

1. What are your views on the recently announced National Education Policy (NEP)? Will it lead towards better scientific temper amongst students? Discuss.

Demand of the question:

It expects students to express their views on the recently announced National Education Policy. It also expects to put both side views of whether this policy will impart better scientific temper amongst students or not.

Introduction:

The Union Cabinet approved a new National Education Policy, 2020 (NEP) which aims to make "India a global knowledge superpower". The National Education Policy, 2020 is meant to provide an overarching vision and comprehensive framework for both school and higher education across the country.

Body:

Some of the key proposals of new National Education Policy:

- The NEP proposes to change the school curricular structure from the current 10+2 (Class 1-10 of general education followed by two years of higher secondary school with specialised subjects) with a 5+3+3+4 structure, bringing children from ages 3 to 5 years within the formal education system for first time, and ensuring circular continuity in the last four years.
- A mission for foundational literacy and numeracy, free breakfasts being added to free lunches in government schools, vocational education, new technological skills such as coding along with internships from Class 6, and proposed redesign of the board examinations are some other major initiatives for school education.
- A new umbrella regulator will absorb arts and science, technical and teacher education into its fold, replacing several existing regulatory bodies, and also ensure a level playing field for public and private players.
- For students, the biggest change is the introduction of four-year undergraduate degrees, with options for entry and exit at various stages, a credit transfer system.
- Class 10 and 12 board examinations to be made easier, to test core competencies rather than memorised facts, with all students allowed to take the exam twice.
- Holistic Undergraduate education with a flexible curriculum can be of 3 or 4 years with multiple exit options and appropriate certification within this period.
- Multidisciplinary Education and Research Universities (MERUs), at par with IITs, IIMs, to be set up as models of best multidisciplinary education of global standards in the country. Standalone technical universities, health science universities, legal and agricultural universities, will be set up with an objective to be the multidisciplinary universities.
- The National Research Foundation will be created as an apex body for fostering a strong research culture and building research capacity across higher education.

- An autonomous body, the National Educational Technology Forum (NETF), will be created to provide a platform for the free exchange of ideas on the use of technology to enhance learning, assessment, planning, administration.

The new National Education Policy is introduced after a 34 years gap. While addressing some long pending changes this policy aims to instil scientific temper as follows:

- Fundamental duties, enshrined in the Constitution under Article 51A . Fundamental duty under Article 51A (h) encourages the citizen to “develop the scientific temper, humanism and the spirit of inquiry and reform”.
- The NEP strives to introduce vocational training and new technological skills such as coding through standard 6 itself. It will ensure that student is exposed to the real world life applications of theory through the clearly articulated scientific and technological methods.
- Provision of new umbrella regulator who subsumes almost all fields in itself will ensure educational solutions through cross fertilisation of the issues and in turn imbibing a scientific approach in to students through the regulations.
- Class 10 and 12 board examinations are made easier, it will test core competencies rather than memorised facts. Hence, instead of rote learning the conceptual clarity of concepts and understanding of subject will take place.
- Assessment reforms with 360 degree Holistic Progress Card, tracking Student Progress for achieving Learning Outcomes will not only help for the overall development of the student but also to help the student understand his/her inclination in different aspects of curriculum.
- The National Research Foundation's objective is to foster a strong research culture and building research capacity across higher education. It will help to develop scientific research culture in the students.
- Multidisciplinary Education and Research Universities (MERUs) and specialised technical universities will help to develop a skilled student of generalist as well as specialist tendencies.
- National Educational Technology Forum (NETF), and provision of setting up foreign institutions in the society will help to provide a platform for the free exchange of ideas on the use of technology to enhance learning, assessment, planning, administration.

Conclusion:

A New Education Policy aims to facilitate an inclusive, participatory and holistic approach, which takes into consideration field experiences, empirical research, stakeholder feedback, as well as lessons learned from best practices. It is a progressive shift towards a more scientific approach to education. If implemented in its true vision, the new structure can bring India at par with the leading countries of the world.

2. What do you understand by the term 'transfer of technology'? Why is it important? Illustrate with the help of suitable examples.

Demand of the question:

It expects students to write down what they understand by the term 'transfer of technology'. It also expects students to write about the importance of transfer of technology with relevant examples.

Introduction:

Transfer of technology is a process of transferring technology (innovations, knowledge and techniques) from one organisation or country to another organisation or country through formal or informal channels. Formal channels include FDI, licensing, trade, foreign patenting etc. whereas informal channels include imitation and counterfeiting.

Body:

Transfer of technology occurs along various axes: among universities, from universities to businesses (and vice versa), from large businesses to smaller ones (and vice versa), from governments to businesses (and vice versa), across geopolitical borders, both formally and informally, and both openly and surreptitiously.

Transfer of technology includes:

- Identifying new Technologies.
- Protecting Technologies Through Patents and copyrights.
- Forming and transferring Development and commercialization strategies such as marketing and licensing to existing private sector companies or creating new start up companies based on Technology.
- For instance, Rafael deal with France involves Transfer of Technology for manufacturing Medium Multirole Combat Aircrafts, which India lacks currently.

Importance of Transfer of Technology:

- Exploration of new markets – Markets of developed countries are saturated. Hence, technology transfer to new emerging markets in developing countries will help to address the socio-economic and political problems over there.
- Dealing with global common threats like COVID-19, requires all countries to be equipped technologically. Here technology transfer can be an important tool.
- Financial Benefits for countries who can't afford to buy new equipment every time they need to upgrade e.g. military equipment which needs regular up gradation.
- India demands environmentally friendly technology to ensure low-emission economic development from western world under Paris climate change to check climate change. So technology transfer through alliances such as

International solar alliance may help to tackle global common threats like climate change.

- To meet social-economic goals: India's self sufficiency in food can be attributed to the transfer of valuable technology of High yielding varieties seeds and good agronomic practices from USA to India. Technology certainly saved country which was on the brink of famine.
- To meet global objectives: It is the transfer of renewable energy technology from developed nations to developing world that will do common good in the wake of global climate change phenomenon.
- It will help to reduce unnecessary expenses. Transfer of advanced military technology would avoid any kind of dependency over foreign countries. A technology once known would benefit in saving foreign exchange kitty.
- To safeguard the borders: To make anti-tank guided missiles, Kalyani Rafael Advanced Systems (KRAS), a joint venture between Kalyani Strategic Systems Ltd. and Rafael Advanced Defence Systems Ltd. of Israel.
- In addition, technology transfer ensures that the interests and rights of the university in the intellectual property are protected. The university is able to retain the intellectual property rights of the technology and issue a license for the conditional use of the technology.
- The ultimate beneficiary of technology transfer is the public, who benefits from both the products that reach the market and the jobs resulting from the development, manufacturing, and sale of products.
- Technology transfer works to complement academic research by pushing innovations out the lab door and into the hands of industry partners who will develop them into products for the benefit of the general public.

However, transfer of technology poses some challenges too:

- It kills the innovative spirit of the researcher as ready to implement technology is handed over.
- It also puts the country or the organisation in to heavy financial burden as technology transfer comes with heavy price.
- It also makes the country vulnerable in future to secure its sovereignty and independence. e.g. Transfer of technology in the defence and nuclear sector.
- It can influence economic, defence and foreign policy formulation of country as the country becomes dependent on other country for the technological needs.

Conclusion:

Transfer of technology have played a crucial role in all round development of the country. Its multifaceted benefits can't be ignored when it benefits public on the large scale. Hence, transfer of technology approach if adopted with the approach of indigenisation of technology will surely help India to be a giant player in the world economy.

3. How can technologies like blockchain and internet of things (IoT) transform the lives of common citizens?

Demand of the question:

It expects students to write about how the application of new emerging technologies like Internet of things and block chain can transform the lives of common citizens.

Introduction:

Emerging technologies such as block chain and Internet of things (IoT) are often perceived as capable of changing the status quo. Emerging technologies have wide ranging application hence, possess the potential to transform the lives of common citizens.

Body:

Emerging technologies can be applied in various fields such as health, finance, agriculture and various other sectors which would aid the government in implementing various programmes and in turn assisting to transform the lives of people.

- Block chain technology as a public ledger system, records and validate each and every transaction made, which makes it secure and reliable. Which can overcome the challenge of securing each and every transaction over the internet.
- It will also help to increase the number of cashless trade. Block chain technology can also be used in the preservation an use of large scale data like Aadhar card data, PAN card data etc.
- The transfers are done through mining that makes hacking difficult. All transactions carried out are authorized by miners, making the transactions unchanged and preventing the hacking threat. Hence, this technology will also help to build more trust in the online payment system.
- Blockchain could be used to improve a variety of healthcare-related processes, including record management, healthcare surveillance, tracking disease outbreaks, management crisis situations and many more.
- A growing portion of IoT devices are created for consumer use, including connected vehicles, home automation, wearable technology, connected health, and appliances with remote monitoring capabilities.
- Donation tracking: With the help of block chain capabilities, donors can see where funds are most urgently required and can track their donations until they are provided with verification that their contributions have been received to the victims.
- Blockchain could also manage a crisis situation. It could instantly alert the public about the virus by global institutes like the WHO using smart contracts tracing concept.
- In education sector the blockchain-based SuperCert promises anti-fraud identity intelligence blockchain solution for educational certificates. It ensures authenticity and minimizes fraud. In turn it will help to have genuine learners who can complete their studies more neatly and obtain a certificate

accordingly. It will transform life of people by providing more learned individuals in the society.

- The Internet of Medical Things (IoMT) is an application of the IoT for medical and health related purposes, data collection and analysis for research, and monitoring.
- IoT devices can be used to enable remote health monitoring and emergency notification systems. These health monitoring devices can range from blood pressure and heart rate monitors to advanced devices capable of monitoring specialized implants, such as pacemakers, Fitbit electronic wristbands, or advanced hearing aids. So these kind of technologies will help the people to have a healthy life style and good health care.
- Application of the IoT extends to all aspects of transportation systems (i.e. the vehicle, the infrastructure, and the driver or user). Dynamic interaction between these components of a transport system enables inter- and intra-vehicular communication, smart traffic control, smart parking, electronic toll collection systems, logistics and fleet management, vehicle control, safety, and road assistance.
- Smart cities: IoT will solve major problems faced by the people living in cities like pollution, traffic congestion and shortage of energy supplies etc. Products like cellular communication enabled Smart Belly trash will send alerts to municipal services when a bin needs to be emptied.
- Agriculture: Farmers are using meaningful insights from the data to yield better return on investment. Sensing for soil moisture and nutrients, controlling water usage for plant growth and determining custom fertilizer are some simple uses of IoT.
- Environmental monitoring: To assist in environmental protection by monitoring air or water quality, atmospheric or soil conditions, and can even include areas like monitoring the movements' of wildlife and their habitats.

Despite the numerous applications and its wide scale benefits these emerging technologies have some drawbacks to transform human lives, they are as follows:

- Over-reliance on technology: Relying on technology on a day to day basis, making decisions by the information that it gives up could lead to devastation. No system is robust and fault-free.
- Security: As the IoT systems are interconnected and communicate over networks. The system offers little control despite any security measures, and it can be lead the various kinds of network attacks. Hence, it jeopardises personal lives of people.
- Lack of understanding comes next as many executives have a vague understanding of blockchain and the changes it will bring. Many still connect it only with crypto currencies management.
- A lack of general regulation is a problem. The Supreme Court of India has ruled against a decision imposed by the country's central bank nearly two years ago that stifled crypto trading in Asia's third-largest economy.

NITI Aayog has recommended to establish IndiaChain which will ensure creation of a national infrastructure for the deployment of blockchain solutions with inbuilt fabric, identity platform and incentive platform. Along with it NITI aayog has also proposed to use Internet of Things to tackle the water crisis in various parts of India.

Conclusion:

Hence, we can conclude that emerging technologies such as blockchain and Internet of things possess a big potential to transform human lives. But at the same time their implementation challenges need to be addressed so that these technologies will not just be useful to transform the lives of the common citizens but also to transform the whole world and make it a better world.

