

SCIENCE & TECHNOLOGY QUESTIONNAIRE

Topic	Questions
5G countdown	<ul style="list-style-type: none">❑ Why are there so many security issues with 5G?❑ Is there any effect of high frequency radio waves on the environment?❑ How 5G will revolutionize your field of interest/ profession?❑ Name a few things that you want to integrate with your smartphone. Why?❑ What type of infrastructure is required for 5G in India?❑ How does the voice call quality changes with successive generations?❑ Can 5G help in poverty eradication?❑ What are the security challenges created/ resolved by the 5G?❑ Do you think 5G will make 4G redundant?

<p>DRDO achieves milestone in key quantum technology</p>	<ul style="list-style-type: none"> ▣ How does a quantum computer work? ▣ What is quantum entanglement? Why is it fascinating? ▣ What changes will quantum computers bring to computing? ▣ How does quantum communication is established? ▣ Do you know how DNA computing works? ▣ How will Quantum Computing help in good governance?
<p>AI&RoboticsTechnologies Park (ARTPARK) set up in Bengaluru</p>	<ul style="list-style-type: none"> ▣ Do you foresee any role of AI in justice delivery? ▣ How AI will disrupt your profession or industry of interest? ▣ Do you think homo sapiens are threatened by the scale at which AI is evolving? ▣ Why is the government investing in AI and robotics when it leads to unemployment? ▣ Suggest some AI based reforms in the recruitment process of Civil Service Exam
<p>The Fifth State of Matter</p>	<ul style="list-style-type: none"> ▣ Why is the fifth state of matter fascinating? ▣ Suggest a hypothetical engineered product made using the properties of 5th state of matter.
<p>EU cyber sanctions</p>	<ul style="list-style-type: none"> ▣ How will you impose a cyber sanction on a citizen in India? ▣ Do you think we need Sec 144 for digital space rather than complete internet shutdown? How can we operationalize it?
<p>The landscape of Cyber Security in India</p>	<ul style="list-style-type: none"> ▣ Explain the cybersecurity infrastructure of the country? ▣ Name a few governmental organisations in the field of cybersecurity.

	<ul style="list-style-type: none"> ▣ Do you think that enactment of Personal Data Protection law is already delayed and irreversible damage has already been done to our privacy? ▣ Suggest some changes in National Cybersecurity policy 2013.
<p>Cyber attacks are on rise: INTERPOL</p>	<ul style="list-style-type: none"> ▣ Explain these types of Cybercrime ▣ DDoS Attacks ▣ Botnets ▣ Identity Theft ▣ Cyberstalking ▣ PUPS (Potentially Unwanted Programs) ▣ Phishing ▣ Online Scams ▣ What is deep web and dark web?
<p>RPF busts Real Mango</p>	<ul style="list-style-type: none"> ▣ Why are the autofill softwares/scripts for IRCTC booking illegal ?
<p>TRAI releases recommendations for developing a 'Unified Numbering Plan'</p>	<ul style="list-style-type: none"> ▣ Do you think TRAI is responsible for the present condition of our telecom sector?
<p>Aarogya Setu App</p>	<ul style="list-style-type: none"> ▣ Did you install Arogya Setu in your phone? Why/ why not amid privacy concerns and the recent RTI response? ▣ Do you think it was effective in contact tracing? ▣ What features have you added in the app?
<p>A Web 3.0 revolution that could relieve social dilemmas</p>	<ul style="list-style-type: none"> ▣ Explain the evolution of the internet in the past few decades. ▣ How will you see the integration of web and AI?

	<ul style="list-style-type: none"> How web based apps will increase the dependency on the internet and escalate privacy concerns?
NASA's Artemis Project	<ul style="list-style-type: none"> Do you think Artemis mission is a precursor to space colonisation? Will history repeat itself on the moon like scramble for Africa? Do we need a new moon treaty?
NASA's SunRISE mission	<ul style="list-style-type: none"> How solar particle storms are generated in space?
Asteroid 465824 (2010 FR) to cross Earth's orbit soon: NASA	<ul style="list-style-type: none"> How will you respond to an impending asteroid crash in the capacity of Science & Tech Secretary?
Mars Opposition	<ul style="list-style-type: none"> What is Mars Opposition?
Copernicus Sentinel-6 Michael Freilich satellite	<ul style="list-style-type: none"> What changes are brought to the ocean by climate change?
China Launches Chang'e-5 Moon Probe to Bring Back Lunar Rocks	<ul style="list-style-type: none"> What is near and far side of the moon? Why scientists are interested in far side of the moon?
United Arab Emirates celebrates its first mission at Mars	<ul style="list-style-type: none"> Why is the UAE moving towards a knowledge economy? How can science and related developments bring peace in the Middle East?
IRNSS now part of World Wide Radio Navigation System	<ul style="list-style-type: none"> How is it advantageous to India? What are your views on liberalisation of geospatial data?
Ariel Space Mission	<ul style="list-style-type: none"> What are exoplanets? Do you think life exists beyond earth? How will you detect exoplanets using gravitational lensing?

EOS-01, India's latest earth observation satellite	<ul style="list-style-type: none"> How Earth observation satellites can be used in your profession/ field of interest?
Indian astronomers collaborated with Nobel laureate on Thirty Meter Telescope project	<ul style="list-style-type: none"> Do you think there is any relationship between technological advancement and balance of power?
Moon May Be Rusting Along Poles, Suggest Chandrayaan-1 Images	<ul style="list-style-type: none"> What inference can be drawn from this discovery about the moon?
Stardust 1.0	<ul style="list-style-type: none"> If given a chance, what could be your first destination as a tourist in space? Why?
GW190412: Mismatched Black Holes Merge	<ul style="list-style-type: none"> How black holes are located in outer space? What is an accretion disk?
First-ever digital geological map of the moon	<ul style="list-style-type: none"> How will the geological map of moon help in astronomy?
Artificial Neural Networks based global Ionospheric Model	<ul style="list-style-type: none"> What is an artificial neural network? How is it used in decision making?
Discovery of Li-rich giant stars	<ul style="list-style-type: none"> What are the roadblocks in space mining?
Starship spacecraft	<ul style="list-style-type: none"> Do you agree that the Starship spacecraft has been a turning point in the history of space launch vehicles?
Role of ISRO in development activities	<ul style="list-style-type: none"> Why is ISRO more efficient in its working as compared to other govt departments/ organisations? Highlight some activities of ISRO that fulfills the mandate under DPSP.
Space Security	<ul style="list-style-type: none"> Do you think the Outer Space Treaty should be amended? What are some hits and misses of Outer Space Treaty

<p>National Space Promotion and Authorization Centre (IN-SPACE)</p>	<ul style="list-style-type: none"> ▫ Why has the government opened up the space sector for private players? What are the concerns arising out of this decision? ▫ What mechanism should be put in place to eliminate such concerns?
<p>Sun reportedly entering 'Solar Minimum'</p>	<ul style="list-style-type: none"> ▫ Is there any relation between the amount of sunlight reaching earth and solar cycles? ▫ What is Dalton minimum?
<p>Supersonic Missile Assisted Release of Torpedo (SMART) system</p>	<ul style="list-style-type: none"> ▫ What are the different weapons mounted on a submarine?
<p>India test-fires new version of nuclear-capable Shaurya missile</p>	<ul style="list-style-type: none"> ▫ What do you understand about the nuclear triad?
<p>US warns India over S-400</p>	<ul style="list-style-type: none"> ▫ What is Indian Ballistic Missile Defence Program? What are its components? ▫ Can you compare S-400 with THAAD?
<p>Successful test-firing of Hypersonic Technology Demonstrator Vehicle (HSTDV)</p>	<ul style="list-style-type: none"> ▫ How does a scramjet engine function?
<p>"New Bird in Arsenal": 5 Rafales Joins Indian Air Force</p>	<ul style="list-style-type: none"> ▫ List some features of Rafale jets. ▫ What is the new Defence Acquisition Procedure 2020? ▫ Can you compare these jets with their counterparts from the US and China? ▫ Do you think that the way Rafale deal was mentioned in the PM's speech in 2015 was solely based on merit or it has some element of boosting India-France relations ?
<p>Novichok nerve agent</p>	<ul style="list-style-type: none"> ▫ Mention some chemicals in news that are potential weapons. ▫ Mention some chemical attacks in the past.

	<ul style="list-style-type: none"> ▫ What is the mandate of the Organisation for the Prohibition of Chemical Weapons? ▫ What is the name of legislation in consonance with the Chemical Weapons Convention? What are some of its mandates?
World's largest solar tree	<ul style="list-style-type: none"> ▫ What is spiraling phyllataxy?
Transparent wood is coming	<ul style="list-style-type: none"> ▫ What are potential applications of transparent wood?
Desalination Plants	<ul style="list-style-type: none"> ▫ Why cant India use desalination plants to meet its water requirements? ▫ What potential do you see in wastewater treatment?
Hydrogen Fuel Cell	<ul style="list-style-type: none"> ▫ What are some common methods of hydrogen production? ▫ What is green, blue and grey hydrogen? ▫ What do you understand about the hydrogen economy?
L&T Construction 3D prints India's first building with reinforcement	<ul style="list-style-type: none"> ▫ How will you implement 3D printing in your profession/area of interest? ▫ What are the challenges posed by 3D printing to Original Equipment Manufacturer? ▫ Do you think 3D printing has the potential to disrupt the global supply chain?
Brain Fingerprinting technology	<ul style="list-style-type: none"> ▫ What are the limitations of this technology? ▫ If given a chance, on whom will you use this technology and what will you try to find out?
Ultraviolet Germicidal Irradiation (UVGI)	<ul style="list-style-type: none"> ▫ How does UV light kill viruses and bacteria?
The ethical questions that haunt facial-recognition research	<ul style="list-style-type: none"> ▫ Which states/countries have banned facial recognition technology? ▫ What are other means of biometric authentication?

	<ul style="list-style-type: none"> ▣ Do you think there is a strong case to ban “privacy visor” ? ▣ What can you conclude from the movie ‘Snowden’?
Digital Quality of Life Index	<ul style="list-style-type: none"> ▣ Why is there a strong case to include access to the internet in fundamental rights? ▣ How digital literacy will reduce poverty?
Ammonium nitrate linked to catastrophic Beirut explosion	<ul style="list-style-type: none"> ▣ What are the uses of Ammonium Nitrate? ▣ What is the mandate of the Petroleum and Explosives Safety Organisation?
ANtarctic Impulsive Transient Antenna	<ul style="list-style-type: none"> ▣ What is askaryan radiation?
National Science Day: What is the ‘Raman effect’?	<ul style="list-style-type: none"> ▣ Name some Indian scientist along with their discovery, especially in the field of your profession/interest.
Medical devices to be treated as drugs	<ul style="list-style-type: none"> ▣ Is it justified to change the definitions and make them inconsistent in general parlance? ▣ Why has govt. changed the definition to treat medical devices as drugs? What will be its effect on the community of innovators?