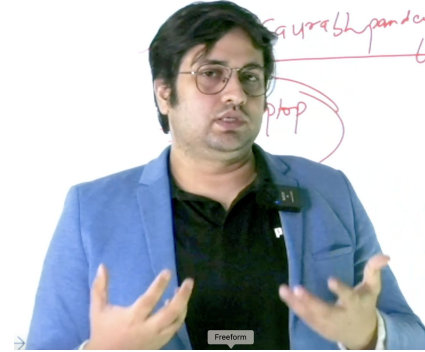


Topics - MINDS MAPS included



- The Kabini Dam
- A privilege motion
- Article 316 of indian constitution
- Tarang Shakti,
- Seine River
- Retroviruses /zombie gene
- Pandemic treaty
- AI Winter

Mains



By saurabh Pandey



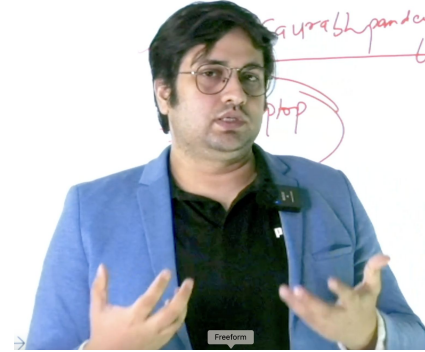
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Topics - MINDS MAPS included



- Large Language Models (LLMs)
- Indexation - cost inflation index

Mains



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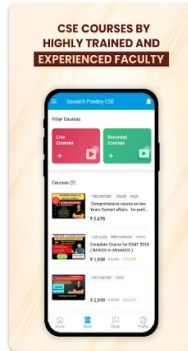
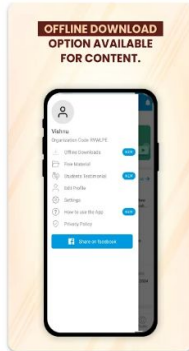
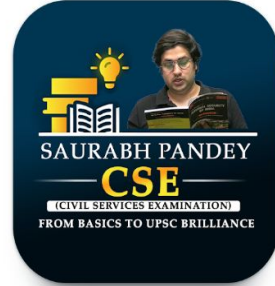
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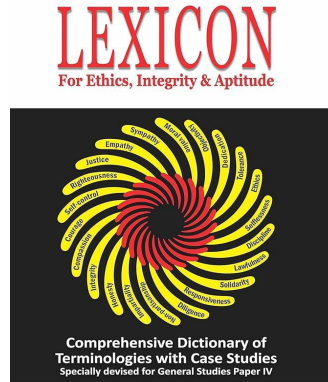
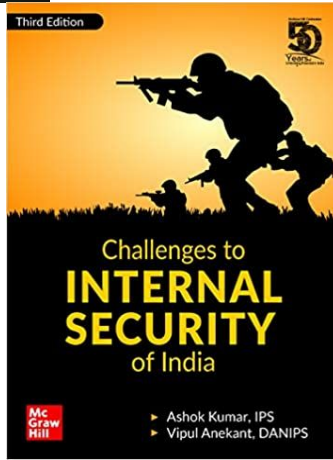
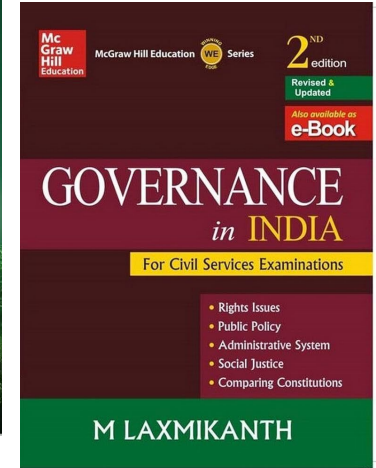
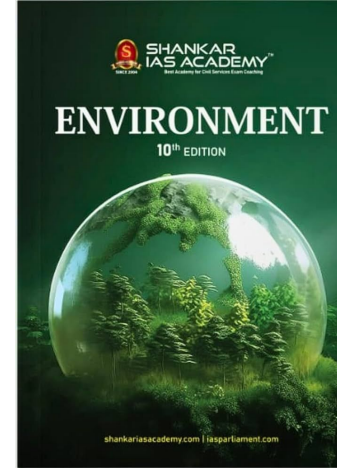
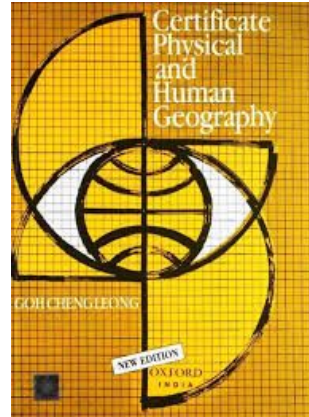
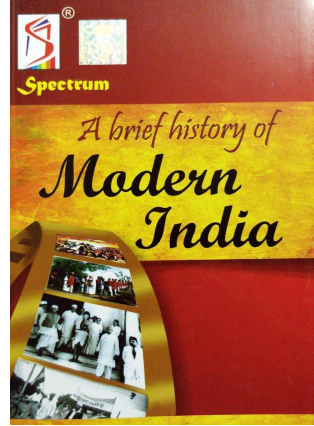
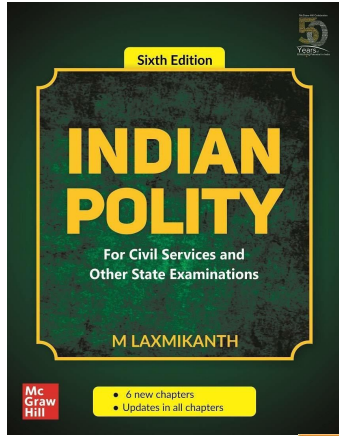
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Topic-The Kabini Dam

- **The Kabini Dam is a significant dam located in the southern Indian state of Karnataka.**
- **It is part of a larger irrigation project that plays a crucial role in the state's economy and agriculture.**
- **The dam is situated on the Kabini River, a tributary of the Cauvery River, and it is one of the several reservoirs that help manage the water resources in the region.**

Topic-A privilege motion



- **A privilege motion in the Indian Parliament is a serious charge brought against a member of Parliament (MP) or a minister for breach of parliamentary privilege or conduct that undermines the dignity of the House.**
- **It is a tool used to maintain the authority and dignity of the legislative body and to ensure that its members are able to perform their duties without undue interference or influence.**
- **The Constitution of India provides for the privileges and immunities of the Parliament and its members, which are essential for the smooth functioning of the democratic process.**
-

- **These privileges include freedom of speech and debate within the House, freedom from arrest in civil cases during sessions, and the right to regulate their own proceedings without external interference.**
- **When a member of the House feels that their privileges have been infringed upon or that there has been a breach of parliamentary conduct, they can raise a privilege motion.**
- **The motion is then debated in the House, and if it is found to be valid, the House can take appropriate action, which can range from a reprimand to the suspension or expulsion of the member.**

- **Privilege motions are governed by the rules and procedures of the respective Houses of Parliament (Lok Sabha and Rajya Sabha) and are taken very seriously due to their potential impact on the functioning of the legislature.**
- **They are a way for MPs to hold each other and the government accountable for maintaining the standards and integrity of parliamentary proceedings.**

The Privileges Committee



- **The Privileges Committee in the Indian Parliament is a special committee established to examine and report on matters related to the privileges of the House and its members.**
- **The committee is responsible for investigating any alleged breach of parliamentary privilege, which includes any conduct that undermines the dignity of the House or interferes with the ability of its members to perform their legislative duties freely.**
- **This committee consists of 15 members in Lok Sabha (10 in case of Rajya Sabha) nominated by the Speaker (Chairman in case of Rajya Sabha).**
- **In the Rajya Sabha, the deputy chairperson heads the committee of privileges**

- **The committee's composition and procedures are governed by the rules and practices of the respective Houses.**

The functions of the Privileges Committee include:

- **Receiving complaints or references related to breaches of privilege.**
- **Investigating the matter thoroughly, which may involve calling for evidence, examining witnesses, and reviewing documents.**
- **Reporting its findings and recommendations to the House.**
- **Advising the House on the action that should be taken against the individual or entity found to have breached privilege**

- **The Privileges Committee plays a crucial role in upholding the authority and dignity of the Indian Parliament and ensuring that its members can carry out their constitutional duties without fear of undue influence or interference.**
- **It is an important mechanism for self-regulation within the legislative branch of government.**

Topic-Article 316 of Indian Constitution



- **Article 316 of the Indian Constitution deals with the appointment and service conditions of the All India Services (AIS) and the Central Civil Services (CCS) officers.**
- **The All India Services include the Indian Administrative Service (IAS), the Indian Police Service (IPS), and the Indian Forest Service (IFoS), which are crucial for the administration of the country at both the central and state levels.**
- **Article 316 states that the appointment, promotion, and service conditions of the All India Services officers, including their transfer from one state to another, will be determined by the President of India in consultation with the Union Public Service Commission (UPSC) and the State Governments concerned.**

- **This provision ensures that the officers of the All India Services are not solely under the control of any one state or the central government but are governed by a uniform set of rules and regulations.**
- **The article also mentions that the Parliament can make laws regulating the recruitment, and the conditions of service of persons appointed to the All India Services and the Central Civil Services, which are services of the central government.**

Topic- Tarang Shakti,



- The Indian Air Force (IAF) is all set to host its largest multilateral exercise, Tarang Shakti, in two phases in August and September. Eighteen countries, 10 of them with air assets, will join the exercise, which will see a total of 150 aircraft, both foreign and IAF, soar into the skies over Suluur and Jodhpur.
- The exercise will be a landmark event and has no particular nation or theme “in mind”.
- “Invitations have been extended to 51 countries.
- Ten countries will be participating with assets and 18 as observers with one more country likely to join,
- Besides the observer countries, Germany, France, Spain, and the U.K. are scheduled to take part in Phase-1, while Phase-2 will see participation of Australia, Bangladesh, Greece, Singapore, the United Arab Emirates and the U.S.

- **Each phase of the exercise will see participation of 70-80 air assets. Phase-1 will be held from August 6-14 at Sullur in Tamil Nadu, and see participation of 32 foreign aircraft.**
- **Similarly, Phase-2, to be held from September 1-14 at Jodhpur, will see participation of 27 fighters, two refuelling aircraft, two airborne early warning aircraft, and four C-130 Special Forces aircraft from foreign countries,**

Topic- Seine River



- **The Seine River is a major river in France, flowing through the city of Paris and playing a significant role in the country's history, culture, and economy.**
- **It is approximately 777 kilometers (483 miles) long and is a vital waterway for transportation, tourism, and water supply.**
- **The Seine River has its source in the Langres plateau in the Haute-Marne department of northeastern France.**
- **It flows through various regions, including Champagne, before reaching the Paris region, where it becomes the Seine Maritime and eventually empties into the English Channel at Le Havre.**
- **Paris, one of the most visited cities in the world, is built on both banks of the Seine. The river is a central feature of the city's landscape, with many famous landmarks and historical sites situated along its banks, including the Louvre Museum, Notre-Dame Cathedral, and the Eiffel Tower.**
- **The Seine River has played a crucial role in the development of Paris and France.**

Topic -Retroviruses /zombie gene



- **Retroviruses have an RNA genome; can reverse-transcribe it to DNA and thus insert it into the host's genome.**
- **Their name comes from a unique enzyme they possess, called reverse transcriptase.**
- **It's the one with the ability to convert the virus's RNA into a corresponding DNA sequence.**
- **Teams led by Howard Temin at the University of Wisconsin-Madison and David Baltimore at the Massachusetts Institute of Technology reported its discovery in 1971. It spawned a widespread search for viruses that have this enzyme.**
- **The knowledge that these viruses could cause cancer was even then well-known, even if the mechanism wasn't clear until the 1971 teams' reports.**

- In the life cycle of a retrovirus, the reverse-transcribed DNA is integrated into the host's DNA along with another key enzyme called integrase,
- which acts like glue to bind the two DNA genomes.
- Once bound, the viral DNA is called a provirus, and is complete with all the ingredients it needs to be functional.
- At the end of this process, the virus practically hijacks human cells and turns them into virus-making factories.
- It's typically not possible for a person to inherit retrovirus infections or even the provirus because these integrations usually damage only a subset of cells.
- However, such genome invasions can sometimes mess up the integration process, causing 'zombie' regions in the host's genome.
- These parts are called endogenous retroviruses (ERVs). ERVs usually can't replicate and produce functional proteins since they lack their regulatory regions

- **A good example of their influence are the syncytins, a class of genes thought to be descended from an ERV.**
- **Syncytins are important genes involved in placental development; many ERVs are also highly expressed in the placenta.**

- **ERVs are also involved in cell-type differentiation.**
- **In the early stages of embryo development, cells transition from totipotency (the ability to become any cell type) to pluripotency (the ability to become the three primary germ cell types).**
- **This transition is important because it produces pluripotent stem cells that can form different cell types.**



- **Scientists recently discovered a protein called MERVL-gag derived from an ERV.**
- **They found MERVL-gag plays a key role in controlling some other proteins during this transition.**
- **They also found MERVL-gag works closely with another protein called URI, which helps the embryo transition from totipotency to pluripotency**

- **one human ERV element — or a portion of its DNA — called LTR10 significantly affects the formation of tumours in colorectal cancer.**
- **The LTR10 retroelement seems to have been integrated into the genome some 30 million years ago**

Topic -Pandemic treaty



- **The idea of a pandemic treaty or an international agreement on pandemic preparedness and response gained momentum following the COVID-19 pandemic, which highlighted the need for improved global cooperation and coordination in health emergencies.**
- **The WHO and various stakeholders have been working on proposals to strengthen international health regulations and mechanisms for pandemic preparedness and response.**



Key elements that might be included in a pandemic treaty or agreement could involve:

- **Enhanced surveillance and early warning systems to detect potential pandemics at their source.**
- **Improved mechanisms for sharing information and data, including genetic sequences of pathogens.**
- **Agreements on intellectual property rights for vaccines, treatments, and other medical countermeasures to ensure equitable access.**
- **Strengthened regulatory frameworks for the rapid development, approval, and distribution of health technologies.**
- **Commitments to increase funding for pandemic preparedness and research.**
- **Plans for coordinated international responses to health emergencies, including the deployment of resources and personnel.**
- **Guidelines for the management of borders and travel restrictions to balance public health concerns with economic and social impacts.**

- **The development of such a treaty or agreement is complex and requires negotiation and consensus among nations with different interests, priorities, and levels of development.**
- **There are also challenges related to sovereignty, as countries may be hesitant to cede control over their health policies to international bodies.**

The 77th World Health Assembly,

- **The 77th World Health Assembly, or WHA (May 27-June 1, 2024), in Geneva, witnessed two significant developments for global health governance.**
- **First, it agreed on a package of amendments to the International Health Regulations (IHR) 2005, drawn from 300 proposals for reform by governments of both the global north and south, and extensively negotiated over the last two years.**
- **The IHR amendments aim to enhance the ability of countries to prepare for and respond to Public Health Emergencies of International Concern (PHEIC) and introduce a new category for urgent international response – a Pandemic Emergency (PE).**

- **The amendments aim to ensure equitable access to health products during health emergencies and to mobilise financial resources to support developing countries in building and maintaining core health system capacities required under the IHR.**
- **Notably, the amendments emphasise solidarity and equity, while mandating the creation of a National IHR Authority for better coordination.**
- **Second, the 77th WHA extended the mandate of the Pandemic Treaty negotiating body, namely, the intergovernmental negotiating body (INB), stipulating that the proposed WHO Pandemic Agreement must be completed as soon as possible.**

- **Three key contentious issues** in the latest draft of the Pandemic Agreement remain significant obstacles to its adoption:
- a **pathogen access and benefit sharing (PABS) mechanism; technology transfer, local production, and intellectual property;**
- **and the One Health approach** which emphasises coordinated public health measures based on animal, human, and environmental health.

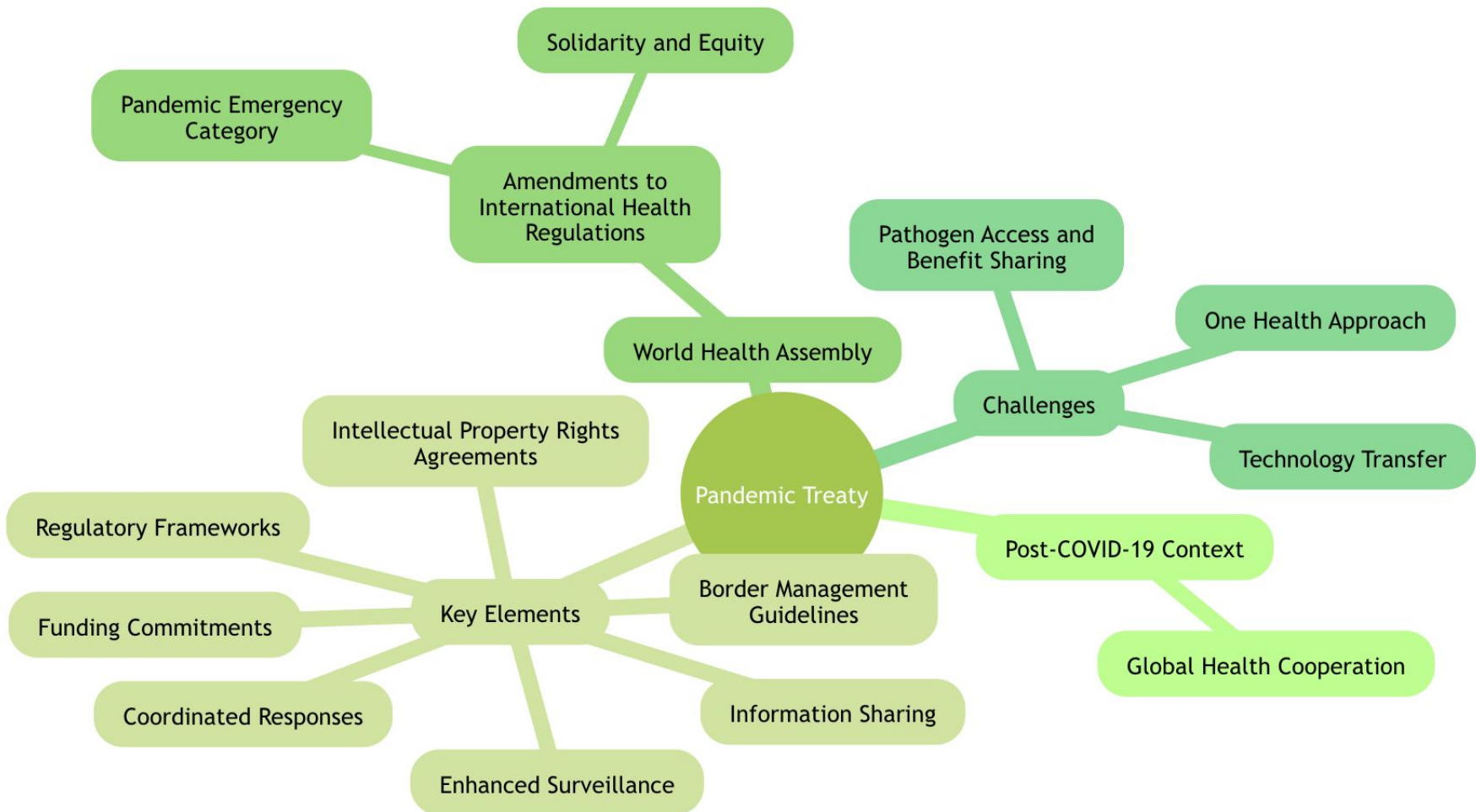
- The **most contentious issue** in the pandemic agreement negotiations has been the **Pathogen Access and Benefit Sharing (PABS) system in Article 12**, often seen as the “heart” of the agreement.
- The imperative for **PABS emerged in response to the gross inequities in treatment access and vaccine distribution** witnessed during the COVID-19 pandemic.
- The PABS system aims to ensure that **genetic resources and pathogen samples shared from developing countries** (which are the most likely sources for such pathogens), are **reciprocated with corresponding benefits such as vaccines and diagnostics** that result from research and development on samples and data provided from the Global South.

- The latest proposal suggests that **manufacturers of vaccines and diagnostics — primarily based in wealthy countries** — using genetic information from pathogens in low- and middle-income countries, would commit to donating a portion of their products to WHO for global distribution based on the principles of need and effectiveness.
- **Low- and middle-income countries (LMICs) are pushing for a guarantee of at least 20% of shared pandemic products**, while many high-income countries argue that 20% should be the maximum limit, and some rich countries will not even agree to 20%.

- **The transfer of technology, know-how, and skills is often a crucial step toward preparing for and responding to pandemics.**
- **Strong provisions for technology transfers and local production could potentially compensate for the failures in PABS negotiations.**
- **Above all, technology transfer and intellectual property waivers are needed to ensure diverse manufacturing capacities globally**

- Next to PABS, **the fierce division over governance of production and technology transfer**, and **its implications on intellectual property**, outlined in Articles 10 and 11, has significantly delayed negotiations.
- The central issue is the conditions for technology transfer to **“facilitate sustainable and geographically diversified production”** through mechanisms such as product information sharing and **use of WTO- Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) flexibilities** such as compulsory licensing.

- The draft Agreement requires **member states to adopt a pandemic preparedness and surveillance approach** that recognises the interconnection between the health of people, animals, and the environment and promotes a coherent, integrated, coordinated, and collaborative effort among all relevant organisations, sectors, and actors, as appropriate.
- **High-income countries, particularly the European Union, strongly support One Health.** However, LMICs view it as an unfunded mandate that imposes an additional burden on their already strained resources.



Pandemic Treaty

Key Elements

Intellectual Property Rights Agreements

Regulatory Frameworks

Funding Commitments

Coordinated Responses

Enhanced Surveillance

Border Management Guidelines

Information Sharing

Challenges

Pathogen Access and Benefit Sharing

One Health Approach

Technology Transfer

Post-COVID-19 Context

Global Health Cooperation

Amendments to International Health Regulations

Solidarity and Equity

Pandemic Emergency Category

World Health Assembly

Topic-AI Winter

- **AI winter refers to a period of reduced funding and interest in artificial intelligence (AI) research and development.**
- **The term is an analogy to the concept of a nuclear winter, suggesting a period of stagnation or decline in the field of AI.**
- **There have been two notable AI winters in the history of AI development:**
- **The first AI winter occurred in the late 1970s and early 1980s, following the Lighthill report in the UK and the ALPAC report in the US, which criticized the lack of progress in AI and the overhyped expectations that had led to significant public and private investments in the field.**
-

- **As a result, funding for AI research dried up, and many AI projects were abandoned.**
- **The second AI winter took place in the early 1990s, after a period of renewed optimism and investment in AI during the 1980s, particularly due to the success of expert systems.**
- **However, the limitations of these systems became apparent, and once again, funding for AI research decreased.**



- **During AI winters, many researchers and practitioners left the field, and progress in AI development slowed down.**
- **These periods were characterized by a lack of significant breakthroughs and a shift in public perception of AI from being a promising technology to one that was overhyped and under delivered.**

Topic- Large Language Models (LLMs)

- **Large Language Models (LLMs) are a type of artificial intelligence (AI) system designed to understand and generate human language.**
- **These models are "large" in the sense that they are typically trained on vast amounts of text data and consist of millions or even billions of parameters, which are the parts of the model that are adjusted during training to improve performance.**
- **LLMs are based on deep learning architectures, particularly Transformer models, which were introduced in a 2017 paper by Vaswani et al. The Transformer architecture allows for parallel processing of data, making it more efficient and effective for handling sequential data like text.**
-

Some of the most well-known Large Language Models include:

- **GPT (Generative Pre-trained Transformer) series by OpenAI, which includes GPT-3 (the third version), GPT-2, and GPT-4 .**
- **BERT (Bidirectional Encoder Representations from Transformers) by Google, which was designed for understanding the context of words in a sentence.**
- **T5 (Text-to-Text Transfer Transformer) by Google, which frames all NLP tasks as text-to-text problems.**
-

These models are used for a wide range of applications, including:

- **Text generation: Writing stories, articles, and poetry.**
- **Language translation: Translating text from one language to another.**
- **Question answering: Providing answers to questions based on provided text.**
- **Summarization: Creating concise summaries of longer texts.**
- **Sentiment analysis: Determining the sentiment or emotional tone behind text.**

Topic- Indexation - cost inflation index

- **Finance Minister Nirmala Sitharaman's announcement in the Union Budget about doing away with indexation for computing long-term capital gains (LTCG) tax has not drawn much enthusiasm.**
- **Indexation ensures that taxpayers are taxed on real gains than gains at prevailing prices, which are a result of general increase in prices, and not economic growth, during the course.**

The Cost Inflation Index (CII)

- **The Cost Inflation Index (CII) is an economic measure used in India to adjust the cost of acquisitions of certain assets for the impact of inflation over time. It is primarily used for computing long-term capital gains tax when a taxpayer sells an asset that has been held for more than 36 months.**
- **The CII is announced by the Central Board of Direct Taxes (CBDT) every year and is based on the Consumer Price Index (CPI) for urban non-manual employees for the month of April of a particular year.**
- **The index starts from a base year, and each subsequent year's index is calculated relative to the base year's index.**



- **The purpose of the CII is to provide a fair assessment of the increase in the value of an asset over time due to inflation, rather than just the nominal increase.**
- **When calculating capital gains, the taxpayer can inflate the purchase price of the asset using the CII to arrive at the indexed cost of acquisition.**
- **This indexed cost is then used to calculate the actual capital gain, which is the difference between the sale price and the indexed cost of acquisition.**
- **By using the CII, taxpayers can reduce their taxable capital gains, as the adjusted cost takes into account the erosion of the asset's value due to inflation. This effectively lowers the capital gains tax liability.**
- **The CII values are published annually, and taxpayers must use the index values for the year in which the asset was transferred or sold.**

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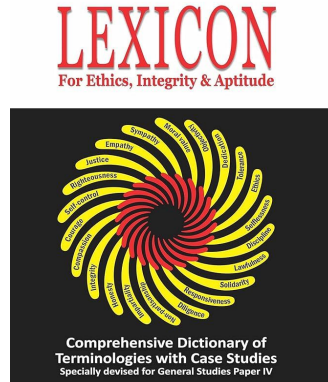
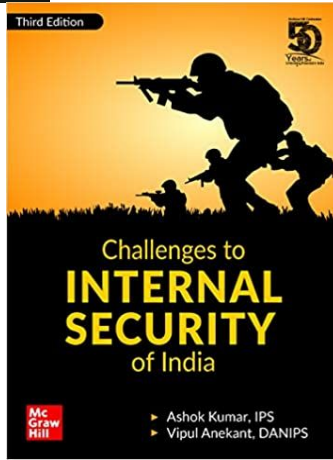
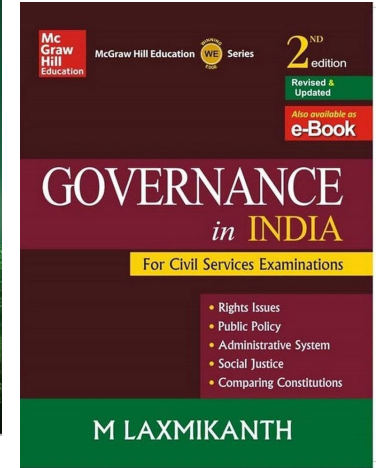
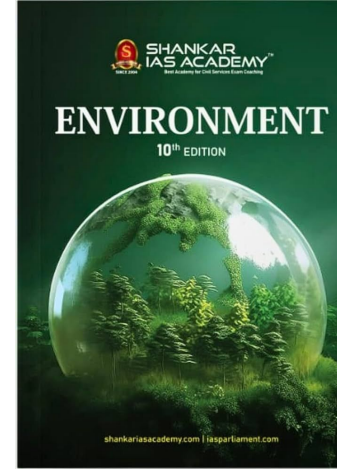
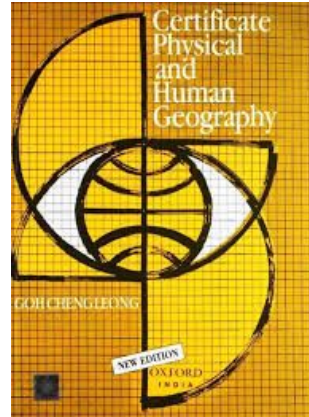
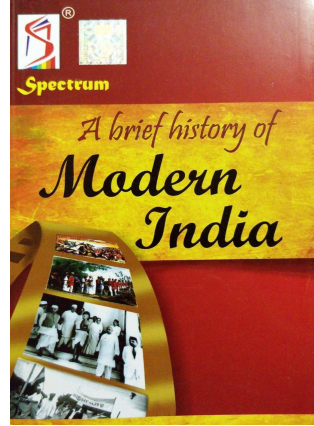
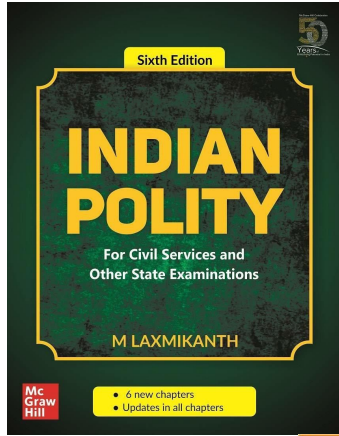
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