Science & Technology · GS - III

Examine the growing role of drone technology in modern warfare and discuss the associated security and ethical challenges.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 30/10/2026	GS - III	Science & Technology

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Unmanned aerial vehicles; surveillance and precision strikes; autonomous warfare; electronic warfare; cybersecurity; civilian protection; international humanitarian law

Model Answer

Introduction

Unmanned Aerial Vehicles (UAVs), commonly known as drones, are transforming modern warfare through surveillance, intelligence gathering and precision-strike capabilities.

Role in Modern Warfare

1. Intelligence and Surveillance

Drones provide real-time battlefield information, monitor borders and identify potential threats.

2. Precision Operations

Armed drones enable targeted operations without exposing pilots to direct combat risks.

3. Cost-Effective Military Capabilities

Relatively inexpensive drones can challenge expensive military platforms and conventional air-defence systems.

Security and Ethical Challenges

- **Cybersecurity:** Drones may be vulnerable to hacking, signal jamming and electronic interference.
- **Autonomous warfare:** Greater automation raises questions about human control and accountability.
- **Civilian protection:** Incorrect targeting can cause civilian casualties and violate international humanitarian law.
- **Regional security:** Rapid drone proliferation may intensify arms races and cross-border tensions.

Way Forward

Countries should strengthen counter-drone systems, establish responsible human oversight, improve cybersecurity and promote international norms governing autonomous weapons.

Conclusion

Drone technology offers significant military advantages but also creates complex security and ethical challenges. Responsible development and effective regulation are essential for maintaining international peace and security.

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