

DAILY NEWS

ANALYSIS



1st May

Explained

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Decoded

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DNA Quiz

Playlist Link:

What to Read: <https://bit.ly/3FYdutC>

Daily News Analysis: <https://bit.ly/4ge9BgF>

EXPLAINED

1. CASTE CENSUS

Relevance: GS 2/ India Society

Backdrop: Cabinet clears caste enumeration in Census

About the news:

Recently, the Union Cabinet has approved caste enumeration as part of the official 2021 Census, postponed due to COVID-19.

Digital Census: Will be conducted via a mobile application using a Dropdown-based coded caste directory to avoid duplication.

What is a Caste Census?

- A caste census refers to the systematic enumeration of all castes in the population, including their numerical strength, geographical spread, and socio-economic characteristics.
- Unlike the general population census, which focuses on demographic data, a caste census aims to capture social stratification, especially for policy and welfare planning.

Historical Background

Pre-Independence Era:

- **First Caste Enumeration:** Started in 1881 with the first synchronous census under the British.
- **1931 Census:** The last census to record comprehensive caste data for all communities in India. This remains the only complete caste data post-1881, often cited in policy documents and judicial pronouncements.

Post-Independence Era:

- From 1951 to 2011, the Census of India recorded caste only for SCs and STs, as per constitutional mandates.

- The OBC category, though recognized by the Mandal Commission (1980) and later given 27% reservation in jobs and education, was never enumerated in the official census.

2011 Socio-Economic and Caste Census (SECC)

Conducted by: Ministry of Rural Development with assistance from the Ministry of Home Affairs and Registrar General of India (RGI).

Dual Components:

1. Rural and urban household socio-economic data
2. Caste data – collected separately, but not officially released.

Challenges:

- Over 46 lakh caste names reported due to open-ended entries.
- Lack of a standardized caste list led to duplication and ambiguity.
- Data was not vetted or published officially, leading to its limited policy use.

Constitutional and Legal Provisions

Constitutional Basis:

- ♦ Article 15 & 16: Enable affirmative action for socially and educationally backward classes (SEBCs).
- ♦ Article 340: Provides for the appointment of a commission to investigate the conditions of backward classes (e.g., Mandal Commission).

Census Act, 1948:

- ♦ Empowers the Central Government to conduct the decennial Census.
- ♦ Data collected is considered confidential and is not shared at the individual level.

Mandal Commission (1980):

- ♦ Recommended 27% reservation for OBCs.
- ♦ Based on 1931 caste data and projections.

Caste Related Commissions and Reports

Commission/Report	Year	Key Contributions
First Backward Classes Commission (Kaka Kalelkar Commission)	1953	First attempt to identify backward classes; submitted report in 1955 but not implemented due to methodology concerns.
Second Backward Classes Commission (Mandal Commission)	1979	Recommended 27% reservation for OBCs in central government jobs and education; implemented in 1990.
Rangarajan Committee (2014)	2014	Tasked with reviewing methodology of poverty estimation; flagged flaws in SECC data processing.

Socio-Economic and Caste Census (SECC), 2011	2011	First comprehensive caste census post-Independence; caste data not officially released due to classification issues.
National Commission for Backward Classes (NCBC)	1993 (Statutory from 2018)	Advises government on inclusion/exclusion of castes in OBC list; constitutional status under Article 338B.
Justice Rohini Commission	2017	Tasked with sub-categorization of OBCs to ensure equitable distribution of reservation benefits.

Pros of Caste Census:

- Accurate Data for Welfare Programs:
- Evidence-Based Policy Making
- Addressing Social Inequalities
- Empowerment of Marginalized Communities:
- Transparency and Accountability:

Cons of Caste Census:

- Reinforcement of Caste Identities:
- Polarization and Social Tensions:
- Politicization of Data:
- Privacy Concerns:
- Overburdening the Bureaucracy:
- Risk of Misuse for Reservations:

About Census

The **Census of India** undertaken by the **Office of the Registrar General and Census Commissioner** under the **Ministry of Home Affairs**.

Legal Framework

- **Census Act, 1948:** Governs the conduct of the Census in India. The Act provides legal backing to the Census process and ensures the confidentiality of the data collected.
- **Article 246 (Union List):** Under the Constitution of India, the Census comes under the Union List, meaning it is the responsibility of the Union government.
- **Article 15, 16, 340:** Deal with reservations for backward classes, which necessitate caste-related data in the Census for policy formulation.

Stages of the Census Process

- **Pre-Census Preparations**
 - ♦ Census Mapping:
 - ♦ Census Enumeration Areas (EA):
 - ♦ Training of Enumerators:

Census Phases

- ♦ House-listing Phase (Phase 1):
- ♦ Population Enumeration (Phase 2):.
- ♦ Final Census and Data Processing:

Census Categories and Data Collection

- **Demographic Data:** Age, Sex, and Gender Marital Status Religion Disability Status
- **Socio-Economic Data:** Literacy Rate Educational Qualification Occupation Income Level Type of HousingAccess to Basic Amenities (water, sanitation, electricity)
- **Geographic Data:** Location of the household (urban or rural, district, state, etc.) **Migration Information:** Whether individuals have migrated within or outside India.

Importance of Census Data

- **Policy Formulation:**
- **Reservation and Welfare Schemes:**
- **Delimitation of Electoral Constituencies:**
- **Economic Planning:**
- **Social Development.**

2. RIGHT TO DIGITAL ACCESS

Relevance: GS2/Polity

Backdrop: Digital access is a part of the fundamental right to life and liberty: Supreme Court

About the news:

- Inclusive and meaningful digital access to e-governance and welfare delivery systems is a part of the fundamental right to life and liberty: Supreme Court
- The state should provide an inclusive digital ecosystem to the marginalised, underprivileged, vulnerable, disabled, and historically excluded sections of society.
- The state's obligation under Articles 21 [right to a dignified life], 14 [equality], 15 [right against

discrimination], 38 [Directive Principles of State Policy] of the Constitution must encompass the responsibility to ensure that digital infrastructure, government portals, online learning platforms and financial technology are universally accessible and responsive to all vulnerable and marginalised sections

Legal Recognition of the Right to the Internet:

- In 2016, the United Nations declared access to the internet as a human right, highlighting its importance in enabling individuals to fully participate in society.
- In India, the right to access the internet is considered an extension of the right to freedom of speech and expression under **Article 19(1)(a)** of Indian Constitution.
- Supreme Court in the **Internet Shutdown case** (Anuradha Bhasin vs Union of India), 2017 recognized the importance of internet access for the exercise of various fundamental rights, including the right to free speech, education, and business.

More SC Judgements related to Article 21:

Component	Landmark Case	Significance
Right to Live with Dignity	Maneka Gandhi v. Union of India (1978)	Expanded 'life' to include dignity
Right to Privacy	K.S. Puttaswamy v. Union of India (2017)	Declared privacy a fundamental right
Right to Livelihood	Olga Tellis v. Bombay Municipal Corporation (1985)	Recognized livelihood as essential to life
Right to Health and Clean Environment	Consumer Education and Research Centre v. Union of India (1995)	Health and environment key to life quality
Right to Education (till age 14)	Mohini Jain v. State of Karnataka (1992), Article 21A (2002)	Education made fundamental right under 21A

Right to Sleep	Ramlila Maidan Incident Case (2012)	Sleep as part of dignified existence
Right against Delayed Execution	Shatrughan Chauhan v. Union of India (2014)	Prolonged delay in execution violates dignity
Digital Access as a Fundamental Right	Anuradha Bhasin v. Union of India (2020), SC 2025 update	Access to internet linked to life and liberty

3. NATURAL H2-FUEL OF THE FUTURE

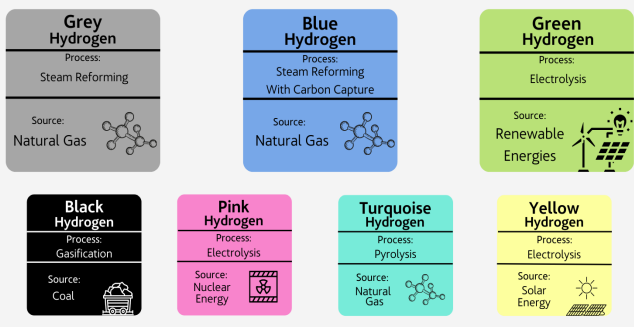
Relevance:GS3/Energy

Backdrop: Recent discovery of Natural hydrogen

Natural Hydrogen:

Hydrogen, often referred to as the fuel of the future, holds the potential to decarbonize global industries, reduce greenhouse gas emissions, and serve as a clean energy source for diverse applications.

Types of Hydrogen:



Formation and Extraction of Natural Hydrogen

Natural hydrogen is a **free gas** found in specific **geological environments**, typically formed through:

- **Serpentinisation:** This occurs when **water** interacts with **iron-rich minerals**, particularly in **ultramafic rocks** like **peridotites**. The chemical reactions between the water and iron produce hydrogen as a by-product. The interaction forms **hydroxide minerals** and generates heat, which results in the formation of hydrogen gas.
- **Radiolysis:** This process involves the **radioactive decay** of certain rocks (containing uranium and thorium), which causes the breakdown of water molecules into hydrogen. This reaction is particularly relevant in **granites** and **shales**.

- **Thermochemical and Biological Processes:** Deep within the Earth, **organic matter** buried at great depths undergoes chemical and biological breakdown under high temperatures and pressure, which can also release hydrogen.

Geological Conditions Favorable for Natural Hydrogen Generation

- **Mountain Ranges with Tectonic Activity:** Active tectonic zones like the **Alps, Pyrenees**, and **Himalayas** have abundant **serpentinisation** zones, making them likely regions for hydrogen generation.
- **Volcanic Rocks:** Basaltic formations and other volcanic rocks contain minerals that facilitate the generation of hydrogen, particularly in the presence of water.
- **Abandoned Coal Mines:** These mines contain organic matter that, under the right conditions, can release hydrogen through **thermochemical reactions**.
- **Ophiolite Complexes:** These are geologic formations, such as those found in the **Andaman Islands** and the **Himalayan foothills**, where serpentinisation and hydrogen production are likely to occur.

Global Reserves and Recent Discoveries

- **Lorraine and Moselle Regions (France):** In 2023, researchers discovered **substantial reserves** of natural hydrogen in abandoned mines. The **Lorraine region** has **92 million tonnes** of hydrogen, worth approximately **\$92 billion**.
- **Other Discoveries:** Other regions such as **Australia, USA, Spain, Albania, South Korea**, and **Canada** have seen the discovery of **hydrogen seeps**, where hydrogen gas escapes from the Earth's crust.

Natural Hydrogen in the Indian Context

- **Hard Rock Formations:** Regions with **ultramafic and basaltic rocks** like the **Andaman Islands, Himalayas**, and **Deccan Plateau** contain minerals that could foster the production of hydrogen.
- **Ophiolite Complexes:** The Himalayan ophiolite and Andaman ophiolite regions, known for their serpentinisation processes, could be key sites for hydrogen exploration.
- **Greenstone Volcanic-Sedimentary Sequences:** The Dharwar, Singhbhum, Vindhyan, Gondwana,

and Cuddapah basins are potential areas where hydrogen could be formed due to the abundance of volcanic and sedimentary rock types that favor hydrogen production.

- **Active Hydrothermal Systems:** Regions with **hot springs** or active **hydrothermal systems** may provide an environment conducive to natural hydrogen generation.

Challenges

- **Exploration Challenges**
- **Extraction Technology**
- **Regulatory Hurdles**

National Green Hydrogen Mission (NGHM)

Launched: January 2023

Nodal Ministry: Ministry of New and Renewable Energy (MNRE)



Objective:

To make India a **global hub** for the production, usage, and export of **green hydrogen and its derivatives**.

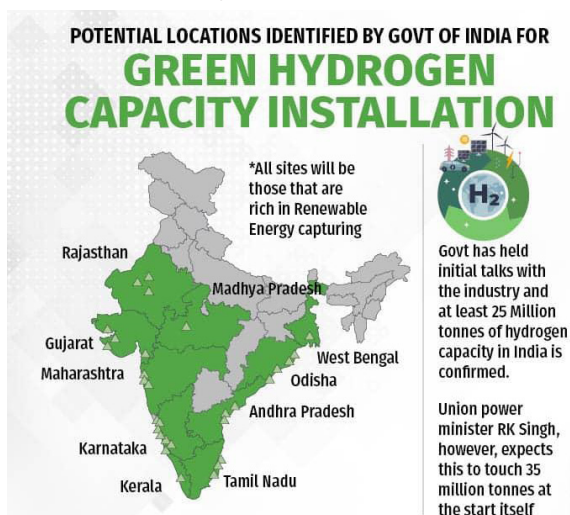
Targets:

- **Green hydrogen production:** 5 million metric tonnes (MMT) per annum by 2030
- **Associated renewable energy capacity:** 125 GW
- **Total investment:** Over **Rs. 8 lakh crore** expected
- **Reduction of CO₂ emissions:** Nearly 50 MMT per annum
- **Job creation:** Over 6 lakh jobs



Key Components:

- **Strategic Interventions for Green Hydrogen Transition (SIGHT):**
 - ♦ **Financial incentives** for:
 - **Electrolyzer manufacturing**
 - **Green hydrogen production**
- **Pilot Projects:**
 - ♦ **Sectors:** Steel, long-haul mobility, shipping, and aviation
 - ♦ **Aim:** Demonstrate viability and build supply chains
- **Research & Development (R&D):**
 - ♦ Mission-mode R&D for **cutting-edge electrolyzers, storage, and fuel cell tech**
- **Enabling Policy Framework:**
 - ♦ **Land allocation, open access to renewables, and bankable PPAs**
 - ♦ Standards and regulatory support
- **Public-private partnerships:**
 - ♦ Focus on private investments and global collaborations (e.g., International Solar Alliance, ISA)



4. DARK MATTER & DARK ENERGY,

Backdrop: Mapping the spread of the universe

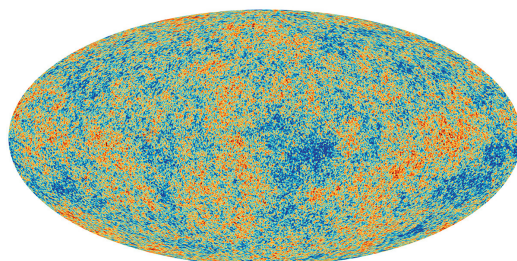
Relevance: GS III/Science & Technology.

About the news:

- Cosmology is in for exciting times, going by the latest research that suggests the key to revealing the fundamental nature of the universe lies in finding out how clumpy it is.
- Accepted theory has it that after the universe was explosively born in a 'Big Bang' in the void some 13.8 billion years ago, it expanded, engendering galaxies, star clusters, solar systems, and planets.
- When scientists looked at the cosmic microwave background (CMB) — the radiation left over from the Big Bang itself, they saw a smooth glow across the sky.
- The early universe must have been remarkably uniform, they concluded, with only small variations in density (of about one part in 100,000 when it was 380,000 years old).
- Last year, data from the Dark Energy Spectroscopic Instrument in Arizona in the US suggested that the push of dark energy, represented by the cosmological constant λ in the CDM model is weakening and the universe may actually be decelerating over time.
- The possibility of dark energy getting weaker means that the pace of expansion of the universe will eventually slow down and may, at some point, even turn negative. In that case, it is not inconceivable that the universe will collapse in on itself in a "big crunch."

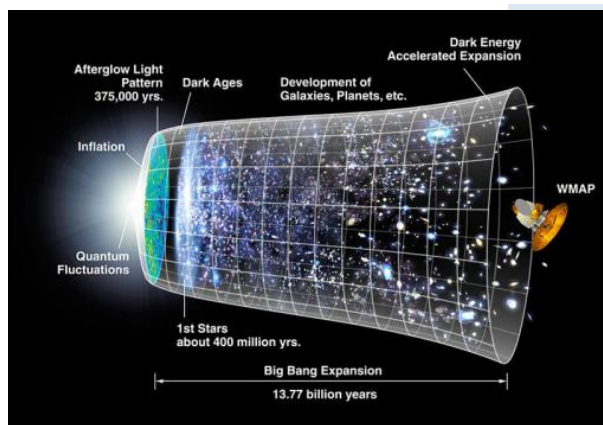
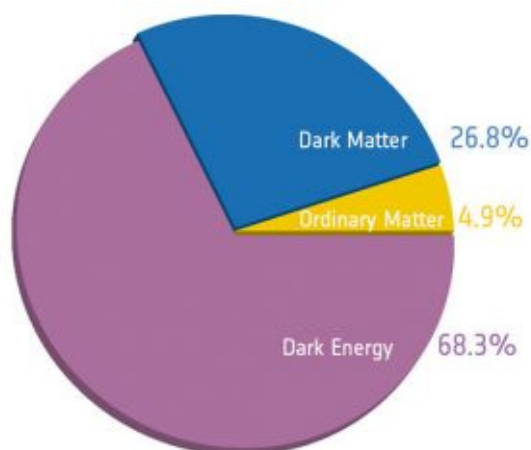
Key terms:

- **Cosmic Microwave Background (CMB):** CMB is the faint glow of radiation left over from the Big Bang, about 13.8 billion years ago. It is the oldest light in the universe and offers a snapshot of what the universe looked like when it was just 380,000 years old.
- ♦ It's used to study the early universe's temperature, density, and structure.



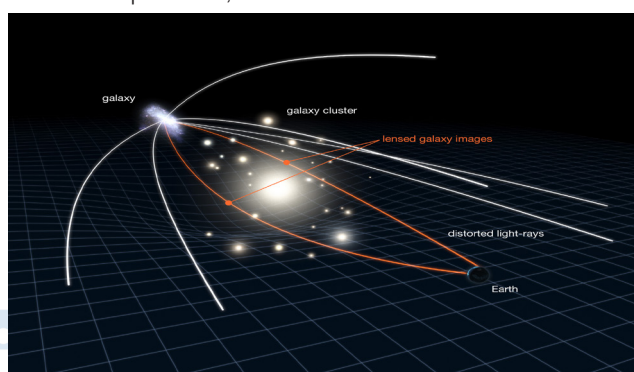
- **Dark Matter and Dark Energy:**

- ♦ **Dark Matter:** A mysterious, invisible substance that doesn't emit or absorb light but exerts gravitational pull. It holds galaxies together.
- ♦ **Dark Energy:** An unknown form of energy that pushes space apart, causing the universe's expansion to accelerate.
- ♦ Together, they make up about 95% of the universe, but we don't yet fully understand their nature.



- **Lambda Cold Dark Matter (Λ CDM) Model:** CDM model is the current standard model of cosmology. This model explains how the universe evolved from the Big Bang to today using known physics and observations.
- **Doppler Effect:** It is the change in frequency or wavelength of a wave as the source moves relative to the observer.
 - ♦ In light:
 - If an object moves away, its light shifts to red (redshift).
 - If it moves toward, it shifts to blue (blueshift).
 - ♦ It helps astronomers measure galaxy motion and universe expansion.

- **Redshift:** Redshift occurs when light from distant galaxies appears stretched to longer, redder wavelengths.
 - ♦ It happens because the universe is expanding, so galaxies are moving away from us, and their light gets shifted.
- **Gravitational Lensing:** It happens when massive objects like galaxy clusters bend light from objects behind them, like a magnifying glass.
 - ♦ It's caused by gravity and helps astronomers: See very distant galaxies more clearly, Map dark matter, Measure cosmic structure and expansion, etc.



Missions to measure Dark matter and Dark Energy:

- **Euclid mission (ESA):** Launched in July 2023, this mission aims to study dark energy and dark matter by mapping the distribution and evolution of galaxies.
 - ♦ It will also explore the composition and evolution of the dark universe, how structure has formed over cosmic history, and the role of gravity.
- **Dark Energy Survey:** This ground-based observatory maps hundreds of millions of galaxies, detects thousands of supernovae, and finds patterns of cosmic structure to reveal the nature of dark energy.
- **James Webb Space Telescope (NASA/ESA/CSA):** While not solely focused on dark energy and dark matter, JWST is also contributing to these studies, particularly by looking at early galaxies and star formation.

Proposed Missions:

- **Nancy Grace Roman Space Telescope (NASA):** Scheduled to launch in May 2027, this mission will complement Euclid's work by doing a wide-field infrared survey to study dark energy, exoplanets, and galaxy evolution.

- **SPHEREx (NASA):** Scheduled to launch in 2025, this mission aims to investigate the origins of the universe and is expected to contribute to our understanding of dark energy through near-infrared surveys.
- **Dark Universe Explorer:** It would use weak gravitational lensing to study dark matter and dark energy by observing tiny distortions in the shapes of distant galaxies.
- **Rubin Observatory – Legacy Survey of Space and Time (LSST):** It is a planned 10-year survey of the southern sky.
 - ♦ It will capture images of the entire southern sky every few nights in six optical bands, covering a vast area and depth previously unseen.
 - ♦ The LSST aims to address key questions about dark energy and dark matter, the Milky Way, the solar system, and potentially hazardous asteroids.

DECODED

5. FROM RULES-BASED WORLD TO SHAMBOLIC DISORDER.

Backdrop: Disruption in the World order

Relevance: GS II/IR

About the news:

Currently, the world has been witnessing uncertainty across many sectors. The problematic conditions in different areas of the globe has forced the policymakers, strategists, and business leaders to prepare for more difficult times ahead.

Leader-led disruption:

- The influence of leaders such as Xi Jinping of China, Vladimir Putin of Russia, and Donald Trump in the U.S. etc have disrupted the existing order.
- ♦ Trump's new tariff war has led to a sharp decline in the growth potential of U.S., and brought down its GDP.

Situation in Europe

- Embroiled in a conflict with Russia over Ukraine for the past three years, what Europe is now staring at is pronounced uncertainty about its future and that of the NATO.

Situation in West Asia

- **Israel-Palestine Conflict:** Israel is actively seeking to achieve a larger geographical presence for itself.
- Israel is also contemplating a strike to destroy Iran's nuclear capabilities.
- **Disorder in Syria:** Syria, under its new leader, Ahmed al-Shara, appears to be on the brink of collapse. The army and security services have been disbanded and Political parties have been abolished.
- Conflict between **Ethiopia and Eritrea** has reemerged across North Africa.
- **Türkiye** is in turmoil: President Erdoğan has arrested the principal political opponent before the elections.
- **Expansion of Islamic State:** Islamic State affiliates are moving out of the West Asian region, carrying out a series of attacks in Mozambique, the Democratic Republic of Congo, pockets in North Africa, and extending activities into Afghanistan.

Events in Asia

- **Afghanistan and Pakistan:** Both are facing internal turmoil and tensions, and alongside this, have also come within the crosshairs of terrorist groups such as the IS and its affiliates.
- **Fresh wave of terror attacks:** The latest was an attack on tourists in Pahalgam, in Kashmir, on April 22.
- Countries such as Bangladesh, Myanmar, and Nepal currently face internal turmoil of different kinds.
- **The USA-China tariff war** is due to Trump's current tariff offensive.
- **Aggression of China:**
 - ♦ As the U.S. takes a back seat, Southeast Asia is seeing fresh signs of China's economic and peace offensive.
 - ♦ **China-India rivalry** remains more intense than ever.
 - ♦ China is demonstrating its naval strength in the Indian and Pacific Oceans, going well beyond its 'nine-dash line' by venturing into the South Pacific.

Way forward:**1. Economic Strength and Technological Advancement:**

- ♦ Focus on Domestic Growth
- ♦ Technological Innovation
- ♦ Digital Transformation

2. Strategic Partnerships and Multilateral Engagement:

- ♦ Global South Voice
- ♦ Strategic Partnerships with countries like the USA and Russia
- ♦ Actively participate in and reform Multilateral Institutions.
- ♦ Regional Initiatives like the India-Middle East-Europe Economic Corridor and the I2U2 grouping.

3. Adapting Security Strategy:

- ♦ Prioritize naval capabilities and develop advanced technologies to project power in the Indo-Pacific region and beyond.
- ♦ **Asymmetric Capabilities**, such as cyber warfare and special forces to deter potential adversaries and respond to various threats.

Conclusion:

In essence, India's strategy should be based on a combination of economic strength, strategic partnerships, and a flexible security approach. By focusing on these key areas, India can navigate the disruptions in the world order and emerge as a major global player in the 21st century.

UPSC PYQ

- Q.** "The long-sustained image of India as a leader of the oppressed and marginalised Nations has disappeared on account of its newfound role in the emerging global order". Elaborate.

MAINS PRACTICE Q.

- Q.** "The transition from a rules-based international order to a phase of shambolic disorder is being driven by leader-centric geopolitics, rising regional conflicts, and economic disruptions."

Critically examine this statement in the context of recent global developments. What are the implications for India's foreign policy and strategic autonomy? (250 words)

PRACTICE QUESTION**1.** Consider the following statements:

1. Between Census 1951 and Census 2001, the density of the population of India has increased more than three times.
2. Between Census 1951 and Census 2001, the annual growth rate (exponential) of the population of India has doubled.

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

2. Consider the following statements regarding the Right to Internet:

1. The Right to Internet is recognized as a separate and exclusive fundamental right under the Constitution of India.
2. The Supreme Court of India, in its judgment on the case of *Anuradha Bhasin v. Union of India* (2020), held that access to the internet is a fundamental right under Article 19(1)(a) of the Indian Constitution.
3. The Right to Internet includes the right to access both high-speed and low-speed internet as guaranteed by the government.

Which of the above statements is/are correct?

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

3. With reference to the National Green Hydrogen Mission, consider the following statements:

1. It aims to produce 5 MMT of green hydrogen annually by 2030.
2. The mission is implemented by the Ministry of Petroleum and Natural Gas.
3. SIGHT is a component that provides financial incentives under the mission.

Which of the above is/are correct?

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

4. Consider the following statements regarding Gravitational lensing:
- 1. Gravitational lensing describes the fact that light is deflected by large masses in the universe.
 - 2. The more massive the object, the stronger its gravitational field and hence the greater the bending of light rays.
 - 3. Lensing, however, cannot be used to verify the existence of Dark Matter.

Which of the statements given above is/are correct?

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

Answer			
1.	(d)	2.	(d)
3.	(c)	4.	(b)

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