

POST-INDEPENDENCE CONSOLIDATION AND REORGANIZATION WITHIN THE COUNTRY [GS-I]**10 Years of Andhra Pradesh Bifurcation**

It has been a decade since Andhra Pradesh was divided into two states. The article attempts to examine the political, economic, and historical implications of this division for the Telugu people and the Indian Republic.

It is surprising to learn this fact that there is very little nostalgia for the nearly five and a half decades of living together as one political entity among the people of both successor states.

What bigger questions does Andhra Pradesh's split raise about Indian republic?

- 1) It raises question about the unity of Telugu speaking elites. They seem to be less unified than elites in Kannada and Marathi-speaking regions.
- 2) There's speculation regarding whether these other linguistic groups may encounter analogous challenges in the future because of common regional disparities.
- 3) As most states are based on language, people are asking if this principle should change. Should states be organized based on factors like territory or population instead? This division highlights the importance of India addressing these basic questions sooner rather than later.
- 4) It raises questions about disorderly bifurcation process, unfulfilled promises, and mishandling of asset distribution.

What is the impact of this on representation and federal structure?

- 1) **Strain the Federal Structure**-In India, most states are organized based on language, but some in the central region aren't. The different sizes of states translate into varying numbers of seats in the central legislature, which can cause tension due to unequal political power and resources. This unequal representation might strain the federal structure, making some regions feel marginalized.
 - 2) **Altering Power Dynamics** – When Andhra Pradesh split, it changed which states held more political influence, as the new ones became smaller. This difference in size can make some regions less important and others more important in deciding national power.
 - 3) **Discontent Due to Unequal Political Power Distribution**- Unequal political power distribution may also influence economic resource allocation, potentially leading to disenchantment among certain states. Concerns exist among southern states about possible future delimitation favoring northern states with larger populations.
- The bifurcation and its consequences merit closer examination to ensure a strong foundation for the fundamental principles of the Indian Republic.

INTERNATIONAL RELATIONS-EFFECT OF POLICIES AND POLITICS OF DEVELOPED AND DEVELOPING COUNTRIES ON INDIA'S INTERESTS [GS-II]**China's proposal for a treaty on the no-first-use of nuclear weapons**

The article discusses China's proposal at the United Nations for a treaty on the no-first-use of nuclear weapons by nuclear-armed states. It examines the skepticism around China's intentions, given its past actions, and argues that a no-first-use policy could improve global nuclear security. The article also highlights the role India could play in this initiative.

Why is there skepticism about China's intentions?

1. **Historical Context:** China has historically claimed to adhere to a no-first-use policy for nuclear weapons. However, its actions have often contradicted this stance.
2. **Proxy Use:** China has been known to utilize proxies like Pakistan and North Korea, which threaten nuclear action against strategic rivals such as India and the USA, respectively. This technique allows China to extend its strategic influence without direct engagement.
3. **Nuclear Expansion:** Despite its no-first-use claim, China is actively expanding its nuclear arsenal and enhancing its delivery mechanisms, actions that seem inconsistent with a commitment to limit the use of nuclear weapons.

Why is a no-first-use policy considered important?

1. **Reduces Risk of Nuclear War:** A no-first-use policy can decrease the likelihood of nuclear escalation among nuclear-armed states by establishing a clear norm against the initial use of nuclear weapons.
2. **Environmental Impact:** Even a limited nuclear exchange could have severe environmental consequences. A study by Mark Z. Jacobson from Stanford estimated that a small nuclear exchange could release over 690 million tonnes of CO₂, which is more than the UK's annual emissions.
3. **Global Stability:** Implementing a no-first-use policy contributes to global stability by preventing the catastrophic humanitarian and environmental effects of nuclear warfare.

How is the global response shaping up?

1. **United States:** The Biden administration appears open to discussing China's no-first-use proposal. However, significant action is unlikely before the presidential election on November 5, indicating a cautious approach.
2. **United Kingdom:** Likely to align with the U.S. position, showing a tendency to follow the lead of its close ally rather than initiating independent policy movements.

3. **Russia:** Appears supportive of China's proposal, reflecting strengthened ties between Moscow and Beijing, which could influence other discussions on global security.

What role could India play?

1. **Crucial Participant:** India's involvement is deemed necessary for the success of a global no-first-use treaty, as their participation could lend significant weight to the initiative.
2. **Potential to Influence China:** If China invites India to partake in no-first-use discussions, it would signal a genuine commitment from Beijing and potentially enhance the proposal's credibility.
3. **Counteracting Regional Tensions:** India's support for the treaty could help stabilize regional nuclear dynamics, particularly with neighboring countries like Pakistan.

WELFARE SCHEMES FOR VULNERABLE SECTIONS OF THE POPULATION BY THE CENTRE AND STATES [GS-II]**Trafficking of Young Born Children**

The article highlights the issue of the recent inter-State baby smuggling racket busted by the Telangana police. An inter-State gang smuggled children from Delhi and Pune and sold them to prospective parents in Telangana and Andhra Pradesh.

What are the reasons behind the inter-state baby smuggling?

Criminal activities are often driven by a combination of socio-economic factors, such as poverty, wealth, and unmet needs or desires.

1) Supply Side: –

- A) Poverty often compels biological parents to sell their newborns for meager sums.
- B) Newborns are also smuggled from government hospitals with lax security.

2) Demand Side: –

- A) Childless couples are eager to have children but face long waiting times (2-4 years) for legal adoption of children under two years.
- B) The shortage of babies available for adoption has led to the demand seeking illegal supply avenues.

What should be the way forward?**1) Poverty Alleviation: –**

- A) The government should undertake effective poverty alleviation schemes
- B) There should be the creation of employment opportunities for youth.

2) Adoption Reforms: –

- A) The government should generate awareness about adoption schemes for biological and adoptive parents.
- B) The government should remove unnecessary bureaucratic processes in adoption.

3) Law Enforcement: Ensure effective policing to nip such plots in the bud

Children should not be treated as goods to be bought from the open market when there is a shortage.

ECONOMY-INFRASTRUCTURE-ENERGY [GS-III]**Challenges in India's current energy policy**

The article discusses the need for India to update its energy policy to better manage fossil fuels and boost renewable energy, while also considering global competition and security concerns, especially with China's dominance in green technology and supply chains.

What is the current energy policy in India?

1. India's energy policy is dual-pronged, focusing on both fossil fuels and renewable energy.
2. The fossil fuel strategy emphasizes reducing import dependency on petroleum through diversified import sources, strategic reserves, domestic exploration, demand conservation, efficiency, and environmental protection.
3. The renewable strategy is aimed at accelerating the shift to clean energy, with a long-term goal of net-zero carbon emissions by 2070 and a medium-term target of generating 500 GW from non-fossil fuels by 2030.

What are the challenges in the current structure?

1. The current structure of India's energy policy is highly compartmentalized, with each ministry operating within narrow and rigid boundaries.
2. The existing setup involves multiple ministries such as Petroleum, Coal, Renewables, Power, Heavy Industry, Mines and Minerals, IT, Information, and Environment, making coordination and streamlined decision-making challenging.
3. There is no formal executive forum for integrated discussions on energy policy. This hampers India's ability to meet its publicly announced decarbonization and sustainability targets.

What global dynamics influence India's energy policy?

1. The resurgence of great power competition, reminiscent of a new Cold War between the US and its allies against China and Russia, influences India's energy policy.

2. China's near monopoly on essential materials for green energy and its dominance in producing low-cost solar wafers and wind turbines affect India's strategies.
3. The geopolitical tensions and supply chain vulnerabilities impact India's approach to securing and diversifying its energy sources.
4. National security concerns regarding the dependency on Chinese supplies have led India to impose duties on Chinese imports and promote domestic manufacturing through incentives like the Production Linked Incentive (PLI) scheme.

What should the next government do?

1. The next government should develop a strategic framework that integrates fossil fuels and renewable energy policies into a **unified approach**.
2. It should **prepare a strategic document** titled "Energy strategy: Towards convergence, security, and sustainability" to guide policy integration.
3. The strategy should address the relationship between hydrocarbon public sector enterprises and other energy companies to avoid duplicity of efforts and resources.
4. A clear strategy for **securing supplies of critical minerals** like copper, lithium, nickel, and cobalt is necessary due to forewarned market volatility and potential shortages.
5. The government must also **create incentives for private investment in green energy** to mitigate risk aversion among investors.

COOPERATIVE BASED DISTRIBUTION MODEL FOR POWER SUPPLY [GS-II]

Recently, a dialogue on systemic issues of poor electricity supply faced by the farmers in Rajasthan has recommended the establishment of a farmers' cooperative-based distribution model with the regulatory viability under the Electricity Act 2003.

- The dialogue was organized by the Jaipur-based Centre for Energy, Environment and People (CEEP) as part of the 'Vidyut Samvad' series here earlier this week.

About Cooperative Society

- **Definition:** A cooperative society is a voluntary association of individuals with shared needs who come together to pursue common economic interests.
- **Objective:** The primary goal of any cooperative is to offer assistance to its members, particularly prioritizing the welfare of the underprivileged segments of society, through the principles of self-help and mutual aid.
- **Operational Approach:** By establishing cooperatives, individuals unite as a collective, combining their individual resources, optimizing their utilization, and deriving mutual benefits.
- In a cooperative society, individuals can join voluntarily and are also at liberty to exit, although they are unable to transfer their shares.
- **Types of Cooperatives in India:** Consumer Cooperative Societies, Producer Cooperative Societies, Cooperative Credit Societies, Cooperative Farming Societies, Housing Cooperative Societies, and Marketing Cooperative Societies.
- Among the 300 largest cooperative societies globally, India's Amul, IFFCO, and KRIBHCO are featured.

Steps taken to strengthen the cooperative movement in India

- **Ministry of Cooperation:** Established with a distinct administrative, legal, and policy structure aimed at enhancing the cooperative movement.
- **The Banking Regulation (Amendment) Act, 2020:** Empowers the RBI to replace the boards of Cooperative banks and permits Cooperative banks to raise capital through public issues or private placements of equity or preference shares.
- **The National Agricultural Co-operative Marketing Federation (NAFED):** Aids Marketing Cooperatives in the States to enhance their marketing operations and improve services to their members.
- **The National Co-operative Development Corporation (NCDC):** Established in 1963, it offers assistance in the form of loans and subsidies for marketing, processing, storage, and share capital practices in cooperative sugar, spinning, and weaving mills.
- **Cancellation of the 97th Constitutional Amendment Act, 2011 by the Supreme Court:** This amendment aimed to protect cooperatives by amending Article 19(1)(c) and inserting Article 43B and Part IXB. However, the Court ruled that Part IXB of the Constitution applies solely to Multi-State cooperative societies within states and Union Territories.
- Part IXB of the Constitution outlined regulations for operating cooperative societies.

CENTER FOR ENERGY, ENVIRONMENT & PEOPLE

About: CEEP is a Jaipur-based human-centric research and policy advocacy initiative driving critical research and fostering

democratic coalitions for low carbon transition and climate justice.

Objective: CEEP the intersection of energy, environment and people to enable institutional response, investments and political shift towards clean energy and sustainable practices

PRELIM FACT

1. Non-infectious Nipah Virus-Like Particles (VLPs)

Recently, Scientists at the Institute of Advanced Virology (IAV) in Thonnakkal have created a new method to produce non-infectious Nipah virus-like particles (VLPs) in the lab.

About Virus-Like Particles (VLPs)

1. About: VLPs are molecules that resemble viruses but are non-infectious. They are useful for studying viral behavior without the risk of causing disease.

2. The new VLPs are tagged with a small peptide called HiBiT, which enhances their functionality in research, particularly in drug screening and vaccine development.

3. Vaccine Development: They are highly effective in creating vaccines for diseases such as human papillomavirus (HPV), hepatitis B, and malaria.

4. Immune Response: When introduced into the body, VLPs trigger an immune response without causing disease symptoms, effectively training the body to recognize and fight the actual virus.

3. Applications: These virus-like particles (VLPs) allow scientists to test vaccines and treatments for the Nipah virus in safer labs with lower safety requirements (BSL-2). This makes the research process safer and more accessible.

4. Nanomachine Use: Recently, VLPs have been used as nanomachines to deliver drugs to specific sites and cells within the body.

Structure and Function:

i) Size: VLPs are small, with a radius of about 20 to 200 nm, allowing them to enter lymph nodes and activate the immune system.

ii) Composition: Composed of one or more structural proteins, possibly arranged in multiple layers, and may include an outer lipid envelope that mimics the virus’s protective outer layer.

iii) Vaccine Production: VLP vaccines can be produced using bacterial, yeast, insect, or mammalian cells and are known for their strong immune response due to the dense display of epitopes.

About Nipah Virus

1. Nipah virus (NiV) is a zoonotic virus, transmitting from animals to humans, through contaminated food, or directly between people.

2. Disease Impact: It can cause a spectrum of illnesses in humans, ranging from asymptomatic infections to acute respiratory problems and fatal encephalitis. It also causes severe disease in animals like pigs, affecting economic stability for farmers.

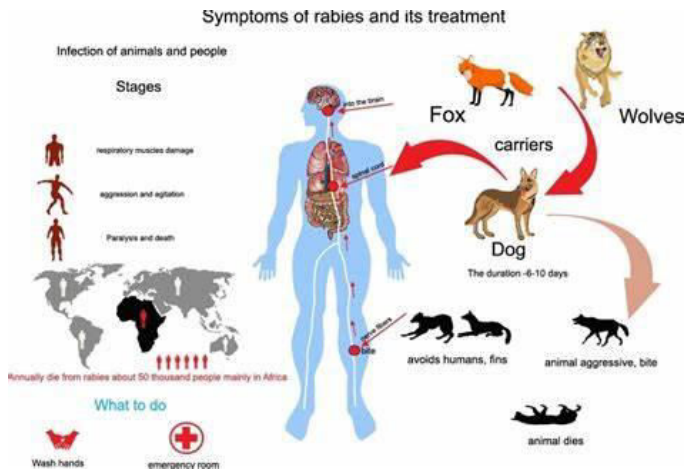
3. Treatment and Management:

i) Lack of Specific Treatments: Currently, there are no specific drugs or vaccines for Nipah virus.

ii) Supportive Care: Intensive supportive care is crucial to manage severe respiratory and neurological complications in infected individuals.

2. J&K Classifies Rabies as a Notifiable Disease

The government of Jammu and Kashmir has classified human rabies as a notifiable disease under the Epidemic Diseases Act of 1897.



Source: medium.com

- 1. Nature of Disease:** Rabies is a zoonotic, viral disease preventable by vaccine, caused by the RABV virus.
- 2. Affected System:** It primarily targets the central nervous system, causing severe brain disease and, ultimately, death if treatment is not administered before symptoms appear.
- 3. Transmission:**
 - a) Main Carriers:** Domestic dogs are the primary transmitters of the rabies virus to humans in up to 99% of cases. It can affect both domestic and wild animals.
 - b) Mode of Spread:** The virus spreads to humans and animals through saliva, typically via bites, scratches, or direct contact with mucous membranes (e.g., eyes, mouth, or open wounds).
- 5. Symptoms:**
 - i) Early Signs:** Initial symptoms include lethargy, fever, vomiting, and anorexia.
 - ii) Advanced Symptoms:** Rapid progression to cerebral dysfunction, ataxia, paralysis, difficulties in breathing and swallowing, excessive salivation, unusual behavior, aggressiveness, and self-mutilation.
 - iii) Outcome:** Once clinical symptoms manifest, rabies is almost always fatal.
- 6. Prevention:**
 - i) Rabies can be prevented through vaccination.
 - ii) The most cost-effective method to prevent rabies in humans is by vaccinating dogs, including puppies, to cut off the transmission at its source.
- 7. Treatment:**
 - i) Post-Exposure Prophylaxis (PEP):** Treatment after exposure to rabies includes wound care, administration of human rabies immune globulin (HRIG), and a series of four or five rabies vaccines.
 - ii)** This treatment is nearly 100% effective in preventing the disease if given promptly after exposure.

About notifiable disease

1. About: A notifiable disease is one that law mandates must be reported to government authorities. This reporting helps in monitoring the disease and providing early warnings of potential outbreaks. Here's who notifies these diseases and how the notification process works:

2. Who Notifies:

- i) Healthcare Providers:** Doctors, nurses, and other healthcare professionals are typically required to report cases of notifiable diseases.
- ii) Laboratories:** Medical laboratories must report findings that indicate the presence of notifiable diseases.
- iii) Hospitals and Clinics:** Both government and private hospitals and clinics are responsible for reporting cases of notifiable diseases.

3. How They Notify:

- i) Written Notification:** For most diseases, healthcare providers must fill out a specific form detailing the case and submit it to local or state health authorities within three days.
- ii) Verbal Notification:** In urgent situations, healthcare providers are required to report cases verbally via phone within 24 hours.
- iii) Electronic Reporting Systems:** Some regions may use electronic health records and reporting systems to streamline the notification process

3. Impact of the Hunga Tonga-Hunga Ha'apai Eruption

Recently, a study was conducted in the Journal of Climate to investigate the climatic effects caused by the eruption of Hunga Tonga-Hunga Ha'apai volcano. It erupted on January 15, 2022, in Tonga, generating a tsunami and triggering warnings across the Pacific basin.

Findings of the study

- 1. Ozone Layer Effect:** From August to December 2023, there was a large hole in the ozone layer partly because of the Hunga Tonga eruption. This effect on the ozone was short-term and not expected to last past 2023.
- 2. Weather Changes:** The eruption caused some unusual weather changes:
 - i) Australia had a wetter summer in 2024, which is not usual for an El Niño year when it's typically drier.
 - ii) The global average temperature only went up by a tiny bit, around 0.015 degrees Celsius.
- 3. Regional Climate Effects:**
 - i) Northern Australia might experience colder and wetter winters than usual up to 2029.
 - ii) North America could see warmer winters during the same period.
 - iii) Scandinavia might have colder winters.
- 4. Atmospheric Changes:** The eruption changed the way air moves in the atmosphere, which could affect weather patterns.

How is Hunga Tonga Different from Typical Volcanic Eruptions?

1. Unique Eruption: Hunga Tonga-Hunga Ha'apai is an underwater volcano that erupted on January 15, 2022. This eruption was extraordinary because it shot a huge amount of water vapor high into the sky, into the stratosphere (about 15-40 kilometers above the Earth).

2. Usual Volcanic Effects: Typically, volcanoes release smoke and sulfur dioxide which leads to a cooling effect on Earth. This happens because sulfur dioxide turns into tiny particles that float in the air and reflect sunlight away from Earth.

3. Hunga Tonga's Impact: Being underwater, Hunga Tonga didn't produce much smoke but sent 100-150 million tonnes of water vapor into the stratosphere instead.

4. Effects of Water Vapor: In the stratosphere, water vapor can harm the ozone layer and act like a greenhouse gas, which might warm the Earth.

About Hunga Tonga-Hunga Ha'apai volcano

1) Location: The Hunga Tonga-Hunga Ha'apai volcano is situated in the western South Pacific Ocean, west of Tonga's main inhabited islands.

2) Type of Volcano: It is a submarine volcano, one of twelve along the Tofua Arc, part of the larger Tonga-Kermadec volcanic arc.

3) Geological Formation: This arc is formed by the subduction of the Pacific Plate beneath the Indo-Australian Plate.

4) Composition: The volcano includes two small, uninhabited islands named Hunga-Ha'apai and Hunga-Tonga.

4. International Health Regulations (IHR) Amendments

Recently, the 77th World Health Assembly approved a set of amendments to the International Health Regulations (IHR 2005). These amendments, based on 300 proposals from member countries following the Covid-19 pandemic, aim to enhance global health preparedness and response.

1) About: The 77th World Health Assembly endorsed amendments to the International Health Regulations (IHR 2005).

2) Objective: The amendments enhance global readiness and response to Public Health Emergencies of International Concern (PHEIC) and Pandemic Emergencies (PE).

3) The amendments facilitate equitable access to health products and mobilize financial resources to help developing countries enhance their health systems under the IHR.

4) Key Features of the Amendments:

i) Provisions for equitable access to health products during emergencies.

ii) Strategies to mobilize financial resources to aid developing countries in building and maintaining necessary health capabilities.

5) The amendments were unanimously adopted on June 1, 2024, at the 77th World Health Assembly.

6) Significance: They represent steps toward greater equity and global solidarity, described as a "gift to our children and grandchildren."

ANSWER WRITING

Q. Evaluate the impact of India's rising number of universities on the overall quality of scientific research and innovation. How does the disparity in resource availability among institutions affect this impact?

The exponential rise in the number of universities in India, which now exceeds 1,000, has significantly impacted scientific research and innovation. This growth has resulted in increased research output and a greater scope for innovation. However, disparities in resource availability among institutions have created challenges, influencing the overall quality and extent of this impact. Notably, while top institutions like IITs and IISc excel globally, many regional universities struggle with limited funding and infrastructure.

Positive Impacts:

- **Increased Research Output:** The growing number of universities has significantly boosted research volume.
For example: Indian Institute of Science (IISc) and IITs consistently **rank highly** in global university rankings, demonstrating high research output.
- **Enhanced Innovation:** The proliferation of universities has fostered a culture of innovation across various scientific fields.
For example: India ranks **second** in the 'papers per faculty' metric among Asian higher education systems.
- **Global Collaborations:** The increasing number of universities in India has led to **more international research collaborations**, enhancing the quality and scope of research.
For example: Institutions like **IIT Bombay** engage in numerous **international partnerships**, contributing to **cutting-edge research** and innovation.
- **Higher Education Access:** Increased access to higher education encourages a **research-oriented culture** among a larger population.

For example: The number of higher education institutions in India more than **doubled** from **2008 to 2018**, expanding opportunities for students across the country.

- **Specialised Research Areas:** New universities often focus on niche research areas, driving specialised innovation.
For example: **Maulana Abul Kalam Azad University of Technology** excels in specific domains like **robotics, artificial intelligence, and renewable energy**.

Negative Impacts:

- **Quality Over Quantity:** Rapid expansion sometimes prioritises quantity over quality, leading to **diluted research standards**.
For example: Many new institutions struggle with **inadequate infrastructure and faculty**, affecting their research capabilities.
- **Administrative Challenges:** Bureaucratic **inefficiencies** in new universities hamper research initiatives.
For example: Delays in **funding approvals** and **rigid administrative processes** can stifle innovative research projects.
- **Faculty Shortages:** Many new universities face significant faculty shortages, impacting the quality of education and research.
For example: Regional universities often have **faculty vacancies** that go unfilled for extended periods, affecting their research output.
- **Overemphasis on Teaching:** Some universities focus more on teaching than research, leading to a lack of research culture.
For example: Institutions primarily catering to undergraduate education often have limited resources and incentives for research activities.
- **Fragmented Research Efforts:** The lack of a **cohesive national research** agenda leads to **scattered efforts** and reduced impact.
For example: Many universities **operate in silos**, resulting in **duplication of research efforts** and inefficient use of resources.

Impact of Resource Disparity:

- **Funding Inequity:** Significant funding differences result in **uneven research capabilities** across institutions.
For example: Top institutions like **IITs** receive **substantial funding**, whereas **regional universities struggle** with limited resources.
- **Regional Imbalance:** Unequal resource distribution leaves some regions **underfunded**, limiting their research output.
For example: Northern and southern states have more well-funded institutions compared to **eastern and northeastern states**, leading to regional disparities in research quality.
- **Limited Industry Collaboration:** Not all universities have strong industry ties, which are crucial for **practical research applications and innovation**.
For example: Institutions like **IIT Bombay** excel in **industry collaboration**, but many smaller universities lack these connections, limiting their research impact.
- **Variable Research Quality:** Resource disparities result in varying research quality, with well-funded institutions producing **higher-quality research** compared to underfunded ones.
For example: Institutions with **better resources** attract more **qualified faculty** and researchers, leading to **superior research** output.
- **Access to Technology:** Disparities in resource availability impact access to advanced research technologies and facilities.
For example: Well-funded institutions can afford **state-of-the-art laboratories**, while **underfunded universities struggle** with basic amenities, affecting the quality of research.

India's increasing number of universities has greatly enhanced research output and innovation. However, addressing resource disparities through equitable funding and fostering industry-academic collaborations is crucial for sustaining and enhancing research excellence. Implementing these measures will ensure all institutions contribute effectively to India's scientific and innovative progress.

MCQS

- With reference to Nipah virus-like particles (NiV-VLPs), consider the following statements:
1. These particles can be used to develop antibodies and antiviral drugs in a safer lab environment.
- The VLPs are contagious and harmful as the Nipah Virus.
Which of the statement(s) given above is/are correct?
a) 1 only
b) 2 only

- c) Both 1 and 2
d) Neither 1 nor 2
2. Which one of the following is the primary purpose of multinational military exercises like 'Red Flag' and 'RIMPAC'?
- a) Disaster relief training
b) Show of force and regional dominance
c) **Improving interoperability between allied forces**
d) Testing new weaponry and military technology
3. Consider the following statements:
- The primary demand of the Telangana movement that led to the formation of the state was lesser political representation for Telangana within Andhra Pradesh.
 - Gentlemen's Agreement was signed to safeguard the interests of Telangana during its merger with Andhra Pradesh in 1956.
 - Andhra Pradesh Reorganisation Act, 2014 led to the formation of Telangana.
- 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
4. Consider the following statements:
Statement-I: Volcanic eruption cools the Earth's surface temporarily by creating particles that reflect sunlight back into space.
Statement-II: Volcanoes eruption releases smoke containing sulfur dioxide.
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
5. Active Pharmaceutical Ingredient (API), seen in the news recently, is
- a) Used to provide a pleasant taste or color to the medication.
b) A packaging material for drugs.
c) **A substance responsible for the therapeutic effect of a drug.**
d) Used to extend the shelf life of the medication.
6. Consider the following statements:
- Cryonics is the practice of preserving individuals at very low temperatures with the hope

that future medical technology will be able to revive them.

2. Cryonics guarantees that individuals will be revived in the future.

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. In which of the following sectors is Foreign Direct Investment (FDI) prohibited in India?

a) Manufacturing of automobiles

b) Development of townships

c) **Real estate business or construction of farm houses**

d) Single-brand retail stores

8. Consider the following statements about the volcanic activity in Iceland:

1. Iceland is located on the Mid-Atlantic Ridge where the Eurasian and North American plates are moving apart.

2. Iceland's volcanic activity is solely due to its position over a hotspot.

3. Most of the volcanoes in Iceland are Stratovolcanoes that have a low profile and resemble a shield lying on the ground.

How many of the above statements are correct?

a) **Only one**

b) Only two

c) All three

d) None

9. Consider the following statements about notifiable disease

1. A notifiable disease is one that law mandates must be reported to government authorities

2. Both government and private hospitals and clinics are responsible for reporting cases of notifiable diseases.

3. In urgent situations, healthcare providers are required to report cases verbally via phone within 24 hours.

Which of the above statements are correct?

a) 1 and 2

b) 2 and 3

c) **All three**

d) None

10. Tonga-Hunga Ha'apai volcano is located in which of the following countries ?

a) South America

b) Japan

c) Congo

d) **Kingdom of tonga**