

UPSCprep Free Daily Answer Writing Initiative

Subject: GS 3

Syllabus: Science & Technology

Questions

Q1. The Indian space sector is fast growing due to its cost effective launches and better technology when compared to countries in the same stage of development. Discuss the salient features of draft Spacecom Policy 2020. (150 words) 10

Q2. Examine the challenges presented by the emergence of the Metaverse and Artificial Intelligence (AI) and propose strategies to address them. (150 words) 10

Model Structures

Q1. The Indian space sector is fast growing due to its cost effective launches and better technology when compared to countries in the same stage of development. Discuss the salient features of draft Spacecom Policy 2020. (10 marks)

Model Structure

Introduction

- The Indian Space Research Organisation released the draft Spacecom Policy 2020 which seeks commercial utilization of satellites, orbital slots and ground stations for communication and transmission needs. It will replace the Satcom Policy 1997 which is in line with the changing needs of changing times.

Main Body

- It has created Indian National Space Promotion & Authorization Center (IN-SPACe) as a single window autonomous agency which will sanction satellite communications to be used by only an Indian entity. Space communications is an important area of expertise

which can be used to fulfill needs like connectivity in remote areas and improve technological developments.

- The **draft Spacecom Policy 2020 includes provisions** like-
 - Use of space communications must be allowed through authorization to enhance integration of diverse ideas and practices. This is because space isn't subjected to boundaries and is subjected to regulations from the International Telecommunication Union.
 - Better security of space assets by acquiring spectrum and replacing satellites in a definite time period.
 - Better use of unused orbital resources which are available but left unused due to technical and resource crunch. Authorized entities must let other entities use the idle orbital resources by following specific procedures.
 - There is provision for security projects and military satellites which involve communications and data transmission. For this, the Department of Space will be solely responsible along with connectivity projects in remote areas.
 - Indian National Space Promotion & Authorization Center (IN-SPACe) as an autonomous body will be formed to clear spacecom projects. It will address issues like India's liability for potential damages due to space objects.
 - Only Indian companies can buy government controlled orbital resources and spectrum on a commercial basis.

Conclusion

- Space security and development is a critical area considering the birds eye view of all strategic assets it gives to the controller. Thus there is a need to bring more space assets under government control and ensure a timely and responsive regulatory environment.

Q2. Examine the challenges presented by the emergence of the Metaverse and Artificial Intelligence (AI) and propose strategies to address them. (10 Marks)

Introduction

- Metaverse is a virtual universe where users interact with each other and digital entities in real-time. Artificial intelligence means development of intelligent machines that can perform tasks requiring human intelligence.

Main Body

Challenges Presented by Emergence of Artificial Intelligence and Metaverse:

- Ethical Concerns: The Metaverse and AI raise profound ethical questions. Some of them are:
 - Privacy breaches, data security, and potential misuse of personal information are some of the primary concerns.
- There is also a risk that these technologies could be used to perpetuate or amplify societal problems such as discrimination and inequality.
- Economic Inequality: The advent of the Metaverse and AI has the potential to exacerbate economic disparities. Access to these technologies might be limited to those who can afford them, leading to a digital divide.
- Job Displacement: AI advancements have the potential to automate various tasks, resulting in job displacement.
 - Goldman Sachs predicts that the fast-growing mass adoption of AI will impact 300 million jobs.
- Security Risks: The Metaverse and AI introduce new security risks, including cyber threats and the potential for AI-powered attacks.
 - Eg. Use of deep fakes and voice by scammers
- Dependence on technology:
 - As people increasingly rely on AI and the Metaverse for daily activities, there is a risk of people becoming too dependent on technology, which could lead to a loss of important life skills.
- Impact on physical health and well-being:
 - As the Metaverse becomes more immersive, there is a risk that users will spend increasing amounts of time in virtual worlds, potentially at the expense of their physical health and well-being.

Strategies to address above challenges:

- Robust legislation and regulations must be enacted to safeguard user privacy and ensure responsible data handling practices.
- Governments and stakeholders should prioritize inclusive policies, ensuring affordable access to these technologies for all segments of society (reduce digital divide). AI should be developed as a public good rather than a commercial product.
- Focus should be on retraining and upskilling initiatives to equip the workforce with skills required for the evolving job market.
 - Additionally, creating new avenues for employment in emerging fields related to the Metaverse can help mitigate job losses.
- Strengthening cybersecurity infrastructure, investing in AI-driven security systems, and promoting public awareness about online safety are essential measures to address these risks effectively.
- Ethical AI Development: Implementing transparency, accountability, and bias mitigation mechanisms in AI algorithms can help avoid discriminatory practices and enhance user trust.
- Global Cooperation: As the metaverse and AI continues to develop, we are seeing a glimpse of a more digitally advanced borderless world that is full of promise.

Conclusion

- Proactive measures addressing ethical concerns, job displacement, security risks, and inclusivity can unlock the potential of AI and the Metaverse.

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