



DAILY CURRENT AFFAIRS-

1. Prevention of Insults to National Honour (Amendment) Bill, 2026
2. UNESCO World Heritage List: Sebastia (West Bank) & Mount Amel Castles (Lebanon)
3. BHAVYA Rasayan Scheme (Bharat Audyogik Vikas Yojana Rasayan)
4. Qdenga (TAK-003): India's First Approved Dengue Vaccine
5. Electrically Rechargeable Zinc-Air Batteries

1.Prevention of Insults to National Honour (Amendment) Bill, 2026

Why in News?

The **Prevention of Insults to National Honour (Amendment) Bill, 2026** was introduced in the **Rajya Sabha** to provide statutory protection to the **National Song, Vande Mataram** by making intentional insults a punishable offence.

Key Highlights

Particular	Details
Bill	Prevention of Insults to National Honour (Amendment) Bill, 2026
Amends	Prevention of Insults to National Honour Act, 1971
Objective	Extend legal protection to Vande Mataram
Proposed Punishment	Imprisonment up to 5 years , or fine, or both

About the Prevention of Insults to National Honour Act, 1971

- Enacted to protect the dignity of India's **National Flag, Constitution and National Anthem**.
- Gives statutory effect to the **Fundamental Duty under Article 51A(a)** to respect national symbols.

Key Provisions

- **Section 2:** Punishes insult to the **National Flag** or **Constitution**.
- **Section 3:** Punishes intentionally preventing the singing of the **National Anthem** or causing disturbance during its singing.
- **Section 3A:** Provides enhanced punishment for repeat offenders.

What does the Amendment Bill propose?

- Brings **Vande Mataram** under the ambit of the 1971 Act.
- Makes **intentional prevention of singing** or **causing disturbance** during the singing of the National Song a punishable offence.
- Seeks to accord the **National Song** statutory protection similar to that available to the **National Anthem**.

National Anthem vs National Song

NATIONAL ANTHEM	NATIONAL SONG
JANA GANA MANA	Vande Mataram
WRITTEN BY RABINDRANATH TAGORE	Written by Bankim Chandra Chattopadhyay
ADOPTED AS THE NATIONAL ANTHEM ON 24 JANUARY 1950	Accorded the status of National Song on 24 January 1950
PROTECTED UNDER THE PREVENTION OF INSULTS TO NATIONAL HONOUR ACT, 1971	Proposed to receive similar statutory protection through the 2026 Amendment Bill

Significance

- Seeks to strengthen legal protection for a national symbol.

- Reinforces respect for national heritage and constitutional values.
- Gives statutory backing to the National Song through legislative amendment.

UPSC Prelims MCQ

Q. Consider the following statements regarding the Prevention of Insults to National Honour Act, 1971:

1. It provides legal protection to the **National Flag** and the **National Anthem**.
2. It gives statutory effect to the Fundamental Duty under **Article 51A(a)**.
3. The **Prevention of Insults to National Honour (Amendment) Bill, 2026** seeks to extend similar protection to **Vande Mataram**.

Which of the statements given above is/are correct?

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

Answer: (d)

UPSC Mains Question (10 Marks)

Discuss the significance of the Prevention of Insults to National Honour Act, 1971. Examine the rationale behind the proposed amendment extending statutory protection to the National Song, *Vande Mataram*.

2.UNESCO World Heritage List: Sebastia (West Bank) & Mount Amel Castles (Lebanon)

Why in News?

UNESCO has inscribed the **archaeological site of Sebastia (West Bank)** and the **five medieval castles of Mount Amel (Lebanon)** on the **World Heritage List**. Owing to the ongoing conflict in West Asia, both sites were simultaneously included in the **List of World Heritage in Danger**, highlighting the urgent need for their protection and conservation.

Key Highlights

Aspect	Details
Organization	UNESCO (United Nations Educational, Scientific and Cultural Organization)
Newly Inscribed Sites	Sebastia (West Bank) and Mount Amel Castles (Lebanon)
Additional Status	Included in the List of World Heritage in Danger
Reason for Danger Listing	Threats arising from armed conflict and regional instability in West Asia
Decision	Taken during the UNESCO World Heritage Committee meeting

About UNESCO World Heritage Convention (1972)

- The **Convention Concerning the Protection of the World Cultural and Natural Heritage** was adopted by UNESCO in **1972**.
- It aims to identify, protect and conserve cultural and natural heritage possessing **Outstanding Universal Value (OUV)** for present and future generations.
- Countries that ratify the Convention undertake the responsibility of protecting these heritage sites.
- India became a **State Party to the Convention in 1977**.

What is the List of World Heritage in Danger?

- It includes World Heritage Sites facing **serious and specific threats** that may adversely affect their Outstanding Universal Value.
- Such threats include:
 - Armed conflicts and wars
 - Natural disasters
 - Uncontrolled urbanization
 - Climate change
 - Pollution and environmental degradation
 - Illegal excavation or destruction of heritage
- Inclusion on this list enables **international monitoring, technical assistance and financial support** for conservation.

India and UNESCO World Heritage Sites

- **India has 44 UNESCO World Heritage Sites**, placing it among the countries with the highest number of World Heritage properties.
- These include:
 - **36 Cultural Sites**
 - **7 Natural Sites**
 - **1 Mixed Site** – *Khangchendzonga National Park (Sikkim)*

Recent Additions

- **Moidams of Charaideo (Assam)** – Inscribed in **2024** as India's **43rd World Heritage Site**.
- **Maratha Military Landscapes** – Inscribed in **2025** as India's **44th World Heritage Site**, comprising 12 strategically important forts associated with the Maratha Empire.

Selection Process for World Heritage Sites

- A country first places a site on its **Tentative List**.
- A detailed **Nomination Dossier** is then submitted to UNESCO.
- The proposal is evaluated by:
 - **ICOMOS** (International Council on Monuments and Sites) for cultural properties.
 - **IUCN** (International Union for Conservation of Nature) for natural properties.
- The **21-member World Heritage Committee** takes the final decision on inscription.

Significance

- Protects sites of exceptional cultural and natural importance for humanity.
- Encourages international cooperation in heritage conservation.
- Promotes sustainable tourism and local economic development.
- Helps preserve heritage threatened by conflicts, disasters and environmental degradation.
- Strengthens cultural diplomacy and global awareness of shared heritage.

UPSC Prelims MCQ

Q. Consider the following statements regarding UNESCO World Heritage Sites:

1. UNESCO World Heritage Sites are inscribed under the **1972 World Heritage Convention**.
2. A World Heritage Site may be placed on the **List of World Heritage in Danger** if its Outstanding Universal Value is threatened by armed conflict or other serious risks.
3. India currently has **36 Cultural, 7 Natural and 1 Mixed World Heritage Site**.

Which of the statements given above is/are correct?

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

Answer: (d)

UPSC Mains Question (10 Marks)

"The UNESCO World Heritage List not only recognizes sites of Outstanding Universal Value but also promotes international cooperation for their conservation." Discuss. Explain the significance of the List of World Heritage in Danger in the context of conflict-affected regions.

3.BHAVYA Rasayan Scheme (Bharat Audyogik Vikas Yojana Rasayan)

Why in News?

The **Union Cabinet** has approved the **BHAVYA Rasayan Scheme** with a financial outlay of **₹3,030 crore** to establish **three world-class Chemical Parks** across India. The scheme aims to strengthen the domestic chemical industry, promote exports, reduce import dependence, and support sustainable industrial development.

Key Highlights

Aspect	Details
Scheme	Bharat Audyogik Vikas Yojana Rasayan (BHAVYA Rasayan)
Approved By	Union Cabinet
Duration	FY 2026–27 to FY 2030–31 (5 years)
Total Outlay	₹3,030 crore
Number of Parks	Three Chemical Parks
Central Assistance	Up to ₹1,000 crore per park
State Contribution	Minimum ₹500 crore per park

About BHAVYA Rasayan Scheme

- A **cluster-based industrial development scheme** for establishing dedicated **Chemical Parks** with world-class infrastructure.
- Aims to strengthen the **entire chemical value chain**, from raw materials to downstream manufacturing.
- Parks will provide **common infrastructure and utilities**, enabling industries to reduce production costs and improve operational efficiency.
- The parks will be selected through a **Challenge Route**, ensuring competitive selection of proposals submitted by States.

Key Features

- Each Chemical Park must have at least **2,000 acres (8 sq. km.)** of contiguous, encumbrance-free land provided by the respective State Government.
- Development of **Common Infrastructure Facilities (CIFs)** such as:
 - Integrated pipeline networks
 - Steam generation and distribution systems
 - Solvent recovery facilities
 - Warehousing and logistics infrastructure
- Mandatory establishment of centralized environmental facilities, including:
 - **Common Effluent Treatment Plant (CETP)**
 - **Treatment, Storage and Disposal Facility (TSDF)**

- Promotes a **Plug-and-Play industrial ecosystem**, reducing project implementation time for investors.

Objectives

- Develop globally competitive chemical manufacturing clusters.
- Promote **Atmanirbhar Bharat** by reducing dependence on imported chemicals and intermediates.
- Enhance India's participation in **Global Value Chains (GVCs)**.
- Increase exports of chemicals and petrochemical products.
- Generate employment and attract private investment.
- Encourage environmentally sustainable industrial growth.

Significance

- The chemical sector is a **core industry** supplying inputs to pharmaceuticals, fertilizers, textiles, automobiles, electronics, construction and consumer goods.
- Shared infrastructure lowers manufacturing and logistics costs, improving international competitiveness.
- Encourages investment in high-value chemical manufacturing and downstream industries.
- Supports the vision of **Viksit Bharat @2047** through industrial expansion and export-led growth.
- Centralized waste management infrastructure ensures better environmental compliance and sustainable industrialization.

Way Forward

- Ensure timely identification and development of suitable sites by States.
- Integrate Chemical Parks with major transport and port infrastructure to facilitate exports.
- Encourage innovation, R&D and adoption of green chemistry technologies.
- Strengthen environmental monitoring to balance industrial growth with ecological sustainability.

UPSC Prelims MCQ

Q. With reference to the BHAVYA Rasayan Scheme, consider the following statements:

1. It aims to establish dedicated Chemical Parks with common infrastructure facilities.
2. The scheme seeks to promote import substitution and enhance India's participation in Global Value Chains.
3. The establishment of centralized facilities such as Common Effluent Treatment Plants (CETPs) forms an integral part of the scheme.

Which of the statements given above is/are correct?

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

Answer: (d)

UPSC Mains Question (10 Marks)

The chemical industry is a critical pillar of India's manufacturing ecosystem. Discuss how the BHAVYA Rasayan Scheme can enhance industrial competitiveness, promote sustainable manufacturing, and strengthen India's integration into Global Value Chains.

4.Qdenga (TAK-003): India's First Approved Dengue Vaccine

Why in News?

The **Central Drugs Standard Control Organisation (CDSCO)** has approved **Qdenga (TAK-003)**, developed by **Takeda (Japan)**, as **India's first dengue vaccine**. The approval marks a major milestone in dengue prevention, although concerns remain regarding its efficacy against certain dengue serotypes, affordability, and ensuring completion of the two-dose schedule.

Key Highlights

Aspect	Details
Vaccine	Qdenga (TAK-003)
Developed by	Takeda Pharmaceuticals (Japan)
Regulatory Approval	Approved by CDSCO (2026)
WHO Status	WHO Prequalified (2024)
Dosage	Two doses administered three months apart
Eligibility	Can be administered without prior dengue infection screening

About Qdenga (TAK-003)

- Qdenga is a **live-attenuated tetravalent dengue vaccine** designed to provide protection against all **four dengue virus serotypes (DENV-1, DENV-2, DENV-3 and DENV-4)**.
- It uses a **weakened DENV-2 virus as the genetic backbone**, into which genetic components of the remaining three serotypes are incorporated using recombinant DNA technology.
- The vaccine stimulates the immune system to develop protection against multiple dengue virus serotypes through a **single vaccination platform**.
- It is administered **subcutaneously** in **two doses**, with an interval of **three months** between doses.
- Unlike the earlier dengue vaccine **Dengvaxia**, **Qdenga does not require prior serological testing** to determine previous dengue infection before vaccination.

Why is Developing a Dengue Vaccine Difficult?

- Dengue is caused by **four antigenically distinct serotypes**, and infection with one serotype does not provide lifelong protection against the others.
- A subsequent infection with a different serotype can trigger **Antibody-Dependent Enhancement (ADE)**, increasing the risk of severe dengue.
- Therefore, an effective vaccine must provide balanced immunity against **all four serotypes** without increasing the risk of severe disease.

Significance

- Marks the **first approved dengue vaccine in India**, strengthening preventive public health measures.
- Can reduce **severe dengue cases and hospitalizations**, especially in high-burden regions.
- Eliminates the need for **pre-vaccination screening**, making large-scale immunization operationally easier.
- Partnership with **Biological E** is expected to strengthen domestic manufacturing capacity and improve long-term vaccine availability.
- Supports India's transition from **reactive vector control** to **preventive disease management**.

Concerns

- Clinical studies indicate **variable efficacy across different dengue serotypes**, particularly **DENV-3 and DENV-4** among individuals without prior dengue exposure.
- The vaccine follows a **two-dose schedule**, making completion difficult among highly mobile populations such as migrant workers.
- High pricing may limit access for economically vulnerable populations unless government-supported procurement or price negotiations are undertaken.
- Vaccination alone cannot eliminate dengue; **vector control and public health surveillance remain essential**.

Way Forward

- Integrate the vaccine into India's dengue control strategy after careful prioritization of high-risk populations.
- Ensure affordable pricing through government procurement and public immunization programmes.
- Strengthen surveillance to monitor vaccine effectiveness against different circulating serotypes.
- Continue intensive vector control measures, public awareness campaigns and source reduction activities alongside vaccination.

UPSC Prelims MCQ

Q. With reference to the BHAVYA Rasayan Scheme, consider the following statements:

4. It aims to establish dedicated Chemical Parks with common infrastructure facilities.
5. The scheme seeks to promote import substitution and enhance India's participation in Global Value Chains.
6. The establishment of centralized facilities such as Common Effluent Treatment Plants (CETPs) forms an integral part of the scheme.

Which of the statements given above is/are correct?

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

Answer: (d)

UPSC Mains Question (10 Marks)

The chemical industry is a critical pillar of India's manufacturing ecosystem. Discuss how the BHAVYA Rasayan Scheme can enhance industrial competitiveness, promote sustainable manufacturing, and strengthen India's integration into Global Value Chains.

5. Electrically Rechargeable Zinc-Air Batteries

Why in News?

Scientists from **SASTRA Deemed University**, with support from the **Department of Science and Technology (DST)**, have developed indigenous technologies to improve **electrically rechargeable Zinc-air batteries**, including a **patented nanofluid electrolyte** and low-cost catalysts, making them safer, more efficient and suitable for large-scale energy storage and electric mobility.

Key Highlights

Aspect	Details
Developed By	SASTRA Deemed University with DST support
Major Innovation	Patented nanofluid electrolyte (Patent No. IN570691)

Key Objective	Improve rechargeability, efficiency and durability of Zinc-air batteries
Additional Innovation	Waste-derived catalysts from water filters and surgical masks
Potential Applications	Grid-scale energy storage, electric vehicles and renewable energy integration

What are Zinc-Air Batteries?

- Zinc-air batteries are a type of **metal-air battery** that generate electricity through the electrochemical reaction between **zinc metal** and **oxygen from the atmosphere**.
- Unlike conventional batteries, oxygen is **drawn from ambient air**, reducing battery weight and increasing energy density.
- They are considered a promising alternative to lithium-ion batteries because of their **high energy density, low cost and improved safety**.

Major Components

- **Anode:** Zinc metal
- **Cathode:** Air electrode that absorbs atmospheric oxygen
- **Electrolyte:** Alkaline aqueous solution

Technological Innovations

Patented Nanofluid Electrolyte

- Developed using inexpensive **silica (SiO₂)** and **zinc oxide (ZnO)** nanoparticles.
- Suppresses **zinc corrosion** and **hydrogen gas evolution**, two major causes of battery degradation.
- Remains chemically stable for **over three months**, improving battery life and rechargeability.

Advanced Catalyst Development

- Developed a **copper-doped α-MnO₂ (alpha manganese dioxide)** catalyst.

- Demonstrated superior performance for oxygen reduction and oxygen evolution reactions compared to several conventional catalysts.
- Uses earth-abundant materials, reducing dependence on expensive precious metals.

Waste-to-Wealth Approach

- **Spent activated carbon** from household water filters was converted into high-performance battery electrode materials.
- **Discarded surgical face masks** were chemically transformed into activated carbon for battery applications.
- Supports the principles of **circular economy** and sustainable resource utilization.

Advantages of Zinc-Air Batteries

- **Higher theoretical energy density** than conventional lithium-ion batteries.
- Zinc is **abundant, inexpensive and widely available**, reducing dependence on critical minerals such as lithium and cobalt.
- Uses a **non-flammable aqueous electrolyte**, making it significantly safer.
- Lower manufacturing cost due to inexpensive raw materials.
- Suitable for **long-duration renewable energy storage** and electric mobility.

Challenges

- Rechargeability has traditionally been limited due to:
 - Zinc corrosion
 - Hydrogen gas evolution
 - Slow oxygen reduction and oxygen evolution reactions
- Commercial-scale deployment still requires further improvements in cycle life and large-scale manufacturing.

- Two-electrode performance under prolonged operation remains an area of active research.

Significance

- Strengthens India's efforts towards **Atmanirbhar Bharat** in advanced battery technologies.
- Supports large-scale integration of **solar and wind energy** through affordable energy storage.
- Reduces dependence on imported lithium-ion battery materials.
- Promotes sustainable manufacturing through **waste recycling and circular economy**.
- Has applications in electric vehicles, grid storage, portable electronics and strategic defence systems.

Way Forward

- Accelerate pilot-scale manufacturing and commercialization of indigenous Zinc-air battery technology.
- Promote industry-academia collaboration for technology transfer.
- Support research on improving recharge cycles and long-term durability.
- Integrate Zinc-air batteries into India's broader clean energy and electric mobility ecosystem.

UPSC Prelims MCQ

Q. With reference to Zinc-air batteries, consider the following statements:

1. They generate electricity through the electrochemical reaction between zinc and atmospheric oxygen.
2. They generally use a **non-flammable aqueous electrolyte**, making them safer than conventional lithium-ion batteries.
3. The recent technology developed by SASTRA University employs a nanofluid electrolyte to reduce zinc corrosion and hydrogen gas evolution.

Which of the statements given above is/are correct?

(a) 1 and 2 only

(b) 2 and 3 only

(c) 1 and 3 only

(d) 1, 2 and 3

Answer: (d)

UPSC Mains Question (10 Marks)

Discuss the potential of electrically rechargeable Zinc-air batteries as an alternative to lithium-ion batteries. Examine how recent indigenous technological innovations can contribute to India's energy security, clean energy transition and Atmanirbhar Bharat.

