



Reintroduction of Cheetah

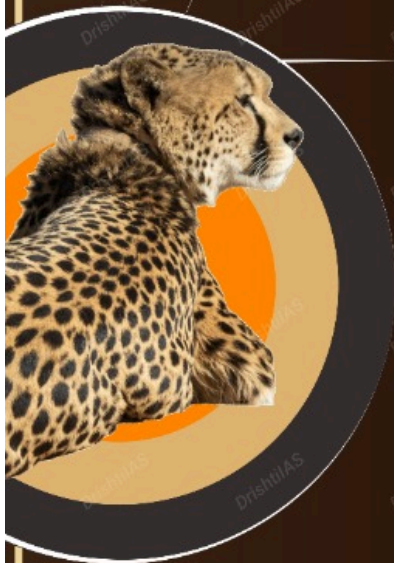
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Cheetah

Common Name - Cheetah

Scientific Name - *Acinonyx jubatus*

- *Acinonyx jubatus jubatus* (African Cheetah)
- *Acinonyx jubatus venaticus* (Asiatic Cheetah)



Reintroduction of Cheetah to India:

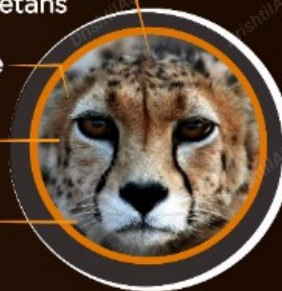
- The "Action Plan for Introduction of Cheetah in India" was released by MoEF&CC at the 19th meeting of the National Tiger Conservation Authority (NTCA) (January 2022).
 - Such a plan was first proposed in 2009.
- In September 2022, eight cheetahs landed in India from Namibia.
 - The 8 cheetahs have been relocated to the Kuno-Palpur National Park, Madhya Pradesh.
 - The relocation of cheetahs to India from Namibia is the world's first inter-continental large wild carnivore translocation project.

Slightly brownish and golden skin; thicker than the Asiatic Cheetahs

More prominent spots and lines on the face

Found all over the African continent

IUCN Red List Status - Vulnerable



African Cheetah

Slightly smaller than the African ones.

Pale yellowish fawn coloured skin - more fur under body, belly specifically.

Found only in Iran; the country claims there are only 12 of them left. Year 1952 - Asiatic Cheetah officially declared extinct from India.

IUCN Red List Status - Critically Endangered



Asiatic Cheetah



Drishti IAS

[Read more...](#)

Poshan Abhiyan

For Prelims: Anganwadi Centres, Poshan Vatikas, POSHAN Abhiyaan (National Nutrition Mission), POSHAN 2.0, Integrated Child Development Services (ICDS)

For Mains: Significance of Poshan Abhiyan

Why in News?

Recently, under various interventions of the Ministry of Women and Child Development jointly (MWCD) with Ministry of Ayush, close to 4.37 lakh Anganwadi Centres have set up **Poshan Vatikas**.

- Under ongoing **Poshan Maah 2022**, activities for setting-up Poshan Vatikas with backyard poultry / fishery units is being carried out in a big way across the country.
- Additionally, so far, 1.10 lakh medicinal saplings have also been planted across some of the selected districts of 6 States.

What do we Know about Poshan Maah?

- The Rashtriya Poshan Maah is being **celebrated during the month of September every year** under **POSHAN Abhiyaan**.
- It includes a month-long activity focused on antenatal care, optimal breastfeeding, Anemia, growth monitoring, girls' education, diet, right age of marriage, hygiene and sanitation and eating healthy (Food Fortification).
- The activities focus on **Social and Behavioural Change Communication (SBCC) and are based on Jan Andolan Guidelines**.
 - SBCC is the strategic use of communication approaches to promote changes in knowledge, attitudes, norms, beliefs and behaviours.

What do we know about Poshan Vatika?

- **About:**
 - Poshan Vatika means that **small piece of land where the people of the house grow vegetables** to make sure that all in the family specially children and women should not become victim of mal-nutrition.
- **Objective:**
 - Its main objective is to **ensure supply of nutrition through organically home-grown vegetables and fruits** simultaneously ensuring that the soil must also remain healthy.
- **Implementation:**
 - Plantation drives for Poshan Vatikas would be taken up by all the stakeholders in the space available at anganwadis, school premises and gram panchayats.

What do we Know about Poshan Abhiyan?

- **About**
 - **POSHAN Abhiyaan (National Nutrition Mission)** was launched by the government on March 8, 2018.
- **Aim:**
 - The Abhiyaan targets to **reduce stunting, undernutrition, anemia (among young children, women and adolescent girls)** and reduce low birth weight by 2%, 2%, 3% and 2% per annum respectively.
 - The target of the mission is to bring down stunting among children in the age group 0-6 years from 38.4% to 25% by 2022.
 - POSHAN Abhiyaan aims to **ensure service delivery and interventions by use of technology, behavioural change** through convergence and lays-down specific targets to be achieved across different monitoring parameters.
 - Under the Abhiyaan, **Swasth Bharat Preraks will be deployed one in each district for coordinating with district officials** and enabling fast and efficient execution of the Abhiyaan across the country. Swasth Bharat Preraks would function as catalyst for fast tracking the implementation of the Abhiyaan.
- **POSHAN 2.0:**
 - **About:**
 - The government has amalgamated various programmes with similar objectives such as **Supplementary Nutrition Programme** and POSHAN Abhiyaan under one umbrella—Mission POSHAN 2.0—for **creating synergies in operations and adopting an integrated approach** in the nutrition services mechanism.
 - **Components:**
 - **Convergence:** The Abhiyaan is to ensure convergence of all nutrition related schemes of MWCD on the target population. The Abhiyaan will ensure convergence of various programmes.
 - **ICDS-CAS: Software based tracking of nutritional status** will be done.
 - **Behavioral change:** The Abhiyaan will be run as a **Jan Andolan where mass involvement of people is desired**. A community-based event will happen once a month to create awareness and address issues.
 - **Incentives:** Front line workers will be given incentives for performance.
 - **Training and Capacity Building:** Incremental Learning Approach will be adopted to teach 21 thematic modules. The training will be given by Master Trainers to front line workers.

- **Grievance Redressal:** A call centre will be set up for ease of access to solutions to any issues faced.

What was the Need for Poshan Abhiyan?

- **Malnutrition and Anaemia among Children:**
 - According to the [National Family Health Survey \(NFHS\)-5](#), India has unacceptably high levels of stunting, despite marginal improvement over the years.
 - In 2019-21, **35.5%** of children below five years were stunted and **32.1%** were underweight.
- **Global Nutrition Report-2021:**
 - According to the [Global Nutrition Report \(GNR, 2021\)](#), India has made no progress on anaemia and childhood wasting.
 - Over **17% of Indian children** under 5 years of age are affected due to childhood wasting.
 - The **data in NFHS 2019-21** shows the **highest spike in anaemia** was reported among children aged 6-59 months from **67.1% (NFHS-5)** from **58.6% (NFHS-4, 2015-16)**.
 - **Human Capital Index (2020):**
 - India ranks **116 out of 180 countries** on the [human capital index](#).
 - **Human capital consists** of the knowledge, skills, and health that people accumulate over their lives, enabling them to realize their potential as productive members of society.

What are the other Related Initiatives?

- [Anemia Mukht Bharat Abhiyan.](#)
- [The National Food Security Act \(NFSA\), 2013.](#)
- [Pradhan Mantri Matru Vandana Yojana \(PMMVY\).](#)
- [PM-POSHAN Scheme.](#)

Way Forward

- Proactive measures are needed to address the longstanding issues of malnutrition and food insecurity in the country.
- The imperative is to formulate structured, time-bound and location-specific strategies with due consideration to the effects of socioeconomic factors and impact of the pandemic.
- It is also crucial to create a comprehensive approach that will address the different sectors and dimensions of nutrition.

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q. Which of the following are the objectives of 'National Nutrition Mission'? (2017)

1. To create awareness relating to malnutrition among pregnant women and lactating mothers.
2. To reduce the incidence of anaemia among young children, adolescent girls and women.
3. To promote the consumption of millets, coarse cereals and unpolished rice.
4. To promote the consumption of poultry eggs.

Select the correct answer using the code given below:

- (a) 1 and 2 only
- (b) 1, 2 and 3 only
- (c) 1, 2 and 4 only
- (d) 3 and 4 only

Ans: (a)

Exp:

- National Nutrition Mission (POSHAN Abhiyaan) is a flagship programme of the Ministry of Women and Child Development, GoI, which ensures convergence with various programmes like Anganwadi services, National Health Mission, Pradhan Mantri Matru Vandana Yojana, Swachh-Bharat Mission, etc.
- The goals of National Nutrition Mission (NNM) are to **achieve improvement in nutritional status of children from 0-6 years, adolescent girls, pregnant women** and lactating mothers in a time bound manner during the next three years beginning 2017- 18. Hence, 1 is correct.
- NNM targets to reduce stunting, under-nutrition, anaemia (among young children, women and adolescent girls) and reduce low birth weight of babies. **Hence, 2 is correct.**
- There is no such provision relating to consumption of millets, unpolished rice, coarse cereals and eggs under NNM. **Hence, 3 and 4 are not correct. Therefore, option (a) is the correct answer.**

[Source: PIB](#)

Megh Chakra Operation

For Prelims: Megh Chakra, Child Pornography, Protection of Children against Sexual Offences Act 2012 (POCSO Act).

For Mains: Issues related to Child Sexual Abuse and the Preventive Measures/Initiatives.

Why in News?

The operation code-named **“Megh Chakra”** is being carried out following the inputs received from **Interpol’s Singapore special unit based** on the information received from the authorities in New Zealand.

- It is a **pan-India drive against the circulation and sharing of Child Sexual Abuse Material (CSAM)** conducted by the [Central Bureau of Investigation \(CBI\)](#).

What are the Key Highlights of the Megh Chakra Operation?

- Searches at 59 locations across 20 States and one Union Territory were conducted.
- It has been alleged that a **large number of Indian nationals were involved in the online circulation**, downloading and transmission of the CSAM using cloud-based storage.
- The operation is sought to **collate information from various law enforcement agencies in India**, engage with the relevant law enforcement agencies globally and coordinate closely through the Interpol channels on the issue.
- The probe had led to the **identification of over 50 groups with more than 5,000 offenders, including the nationals of about 100 countries.**
- A similar exercise code named **“Operation Carbon”** was conducted by CBI in November 2021.

What are the Issues Related to Child Sexual Abuse?

- **Multi-layered Problem:** Child sexual abuse is a **multi-layered problem which negatively impacts children's physical safety**, mental health, well-being and behavioural aspects.
- **Amplification Due to Digital Technologies:** Mobile and digital technologies have further amplified child abuse and exploitation. New forms of child abuse like online bullying, harassment and [Child Pornography](#) have also emerged.
- **Ineffective Legislation:** Although Government of India has enacted the [Protection of Children against Sexual Offences Act 2012 \(POCSO Act\)](#), it has **failed to protect children from sexual abuse**. The reasons for this can be the following:
 - **Low Conviction Rate:** The rate of conviction under the **POCSO act is only about 32%** if one takes the average of the past 5 years and the percentage of cases pending is 90%.
 - **Judicial Delay:** The Kathua Rape case took 16 months for the main accused to be convicted whereas the POCSO Act clearly mentions that the entire trial and conviction process has to be done in one year.
 - **Unfriendly to Child:** Challenges related to age-determination of the child. Especially laws that focus on biological age and not mental age.

What is Protection of Children from Sexual Offences Act, 2012?

- It was **enacted to protect the children from offences of sexual assault, sexual harassment and pornography** with due regard for safeguarding the interest and well-being of children.
- It **defines** a child as **any person below eighteen years of age** and regards the best interests and welfare of the child as a matter of paramount importance at every stage, to ensure the healthy physical, emotional, intellectual and social development of the child.
- It **defines different forms of sexual abuse**, including penetrative and non-penetrative assault, as well as sexual harassment and pornography.
- It deems a **sexual assault to be "aggravated" under certain circumstances**, such as when the abused child is mentally ill or when the abuse is committed by a person in a position of trust or authority like a family member, police officer, teacher, or doctor.
- It also **casts the police in the role of child protectors** during the investigative process.
- The Act stipulates that a **case of child sexual abuse must be disposed of within one year** from the date the offence is reported.
- It was [amended in August 2019](#) to provide **more stringent punishment**, including the death penalty, for sexual crimes against children.

What are the Related Constitutional Provisions?

- The Constitution guarantees to every **child the right to live with dignity (Article 21), the right to personal liberty (Article 21), the right to privacy (Article 21), the right to equality (Article 14) and/or the right against discrimination (Article 15), the right against exploitation (Article 23 & 24)**.
 - **Right to free and compulsory elementary education** for all children in the 6-14-year age group (**Article 21 A**).
- [The Directive Principles of State Policy](#), and in particular **Article 39(f)**, cast an **obligation on the State to ensure that children are given opportunities and facilities** to develop in a healthy manner and in conditions of freedom and dignity and that childhood and youth are protected against exploitation and against moral and material abandonment.

What are the Related Initiatives?

- [Child Abuse Prevention and Investigation Unit](#)
- [Beti Bachao, Beti Padhao](#)
- [Juvenile Justice Act/Care and Protection Act, 2000](#)
- [Child Marriage Prohibition Act \(2006\)](#)
- [Child Labour Prohibition and Regulation Act, 2016](#)

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. Which of the following are envisaged by the Right against Exploitation in the Constitution of India? (2017)

1. Prohibition of traffic in human beings and forced labour
2. Abolition of untouchability
3. Protection of the interests of minorities
4. Prohibition of employment of children in factories and mines

Select the correct answer using the code given below:

- (a) 1, 2 and 4 only
(b) 2, 3 and 4 only
(c) 1 and 4 only
(d) 1, 2, 3 and 4

Ans: (c)

Exp:

- Articles 23 and 24 under Part III (Fundamental Rights) of the Constitution deal with the Right against exploitation.
- Article 23 provides for the prohibition of traffic in human beings and forced labour. It states that traffic in human beings and begar and other similar forms of forced labour are prohibited and any contravention of this provision shall be an offence punishable in accordance with law. **Hence, 1 is correct.**
- Article 24 provides for the prohibition of employment of children in factories, etc. It states that no child below the age of fourteen years shall be employed to work in any factory or mine or engaged in any other hazardous employment. **Hence, 4 is correct.**
- **Therefore, option (c) is the correct answer.**

[Source: TH](#)

Ambedkar Circuit

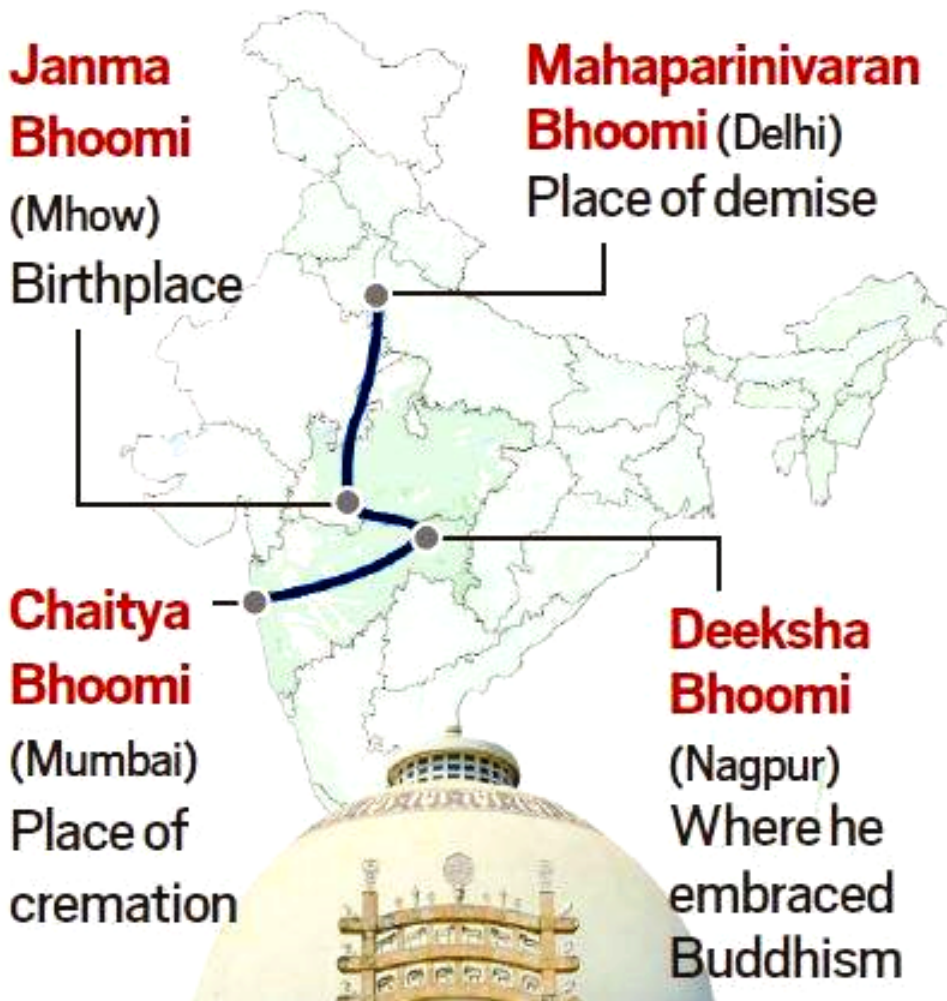
For Prelims: Ambedkar Circuit, Panchteerth, Mahad Satyagraha, Poona Pact, Swadesh Darshan scheme

For Mains: Contribution of Dr B.R Ambedkar

Why in News?

Recently, the Central government announced a special tourist circuit named **Ambedkar circuit**, which encompasses five key sites associated with [Dr B.R. Ambedkar](#).

AMBEDKAR CIRCUIT



What is Ambedkar Circuit?

▪ About:

- The government had first proposed the Ambedkar Circuit, or **Panchteerth**, in 2016, but the conceptualisation of the plan could be held recently.
- The five cities in the tourist circuit as announced by the government are:
 - **Janma Bhoomi**- Ambedkar's birthplace in Madhya Pradesh's Mhow.
 - **Shiksha Bhoomi**- the place in London where he stayed while studying in the UK.
 - **Deeksha Bhoomi**- the place in Nagpur where he embraced Buddhism.
 - **Mahaparinirvan Bhoomi**- the place of his demise in Delhi.
 - **Chaitya Bhoomi**- the place of his cremation is in Mumbai.

▪ Significance:

- **Focus on Tourism:**
 - The idea is to **attract tourists beyond the Dalit community**, who mostly visit these places as a pilgrimage.
 - The journey will include meals, ground transportation, and entry to the site.
- **Development of the Area:**
 - The creation of special circuits allows the government to focus better on the **comprehensive development of all sites related to the theme**, including infrastructure, road and rail connectivity, and visitor facilities.

What are the Issues Related to Ambedkar Circuit?

- **Promoting Government's Local and Nationalistic Perspective:**
 - Various Dalit scholars and Ambedkarites argued that the five spots **do not do justice to Ambedkar's real legacy** and have been chosen to just fit into a "localised and nationalistic" narrative of the government.
- **Lack of other Important Sites:**
 - Critics claim that there are a host of other sites which did not get recognition like:
 - In the Raigarh district of Maharashtra where Dr Ambedkar led the **Mahad Satyagraha**,
 - **Pune**, where he held the first negotiations with Mahatma Gandhi in Yerwada jail on a **separate electorate for depressed classes**,
 - The result was the **Poona Pact signed by Dr Ambedkar on behalf of the depressed classes** and by Madan Mohan Malviya on behalf of upper caste Hindus.
 - **Sri Lanka**, where he attended a **Buddhist conclave** that is said to have influenced him to convert to Buddhism,
 - **Kolhapur**, where in March 1920, another legendary social reformer, Chatrapati Shahuji Maharaj, declared Dr Ambedkar the **true leader of the oppressed classes in India**.

What are Other Tourism Circuits?

- The government had identified 15 tourist circuits under the **Swadesh Darshan scheme** in 2014-15.
- Besides the Ramayana and Buddhist Circuits, others include Coastal Circuit, Desert Circuit, Eco Circuit, Heritage, North East, Himalayan, Sufi, Krishna, Rural, Tribal, and Tirthankar Circuits.
- In terms of train collaboration, the Ramayana, Buddhist, and North East Circuits are already active, while Ambedkar will be fourth.

What do we Know about Dr B.R Ambedkar?

- **About:**
 - Dr. B.R. Ambedkar was born in 1891 in **Mhow**, Central Province (now Madhya Pradesh).
 - He is known as the **Father of the Indian Constitution and was India's first Law Minister**.
 - He was the **Chairman of the Drafting Committee** for the new Constitution.
 - Dr. Ambedkar was a social reformer, jurist, economist, author, polyglot (knowing or using several languages) orator, a scholar and thinker of comparative religions.
 - He **participated** in all three **Round Table Conferences**.
 - In 1932 Dr. Ambedkar **signed the Poona pact with Mahatma Gandhi**, which **abandoned the idea of separate electorates** for the depressed classes (Communal Award).
 - However, the **seats reserved for the depressed classes were increased** from 71 to 147 in provincial legislatures and to 18% of the total in the Central Legislature.
 - His ideas before the **Hilton Young Commission** served as the **foundation of the Reserve Bank of India (RBI)**.
 - In 1936, he was **elected to the Bombay Legislative Assembly** as a legislator (MLA).
 - He was **appointed to the Executive Council** of Viceroy as a **Labour member** in 1942.
 - In 1947, Dr. Ambedkar accepted PM Nehru's invitation to become Minister of Law in the first Cabinet of independent India.
 - He resigned from the cabinet in 1951, over differences on the **Hindu Code Bill**.
 - He converted to **Buddhism**. He passed away on 6th December 1956. **Chaitya Bhoomi** is a memorial to B. R. Ambedkar, located in Mumbai.
- **Contributions:**
 - **Journals:** Dr. Ambedkar launched various journals like:
 - Mooknayak (1920),

- Bahishkrit Bharat (1927),
- Samatha (1929),
- Janata (1930).
- **Books:**
 - Annihilation of Caste,
 - Buddha or Karl Marx,
 - The Untouchable: Who are They and Why They Have Become, Untouchables,
 - Buddha and His Dhamma,
 - The Rise and Fall of Hindu Women.
- Organisations:
 - Bahishkrit Hitkarini Sabha (1923),
 - Independent Labor Party (1936),
 - Scheduled Castes Federation (1942).

UPSC Civil Services Examination Previous Year Question (PYQ)

Prelims

Q . Which of the following parties were established by Dr. B. R. Ambedkar? (2012)

1. The Peasants and Workers Party of India
2. All India Scheduled Castes Federation
3. The Independent Labour Party

Select the correct answer using the codes given below:

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

Ans: (b)

Exp:

- The Peasants and Workers Party of India was formed by Keshavrao Jedhe of Pune, Shankarrao More and others in 1947. **Hence, 1 is not correct.**
- All India Scheduled Castes Association was established by B. R. Ambedkar in 1942 and this party participated in general elections in 1946. **Hence, 2 is correct.**
- The Independent Labour Party (ILP) was also formed by B. R. Ambedkar in 1936, which participated in the provincial elections of Bombay. **Hence, 3 is correct. Therefore, option (b) is the correct answer.**

[Source: TH](#)

Double Asteroid Redirection Test (DART) Mission: NASA

For Prelims: Double Asteroid Redirection Test, NASA, Asteroid Dimorphos, Kinetic Impactor Method of planetary defence.

For Mains: Double Asteroid Redirection Test Mission and its Significance.

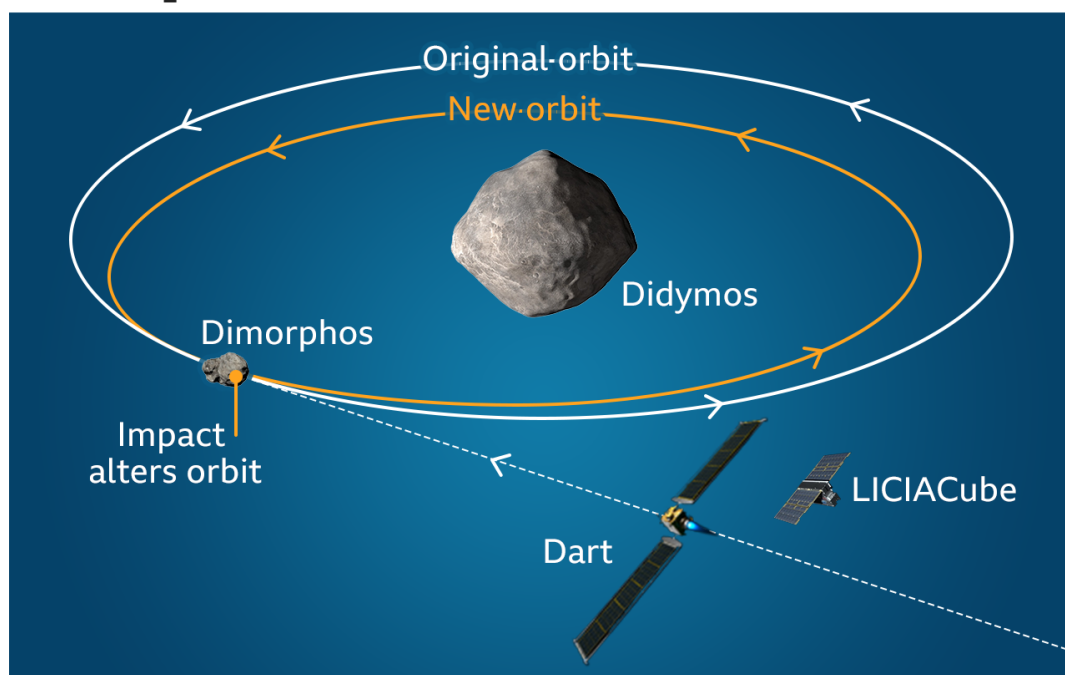
Why in News?

The [National Aeronautics and Space Administration \(NASA\)](#) is about to launch its Double Asteroid Redirection Test (DART) mission.

What is the Launch?

- It is the first **Kinetic Impactor Method** of planetary defence, where a DART spacecraft will be colliding with the **asteroid Dimorphos**.
 - The Kinetic Impactor Method involves sending one or more large, high-speed spacecraft into the path of an approaching near-earth object. This could deflect the asteroid into a different trajectory, steering it away from the Earth's orbital path.
- Data obtained from DART's crash will be **compared to the data from various computer simulations** run by scientists to **ascertain whether this kinetic impactor method will remain a viable option** in case of an actual threatening asteroid.
- Scientists don't yet know the exact mass of Dimorphos but it is estimated to be around five billion kilograms. The **DART spacecraft weighs around 600 kilograms**.

Nasa spacecraft will crash into asteroid's moon



What is a DART mission?

- **About:**
 - DART is a **low-cost spacecraft**.
 - It has **two solar arrays and uses hydrazine propellant** for maneuvering the spacecraft.
 - It also carries about **10 kg of xenon** which will be used to demonstrate the agency's new thrusters called **NASA Evolutionary Xenon Thruster-Commercial (NEXT-C)** in space.
 - NEXT-C gridded ion thruster system provides **a combination of performance and spacecraft integration capabilities** that make it uniquely suited for deep

space robotic missions.

- The spacecraft carries a **high-resolution imager called Didymos Reconnaissance and Asteroid Camera** for Optical Navigation (DRACO).
 - Images from DRACO will be sent to **Earth in real-time and will help study the impact site and surface of Dimorphos** (the target asteroid).
- DART will also carry a **small satellite or CubeSat named LICIAcube** (Light Italian CubeSat for Imaging of Asteroids).
 - LICIAcube is expected to capture images of the impact and the impact crater formed as a result of the collision.
- **Objectives:**
 - The mission is to test **the new technology to be prepared in case an asteroid** heads towards Earth in the future.
 - The aim is to test the newly developed technology that would allow a spacecraft to crash into an asteroid and change its course.
 - The target of the spacecraft is a small moonlet called Dimorphos (Greek for “two forms”).
 - Dimorphos orbits a larger asteroid named Didymos (Greek for “twin”).
 - It is a suicide mission and the **spacecraft will be completely destroyed**.

What is the Reason for Choosing Dimorphos?

- The goal of the mission is to determine how much DART's impact alters the moonlet's velocity in space by measuring the change in its orbit around Didymos.
- Scientists think the collision will change the speed of Dimorphos by a fraction of one percent.
- It should alter the moonlet's orbital period around the larger asteroid by several minutes – enough to be observed and measured by telescopes on Earth.

UPSC Civil Services Examination Previous Year Question (PYQ)

Q. What is 'Greased Lightning-10 (GL-10)', recently in the news? (2016)

- (a) Electric plane tested by NASA
- (b) Solar-powered two-seater aircraft designed by Japan
- (c) Space observatory launched by China
- (d) Reusable rocket designed by ISRO

Ans: (a)

Exp:

- Greased Lightning-10 (GL-10) is NASA developed battery-powered plane with 10 engines that can take off and land like a helicopter and fly efficiently like an aircraft.
- It is a remotely piloted plane having a 3.05 meter wingspan, eight electric motors on the wings, and two electric motors on the tail and weighs a maximum of 28.1 kilograms at take-off.
- Therefore, option (a) is the correct answer.

Source: IE

India at Global Clean Energy Action Forum

For Prelims: Clean Energy, Biofuels, International Groupings & Forums, Government's Initiatives

For Mains: Advantages of Biofuels, Government efforts for sustainable biofuels, International forums for clean energy

Why in News?

Recently, at the **Global Clean Energy Action Forum-2022** at Pittsburgh, Pennsylvania in the United States, India's representative has said that "[sustainable biofuels](#) play a key role to reduce [GreenHouse Gas \(GHG\) emissions](#) from the transport sector."

What do we need to know about the Global Clean Energy Action Forum 2022?

- **About:**
 - The US, for the first time, hosted **Global Clean Energy Action Forum**, a joint convening of the **13th Clean Energy Ministerial (CEM 13)** and the **7th Mission Innovation Ministerial (MI-7)**, from 21st to 23rd September 2022.
- **Theme:**
 - The theme for CEM13/MI-7 is **Rapid Innovation and Deployment**.
 - This means **accelerating the pace and scale of innovation** through collaboration and shared strategies for the **deployment of [clean energy technologies](#)**.
- **Objectives of the Forum:**
 - Define **international clean energy leadership and collaboration** in 2022 through an interactive, inspiring, and impactful event spotlighting global leaders fulfilling their climate pledges.
 - Focus on actions that deliver a low-cost, **zero-emissions energy future** that provides opportunities for all, especially good-paying jobs.
 - Demonstrate progress in moving along the **innovation-to-deployment continuum** at an unprecedented pace and scale to meet climate goals, and to innovate with a purpose.
- **India's Stand at the Forum:**
 - **At International Collaboration to Accelerate Clean Energy:**
 - India has reported **establishing 5 Bioenergy Centers** with an interdisciplinary team working on advanced sustainable biofuels using modern biotechnology tools.
 - In April 2022, India hosted the **Mission Innovation Annual Gathering** at New Delhi, the **[Mission Integrated Biorefineries](#)** was launched by Co-leads India and Netherlands, uniting key members to accelerate innovation for renewable fuels, chemicals, and materials for a low-carbon future.
 - **At India Clean Energy Showcase:**
 - India, being one of the founding members of the **Clean Energy Ministerial (CEM)** will be hosting **CEM-14 in 2023 in Bengaluru** along with its Presidency of G-20 in the same year.
 - India is among the few countries in the world to design a **[Cooling Action Plan \(CAP\)](#)** with a long-term vision (spanning a 20-year period from 2017-18 to 2037-38) that addresses **cooling requirements across sectors**.
 - India has committed to an ambitious **[Nationally Determined Contributions \(NDCs\)](#)** of reducing emission intensity **by 33-35% in 2030** against the levels of 2005.
 - India is implementing the largest **[Renewable Energy \(RE\) expansion program](#)** in the world envisaging a **5-fold increase in the overall RE capacity** in the country from 32 GW in 2014 to 175 GW by 2022, and further to 500 GW of renewable power in the country by 2030.

What is the Clean Energy Ministerial and Mission Innovation Ministerial?

- **Clean Energy Ministerial:**
 - **Establishment:**
 - It was established in December 2009 at the UN's Framework Convention on Climate Change conference of parties in Copenhagen.

- **Purpose:**
 - CEM is a **high-level global forum to promote policies and programs** that advance **clean energy** technology, to **share lessons learned and best practices**, and to encourage the transition to a global clean energy economy.
- **Focus Areas:**
 - The CEM is focused on **three global climate and energy policy goals:**
 - Improve energy efficiency worldwide.
 - Enhance clean energy supply.
 - Expand clean energy access.
- **Members:**
 - 29 countries are part of CEM.
 - India is also a member country.
- **Mission Innovation Ministerial:**
 - **About:**
 - Mission Innovation (MI) is a **global initiative catalysing a decade of action and investment** in research, development and demonstration to make clean energy affordable, attractive and accessible for all. This will accelerate progress towards the Paris Agreement goals and pathways to net zero.
 - **Mission:**
 - Zero-Emission Shipping
 - Green Powered Future
 - Clean Hydrogen
 - Removal of Carbon Dioxide
 - Urban Transitions
 - Net Zero Industries
 - Integrated Biorefineries

What are Biofuels?

- **About:**
 - Any **hydrocarbon fuel** that is produced from an **organic matter** (living or once living material) in a **short period of time** (days, weeks, or even months) is considered a **biofuel**.
 - Biofuels may be **solid, liquid** or **gaseous** in nature.
 - **Solid:** Wood, dried plant material, and manure
 - **Liquid:** Bioethanol and Biodiesel
 - **Gaseous:** Biogas
 - These can be used to **replace or can be used in addition to diesel, petrol or other fossil fuels** for transport, stationary, portable and other applications.
 - Also, they can be used to generate heat and electricity.
 - Some of the main reasons for shifting to biofuels are the **rising prices of oil**, **emission of greenhouse gases from fossil fuels** and the interest in **obtaining fuel from agricultural crops** for the benefit of farmers.
- **India's Initiatives for Sustainable Biofuels:**
 - [Pradhan Mantri JI-VAN Yojana, 2019](#)
 - [Ethanol blending](#)
 - [GOBAR \(Galvanizing Organic Bio-Agro Resources\) DHAN scheme, 2018](#)
 - [Repurpose Used Cooking Oil \(RUCO\)](#)
 - [National Policy on Biofuels, 2018](#)
- **Initiatives under 5 Bioenergy Centers:**
 - “**DBT Pan IIT Center for Bioenergy**” have developed engineered thermostable and glucose tolerant β -glucosidase.
 - **DBT -ICGEB Bioenergy Centre** has developed Cellulase Enzyme Technology for 2G Ethanol Production and it' under scale-up.
 - **DBT-Indian Oil Cooperation Limited Bio-energy Centre**, Faridabad has evaluated a process for conversion of biomass to ethanol utilizing the glycan hydrolases developed at the Centre in a demonstration plant (10 tons biomass per day) that is under construction.
 - **DBT-ICT Centre for Energy Biosciences** aims Biological and Chemical transformations for generating commercially viable technologies for adding value to waste.

- **DBT-TERI Bioenergy Research Center** is exploring actively on development of clean technologies for production of advanced biofuels; biodiesel, biohydrogen, pyrolytic biooil, using algae biomass as next generation feed.

UPSC Civil Services, Previous Year Questions (PYQ)

Q. It is possible to produce algae based biofuels, but what is/are the likely limitation(s) of developing countries in promoting this industry? (2017)

1. Production of algae based biofuels is possible in seas only and not on continents.
2. Setting up and engineering the algae based biofuel production requires high level of expertise/ technology until the construction is completed.
3. Economically viable production necessitates the setting up of large scale facilities which may raise ecological and social concerns.

Select the correct answer using the code given below:

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

Ans: (b)

Explanation:

- Bio-fuels are an alternative to conventional fuels; they are liquid or gaseous fuels, primarily produced from biomass, and can be used to replace or in addition to diesel, petrol or other fossil fuels for transport, stationary, portable and other applications.
- Third generation bio-fuels are produced from microorganisms like algae. Other than seas, algae can be cultivated in diverse ways, such as in open ponds, closed-loop systems and photobioreactors. Hence, 1 is not correct.
- One of the major limitations of producing 3rd generation algae based bio-fuel is that it is technology intensive and the development of bioreactors is a costly exercise because all current technologies require heavy expertise and technological development which can make the algal bio-fuel production unviable. Hence, 2 is correct.
- In addition to this, setting up of large scale facilities for the production of bio-fuel itself may require land (forest and agricultural land) and other resources which may raise ecological and social concern. Hence, 3 is correct.
- Therefore, option (b) is the correct answer.

Q. According to India's National Policy on Biofuels, which of the following can be used as raw materials for the production of biofuels? (2020)

1. Cassava
2. Damaged wheat grains
3. Groundnut seeds
4. Horse gram
5. Rotten potatoes
6. Sugar beet

Select the correct answer using the code given below:

- (a)** 1, 2, 5 and 6 only
- (b)** 1, 3, 4 and 6 only

(c) 2, 3, 4 and 5 only

(d) 1, 2, 3, 4, 5 and 6

Ans: (a)

Explanation:

- The National Policy on Biofuels, 2018, allows production of ethanol from damaged food grains like wheat, broken rice, etc., which are unfit for human consumption.
- The Policy also allows conversion of surplus quantities of food grains to ethanol, based on the approval of the National Biofuel Coordination Committee.
- The Policy expands the scope of raw material for ethanol production by allowing use of sugarcane juice, sugar containing materials like sugar beet, sweet sorghum, starch containing materials like corn, cassava, damaged food grains like wheat, broken rice, rotten potatoes, unfit for human consumption for ethanol production. Hence, 1, 2, 5 and 6 are correct.
- **Therefore, option (a) is the correct answer.**

[Source: PIB](#)

Rohini Sounding Rocket

Why in News?

The [Indian Space Research Organisation \(ISRO\)](#) is planning the **200th successful launch** of the **Rohini RH-200** sounding rocket in a row.

- RH-200 of the Rohini sounding rocket family has completed **198 consecutive successful flights**.
- The 199th launch will happen in October 2022 during the [World Space Week \(4th-10th October\) celebrations](#). The 200th will take place either towards the end of October or the beginning of November 2022.

What are the Sounding Rockets?

- **About:**
 - Sounding rockets are **one or two stage solid propellant rockets** used for probing the upper atmospheric regions and for space research.
 - Sounding rockets take their name from the nautical term "to sound," which means to take measurements.
 - They also serve as **easily affordable platforms to test or prove prototypes** of new components or subsystems intended for use in launch vehicles and satellites.
- **History:**
 - The Thumba Equatorial Rocket Launching Station (TERLS) was established on 21st November 1963. Its southern tip is close **to earth's magnetic equator**.
 - The launch of the first sounding rocket (American Nike-Apache) from Thumba in 1963, **marked the beginning of the Indian Space Programme** and was the bedrock of all the vehicles built.
 - ISRO began with the launch of **indigenously built sounding rockets from 1965**. The ISRO launched its own version - **Rohini RH-75 - in 1967**.
 - In 1975, all sounding rocket **activities were cluttered under the Rohini Sounding Rocket (RSR) Programme**.

- The series of sounding rockets are called **Rohini series with RH 200, RH 300 and RH 560 being the most important** among them.

- **RH-200:**

- RH-200 is a **two-stage rocket capable of climbing to a height of 70 km** bearing scientific payloads.
- The first and second stages of RH-200 are powered by solid motors.
- For years, the RH-200 rocket had used a **polyvinyl chloride (PVC)-based propellant**.
- The first RH-200 to use a new propellant based on hydroxyl-terminated Polybutadiene (HTPB) was successfully flown from the TERLS in September 2020.
 - As compared to PVC based propellants, HTPB based propellant is more energetic, higher mechanical & interface properties and has less defects due to lower processing temperature.
- The '200' in the name **denotes the diameter of the rocket in mm**. Other operational Rohini variants are **RH-300 Mk-II and RH-560 Mk-III**.

Some details of Sounding Rockets

Vehicle	RH-200	RH-300-Mk-II	RH-560-MK-II
Payload (Kg)	10	60	100
Altitude (Kms)	80	160	470
Purpose	Meteorology	Aeronomy	Aeronomy
Launch Pad	Thumba Balasore	SDSC-SHAR	SDSC-SHAR

[Source: TH](#)

Indian Nutrition Rating (INR)

Why in News?

Recently, The [Food Safety and Standards Authority of India \(FSSAI\)](#), the country's apex food regulator, released a **draft notification for front-of-pack labelling** which would be known as the **Indian Nutrition Rating (INR)**.

What do we know about Indian Nutrition Ratings (INR)?

- **About:**

- It mandates **pre-packaged foods to carry a star rating** similar to the energy-efficiency ratings on electronic goods, **to discourage the consumption of foods high in sugar, salt and fats**.

- **Types:**

- **Daily Intake Guide:** The proportion of the daily recommendations of nutrients is present in one serving of the pre-packaged food.
- **Nutritional information Panel:** It provides the quality of each of the main nutrients present in the food.
- **Traffic Light Labelling:** It shows the amount of fats, salt, sugar, etc, present in the serving and classifies it with colours like red, orange or green based on how healthy it is.
- **Warning Label:** It shows whether the quality of salt, sugar and fats is high, without providing details of the quantities in the food.
- **Star Rating:** It provides 1 to 5 stars based on how healthy the product is, with 5 being healthiest and 1 for least healthy.

- **Process of Rating:** Further, the items would be given **scores based on contribution of**

energy and content of **saturated fat, sugar, sodium, fruit and vegetables (FV), nuts, legumes, and millets (NLM)**, dietary fibre, and protein per 100 gm of solid or 100 ml liquid foods.

- Solid food with a score of more than 25 will be given 0.5 stars, and those with a score less than - (minus)11 will get 5 stars.
- **Logo:** The logo shall be displayed close in proximity to the name or brand name of the product on the front of pack.
- **Implementation:** The food businesses may **add interpretive information next to the star-rating logo**, giving details of energy, sugar, saturated fat, and salt content.
 - To generate the star-rating logo for the product, food businesses have to submit nutritional profiles of the products concerned on FSSAI's FoSCoS (Food Safety Compliance System) portal.
- **Exempted Products:**
 - Food such as milk and milk products, whey, butter oil, ghee, vegetable oil and fat, fresh and frozen fruit and vegetables, fresh and frozen meat, egg, fish, flour, and sweeteners will not have to display the star rating.
 - Carbonated beverages without any energy or sugar will also not be eligible for declaring the rating.
- **Significance:**
 - According to a study there was a change in consumption pattern in several Latin American countries that implemented such warning labels, and that Chile **reported a 24% drop in sugary drink consumption**.
 - A meta-analysis of 100 studies published in a study indicated that nutrient warning labels are more effective than traffic lights and nutri-score labels.

[Source: IE](#)

Controversy Around Nepal's Citizenship Law

Why in News?

Recently, the president of Nepal sent back the **bill to amend the Citizenship Act, 2006** to the lower house of the [Nepal](#) Parliament for reconsideration.

What's the Issue About?

- **About:**
 - After the fall of the monarchy and the transition of Nepal into democracy in 2006, there was the emergence of the [multiparty system](#) **followed** by the adoption of a constitution in 2015.
 - Due to this, all-Nepalese citizens **born before the adoption of constitution got [naturalised citizenship](#)**.
 - But their **children remained without citizenship as that was to be guided by a federal law that has not yet been framed**.
 - The recent amendment is expected to pave the way to citizenship for many stateless **youths and their parents**.
- **Issues in the Act:**
 - **Against Gender Justice:**
 - It goes against established parameters of gender justice, according to a new amendment, a person born to a **father or a mother with Nepalese citizenship can get citizenship by descent**.
 - Also, a person who is born to a **Nepalese mother** (who has lived in the country) and an **unidentified father** will also get citizenship by descent.

- But this **part seems humiliating to the mother because her husband has to declare his unknown in order for the child to apply for citizenship.**
- Further, in the case of a **Nepali father, no such declaration is required.**
- **Contradictory in Nature:**
 - If a child born to a **Nepalese mother and a father holding foreign citizenship** can get **naturalised citizenship.**
 - This places a condition of permanent residency on the mother (and the child) which will determine the grant of citizenship for the child.
- **Flawed nature of Law:**
 - If a person who is born to a **Nepalese mother and an unidentified father** can be granted citizenship by descent, in case the **unidentified father turns out to be a foreigner, the citizenship by descent would be converted to naturalised citizenship.**

What was the Need to bring this Amendment?

- The Nepalese men, particularly from the **Terai region, continue to marry women from northern India**, so this could affect their Nepali Identity.
 - **"Beti-Roti" (Nepalese men marrying Indian women)** issue, many women could not become citizens of Nepal as they were subjected to the infamous seven-year cooling-off period before they could apply for citizenship in Nepal.
 - As such women were **stateless, and children of such families were also often found to be without Nepalese citizenship.**
 - That's why the new amendments have **done away with the cooling-off period for these stateless women.**
 - This will **benefit the children of such families where the mother and children remained stateless for years**

[Source: TH](#)