

## GPT 4

- GPT-4 is a remarkable improvement over its predecessor, GPT-3.5, which first powered ChatGPT.
- GPT-4 is more conversational and creative. Its biggest innovation is that it can accept text and image input simultaneously, and consider both while drafting a reply.
- While GPT-3.5 could not deal with large prompts well, GPT-4 can take into context up to 25,000 words, an improvement of more than 8x.
- ChatGPT- generated text infiltrated school essays and college assignments almost instantly after its release; its prowess now threatens examination systems as well.



- OpenAI has released preliminary data to show that GPT-4 can do a lot of white-collar work, especially programming and writing jobs while leaving manufacturing or scientific jobs relatively untouched.

- Ethical questions GPT-4 is still prone to a lot of its flaws in its predecessor. Its output may not always be factually correct a trait OpenAI has called “hallucination”.
- GPT-4 has been trained on data scraped from the Internet that contains several harmful biases and stereotypes.
- GPT-4 is a machine that predicts the next word in an unfinished sentence, based on probabilities it learned as it trained on large corpuses of text.
- This is why linguistics professor Emily Bender called GPT-4 a “stochastic parrot”,
- Apart from OpenAI’s models, AI Company Anthropic has introduced a ChatGPT competitor named Claude. Google recently announced PaLM, a model trained to work with more degrees of freedom than GPT-3.

### What is open AI?

- OpenAI is an American artificial intelligence (AI) research laboratory consisting of the non-profit OpenAI Incorporated (OpenAI Inc.) and its for-profit subsidiary corporation OpenAI Limited Partnership (OpenAI LP).
- OpenAI conducts AI research with the declared intention of promoting and developing a friendly AI. OpenAI

systems run on an Azure-based supercomputing platform from Microsoft.

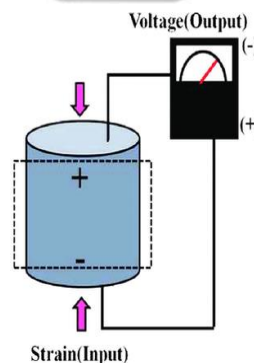
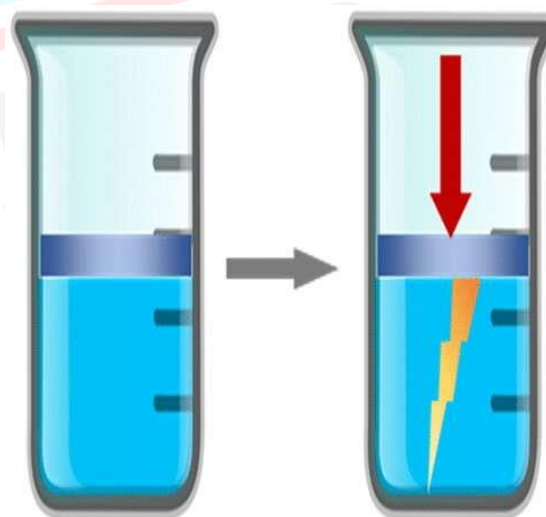
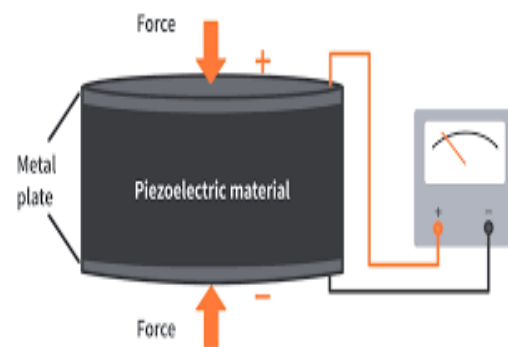
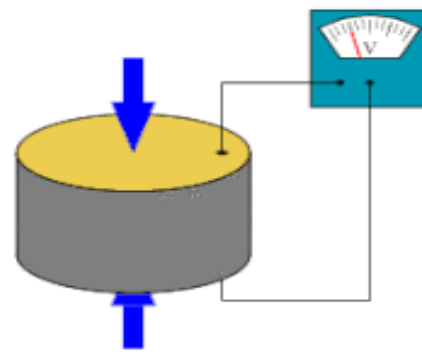
- The organization was founded in San Francisco in 2015 by Sam Altman, Reid Hoffman, Jessica Livingston, Elon Musk, Ilya Sutskever, Peter Thiel, and others.



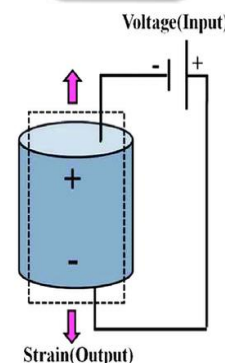
THE HINDU

### Piezoelectric effect

- For the first time, scientists have reported evidence of the piezoelectric effect in liquids.
- The effect has been known for 143 years and this time has been observed only in solids.
- The new finding challenges the theory that describes this effect as well as opens the door to previously unanticipated applications in electronic and mechanical systems.



Direct Piezoelectric Effect



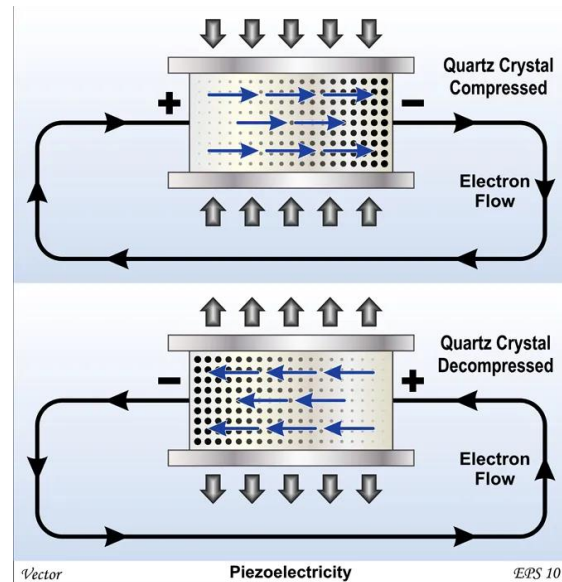
Converse Piezoelectric Effect

- The effect was found in pure 1-butyl-3-methyl imidazolium bis(trifluoromethyl-sulfonyl)imide and 1-hexyl-3-methyl imidazolium bis(trifluoromethylsulfonyl)imide both ionic liquids (liquids which are made of ions instead of molecules) at room temperature.

### What is the piezoelectric effect?

- In the piezoelectric effect, a body develops an electric current when it is squeezed.
- Quartz is the most famous piezoelectric crystal; it is used in analog wristwatches and clocks. Such crystals are also used in other instruments where converting mechanical stress to a current is useful. Quartz is silicon dioxide (SiO<sub>2</sub>).
- The quartz crystal consists of silicon and oxygen atoms at the four vertices of a three-sided pyramid; each oxygen atom is shared by two pyramids.
- These pyramids repeat themselves to form the crystal.
- The effective charge of each pyramid is located slightly away from the center.
- When mechanical stress is applied, that is when the crystal is squeezed, the position of the charge is pushed

further from the center, giving rise to a small voltage.



### What new applications are possible?

- The liquids also displayed the inverse piezoelectric effect: they became distorted when an electric charge was applied.
- Dr. Blanchard told the magazine IEEE Spectrum that this fact could be used to control how the liquids bent light passing through them by passing different currents through them. That is, using this simple control mechanism, vials of these liquids could be lenses with dynamic focusing abilities.

### THE HINDU

#### Quality control order on fiber

- Quality Control Orders (QCO) have been issued for fibers cotton, polyester, and viscose that

constitute the basic raw materials for the majority of the Indian textile and clothing industry.

- While the standards were available earlier too, these are now revised and made mandatory for a few and are yet to be finalized for others.
- International manufacturers of these fibers, who supply to India, are also mandated to get a certificate from the Bureau of Indian Standards (BIS), which is the certifying authority for the QCOs.
- Why are fibers covered under QCOs?
- The Indian textile and clothing industry consumes both indigenous and imported fibers and filaments.
- The imports are for different reasons cost competitiveness, non-availability in the domestic market, or to meet a specified demand of the overseas buyer.
- The main aim of the QCO is to control the import of sub-quality and cheaper items and to ensure that customers get quality products”.

#### **What challenges does the new mandate bring?**

- India imports annually 50,000 - 60,000 tonnes of viscose fiber and its variants.
- The overseas fiber manufacturers sell not only to India but to other countries too.

- The supply of some fibers to India is in small quantities.
- Getting the certificate from the BIS involves a cost and hence not all are interested in getting the certificate.
- The Indian textile manufacturers who are dependent on these suppliers for the raw material will have to either look at other suppliers or lose orders.
- There is no clarity on the fibers that were shipped before the certification and which will reach India in the coming days.
- The textile buyers, be they domestic or international, have established a supply chain over the years and when there are constraints because of certification, the value chain is disrupted.

#### **What is the way forward?**

- Be it viscose or polyester, some varieties of the fiber have special functional properties and separate HS (Harmonised Commodity Description and Coding System) codes when imported.
- But, these are bundled in the QCO and thus have uniform quality standards.
- The textile industry imports just small quantities of such fibres and restricting its availability will deny Indian consumers of niche products.

- The textile industry is of the view that import of speciality fibres that are used as blends with other fibres should be made available without restriction.
- Also, any overseas applicant for the BIS certificate should get it without delay after inspection.
- Several textile units use lower-grade fibers that are generated from rejects and wastes and these are not covered under the QCO. There is also a fear of costs going up for basic garments.

#### **THE HINDU**

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### **Pak bill on SC**

- Pakistan's Senate passed the Bill to curtail the powers of the Chief Justice of the Supreme Court regarding suo motu cases and the constitution of Benches.
- Minister for Law and Justice Azam Nazeer Tarar introduced 'The Supreme Court (Practice and Procedure) Bill, 2023.
- The Bill states that every cause, matter, or appeal before the top court would be heard and disposed of by a Bench constituted by a committee comprising the Chief Justice and the two senior-most judges. It added that the decisions of

the committee would be taken by a majority.

#### **THE HINDU**

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### **Rare diseases**

- A rare disease is a health condition of low prevalence that affects a small number of people compared with other prevalent diseases in the general population.
- It is estimated that globally around 6000 to 8000 rare diseases exist with new rare diseases being reported in the medical literature regularly.
- However, 80% of all rare disease patients are affected by approximately 350 rare diseases.
- 80% of rare diseases are genetic in origin and hence disproportionately impact children.
- There is no universally accepted definition of a rare disease. Different countries define rare diseases differently.
- WHO defines rare disease as often debilitating lifelong disease or disorder condition with a prevalence of 1 or less, per 1000 population?

#### **THE HINDU**

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