop varieties, biofertilisers and sustainable farming.
- Drug Discovery: Use advanced research and computational tools to accelerate pharmaceutical development.
- Economic Growth: Generate skilled employment, attract investment and commercialise scientific research.
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Key Challenges

High research and development costs.

- Long product-development and approval timelines.
- Limited access to specialised infrastructure and patient capital.
- Intellectual property, biosafety and commercialisation challenges.
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Way Forward:

Strengthen university-industry collaboration, research funding, incubation facilities, regulatory clarity and technology transfer.

Conclusion:

Biotechnology startups can help India translate scientific research into affordable solutions and economic opportunities. Sustained investment and responsible innovation are essential for a competitive bioeconomy.

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