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1 Generative AI Technology (Source: *The Hindu*)

Generative AI, is an Artificial Intelligence that can create original content such as text, images, video, audio or software code in response to a user's prompt or request.

Facts to Know About Generative AI

- It uses existing data to create new original content. The AI is fed with existing data or information during training phase to make it capable of predicting and creating new innovative content.
- AI models generate output based on learned patterns and prompts provided.
- It uses large language models (LLMs) to predict the next sequence.
- ChatGPT and Gemini uses the same to generate newer content.



Challenges Associated

- The model may generate false information.
- Bias can exist in newer information created due to mismatch in the existing data.
- It can create problems with intellectual property.
- Deepfakes can be created which can result in security issues.



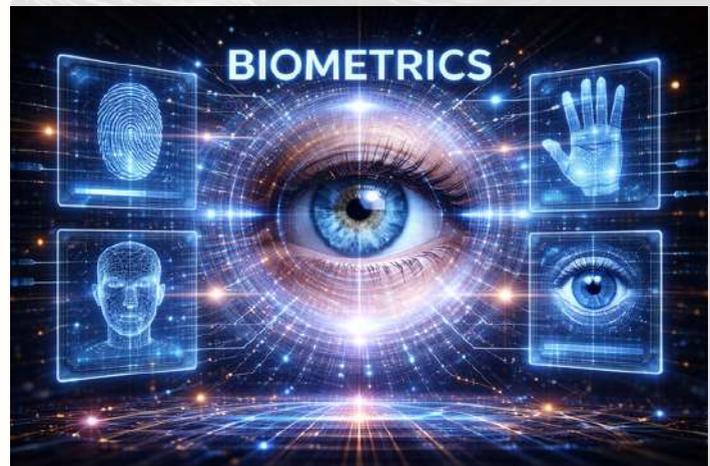
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2 Biometrics (Source: *The Hindu*)

Biometrics are biological measurements – or physical characteristics – that can be used to identify individuals.

Facts to Know

- It can involve physiological sources (fingerprints, iris, facial, vein, DNA) and behavioural sources (gait, voice, typing rhythm).
- It helps to accurately identify an individual based on biology and behaviour.
- Biometric scanners are hardware used to capture biometrics for the verification of identity.
- Biometrics is easy to use, so there is no fear of being misplaced at home when personal identification is needed. Biometrics cannot be easily stolen like an identity card or key.



Challenges of Biometrics

- Stealing or leaking of biometric data cannot be resolved and has lifelong challenges. Unauthorised usage of biometric data can exist and create law and order issues like impersonation.
- Biometric inaccuracy can result in false positive or false negative permissions ,resulting in unauthorised usage.
- Chances of spoofing of biometric data using high end technology exists. Without human verification it can be a true challenge.
- Effective implementation of the scheme involves very high cost as well as recurring expenses to maintain the data base.
- Inclusivity challenge can arise in persons with physical disability.



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3 What is Airspace? (Source: **PIB**)

The recent conflicts across globe has resulted in many sovereign countries closing their airspace. It is done with the intention to protect their territorial rights.

What you need to know?

- Airspace is the part of the atmosphere a state controls, including areas over its land and sea out to 12 miles from its coast.
- The 1944 Chicago Convention on International Civil Aviation recognizes complete state sovereignty over national airspace.



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4 Persian Gulf (Source: *The Indian Express*)

The recent struggle between Iran and Israel has again brought to light the Persian gulf.

What you need to know?

- The Persian Gulf, shallow marginal sea of the Indian Ocean that lies between the Arabian Peninsula and Iran.
- It is bordered by Iran, UAE, Oman, Kuwait, Iraq, Saudi Arabia, Qatar and Bahrain.
- The Persian Gulf directly leads into Gulf Oman via Strait of Hormuz.
- Nearly 9 million Indian citizens live in the Persian gulf region. So safety of Indian diaspora is paramount to government.
- Prices of crude oil and natural gas can tremendously increase for India.

