# Science & Technology · GS - III

**Recurring disruptions in globally interconnected digital services expose the vulnerabilities of modern governance and economic systems. Examine the challenges involved in ensuring the resilience of India's digital infrastructure.**

| EXAM YEAR | PAPER | SUBJECT |
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| MARKS | WORD LIMIT |
|---|---|
| 10 | ~150 words |

## Answer Hint

**Cloud concentration risks, critical information infrastructure, cybersecurity preparedness, service continuity, data protection, public-private coordination, redundancy and disaster recovery, institutional accountability.**

## Model Answer

### Introduction

Digital infrastructure has become essential for governance, banking, healthcare and communication. Outages in widely used platforms can therefore disrupt services far beyond individual users.

### Major Challenges

- **Concentration risk:** Dependence on a few cloud and technology providers can create single points of failure.
- **Cybersecurity threats:** Ransomware, data breaches and sophisticated cyberattacks threaten service availability and integrity.

- **Interdependence:** Failure of email, authentication or cloud systems can affect interconnected government and private networks.
- **Limited preparedness:** Inadequate redundancy, disaster recovery and incident-response mechanisms prolong disruptions.
- **Accountability:** Dependence on foreign technology providers raises concerns about jurisdiction, transparency and operational control.

**Measures for Resilience**

India should strengthen CERT-In's incident-response capacity and NCIIPC's protection of critical information infrastructure. Organisations must adopt regular security audits, backup systems, multi-cloud or hybrid architectures and tested business-continuity plans. Public-private information sharing and indigenous technological capabilities should also be encouraged.

**Conclusion**

Digital resilience requires more than preventing cyberattacks; it demands reliable, recoverable and accountable infrastructure. A coordinated approach can protect essential services and strengthen India's digital sovereignty.

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