

The four Buddha relics travelling to Mongolia as ‘state guest’

(GS Paper 1, Culture)

Why in news?

- Four Holy Relics of Lord Buddha are being taken to Mongolia for an 11-day exposition to coincide with Mongolian Buddha Purnima celebrations.
- A 25-member delegation, led by Union Law Minister Kiren Rijiju, accompanied the relics, to be displayed at the Batsagaan Temple in Gandan Monastery complex in Ulaanbaatar.

The sacred relics:

- The four relics come from among 22 Buddha relics, currently housed at Delhi’s National Museum.
- Together, they are known as the ‘Kapilvastu Relics’ since they are from a site in Bihar believed to be the ancient city of Kapilvastu. The site was discovered in 1898.

Historical aspects:

- At the age of 80, according to Buddhist beliefs, Buddha attained salvation in Uttar Pradesh’s Kushinagar district. The Mallas of Kushinagar cremated his body with ceremonies befitting a universal king.
- His relics from the funeral pyre were collected and **divided into eight shares** to be distributed among the Ajathsatrus of Magadha, the Licchavis of Vaishali, the Sakyas of Kapilavastu, Mallas of Kushinagar, Bullies of Allakappa, the Mallas of Pava, the Koliyas of Ramagrama and a Brahmana of Vethadipa.
- The **purpose was erecting stupas over the sacred relics**. Two more stupas came up, one over the urn in which the relics had been collected and the other over the embers.
- Stupas erected over the bodily relics of Buddha (Saririka stupas) are the earliest surviving Buddhist shrines. It is said that **Ashoka (272–232 BC)**, being an ardent follower of Buddhism, **opened up seven of these eight stupas, and collected major portion of the relics** for enshrinement within 84,000 stupas built by him in an effort to popularise Buddhism as well as the cult of the stupas.



The Kapilavastu relics:

- The discovery of an inscribed casket in 1898 at the stupa site in Piprahwa (near UP’s Siddharthnagar) helped identify the place with the ancient Kapilavastu.
- The inscription on the casket’s lid which refers to the relics of Buddha and his community, the Sakya, reads: ‘Sukiti bhatinam sa-bhaginikanam sa-puta-dalanam iyam salila nidhare Bhaddhasa bhagavate sakiyanam.’

- It roughly translates to: “This shrine for relics of the Buddha, the August One, is that of the Sakyas. The brethren of the distinguished One, in association with their sisters and with their children and their wives.”

Other Findings:

- According to records with the Ministry of Culture, this discovery was followed by many explorations.
- A further excavation of the stupa by the Archaeological Survey of India in 1971-77, apart from **revealing three stages of the construction**, brought to light two more **steatite relic caskets**, containing a total of **22 sacred bone relics**, which are now under the care of the National Museum.
- This was followed by the discovery of more than **40 terracotta sealings** from different levels and spots in the eastern monastery at Piprahwa saying, ‘Om Devaputra Vihare Kapilavastusa Bhikshu Sanghasa’, which means “community of Buddhist monks of Kapilavastu living in Devaputra Vihara”, and “Maha Kapilavastu Bhikshu Sanghasa” in Brahmi script of 1st and 2nd centuries, which establish that Piprahwa was the ancient Kapilavastu.

‘AA’ category of Antiquities and Art Treasures:

- During the 11-day visit, the relics will be **accorded the status of a ‘state guest’ in Mongolia** and will be taken in the same climate control case in which they have been kept presently at the National Museum.
- For the visit, the Indian Air force has made available a special airplane, C-17 GlobeMaster, which is among the biggest aircraft available in India. **Two bullet-proof casings** as well as two ceremonial caskets are being carried by the Indian delegation for both the relics.
- In 2015, the Holy Relics were placed under the **‘AA’ category of Antiquities and Art Treasures** which should not be ordinarily taken out of the country for exhibition, considering their delicate nature. But upon the request of Mongolian government, the government has made a special exception and permitted the exposition of the Holy Relics in Mongolia.

Turkey & Greece at odds over islands in the Aegean Sea

(GS Paper 3, International Relation)

Why in news?

- Recently, Turkey has warned Greece to demilitarize the Aegean islands. The Aegean dispute once again resurfaces between the two historic regional rivals.
- Turkey alleges that Greece has been building a military presence in violation of international treaties that guarantee the unarmed status of the Aegean islands.
- Meanwhile, Greece maintains that Turkey has deliberately misinterpreted the treaties, adding that it has legal grounds to defend itself.

Why is the Aegean Sea at the centre of Greco-Turkish ties?



Location of Aegean Sea:

- The Aegean Sea, spanning over two lakh square kilometres, is an **arm of the Mediterranean Sea**.
- It is located in the East Mediterranean Basin with the Greek peninsula to its west and Anatolia (consisting of the Asian side of Turkey) to its east.
- There are more than a thousand islands in the Aegean Sea, almost all Greek, and some within two kilometres of mainland Turkey or the Turkish west coast.

Dispute:

- **Greece and Turkey have been regional adversaries on a host of issues** concerning the Aegean sea since the 1970s, both asserting rival claims over their borders in the Sea. They came to the brink of war in 1996 over a pair of uninhabited islets in the Aegean Sea, referred to as the Imia islets in Greece and as Kardak in Turkey.
- A Turkish cargo ship had run aground in Imia in December 1995 and both countries rushed to salvage it. Turkey rejected Greece's help and its sovereignty over Imia. Shortly after, both countries moved their navies towards Imia, resulting in a standoff that spilled over into January of 1996. The issue attracted international concern as both countries began to mobilise their forces for war, however, global intervention prevented further escalation.
- Over the decades, attempts at resolving disagreements over the Aegean Sea have seen the involvement of multiple actors like the United Nations, the United States, European countries, the International Court of Justice, and NATO.

What do international treaties say about Aegean islands?

Lausanne Convention of 1923:

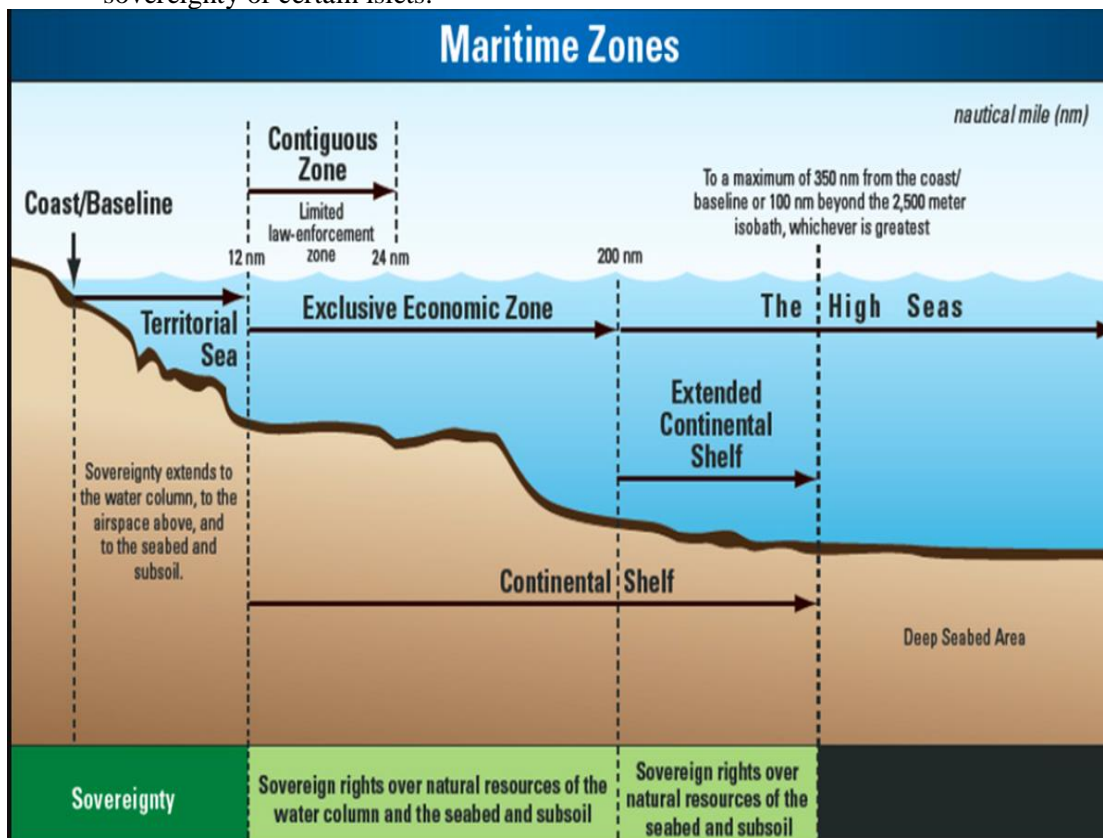
- The **Lausanne Treaty of 1923** was signed at the end of the First World War to settle the conflict between Turkey (the successor of the Ottoman Empire) and the Allied Powers including Greece. The Treaty defined the boundaries of Turkey and Greece, and several islands, islets and other major territories in the Aegean Sea beyond three miles from the Turkish coast were ceded to Greece, with the exception of three groups of islands.
- Under the terms of the Treaty and the **Lausanne Convention of 1923**, Greece was obligated to keep the islands demilitarised. The Treaty also opened up civilian shipping passage in the Turkish Straits and mandated Turkey to demilitarise the straits. **Turkey also ceded Cyprus to the British.**

Paris Peace Treaties of 1947:

- At the end of the Second World War, as part of the **Paris Peace Treaties of 1947**, the Dodecanese Islands (a group of 12 islands in the Aegean Sea) were given to Greece, again with the obligation of permanent and total demilitarisation. They had been ceded to Italy in 1923.
- While Turkey recognises both these treaties, Greece accuses it of wrongly interpreting them, and argues that the 1936 Montreux Convention Regarding the Regime of the Straits superseded the Lausanne Treaty on the Straits, as it gave Turkey the power to militarise the Turkish Straits, hence nullifying the obligation upon Greece to demilitarise the Aegean Islands.

What are the issues that have caused friction over the Aegean Sea?

- Turkey and Greece have long sparred over the extent of their respective territorial waters in the Aegean, the determination of continental shelves, airspace, Exclusive Economic Zones (EEZs), militarisation, and sovereignty of certain islets.



Territorial seas:

UNCLOS:

- In 1995, **Greece ratified the 1982 United Nations Convention on the Law of the Sea (UNCLOS)**, which provides a legal framework to recognise the limits of maritime zones of coastal nations. While over 160 countries are party to the Treaty, Turkey did not sign it as it did not favour its interest in the Aegean Sea.
- According to the UNCLOS, the sovereignty of a coastal country extends “beyond its land territory and internal waters” to an “adjacent belt of sea, described as the territorial sea”.
- A country’s territorial sea extends to 12 nautical miles (nm) from the baseline of its coast, and it has sovereign rights over it. (One nautical mile is equal to 1.1508 land-measured miles or 1.852 kms.)

Claim by Turkey:

- Presently, Turkey claims a territorial sea of six nautical miles and has not exercised its claim over the 12 nautical miles from its coast in the Aegean Sea. After the Greek Parliament adopted the UNCLOS in 1995, Turkey retaliated by authorising its government to take necessary steps including military action, if Greece extended its rights to 12 nm.

- In 1974, in a separate Aegean Sea-linked issue, Turkey had formally said that if Greece fully extended its territorial waters, it would count as a casus belli (cause of war).
- Turkey argues that if Greece extends its territorial waters it would have control over two-thirds of the Aegean Sea, depriving Turkey of its basic access to international waters and trade routes.

Continental shelves and Exclusive Economic Zones:

- In geological terms, the **continental shelf is defined as** the seabed and subsoil that is the prolongation of a country's landmass, extending beyond its territorial sea. The **Exclusive Economic Zone (EEZ) is a zone** in which a country has special rights to exploration, use of natural resources, wind and hydro-power generation, and other economic activities like laying of pipelines, fishing and so on.
- As per the UNCLOS, the continental shelf extends to 200 nautical miles from the country's coastal baseline but is within its continental margin. A country has sovereign rights over the natural resources in the water and the seabed and soil within its continental shelf. EEZs also extend to 200 nm from the coastline.

Claim of Greece:

- Greece argues, citing UNCLOS provisions, that every Greek island in the Aegean generates its own continental shelf, which would mean that the Greek Continental Shelves extend to Eastern Greek islands near the Turkish Coast. Meanwhile, Ankara contends that the continental shelf border in the Aegean is the median line between the coasts of the two countries and should be determined on an equitable basis.
- Since the 70s, Turkey and Greece have had disagreements over their overlapping continental shelves and over offshore natural resources like gas and minerals held by these shelves.
- In 2020, tensions flared between the two countries when Turkey sent its seismic research vessel Oruc Reis to map potential drilling opportunities for oil and natural gas near the Greek island of Kastellorizo. A Turkish naval ship collided with a Greek naval ship while both were shadowing the Oruc Reis. The research vessel later returned to Turkish shores.
- Turkey maintains that it will undertake exploratory work in the areas it lays claims to as there is no bilateral agreement between the two countries delimiting their continental shelves. Ankara and Athens have also signed deals in the last couple of years creating conflicting EEZs with countries like Libya and Egypt respectively.

Militarisation:

- Right now, Turkey has cited the Lausanne and Paris treaties, arguing that Greece is violating them by increasing its military presence in the Aegean Islands.
- Meanwhile, Greece argues that some of the islands, which have been garrisoned for decades, have troops because they're in close proximity to the Izmir coast, where Turkey has deployed a large landing force called the Fourth Army, which in theory, makes it capable of seizing Greek Islands. Athens argues that it has a military presence in such islands for the purposes of self-defence.
- After Turkey's invasion of Cyprus in the 1970s, Greece militarised the Dodecanese Islands near Turkey for defensive purposes.
- Presently, for instance, the Greek islands of Rhodes, Kos, and Lesbos in the Aegean Sea near the Turkish coast would meet the description of militarised, according to the Associated Press.

Airspace violations:

- UNCLOS states that a country has sovereign rights over the airspace above its territorial sea. Currently, Greece claims six nm of territorial sea in the Aegean, starting from its coast. Hence, its internationally recognised airspace over the Aegean is also up to six nm.
- Alleged violation of airspace over the Aegean Sea has also been a bone of contention between the two countries.
- Both Greece and Turkey have alleged that the other is carrying out flights near or over their coasts.

What's next?

- As mentioned earlier, Greece has taken the matter to the NATO, while Turkey has said that Greece is the one instigating tensions by flying near its coastline.

Why in news?

- Recently, the 2022 Reuters Institute Digital News Report was released.
- According to the 2022 Reuters Institute Digital News Report, trust in news is falling in nearly half the countries surveyed, with significant proportions of the public, especially younger age groups, beginning to turn away from news.
- Further, news consumption is increasingly happening via social media platforms such as TikTok rather than traditional media.

What is the scope of this report?

- This study, **an annual** one commissioned by the Reuters Institute for the Study of Journalism, **tracks how news is consumed in different countries**.
- The 2022 report, the eleventh overall, is based on a survey conducted by YouGuv, a British market research and data analytics firm, in January/February 2022 through online questionnaires.
- It **covers 46 markets in six continents**. Since it is based on online questionnaires, the findings are not necessarily nationally representative, especially for countries with lower internet penetration.
- For India, the data is more representative of younger English speakers and not the national population as such.



What are the major trends highlighted in the report?

Broadly, the report documents the ways in which “the connection between journalism and much of the public may be fraying”. It flags **six major trends** which could have wider socio-political implications.

- a) Firstly, people are **trusting news content less and less**.
- b) Second, consumption of **traditional news media declined in nearly all the countries** surveyed.

- c) Third, the proportion of news consumers who say that they “avoid news” has risen sharply across countries, with the report describing the phenomenon as “selective avoidance”.
- d) Fourth, despite small increases in the proportion of people willing to pay for online news (mostly in richer countries), the growth in digital subscriptions for news content seems to be leveling off.
- e) Next, “the smartphone has become the dominant way in which most people first access news in the morning”.
- f) Finally, the report notes that while Facebook remained the most-used social network for news, it is **TikTok that has become the fastest-growing network**, “reaching 40% of 18-24-year-olds, with 15% using the platform for news”. TikTok, however, is currently banned in India.

What is ‘selective avoidance’ of news?

- While the majority of people remained engaged with news, the report finds that a growing minority is increasingly choosing “to ration or limit their exposure to it or at least to certain types of news”.
- The report calls this behaviour “selective avoidance” and says this is one of the reasons why news consumptions levels have failed to increase as per expectations. The proportion that says they avoid news has doubled in Brazil (54%) and the U.K. (46%) since 2017.
- Across markets, respondents cited a variety of reasons for this avoidance. Many said they were “put off by the repetitiveness of the news agenda especially around politics and COVID-19 (43%).
- Some said they were “worn out by the news” (29%). A significant number said they avoided news because they didn’t trust it (29%). About one-third (36%), especially those under 35, said that news ruined their mood.

What are the reasons cited for declining trust in news content?

- The average level of trust in news, at 42%, was found to be lower than the previous year. Trust levels fell in 21 of the 46 markets surveyed, rising in just seven. The report states that an “indifference to news and its value, along with widespread perception of political and other biases by the media, are two of the main reasons for low trust”.
- The trust levels were also lower among those on the right, compared to those on the left, of the ideological spectrum, a pattern most pronounced in the U.S. In France, on the other hand, the lack of trust closely tracked the class divide, with the ‘haves’ showing higher levels of trust, while the ‘have-nots’ viewed media as often aligning itself with the elites.
- Other reasons for low trust included perceptions of undue influence from business or political interests, with just 19% agreeing that “news organisations put what’s best for society ahead of their own commercial or political interests.”
- At the same time, many more said that all or most news outfits “put their own political views (40%) or commercial interests (42%) ahead of society.”

What about preferred modes of news consumption?

- Across markets and age groups, text is still king when it comes to news consumption. However, younger audiences, especially ‘digital natives’ who grew up with networks like Facebook and TikTok, were more likely to say they “watch the news”.
- In India, 58% said that they “mostly read” the news while 17% said they “mostly watch” it. On the other hand, the comparable figures for Finland, which has a historic pattern of high newspaper consumption, was 85% and 3% respectively.

What does the report say about trends in India?

- In the section on India, produced in collaboration with the Asian College of Journalism, the report, observing that “India is a strongly mobile-focussed market,” says that 72% of the survey respondents accessed news through smartphones and 35% did so via computers.
- Also, 84% of the Indian respondents sourced news online, 63% from social media, 59% from television, and 49% from print. YouTube (53%) and WhatsApp (51%) were the top social media platforms for sourcing news.
- India registered a small increase in the level of trust, with 41% trusting news overall. While legacy print brands and public broadcasters continued to have high trust levels, only a minority felt that the media was free from undue political influence and from undue business influence respectively.

New map of Earth’s tectonic plates to help understand quakes, volcanoes better

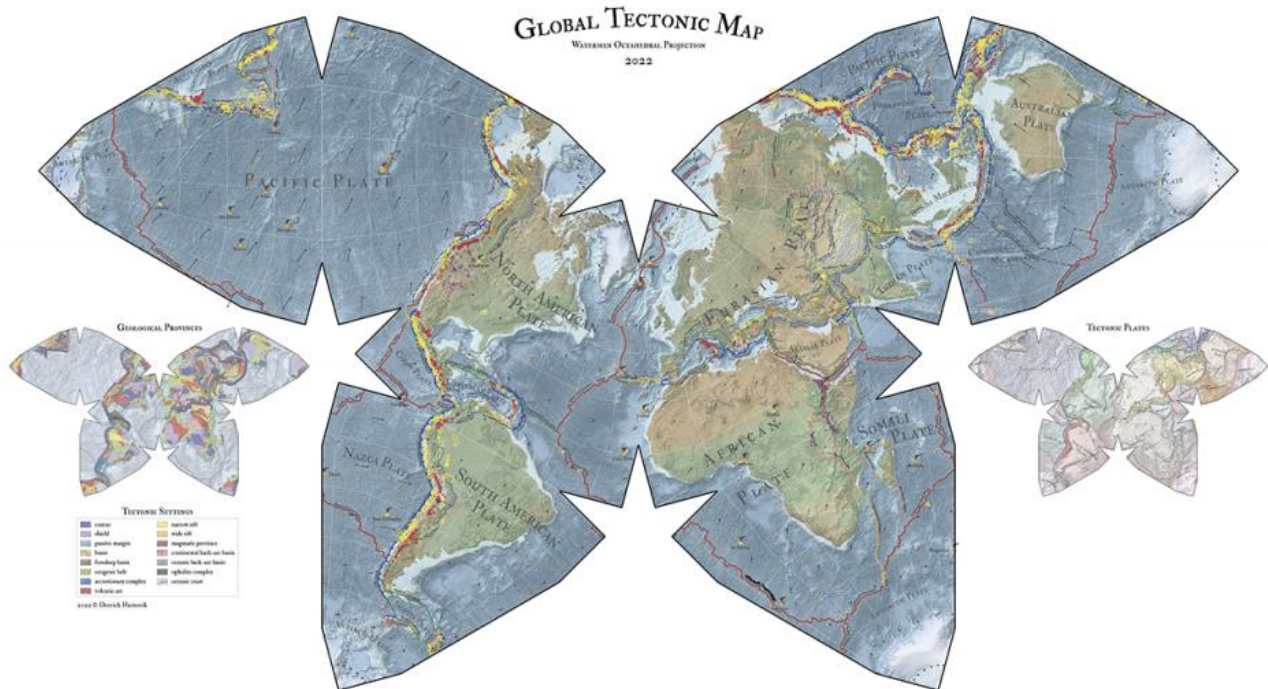
(GS Paper 1, Geography)

Why in news?

- Recently, the researchers from the University of Adelaide, Australia, have carried out a new study that includes an **updated map of the earth's tectonic plates**.
- The material will help in forming a better understanding of natural hazards like earthquakes and volcanoes.

What is a tectonic plate?

- A tectonic plate is a massive, irregularly shaped slab of solid rock, made up of lithosphere or the earth's top layer.
- Tectonic plate movements often lead to earthquakes and volcanoes.



How modern continents were formed?

- The study delved into the past construction of continents like the first supercontinent, Vaalbara.
- Vaalbara fragmented to form other supercontinents over the years, the last being Pangea, which existed some 335-65 million years ago. Pangea again gave way to the seven modern continents which make the earth's land surface today.
- The new model for tectonic plates better explains the spatial distribution of 90 per cent of earthquakes and 80 per cent of volcanoes from the past two million years whereas existing models only capture 65 per cent of earthquakes.

How new map was constructed?

The researchers combined three models to map the new geological provinces and tectonic plates:

- a) A plate model based on the existing knowledge of tectonic plates
 - b) A province model based on the geological information of the earth's surface
 - c) An orogeny model based on the process of mountain formation which is triggered when two tectonic plates collide.
- There are 26 orogenies, the process of mountain formation that have left an imprint on the present-day architecture of the crust. Many of these, but not all, are related to the formation of supercontinents.
 - The last time the tectonic plate model was updated was back in 2003.

Features of new study:

- The new study added several new microplates to the existing tectonic plate model like the Macquarie microplate which sits south of Tasmania and the Capricorn microplate that separates the Indian and Australian plates.
- But according to the study, the biggest update to the existing plate model has been in western North America.
- The newly delineated boundary is much wider, approximately 1,500 km, than the previously drawn narrow zone. The other large change is in central Asia. The new model now includes all the deformation zones north of India as the plate bulldozes its way into Eurasia.

Way Forward:

- The plate model can be used to evaluate risks from natural hazards; the province model can be used for further exploration of minerals and the orogeny model for a better understanding of the evolution of the earth.

Language Model for Dialogue Applications (LaMDA) sentient or not?

(GS Paper 3, Science and Tech)

Why in news?

- Recently, a senior engineer at Google claimed that the company's Artificial Intelligence (AI)-based chatbot **Language Model for Dialogue Applications (LaMDA)** had become "sentient".
- The engineer, Blake Lemoine, published a blog post labelling LaMDA as a "person" after having conversations with the AI bot on subjects like religion, consciousness and robotics.
- The claims have also spurred a debate on **the capabilities and limitations of AI-based chatbots** and if they can actually hold a conversation akin to human beings.



Background:

- Blake Lemoine, a U.S. military veteran, was engaged by Google to test for bias/hate speech in LaMDA, Google's nextGen conversational agent. He was sent away on paid leave after claiming that the updated software is now sentient.
- He claims that the neural network with deep learning capacity has the **consciousness of a child of seven or eight years old**. He argues that consent from the software must be obtained before experiments are run on it. Google and many tech experts have dismissed the claim.

Is AI technology here?

- AI technology appears futuristic. However, **Facebook's facial recognition software** which identifies faces in the photos posted, the voice recognition software that translates commands, Alexa, and the **Google Translate app** are all examples of AI tech already around us.
- Inspired by the mathematician Alan Turing's answer to the question 'Can a machine think?', AI tech today aims to satisfy the Turing test to qualify as 'intelligent'.
- Turing was the designer and builder of the world's first computer, ENIGMA, which was used to break the German codes during the Second World War. To test if a machine 'thinks', Turing devised a practical solution.
- Place a computer in a closed room and a human in another. If an interrogator interacting with the machine and the human cannot discriminate between them, then Turing said that the computer should be construed as 'intelligent'. The **reverse Turing test, CAPTCHA**, is used to limit technology access to humans and keep the bots at bay.

Which were the first chatbots to be devised?

- As electronics improved and first-generation computers came about, Joseph Weizenbaum of the MIT Artificial Intelligence Laboratory built ELIZA, a computer programme with which users could chat.
- **ALICE (Artificial Linguistic Internet Computer Entity)**, another early chatbot developed by Richard Wallace, was capable of simulating human interaction.
- In the 1930s, linguist George Kingsley Zipf analysed the typical human speech and found that most of the utterances began with 2,000 words. Using this information, Wallace theorised that the bulk of commonplace chitchat in everyday interaction was limited.
- The software won the Loebner Prize as "the most human computer" at the Turing Test contests in 2000, 2001, and 2004.

What is a neural network?

- A neural network is an AI tech that attempts to mimic the web of neurons in the brain to learn and behave like humans. Early efforts in building neural networks targeted image recognition. The **artificial neural network (ANN)** needs to be trained like a dog before being commanded.
- For example, during the image recognition training, thousands of specific cat images are broken down to pixels and fed into the ANN. Using complex algorithms, the ANN's mathematical system extracts particular characteristics like the line that curves from right to left at a certain angle, edges or several lines that merge to form a larger shape from each cat image.
- The software learns to recognise the key patterns that delineate what a general 'cat' looks like from these parameters.
- The App learns by itself, unsupervised by humans, by sorting and sifting through the massive data and finding the hidden patterns.

What is LaMDA?

- LaMDA is short for 'Language Model for Dialogue Applications', Google's modern conversational agent enabled with a neural network capable of deep learning. Instead of images of cats and dogs, the algorithm is trained using 1.56 trillion words of public dialogue data and web text on diverse topics.
- The neural network built on Google's open-source neural network, Transformer, extracted more than 137 billion parameters from this massive database of language data. The chatbot is not yet public, but users are permitted to interact with it.
- Google claims that LaMDA can make sense of nuanced conversation and engage in a fluid and natural conversation. The LaMDA 0.1 was unveiled at Google's annual developer conference in May 2021, and the LaMDA 0.2 in 2022.

How is LaMDA different from other chatbots?

- Chatbots like 'Ask Disha' of the Indian Railway Catering and Tourism Corporation Limited (IRCTC) are routinely used for customer engagement.
- The repertoire of topics and chat responses is narrow. The dialogue is predefined and often goal-directed. For instance, try chatting about the weather with Ask Disha or about the Ukrainian crisis with the Amazon chat app.

- LaMDA is Google's answer to the quest for developing a non-goal directed chatbot that dialogues on various subjects. The chatbot would respond the way a family might when they chat over the dinner table; topics meandering from the taste of the food to price rise to bemoaning war in Ukraine.
- Such advanced conversational agents could revolutionise customer interaction and help AI-enabled internet search.

Is the technology dangerous?

- The challenges of AI metamorphosing into sentient are far in the future; however, unethical AI perpetuating historical bias and echoing hate speech are the real dangers to watch for.
- Imagine an AI software trained with past data to select the most suitable candidates from applicants for a supervisory role.
- Women and marginalised communities hardly would have held such positions in the past, not because they were unqualified, but because they were discriminated against. While we imagine the machine to have no bias, AI software learning from historical data could inadvertently perpetuate discrimination.