

THE PALA CIVIL TIMES



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P2. NATIONAL



Two die in ammonia gas leak at T.N. seafood unit -An industrial accident at a shrimp processing unit exposed workers to leaked ammonia refrigerant, leading to deaths and scrutiny of safety compliance.

P4. NATIONAL



Police begin collecting DNA records under 2022 law : - A unified national platform integrating fingerprints, facial recognition, iris scans, DNA records, and video analytics for scientific criminal identification.

P5. CONTOURS



The lack of accountability within the NTA- The paper leak controversy highlighted how a single compromised exam can disrupt admissions for more than 22 lakh candidates.

P7. SCIENCE



What is Google's Project Nimbus?
- A billion-dollar cloud computing contract between Israel, Google, and AWS that has become a flashpoint over surveillance

Editor's Note

Security is a fundamental prerequisite for development, much like a strong foundation is essential for building resilient infrastructure. In today's edition of the Pala Civil Times, we examine a range of security challenges—biological, structural, technological, and geopolitical—and explore how effective governance can address them.

On the national front, we analyse the recent ammonia gas leak in Tamil Nadu, focusing on its causes, consequences, and safety measures. The Contours page discusses vulnerabilities in India's national entrance examination system and possible reforms to strengthen accountability and resilience. Our Decoded editorials examine the geopolitical risks arising from disruptions to global supply chains through strategic maritime chokepoints such as the Strait of Hormuz. In the Science section, we explore the Project Nimbus controversy and its wider implications for cloud computing, data security, surveillance, and digital governance.

As you read, look for the common themes of security, transparency, accountability, and sustainable development that connect these diverse issues. Happy reading.

Editorials Decoded

 **The IndianEXPRESS**

When doctors can move, healthcare benefits



The state removed separate registration and NOC requirements, allowing doctors registered anywhere in India to practise immediately in Andhra Pradesh.

THE HINDU

Changed reality



Maritime chokepoints, particularly the Strait of Hormuz, demonstrate how control over strategic sea routes influences global trade

Two die in ammonia gas leak at T.N. seafood unit

Two migrant workers from Odisha lost their lives and more than 60 workers were hospitalized following an ammonia gas leak at Peter & Paul Seafood Exports Pvt. Ltd. in Tiruvallur district, Tamil Nadu. The company processes and exports shrimps and reportedly had a history of industrial safety violations. Investigations found the absence of a proper alarm system, fire hydrant, and Form 12 records under the Employees' State Insurance (ESI) framework. The factory had also installed additional equipment without obtaining revised regulatory approvals, raising serious concerns about workplace safety compliance.

Why Ammonia is Widely Used in Food Processing

Ammonia (NH_3) is a colourless gas with a strong pungent odour and is one of the most widely used refrigerants in food processing and cold storage industries. It maintains temperatures ranging from fresh produce chilling to ultra-low freezing. Ammonia absorbs significantly more heat per kilogram than many synthetic refrigerants, making it highly energy efficient and cost-effective. However, accidental leaks can be dangerous. Since ammonia readily reacts with moisture, exposure can quickly irritate the eyes, nose, throat, and lungs, causing breathlessness, coughing, chest discomfort, and severe respiratory distress, as seen in the Tiruvallur incident.



Government Response and Investigation

Following the incident, Tamil Nadu Chief Minister C. Joseph Vijay announced compensation of ₹2 lakh to the families of the deceased workers and ordered a high-level inquiry. A three-member committee comprising the Director of Industrial Safety and Health, the Member Secretary of the Tamil Nadu Pollution Control Board, and the Additional Director of Public Health was constituted. The committee was directed to submit an interim report within 24 hours and a final report within three days. The government also ordered immediate joint inspections of hazardous industries across the State to prevent similar industrial accidents in the future.

RELEVANCE

GS III :Disaster and disaster management.

Form 12 under the ESI Framework

The incident brought attention to Form 12 maintained under the Employees' State Insurance (ESI) system. Form 12 is the Accident Report that employers must submit to the concerned ESI authorities within 24 hours in cases where accidents may result in death or disability. The absence of a Form 12 register at the factory became a major compliance issue because it reflected deficiencies in accident reporting and worker safety management.

Legal Action under Section 105 of the Bharatiya Nyaya Sanhita

The factory owner and manager were arrested under Section 105 of the Bharatiya Nyaya Sanhita (BNS), which corresponds broadly to the earlier IPC Section 304 dealing with culpable homicide not amounting to murder. The provision applies when a person's actions cause death either with the intention of causing death or with the knowledge that such actions are likely to result in death. Depending on the circumstances, punishment may range from imprisonment up to ten years to life imprisonment along with fines. The offence is cognizable, non-bailable, and triable by a Court of Session, reflecting the seriousness of industrial negligence resulting in loss of life.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. The National Policy on Disaster Management envisages a paradigm shift from hitherto reactive post-disaster relief centric regime to more pro-active and enabling environment. Examine the responses of State Governments in this regard. (PUBLIC ADMINISTRATION OPTIONAL Paper 2 – 2019)

Can police re-open probe without court approval?

When an FIR is registered, the police conduct an investigation by collecting evidence, examining witnesses and determining whether an offence has been committed. After completing the investigation, they must submit a final report to the Magistrate under Section 173(2) of the Code of Criminal Procedure (CrPC). If sufficient evidence exists against the accused, a chargesheet is filed. However, if the investigation reveals no sufficient evidence or reasonable grounds to connect the accused with the alleged offence, the police may file a closure report under Section 169 CrPC. A closure report therefore signifies the investigating agency's opinion that no prima facie criminal case has been established.

Why Does the Question of Further Investigation Arise?

Sometimes, new evidence emerges after a closure report or chargesheet has been filed before the Magistrate. To address such situations, Section 173(8) CrPC and its corresponding provision, Section 193(9) of the BNSS, permit further investigation even after submission of the final report. Based on the additional evidence collected, the police may file a supplementary report, which supplements rather than replaces the original investigation record.

Does the Law Expressly Require the Magistrate's Permission?

A key issue is whether the police can undertake further investigation on their own after filing a closure report or chargesheet. The statutory provisions themselves do not expressly require prior judicial approval. Section 173(8) CrPC merely states that if additional evidence is discovered after the final report has been forwarded to the Magistrate, the investigating officer may conduct further investigation and submit a supplementary report. Similarly, Section 193(9) BNSS is largely silent on the requirement of prior permission, except for situations where the trial has already commenced. This statutory silence gave rise to uncertainty regarding the role of judicial approval.

What Has the Supreme Court Held?

The Supreme Court resolved this issue in *Vinay Tyagi v. Irshad Ali*. The Court held that although Section 173(8) does not explicitly require permission from the Magistrate, such a requirement must be read into the provision as a necessary implication. The Court noted that investigating agencies have consistently followed the practice of seeking leave of the court before conducting further investigation and filing supplementary reports. Relying on the doctrine of *contemporanea expositio*, which gives significance to long-standing and consistent interpretation and practice, the Court held that obtaining judicial permission has become an integral part of the legal framework governing further investigation. This interpretation was subsequently reaffirmed in *Rama Chaudhary v. State of Bihar* and *Robert Lalchungnunga Chongthu v. State of Bihar*.



What Is the Present Legal Position?

The Supreme Court recently reiterated this principle in *Palinisiwamy Veeraraja v. State of Karnataka*, where it quashed the FIR and subsequent chargesheet because further investigation had been undertaken after closure reports were filed without any recorded order granting permission from the Magistrate. The Court also observed that the dispute was predominantly civil in nature and relied upon the principles laid down in *State of Haryana v. Bhajan Lal*. Therefore, the current legal position is that once a closure report or chargesheet has been filed, any further investigation based on newly discovered evidence can ordinarily be undertaken only after obtaining the permission of the competent court.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. With reference to India, consider the following statements : (2021)

1. Judicial custody means an accused is in the custody of the concerned A magistrate and such accused is locked up in a police station, not in jail.
2. During judicial custody, the police officer in charge of the case is not allowed to interrogate the suspect without the approval of the court.

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

Police begin collecting DNA records under 2022 law

India is gradually transforming its criminal justice system from confession-based and witness-dependent investigations towards scientific and technology-driven policing. The objective is to improve accuracy in criminal identification, strengthen evidence collection, and reduce dependence on traditional investigative methods. This transition reflects broader police reform efforts aimed at enhancing professionalism, interstate coordination, and the use of forensic science in crime detection. The latest initiative involving DNA record collection represents another step in building a modern evidence-based criminal justice framework.

Criminal Procedure (Identification) Act, 2022: The Legal Foundation

The Criminal Procedure (Identification) Act, 2022 provides the legal framework for collecting and storing identification-related data of arrested and convicted persons. The law significantly expanded the scope of measurements beyond fingerprints and photographs to include facial images, iris scans, signatures, handwriting samples, and biological specimens such as blood and saliva. These records can be preserved for up to 75 years and may be accessed by police, prisons, and central investigative agencies, creating a nationwide identification ecosystem.

NAFIS: The First Stage of National Criminal Identification

To operationalise scientific identification, the National Crime Records Bureau launched the National Automated Fingerprint Identification System (NAFIS) in 2022. NAFIS digitised and automated fingerprint matching across India, creating a database containing more than 1.27 crore fingerprint records. The system enabled rapid identification of suspects and helped solve interstate and long-pending criminal cases. NAFIS marked the transition from isolated state-level records to a nationally integrated biometric identification platform.

CrPI System and the Expansion to Multi-Biometric Identification

Building upon NAFIS, the Criminal Procedure Identification (CrPI) system integrates fingerprints, photographs, facial recognition, iris scans, and biological samples into a unified searchable database. More than **2,600 measurement collection units** have been established across police districts and prisons. The system also incorporates video analytics, enabling investigators to match CCTV footage with existing records. Through this integration, criminal identification has evolved from fingerprint matching alone to a comprehensive multi-biometric and forensic identification framework.



DNA Profiling: The Latest Stage and Emerging Issues

The recent collection of DNA records from persons arrested in serious offences represents the latest phase in India's scientific policing framework. Biological samples recovered from crime scenes can now be compared with stored records to identify suspects and habitual offenders with greater accuracy. While the system strengthens forensic investigation and internal security, it also raises important questions regarding privacy, data protection, proportionality, and safeguards against misuse. Thus, the initiative lies at the intersection of police modernization, forensic science, constitutional rights, and criminal justice reform.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. With reference to the recent developments in science, which one of the following statements is not correct? (2019)

- Functional chromosomes can be created by joining segments of DNA taken from cells of different species.
- Pieces of artificial functional DNA can be created in laboratories.
- A piece of DNA taken out from an animal cell can be made to replicate outside a living cell in a laboratory.
- Cells taken out from plasma and animals can be made to undergo cell division in laboratory petri dishes.

The lack of accountability within the NTA

India's entrance examination system increasingly relies on single nationwide examinations such as NEET for admission into professional courses. The scale of competition is enormous: the National Medical Commission's seat matrix for 2025 listed roughly **1.26 lakh MBBS seats** against more than **22 lakh applicants**, meaning only a small proportion ultimately secure admission. Since many aspirants spend multiple years preparing through coaching and repeat attempts, any disruption in the examination process imposes significant academic, financial, and psychological costs on candidates and their families.

Public Examinations Act, 2024: Objectives and Scope

The Public Examinations (Prevention of Unfair Means) Act, 2024 was enacted to protect the integrity of public examinations by targeting organised cheating networks, paper leaks, impersonation, and other unfair practices. The law prescribes stringent penalties, including imprisonment of up to 10 years and fines of up to ₹1 crore for organised examination fraud. However, the Act primarily adopts a prosecutorial approach. While it punishes offenders, it does not provide compensation to candidates, guarantee automatic re-examinations, or impose specific liability on examination authorities when institutional failures lead to cancellation of examinations.

NTA and the Accountability Gap

The National Testing Agency (NTA), established in 2017, conducts major national entrance examinations including NEET and UGC-NET. However, it was created as a registered society under the Societies Registration Act, 1860 rather than through a parliamentary statute. Consequently, its obligations towards candidates are not clearly codified in law. When examinations are cancelled, the NTA's formal responsibility is largely limited to carrying forward registrations and refunding examination fees. The broader losses incurred by candidates—including coaching expenses, accommodation costs, lost preparation time, and delayed admissions—remain outside any statutory accountability framework.

Single Point of Failure in Examination Governance

A major concern is the design of India's examination architecture itself. NEET is conducted through a single national examination, using one question paper and one admission cycle for millions of candidates. This creates a **"single point of failure,"** where a breach in one part of the system can disrupt the prospects of an entire cohort. Even the proposed shift to Computer-Based Testing (CBT) may not fully address this issue, as demonstrated by the cancellation of UGC-NET despite it already being conducted through digital systems. The challenge therefore lies not merely in examination delivery but in the concentration of risk.



Towards Candidate-Centric Examination Governance

Examination reform must move beyond punishing paper leaks and focus on institutional accountability. Reforms should include granting the NTA statutory status with clearly defined obligations, creating automatic compensation mechanisms when examinations are cancelled due to institutional failures, and conducting multiple examination windows each year to distribute risk. Such measures would align with the constitutional principles of equality and fairness under Article 14 and support the broader objective of ensuring equal educational opportunity, particularly for candidates from economically and socially disadvantaged backgrounds.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. What are the aims and objects of the recently passed and enforced, The Public Examination (Prevention of Unfair Means) Act, 2024? Whether University/State Education Board examinations are also covered under the Act? (GS II – 2024)

When doctors can move, healthcare benefits (Indian Express : 22-06-2026)

One of the major challenges facing India's healthcare system is not merely the number of doctors but their uneven distribution across regions. While India has achieved a doctor-population ratio of about **1:811(WHO prescribed level - 1:1000)**, many states and rural areas continue to face shortages of specialists and medical professionals. Administrative barriers that restrict the movement of doctors between states often aggravate this problem. Consequently, improving healthcare delivery increasingly requires reforms that focus on the efficient deployment and mobility of medical personnel across the country.

Andhra Pradesh's Reform in Medical Mobility

In a first-of-its-kind initiative, Andhra Pradesh has allowed doctors registered with any State or Union Territory Medical Council to practise in the State without obtaining a separate registration or No Objection Certificate (NOC). Previously, doctors relocating to another state were required to complete fresh registration procedures and secure approvals from their parent councils. By eliminating these requirements, the State has reduced paperwork, costs, and delays, thereby making professional mobility easier and improving access to medical talent.

From State-Based Registration to National Mobility

The reform reflects a broader shift from fragmented state-level regulation towards a nationally integrated medical workforce. Traditionally, medical registration operated largely within state boundaries despite the existence of nationally recognised qualifications. Andhra Pradesh's decision recognises that healthcare professionals are a national resource and that unnecessary restrictions can impede efficient healthcare delivery.

Link with National Medical Commission Reforms

The initiative complements the National Medical Commission (NMC) Act, 2019 and the **"One Nation, One Registration"** platform launched in 2024. The NMC seeks to maintain a national medical register, improve the availability of qualified healthcare professionals, and facilitate equitable healthcare access. Although implementation of the national registration framework has faced delays due to verification bottlenecks at state councils, Andhra Pradesh has effectively adopted the underlying **principle of seamless professional mobility** at the state level, thereby advancing the objectives of national healthcare reform.

Significance for Healthcare Governance

The Andhra Pradesh model demonstrates how administrative reforms can strengthen healthcare systems without requiring major financial investments. By improving the mobility of doctors, the reform can help address specialist shortages, enhance healthcare accessibility, and support more balanced distribution of medical professionals. This is relevant to improve healthcare delivery through institutional reforms rather than merely increasing expenditure.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. Consider the following statements:

Statement-I: India's public sector health care system largely focuses on curative care with limited preventive, promotive and rehabilitative care.

Statement-II: Under India's decentralized approach to health care delivery, the States are primarily responsible for organizing health services.

Which one of the following is correct in respect of the above statements?

- Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- Statement-I is correct but Statement-II is incorrect
- Statement-I is incorrect but Statement-II is correct

Changed reality (The Hindu : 22-06-2026)

The recent Iran-Israel-U.S. conflict has highlighted the strategic importance of maritime trade routes in shaping geopolitical and economic outcomes. Throughout history, major powers such as the United Kingdom, the United States, Japan and China have combined economic strength with maritime dominance. The crisis in West Asia demonstrated that control over critical chokepoints like the Strait of Hormuz can influence global energy markets and international political decisions as much as military power or economic sanctions.

Strategic Development

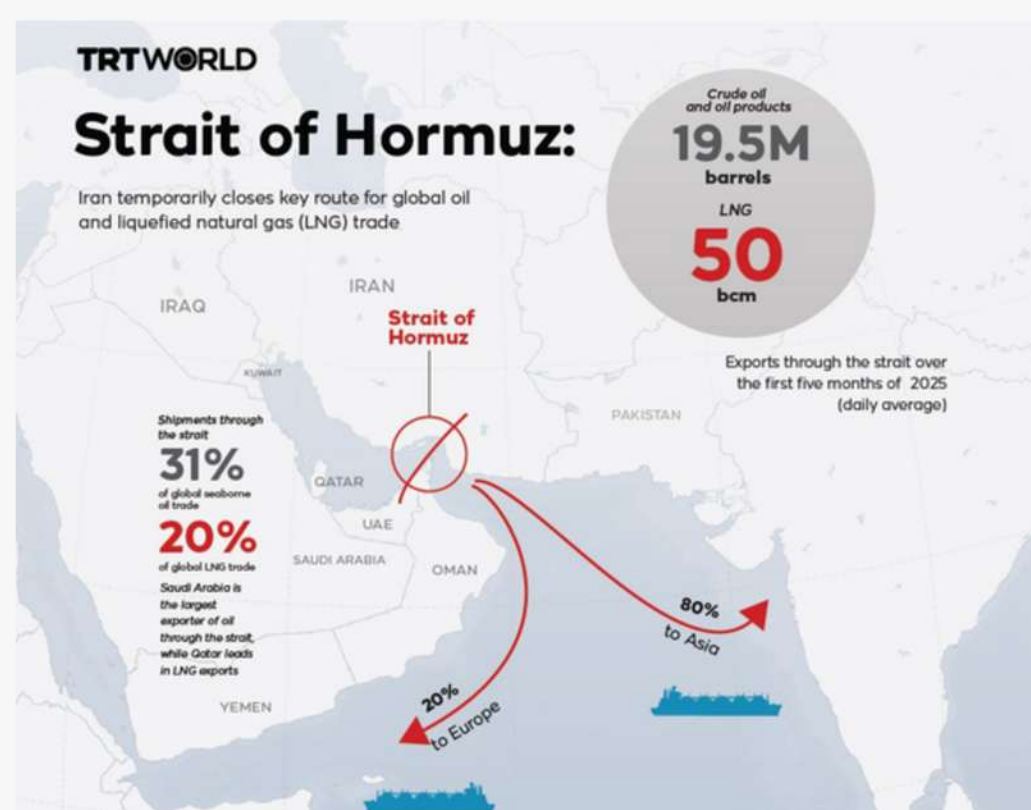
During the conflict, Iran leveraged its geographical position near the Strait of Hormuz—a **vital maritime passage connecting the Persian Gulf with global markets**—to exert pressure on international trade and energy flows. Iran subsequently announced that its newly established **Persian Gulf Strait Authority** would serve as the principal authority overseeing transit through the Strait. The emerging framework also envisages the easing of sanctions on Iran and greater Iranian involvement in maritime administration alongside Gulf states. Even if transit fees are not imposed, shipping companies must now treat Iran as a decisive stakeholder in one of the world's most important maritime chokepoints.

Significance

The episode underscores the close relationship between maritime security, trade and national power. Disruptions in the Strait of Hormuz affect global energy supplies, shipping costs and economic stability far beyond the immediate conflict zone. For India, the Strait is particularly important because a significant share of its crude oil, LPG and other energy imports pass through this route. The crisis also highlights the contribution of India's maritime sector and seafarers to the national economy, while emphasizing the need for stronger maritime capabilities to protect economic and strategic interests.

Challenges and Vulnerabilities

The conflict exposed India's dependence on the Strait of Hormuz and the absence of robust contingency mechanisms for prolonged disruptions. India's LPG supply chain relies heavily on imports moving through Hormuz. Similar vulnerabilities exist in other energy supply chains. While several countries are reassessing their dependence on Hormuz, the United Arab Emirates has already begun pursuing a strategy of reducing reliance on the strait through alternative infrastructure and transport routes. India's continued dependence on a single maritime chokepoint creates significant strategic and economic risks.



Way Forward

India must treat maritime security and supply-chain resilience as core components of national security. Diversifying energy sources, investing in alternative maritime and land-based connectivity corridors, expanding strategic petroleum and LPG reserves, strengthening the Indian shipping sector and enhancing maritime partnerships should become policy priorities. Projects such as Chabahar Port were intended to provide alternative access routes and reduce excessive dependence on vulnerable chokepoints. In an increasingly uncertain geopolitical environment, reducing reliance on the Strait of Hormuz is a strategic imperative for India's long-term energy and national security.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. Ships from which of the following countries have to cross the Strait of Hormuz to reach out to the Indian Ocean?

1. Bahrain
2. Syria
3. Qatar
4. Egypt

Select the answer using the code given below:

- (a) 1 and 2 (b) 1 and 3 (c) 2 and 3 (d) 3 and 4

RELEVANCE

GS II : International Relations; GS III : Indian Economy

SCIENCE

What is Google's Project Nimbus ?

Project Nimbus is a technology contract worth over \$1 billion between the Israeli government and major cloud computing providers Google and Amazon Web Services (AWS). Announced in 2021, the project aims to provide cloud services, data storage, computing infrastructure, and digital support to Israeli government ministries, authorities, and public sector entities. Cloud computing enables organizations to store, process, and access data through remote servers instead of local systems.

Cloud Computing, Data Storage and Security Concerns

Cloud services form the technological backbone of Project Nimbus by enabling large-scale storage and processing of data on remote servers. Investigative reports on this topic allege that data collected through the surveillance of Palestinians was stored on cloud infrastructure managed by AWS and that such information could potentially support security and military operations. These allegations brought attention to the growing role of cloud computing, artificial intelligence, and data analytics in modern conflicts.



Opposition to Project Nimbus and Ethical Debate

Project Nimbus has faced sustained opposition from employees, activists, and pro-Palestinian groups since its announcement. Critics argue that advanced cloud and AI technologies could facilitate surveillance of Palestinians and indirectly support military operations. Employee protests, sit-ins, and public campaigns have questioned whether technology companies should provide services that may be associated with civilian harm. The debate raises important ethical questions regarding corporate responsibility, transparency, accountability, and the moral obligations of private companies. It reflects the broader challenge of balancing technological innovation, commercial interests, human rights concerns, and ethical decision-making in professional environments.

RELEVANCE

GS III : Science and Technology

Geopolitical Context and the BDS Movement

The controversy surrounding Project Nimbus is closely linked to the wider Israel-Palestine conflict and the **Boycott, Divestment and Sanctions (BDS) movement**. BDS advocates economic, cultural, and institutional pressure on Israel through non-violent means. The movement has identified several technology firms that maintain contracts with Israeli governmental and defence-related institutions. Following the escalation of conflict after October 2023, scrutiny of technology partnerships intensified. This demonstrates how digital infrastructure, data systems, and private technology corporations have become significant actors in contemporary geopolitical conflicts.

Contemporary Technology, War and Governance Significance:

Project Nimbus illustrates how emerging technologies have become intertwined with governance, national security, and international politics. The controversy highlights the growing relevance of social media, encrypted communications, cloud infrastructure, artificial intelligence, and cybersecurity in modern conflicts. It also reflects the contemporary relevance of the idea that warfare increasingly extends beyond conventional battlefields into the domains of information, technology, and data.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



- Q. Which of the following adopted a law on data protection and privacy for its citizens known as 'General Data Protection Regulation' in April 2016 and started implementation of it from 25th May, 2018?
- Australia
 - Canada
 - The European Union
 - The United States of America

Practice Questions and answers

Q. Consider the following statements regarding closure reports, further investigation and supplementary reports under the criminal justice system in India:

1. A closure report may be filed when the investigating agency finds no sufficient evidence or reasonable grounds to connect the accused with the alleged offence.
2. Once a closure report is filed, the Magistrate is bound to accept the conclusions of the investigating agency and cannot direct further investigation.
3. Section 173(8) of the Code of Criminal Procedure (CrPC), 1973 expressly mandates prior permission of the Magistrate before conducting further investigation after the filing of a final report.
4. A supplementary report filed after further investigation supplements the original report and does not replace it.
5. Section 193(9) of the Bharatiya Nagarik Suraksha Sanhita (BNSS) is the corresponding provision to Section 173(8) CrPC dealing with further investigation after submission of a final report.

Which of the statements given above are correct?

- (a) 1, 4, and 5 only
- (b) 1, 2, 4 and 5 only
- (c) 1, 3, 4 and 5 only
- (d) 2, 3 and 5 only

Answer : (a) 1, 4, 5 and 6 only

Statement 1: Correct : A closure report is filed when the investigating agency finds insufficient evidence or reasonable grounds to proceed against the accused. It reflects the agency's opinion that no prima facie criminal case is established.

Statement 2: Incorrect – The Magistrate is not bound by the police's conclusions. The Magistrate may accept the closure report, reject it, direct further investigation, or take cognizance in appropriate cases.

Statement 3: Incorrect – Section 173(8) CrPC does not expressly require prior permission of the Magistrate. The provision is silent on this issue.

Statement 4: Correct – A supplementary report does not replace the original report. It merely adds to and supplements the original investigation record.

Statement 5: Correct Section 193(9) BNSS is the corresponding provision to Section 173(8) CrPC and deals with further investigation after submission of the final report.

Q. With reference to Project Nimbus, consider the following statements:

1. It is a cloud computing contract involving the Israeli government, Google, and Amazon Web Services.
2. Critics argue that cloud infrastructure under the project could facilitate surveillance activities.
3. The project is exclusively related to military weapons development.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (a) 1 and 2 only

Statement 1 is correct because Project Nimbus is a cloud computing contract between the Israeli government, Google Cloud, and Amazon Web Services (AWS) for providing cloud infrastructure and digital services.

Statement 2 is correct because critics of the project argue that cloud storage and data-processing capabilities could facilitate the storage and analysis of data obtained through the surveillance of Palestinians, raising concerns about privacy and human rights.

Statement 3 is incorrect because Project Nimbus is officially a cloud services and digital infrastructure project, not a programme exclusively dedicated to military weapons development, even though concerns have been raised regarding its potential security and surveillance applications.

Practice Questions and answers

Q. Which one of the following best explains the danger of ammonia gas leaks?

- (a) Ammonia mainly damages metallic equipment.
- (b) Ammonia reacts with moisture and can severely affect eyes and the respiratory system.
- (c) Ammonia becomes toxic only after mixing with industrial waste.
- (d) Ammonia affects only aquatic organisms.

Answer: (b) Ammonia reacts with moisture and can severely affect eyes and the respiratory system.

Option (a) is Incorrect. Although ammonia may react with certain materials under specific industrial conditions, the primary concern during an ammonia leak is human exposure, not damage to equipment.

Industrial safety regulations focus on ammonia because of its potential impact on workers' health, particularly through inhalation.

Therefore, this option does not capture the principal danger of ammonia leaks.

Option (b) is Correct Ammonia is a colourless gas with a strong pungent odour. When inhaled, it readily reacts with moisture present in the eyes, nose, throat, respiratory tract, and lungs.

As a result, exposure can cause burning sensation in the eyes and throat, excessive tearing, Coughing, Breathlessness, Chest discomfort, and Respiratory distress. At higher concentrations, ammonia exposure can cause severe lung injury, respiratory failure, and even death.

Option (c): is Incorrect. Ammonia itself is hazardous at sufficiently high concentrations. Its toxic effects do not depend on mixing with industrial waste or any other substance.

Therefore, this statement is factually incorrect.

Option (d) is Incorrect

Ammonia can affect aquatic organisms when released into water bodies, but it is also highly dangerous to humans and animals through inhalation exposure.

Industrial accidents involving ammonia primarily raise concerns regarding human health and worker safety.

Q. With reference to the Employees' State Insurance (ESI) framework, consider the following statements:

1. Form 11 is an accident book maintained by employers.
2. Form 12 is used for reporting serious workplace accidents to ESI authorities.
3. Form 12 must be submitted only after a court order.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Answer: (a)

Statement 1: Form 11 is an accident book maintained by employers. **This is Correct.**

Under the ESI framework, every employer is required to maintain an Accident Book (Form 11) at the workplace. It serves as a permanent record of workplace accidents causing personal injury to insured employees.

Statement 2: Form 12 is used for reporting serious workplace accidents to ESI authorities. **This is Correct.**

Form 12 is the Accident Report that employers must submit to the concerned ESI authorities when a workplace accident is likely to result in death, or temporary or permanent disablement of an employee.

This provision gained attention following the Tamil Nadu ammonia gas leak incident, where authorities found deficiencies relating to accident reporting and safety compliance.

Statement 3: Form 12 must be submitted only after a court order. **This is Incorrect.**

No court order is required for submitting Form 12. The reporting obligation arises automatically when a serious workplace accident occurs. Employers are legally required to notify ESI authorities promptly, irrespective of whether any court proceedings have been initiated.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. With reference to India, consider the following statements : (2021)

1. Judicial custody means an accused is in the custody of the concerned A magistrate and such accused is locked up in a police station, not in jail.
2. During judicial custody, the police officer in charge of the case is not allowed to interrogate the suspect without the approval of the court.

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

Ans: b

Statement 1 is incorrect. Judicial custody means that the accused is under the custody of the magistrate and is typically detained in jail, not in a police station. In contrast, police custody refers to when the accused is held in a police station under the supervision of the police.

Statement 2 is correct. During judicial custody, the police officer in charge of the case cannot interrogate the suspect without the prior approval of the court. This safeguard ensures that the rights of the accused are protected, as judicial custody is intended to prevent undue influence or coercion by the police.

Q. Ships from which of the following countries have to cross the Strait of Hormuz to reach out to the Indian Ocean? (2026)

1. Bahrain
2. Syria
3. Qatar
4. Egypt

Select the answer using the code given below:

- (a) 1 and 2
- (b) 1 and 3
- (c) 2 and 3
- (d) 3 and 4

Ans : (b) 1 and 3

The Strait of Hormuz is the only sea outlet from the Persian Gulf to the Indian Ocean.

- Bahrain – Correct; located in the Persian Gulf, its ships must pass through Hormuz.
- Syria – Incorrect; ships use the Mediterranean–Suez Canal–Red Sea route.
- Qatar – Correct; located in the Persian Gulf, access to the Indian Ocean requires crossing Hormuz.
- Egypt – Incorrect; ships reach the Indian Ocean via the Suez Canal and Red Sea.

Therefore, the correct answer is (b) 1 and 3.

Q. Which of the following adopted a law on data protection and privacy for its citizens known as 'General Data Protection Regulation' in April 2016 and started implementation of it from 25th May, 2018?

- a) Australia
- b) Canada
- c) The European Union
- d) The United States of America

Answer: (c) The European Union

The General Data Protection Regulation (GDPR), adopted by the European Union in 2016 and implemented in 2018, establishes strict global standards for data privacy, security, and personal data protection.

PYQ Compass

UPSC questions previously asked from the themes discussed on this page.



Q. With reference to the recent developments in science, which one of the following statements is not correct? (2019)

- a) Functional chromosomes can be created by joining segments of DNA taken from cells of different species.
- b) Pieces of artificial functional DNA can be created in laboratories.
- c) A piece of DNA taken out from an animal cell can be made to replicate outside a living cell in a laboratory.
- d) Cells taken out from plasma and animals can be made to undergo cell division in laboratory petri dishes.

Answer: (a) Functional chromosomes can be created by joining segments of DNA taken from cells of different species.

(a) Functional chromosomes can be created by joining segments of DNA taken from cells of different species. — This is Incorrect

While DNA from different species can be combined to create recombinant DNA, scientists cannot yet create fully functional chromosomes simply by joining DNA segments from different species. Chromosomes require complex structural and regulatory organization.

(b) Pieces of artificial functional DNA can be created in laboratories. **This is Correct**

Advances in synthetic biology allow scientists to design and synthesize artificial DNA sequences in laboratories that can perform specific biological functions.

(c) A piece of DNA taken out from an animal cell can be made to replicate outside a living cell in a laboratory. **This is Correct**

Techniques such as Polymerase Chain Reaction (PCR) enable DNA to be copied and amplified outside living organisms under controlled laboratory conditions.

(d) Cells taken out from plants and animals can be made to undergo cell division in laboratory petri dishes. **This is Correct.**

Q. Consider the following statements:

Statement-I: India's public sector health care system largely focuses on curative care with limited preventive, promotive and rehabilitative care.

Statement-II: Under India's decentralized approach to health care delivery, the States are primarily responsible for organizing health services.

Which one of the following is correct in respect of the above statements?

- a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- c) Statement-I is correct but Statement-II is incorrect
- d) Statement-I is incorrect but Statement-II is correct

Option (b) is correct

Statement-I is true. India's public health care system has historically placed a strong emphasis on hospitals and specialised medical care, with a greater emphasis on curative care.

Statement-II is true. The States are principally in charge of planning health services under India's decentralised system for providing medical care. The federal government offers direction, regulatory frameworks, financial support to the states, but it is up to the states to plan, administer, and deliver healthcare services in accordance with local priorities and needs. Despite the fact that both statements are true, Statement-II does not adequately explain Statement-I.