PLUTUS IAS

CURRENT AFFAIRS

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THE LIST OF ANCIENT INDIAN TAXES AND THEIR KINGDOMS, ALONG WITH ATTRIBUTES.

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Tax	Dynasty/Period	Attributes
Bali	Vedic Period	A voluntary gift to a king
Ayudhiy	Maurya Dynasty	Supply Tax
Bhaga	Maurya Dynasty	Tax on agricultural production (6% of total production)
Dwarbahirikadey	Maurya Dynasty	Octroi and Road Tax
Gulm	Maurya Dynasty	Tax on Military Bases
Manpyaji	Maurya Dynasty	Tax on sale of Royal Goods
Nishkramya Tax	Maurya Dynasty	Export Tax
Paridh	Maurya Dynasty	Monopoly Tax
Pashmev	Maurya Dynasty	Subtax
Pindkar	Maurya Dynasty	Excise tax payable by villagers
Pratikar	Maurya Dynasty	Excise Tax
Pranay Tax	Maurya Dynasty	Emergency Tax
Senabhakta	Maurya Dynasty	Tax collected during army campaigns
Aupayanik	Maurya Dynasty	Gift given to the king on special occasions
Koshtheya	Maurya Dynasty	Tax collected from government reservoirs

Tax	Dynasty/Period	Attributes
Parihinak	Maurya Dynasty	Tax levied for loss caused by animals on government land
Druvadhikaran	Maurya Dynasty	Land Tax Collector
Rajju	Maurya Dynasty	Tax charged at the time of land measurement
Setu	Maurya Dynasty	Fruit Tax
Hirannya	Maurya Dynasty	Tax payable in cash form
Dhanya	Maurya Dynasty	Tax on some special crops
Udranga	Maurya Dynasty	Tax charged from permanent land residents
Upari	Maurya Dynasty	Tax charged from temporary land residents
Udaka Bhaga	Maurya Dynasty	Tax on irrigation
Kutak	Maurya Dynasty	House Tax
Bhag	Gupta Dynasty	Tax on agricultural production (1/6 of total production)
Bhog	Gupta Dynasty	Taxes payable by villagers from time to time
Adhiaang	Gupta Dynasty	Tax for maintenance of Police Chaukis
Hiranya	Gupta Dynasty	Tax paid in gold coins
Halivarkara	Gupta Dynasty	Tax collected from plow farmers
Shulka	Gupta Dynasty	Customs tax on goods brought into ports by merchants
Paadikabalkuli	Chola Dynasty	Safety Tax
Peshawar	Chola Dynasty	Tax levied on special professions
Pathkar	Chola Dynasty	Interstate Tax
Marmajjadi	Chola Dynasty	Tax on trees
Kadmai	Chola Dynasty	Tax on betel nut cultivation
Maniiray	Chola Dynasty	House Tax
Kidakkashu	Chola Dynasty	Tax on animals
Padikaval	Chola Dynasty	Village Safety Tax
Vashilpramam	Chola Dynasty	Dwarkar Tax
Maganmai	Chola Dynasty	Tax on Goldsmiths, Ironsmiths, and Potters

Tax	Dynasty/Period	Attributes
Klipt or Upklipt	Chola Dynasty	Purchase-Sales Tax

SECURITY IN BORDER AREAS

WHY IN THE NEWS?

Home Minister Amit Shah has directed authorities to dismantle networks facilitating the illegal entry, documentation, and settlement of Bangladeshi and Rohingya intruders, citing national security concerns. In a high-level meeting with Delhi's newly elected Chief Minister Rekha Gupta, Shah emphasized strict action against these networks and underperforming police stations. He also called for a crackdown on interstate gangs and narcotics, the appointment of special prosecutors for the 2020 Delhi riots cases, and an expedited police recruitment process. Additionally, he urged DCP-level officers to engage with the public to address grievances. These directives aim to strengthen law enforcement and national security in Delhi.

INDIA AND LAND BORDER:

India shares a 15,106.7 km land border and a 7,516.6 km coastline, including island territories. The land borders with neighbouring countries are as follows:

Bangladesh: 4,096.7 km
China: 3,488 km
Pakistan: 3,323 km
Nepal: 1,751 km

Myanmar: 1,643 km
Bhutan: 699 km
Afghanistan: 106 km
In January 2004, the Ministry of Home Affairs created the Department of Border Management to focus on securing international land and coastal borders. Its responsibilities include strengthening border policing, infrastructure creation like roads and fencing, and implementing the Border Area Development Programme. The department also oversees the construction of 13 Integrated Check Posts (ICPs) and the establishment of the Land Ports Authority of India (LPAI).

Key initiatives by the Department of Border Management include:
Expedited construction of fencing, floodlighting, and roads along the Indo-Bangladesh, Indo-Pakistan, and Indo-Myanmar borders.
Strategic roads along the India-China, Indo-Nepal, and Indo-Bhutan borders.
Deployment of high-tech surveillance equipment along international borders.
Construction of 509 Border Out Posts (BOPs) for the BSF.
Implementation of Coastal Security Schemes.
Development of Integrated Check Posts (ICPs) and management through LPAI.

THREAT TO NATIONAL SECURITY IN LAND BORDER AREAS

1. Cross-border terrorism: Militant groups operating across borders pose a significant threat, infiltrating and conducting attacks, often with the support or tolerance of neighbouring countries.
2. Illegal immigration: Porous borders allow large-scale illegal entry, potentially changing demographics, straining public services, and fueling social tensions.
3. Smuggling activities: Poorly monitored borders facilitate the trafficking of drugs, arms, and other illicit goods, empowering criminal networks and threatening national security.

4. Espionage and intelligence gathering: Border regions can be exploited by hostile actors to gather sensitive information, threatening national security by compromising military and political secrets.
5. Border disputes: Unresolved territorial claims lead to diplomatic tensions, sometimes escalating into military confrontations, especially in contested border regions.
6. Terrain challenges: Geographical features like mountains, forests, and rivers make border surveillance and patrolling difficult, creating gaps in security coverage.
7. Lack of infrastructure: Insufficient infrastructure—such as roads, surveillance technology, and border posts—leaves borders vulnerable to breaches, delays in response, and difficulties in monitoring.

GOVT. INITIATIVES TO PROTECT LAND BORDERS

1. Infrastructure Development:
Fencing & Floodlighting: Implemented on critical borders like India-Pakistan and India-Bangladesh.
Border Roads & Posts: Construction of roads and Border Outposts (BOPs) for better surveillance and troop mobility, e.g., the Trans-Arunachal Highway.
Vibrant Villages Programme: Development of villages along the LAC to prevent insurgent support.
2. Technology Integration:
CIBMS: Integration of sensors, surveillance, and command systems for real-time border monitoring.
UAVs/Drones: Deployed for surveillance and infiltration monitoring, especially on sensitive borders.
3. Development Programs:
Border Area Development Programme (BADP): Focus on infrastructure, healthcare, education, and skill development for border populations.
Coastal Security Scheme (CSS): Enhances maritime security with vessel tracking biometric IDs for fishermen.
4. Bilateral Cooperation:
Strengthening cooperation with neighbouring countries through joint working groups and national-level meetings to manage border-related issues.

CHALLENGES IN THE HANDLING OF LAND BORDER SECURITY

1. Porous Borders: Particularly with Nepal, Bhutan, Myanmar, and Bangladesh, allowing illegal immigration, infiltration, and smuggling.
2. Difficult Terrain: Mountainous, forested, and riverine areas complicate monitoring and security operations.
3. Shortage of Manpower: Over 83,000 vacancies in border guarding forces make it difficult to secure borders effectively.
4. Inadequate Infrastructure: Limited mobility and logistics, especially in forward areas.
5. Cross-border Terrorism & Insurgency: Terrorist infiltration and insurgent sanctuaries in neighbouring countries pose security threats.
6. Coordination Issues: Multiple agencies are involved, leading to command and control challenges.

RECOMMENDATION BY COMMITTEES

1. GoM (2001): Creation of the Department of Border Management, better coordination, and integrated check posts (ICPs).
2. Kargil Review Committee (1999): Improved infrastructure and coordination between military and paramilitary forces.
3. BSF Reports: Focus on enhanced fencing, floodlighting, and modern surveillance.
4. Nirmal Committee (2015): Expedited border road and surveillance infrastructure development.

5. NSAB Recommendations: Creation of a National Border Security Agency (NBSA) and improved intelligence sharing.

6. Standing Committee on Home Affairs (2018): Recommended manpower increase and improved surveillance along Indo-China borders.

CONCLUSION

India's land border security is crucial due to challenges like cross-border terrorism, illegal immigration, smuggling, espionage, and unresolved territorial disputes. The Department of Border Management has initiated key measures, such as fencing, road construction, and advanced surveillance systems (CIBMS, UAVs). However, issues like porous borders, difficult terrain, manpower shortages, and inadequate infrastructure persist. Committees like the GoM (2001) and Kargil Review Committee (1999) have recommended better coordination, enhanced infrastructure, and manpower. Home Minister Amit Shah's recent directives focus on addressing illegal immigration and strengthening law enforcement. Ongoing infrastructure development, technological integration, and cooperation with neighbouring countries are vital for securing India's borders and national security.

PRELIMS QUESTIONS:

Q.With reference to the Department of Border Management and its initiatives to secure India's land borders, which of the following statements is/are correct?

1. The Department of Border Management was created by the Ministry of Home Affairs in 2004.
2. The Department is responsible for constructing Integrated Check Posts (ICPs) along international borders.

Select the correct answer using the code given below:

A. 1 only
B. 2 only
C. Both 1 and 2
D. Neither 1 nor 2

Answer: C

MAINS QUESTIONS:

Q. Discuss the key challenges faced by India in securing its land borders and the government initiatives to address them.

(250 words, 15 marks)

EMPOWERING YOUNG MINDS THROUGH SCIENCE: THE LEGACY OF C.V. RAMAN

WHY IN THE NEWS?

National Science Day celebrated annually on February 28 commemorates the anniversary of Sir C.V. Raman's groundbreaking discovery of the **Raman Effect.** National Science Day 2025 is in the spotlight due to its theme, **"Empowering Indian Youth for Global Leadership in Science & Innovation for VIKSIT BHARAT."** This theme highlights the essential role of **scientific research, technological advancement, and youth-driven innovation** in India's roadmap for development, aligning with the **Viksit Bharat 2047 vision**.

NATIONAL SCIENCE DAY & WHEN WAS IT STARTED?

National Science Day was first observed in 1987 following the recommendation of the National Council for Science and Technology Communication (NCSTC) to commemorate the discovery of the Raman Effect on February 28, 1928. The day serves to inspire scientific temperament among students and the public, promoting awareness about the role of science in everyday life. A 2021 survey by the Department of Science and Technology (DST), India, found that over 60% of Indian students credited National Science Day activities with increasing their interest in scientific research.

THEME OF NATIONAL SCIENCE DAY 2025

Every year, National Science Day is celebrated with a unique theme that highlights a particular aspect of scientific development. The theme for 2025 is yet to be officially announced, but it is expected to focus on emerging technologies and their role in sustainable development. The themes of previous years have ranged from "Science and Technology for a Sustainable Future" to "Global Science for Global Well-being", emphasizing the significance of science in addressing global challenges.

C.V. RAMAN: A BRIEF ABOUT HIS PERSONALITY

Sir Chandrasekhara Venkata Raman was born on November 7, 1888, in Tiruchirapalli, Tamil Nadu, India. From an early age, he exhibited an exceptional aptitude for science and mathematics. He pursued his higher education at Presidency College, Madras, where he topped his university and earned a gold medal in physics. Raman's passion for research led him to work at the Indian Association for the Cultivation of Science (IACS), Kolkata, where he made his historic discovery. His charismatic personality, deep curiosity, and relentless pursuit of knowledge made him an inspiration for countless aspiring scientists. Throughout his life, he

emphasized the importance of indigenous scientific research and encouraged young minds to explore the mysteries of nature.

In recognition of his immense contribution, he was awarded the Bharat Ratna, India's highest civilian award, in 1954.

DISCOVERIES OF C.V. RAMAN

While C.V. Raman is best known for his discovery of the Raman Effect, he made significant contributions in various fields of physics, including:

Scattering of Light: His extensive research on light scattering led to the discovery of the Raman Effect.

Acoustics: He studied the physics of musical instruments, explaining the unique sound quality of Indian string instruments such as the veena and violin.

Optics and Crystallography: Raman investigated the optical properties of several crystals, contributing to the understanding of their molecular structures.

Physiology of Vision: He conducted research on the human eye, particularly the physics of light perception. According to a report published in Nature (1931), Raman's studies on diamond's light-scattering properties were instrumental in the development of early diamond synthesis techniques.

WHAT IS THE RAMAN EFFECT?

The Raman Effect is a phenomenon in which light, when passing through a transparent substance, is scattered, and some of the scattered light undergoes a shift in wavelength. This change in wavelength is due to the interaction of photons with the molecular vibrations of the medium.

MECHANISM OF THE RAMAN EFFECT

Incident Light: A beam of monochromatic light (usually from a laser) is directed at a sample.

Interaction with Molecules: The light photons interact with the molecules in the substance, transferring energy to or from them.

Scattered Light: Most scattered photons have the same energy as the incident photons (Rayleigh Scattering), but a small fraction gains or loses energy due to molecular vibrations.

Frequency Shift: The energy change corresponds to a shift in frequency, which provides unique insights into the molecular composition of the substance.

A 2018 study by MIT demonstrated how Raman spectroscopy can accurately identify the chemical composition of unknown substances in under 10 milliseconds, making it invaluable in rapid diagnostic applications.

APPLICATIONS OF RAMAN EFFECT IN DIVERSE FIELDS

The Raman Effect has found extensive applications in various scientific and industrial domains:

Chemistry and Material Science: Identification of molecular structures. Detection of chemical compositions in unknown substances

Medical Science and Pharmaceuticals: Non-invasive diagnosis of diseases such as cancer. Drug analysis and quality control. A 2020 report by Harvard Medical School showed that Raman spectroscopy could detect early-stage cancer with 97% accuracy.

Forensic Science: Identification of drugs, explosives, and counterfeit products Crime scene investigations through chemical analysis

Nanotechnology: Characterization of nanomaterials and graphene structures

A 2021 IEEE research paper highlighted the use of Raman spectroscopy in semiconductor manufacturing for precise quality control.

Environmental Science: Detection of pollutants and toxic chemicals in air and water

Monitoring climate changes through atmospheric studies

Astrophysics and Space Science: Analysis of the composition of distant planets and celestial bodies NASA's Perseverance Rover used Raman spectroscopy to detect potential bio-signatures on Mars in 2021. Raman spectroscopy has become an indispensable tool in modern scientific research, showcasing the brilliance of Raman's discovery.

CONCLUSION

Sir C.V. Raman was a visionary scientist whose contributions to physics revolutionized our understanding of light and matter. His discovery of the Raman Effect not only won him the Nobel Prize in Physics in 1930 but also paved the way for numerous technological advancements across various fields.

The celebration of National Science Day on February 28th each year serves as a tribute to his legacy and an inspiration for future generations to pursue scientific endeavors. With Raman's pioneering work continuing to influence modern science, his contributions remain immortal in the annals of history. His life and achievements remind us of the power of curiosity, perseverance, and the quest for knowledge in shaping the world of tomorrow.

PRELIMS QUESTIONS:

Q. The theme for National Science Day 2025 is:

a) "Advancing AI for a Sustainable Future"

b) "Science for Society and Sustainable Development"

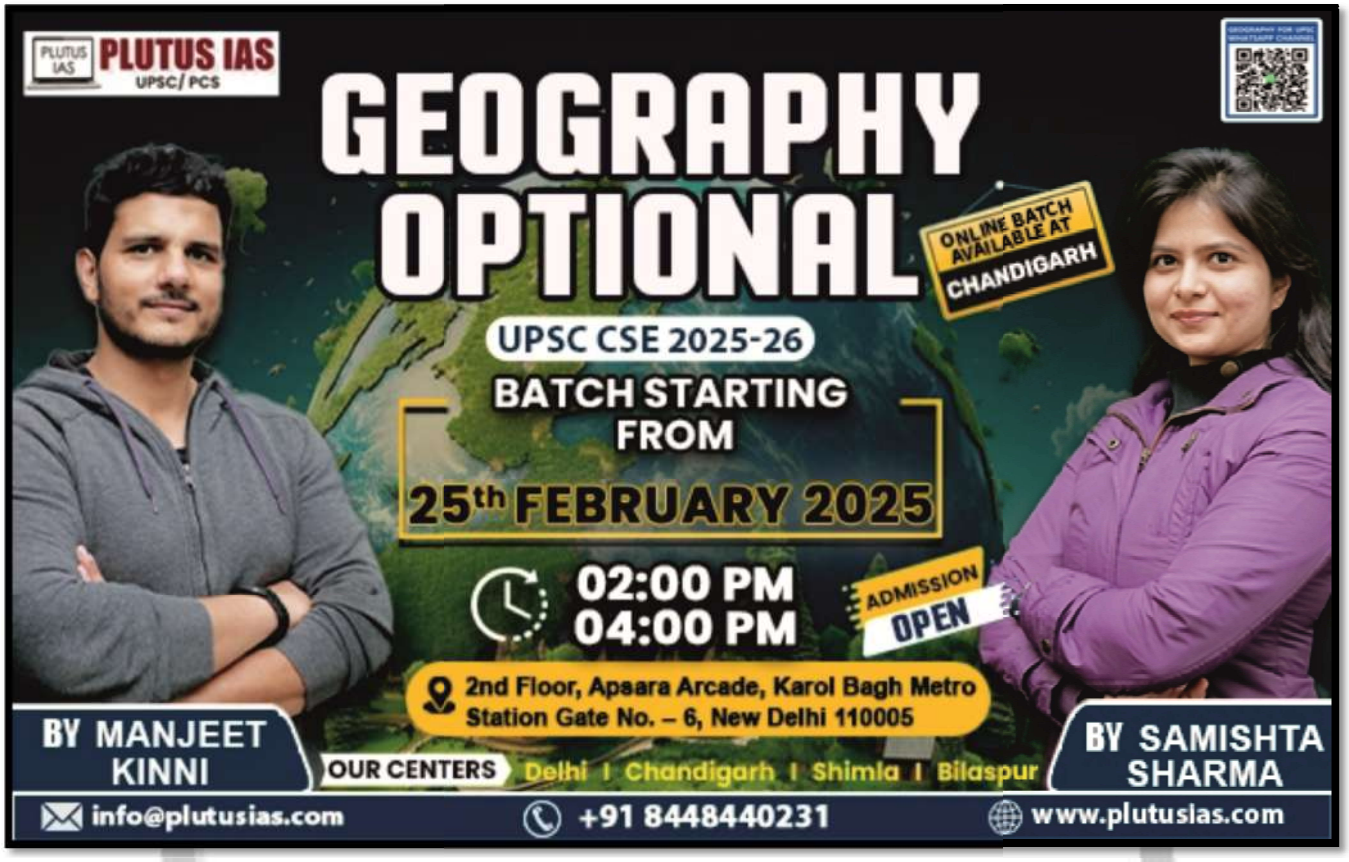
c) "Empowering Indian Youth for Global Leadership in Science & Innovation for VIKSIT BHARAT"

d) "Harnessing Biotechnology for a Better Tomorrow"

Answer: C

MAINS QUESTIONS:

Q. Explain the mechanism of the Raman Effect and discuss its applications in diverse fields such as medicine, space exploration, and environmental science. (250 words, 15 marks)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