

## Prelim Bits 17-03-2023 | UPSC Daily Current Affairs

### GPT-4

*AI powerhouse OpenAI has announced GPT-4 that powers ChatGPT and Microsoft Bing.*

- GPT-4 is a large multimodal model created by OpenAI.
- GPT-4 succeeds the technology behind [ChatGPT](#).
- GPT-4 powers Microsoft's Bing AI chatbot.
- GPT-4 is supposedly bigger, faster, and more accurate than ChatGPT in many areas.

GPT-4	Chat GPT
Multimodal	Single modal
Generate content from both image and text prompts	Only text prompts
GPT-4 can generate responses of more than 25,000 words.	GPT-3.5 is limited to about 3,000-word responses.
GPT-4 is more multilingual.	GPT-3.5 and other LLMs handle English as machine learning data is mostly in English.
GPT-4 could handle up to 32,768 tokens or around 64,000 words.	GPT-3.5 model could handle 4,096 tokens or around 8,000 words.

- **Limitations** - GPT-4 has similar limitations as its prior versions.
- It is less capable than humans in many real-world scenarios.
- It's still not fully reliable and makes reasoning errors.
- But it will be a lot harder to trick GPT-4 into producing undesirable outputs

### References

1. [IE - What is GPT-4 and how is it different from ChatGPT?](#)
2. [OpenAI - GPT-4](#)

### AUKUS Deal

*AUKUS unveiled plans to provide Australia with nuclear-powered attack submarines in the early 2030s.*

- [AUKUS](#) is a 2021 **defence deal** between Australia, the UK and the US.
- It was struck to help Australia deploy nuclear-powered submarines in the Pacific region.
- It bolsters Australia's naval heft and to counter China's ambitions in the Indo-Pacific region.

- **Deal** - The United States intends to sell Australia 3 US Virginia class nuclear-powered submarines in the early 2030s.
- Australia has an option to buy 2 more, if needed.
- The submarines are conventionally armed and nuclear powered.
- The multi-stage project will culminate with British and Australian production and operation of a *new* submarine class - SSN-AUKUS.
- **SSN-AUKUS** - It is a trilaterally developed vessel with the best technologies and capabilities of all 3 countries.
- SSN-AUKUS is a combination of the UK's submarine design and advanced United States technology.
- **Implications** - Both Virginia class submarines and SSN-AUKUS will give the Royal Australian Navy the capability to go into the South China Sea to protect its assets and conduct patrols.
- Australia becomes the second nation after U.K. that the U.S. has ever shared its nuclear submarine technology with.

## References

1. [IE - Australia to get nuclear-powered submarines under AUKUS](#)
2. [The Hindu - Implications of the AUKUS trilateral defence pact](#)

## Smart Cities Mission

*Smart Cities Mission approaches the deadline for completing the mission June 2023.*

- The Smart Cities Mission was launched by the Prime Minister on June 25, 2015.
- **Ministry** - The mission is an initiative of the Union Housing and Urban Affairs Ministry
- **Objective** - Promote cities that provide core infrastructure, clean and sustainable environment.
- Give a decent quality of life to their citizens through the application of 'smart solutions'.
- **Fund** - The Mission is operated as a Centrally Sponsored Scheme.
- **Cities Chosen** - Cities across the country were asked to submit proposals for projects.
- The Ministry selected 100 cities for the Mission over 5 rounds till 2018.
- **Deadline** - The projects were supposed to be completed within 5 years of the selection of the city.
- Shillong was the last city to be chosen and its deadline was June 2023.
- But in 2021 the Ministry changed the deadline for all cities to June 2023 which was earlier the deadline for Shillong alone.
- **Present Status** - Only around 20 cities are likely to meet the June deadline; the rest will need more time.
- Shillong has completed just one of its 18 proposed projects.
- All 100 cities have also constructed [Integrated Command and Control Centres](#) to monitor all security, emergency and civic services.

## References

1. [IE - The Smart Cities Mission: With deadline looming, a status check](#)

2. [Smart Cities Mission](#)
3. [Vikaspedia - Smart Cities Mission](#)

## Possession of Arms in India

*Punjab government has cancelled 813 gun licenses in state to clamp down on the “gun culture”.*

- In 2022, the Punjab government ordered a complete ban on the public display of weapons and songs glorifying violence.
- The order also called for a review of all licenses issued within 3 months and barred the issuance of new licenses for the next 3 months, except extraordinary circumstances.
- **Act** - The ***Indian Arms Act of 1959*** was passed after India attained independence.
- It scrapped the erstwhile Act of 1878, passed by the British that restricted Indians from possessing firearms.
- The act was ***amended in 2019*** decreasing the number of licensed firearms allowed per person.
- **Conditions** - No one can acquire, possess or carry any firearms in India without a license.
- The Act bars one person from carrying more than one firearm.
- It prevents persons of unsound mind or those out on bond from getting such a license.
- **Validity** - The validity of a firearm license was increased from 3 years to 5 years (2019 amendment).
- **Types of License**
  1. Non- prohibited bore (NPB)
  2. Prohibited bore (PB)
- **Eligibility** - Indian citizens aged 21 years and above can get Non-Prohibited Bore (NPB) guns.
- Prohibited Bore guns can only be issued to defence personnel or persons facing imminent threats to life.
- **License Purpose** - Self-defence, crop protection, or sports.
- **Issuing Authority**
  1. Non-Prohibited Bore (NPB) guns - State Government.
  2. Prohibited Bore guns - Central Government or Ministry of Home Affairs.
- The Centre issued new ***Arms Rules in 2016*** one required to complete a safety training course for applying for an arms license, rifle club, association, or firing range.

## References

1. [IE - Who can possess firearms under the Indian Arms Act?](#)
2. [The Hindu - Punjab govt. cancels 813 gun licenses](#)

## Desalination Plant in Lakshadweep

*National Institute of Ocean Technology to set up green, self-powered desalination plant in Lakshadweep.*

- Currently the National Institute of Ocean Technology (NIOT) is providing potable

water in 6 islands of Lakshadweep.

- It uses Low Temperature Thermal Desalination (LTTD) technology powered by diesel generator sets.
- Each plant provides at least 100,000 litres of potable water every day.
- The plants are funded by the Lakshadweep administration.
- The Ministry of Earth Sciences (MoES) provides technical assistance.
- The proposed self-sustaining plant is the 10th plant in Lakshadweep and is expected to be ready later this year.
- The desalination plant will also supply power to the plant, thus fossil-fuel free and self-powered.

*The NIOT is an institute under the aegis of the Ministry of Earth Sciences (MoES), which works on harnessing energy from the ocean including ocean thermal technology.*

### **Low Temperature Thermal Desalination (LTTD)**

- LTTD exploits the difference in temperature (nearly 15°C) in ocean water at the surface and at depths of about 600 feet.
- The warmer water's (at the surface) pressure has been lowered using vacuum pumps.
- The cold water at the depth condenses the warmer water at the surface.
- Such de-pressurised water can evaporate even at ambient temperatures.
- This resulting vapour when condensed is free of salts and contaminants and fit to consume.
- **Advantage** - This technology does not require any chemical pre and post-treatment of seawater.
- It does not require effluent treatment.
- It gives less operational maintenance problems compared to other desalination processes.

*The [Reverse Osmosis](#), a globally accepted technology suitable for desalination of saline water, is a membrane process which is quite different from LTTD technology.*

### **References**

1. [The Hindu - NIOT to set up green, self-powered desalination plant](#)
2. [PIB - Low Temperature Thermal Desalination Technology](#)