General Studies – 3; Topic – Science and Technology- developments and their applications and effects in everyday life.

National Strategy for Artificial Intelligence (AI)

1) Introduction

- NITI Ayog unveiled its discussion paper on national strategy on AI which aims to guide research and development in new and emerging technologies.
- NITI Aayog has identified five sectors — healthcare, agriculture, education, smart cities and infrastructure and transportation — to focus its efforts towards implementation of AI.
- The paper focuses on how India can leverage the transformative technologies to ensure social and inclusive growth.

2) What is AI?

- Artificial intelligence is the branch of computer science concerned with making computers behave like humans.
- AI refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem solving and decision making.

3) Benefits

- NITI Ayog estimates that adopting AI means a 15% boost for the gross value added (GVA) for the economy by 2035.
- AI can increase access and affordability of quality healthcare.
- In agriculture, it can contribute towards enhancing farmers' income, increase farm productivity and reduce wastage.
- It can also improve access and quality of education.
- It can help build efficient infrastructure for the increasing urban population.
- Develop smarter and safer modes of transportation to address traffic and congestion problems.
- AI could create jobs in the country that would be higher than the number of jobs becoming redundant due to innovation in technology.
- Increase efficiency and enhance governance across the government.
- Helps in improving the ease of doing business, as well as making the lives of people simpler
- 'Make in India' programme can be strengthened and help India in becoming a major manufacturing hub with AI-assisted technology.

4) Opportunities

- Advancements in technology over the last couple of decades—computing evolution (cloud, big data, machine learning, etc), falling costs (cheaper data storage) and growing digitalisation.
- Access to technology easing for the masses.
- The demand for AI and machine learning specialists in India could rise by 60%.

5) Recent Developments

- In agriculture, Microsoft, in collaboration with the International Crops Research Institute for the Semi-Arid Tropics (Icrisat), has developed AI-enabled sowing app that sends advisories to farmers on the best date to sow, soil-test based fertiliser and manure application, seed treatment, etc.

- In 2017, 3,000 farmers in Andhra Pradesh (AP) and Karnataka used the app, resulting in a 10-30% increase in kharif yields.
- NITI has partnered IBM to develop AI-enabled yield-prediction and real-time advisory to the farmer on productivity, pest-warning, etc, using data gathered from remote-sensing satellites, soil health cards, IMD etc.
- To tackle school dropout, the Andhra Pradesh government has partnered Microsoft to identify those likely to drop out.

6) Concerns / Challenges

- Lack of broad based expertise in research and application of AI.
- Absence of access to intelligent data.
- High resource cost.
- Low awareness for adoption of the technology.
- Privacy and security issues.
- Shortage of skilled manpower.
- Indian technical universities are not doing enough to strengthen the AI ecosystem unlike their global counterparts.

7) International Practice

- France and China have formalised strategies to harness and realise the potential of AI.
- US and South Korea are making tremendous advances in AI.

8) Way Forward

- The strategy should strive to leverage AI for economic growth, social development and inclusive growth.
- To truly harness AI's transformative potential, India must address its lack of expertise in AI research and application.
- The government must address privacy and data security concerns on a war-footing.
- India must foster AI innovations and set up AI-friendly infrastructure to prepare India's job and skill markets for AI-based future.
- Banks may look at using AI for enhancing customer experience, security, and risk management.