



**PERFECTION
IAS**

50 DAYS PLAN

Mains Answer Writing Program
for **BPSC 67**

**Science and
technology**

37. Science and technology have given us exponential developments but at the same time dark dangerous side of atom and corona virus explosions for elimination of human life from the earth. Reconcile the role of science and technology for this opposite phase in detail.

विज्ञान और प्रौद्योगिकी ने हमें चरघटांकी विकास दिया परंतु साथ ही परमाणु और कोरोना वायरस ने पृथ्वी से मानव जीवन को मिटा देने जैसी स्थिति पैदा की। विज्ञान और प्रौद्योगिकी के इस विपरीत भूमिका का विस्तार पूर्वक समाधेय करें।

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Q 37. Science and technology have given us exponential developments but at the same time dark dangerous side of atom and corona virus explosions for elimination of human life from the earth. Reconcile the role of science and technology for this opposite phase in detail.

All around the world, technology is continuing to become a part of everyday life, and its capabilities are progressing rapidly. There are **4.88 billion internet users** and **5.29 billion mobile phone users** in the world. It's predicted that there will be **38.6 billion IoT-connected devices** (smartwatches, etc.) around the world by 2025 and 50 billion by 2030. There are **1.35 million tech start-ups** in the world. It's estimated that **90% of the world's data was collected in the last two years**.

The greatest deficiency of modern science is its lack of moral standards. While the purpose of science is to discover knowledge, ethics are virtually absent from the discipline. This deficiency often causes scientists to investigate potentially evil subjects—like the atomic bomb—without ethical guidance.

- As science and research expand, it has become easier for technology to cause destruction on a massive scale. This leaves civilizations vulnerable to destroying themselves by creating a powerful, dangerous technology that is difficult to contain.
- One example is biological Virus. Developments in biotechnology could allow anyone, even amateur biologists, to develop a tool that kills millions. Exp. Biological Weapons.

World Specially India in emerging technology sectors faces growing challenges. While the democratization of such technologies can be beneficial, it can also be economically, militarily, and socially destabilizing.

1. **Zoonotic Disease:** Zoonoses are defined as those diseases and infections naturally transmitted between people and vertebrate animals. It is estimated that, globally, about one billion cases of illness and millions of death occur every year from zoonoses.

Some 60% of emerging infectious diseases that are reported globally are zoonoses. Over 30 new human pathogens have been detected in the last three decades, 75% of which have originated in animals.

- All countries in the are at risk from these diseases, and cross-border outbreaks occur frequently.
 - Certain disease amplifiers like population movement, fragmented health systems, weak response and laboratory diagnostic capacity and disruption of routine public health services in crisis affected countries have also contributed significantly to the surge of emerging zoonoses in the region.
 - Coronaviruses are common in certain species of animals, such as cattle and camels. Although the transmission of coronaviruses from animals to humans is rare, this strain likely came from bats.
2. **Nuclear Technology:** Atomic research was concentrated in America during WWII. Named the Manhattan Project, this scheme involved a \$2 billion investment and the gathering of the world's greatest scientists, all to build the world's most destructive weapon.
 - Nuclear is the largest source of clean power.
 - A strong civilian nuclear sector is essential to national security and energy diplomacy.
 - Despite any peaceful benefits achieved from nuclear technology, its predominant application can still destroy mankind.
 - A nuclear bomb detonated in a city would immediately kill tens of thousands of people, and tens of thousands more would suffer horrific injuries and later die from radiation exposure.
 - A nuclear war could cause long-term damage to our planet. It could severely disrupt the earth's ecosystem and reduce global temperatures, resulting in food shortages around the world.
 - Commercial nuclear power is sometimes viewed by the general public as a dangerous or unstable process. This perception is often based on three global nuclear accidents, its false association with nuclear weapons.
 - Building a nuclear power plant can be discouraging for stakeholders. Conventional reactor designs are considered multi-billion dollar infrastructure projects.
 3. **The Bio economy** can be defined as economic activity that is driven by research and innovation in biotechnology and is further enabled by the convergence of the life sciences and data sciences.
 - The bio economy provides a means of developing new and innovative products and achieving such benefits as lower carbon consumption and improved health care solutions.
 - It also has opened new avenues for innovation, job creation, and economic growth.
 - Biotechnology can be misused to create virulent pathogens that can target our food supply or even the human population.
 - Genomic technology used to design disease therapies tailored to an individual also can be used to identify genetic vulnerabilities in a population.
 - Large genetic databases that allow people's ancestry to be revealed and crimes to be solved also can be misused for surveillance and societal repression.
 4. **Autonomous Systems** are not easily defined but are often described as systems that can perform tasks in a changing environment with limited human intervention or control.

Benefits:

- Autonomous systems can enhance our way of life by reducing size, costs, risk, and the need for human support, while improving productivity and safety.



- While autonomous vehicles receive the most attention and may have the greatest near-term economic potential, other autonomous systems and robotics have assumed key roles in tasks such as delivering goods and services, performing surgical procedures, as well as manufacturing and assembling products.

Threats:

- The expansion of autonomous systems also presents new risks. Because of their dependence on software, computing, and connectivity, autonomous systems present a growing attack surface for malicious cyber actors.
- They can also be vulnerable to supply chain disruptions or exploitation by adversaries. Given the broad data that many of these systems collect, they are also likely to be ripe targets for foreign intelligence collection.

There is a proverb, 'knowledge is power'. Science has created new facilities as well as strengths. Those who used science as a tool made progress. They got control over the world. Those who could not utilise the power of science were left behind. The situation is so volatile that experts predict the last century of human existence on Earth has started. Advancement in science empowered humans, however, they have failed to use this power wisely.

