

Photoreception

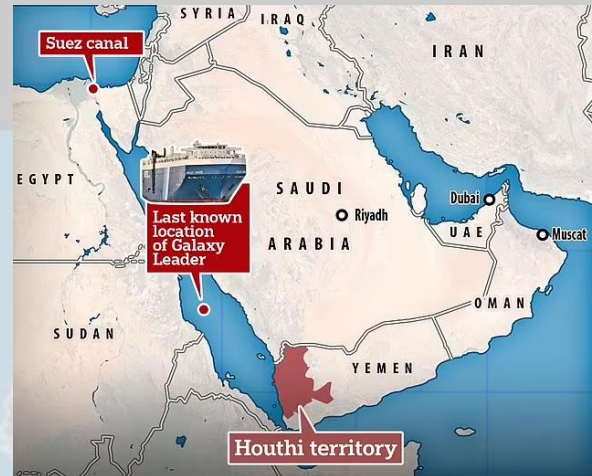
- Photoreception is activation of a biological process by light.
- Most organisms, including humans, respond to light. Some animals react to light waves not perceived by humans.
- Vertebrates have two types of photosensitive cells, rods and cones, so called because of their shape.
- The rods, which are long and fat, contain large amounts of visual pigment and they mediate vision under dim illumination (scotopic vision).
- The cone cells, which are relatively small, mediate daylight vision (photopic vision) and colour sensation.
- The retinas of animals active both day and night, as are those of humans, contain both rods and cones. In parts of the human retina, the rods and cones are intermingled and the nervous system provides a switching mechanism that permits adjustment for light conditions.
- In nocturnal animals, the optical arrangement of the eyes suggests that resolution is sacrificed for high light gathering power
- In nocturnal animals, the retina is mainly made up of rod cells.
- Rhodopsin, a photosensitive pigment present in rods, is decolourised by photons (light particles) and slowly regenerated in the dark. This ensures better vision for them in dim light.
- The Hindu

Red sea and Houthi

- U.S. Defense Secretary Lloyd Austin announced the creation of a multinational operation to safeguard commerce in the Red Sea following a series of missile and drone attacks by Yemen's Iran aligned Houthis
- The situation in the Bab el Mandeb Strait has been worrying shipping companies after several attacks by Houthi rebels on container ships.
- These attacks have prompted several major international companies to hold ships from venturing in the strait that separates Yemen from eastern Africa
- Prime Minister Narendra Modi and Israeli Prime Minister Benjamin Netanyahu held a telephone discussion on the escalating threats to maritime

security in the Red Sea because of the actions of Houthi militants of Yemen.

- The conversation came soon after the Pentagon announced an international mission to counter the growing number of attacks against Israel bound international traffic



The Hindu

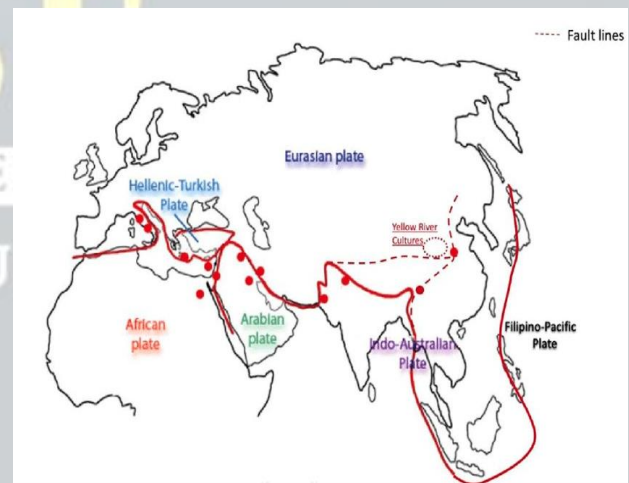
Why earthquake in china?

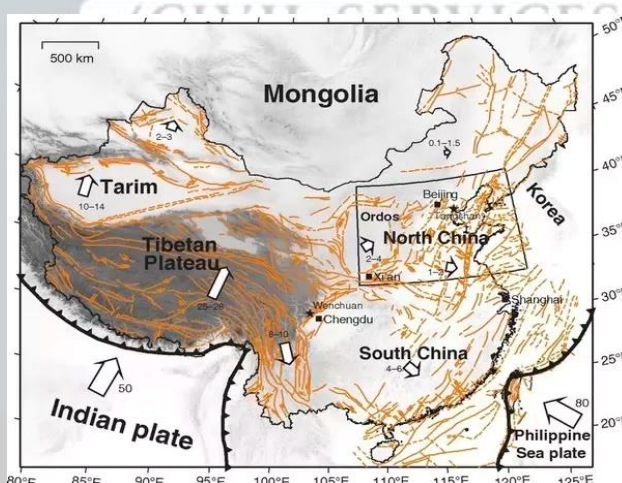
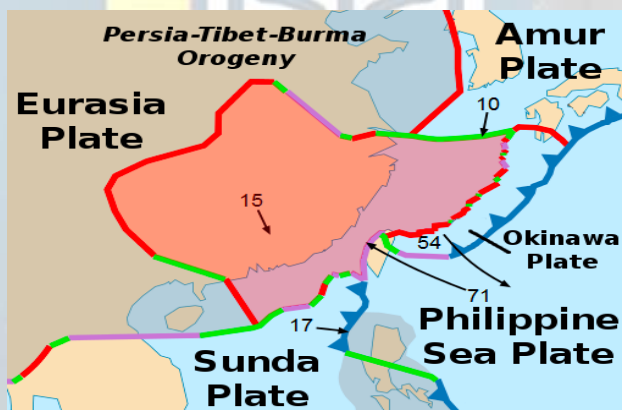
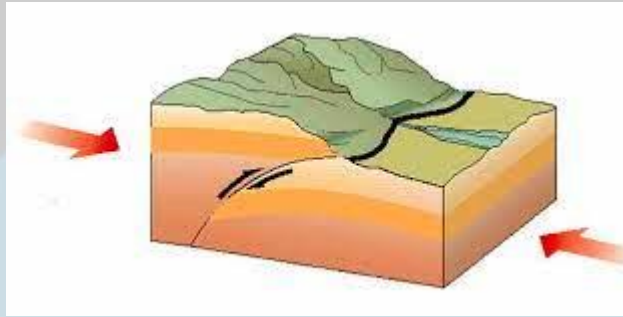
- A strong overnight earthquake rattled a mountainous region of northwestern China, destroying homes, leaving residents out in a below freezing winter night and killing 126 people in the nation's deadliest quake in nine years.

ISRAEL-GAZA WAR

Red Sea patrol force to counter Houthi attacks

The United States has announced a 10-nation force to protect trade in the Red Sea after attacks by Yemen's Houthi rebels forced shipping companies to halt operations.





Ethanol

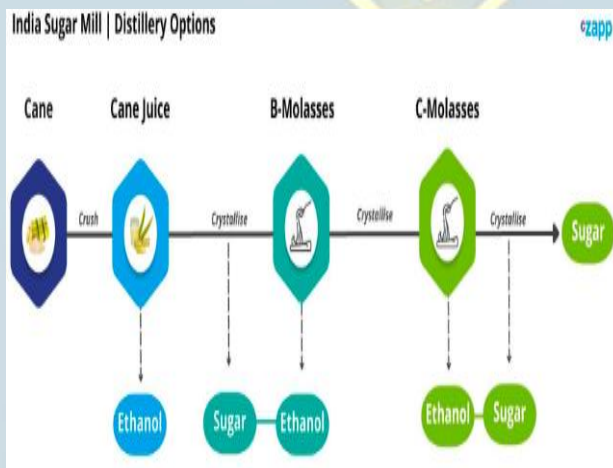
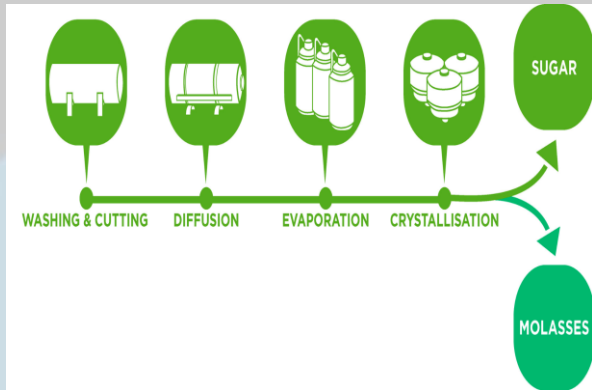
- As more than 100 countries at COP28 in Dubai pledged the tripling of global renewable energy capacity by 2030, India faces a tightrope walk with regard to its ethanol blending target.

- While ethanol blended petrol (EBP) increased from 1.6% in 2013-14 to 11.8% in 2022-23, the 20% target by 2025 has run into trouble with low sugar stocks in 2022-23 and the impending shortfall in sugarcane production this year

- The two major feedstock for ethanol production are sugarcane (Brazil) and corn (the U.S.).

- A crucial difference between the use of sugarcane and corn for producing ethanol is the degree of food fuel conflict that emerges. In the case of sugarcane, ethanol is produced by processing the molasses (C-heavy/B-heavy) and constitutes minimal trade off with the sugar output.









- The B-heavy molasses path produces less sugar compared to the C heavy one, but both produce sugar and ethanol simultaneously from sugarcane.



- But using **corn for producing ethanol directly** reduces its use as food or livestock feed.
- It not only diverts grain to fuel use, but also links food prices **directly** with crude oil prices through the demand side.
- **The very high crude prices that prevailed for a decade in 2004-14 pulled up ethanol and corn prices to historical highs**
- **This strong link between crude and food prices in the era of agro fuels**

- Unlike in the U.S., **sugarcane is the more obvious choice for tropical countries** such as Brazil or India where cane yields are higher.
- This is not to argue that **using sugarcane for ethanol does not have adverse impacts** on environment or hunger.
- **More land under water intensive sugarcane cultivation can displace food production** as well as degrade water tables, but these can be regulated by appropriate land use policies.
- It is far more difficult to control the market dynamics, driven by easily interchangeable grain use, as illustrated by the U.S.'s corn based ethanol experience.
- **The future of India's renewables strategy hangs on a delicate food fuel tradeoff; and a choice between intensifying hunger and reducing fossil fuel use.**

National biofuel policy

Salient Features	Benefits
 <ul style="list-style-type: none"> • Classification of basic bio fuels, 1G plants, 2G plants and bio refineries 	 <ul style="list-style-type: none"> • Reduce Import Dependency.
 <ul style="list-style-type: none"> • Permitted the use of cane juice, B-molasses, Lignocellulose feedstock 	 <ul style="list-style-type: none"> • Cleaner Environment
 <ul style="list-style-type: none"> • Allowed the use of surplus food grains to benefit farmers 	 <ul style="list-style-type: none"> • Infrastructural Investment in Rural Areas & Employment Generation
 <ul style="list-style-type: none"> • Funding scheme of 5000 Cr, Interest subvention scheme for molasses and grain-based distilleries 	 <ul style="list-style-type: none"> • Additional Income to Farmers

The Hindu

Telecommunication bill 2023

- The Telecommunications Bill, 2023 was introduced in Lok Sabha on December 18, 2023.
- It seeks to regulate activities related to telecommunication. It repeals the Indian Telegraph Act, 1885, the Indian Wireless Telegraphy Act, 1933, and the Telegraph Wires (Unlawful Possession) Act, 1950. It also amends the Telecom Regulatory Authority of India (TRAI) Act, 1997.
- **Authorisation for telecom-related activities:** Prior authorization from the central government will be required to: (i) provide telecommunication services, (ii) establish, operate, maintain, or expand telecommunications networks, or (iii) possess radio equipment.
- **Assignment of spectrum:** Spectrum will be assigned by auction, except for specified uses, where it will be allocated on an administrative basis.
- These include purposes such as: (i) national security and defence, (ii) disaster management, (iii) weather forecasting, (iv) transport, (v) satellite services such as DTH and satellite telephony, and (vi) BSNL, MTNL, and public broadcasting services.
- **Powers of interception and search:** Messages or a class of messages between two or more persons may be intercepted, monitored, or blocked on certain grounds.
- Such actions must be necessary or expedient in the interest of public safety or public emergency, and must be in the interest of specified grounds which include: (i) security of the state, (ii) prevention of incitement of offences, or (iii) public order
- **Powers to specify standards:** The central government may prescribe standards and assessments for telecom equipment, infrastructure, networks, and services.
- **Right of way:** Facility providers may seek a right of way over public or private property to establish telecom infrastructure. Right of way must be provided on a non-discriminatory and non-exclusive basis to the extent possible.
- **Protection of users:** The central government may provide for measures to protect users which include: (i) prior consent to receive specified messages such as advertising messages, (ii) creation of Do Not Disturb registers, and (iii) a mechanism to allow users to report malware or specified messages.

- **Appointments to TRAI:** The Bill amends the TRAI Act to also allow individuals with: (i) at least 30 years of professional experience to serve as the chairperson, and (ii) at least 25 years of professional experience to serve as members.
- **Digital Bharat Nidhi:** The Universal Service Obligation Fund has been established under the 1885 Act to provide for telecom services in underserved areas. The Bill retains this provision, renames the fund as Digital Bharat Nidhi, and also allows its use for research and development.
- **Offences and penalties:** The Bill specifies various criminal and civil offences. Providing telecom services without authorisation, or gaining unauthorised access to a telecom network or data, are punishable with imprisonment up to three years, a fine up to two crore rupees, or both.
- **Adjudication process:** The central government will appoint an adjudicating officer to conduct inquiries and pass orders against civil offences under the Bill.
- The officer must be of the rank of joint secretary and above. Orders of the adjudicating officer may be appealed before the Designated Appeals Committee within 30 days.
- Members of this Committee will be officers of the rank of at least Additional Secretary.

HFSS FOOD

What does HFSS stand for?

- HFSS stands for food and drinks that are high in fat, salt or sugar.
- HFSS examples
- Examples of HFSS food and drink covered by the regulations include:
 - Soft drinks with added sugar
 - Crisps
 - Granola
 - Sweet popcorn
- The HFSS rules aim to restrict the promotion of less healthy food and drink products as part of the government's pledge to reduce obesity and improve [health](#).

The Hindu