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ESSAY TEST SERIES

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HINTS – Essay Test Series cum Guidance Program

1. Effects of the world's fight against climate change can be as devastating as the climate change itself.

Introduction: There's one issue that will define the "***contours of this century more dramatically than any others, and that is the urgent threat of a changing climate" - Barack Obama***

- Meaning of climate change(CC)
- Historical context of CC
- Actions taken by the Institutions to fight climate change
- Paris climate deal and its provisions

Loopholes/ some of the provisions:

- INDC
- Target years different for different nations(developed Nations and developing Nations)
- No binding deadlines/ goals
- Rich countries providing Finance
- Geo engineering options.

→INDC, different target years, no binding goals

↓

Guided by the philosophy of "peaking the emissions "as soon as possible" with" rapid productions " there after

↓

This leads to various other disasters

- Politically - fights between the nations- small Island Nation groups, developing countries.
- Damages the environment future - might be beyond the recovering threshold
- Rise in inequalities among Nations and the people especially the vulnerable sections

→**Financing the mechanism**.

Technology transfer- fight between Nations regarding IPR, revenue generation.

Geo engineering options.

- Solar panch etc manufacturing results in more emissions.

• Aerosol spraying, giant mirrors in space, carbon sequestration- the long-term impacts not known

The body should mainly focus on how the current mechanisms to fight climate change will have negative effects in various spheres.

All the countries should prioritise to work for the protection/ preservation of earth and not have relatively short term benefits like economical growth etc.

Have all the nations - developed, developing, small Island Nations. Interests in mind while dealing with such an interconnected and serious problem.
Saving our planet, lifting people out of poverty, advancing economic growth... These are one and the same fight. We must connect the dots between climate change, water scarcity, Energy shortages, global health, Food security and women's empowerment

Solutions to one problem must be solutions for all- Ban ki-Moon

2. Only Innovations can ensure proper availability, accessibility and affordability in health and education.

"Health and education are strongly connected: Healthy children achieve better results at school, which in turn are associated with improved health later in life".

• Why we need- better health and education? - Significance
• Availability, Accessibility and Affordability -- interrelation
• How can innovation a triple 'A'- in health and education:-
➢ Availability-Increased and Faster trade
➢ Accessibility - Last mile reach- No barriers
➢ Affordability - free at cheaper - Public

Challenges -- how they affect innovation and act as hindrance to 3As
➢ Political
➢ Economical
➢ Social
➢ Cultural
➢ Environmental
➢ ethical

Way forward- addressing challenges and achieving SDG-3 and 4(health and education)

Innovation in Healthcare:

Technology Infra;

• Population health solution
• Care coordination
• Referral management

Prevention:

- Vaccines
- Analytics

Payment models

Care models:

- Telemedicine
- Risk bearing providers
- Consumer tools
- On demand Healthcare

Disease management:

- Med- adherence
- Wellness
- Behavioral health
- Non communicable
- Communicable

Innovations in education:

- Just in time support to students -24*7
- Stop debating Technology and start debating constructivism and behaviourism
- Resisting accountability - and then revisiting it again.
- Start talking about students networks
- Look internationally for disruptive plays in education.

"Solution to one problem must be solution for all as health and education or linked to growth, development and Planet as a whole".

3. Role of women in environmental conservation - Pivotal or overhyped?

"Nature has enough for man's need but not for his greed" - MK Gandhi

Nature: Fulfilled every needs of the mankind- unconditional.

Human inability to grow and hold the baton of responsibility has tested its patience, prompting an concerted effort of all individuals and the role of women who constitutes nearly 50% of population is pivoted.

- Pivotal role of women is not only justified by her number but also by her inherent nature.
- Women - considered as symbol Of **Love, Care, Compassion, Selflessness** and is also considered synonymous to nature which is evident by
  - ➢ Mythology - women- bhudevi
  - ➢ History - mother Earth - Indus Valley Civilization.
- Her Close Association with nature- (also warranted by culture and tradition)

worship of neem, peepal

- Shouldering of responsibilities- participation in agriculture.
- Gardening- their affection towards plants, flowers etc provides her with unique knowledge base regarding environment

The lives of

- Saalumarada Thimmakka
- Medha Patkar - Narmada bachao andolan
- Amrita Devi Bishnov- Chipko Movement
- Rukmini Devi arundale- Animal welfare Board of India

(This could be used as an **anecdote** to the essay topic)

- Role of women is community forestry, social forestry.
- Role of women in inculcating values to children- influencing on entire generation

"a child is a father of a man"- William Wordsworth

Advising right conduct / action for her family.

"Behind every successful man there is a woman"

- Increasing participation of women in socio-economic (SHG- Arundhati Bhattacharya,
Chanda Kochhar), political (Sushma Swaraj, Nirmala seetharaman, Angela Merkel Nikki
Haley), administrative Spheres
- Also consequences of environment is not gender neutral and women tends to suffer more than men- water crisis- gender roles in society - **fetching water a woman's job** eg: Rajasthan

Challenges: For Greater role

- Lack of gender parity in employment, education, income
- Patriarchal society
- Harassment, sexual violence etc
- Impeding greater participation of women in all aspects of society including environment

Few state efforts:

- Gender budgeting

- Reservation
- Policies - give few examples
- Greater say for women in policies relating to environmental conservation

Environmental degradation - a broadsword, it cuts across the spectrum of gender, race, region, and the living

eg:-
- global warming
- Climate change
- Desertification Substantiate them
- Water stress

Substantiate them

So picketing in the name of gender rather than addressing the concerns only aggravates the issue at hand

- India's refusal to vote for gender parity in trade in WTO Buenos Aires session

Stating that trade is gender neutral- shows that environmental conservation should have a similar connotation.

And reduced distinction between men and women moreover changing lifestyle, changing roles of women may have changed their preferences, also the middle class witnessing a decrease in labour force participation rate (affecting women's autonomy and financial independence) on the other hand some of the most noted polluting companies like PepsiCo(Indira Nooyi) are headed by women.

Environmental conservation needs participation of all stakeholders, though women as a cascading effect on the roles and responsibilities, addressing and averting the challenge requires a holistic approach.

4. It’s not the Answer that enlightens, but the question does.

In Kathopanishad, the conversation between Nachiketa and Yama (Lord of death) is beautifully presented. Nachiketa was a young, brave and intelligent teenage boy. Yama on being happy with him, granted him three boons. The first boon, Nachiketa said, “I seek the welfare of my father as my first boon.” Yama granted him happily. The second boon “Sir, I desire to know how one could reach heaven where there is no sorrow, old age or death”. Nachiketa did not ask this second boon for himself but for the sake of the people. He wanted everyone to learn this secret knowledge and free themselves from the sufferings. Yama was pleased with the unselfishness of Nachiketa. Yama gave all the details of a particular sacrifice, the performance of which would take one to heaven.

As Nachiketa was an intelligent and a sincere boy with a spiritual knowledge, he

could understand all that was taught. Yama was pleased with him and in appreciation, named that particular sacrifice after Nachiketa himself. For third boon, Nachiketa asked to learn the mystery of what comes after death.

Yama was reluctant on this question. He said that this had been a mystery even to the gods. He asked Nachiketa to ask for some other boon, and offered many material gains. But Nachiketa argues that all worldly treasures and heavenly pleasures come to an end sooner or later. These are not permanent means of enjoyment. He insists to get the ultimate knowledge of self, '' O Lord of Death, you have promised me the third boon''.
Yama was pleased with such a young truth-seeker who had rejected the path of enjoyment and chose the path of goodness. Then Yama taught him the knowledge of the Atman, realizing which man attains immortality. Know the Self as lord of the chariot, the body as the chariot itself, the discriminating intellect as charioteer, and the mind as reins.

The senses, say the wise, are the horses; Selfish desires are the roads they travel. When the Self is confused with the body, Mind, and senses, they point out, he seems to enjoy pleasure and suffer sorrow. The all-knowing Self was never born, nor will it die. Beyond cause and effect, This Self is eternal. When the body dies, the Self does not die. The Soul is immortal.
Thus, having learned the wisdom of the Brahman from Yama, Nachiketa was freed from the cycle of births. Nachiketa has been one of the most influential characters in Hinduism. The story of Nachiket's conversation with Yama teaches us how the curiosity of a child to know about life and death enlightens him with the wisdom of Brahman. There are several such stories of enlightenment in Indian history. Every child starts his learning life with questions. A child when start knowing his surroundings, what all he asks is 'Why?' This questioning habit in child shows his love for learning.

However, when he enters the present education system of India, he is taught, "What to think, rather than how to think?" This hampers his overall intellectual growth. Jawahar Lal Nehru once said, "Children are like buds in a garden and should be carefully and lovingly nurtured, as they are the future of the nation and the citizens of tomorrow. Only through right education can a better order of society be built up." The focus of the education system must be brought towards the questioning capabilities of a child rather than the rote memory.
Once the child is out of school, new questions would be there in his path. To find the answers for a better and prosperous life, he must know how to build his own path. If

the child is made to stop thinking in his childhood, the future of any country could be in danger. For the same reason
Swami Vivekanand said, “If I get ten or twelve boys with the faith of Nachiketa, I can turn the thoughts and pursuits of this country in a new channel.”

Also, learning is not a day or two-day long process but it takes a whole life learning new things. It is correctly said that, “One who thinks he know everything is the biggest fool”. We all must strive to seek the answers for very existence of ours. This will give meaning to the life of each one us. One such example is Gautama Buddha, born as a prince, had flourishing empire. But he left all the pleasures of his life to seek answers to the questions that brought a storm in his mind after his walk in the town, where he met four persons. The first one was an old man, a sick man, a dead man and finally a wandering holy man who had given up his home and family to search for knowledge. The prince was disturbed with the sufferings of people and determined to find the answers for human suffering and the final cure for it. He finally gained enlightenment and solved the mystery of the sufferings of human life. He then dedicated his life in preaching what he had learnt, and hence was known as Buddha (the awakened one).

Being in religiously rich Indian culture, we have learned a lot about self-realization through self questioning our conscience. Throughout the course of our history, we have evolved with the various cultures we interacted with. When the scope of evolution was hampered by the British Government, people started questioning the authority of its inhumane acts. The whole event from mid nineteenth century till independence was based on the power of people to question.
With every passing question, people understood the exploitation done by the British Government and sought its answers in freedom from the clutches of the mighty empire.
In the modern-day India, we are given several rights and we enjoy our freedom. Right to Information (RTI) has proved to be the biggest tool with people to enlighten them with the working of government. **This right to information has brought a paradigm shift in the government functioning as they are now more accountable to the public and can be put to scrutiny through the RTI queries, which become a part of public domain. The question thus enlightens the public and government functioning.**

The story of people in rural Karnataka had combined the campaigns for the Right to Information and the Right to Food to fight hunger. Poor villagers have successfully participated in social audits and public hearings to demand that the rations due to

them are allotted to them at the correct prices. The people were not given monthly rations. On a complaint by a Self-Help Group (SHG), the officials were summoned for a meeting. The questioning to the officials made them aware of nine programmes of food security. Positive fallout of the public hearing has been the marked improvement in the quality of food grains which is now being supplied in the villages. After a week of public hearing, people got ration cards and new ration shops were opened. For the first time, women were confident enough to ask why they were not being given rice and wheat at the right price. This movement must spread to every village and every taluka. It can now be hoped that the new tools of empowerment will enable the people to ask tough questions and demand answers as well as action.

There are several such examples where questioning through RTI has made people aware about various welfare schemes available to them as well as has brought several scams in highlight. This has made government more accountable. The demand of increasing transparency in working of the government system is also slowly being fulfilled. The RTI has taught the youth and middle age people of India, the power of questioning.

The present-day movements like women movement, environment movement all started with a question. Women in India have always enjoyed a high position in society, but still there are some flaws in the societal set up. The famous Shah Bano case **(Mohd Ahmed Khan v Shah Bano Begum, 1985) is a relevant case in question**. It is considered to be a very debatable and problematic legal contest in India. This lawsuit has substantiated to be a milestone in the struggle of rights, freedom for the Muslim women. It is all about Shah Bano's fearless and valiant struggle against the system of Triple Talaq. Instead of creating a history or story of suppressed women, she faced the embarrassment of the community and of her husband. Even though she was facing such a drastic situation in her life, she chose to struggle against her husband's oppression and faced the world where everyone was in favor of her husband, and above all she bravely decided to fight against the male-dominated society. She fought against the system of Triple Talaq and at last her efforts **didn't go futile** and **it raised the important question of women rights in India. It proves that it was not the answer, but the question that Shah Bano posed before the court of law was essential and akin to the societal enlightenment.**

The modern-day women have started questioning the societal norms and are enjoying the freedom and prosperity. The enlightenment that women have achieved has made them cross several hurdles in life and **has helped them break the glass ceiling.** Let's say, the success of Phogat sisters in a male dominant sport, Yousuf Malala's fight for girls' education rights in Pakistan **are testimony to this fact.**

Questioning has always helped in enlightenment of every section of society. Questioning and learning should never be stopped. The ability to question shows how enthusiastic the person is to know and learn. The process will continue to evolve human to the best.

5. We shape our technology, then technology shapes us.

Introduction and conclusion of an essay should be such that it should attract the attention of the examiner and give a sense of what someone is about to write in the next few pages. So, special care should be taken while introducing and concluding an essay. An essay can be introduced in multiple ways, there is no fixed formula or pattern for it. However, some of the popular and suggestible introduction includes

1) **Introducing using an anecdote/story**
2) **Introducing using some quotes**
3) **Introducing with some current example**
4) **General introduction which may contain historical examples or straight away paragraphs.**

After introduction, the body part of this essay may contain following points.

1) **Some examples, how technology shapes society and other examples, how society shapes technology.**
2) **What are the major technologies that society has to see/use in day to day activities. Some examples could be- Communication, ICT, Electronics, Medical etc**
3) **Some of the major areas where technologies have changed lives, example, technologies related to agriculture, medical science, production and manufacturing etc.**
4) **Some technologies which may change the future of the world, example Artificial Intelligence and Robotics.**
5) **Every example should be linked properly to the topic and give whatever opinion a candidate has against it.**
6) **Conclusion should be a balanced opinion and forward-looking proposition.**

Here is an example of all such methods, candidates can use similar or better examples.

Introducing with an anecdote:

Swati hails from a backward district of Bihar, when she completed her secondary education, her father decided to send her to Delhi for higher education and gifted her a mobile so that she could be in touch with the parents. New means of transportation and communication helped Swati's father take this decision to send his daughter for higher education. No one from her village earlier went outside because there were no direct connectivity as of now and mobile phones were also not there. Mobile was new for Swati. When she became used to mobile technology, she started seeing online tutorial videos at her home and at times she also ordered food using online apps. Thus, she enjoyed using these features. Increasing demands of online foods and penetration of internet in the society helped develop plethora of such other technologies. In the above example we see, advent of communication technology first shaped the society's decision to send a girl for higher education and when the girl became accustomed to using these technologies then technology started shaping her choice and too many choices helped generation and invention of other and better technologies. Thus, it is evident from the above example that both technology and society shapes each other.

Introducing using some current example:

Technology shaping society- penetration of JIO internet led to frequent use of social media sites in villages also. It led to spread of fake news and consumption of productive time of youths on social media.

Society shapes technology – urban societies have less space in their homes for accommodating too many gadgets in their drawing rooms, realizing this space crunch all items started becoming slimmer, example, earlier we had large box sized TVs now we have wall hung TVs. Due to increasing demands and problems faced by people in queues, govt. digitalized many of the day to day activities like booking railway tickets, checking bank details etc.

Introducing using quotes:

- The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency - Bill Gates
- Technology is, of course, a double-edged sword. Fire can cook our food but also burn us. Jason Silva
- Every once in a while, a new technology, an old problem, and a big idea turn into an innovation - Dean Kamen

- Technology is nothing. What's important is that you have a faith in people, that they're basically good and smart, and if you give them tools, they'll do wonderful things with them - Steve Jobs
- Science and technology revolutionize our lives, but memory, tradition and myth frame our response. Arthur M. Schlesinger
- Modern technology has become a total phenomenon for civilization, the defining force of a new social order in which efficiency is no longer an option but a necessity imposed on all human activity - Jacques Ellul
- It has appallingly obvious that our technology has exceeded our humanity. Albert Einstein
- One machine can do the work of fifty ordinary men. No machine can do the work of one extraordinary man - Elbert Hubbard
- Humanity is acquiring all the right technology for all the wrong reasons. - R. Buckminster Fuller
- The human spirit must prevail over technology - Albert Einstein
- The real danger is not that computers will begin to think like men but that men will begin to think like computers. - Sydney J. Harris

General introduction:

21st century world is the world of science and technology; comforts and discomforts of human beings have led to the invention of new and smarter technologies. There is an old adage which reads “necessity is the mother of invention” which holds true even today. As per the growing necessities of human beings new and newer technologies kept on sprouting.

When ancient people faced difficulties in moving goods from one place to another, they discovered wheels, similarly they invented fire. Thus, wheels and fire were discovered because of the growing need of human beings but today we have become so accustomed to the services of fast-moving wheels that speed of a train or a bus determines our preferences of a tourist destination. Thus, **it is evident that the cause and effect relationship between technology and society is bi- directional. Both have clear influence over each other.**

Understanding the meaning of technology:

Technology is a body of knowledge devoted to creating tools, processing actions and the extracting of materials. The term ‘Technology” is wide, and everyone has

their way of understanding its meaning. We use technology to accomplish various tasks in our daily lives, in brief; we can describe technology as products and processes used to simplify our daily lives. We use technology to extend our abilities, making people the most crucial part of any technological system.

Technology is also an application of science used to solve problems. But it is vital to know that technology and science are different subjects which work hand-in-hand to accomplish specific tasks or solve problems.

Technological determinism:

Technological determinism tries to understand how technology has had an impact on human action and thought. Changes in technology are the primary source for changes in society. The term is believed to have originated from Thorstein Veblen (1857–1929), an American sociologist and economist. The most radical technological determinist in the United States in the 20th century was most likely Clarence Ayres who was a follower of Thorstein Veblen and John Dewey. William Ogburn was also known for his radical technological determinism.

The first major elaboration of a technological determinist view of socioeconomic development came from the German philosopher and economist Karl Marx, whose theoretical framework was grounded in the perspective that changes in technology, and specifically productive technology, are the primary influence on human social relations and organizational structure, and that social relations and cultural practices ultimately revolve around the technological and economic base of a given society. Marx's position has become embedded in contemporary society, where the idea that fast-changing technologies alter human lives is all-pervasive. Although many authors attribute a technologically determined view of human history to Marx's insights, not all Marxists are technological determinists, and some authors question the extent to which Marx himself was a determinist. Furthermore, there are multiple forms of technological determinism.

Applications of technologies in society:

Churchill famously said we shape our buildings, then they shape us, the same could be said about the technology we use. From relying on our mapping apps over memory, to how texting has shifted which finger we use to switch off the light, there are so many ways both big and small that our lives are influenced by tech.

We apply technology in almost everything we do in our daily lives; we use technology at work, we use technology for communication, transportation, learning, manufacturing, securing data, scaling businesses and so much more. Technology is human knowledge which involves tools, materials, and systems. The application of

technology typically results in products. If technology is well applied, its benefits humans, but the opposite is true, if used for malicious reasons.

Many businesses are using technology to stay competitive, they create new products and services using technology, and they also use technology to deliver those products and services to their customers on time and within budget. A good example is mobile phones companies like Apple & Samsung, these mobile empires, use high-end technology to create new smart-phones and other electronic devices to stay competitive. This competitive edge is gained through employing advanced technology.

Some of the popular technologies used on daily basis:

- ***Communication Technology***

This is a system that uses technical means to transmit information or data from one place to another or from one person to another. Communication is a daily essential for all; it is used to convey ideas, exchange information, and express emotions. Humans use communication technology tools like phones, computers, emails, fax or messaging tools to stay in touch with friends and family. Businesses use communication technology tools to facilitate the flow of information in a workplace, to help in decision making, to serve customers' needs and requests, to promote new products or services to targeted consumers and so much more.

- ***Construction Technology***

This is the study of advanced methods and equipment used to build basic and advanced structures. One type includes buildings and heavy engineering structures like bridges. Construction methods use various technological products to erect a structure. The use of construction technology tools like heavy tractors to prepare the land, computer-aided design software to create digital designs for structures in 2D and3D format. These tools along with many others help builders to efficiently complete a project on time, within budget and with minimum accidents.

- ***Assistive Technology***

Assistive technology is used by people with disabilities to accomplish specific tasks that are difficult or impossible to perform. The term "Assistive" means helping or providing an extra hand. Assistive technology is being used in many ways, in schools it is used to help students with Autism to learn better, it is used to help people with disabled bodies move, additionally, with the use of speech recognition applications those who are unable to type are able to use a computer

and so much more. Due to advancement in technology, we have a variety of assistive technologies that assist many to accomplish tasks that may otherwise be considered impossible.

- ***Medical Technology***

This is the type of technology which is used to extend and improve human life. Medical technology reduces patient's pain and cares for an injury. Developed countries have benefited from the use of medical technology in their healthcare systems, and this explains the reason why people in developed countries leave longer than people in developing countries. Medical technology is used to diagnose infections, treat diseases and to research diseases affecting humans, etc.

- ***Information Technology***

Information Technology is a set of hardware and software tools used to store, transfer and process information. Information technology tools help in providing the right people with the right information at the right time. Knowledge workers in an organization use information technology to complete various tasks, and these can include; transferring of information which facilitates decision making within an organization, improve customer service, and so much more. In this information age, it is imperative to manage information systems to ensure accuracy and efficiency.

Management information systems (MIS) involves planning for, development, management, and use of information technology tools to help knowledge workers and people perform all tasks related to information processing and management. Big financial institutions like banks use information technology to operate their entire businesses as well as serve their customers.

- ***Entertainment Technology***

This use of technology to create an entertainment experience. Since entertainment is too broad, everyone gets entertained in their way. Technology is used to create video games, to develop musical systems and so much more. Entertainment technology includes things like video, sound, animations, scenery fabrication, computer simulations, interactive environments and so much more.

- ***Business Technology***

This is technology used to run a business and enhance various business operations, it normally consists of a combination of software and hardware. Many businesses are using technology to scale its growth. Small businesses have used technology to create new ways of competing with well-established companies. To some extent, some business technologies can make a small company look like a big company, and this can help a small business gain position in a competitive market.

- ***Educational Technology***

Education technology aims at improving a student's performance by creating and managing various technological processes and resources in or out the classroom. It is an academic discipline which prepares individuals to acquire deeper understanding and knowledge. It helps them learn how to devise solutions to problems through research, design, evaluation, and utilization. Educational technology helps in improving the way we learn, some of the benefits of educational technology include:

– It motivates students and encourages individual learning.

– Easy access to educational material

– Helps students learn new subjects and languages through gamification

How society shapes technology?

It starts with us using technology that is nature. Eventually, we begin researching, inventing, or discovering new technologies for the purpose of convenience and safety. Air conditioning makes life easier in the summer, a heater makes life easier in the winter, vehicles and airplanes lessen travel time, sewage technology increase quality of life and safety, and so on. These technologies shape us in how we live our lives. Air conditioning and heating technologies help us focus on productivity, instead of the heat or cold weather. Less travel time means more productivity, faster and easier communication, and acts a bridge to visit or tour other countries. Sewage technology keeps us alive longer by displacing waste and diseases to areas that won't affect our lives (ideally). As we continue to develop new technologies, our lives change based on the new developments. As our lives change, the search for new technology changes as well to accommodate new needs and interests. To answer the question, the answer is both are true and act in a cycle. Technology shapes our beginning, then we shape technology for our convenience and safety, which shapes our lives resulting in new needs and interests, and then it repeats.

Consider the example of clocks. Over time, we have developed and improved and customized and adapted clocks to meet our needs. We have huge clocks in watchtowers and churches that tell time for masses of people. We have wall clocks that tell time for organizations, and grandfather clocks that tell time for households, and watches and alarm clocks that tell time for us personally. And we customize all these clocks and watches to be more functional or more decorative to suit our needs and personalities. Clearly, it must be true that we shape and control clocks and watches.

On the other hand, consider how the penetration of clocks and watches in society has changed our behavior and thoughts. Before the widespread availability of clocks,

together with access to adequate modes of communication and transportation, we weren't able to precisely synchronize our actions on time. People from different locations could agree to meet at a certain location during a broad span of time – say at sunrise, before noon, around noon, afternoon, or at sunset

– but we couldn't be much more precise than that.

However, once clocks, together with access to modes of communication and transportation, became widely adopted, we could now be much more precise in our scheduling of events. We could agree to meet, say, at the local café at 10:00 am. That is, we now had the ability to synchronize our actions precisely. What's more, we expected other people to use those same technologies, and thus have the ability to be as precise about time as we were.

And once we could synchronize our actions precisely, we started scheduling more and different actions for particular times. We became a people who regularly scheduled activities for precise times, rather than simply being a people who undertook activities at approximate times. We could say, then, that clocks (and communication and transportation technologies) changed the way we lived our lives – from approximate time spans to specifically scheduled periods. At the same time, once we could synchronize our actions precisely, we, as a society, started to develop attitudes and expectations (that is, cultural norms) about the importance of being on time and the extent to which people were esteemed for being punctual or stigmatized for being late.

As goes the case for clocks, so goes the case for all other technologies. That is, while we do shape technologies to meet our needs, it is perhaps more important to understand that, to a greater or lesser extent, *technologies shape us – the way we live, what we do, and what we think.* That kind of changes the picture, doesn't it?

5 ways AI is transforming the world

AI has made its way into numerous sectors and is already affecting our lives. This could be something as subtle such as a music app creating a playlist based on your tastes, to more dramatic examples such as defeating human opponents in complex games

While many people agree that AI is the next big thing in technology and is set to revolutionise our lives, they do not realise that AI has already started to make waves in everything we do. We have reached a point in technology where Artificial Intelligence, or AI has moved out of the pages of science fiction and is now science fact AI has made its way into numerous sectors and is already affecting our lives. This could be something as subtle such as a music app creating a playlist based on your

tastes, to more dramatic examples such as defeating human opponents in complex games.

Personal assistance

Most sci-fi movies and books image AI as a butler or a personal assistant, helps the user with their daily tasks. Anyone with a modern smartphone these days has access to an AI assistant. Whether it's Siri, Cortana, Alexa or the Google Assistant, smartphone users can now ask their assistant to remind them of calls, schedule appointments and more. These assistants are also available on smart speakers, so users can interact with them at their homes as well.

These applications make use of Deep Neural Networks (DNNs), which are time, compute, energy and memory intensive. Google's own internal research1 found that even small service delays tend to have a massive impact on user engagement. In order to help applications, strike a balance between accuracy, speed, and power consumption, Intel AI Lab open-sourced its Neural Network Distiller. This is a Python package for neural network compression research. The Distiller is able to provide a PyTorch environment for prototyping and analysing compression algorithms.

Besides the Neural Network Distiller, Intel has also worked with Clinic to create an AI-powered finance assistant called Finie. Thanks to the power of Natural Language Processing, users are

able to ask questions regarding their finances to the assistant and get a response. So they do not have to navigate between menus that might be confusing.

Autonomous piloting

Self-driving cars are arguably the poster boys for AI. Major names in the world of technology such as Google working on these vehicles, which might one day ferry us to and from our destinations. Getting an AI to drive a car is not easy. It not only needs to keep an eye on other drivers on the road, but also on pedestrians as well as other obstacles. It needs to see and predict what any might happen and react to any changes. Alphabet-owned, Waymo recently started its commercial self-driving service, Waymo One4 in Phoenix, Arizona.

Last year, Intel unveiled its Advanced Vehicle Lab in Silicon Valley. The aim was to provide insight into the company's cutting-edge R&D efforts underway to push the boundaries of driverless cars and the future of transportation. The Autonomous Garage Labs work with customers and partners to come up with new ways of addressing the data challenge inside the vehicle, across the network and in the

data center. Intel also has an Advanced Vehicle Lab Located in Chandler, Arizona. Here's the company collects data that it uses to refine its self- driving algorithms.

Intel also helps out with autonomous shipping. The company worked with the Rolls-Royce team based in Finland and Norway make autonomous shipping a reality. Like autonomous vehicles, ships need to process lots of data in order to be fully autonomous. However, the scale is much greater in shipping. In order to deal with such quantities of day, Rolls-Royce has turned to Intel's technology such as the Intel® Xeon Scalable processors to be used on ships as well as data centers on land.

Cyber security

The internet has given us the opportunity to connect with people from all round the world. However, it also gives unscrupulous individuals the opportunity to connect with you. Being hacked is a pretty real threat in this day and age and is something that major businesses take very seriously. In order to protect themselves from the threat of cyber espionage, businesses need to be one step ahead of hackers at all times.

Intel has partnered with Cybraics to create nLighten8, a platform that uses a combination of different machine learning techniques as well as an AI engine to discover known as well as unknown threats. Traditional tools depend on non-corollary signature-based detection. In other words, they are depending on known patterns in order to detect threats. nLighten on the other hand, is able to detect as well as combat any threats that may rise. As a result, it helps businesses stay one step ahead.

Healthcare

Healthcare is another sector that is seeing some major changes thanks to the introduction of AI, especially in terms of assisting doctors and nurses. Earlier this year, researchers from the University of Oxford have completed the first successful trial of robot-assisted retinal surgery. AI will be able to make more precise cuts. Danish researchers have developed Corti, an AI that eavesdrops into emergency calls made to dispatchers. It looks to identify patterns and anomalies in conversations and processes it in real-time. It them notifies the dispatcher of anything it notices, thereby empowering him/her to make the right decisions faster and more accurately.

Intel too is doing its bit to revolutionise healthcare. The company is working together prominent names in the field of medicine to accelerate Pneumothorax detection. It does this by helping to streamline the large quantities of data that is generated at radiology departments through the use of AI. The system is able to detect

potentially life-threatening conditions in patients. It uses Deep Learning-based X-ray image analysis for pneumothorax by utilising computer vision tools from Intel.

Intel is also doing its bit to help paraplegics. The Hoobox Robotics' Wheelie 711 is powered by Intel's AI technology a can be controlled via facial expressions. Instead of invasive body sensors, the Wheelie 7 uses a 3D Intel RealSense Depth Camera SR300 mounted on the wheelchair to stream data. This is then processed in real time to control the chair.

Education

Education is a field where things have remained more or less stagnant, in terms of how education is imparted to students, However, the inclusion of AI might finally change that. Companies such as Content Technologies Inc. (CTI) are using AI to create educational content that break down text and offers a simpler way to create 'study guides' for students. This could also be used to create guides that could be personalised based on each student.

In order to promote smarter learning, Intel is rolling out the Tech Learning Lab, a custom-built mobile container truck that is outfitted with Virtual reality (VR) demo stations, Augmented Reality (AR) as well as Internet of Things (IoT) whiteboards. It also offers hands-on workshops that feature artificial intelligence coding and robotics. The idea is to introduce students as well as teachers and administrators to the power of technology as an instructional tool for the 21st century.

We are at the cusp of an AI revolution that is all set to change the way we live our lives. The examples given above are still in their infancy and showcase the potential that the tech has to offer as time progresses. The next decade is set to be most exciting in terms of technology and we can only wait and see what it has to offer.

Technology revolutionizing Indian Agriculture

Agriculture in India is the core sector for food security, nutritional security, and sustainable development & for poverty alleviation. It contributes approx. 18 % of GDP. Milestones in agriculture development in India includes: Green revolution, Evergreen revolution, Blue revolution, White revolution, yellow revolution, Bio technology revolution and the most recent one is Information and communication technology revolution.

IT supports new methods for precision agriculture like computerized farm machinery that applies for fertilizers and pesticides. Farm animals are fed and monitored by electronic sensors and identification systems. Selling or buying online began to

become popular in the world. However, it's most important role remains communication, and the Internet has provided us with an ideal opportunity to do so.

Central, state governments and private organisations have taken ICT measures for agriculture extension which include ITC- e-choupal, Kisan Kerala, Aaqua, Rice knowledge management portal, e-krishi, Mahindra Kisan Mitra, IFFCO Agri-portal, Village knowledge centers (VKCs)- M.S Swaminathan research foundation (MSSRF), village resource centres (VRCs)- Indian Space research organisation, etc. We cannot go into the detail of each one, we will focus the important and recent ones, may be not given in the above list.

Transforming rural India with the help of digital technologies:

- ICT is becoming the facilitator of socio-economic development in rural India with its obvious facilities by way of health, education, financial services and employment avenues, etc. It can help the bridge gaps by providing 'e' and 'm' services. ICT offering meant for rural sector can be classified into three categories:
    1. Those solutions which aim are aimed at empowerment
    2. Those which would do enablement.
    3. Those for market expansion.
- With respect to empowerment- e-choupal comes up as fine example.
- This is example of efficient supply chain system empowering the farmers with timely and relevant information enabling them to get better returns for their produce.
- And due to its community centric approach, it gives other offerings also to the farmers' like- insurance and farm management practise, etc.
- The practise of e-governance, which creates transparency and governance through IT has enabled the citizens. Successful implementation of e-governance in the areas like- maintain land records is a great step in removing the malpractices and creating assurance of rightful ownership.
- Aadhar is another such tool, which has empowered the masses by confirming their identities and is good example of ICT solution attempting to provide access to monetary benefits by establishing the correct identity and this way rural economy is also expanding.
- Market expansion with the help of ICT can be seen through various examples, such as – In recent years the village and heritage tourism in remote areas of the country has picked up a huge momentum and this has been done on

account of awareness being created by the online portals, attracting more visitors compared to past.

- Direct connect through e-commerce has facilitated large number of artisans agro-based small enterprises in rural areas. Women's livelihood is being facilitated amongst the weavers' community in the north eastern states by marketing their product through the internet medium.
- Indian rural market is going under transformation with better access to information. With the help of IT, farmers can use the services of FMC and can get better value for their product.
- As we know development is a process which takes couple of years to change the rural life.
- Thus information technology will definitely be in a position to change the scenario of rural life and create a better path for rural development.
- Among the major States, Maharashtra was on top with the 104 out of 1,000 families had Internet in cities, followed by Kerala and Himachal Pradesh at 95 each and Haryana at 81.5

ICT and agriculture

- Farming and Information Technology seems to be the most distantly placed knowledge sets in the world. Farming being the most primitive and most basic of the jobs and IT related being the most advanced and most modern.
- However, we know the importance of farming as it is essential for life maintenance on the surface of mother earth and it is important for the developments in IT to aid for the betterment of farming to produce better.
- The information related to policies and programs of government, schemes for farmers, institutions through which these schemes are implemented, new innovations in agriculture, Good Agricultural Practices (GAPs), Institutions providing new agricultural inputs (high yielding seeds, new fertilizers etc) and training in new techniques are disseminated to farmers through use of Information technology to ensure inclusiveness and to avoid digital divide.

• Access to price information, access to agriculture information, access to national and international markets, increasing production efficiency and creating a 'conducive policy environment' are the beneficial outcomes of e-Agriculture which enhance quality of life of farmers.

• Soil Management, Water Management, Seed Management, Fertilizer Management, Pest Management, Harvest Management and Post-Harvest

Management are the important components of e-Agriculture where technology aids farmers with better information and alternatives. It uses a host of technologies like Remote Sensing, Computer Simulation, Assessment of speed and direction of Wind, Soil quality assays, Crop Yield predictions and Marketing using IT.

- In India, there have been several initiatives by State and Central Governments to meet the various challenges facing the agriculture sector in the country.

- The E-Agriculture is part of Mission Mode Project, which has been included in NeGP (under National E-governance Plan) in an effort to consolidate the various learnings from the past, integrate all the diverse and disparate efforts currently underway, and upscale them to cover the entire country.

- The MMP is to be operationalized by Department of Agriculture and Cooperation (DAC), and aims to provide services, such as:

Information to farmers on seeds, fertilizers, pesticides

- Information to farmers on Govt. Schemes
- Information to farmers on Soil recommendations
- Information on crop management
- Information on weather and marketing of agriculture produce
- Government steps to provide e-aid to farmers

National Policy for Farmers, 2007

- The Government had constituted National Commission on Farmers in 2004 under the chairmanship of Dr. M.S. Swaminathan. Based on the recommendations made by the Commission in its Revised Draft National Policy for Farmers and the comments/suggestions received from various Central Ministries and Departments and State Governments, the “National Policy for Farmers, 2007” has been formulated and approved by the Government of India

- It has important provision for use of Technology: New technologies which can help enhance productivity per unit of land and water are needed. Biotechnology, information and communication technology (ICT), renewable energy technology, space applications and nano-technology to provide opportunities for launching an “Evergreen Revolution” capable of improving productivity in perpetuity without harming the ecology.

- Under National Telecom policy, 2012 major focus is being given at improving the broadband penetration. It mentions mobiles as an instrument of socio-economic empowerment for citizens

National mission on agricultural extension and Technology:

The aim of the Mission is to restructure and strengthen agricultural extension to enable delivery of appropriate technology and improved agronomic practices to farmers. This is envisaged to be achieved by a judicious mix of extensive physical outreach and interactive methods of information dissemination, use of ICT, popularisation of modern and appropriate technologies, capacity building and institution strengthening to promote mechanisation, availability of quality seeds, plant protection etc. and encourage aggregation of Farmers into Interest Groups (FIGs) to form Farmer Producer Organisations(FPOs).

- Under Bharat Nirman, has registered the increased tele-density in rural areas. And it is this base which is being used to provide 'm' service to farmers, giving them right information at right time.
- Universal service obligation fund (USOF) already launched wireless broadband Scheme in 2009. USOF is also funding the National Optical fibre network (NOFN), which is being managed by Bharat Broadband Network Limited. Bandwidth from NOFN will be eligible to give wide range of services to rural India.
- Pilot project scheme forMobile values added services (m-VAS) for rural women's Self-help group (SHG) is also part ofUSOF's Sanchar Shakti programme. In this the SHG on the basis of their activities are provided with information in local languages through SMS, outbound dialers (OBDs) and Integrated Voice response system (IVRS).
- Bharat Nirman Kendra, shall be a single window for providing the information on the NREGS and shall provide feedback on the quality of implementation of the program. The idea is to slowly move on the wage employment to self-employment by providing skill development facilities to the rural people and in the process gives a fillip to the rural economy. In future it can also become centre for e-enabled study or e-learning centre.
- For farm credit, service of ICT is being harnessed like Smart Cards, Internet Kiosks and cell phone messaging. And also, disbursement of all social security benefits through electronic benefit transfer to all rural areas. Mobile-enabled kisan card system to help the agricultural community engage in cashless transactions.
- Kisan credit card: It uses the ICT to provide affordable credit for farmers in India. It was started by the Government of India, Reserve Bank of India (RBI), and National Bank for Agriculture and Rural Development (NABARD) in 1998-99 to help farmers access timely and adequate credit.

- The Kisan Credit Card allows farmers to have cash credit facilities without going through time-consuming bank credit screening processes repeatedly. Repayment can be rescheduled if there is a bad crop season, and extensions are offered for up to four years. The card is valid for three years and subject to annual renewals. Withdrawals are made using slips, cards, and a passbook.
- Kisan Choupal in collaboration with Krishi vigan Kendra is a successful model in Bihar. It is being conducted in identified village on the basis of need assessment of the farmers by the scientists on agriculture and allied enterprises.
- At Kisan chouapl, the dialogue/. Discussion/problems solving is facilitated with help of Information technologies, showing technical videos to farmers, movies, etc. at the beginning of the choupal. This has increased the awareness of farmers on cropping practises and new techniques. This has also facilitated better and wider reach of the technologies in the farmer community.
- Kisan Call centre:An expert advisory system and the farmers needs to call the toll free number 1800-180-1551 to seek expert advice on different matters related to agriculture and allied sectors.
- Kisan SMS Portal: Here farmer keeps getting SMS messages providing information or delivering service or giving advisories on his mobile from experts, scientists and officers at various level after once opting for messages on agricultural practises / crops of his interest. In short, messages are customized based on farmer's preferences in the language chosen by them.

• Existing databases of the farmers available with central and state government are being integrated with the portal. Those who are not registered, they need to register themselves with the system. They can register themselves by calling the Kisan call centre on the toll free number or through web portal or even SMS based registration is also available.

• The services of the portal include crop production, including horticulture, animal husbandry, dairying and fisheries. It sends messages relating not only production aspect but also marketing of produce, weather forecast, soil testing, etc.

• TheSandesh Pathak application, developed jointly by C-DAC Mumbai, IIT-Madras, IIIT Hyderabad, IIT Kharagpur, and C-DAC Thiruvananthapuram will enable SMS messages to be read out loud, for the benefit of farmers who may have difficulty in reading. It is usable by people who cannot read. A large population of farmers belongs to this category. So when they receive an SMS message either containing agriculture-related advice or some other thing, this app will read aloud the content.

- The app which is available for download from the Appstore of the Mobile Seva Project of government of India, is an Indian language SMS Reader.
- The app is part of the project launched by the Indian Government to help farmers read messages which may be of the following types: advice to solve farming problems — insect, disease, fertilizer or weed management; information on weather — such as forecasts; and updates on latest technology — for improving yield and much more.

Village Knowledge Centre (VKC)

- Village Knowledge Centre (VKC) serves as information dissemination centre providing instant access to farmers to latest information/ knowledge available in the field of agriculture, starting from crop production to marketing. A "VKC In-charge" who looks after the operations of the VKC mans every VKC.

Village Resource Centres (VRC)

- The VRCs are connected to Knowledge/Expert Centres like Agricultural Universities, Skill Development Institutes and Hospitals.
- Over 6500 programmes have been conducted by the VRCs in the areas of, Agriculture/horticulture, Fisheries, Livestock, Water resources, Tele health care, Awareness programmes, Women empowerment, Supplementary education, Computer literacy, Micro credit, Micro finance, Skill development / vocational training for livelihood support etc. So far, over five Lakh people have availed VRC services.
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More advanced use of ICT in farming

- Irrigate via smart phone: Mobile is playing a big role in monitoring and controlling crop irrigation systems. With the right equipment a faremer can

control his irrigation systems from a phone or computer instead of driving to each field.

- Moisture sensors in the ground are able to communicate information about the level of the moisture present at the certain depth of the soil. This gives more precise control of water and other inputs like fertilizer that are applied by irrigation pivot.
- GPS mapping for an input to the field using variable rate technology, which helps farmer in accessing the need i.e. where they need to put more fertilizer or less, according to the requirement of the soil. GPS enabled services are also helping in field documentation about yield, moisture, maps for field drainage, etc.

1. Various farmer friendly applications (apps) are being launched by companies, which helps farmers in discovering prices for their products, delivering their product, getting soil report, etc.
2. One of the best uses of IT in farming is being done by one vegetable farmer outside Hyderabad using webcams to monitor the crops and to take the scientists' expertise to address problems without taking them to the field.

Benefits of e-aid to farmers

- Improved decision making – By having the necessary information, farmers—big and small can make better and more informed decision concerning their agricultural activities. May it be about who to get their grains from or perhaps who to sell it to, the communication channels that information technology brings makes production up to distribution easier for the farmers. The exchange of knowledge from various countries and organization also helps farmers be more aware of factors to consider before making their decisions.
- Better planning– IT has paved the way to come up with farming software which can keep better track of crops, predict yields, when to best plant and what to plant, to intercrop or focus on just one product, or determine the current need of the crops—just about everything needed to improve production and income.
- By adjusting to the modern farming methodologies, farmers can have better control of their crops. Gaining information from their farm is essential in sustaining its success and fuelling further growth.

- Community involvement – There are several programs which are made possible by IT applications, and community involvement in agriculture can be increased as well. When a community adopts modern methods for agriculture, the production of local goods can be increased.
- There are some places where people greatly benefit from the land and their resources for agriculture, and with IT, there can be improved union in local farmers which can lead to their community's overall improved production that may lead to better income for everyone involved.

Agricultural breakthroughs – IT makes the spread of information concerning the latest agricultural breakthroughs more possible. When scientists develop new and improved grains or find techniques to help winter crops become stronger against the cold, farmers from all over the world may benefit from the same breakthroughs simply by being connected to the rest of the agricultural world. Sharing information to help everyone progress is made much easier through resources made available and accessible by IT

- Agriculture for everyone – Farmers have in-depth knowledge when it comes to their trade. However, interested individuals who may be called backyard farmers may also benefit from how modern technology has changed how agriculture is seen. Growing your own sustainable garden of herbs, fruit trees, and other agricultural produce can be possible in a smaller scale. Planting is beneficial in more ways than one, and having your own produce even helps assure the freshness and quality of the food your family eats.

Precision agriculture (PA)

- Satellite farming or site-specific crop management (SSCM) is a farming management concept based on observing, measuring and responding to inter and intra-field variability in crops. This technique focuses on utilising resources optimally to improve the quality and quantity of crops while lowering the cost of production. It reduces fertiliser and pesticide use, prevents soil degradation, utilises water optimally and raises productivity. Globally, this is done with the aid of modern, eco-friendly farming practices and technology, including satellite imagery and information technology. "This innovation can go a long way in tackling many of our country's farm ills, including excessive use of water and other inputs, which has hurt soil quality apart from making farming unprofitable as a profession

Problems in effective use of technology

- Though lots of problems like feasibility of connectivity in rural areas, cost involved in ensuring services, need for basic computer literacy and literacy

hinders the fast development of e-Agriculture, it will definitely be an engine of growth in Rural India once the initial hiccups are overcome. Some of those problems are :

- The reach of the technology is still very poor and large chunk of farmers are still ignorant about such advancements. The distribution of technologies is not uniform throughout the country. Farmers of prosperous states are at the receiving end like- Punjab, Haryana, Maharashtra and the farmers of backward states still practise their age-old techniques and knowledge.
- The use of technology is being used by the already rich farmers and utilising these services they are further prospering. The small and marginal farmers are again being left out in the process of development.
- Due to low literacy rate among farmers and digital divide, there is a rise of new class of middle man, who provide ICT services to farmers. They are also believed to distort the information for their own benefit.
- The rural infrastructure for the use of ICT is also not uniform and lot of regional disparity persists.

Now days the penetration of market forces in rural India is increasing and is potential market. With the diverse cultures and languages in India, ICT provides a good platform here. Thus, in future there would be substantial upliftment and sustainable development in rural areas.

ICTs are changing all the spheres of human lives and agriculture cannot be an exception. ICTs now may act as an agent for changing agrarian and farmer's life by improving access of information and sharing knowledge. The ICT tools can change the ideas, activities and knowledge of the farmers. Farmers feel empowered and can adopt appropriate measures at the time of need. With the new extension of ITC initiatives like Krishivihar, i-Kisan,e-kutir, e-Sagoo, ICT models- AGROWEB, Agropedia, AgrInnovate, etc. Indian agriculture has come to a long way and established several records in terms of production and productivity. IT had the potential to transform agriculture into a better prospect in the wake of climate change and decrease in the cultivable land.

Conclusion

Technology is an ever-shifting and complex landscape. That's why simple answers don't win but open mindedness and a commitment to working together to test and adopt solutions will. The time is now. We have to ask ourselves: what do we want to build and how will it shape us?

Conclusion can again be written in many ways; it could be concluded with a relevant quote or correlating the story that someone wrote in the introduction. However, it should be optimistic, solution centric and forward looking.