



## Polygraph Test

For Prelims: [Polygraph Test](#), [Central Bureau of Investigation \(CBI\)](#), [Narco-Analysis Test](#), [National Human Rights Commission \(NHRC\)](#)

**For Mains:** About Polygraph, Narco Test, Legal Implications, Related Court Judgments, Challenges in Implementations and Way Forward

[Source: ET](#)

### Why in News?

Recently, the [Central Bureau of Investigation \(CBI\)](#) has been authorised to perform a **polygraph test** on the key suspect in the rape and murder case of a postgraduate doctor at Kolkata Medical College.

- The polygraph test will help investigators check the consistency of the suspect's statements and identify potential deception.

### What is a Polygraph Test?

- **About:**
  - **Polygraph** or **Lie Detector Test** is a procedure that measures and records several **physiological indicators** such as **blood pressure, pulse, respiration, and skin conductivity** while a person is asked and answers a series of questions.
  - This test is based on the **assumption that physiological responses** that are triggered when a person is **lying** are **different** from what they would be otherwise.
  - A **numerical value** is assigned to each response to conclude whether the person is telling the truth, is deceiving, or is uncertain.
  - A test similar to polygraph was **first done in the 19th century** by the **Italian criminologist Cesare Lombroso**, who used a machine to measure changes in the **blood pressure** of criminal suspects during interrogation.
- **Different From Narco-Analysis Test:**
  - A narco analysis test involves injecting **sodium pentothal** into the accused, inducing a **hypnotic or sedated state** that supposedly neutralises their imagination.
  - In this state, the individual is considered **incapable of lying** and is expected to reveal truthful information.
- **Accuracy of Tests:**
  - Polygraph and narco tests are **not scientifically proven to be 100% accurate** and remain controversial in the medical field.
  - Despite this, investigative agencies have recently used these tests as a "**softer alternative**" to torture to extract the truth from suspects.

### Note:


- **Brain Mapping:** It is a test that uses imaging to study the **brain's anatomy and function**. It can help doctors determine if brain function is normal, and identify areas of the brain that control

movement, speech, and vision.

## WHAT IS BRAIN MAPPING

- Machines used to study the areas of the brain for activity on specific subjects
- Objective is to reveal 'guilty knowledge'
- Subject doesn't need to give oral answers to questions, his brain's response is picked and analysed
- Brain mapping cannot find out what the lie is or what information is stored in subject's brain

Results can only aid in probe, have no legal sanctity



### THE PROCESS

- Subject is asked to sit down and close his eyes
- Electrodes are placed over the scalp and connected to the neuroscan cording system
- Subject told to listen to words presented in auditory mode
- Result aimed at ascertaining if subject has knowledge of the crime or any aspect of it

## What is the Legal Admissibility of a Polygraph Test?

- **Violation of Article 20(3): Polygraph, narco-analysis, and brain mapping tests** conducted **without the accused's consent** violate [Article 20\(3\)](#) of the Indian Constitution, which protects the **right against self-incrimination**.
  - This article ensures that **no person accused of an offence is compelled** to be a witness against themselves.
- **Necessity of Consent:** As these tests involve the accused providing potentially **self-incriminating information**, obtaining their **consent is mandatory** to avoid breaching constitutional rights.
- **Judicial and Human Rights Concerns:** The use of narco-analysis and similar tests raises **significant concerns about judicial integrity and human rights**, particularly regarding individual rights and freedoms.
- **Criticism from Courts:** Courts have often criticised these tests as they can constitute mental torture, **violating the right to life and privacy** guaranteed under [Article 21](#) of the Constitution.

## What are the Landmark Judgments Related to Polygraph Tests?

- **Selvi v. State of Karnataka & Anr Case 2010:** The SC ruled on the **legality and admissibility of narco tests** establishing that the **involuntary administration of narco or lie detector tests** constitutes an **intrusion into an individual's "mental privacy."**
  - The apex court held that narco tests **violate the fundamental right against self-incrimination under [Article 20\(3\)](#)** of the Constitution, which states that no person accused of any offence shall be compelled to be a witness against himself.
    - **Self-incrimination** is a legal principle under which a person cannot be compelled

to provide information or testify against themselves in a criminal case.

- **D.K. Basu v. State of West Bengal case, 1997: The SC ruled that involuntary administration of the polygraph and narco test will amount to cruel, inhuman, and degrading treatment in the context of [Article 21](#) or the Right to Life and Liberty.**
- **State of Bombay v. Kathi Kalu Oghad, 1961**, the Supreme Court of India ruled that the **right against self-incrimination under Article 20(3)** of the Constitution **does not extend** to the **physical evidence** (like fingerprints, handwriting, blood, and voice samples), **voluntarily given information** and **identification procedures** (like line-ups and photo arrays).
- **Other Observations of the SC: Narco tests are not reliable or conclusive as evidence, as they are based on assumptions and probabilities.**
  - Any information or material that is subsequently discovered with the help of voluntarily administered test results can be admitted, under [Section 27](#) of the Evidence Act, 1872 (now [Bharatiya Sakshya Adhinyam](#)).
    - Section 27 of the Indian Evidence Act, 1872, allows the **admissibility of information provided by an accused in police custody** if it leads to the discovery of a fact.
    - Only the portion of the information that **directly relates to the discovered fact** can be proved, regardless of whether it amounts to a confession.
  - The court also emphasised that the **'Guidelines for the Administration of Polygraph Test on an Accused'**, published by the [National Human Rights Commission \(NHRC\)](#) in 2000, **must be strictly followed.**

## NHRC Guidelines of Polygraph Test

- **Voluntary Consent:** The accused must willingly **agree to undergo the polygraph test**, with the option to refuse.
- **Informed Consent:** Before agreeing, the **accused should be fully informed by the police and their lawyer** about the test's purpose, procedure, and legal consequences.
- **Recorded Consent:** The accused's consent must be **formally recorded in the presence of a Judicial Magistrate.**
- **Documentation:** During court proceedings, the **police must provide evidence that the accused voluntarily agreed to the test**, which is documented by the lawyer and presented to the judge.
- **Clarification of Statements:** The accused should be made aware that any statements made during the **polygraph test are treated as statements to the police, not as confessions.**
- **Judicial Consideration:** Judges consider various factors, such as the **length of the accused's detention and the nature of the interrogation**, when evaluating the results of a polygraph test.

### Drishti Mains Test:

What is a Polygraph Test? Discuss the significance of polygraph tests in criminal investigations

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## Uttarakhand Launches India's First Gross Environment Product

[Source: ToI](#)

Recently, Uttarakhand became the **1st state** in the country to assign **monetary values** to its natural resources, including **air, water, forest, and soil** and termed it as the [Gross Environment Product \(GEP\)](#).

## About GEP:

- It is a component of [Green GDP](#) and is considered as the product and service value that the ecosystem provides for human welfare and economic and social sustainable development, including **provisioning, regulating and cultural ecosystem services**.
  - **Green GDP is an economic growth indicator that factors in environmental aspects like biodiversity losses and climate change costs along with the standard GDP.**
  - In GEP index, man-made conservation (e.g., [amrit sarovars](#)) accounted separately from natural processes like rain.
- The GEP Index reflects comparative data from 2020-2022 and shows a **0.9% increase** in environmental products created.

Read more: [Mission Amrit Sarovar](#), [Green GDP](#), [Gross Environment Product \(GEP\)](#)

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## One Nation, One Location

[Source:ET](#)

Recently, the Ministry of Roads, Transport and Highways announced plans to centralize all transportation systems —**roadways, railways, airways, waterways, and ropeways**—into single hubs and terminals across India to streamline and enhance passenger convenience.

- These terminals will serve as a **one-stop solution for connecting various modes of transport**, catering to **87% of passenger traffic** that moves via roads in the country.
  - It will reduce urban congestion and improve economic activity through the creation of city centres.
  - It will also facilitate easy transfers between different modes of transport.
- Two pilot hubs will be developed in **Katra and Tirupati**, along with another two in **Varanasi and Nagpur** through **National Highways Logistics Management (NHLM)**, a wholly-owned subsidiary of the [NHAI](#).
  - **NHLM is responsible for spearheading pivotal initiatives** aimed at improving transport logistics, infrastructure, and asset monetization.





# A Milestone

Road ministry to build centralised transport hubs across India

Pilot hubs to come up in Katra and Tirupati over next two years

Hubs to integrate different modes of transportation and amenities

**WILL HAVE RAIL, HELIPAD, BUS, PARKING FACILITY, HOTELS AND RETAIL CHAINS**



Will allow efficient transfers, reduce transit time for commuters

Read More: [MoU for Multi Modal Logistics Park](#), [Bharatmala Pariyojana](#),

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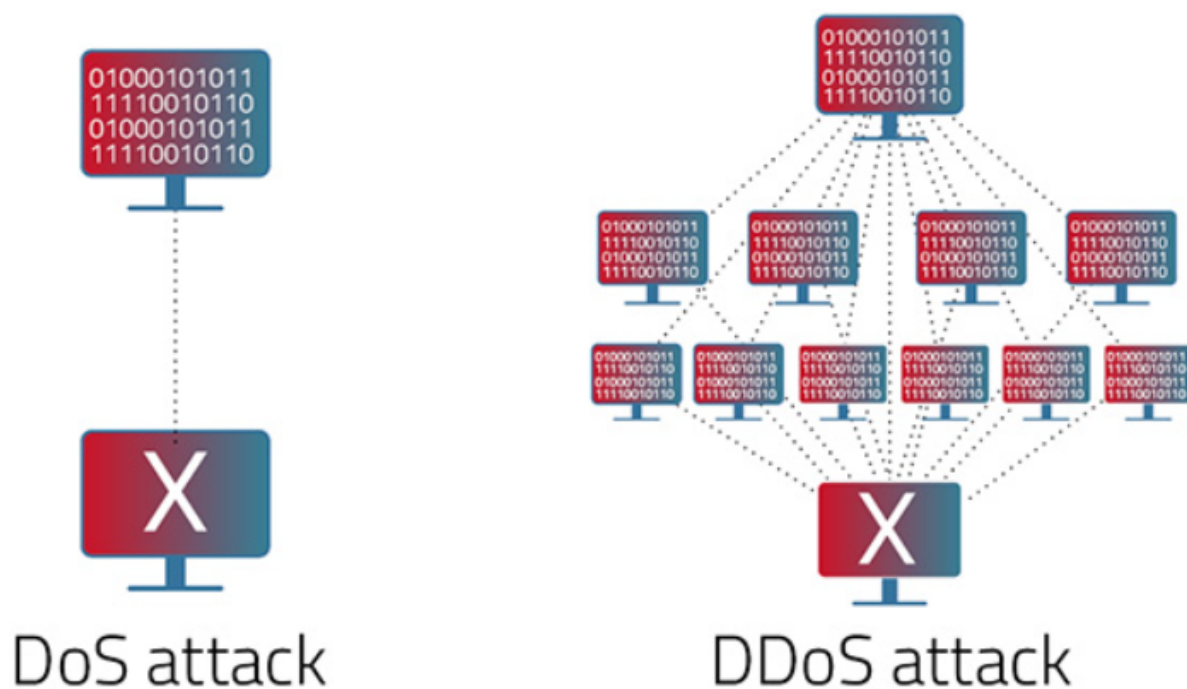
## Denial of Service (DoS) Attack

[Source: IE](#)

Recently, Tesla CEO Elon Musk's interview with former US President Donald Trump on X (previously

Twitter) was disrupted by a cyber attack called [Denial of Service \(DoS\)](#).

- A **DoS attack means** that a website cannot be accessed because it has been targeted by **directing a large number of users against a particular online server** at the same time.
  - **Bots** can be used to **overwhelm the network**, resulting in slow loading times or a total pause in internet services.
- **Types of DoS Attacks:**
  - **Smurf Attack:** Attackers use a **fake IP address** which actually belongs to the target machine. As the target machines respond, they end up **flooding their own servers**, resulting in a DoS attack.
  - **SYN Flood Attack:** The attacker **sends a request** to connect to the target server but does **not complete the connection**. **Multiple targeted incomplete connections** again result in a load for the server, making it difficult to complete legitimate connections smoothly.
- **Example of DDoS:** Before the [Paris Olympics 2024](#), hackers named “**Anonymous Sudan**” had launched a [Distributed Denial of Service \(DDoS\)](#) attack on French government network infrastructure.
  - The principal **difference** between a **DoS attack and a DDoS attack** is that DoS is a **system-on-system attack**, while the DDoS involves **several systems attacking a single system**.



Read More: [Cyber Security](#)

## Impact of Increased Mobility Among Rural Girls on Education

Source: [IE](#)

## Why in News?

The recent research published in the *Journal of Transport Geography* sheds light on a significant rise in cycling levels among rural girls over the past decade.

- This trend, described by researchers from Indian Institute of Technology Delhi as a "**silent revolution**," highlights the impact of government interventions and **changing social norms on the mobility and education of rural girls**.

## How has Increased Cycling Among Rural Girls Affected Education?

- **Growth Overview:** The percentage of girls cycling to school in rural areas more than **doubled from 4.5% in 2007 to 11% in 2017**.
  - Nationally, cycling levels among children increased from **6.6% to 11.2%**, with rural areas seeing a twofold rise from 6.3% to 12.3%. Urban areas saw only a slight increase from 7.8% to 8.3%.
- **Factors Contributed to Rise in Cycling:**
  - **Bicycle Distribution Schemes (BDS)** played a crucial role, implemented in 20 out of 35 states and Union Territories (the paper considered the undivided State of Andhra Pradesh), to boost cycling, particularly among girls.
    - States provide bicycles to **school-going children aged 14-17 to improve school enrolment**, especially among girls due to higher dropout rates.
    - **Impact: West Bengal's BDS led to a rise from 15.4% to 27.6% in girls' cycling levels, making it the top state for rural girls' cycling while Bihar saw an eightfold increase.**
- **Implications on Broader Social Changes:**
  - **Education:** BDS have been effective in improving school enrollment and retention rates among girls. By making it easier for girls to commute to school, these schemes **helped reduce dropout rates and encourage continued education**.
    - Increased access to education enhances **long-term outcomes for girls, leading to better job prospects and economic independence**. This fosters a cycle of empowerment and community economic growth.
  - **Breaking Gender Norms:** The increase in cycling among rural girls is a significant step toward **challenging patriarchal norms that traditionally restricted women's mobility**. This growth indicates a shift towards greater gender equality in rural areas.

## What are the Other Schemes to Boost School Enrollment Among Girls in India?

- [Mid-Day Meal Scheme](#)
- [Beti Bachao, Beti Padhao scheme](#)
- [Sukanya Samridhi Yojana](#)
- **Kasturba Gandhi Balika Vidyalaya Scheme: It was launched in 2004 to set up residential schools at the upper primary level for girls from disadvantaged communities in educationally backward blocks.**
  - The scheme provides 75% reservation for [Scheduled Tribes](#), [Scheduled Castes](#), [Other Backward Class](#) or minority girls, with the remaining 25% for girls from BPL families.
  - It provides a recurring grant of Rs.1.5 lakhs per annum and a one-time grant of Rs.5 Lakhs to set up schools.
- **National Scheme of Incentives to Girls for Secondary Education:** The central government has launched an initiative to **promote secondary education for girls above Class**

**X**, addressing the **high drop out of school by the time they hit puberty.**

- Under this scheme, a fixed deposit of Rs 3000/- is made in the name of the girl-child . A minimum criterion of passing class X exams and reaching the age of 18 years is required to withdraw the matured amount from the fixed deposit.

**Drishti Mains Question:**

**Q.** Discuss the Role of Government Schemes in Enhancing School Enrollment and Retention Among Girls in India.

**UPSC Civil Services Examination Previous Year Question (PYQ)**

**Mains**

**Q.1** “Empowering women is the key to control population growth”. Discuss. **(2019)**

**Q.2** Discuss the positive and negative effects of globalization on women in India? **(2015)**

PDF Reference URL: <https://www.drishtias.com/current-affairs-news-analysis-editorials/news-analysis/21-08-2024/print>

