Science & Technology · GS - III

“The application of scientific methods and digital technologies in food safety regulation can improve public health protection in India.” Discuss the role of technology in food safety monitoring and examine the challenges in its effective implementation.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 19/10/2026	GS - III	Science & Technology

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Food safety technology, scientific testing, food contamination, laboratory testing, digital monitoring, traceability, foodborne diseases, FSSAI, infrastructure, regulatory capacity.

Model Answer

Introduction

Food safety is an important public health concern, and scientific methods and modern technologies can help detect contamination, monitor hygiene and prevent foodborne diseases.

Main Body

1. Role of Science and Technology

1. Scientific Testing: Laboratory analysis can detect harmful bacteria, chemical contaminants and adulterants in food.
2. Rapid Detection: Modern diagnostic tools can help identify contamination more quickly.

3. Digital Monitoring: GPS-enabled systems and digital inspection records can improve the tracking and accountability of food safety inspections.
4. Traceability: Digital records can help authorities trace contaminated food products through the supply chain.
5. Data-Based Regulation: Inspection data can help identify high-risk establishments and prioritise enforcement.

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2. Key Challenges

1. Inadequate laboratory infrastructure and shortages of trained personnel can delay testing.
2. Small food businesses may lack resources to meet hygiene standards.
3. Poor data quality and limited digital access can reduce the effectiveness of monitoring.

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Conclusion

India should strengthen food-testing laboratories, adopt reliable digital monitoring systems and train food safety officials. Integrating scientific evidence with effective enforcement can improve food quality and protect public health.