What is the Present State of AI in India ? Given the Challenges of a Nascent Technology, What Measures Have Been Taken By the Government to Facilitate Integration of Such Technologies (250 Words / 15 M) (GS-3 Science and Technology)

Approach:

1. Introduction on AI.
2. Mention the current status of AI in India.
3. Point out the associated challenges.
4. Delineate the steps taken by the government.

Artificial Intelligence (AI) is a computer-controlled software designed to perform human-like tasks (***cognitive tasks***). The term was coined in ***1956*** by ***John McCarthy***.

There are two subsets under the umbrella term AI: ***Machine learning*** and ***Deep learning***. Machine Learning involves the ***use of algorithms*** to parse data and learn from it. Deep learning is a ***technique*** for ***implementing Machine Learning***. The scope of AI includes a range of activities from *agriculture, healthcare, education, urban planning, energy, etc*.

Present status of AI in India: India was ***ranked 8th in the top 10 countries***. AI-related patent applications grew ***ten-fold*** from ***2012 to 2018***. India has ***over 1,300 Global Capability Centres (GCCs)*** and one in every five GCCs use AI across key business functions. The Government expenditure on AI and Machine Learning has also steadily increased and is expected to reach ***USD 11,781.9 million*** in ***2025***. According to the ***State of Artificial Intelligence Report, 2021***, the Indian Artificial Intelligence market is valued at ***US$ 7.8 billion*** as of July – August 2021. There has been a ***20% jump*** in AI personnel from last year.

According to ***NITI Aayog***, AI has the potential to add ***US$ 1 trillion*** to the Indian economy by ***2035***.

Associated challenges:

- A proper AI-based system requires a massive computational capacity, meaning that more data centres need to be created that requires ***huge investment*.**
- AI will***increase digital exclusion*** in all spheres. Further, global Investments are also likely to shift to countries where AI is already established. It can affect ***racial and gender stereotypes*** and thus lead to exclusionary decisions.
- There are fears that AI will result in***less demand for human resources***. It may not augur well for India, given its high unemployment amidst growing demographic dividend.
- The most important concern with AI is the concern of***data privacy*.** The AI algorithm will improve only with more data access. Scandals like ***Cambridge Analytica*** are an example of such a violation of privacy.

Steps taken by Government:

National Strategy for Artificial Intelligence: It was released by ***NITI Aayog*** in 2018, which lays out the roadmap to leverage the technologies to ensure inclusive social development. It identifies ***5 sectors*** for AI application to serve societal needs: *Healthcare, Agriculture, Education, Smart cities and infrastructure and Smart mobility and transportation*.

Responsible AI Approach Documents: It was published by ***NITI Aayog*** in collaboration with the ***World Economic Forum Centre*** for the ***AI Industrial Revolution***. The documents seek to establish broad ethics and principles for the design, development, and deployment of AI in India.

Draft framework on the India Artificial Intelligence Stack: It has been released by the Department of Telecommunications, focused on eliminating barriers to AI deployment. It aims an enabling environment to exploit AI productively across all sectors and bring interoperability.

Incorporation of AI into governance: ***Telangana*** is using AI to authenticate pensioners and prevent forgery. The ***Ministry of Corporate Affairs*** is using AI to simplify corporate filings, while the ***Centre for Artificial Intelligence and Robotics (CAIR)*** has been built as a special hub for AI-related work of the DRDO.