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Topic:

Can Science Save Us?

1) Introduction

Thesis Statement: Science can bring variable negative outcomes; however, its benefits for the survival of human race outweigh the drawbacks.

2) Science : Savior or Destroyer

3) Science as a Savior:

a) Technological Advancement: Convenience for humanity

- 1) Enhanced communication and networking - 4G and 5G
- 2) Modern transport systems - reduced distances
- 3) Shift from non-renewable to renewable energy - environmental conservation.

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b) Industrial Revolution and Globalization:

- 1) Increased means of production
- 2) Employment opportunities
- 3) Globalization - enhanced people to people contact.

c) Breakthrough in Medicine:

- 1) Discovery of antibiotics
- 2) Advancement in cancer and HIV treatment
- 3) Successful containment of COVID-19
- 4) Advanced diagnostic machines

d) Peace over War:

- 1) Shift from conventional war to cyber war
- far less human lives involved
- 2) Deterrence and detente'

e) Space exploration : attempts towards an alternate - extra terrestrial - life :

1) Space exploration for finding life in case of a future catastrophe

2) A strict check on meteorites : pre-emptive and proactive measures to avoid any collision

4) Drawbacks of Science :

a) Only the rich bear the fruits of technological advancement.

b) Industrial revolution affects environment and globalization poses a threat to national sovereignty.

c) Modern health-care comes with a very high cost.

d) Modern warfare, although it is less severe, is still a threat.

e) Space expedition at the cost of many other important issues - unwise decisions.

5) The Necessity of Science for Human Survival :

- a) Indiscriminate nature of science - benefits rich and poor alike.
- b) Introduction of renewable energy as a cheap alternate for non-renewable energy - only possible through science.
- c) Sharing of ideas, technology and skills through globalization - absolute gains for all.
- d) Medical facilities, expensive at first, but accessible later on to masses
- e) Cyber warfare is far less severe in nature
- f) Space programs have less to do with governance as the respective governments are responsible for internal and external issues of a state.

6) Conclusion

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Throughout history, all nations that progressed - from the ancient Greeks to modern day Chinese - shared one thing in common: a general inclination towards the pursuit of science. It is the science that transformed the fate of these nations, commonly called as the first World Countries in present times. Science bestowed upon them an instrument which they capitalized on to leave an unending mark on the global stage. Hence, science proved to be a savior of those nations against harsh natural tendencies and other means of destruction. Apart from the positive role of science, it also brings variable negative outcomes; however, its benefits for the survival of human race outweigh the drawbacks. Science brings forth technological advancement in the form of cutting-edge technology for communication, travel and energy generation. These serve as the means for industrial revolutions and globalization as a consequence. Moreover, breakthrough in medical field and global peace processes were also facilitated through the science.

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Although the opponents of science emphasize on the drawbacks of science like the disproportional benefits of science favouring rich, environmental degradation due to industrialization, expensive and selective healthcare, and prioritising recessal of domestic issues at the cost of space exploration - These efforts are mostly like making mountain out of a molehill.

The role of science as a savior or a destroyer is highly subjective and based upon the perceptions and notions of masses. However, it is viewed through the course of history that Europe, an epicenter of contemporary progress and glory, was once in a chronic turmoil when its populace faced the wrath of an invisible death, i.e., The Bubonic Plague. It killed almost 4.5 million people, and despite flagellation, a self-hitting process to reflect injury as an indictment of sins, nothing worked to cure the plague when years later, antibiotics were discovered by an Scottish scientist named Alexander Fleming. This discovery not only saved

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the European populace but also paved the way for the future breakthroughs in the sphere of science and innovation, saving lives of millions.

However, Science is also accused for the killings in Hiroshima and Nagasaki when the U.S and Japan used science for the sake of destruction. Countries maximized the power potential, which culminated into disastrous outcomes. Had there been no minds behind the "Manhattan Project", world could ~~have~~ been a far different place today. It was this science that enlightened man with the concept of nuclear fission, i.e., striking a heavy nucleus with smaller neutrons to initiate a massive reaction. Had there been no science, such lunatic ideas would have never thrived.

Science creates convenience for humans through technological advancement. In the ancient times, people used to struggle in terms of communication. A single message took several days for delivery. Similar was the case

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with travel. Moreover, electricity was considered a privilege, which only the rich could have afforded. However, science revolutionized these services providing humans with enhanced convenience. Now, because of internet it has become a matter of seconds to send and receive messages and other sources of media through social apps like whatsapp, facebook and G-mail. Furthermore, travel is also revolutionized where distance of days is contracted to hours by the help of jets and trains. Adding forward, electricity is not only accessible but also inexpensive thanks to the owing to the renewable technologies such as hydro-power electricity and solar-photo-electric cells. These transitions could have never been possible had there been no science.

Industrial revolution has facilitated globalization at large. This revolution induced increased means of production, and hence, states found it necessary to search for newer markets for export of the production surplus

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This process of finding new markets would never have been possible if science had not existed. Science firstly enabled man to reason. The aftermaths of black death left man with no choice but to question himself about the purpose of life, often known as existentialism. Philosophers like Rousseau and Immanuel Kant challenged the pope's primacy and upheld the notions of reason and logic. This glorious phase is also called the Enlightenment. When the pre-conceived notions were challenged, man was exposed to nothing but reason, a pre-requisite of scientific cognizance. This marked the age of progress and innovation, often referred as the industrial revolution. Industrial revolution assisted man to navigate through seas for discovering new markets; thus, forging a way towards globalization where free share of technology and intra-state employment opportunities are created. Such supra-national concept of world and enhanced people to people contact was never possible without science.

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Breakthrough in medicine is a glaring example how science can be beneficial for humanity. Discovery of cutting-edge drugs and technology to combat newer and advanced strains and disease is a remarkable wonder in itself. It took almost decades to completely get away with the Great Plague of London 1665-1675. However, an opposite scenario was observed during COVID-19 when only few months were taken for the creation of vaccine. Similar ten trends are followed in diseases such as Tuberculosis, hepatitis, and HIV, which were untreated, considered taboo, and caused millions of deaths, are treated as out-patient settings. This modern healthcare is further augmented by the introduction of highly precise diagnostic machines for C.T scans and other similar procedures. In today's world, one can be aware of the diseases such as cancers before they even manifested their symptoms. This marvelous progress in medicine is largely attribute to science.

Peace over War is the new slogan of science, which became popular after Albert Einstein's rhetoric against the nuclear bomb. Initially, science facilitated the creation of nuclear bombs; however, in the later stages of world politics when various states ~~are~~ acquired nuclear weapons, states resolved to 'deterrence', ~~to~~ averting a global catastrophe. This is also evident from Russia and U.S rivalry during the cold war when treaties like ~~ATBT~~ NPT (Non-proliferation treaty), PTB (Partial test ban) and CTB (Comprehensive test ban) were signed. This created a state of containment between the mighty powers, which would have resulted in a mutually assured destruction otherwise. Therefore, new countries resolve to modern warfare that mainly include cyber warfare and propaganda. This type of war reduces direct confrontation to a great extent; thus, saving human lives which would have exposed to direct involvement in the war. This underscores the role of science in establishing peace.

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Space exploration is also a trending debate in 21st century. Scientists are in a view that the Earth is not a life-sustaining planet and alternate life is the need of the hour. Therefore, space agencies like NASA and space X are sending missions in search of life in the space. Moreover, such space agencies are also keeping a check on any possible meteorites hitting the Earth, so pre-emptive measures could be taken, possibly changing the meteor's direction or destroying it in space.

Every good thing comes with a cost, and advantages of science and technology are also contested by many with its negative aspects.

Only the rich bear the fruits of technological advancement. It is true that most of the advancement and revolution originated in the western world or global north. This created a class difference,

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and isolated the diaspora from global south to completely reap the benefits of such technological boom. Immanuel Wallerstein describes this in his theory famous as "World Systems" in which he explores how the developed countries at the core exploit the rights of developing countries at the periphery. They do this because they have a scientific advantage over them. Helpless countries are dependent for processed products on the developed countries that hold means of production such patents. This signifies how technology benefits the rich.

Industrial revolution affects environment. World is facing a serious issue of global rise in temperature and since the industrial boom, global temperature has raised by 2°C as per the UNFCCC report of 2023. This can cause altered weather patterns, inadequate rainfalls, melting of glaciers, boiling of seas and an existential threat to mankind. Apart from this, globalization also

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undermines national sovereignty. States have less say in domestic affairs and MNCs, which are supra-national entities, form the domestic policies. For instance, the role IMF in facilitating countries at the risk of default is less technical but more authoritative. Its structural adjustment programs at the cost of public spending pushes countries in a vicious cycle of debt. This is a clear example of an entity forming state policies. Similarly, **BRI** and its capture of Hambantota port in Sri Lanka portrays a similar dismal picture of such interventions.

Modern healthcare comes with a very high cost. Technologies are usually patented and large access to these is highly subjective and often prohibited by capitalist tendencies.

Modern warfare, although it is less severe, is still a threat. Axiomatically, it does not involve

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one to one combat; however, its outcomes in future can be drastic. Cyber warfare is widely used in narrative building and conspiracy. It can be used to influence the nascent minds of people against a state resulting in civil wars and secessions. The unrest created by cyber warfare is like a fire turned into an inferno where extinguishing is next to impossible. This narrative-building is more disastrous than any other combat.

Space expedition at the cost of a plethora of other social issues is an unwise idea. When the entire world is living in uncertainty and most of the countries are affected with societal crisis, such space exploration seem and look meaningless. In a world where countries like Pakistan having a population of 40% living under the poverty line as per the Pakistan Bureau of Statistics, and a world with civil wars and intra-state tensions such as Syria, Israel-Palestine and Russia-Ukraine, respectively, such efforts of space exploration

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are sought to resolve issues at home.


Despite all the negative impacts of science, the necessity of science for human survival is indispensable.

Science is indiscriminate in nature, and it benefits both rich and poor alike. The disparity is mainly created by the state leaders and intermediaries. Science is secular and favours all. This can be inferred from an MRI machine, that is unaware whether the person being examined is a black or ~~white~~ white, or a rich or poor. Science favours all; however, the inefficiencies and human human failures are veiled under the pretext of of science whereas science ~~is~~ favours everyone proportionately.

Introduction of renewable energy is a cheap alternative of non-renewable energy resource is only possible through modern science. It

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was the same science that promoted fossilized fuel for furnace. It is the same science, after progression and ~~of~~ refinement, and considering the need of hour, i.e., conservation of the planet, came forth with the idea of renewable energy involving 0 waste. No one ever thought of harnessing sunlight for major source of free energy, notwithstanding the initial cost, would have ever been possible but science made it happen. This resulted in most of the countries such as Norway, Sweden and now China towards completely electric cars.

Globalization is a win-win situation of for all the countries and people. Sharing of ideas, technology and skills bolsters the recipient state unprecedentedly. Although it is confronted with some challenges like exploitation of poor by rich, low wages, a compromise of national security; however, these obstacles can be overcome with standardization, mutual agreements, negotiations, and discussions under the auspices of UN  and WTO (World Trade Organization).

Medical facilities and innovation is also expensive at first because a lot of research and development is conducted for such ideas to sprout. However, with time, such ideas and technologies are easily accessible to masses. For instance, antibiotics at the time of creation were hardly available, but now they ~~are~~ can be bought over the counter with $\frac{1}{2}$ of the price of their discovery. Similar is case with COVID-19 vaccine where when it was available within no time after its creation.

Cyber warfare is far less severe when compared to conventional warfare. It allows states to intervene and display rather manifest a counter narrative to those maligning content. Since it has no human-human interaction or use of a nuclear bomb, the chances for an immediate crisis are reduced to none.

Space programs also have

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less to do with domestic affairs of other states. It is agreed that world is subjected to a collective responsibility towards mutual help; however, government and state institutions have more to do with internal and external affairs, and space programs ~~have~~ are loosely connected to such governmental issues.

To sum up, science may have negative impacts such as misuse of technology, benefiting rich instead of poor, environmental hazards; however, its benefits such as technological advancement, globalization, advancement in the field of healthcare, inclusivity, and an indiscriminate and proportional approach ~~and~~ outweigh the negative impacts. Furthermore, with policy adjustment and mutual negotiations, these negative aspects can be minimized to a greater extent.