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UPSC CSE MAINS

Previous Year Questions

IT, Space, Biotech & IPR — GS-III

Previous Year Questions (verbatim, official syllabus)

22 Questions

Year range: 2013–2025

Verbatim from official UPSC papers

"Master Mains with PYQs — consistency is key"

— Neil Sir, Founder, UnlockIAS

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22 Questions across 3 Sections

1. IT, Space, Computers, robotics	9Q
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2024 GS-III 10M · 250W

Q12. Describe the context and salient features of the Digital Personal Data Protection Act 2023.

2023 GS-III 10M · 250W

Q11. Introduce the concept of Artificial Intelligence (AI). How does AI help clinical diagnosis? Do you perceive any threat to privacy of the individual in the use of AI in healthcare?

2022 GS-III 15M · 250W

Q11. Launched on 25th December, 2021, James Webb Space Telescope has been much in the news since then. What are its unique features which make it superior to its predecessor Space Telescopes? What are the key goals of this mission? What potential benefits does it hold for the human race?

2019 GS-III 10M · 150W

Q9. What is India's plan to have its own space station and how will it benefit our space programme?

2017 GS-III 10M · 250W

Q13. India has achieved remarkable successes in unmanned space missions including the Chandrayaan and Mars Orbiter Mission, but has not ventured into manned space missions. What are the main obstacles to launching a manned space mission, both in terms of technology and logistics. Examine critically.

2015 GS-III 12.5M · 250W

Q11. What do you understand by 'Standard Positioning Systems' and 'Precision Positioning Systems' in the GPS era? Discuss the advantages India perceives from its ambitious IRNSS programme employing just seven satellites.

2015 GS-III 12.5M · 250W

Q12. What are the areas of prohibitive labour that can be sustainably managed by robots? Discuss the initiatives that can propel research in premier research institutes for substantive and gainful innovation.

2015 GS-III 12.5M · 250W

Q13. Discuss the advantages and security implications of cloud hosting of servers vis-a-vis in-house machine-based hosting for government businesses.

2013 GS-III 10M · 200W

Q16. (a) What is a digital signature? What does its authentication mean? Give various salient built-in features of a digital signature. (100 words) (b) How does the 3D printing technology work? List out the advantages and disadvantages of the technology. (100 words)

Nano-technology, bio-technology

2025 GS-III 10M · 150W

Q10. How can India achieve energy independence through clean technology by 2047? How can biotechnology can play a crucial role in this endeavour?

2025 GS-III 15M · 250W

Q11. How does nanotechnology offer significant advancements in the field of agriculture? How can this technology help to uplift the socio-economic status of farmers?

2022 GS-III 15M · 250W

Q12. What is the basic principle behind vaccine development? How do vaccines work? What approaches were adopted by the Indian vaccine manufacturers to produce COVID-19 vaccines?

2021 GS-III 15M · 250W

Q11. What are the research and developmental achievements in applied biotechnology? How will these achievements help to uplift the poorer sections of society?

2020 GS-III 10M · 250W

Q11. What do you understand by nanotechnology and how is it helping in health sector?

2019 GS-III 15M · 250W

Q12. How can biotechnology help to improve the living standards of farmers?

2018 GS-III 15M · 150W

Q10. Why is there so much activity in the field of biotechnology in our country? How has this activity benefitted the field of biopharma?

2016 GS-III 12.5M · 250W

Q12. Why is nanotechnology one of the key technologies of the 21st century? Describe the salient features of Indian Government's Mission on Nanoscience and Technology and the scope of its application in the development process of the country.

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Intellectual property rights

2024 GS-III 10M · 150W

Q9. What is the present world scenario of intellectual property rights with respect to life materials? Although India is second in the world to file patents, still only a few have been commercialized. Explain the reasons behind this less commercialization.

2019 GS-III 15M · 250W

Q11. How is the Government of India protecting traditional knowledge of medicine from patenting by pharmaceutical companies?

2015 GS-III 12.5M · 150W

Q10. India's Traditional Knowledge Digital Library (TKDL), which has a database containing formatted information on more than 2 million medicinal formulations, is proving a powerful weapon in the country's fight against erroneous patents. Discuss the pros and cons of making the database publicly available under open-source licensing.

2014 GS-III 12.5M · 200W

Q11. In a globalized world, Intellectual Property Rights assume significance and are a source of litigation. Broadly distinguish between the terms—Copyrights, Patents, and Trade Secrets.

2013 GS-III 10M · 200W

Q13. Bringing out the circumstances in 2005 which forced amendment to the section 3(d) in Indian Patent Law, 1970, discuss how it has been utilized by the Supreme Court in its judgement in rejecting Novartis' patent application for 'Glivec'. Discuss briefly the pros and cons of the decision.

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