

POLITY AND GOVERNANCE

Context: Making necessary changes to the criminal justice system, to guarantee a fair, just, and effective criminal justice system, the new Bills that replace the IPC, CrPC, and IEA must be properly scrutinized by parliament.

Introduction

- The Indian Penal Code (IPC), 1860; the Code of Criminal Procedure (CrPC), 1973; and the Indian Evidence Act (IEA), 1872, which serve as the cornerstones of the criminal justice system, are to be replaced by three bills introduced by the government.
- The Parliamentary Standing Committee on Home Affairs is reviewing these bills. (The IPC will be replaced by the Bharatiya Nyaya Sanhita Bill, the CrPC by the Bharatiya Nagarik Suraksha Sanhita Bill, and the IEA by the Bharatiya Sakshya Bill.)

Criminal Justice System

- The network of public and private organizations that handle criminals who have been charged and found guilty is known as the criminal justice system. The criminal justice system is made up of several interconnected pillars, including the judiciary, forensic services, academia, law enforcement, and corrections.
- These pillars are designed to uphold the principles of justice under the law. Due process is the process by which the rights of individuals are forged with the government's corresponding obligation to uphold and defend those rights, leading to legal justice.
- Without the unwavering dedication of those employed by the criminal justice system, these constitutional rights cannot be granted and safeguarded. As a result, these professionals need to demonstrate consistent integrity in their character and submit to the ethical standards of the criminal justice system.
- This is made possible by a respectable code of professional ethics, which, when applied correctly, communicates competence, dependability, accountability, and general trustworthiness.

Concerns expressed by the Bills

- These Bills offer a chance for a revision of the laws that underpin the criminal justice system because they replace the Acts in their entirety and are not just Amendment Bills meant to close some gaps.
 - **This Indicates the following queries:**
 - Do they amend the legislation to incorporate contemporary jurisprudential ideas? How do the various special laws relate to these Bills?
 - Do they aid in clearing the criminal justice system's backlog?
 - Are different provisions and definitions clearly written and free of ambiguity?

Concerns about updating legal precedent

- First, are civil law exempt from these bills? Criminal law typically addresses matters deemed to be offenses against the state or larger society, whereas civil law addresses personal injury.
- The CrPC does, however, contain provisions for the maintenance of the wife and children following a divorce. Additionally, it permits the impacted party to compound some offenses, clearing the accused.
- Secondly, will these Bills establish a system of punishment or reform? The practice of using community service as a kind of punishment is a step in the right direction.
- Nonetheless, a number of infractions (like operating an unauthorized lottery office, which has a maximum sentence of six months in jail) are not compoundable, which implies that they will experience the trial and conviction process.
- Third, should the criminal justice system and public order maintenance be included in the same legislation? The CrPC includes sections that outline the arrest and trial procedures as well as items like Section 144 that give the district magistrate the authority to impose different kinds of limitations. This structure remains in the new Bill.
- Fourth, have the various orders issued by the Indian Supreme Court been incorporated into these proposed laws? The Bill formalizes the process for requesting mercy. Nevertheless, different guidelines pertaining to arrests and bail have not been codified.
- The fifth question is if the Bills make an effort to guarantee uniform application. Penalties for offenses usually specify a range, and the judge is expected to determine the sentence within the range according to the particulars of each case.

- Sixth, if the age restrictions have been modified to reflect contemporary standards. A child under the age of seven cannot be charged with a crime, according to the IPC. If it is determined that the child has not yet developed the mental capacity to comprehend the nature and repercussions of his actions, the exemption is valid until the age of twelve.

Inconsistencies and duplications among the laws

- The main law outlining offenses and punishments was passed in 1860 and is known as the IPC. Since then, a number of laws have been passed to address particular offenses.
- Nonetheless, some of these offenses and the corresponding punishments are still listed in the IPC and the Bill that will replace it.
- This causes these laws to be inconsistent and redundant. Penalties can vary in certain situations, and an individual may be prosecuted under separate statutes for the same offense.
- This has been dealt with in certain instances. For instance, the Legal Metrology Act, 2009 eliminates the IPC's weights and measures provisions, which were previously stated to not apply.
- The Bill, like the IPC, does, however, have some overlap with other Acts, including those concerning bonded labour, the sale of adulterated drugs, adulterated food, and reckless driving.
- The Medical Termination of Pregnancy Act, 1971 permits abortions under certain conditions, but it is still illegal overall. Although a special Act was passed in 2007 regarding this, the provision requiring maintenance of a parent is still present in the Bill replacing the CrPC.

Drafting and Definitions

- A person with a mental illness is generally exempt from prosecution under the Bill that replaces the IPC (this was previously known as unsound mind).
- The Mental Healthcare Act of 2017 maintains the same definition of mental illness.
- This Act covers alcohol and drug abuse as well as mental retardation or incomplete development because its goal is to provide medical treatment to people with mental illness.
- As a result, the new Bill will fully exempt those who are addicted to drugs or alcohol, but it will not exempt those who suffer from mental retardation and are unable to comprehend the consequences of their actions.
- The three laws' provisions were explained with numerous examples from everyday life. Even though some of these illustrations are no longer relevant, they are still kept.
- These consist of people being carried on palanquins, firing cannons, and riding chariots. It could be helpful to bring these illustrations up to date with current events.

Conclusion

The foundation of the criminal justice system will be these bills. To guarantee the establishment of an equitable, just, and effective criminal justice system, Parliament should carefully review these measures.

ENVIRONMENT

Context: India's Energy Conservation Building Code, 2017, Government policies and interventions for development in various sectors and issues arising out of their design and implementation

Why in News?

- The World Energy Outlook 2023 report by the International Energy Agency (IEA) has highlighted that India is unique among developing economies due to its implementation of the Energy Conservation Building Code (ECBC) of 2017.
- According to the IEA, India stands out among developing nations due to its stringent regulations governing energy efficiency in commercial buildings. This contrasts with many other developing nations where building energy efficiency standards are less developed.

The International Energy Agency: What is it?

- Founded in Paris, France, in 1974, the International Energy Agency is an independent intergovernmental organization. The primary areas of concentration for the IEA are its energy policies, which cover environmental preservation, energy security, and economic growth.
- The three E's of IEA are another name for these guidelines. Although India had interactions with IEA long before it was officially affiliated with the organization, it only became an Associate member in March 2017.

- India and the IEA recently signed a Strategic Partnership Agreement to improve collaboration in the areas of global energy security, stability, and sustainability.
- The IEA publishes the World Energy Outlook Report once a year.
- In order to help coal, meet the UN Sustainable Development Goals, the IEA Clean Coal Center is committed to offering unbiased information and analysis on the subject.

What is the 2017 edition of India's Energy Conservation Building Code (ECBC)?**About:**

- The ECBC was first made available in 2007 by the Bureau of Energy Efficiency (BEE) of the Ministry of Power. An update was then released in 2017.
- As of right now, 23 states have issued notifications enforcing ECBC compliance; however, big states like Gujarat and Maharashtra are still in the process of formulating regulations.
- With the goal of enabling energy savings of between 25 and 50% in compliant buildings, ECBC establishes minimum energy standards for commercial buildings.
- The code is applicable to commercial structures with a connected load of 100 kW or more, or a contract demand of 120 kVA or more, such as hospitals, hotels, schools, shopping centres, and multiplexes.

Emphasis

- The envelope (walls, roofs, and windows), lighting systems, HVAC (heating, ventilation, and air conditioning) systems, and electrical power systems are the six main areas of building design that the ECBC in India focuses on.
- There are prescriptive and mandatory requirements for these elements. Both newly constructed buildings and buildings that are being retrofitted are subject to the code.
- ECBC, ECBC Plus, and Super ECBC are the three tags given to compliant buildings, arranged in ascending order of efficiency

Role of ECBC:

- The implementation of energy-efficient building codes, such as ECBC, is crucial because buildings in India currently consume 30% of all electricity, a percentage that is predicted to rise to 50% by 2042.
- In addition, BEE points out that 40 percent of the buildings that will be constructed over the next 20 years have not yet been constructed, providing policymakers and builders with a rare chance to guarantee that they are constructed sustainably.

Changes between 2007 and 2017:

- Other priorities include ease of compliance, integration of renewable energy, and inclusion of passive building design strategies in the 2017 update of ECBC.
- It also highlights designers' flexibility. This is a major change from the 2007 version and is in line with the global movement towards energy efficiency and sustainability.

Where Do States Stand in ECBC Implementation?

- Only 15 of the 28 states—including Kerala, Uttar Pradesh, Punjab, Karnataka, Andhra Pradesh, and Telangana—have ratified the most recent version of the 2017 (ECBC) regulations.
- Yet, these regulations have not yet been put into effect in Gujarat, Maharashtra, J&K, Ladakh, and Manipur, thus they are losing out on possible energy savings.
- According to the National Research Development Corporation, with effective ECBC compliance, Gujarat alone might save 83 terawatt-hours of energy by 2030.
- Karnataka led the state in terms of energy efficiency in buildings according to the State Energy Efficiency Index (SEEI) of 2022, with Telangana, Haryana, Andhra Pradesh, and Punjab following closely behind.
- Conversely, Bihar received the lowest score and was listed among the five states with the lowest energy efficiency in the country, along with Odisha, West Bengal, Tamil Nadu, and Jharkhand.

Which government initiatives support energy efficiency and conservation?

- Perform Achieve and Trade (PAT) Scheme: By certifying energy-saving measures that can be exchanged, PAT is a market-based mechanism that improves the cost-effectiveness of increasing energy efficiency in energy-intensive industries.
- As one of the eight missions under the National Action Plan on Climate Change (NAPCC), it is a component of the National Mission for Enhanced Energy Efficiency (NMEEE).

Labelling and Standards:

- Since its inception in 2006, the program has been applied to the following equipment and appliances: computers, ceiling fans, colour televisions, direct-cool refrigerators, fixed- and variable-speed room air conditioners, general-purpose industrial motors, LED lamps, agricultural pump sets, etc.

Management of Demand Side (DSM):

- The choice, preparation, and execution of actions meant to impact the demand side, or customer side, of the electric meter constitute DSM.

The Way Ahead

- According to the IEA, India is one of the few developing nations with building codes for both residential and commercial structures, and consistent enforcement of these codes can result in significant energy savings for the industry.
- The Energy Conservation (Amendment) Act, which was passed by India in 2022, also broadens the scope of the nation's building codes.
- The Energy Conservation (Amendment) Act, 2022 incorporates provisions pertaining to embedded carbon, net zero emissions, materials and resource efficiency, deployment of clean energy, and circularity, thereby transforming the Energy Conservation and Sustainability Building Code (ECB) into the Energy Conservation and Sustainability Building Code.

PRELIM FACTS

1. Baler Machine

➤ **Context**

- The Baler machine has been in demand in Punjab with the problem of farm fires being taken up by the Supreme Court.
- Currently, Punjab has around 32 lakh hectares of rice fields. Depending on how many days they operate, only 15-18% of this area can be covered by the available balers in the state.

➤ **About Baler machine**

- It facilitates ex situ (off site) stubble management.
- It compresses agricultural residue into manageable and transportable bales.
- Baler machines have been around for a decade, and currently around 2,000 of them operate in Punjab.
 - Of these 1,268 are highly subsidised (50-80%) under the Centre's Crop Residue Management (CRM) scheme.

➤ **Need**

- Upon harvesting, the paddy crop leaves a stubble on the ground. Farmers need to get rid of this stubble before the next crop can be sown.
- Farmers burn the stubble, the smoke from which becomes one of the largest air pollutants each year.
- More environment-friendly methods include incorporation of the stubble into the soil using machines such as super seeders (in situ management).
- However, farmers say this leaves fields vulnerable to insect attacks, necessitating the use of toxic insecticides.
- For many, ex situ management is preferable. This is where baler machines come in.

Do you know ?

– Before using a baler machine, farmers cut the crop residue with a tractor-mounted cutter. After two days of drying, a rake arranges the stubble in straight lines. A tractor-mounted baler machine then compresses the stubble into compact bales using netting. These bales are transported to factories or dumping sites.

– In fields where balers are used, farmers can immediately plough the field and sow the next crop.

A. Most balers in Punjab create cylindrical or rectangle bales weighing 25-30 kg, though bigger machines are also available.

2. Broadcasting Services Bill

➤ **Context**

- I&B Ministry releases draft Broadcasting Services Bill for public consultation.

➤ **Scope of the Bill**

- The proposed bill aims to replace the Cable and TV Act.

- Bill expand Cable and TV act scope to cover a wide range of broadcasting services, including Direct-to-Home (DTH), Over-the-Top (OTT) platforms, Digital Media, and Internet Protocol Television (IPTV).
- **Features of Bill**
 - **Modernization:** The draft bill is intended to modernize the regulatory framework by replacing outdated Acts, Rules, and Guidelines. This could involve adapting regulations to accommodate emerging technologies and changing consumer preferences.
 - **Innovations in Self-Regulation:** It proposes the establishment of 'Content Evaluation Committees' for robust self-regulation. Additionally, there is mention of transforming the Inter-Departmental Committee into a broader 'Broadcast Advisory Council' to encourage inclusive decision-making.
 - **Accessibility Guidelines:** The draft bill includes "comprehensive accessibility guidelines" to address the needs of differently-abled users. This reflects a commitment to ensuring that broadcasting services are accessible to a diverse audience.
- **Significance**
 - **Ease of Doing Business:** The bill aligns with the government's objective of promoting the ease of doing business. This suggests an intention to create a regulatory environment that encourages growth and innovation in the broadcasting sector.

3. Indo-Pacific Maritime Domain Awareness (IPMDA)

- **Context**
 - The Chief of the Naval Staff Admiral emphasized the pivotal role of establishing networks and partnerships like the Indo-Pacific Maritime Domain Awareness (IPMDA) in safeguarding the security and stability of the Indian Ocean Region.
- **About**
 - IPMDA is a collaborative effort by the Quad nations to monitor and enhance maritime security in the Indo-Pacific, with a focus on real-time awareness, comprehensive coverage, and regional cooperation.
 - **Introduced by:** Quad group during the 2022 Tokyo summit.
 - **Objective:** The initiative aims to monitor "dark shipping" and provide a comprehensive, real-time maritime overview of partner nations' waters.
 - **Dark shipping** refers to vessels that engage in illegal or suspicious activities like smuggling, human trafficking, illegal fishing, and transporting illicit goods.
 - **Geographical Focus:** IPMDA focuses on integrating the Pacific Islands, Southeast Asia, and the Indian Ocean region (IOR) within the broader Indo-Pacific framework.
 - **Security and Stability:** The primary objective of IPMDA is to enhance the security and stability of the Indo-Pacific region, which holds a central place in global geopolitics.
 - **Comprehensive System:** IPMDA seeks to establish a comprehensive system for monitoring and securing maritime activities in the Indo-Pacific.
 - **Critical Sea Lines of Communication:** It aims to ensure the safety of critical sea lines of communication in the region.
 - **Promoting Cooperation:** IPMDA encourages cooperation among like-minded nations in the Indo-Pacific, fostering a collaborative approach to maritime security.
 - **Global Geopolitical Significance:** The initiative acknowledges the Indo-Pacific's crucial role in global geopolitics, emphasizing the need for collective efforts in maintaining regional security.

4. QS World University Rankings: Asia 2024

➤ **Context:**

Recently, the global higher education think-tank Quacquarelli Symonds has released the QS Asia University Rankings: Asia 2024, including 148 universities from India in the comprehensive list of 856 universities across Asia.

➤ **What is QS World University Rankings?**

- QS World University Rankings are released annually by Quacquarelli Symonds (QS).
- The rankings evaluate the performance and quality of universities worldwide.
- The methodology considers indicators such as academic reputation, faculty-student ratio, employer reputation, sustainability, employment outcomes, international research network, citations per faculty, international faculty ratio, and international student ratio.

- They provide rankings by subject, region, student city, business school, and sustainability.
- **What are the Key Highlights of the QS World University Rankings: Asia 2024?**
- **Top Ranking Universities:**
 - Peking University (China) topped the list, followed by the University of Hong Kong (Hongkong) and National University of Singapore (NUS) (Singapore).
- **Indian Universities' Performance:**
 - IIT Bombay retains its top ranking in India and is ranked 40th in Asia.
 - Seven Indian institutions are among the top 100 in Asia, with five of them being Indian Institutes of Technology (IITs), along with the Indian Institute of Science, Bangalore, and Delhi University.
 - The increasing visibility of Indian universities in international rankings reflects the expansion of India's higher education landscape and its contributions to global research.
- **India Surpasses China:**
 - India has surpassed China in the number of universities featured in the QS World University Rankings: Asia 2024, indicating a significant increase compared to the previous year, with 37 new entries from India, while China had only seven new entries.
- **India's Strengths and Challenges:**
 - While India performs well in terms of research output and highly qualified faculty members with PhDs, it falls below the regional average in academic and employer reputation.
 - India's research output has increased significantly, showing a 60% increase from 2018 to 2022, more than double the global average.
 - However, the growth gap with China is narrowing, with India catching up in terms of research output.
- **What are the Indian Initiatives Related to Education and Research?**
- **Institutions of Eminence (IoE) Scheme:**
 - It is a government's scheme to provide the regulatory architecture for setting up or upgrading of 20 Institutions (10 from public sector and 10 from the private sector) as world-class teaching and research institutions called 'Institutions of Eminence'.
- **National Education Policy, 2020:**
 - It aims to introduce several changes in the Indian education system - from the school to college level and make India a global knowledge superpower.
- **Impacting Research Innovation and Technology (IMPRINT):**
 - It is a first-of-its-kind Pan-IIT and IISc joint initiative to develop a new education policy and a roadmap for research to solve major engineering and technology challenges that India must address and champion to enable, empower and embolden the nation for inclusive growth and self-reliance.
- **Uchhatar Avishkar Yojana (UAY):**
 - It was announced with a view to promote innovation of a higher order that directly impacts the needs of the industry and thereby improves the competitive edge of Indian manufacturing.

5. Dolly the sheep

➤ **Context:**

Ian Wilmut, the British embryologist renowned for leading the team that created Dolly the Sheep, the world's first cloned mammal from an adult cell, has passed away recently.

➤ **About Dolly:**

- Dolly the Sheep, born in 1996, marked a significant scientific breakthrough in the 20th century. Wilmut, along with his team, accomplished the unprecedented feat of making an adult cell behave like a cell from a newly fertilized embryo, resulting in the creation of an animal genetically identical to the donor.
- They achieved this by taking a cell from the mammary gland of a deceased adult sheep, stimulating it with electricity and chemicals to transform its DNA into an embryo, and then implanting it into an empty sheep's egg, which was later placed into a surrogate sheep.
- Dolly's birth raised ethical debates about cloning research, and it prompted then-U.S. President Bill Clinton to announce a ban on human cloning experiments about a year later.
- Dolly's life was tragically short-lived, as she developed an incurable lung tumour and was euthanized by scientists about six years after her birth.

Following the success of the Dolly experiment, Wilmut shifted his focus to using cloning technology to create stem cells for potential use in regenerative medicine. His research played a crucial role in advancing treatments for genetic and degenerative diseases by aiding in tissue repair within the human body.

ANSWER WRITING

Q. with the launch of Project Cheetah, India's efforts to conserve endangered species take an ambitious turn. Examine critically whether it is necessary to reintroduce extinct species in this situation

India's cheetah relocation initiative, known as Project Cheetah, was started seven decades after the last member of the species became extinct in the nation. The plan is to introduce 5–10 animals annually for the following ten years or until a self-sufficient population of approximately 35 cheetahs is created. The animals are being moved as part of the initiative from Namibian and South African forests to Madhya Pradesh's Kuno National Park.

Arguments in support of Project Cheetah's launch include:

- **Diversify India's wildlife:** The country is working to revitalize and diversify its wildlife and ecosystem, and one step towards that goal is the release of wild cheetahs in Kuno National Park. The spotted cat will contribute to biodiversity conservation.
- **Restoration of the Ecosystem:** In order to increase the cheetah's conservation value across the nation, the translocation vision also seeks to establish broad open systems and restore grasslands. Additionally, it will improve ecosystem services that support human living, such as soil moisture conservation, carbon sequestration, and water security.
- **Encourage tourism:** The existence of endearing and recognizable animals can also encourage travel, which will help the community's economy and create jobs. This will increase India's ecotourism. Therefore creating fresh opportunities for growth.
- **Increase genetic variety:** Replacing extinct species can increase genetic diversity, which is important for ecosystem health and long-term species survival and adaptation.
- **The process of rehabilitating predators is lengthy:** The initiative in India is progressing favorably beyond the preliminary estimates made prior to the animals' translocation, according to the Cheetah Conservation Fund, which is supporting the Indian government in its efforts to reintroduce cheetahs to the nation. Following the start of Project Tiger fifty years ago, the tiger population has at last attained the 3,000 milestone. As a result, the project's success can only be assessed over an extended period of time.

Arguments against Project Cheetah's launch include:

- **Unsuitable habitat:** Many wildlife and conservation specialists have also criticized the initiative, arguing that Kuno National Park would not be a suitable habitat for supporting a big cheetah population. This is because, in order to be able to move freely, cheetahs usually need habitats that are large—thousands of square miles. It is anticipated that Kuno will be smaller than 500 square miles.
- **Conflict between humans and animals:** Critics have drawn attention to the cheetah's needs in terms of habitat ecology and space, as well as the possibility of conflict with humans and other carnivores like tigers and leopards when they disperse widely.
- **Insufficient scientific investigation:** The cheetah is the only known example of an animal species that has become extinct in India as a result of man-made causes. Therefore, in order to maintain the sustainability of cheetahs and their prey, scientific research on the ecological interactions between habitat composition, habitat quality, and demography is essential.
- **Adverse effects on the species** When animals are moved across continents, they may experience worry and anxiety and find it difficult to adjust to their new surroundings. Multiple deaths among the transported cheetahs serve as an example of this.
- **Limited resources:** considering the lack of funding for development in India and the dismal track record of these initiatives worldwide, the restoration of the cheetah could be seen as an extravagant luxury and a pointless project.

Conclusion:

A lengthy list of actions has been taken to ensure sustainability and environmental protection, including the historic reintroduction of cheetahs to India. Ensuring the long-term survival of the species and tackling the major obstacles will be necessary for the initiative to be successful.

MCQs

1. Kadaknath Chicken, which has received the Geographical Indication (GI) tag, is a native of:
 - a) Gujarat
 - b) Odisha
 - c) **Madhya Pradesh**
 - d) Karnataka
2. Consider the following statements regarding Vampire Viruses:
 1. They are pathogens that attach to other viruses in order to replicate themselves.
 2. They emerge when a bacteriophage attaches to a soil-based virus.
 Which of the statements given above is/are correct?
 - a) 1 only
 - b) 2 only
 - c) **Both 1 and 2**
 - d) Neither 1 nor 2
3. Consider the following statements regarding Lake Titicaca:
 1. It is the highest navigable water body in the world.
 2. It is located in the Rocky Mountains of North America.
 Which of the statements given above is/are correct?
 - a) 1 only
 - b) **2 only**
 - c) Both 1 and 2
 - d) Neither 1 nor 2
4. Exercise CORPAT is conducted between India and:
 - a) France
 - b) Russia
 - c) Japan
 - d) **Bangladesh**
5. Consider the following statements regarding Auroras:
 1. It results when the sun's electrically-charged particles interact with Earth's magnetosphere.
 2. Earth is the only planet in the Solar system that experiences Auroras.
 Which of the statements given above is/are correct?
 - a) **1 only**
 - b) 2 only
 - c) Both 1 and 2
 - d) Neither 1 nor 2
6. Consider the following statements regarding the Radiative cooling:
 1. It is a passive cooling technology without any significant energy consumption.
 2. It can be used to manufacture paints that are engineered to cool structures like buildings.
 Which of the statements given above is/are correct?
 - a) 1 only
 - b) 2 only
 - c) **Both 1 and 2**
 - d) Neither 1 nor 2
7. The Mount St Helens is located in:
 - a) **North America**
 - b) Africa
 - c) Europe
 - d) Antarctica
8. 'India Finance Report' was released recently by
 - a) Reserve Bank of India
 - b) NITI Aayog
 - c) **Centre for Advanced Financial Research and Learning (CAFRAL)**
 - d) Ministry of Finance
9. Consider the following statements about 'Five-hundred Aperture Spherical Telescope (FAST)'
 1. It is the world's largest and most sensitive radio telescope located in Chile
 2. It aims to join the International Very-Long-Baseline Interferometry Network to obtain hyperfine structures of celestial bodies
 Choose the correct statement(s)
 - a) 1 only
 - b) **2 only**
 - c) Both 1 and 2
 - d) Neither 1 nor 2
10. Consider the following statements:
 1. India does not have a fixed parliamentary calendar.
 2. The longest session of Parliament is the Budget session.
 Which of the statements given above is/are correct?
 - a) 1 only
 - b) 2 only
 - c) **Both 1 and 2**
 - d) Neither 1 nor 2