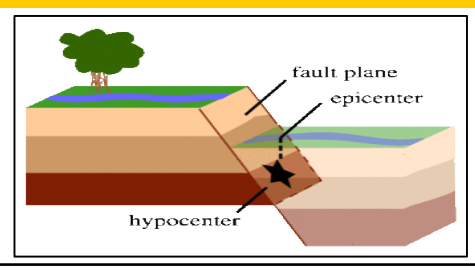
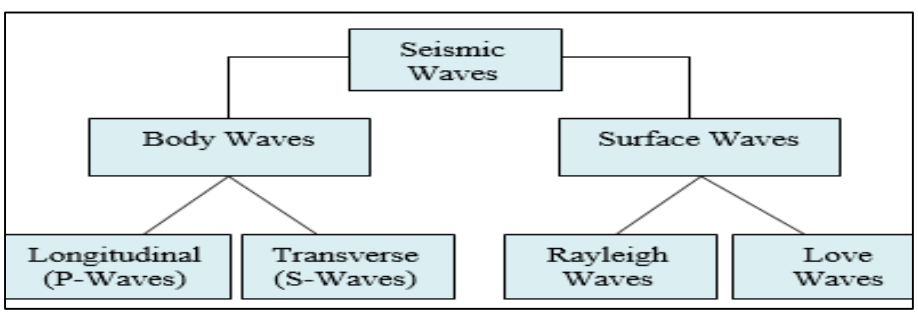
Earthquake



❖ Context

➢ A day after north India felt tremors of the strong 6.8-magnitude earthquake with the epicenter in Afghanistan, the National Centre for Seismology has recorded 2.7 magnitude earthquake in the national capital.

- **About :**
  - An earthquake is the **shaking of the surface of the Earth.**
  - It results from the sudden release of energy in the Earth‘s lithosphere that creates seismic waves.
  - Earthquake is the **form of energy** of wave motion transmitted through the surface layer of the earth.
- **Cause :**
  - According to the **theory of plate tectonics,** the Earth’s crust and upper mantle are made of large rigid plates that can move relative to one another.
  - **Slips on faults** near the plate boundaries can result in earthquakes.
- **Focus and Epicenter :**
  - The point inside the Earth where the **earthquake rupture starts** is called the focus or hypocentre.
  - The point **directly above it** on the surface of the Earth is the epicenter.

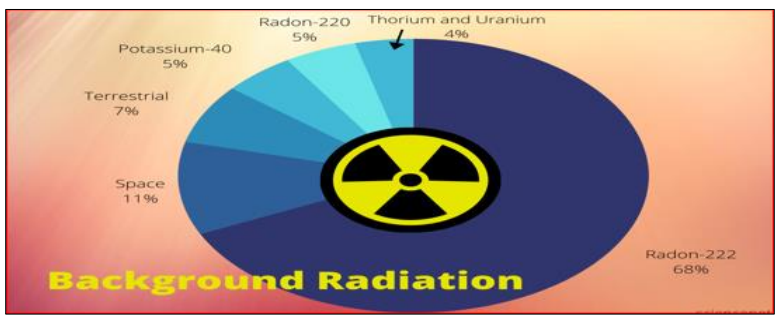


- **Seismic Waves :**
  - Seismic waves are the waves of energy **caused by the sudden breaking of rock within the earth.**
  - They are the energy that **travels through the earth** and is recorded on seismographs.
  - The **two main type**s of waves are body waves and surface waves.
- **Body Waves :**
  - These waves **travel into the body of the earth.**
  - These waves are somewhat like **sound waves.**
  - These are **faster than surface waves.**
  - **P-waves :**
    - **Move faste**r and are first to arrive at the surface.
    - Travel through gaseous, liquid, & solid materials.
    - High frequency and are the **least destructive.**
  - **S-waves :**
    - Arrive at the surface with some lag.
    - Travel only through **solid materials.**
- **Surface Waves :**
  - When the body waves interact with surface rocks, **a new set of waves is generated called surface waves.**
  - These waves **move along the earth's surface.**
  - Surface waves are also **transverse waves** in which particle movement is perpendicular to the wave propagation.
  - They are similar to waves on the **water surface.**
  - They are **last to report on seismographs.**
  - These waves are **more destructive.**

Background Radiation

❖ Context

➢ A recent study by scientists at the **Bhabha Atomic Research Centre (BARC)** found that certain areas in Kerala, India, are experiencing nearly three times more background radiation than previously assumed.



❖ Key Highlights:

- The higher radiation levels in Kollam district are attributed to the presence of monazite sands that are high in thorium, a natural radioactive element.
- Thorium is a common radioactive element that is found in small amounts in soil, rocks, and water.
- Monazite sands are one of the most important sources of thorium, & India has been using these sands as a source of nuclear fuel for many years.
- The study conducted by BARC scientists measured radiation levels from nearly 100,000 locations across India.
- The study found that the average natural background levels of gamma radiation in India were 94 nGy/hr. However, in Kollam district, the levels were found to be 9,562 nGy/hr, which is about 3-times more than the assumed levels.
- The human body is accustomed to higher doses of radiation, and there is no evidence to suggest that the higher levels of radiation in the Kollam district are causing any adverse health effects.
- The IAEA recommends that public exposure to radiation should not exceed 1 milli-Sievert every year & those who work in nuclear plants or are exposed to radiation by virtue of their occupation should not be exposed to over 30 milli-Sievert every year.
- This study sheds light on the natural radiation levels in India, which has important **implications for the country’s nuclear energy plans.**
- The findings of this study can help to inform policies and regulations related to nuclear energy in India & other countries

News in Between the Lines

Right to Information (RTI) Act, 2005

❖ **Context**

- Recently, The Supreme Court directed all high courts to set up RTI websites within three months, observing the online facilities will considerably facilitate the fulfillment of the objects of the Right to Information Act, 2005.

❖ **Right to Information (RTI) Act, 2005:**

- It was **enacted on 15 June 2005** and **amended in 2019**.
- It is the law that gives an ordinary citizen the right to ask questions to the government.
- It **dictates the government to provide a timely response** to the citizen who seeks it.
- **Objectives :**
  - To empower the citizens.
  - To promote transparency and accountability.
  - To curb corruption.
  - To enhance people's participation in the democratic process..
- **Important SectionS of RTI Act :**
  - **Section 2(f)**- Meaning of Information.
    - Any material in any form is considered information.
  - **Section 2(h**)- Meaning of Public Authority.
    - Any authority, body, or institution of self-government established or constituted is referred to as a "public authority."
  - **Section 4 :**
    - Requires suo motu disclosure of information by each public authority.
  - **Section 8 (1) :**
    - It mentions exemptions against furnishing information under RTI Act.
  - **Section 8 (2) :**
    - It provides for disclosure of information exempted under the Official Secrets Act, 1923 if a larger public interest is served.

Additional-Tier 1 (AT1) Bonds

❖ **Context**

- The **global banking system is under renewed pressure** after the Swiss government-brokered takeover of Credit Suisse by its larger rival UBS, after the deal wiped out the investment of bondholders who owned about $17bn (£14bn) of risky Credit Suisse debt.

❖ **Key Highlights:**

- In the takeover of Credit Suisse, the deal would trigger a "complete writedown" of the value of all of the bank's AT1 bonds.

❖ **AT1 Bonds:**

- AT1 bonds are **unsecured bonds that have perpetual tenor.**
- In other words, these bonds, issued by banks, **have no maturity date.**
- They have a call option, which can be used by the banks to buy these bonds back from investors.
- These bonds are **typically used by banks to bolster their core or tier-1 capital.**
- AT1 bonds are **subordinate to all other debt** and **only senior to common equity.**
- Mutual funds (MFs) were among the largest investors in perpetual debt instruments.
- These bonds are also **listed and traded on the exchanges.**
- Banks issuing AT-1 bonds can skip interest payouts for a particular year or even reduce the bonds' face value.
- In India AT-1 bonds are regulated by the **Reserve Bank of India (RBI).**
  - If the RBI feels that a bank needs a rescue, it can simply ask the bank to write off its outstanding AT-1 bonds without consulting its investors.

Call Before u Dig Application

❖ **Context**

- Recently, the Prime Minister of India launched the '**Call Before u Dig' (CBuD) app,** to facilitate **coordination between excavation agencies and underground utility owners** to prevent damage to utilities due to digging.

❖ **Key Highlights:**

- It is an initiative of the Department of Telecommunications, Ministry of Communications.

- It aims to **prevent damage** to underlying assets like optical fiber cables that occurs because of uncoordinated digging and excavation, leading to losses of about Rs 3,000 crore every year.
- It will save potential business loss and minimize discomfort to the citizens due to reduced disruption in essential services like road, telecom, water, gas and electricity.
- The PM inaugurated the new **International Telecommunication Union (ITU)** Area office and Innovation Centre.
- **ITU :** ITU was **founded in 1865** to facilitate international connectivity in communications networks.
  - ITU is the United Nations' specialized agency for information and communication technologies (ICTs).
  - Headquartered in **Geneva**, it has a network of field offices, regional offices and area offices.
  - **Members- 193 :**
    - Earlier, India got elected as a member of ITU Council for another 4-year term - from 2019 to 2022. India has remained a regular member since 1952.

Parkinson's Disease

❖ **Context**

- ➢ Findings of a recent scientific review found that **physical exercise can help to improve the severity of movement-related symptoms** and the quality of life in people with Parkinson's Disease.

❖ **Key Highlights:**

- Parkinson's disease is a **chronic and progressive neurological disorder** that affects the motor system of the human body.
- The incidence **increases with age,** with the highest rates of diagnosis occurring in people over the age of 60.
- It is **caused by the degeneration of neurons** in the brain which leads to deficiency of dopamine.
- Many studies have suggested that men are more likely to be affected by Parkinson's than women.
- **Symptoms :**
  - Parkinson's disease is primarily a motor disorder that affects movement, causing slowness and stiffness of body movements, including gait.
  - Initially, the disease affects one side of the body and gradually progresses to the other side.
  - It can impact their employability, ability to write, and drive.
- Currently, **no blood laboratory or radiological tests are available to diagnose Parkinson's disease.**
- It has no cure.

Corporal Punishment

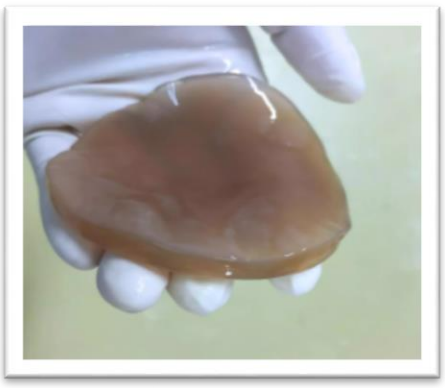
❖ **Context**

- ➢ A petition has been filed before the Delhi High Court challenging the provision in law for corporal punishment of jail inmates for acts of indiscipline.

❖ **Key Highlights:**

- Corporal punishment refers **to physical punishment inflicted upon someone**, usually as a means of discipline or correction.
- The plea argues that certain provisions of the Prisons Act provide for punishments like whipping, restriction of food, penal diet, handcuffs, fetters & substitution of gunny or other coarse fabric for clothing for prisoners which is demeaning & against the Constitution.
- The petition claims that such corporal punishments are dehumanising and degrading, gravely infringe upon prisoners' human and fundamental rights, and are discriminatory.
- India has ratified the **UN Convention against Torture and Other Cruel,** Inhuman or Degrading Treatment or Punishment and the International Covenant on Civil and Political Rights (ICCPR) says that all degrading treatment is prohibited.

Bacterial Cellulose (BC)



❖ **Context**

➢ BC is gaining popularity as a sustainable alternative to traditional materials like leather.

❖ **Key Highlights:**

- Bacterial cellulose (BC) is a biopolymer that can be produced by certain strains of bacteria.
- Unlike plant-derived cellulose, BC is free from impurities such as lignin and wax, making it a more pure and versatile material.
- It also has unique **mechanical properties and high water retention capacity,** making it useful in a variety of industries.
- Its use in the production of vegan leather products is increasing, as it is an eco-friendly and cruelty-free alternative to traditional leather, which is often associated with high water and chemical usage and methane emissions from livestock.
- In addition to its use in **fashion & textiles,** BC is also finding applications in biomedicine.
- BC can be used as a carrier for bioactive compounds such as antibiotics, and is emerging as a key material in wound dressings.
- One challenge in the production of BC is its relatively high cost.

Vedic Heritage Portal

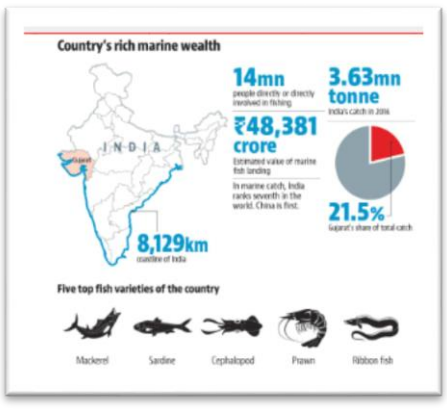
❖ **Context**

➢ Recently Union Home Minister inaugurated the Vedic Heritage portal.

❖ **Key Highlights:**

- It has twin agenda of helping researchers in a deeper understanding of the Vedic knowledge tradition and helping the common people to have a general understanding of the ancient scriptures.
- The portal will be hosted by the **Indira Gandhi National Centre for the Arts.**

Fish Production Increased



❖ **Context**

➢ The Minister of Fisheries, Animal Husbandry and Dairying, has informed the Lok Sabha recently said that fish production in India has increased to 162.48 lakh tonnes in 2021-22 from 141.64 lakh tonnes in 2019-20, boosted by the Pradhan Mantri Matsya Sampada Yojana (PMMSY).

❖ **Key Highlights:**

- Fish exports in value terms increased from over 46,662 crores to over 57,586 crore rupees during the same period.
- India is the **third-largest fish-producing country,** contributing eight per cent to global fish production.

❖ **About Pradhan Mantri Matsya Sampada Yojana (PMMSY):**

- The PMMSY is a scheme launched in 2020 with the aim of enhancing fish production and fisheries' sustainability, providing employment opportunities, and promoting entrepreneurship in the sector.
- The scheme targets to increase fish production to 220 lakh tonnes by 2024-25 and aims to double fishers and fish farmers' income by 2024.
- The PMMSY has two components: Central Sector Scheme (CSS) and Centrally Sponsored Scheme (CSS).
- The CSS is fully funded by the central government and focuses on the creation of fisheries infrastructure, such as fishing harbours, cold storages, and fish markets, among others.
- The CSS is implemented by the **Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying.**

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