

Current Affairs - 05 February 2025

STATE EMBLEM OF INDIA



The Union Home Ministry recently asked State governments to prevent the misuse and improper depiction of the State Emblem of India, emphasising that the Lion Capital logo is incomplete without the motto—Satyamev Jayate—in Devanagari script.

- It is an adaptation of the Lion Capital of Ashoka at Sarnath.
- In the original, there are four lions, mounted back-to-back, on a circular abacus, which itself rests on a bell-shaped lotus. The frieze of the abacus has sculptures in high relief of an elephant, a galloping horse, a bull, and a lion separated by intervening Dharma Chakras.
- In the State emblem, adopted by the Government of India on 26 January 1950, only three lions are visible, the fourth being hidden from view.

The wheel appears in relief in the centre of the abacus with a bull on the right and a horse on the left and the outlines of other wheels on the extreme right and left.

The bell-shaped lotus has been omitted.

Below the representation of the Lion Capital, Satyameva Jayate is written in Devnagari Script, which is also the National Motto of India.

The words are a quote from the Mundaka Upanishad and is translated as “Truth alone triumphs.”

The use of the State Emblem of India is restricted to the authorities/purposes specified in the State Emblem of India (Prohibition of Improper Use) Act, 2005, and the State Emblem of India (Regulation of Use) Rules, 2007.

Current Affairs - 05 February 2025

INDIA'S PUSH FOR SMALL MODULAR REACTORS

India is advancing its entry into the global Small Modular Reactors (SMR) manufacturing value chain, receiving institutional support through three key policy enablers announced in the Union Budget.

These measures aim to catalyse development and strengthen India's position in nuclear energy innovation.

Legislative Reforms to Boost Private Participation in Nuclear Energy

- **New Vertical for Private Participation**
 - The government plans to establish a separate division within the Department of Atomic Energy to facilitate private sector involvement in India's nuclear industry.
 - This mirrors the successful space sector reforms and aims to leverage private expertise for SMR design, fabrication, and technology transfer negotiations with global players.
- **Amendment to the Atomic Energy Act, 1962**
 - The proposed amendment seeks to expand private sector participation beyond equipment supply, allowing private firms to operate nuclear power plants, including Small Modular Reactors (SMRs).
 - Currently, only NPCIL and its joint ventures with NTPC and NALCO have this authority.
- **Revisions to Civil Liability for Nuclear Damage Act, 2010**
 - Changes are being considered to address foreign investment concerns regarding liability.
 - The current law assigns operator liability to equipment suppliers, discouraging global firms like GE-Hitachi, Westinghouse, and Areva from investing in India's nuclear sector.
 - Revisions aim to make investment conditions more favorable.

Current Affairs - 05 February 2025

Triggers for India's Small Modular Reactor (SMR) Push

- **Need for Reliable Base-Load Power**
 - As India reduces coal-fired power generation and increases renewable energy capacity, nuclear power is emerging as a stable and clean alternative.
 - Renewable sources like solar and wind face challenges due to intermittent power generation and lack of viable storage solutions.
 - Nuclear energy provides a round-the-clock power source to balance grid demands and support energy transition.
- **India's Strategic Entry into SMR Manufacturing**
 - India aims to position itself as a competitive player in SMR design and manufacturing, leveraging its decades of experience with small reactors and cost-effective production capabilities.
 - The move comes as China aggressively expands its SMR program, using it as a diplomatic tool for the Global South.
 - India seeks to counter China's dominance in this emerging sector and establish itself as a credible alternative in the global SMR market.

SMRs: The Future of Nuclear Energy

- SMRs (30MWe to 300MWe per unit) are seen as a cost-effective and flexible nuclear energy solution.
 - India is focusing on SMRs for clean energy transition and as a strategic foreign policy tool to expand its global influence.
 - **India's Collaboration Efforts**
 - The Department of Atomic Energy is in exploratory talks with Holtec International (USA), a leading exporter of nuclear components, for possible partnerships.
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Current Affairs - 05 February 2025

INTERNATIONAL BIG CAT ALLIANCE



- It was established by Government of India, through the nodal organisation viz., National Tiger Conservation Authority (NTCA), Ministry of Environment, Forest & Climate Change (MoEFCC).
- It was launched on 9th April 2023, during the event 'Commemorating 50 years of Project Tiger'.
- It aims to conserve the seven big cats - Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar and Puma.
- Membership: It is open to 97 'range' countries, which contain the natural habitat of these big cats, as well as other interested nations, international organizations, etc.
- Present Member countries: Nicaragua, Eswatini, India, Somalia and Liberia - have deposited the instruments of ratification under the Article VIII (1) of the Framework Agreement.

Objective:

- To facilitate collaboration and synergy among stakeholders, consolidating successful conservation practices and expertise to achieve a common goal of conservation of big cats at global level.
- This unified approach, bolstered by financial support, aims to bolster the conservation agenda, halt the decline in big cat populations, and reverse current trends.

Governance Structure:

- A General Assembly consisting of all member countries.
- A Council of at least seven but not more than 15 member countries elected by the General Assembly for a term of 5 years, and a Secretariat.

Current Affairs - 05 February 2025

- Upon the recommendation of the Council, the General Assembly will appoint the IBCA Secretary General for a specific term.
- Funding: It has secured Government of India's initial support of Rs. 150 crore for five years (2023-24 to 2027-28).

NATIONAL YOUTH PARLIAMENT SCHEME (NYPS) 2.0



- Its key objectives are to strengthen the roots of democracy, inculcate healthy habits of discipline, and tolerance of the views of others and to enable the student community to know about practices and procedures of the Parliament and to enhance their knowledge of the functioning of the Government, Constitutional values and for living their life in a democratic way.
- The web-portal of NYPS 2.0 enables all the citizens of the country to participate in the Youth Parliament programme through 3 different ways:
- Institution Participation: All educational institution can participate in this category by organizing the Youth Parliament sittings as per the guidelines available on the portal.
- The students from classes VI to XII may be selected for the “Kishore Sabha” sub-category and Under Graduate and Post Graduate level students may be selected for the “Tarun Sabha” sub-category.
- Group Participation: A group of citizens can participate in this category by organizing the Youth Parliament sittings as per the guidelines available on the portal.
- Individual Participation: An individual citizen can participate in this category by attempting a quiz on the theme of ‘Bhartiya Democracy in Action’.
- The e-training material viz. Literature on Youth Parliament, Model Debate, Model Questions, Model List of Business, Model Scripts, Video Tutorials, etc. are available as training resources on the web-portal of NYPS 2.0.

Current Affairs - 05 February 2025

RHEUMATOID ARTHRITIS



Recently, researchers have developed an innovative “self-actuating” drug delivery system that could revolutionize the treatment of rheumatoid arthritis (RA) by targeting inflammation directly within the joints so that therapeutic

agents are released only when needed.

- It is an **autoimmune and inflammatory disease**, wherein the **immune system attacks healthy cells in the body** by mistake, and causing inflammation in the affected parts of the body. The specific causes of RA are unknown.
- It mainly **attacks the joints**, usually many joints at once. RA commonly affects joints in the hands, wrists, and knees.
- **Symptoms:** In a joint with RA, the lining of the joint becomes inflamed, causing damage to joint tissue. This tissue damage can cause long-lasting or chronic pain, unsteadiness (lack of balance), and deformity (misshapeness).
- It can also affect other **tissues throughout the body** and **cause problems in organs** such as the lungs, heart, and eyes.
- **Treatment:** Its treatment usually includes the use of medications that slow disease and prevent joint deformity, called disease-modifying antirheumatic drugs (DMARDs).

Key points of the research:

- Researchers have **developed a smart system** that responds directly to the biochemical signals in the inflamed synovial environment.
- The system uses specially **designed microspheres** loaded with **methotrexate**, a **commonly used anti-rheumatic drug**.
- The formulation consists of **polymer-lipid hybrid micro-composites**, where the lipid component (soya lecithin) ensures high drug encapsulation efficiency, and the polymer component (gelatin) provides responsiveness to **Matrix metalloproteinases (MMP)**.

Current Affairs - 05 February 2025

EXTREMELY LARGE TELESCOPE (ELT)



Lurking in the barren Atacama Desert, the Extremely Large Telescope (ELT), a colossal machine nears completion

- It will be the world's largest optical telescope, with a primary mirror.
- It is being built by the European Southern Observatory (ESO) in Chile at a cost of 1.3 billion euros (around \$1.4 billion).
- It will be capable of detecting—and possibly even imaging—terrestrial planets in the habitable zones of other stars.
- The ELT is under construction atop Cerro Armazones, which is a mountaintop in Chile's Atacama Desert.
- The giant ELT dome will house the telescope and its interior structure, providing protection from the extreme environment of the Atacama Desert.
- The main structure of the telescope will hold its five mirrors and optics, including the enormous 39-metre primary mirror.

European Southern Observatory (ESO):

- It is the pre-eminent intergovernmental science and technology organisation in astronomy.
- It is supported by 16 European countries: Austria, Belgium, the Czech Republic, Denmark, France, Finland, Germany, Ireland, Italy, the Netherlands, Portugal, Poland, Spain, Sweden, Switzerland and the United Kingdom.
- Chile has been its host and partner country for many decades.
- It carries out an ambitious programme focused on the design, construction, and operation of powerful ground-based observing facilities for astronomy to enable important scientific discoveries.
- Headquarters: Garching, Germany

Current Affairs - 05 February 2025

NATIONAL POLICY FOR RARE DISEASES (NPRD) 2021



- The Ministry of Health & Family Welfare launched the National Policy for Rare Diseases (NPRD) in March 2021.
- Currently, 63 rare diseases are included under the National Policy for Rare Diseases on the recommendation of the Central Technical Committee for Rare Diseases (CTCRD).
- The key features of NPRD, 2021, are as under:
 - The rare diseases have been identified and categorized into 3 groups.
 - Group 1: Disorders amenable to one-time curative treatment.
 - Group 2: Diseases requiring long-term/lifelong treatment with relatively lower cost of treatment.
 - Group 3: Diseases for which definitive treatment is available but challenges are to make optimal patient selection for benefit, very high cost, and lifelong therapy.
- Financial support of up to Rs. 50 lakhs per patient is provided for the treatment at the notified Centres of Excellence (CoEs) for Rare Diseases.
- 12 Centres of Excellence (CoEs) have been identified so far, which are premier Government tertiary hospitals with facilities for diagnosis, prevention, and treatment of rare diseases.
- Treatment of patients starts immediately after registration with the CoEs.
- Nidan Kendras have been set up for genetic testing and counselling services.
- The Ministry of Health and Family Welfare has obtained exemption from the Goods & Services Tax (GST) and Basic Customs Duty on drugs imported for Rare Diseases for individual use and through CoE.
- As envisaged in the policy, the Department of Health Research has established the National Consortium for Research and Development on Therapeutics for Rare Diseases (NCRDTRD) for streamlining the research activities for rare diseases.

Current Affairs - 05 February 2025

GAIA MISSION



Astronomers have recently discovered a gigantic black hole named Gaia BH3 hiding close to the earth, the third of its kind using the European Space Agency's Gaia telescope.

- Gaia, the Global Astrometric Interferometer for Astrophysics, is a European Space Agency (ESA)'s astronomical observatory mission.
 - Its goal is to create the largest, most precise three-dimensional map of the Milky Way by surveying about 1% of the galaxy's 100 billion stars.
 - It was launched in 2013.
 - Nestled at the Lagrange Point 2, some 1.5 million kilometers away from Earth, Gaia orbits the sun in sync with our planet.
 - It is shielded by Earth from the sun's glare and free from the distorting effects of Earth's atmosphere, which plague ground-based telescopes' observations.
 - It scans the whole sky every two months.
 - The 2.3 meters Gaia satellite is attached to a 10 meters circular sunshield and is fitted with two telescopes that sit 106 degrees apart.
 - Gaia provides unprecedented positional and radial velocity measurements with the accuracies needed to produce a stereoscopic and kinematic census of about one billion stars in our Galaxy.
 - Gaia also maps Solar System objects, primarily main belt asteroids circling the Sun between the orbits of Mars and Jupiter.
 - With its ability to detect faint and fast-moving objects, it is expected that Gaia will also detect several thousand Near-Earth Objects (NEOs).
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