Science & Technology · GS - III

Examine the role of international cooperation in advancing human spaceflight and strengthening strategic partnerships among nations.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 24/11/2026	GS - III	Science & Technology

MARKS	WORD LIMIT
15	~250 words

Answer Hint

International space cooperation, space diplomacy, technology transfer, scientific research, capacity building, strategic competition, peaceful uses of outer space

Model Answer

Introduction

Human spaceflight has evolved from a symbol of national prestige into an area of international scientific collaboration and strategic engagement. Countries increasingly cooperate through astronaut training, joint experiments and mission participation.

Role of International Cooperation

1. **Scientific advancement:** Joint missions enable the sharing of expertise, research facilities and scientific data, improving understanding of space and its applications.
2. **Capacity building:** Emerging space powers gain access to specialised training, technical knowledge and operational experience.
3. **Diplomatic engagement:** Space missions create avenues for bilateral partnerships and strengthen people-to-people and institutional ties.

4. **Economic opportunities:** Collaboration encourages innovation, industrial partnerships and the development of advanced technologies.

Challenges

1. **Strategic competition:** Major powers may use space capabilities to strengthen geopolitical influence.
2. **Technology restrictions:** Export controls and national-security concerns can limit technology sharing.
3. **Unequal partnerships:** Differences in financial and technological capabilities may create dependency.
4. **Space security:** Militarisation, orbital congestion and space debris raise concerns about the long-term sustainability of activities.

Way Forward

1. Strengthen cooperation through transparent bilateral and multilateral agreements.
2. Promote peaceful exploration in accordance with international space law, particularly the Outer Space Treaty, 1967.
3. Expand scientific collaboration while ensuring equitable access and responsible technology sharing.

Conclusion

International cooperation can make human spaceflight more inclusive, scientifically productive and diplomatically meaningful. A balance between national interests and peaceful global engagement is essential for sustainable space exploration.

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