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PRELIMS MANTRA – 35 (30/03/2025 to 02/04/2025)

Bandipur Tiger Reserve:

- Karnataka government might eventually yield to pressure to lift night traffic ban through Bandipur.
- The ban, in effect since 2010, has helped reduce death of wild animals by being run over by vehicles.
- It is situated in Mysore and Chamarajanagar revenue districts of southern Karnataka.
- It is located at tri-junction area of States of Karnataka, Tamil Nadu and Kerala.
- Part of Nilgiri Biosphere Reserve (UNESCO World Heritage Site).
- It is surrounded by Nagarahole Tiger Reserve (Tamil Nadu) in Northwest (Kabini Reservoir separates the two). Mudumalai Tiger Reserve (Tamil Nadu) in South. Wayanad Wildlife Sanctuary (Kerala) in Southwest.
- It is surrounded by River Kabini in its north and River Moyar in its south.

• Largest population of wild Asian elephants in South Asia. Telangana, H.P. tie up for two hydel projects:

- Telangana State Power Generation Corporation has signed a memorandum of understanding (MoU) with the Himachal Pradesh government for developing two major hydropower projects to supply power to Telangana.
- Seli Hydropower Electric (run-of-the-river) Project on Chenab River in Lahaul & Spiti district, Himachal Pradesh.
- Miyar Hydropower plant is located on Miyar Nallah, a right bank tributary of Chenab River, in Himachal Pradesh.
- ISRO sees breakthrough in semicryogenic engine development for LVM3:
- ISRO has announced significant progress in design and development of semicryogenic engine, or liquid oxygen/kerosene engine, with a high thrust of 2,000 kN (kilonewton) that will power semicryogenic booster stage of Launch Vehicle Mark-3 (LVM3).
- Induction of semicryogenic propulsion system along with an uprated cryogenic stage in the LVM3 vehicle enhances its payload capability from 4 tonne to 5 tonne in Geo synchronous Transfer Orbit (GTO).

India's coal reliance rises to 79% in FY24:

- Share of coal in India's total energy generation increased to 79% to 16,906 petajoules (PJ) in 2023-24, about two percentage points more than previous year, MoSPI's Energy Statistics in India 2025 show.
- o Crude oil (6%), Natural Gas (7%) of total energy produced.
- Share of electricity produced from hydro, solar, nuclear and other renewable sources stood at 7% of total share.
- Almost 26% of India's coal supply is imported. This has however reduced since 2019-20 when it was at a decadal high of 31%.

How do chimpanzees choose materials to make tools?

- Chimpanzees living in Gombe Stream National Park in Tanzania employ a degree of engineering when making their tools, deliberately choosing plants that provide materials that produce more flexible tools for termite fishing, researchers discovered.
- Termites are a good source of energy, fat, vitamins, minerals and protein for chimpanzees.
- To eat insects, chimpanzees need to use relatively thin probes to fish termites out of the mounds where they live.
 Bhadra Dam:

- Bhadra Dam or Lakkavalli Dam, which has created the Bhadra Reservoir, is located on Bhadra River a tributary of Tungabhadra River in Chikmagalur district, Karnataka.
- Bhadra meets the Tunga River at Koodli, a small town near Shivamogga. The combined river continues east as Tungabhadra, a major tributary of the Krishna River.
- ${\rm \circ}$ Tungabhadra joins Krishna River at Sangamaleshwaram in Andhra Pradesh.

Ugadi and Gudi Padwa Festivals:

- Telugu New Year Day, or Ugadi is the first day of the Hindu lunisolar calendar, widely celebrated by Hindus in Andhra Pradesh, Telangana, and Karnataka with great enthusiasm.
 Whereas the same festival is celebrated as Gudi Padwa in Maharashtra and as Yugadi in Karnataka, it marks arrival of spring and reaping of rabi crops.
- Ugadi and Gudi Padwa is marked on first day of the lunisolar calendar Hindu month of Chaitra, which is late March or early April in the Gregorian calendar.
- It is believed that Lord Brahma created universe on this day after a natural disaster. And it is because of his efforts that time had restarted, and a new era of truth and justice had emerged.

'Zero Poverty - P4' initiative of Andhra Pradesh:

- Andhra Pradesh Chief Minister launched the 'Zero Poverty
 P4' initiative to ensure a poverty-free State by 2029.
- The 'P4' stands for Public-Private-People Partnership.
- The scheme seeks to bridge the socio-economic divide by encouraging wealthiest 10% of population to support bottom 20% of poorest families.

What is the controversy over the Bodh Gaya temple?

- Since Feb 2025, nearly 100 Buddhist monks under All India Buddhist Forum (AIBF) have been protesting demanding a repeal of Bodh Gaya Temple Act (BTA), 1949.
- BTA established an eight-member management committee having equal number of Buddhists and Hindus.
- The Act made local district magistrate an ex-officio chairperson of committee.
- As district magistrate hailed from majority community, it translated to a Hindu majority on committee, something which was resented by Buddhist bodies.

About the Bodh Gaya Temple:

- In the third century, Mauryan Emperor Ashoka worshipped Bodhi tree and built temple there.
- It is one of the four most sacred sites of Buddhism, the location where Buddha attained Enlightenment (Bodhi).
 Other three - Lumbini (Buddha's birthplace), Sarnath (Buddha's first sermon), Kushinagar (Buddha's Mahaparinirvana).
- o It is located on banks of the Niranjana River.
- **OUNESCO World Heritage Site since 2002.**
- Chinese traveller Hiuen Tsang visited it in 629 AD during reign of Harshavardhana. Incidentally, Hiuen Tsang called it a Buddhist site, and is said to have found only Buddhist relics.
- Invasion by Bakhtiyar Khilji in 13th century ended Pala rule and thus began the decline of Buddhism.
- During Akbar's reign, in 1590, a Hindu monk established the Bodh Gaya mutt. With this the temple lapsed into the hands of the Hindu community.

LUKMAAN IAS

 Following Independence, Bihar Assembly passed BTA in 1949 and control of the temple was transferred from the Hindu head to the new management committee.

Operation Brahma:

- The first relief and rescue detachment of 10 personnel who are part of the Indian Army's 118-personnel field hospital team under "Operation Brahma" landed at the Mandalay airport in Myanmar for HADR in earthquake hit regions.
- Two Indian naval ships, Satpuraand Savitri, sailed to Yangon from Visakhapatnam while two more ships, Karmuk and LCU 52, departed from Andaman and Nicobar Command with relief material and to assist relief escorts.

Women's History Month:

 Every year, March month is celebrated as Women's History Month, celebrating contributions of pioneering writers.

Puntland region of Somalia:

- U.S. military carried out an air strike against Islamic State group in Puntland region of Somalia, killing several IS operatives.
- IS group's Somalia operation is relatively small compared to the al Qaeda-linked jihadists Al Shabaab, but it has been gaining strength in semi-autonomous Puntland.
 Parker Solar Probe:
- On March 22, 2025, NASA's Parker Solar Probe reached 6 million km from Sun's surface.
- Launched in 2018, it has set the record for being closest spacecraft to Sun.
- Designed to study Sun's corona, solar wind, and magnetic field to understand space weather and its effects on Earth.
- It moves in a highly elliptical orbit, using Venus' gravity assist to spiral gradually closer to Sun.
- Designed to complete 24 orbits around the Sun, with a mission extending into the 2030s.
- Faraday Cup: An external instrument made of molybdenum alloy that directly measures solar wind ions & electrons in extreme heat.

Important findings:

- **Discovery of "Magnetic Switchbacks":** The probe found sudden reversals in solar wind's magnetic field, which might help explain how solar wind accelerates.
- Detection of Dust-Free Zones: Contrary to earlier beliefs, the probe found dust-free pockets near the Sun, altering our understanding of solar system dust distribution.
- First 'Touch' of the Sun (2021): In April 2021, the probe entered the Sun's corona, crossing the Alfvén surface—a boundary beyond which solar wind escapes into space.

Enrichment centrifuge:

- It is a device used to extract uranium-235 isotope from a sample of natural uranium.
- \circ U-235 is fissile and thus useful to generate nuclear power and to build nuclear weapons.
- $_{\odot}$ Natural uranium consists of 99.3% U-238 and 0.7% U-235.
- Nuclear power reactors need the uranium fuel to contain 3-20% U-235, depending on the reactor design.
- \circ Nuclear weapons need U-235 to be enriched to around 90%.
- The first step for both technologies is to enrich uranium in a centrifuge. This device is named for the centrifugal force: it contains a chamber attached to a rotor. When the rotor

spins chamber very fast, centrifugal force acts on objects inside such that denser ones are moved more outwards.

- O Uranium is converted to compound form (usually uranium hexafluoride, UF6), then to gas, and flowed into centrifuges.
- U-238 is slightly denser than U-235, so as the centrifuges spin at 50,000 revolutions per minute, more U-235 collects towards centre.
- This mass is then diverted to more centrifuges to further separate U-238 out. Over multiple stages, the sample becomes more enriched in U-235.
- The spinning part is made of some light yet strong material that doesn't disintegrate during such extreme motion, like carbon fibre.

Arctic Council:

- An **intergovernmental forum** promoting cooperation, coordination, and interaction among the Arctic States, Arctic Indigenous Peoples, and other Arctic inhabitants.
- \circ Formally established in 1996 through Ottawa Declaration .
- 8 Members: Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the US.
- All Arctic Council decisions require consensus of the eight Arctic States and happens in consultation with the permanent participants.
- **Permanent participants:** Six organisations representing the indigenous people of the Arctic region have been granted the status of permanent participants.
- Observer countries: Thirteen Countries, including India (2013).
- Arctic Council cannot implement/enforce its guidelines, assessments, or recommendations. The responsibility belongs to individual Arctic States or international bodies.
- The Arctic Council's mandate excludes military security. Global Risks Report 2025:
- It is an annual report published by the World Economic Forum (WEF).
- It presents an analysis of most pressing global risks anticipated over short-term (2 years) and long-term (10 years) periods.
- Report highlighted top five risks for India that include water supply shortages, misinformation and disinformation, erosion of human rights and civic freedoms, pollution (air, water, and soil), and labour and talent shortages.

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PRACTICE MCOs

- Q1. Global Risks Report is released by
 - a) World Bank
 - World Economic Forum b)
 - c) International Monetary Forum
 - d) OECD

Answer: B

- Q2. Consider the following statements about the Arctic Council:
 - 1. It is an inter-governmental forum established in 1996 through the Ottawa Declaration.
 - 2. It has seven permanent member countries whose area lies in Arctic Circle.
 - 3. India received observer status in 2013.

Which of the statements given above is/are correct?

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

Answer: D

Q3. Puntland region, recently seen in the news, is located in -

- Israel a)
- b) Syria
- Somalia c)
- d) Ethiopia

Answer: C

Q4. Consider the following statements about Bodh Gaya Temple:

- 1. Mauryan Emperor Ashoka worshipped the Bodhi tree and built Bodh Gaya temple.
- 2. It is the site where Buddha received enlightenment.
- It is located on banks of the Son River. 3.
- 4. It was declared as UNESCO World Heritage Site in 2002.
- Which of the statements given above are correct?
 - a) 1 and 2 only
 - b) 1, 2 and 3 only
 - c) 1, 2 and 4 only
 - d) All of them

Answer: C

Q5. Seli and Miyar hydropower projects are located in which of the following states/UTs?

- Jammu & Kashmir a)
- Himachal Pradesh b)
- Uttarakhand c)
- d) Arunachal Pradesh

Answer: B

- Q6. Operation Brahma, recently seen in the news, is related to -
- establishment a) Indian government's Humanitarian assistance to earthquake hit Myanmar.
 - b) Indian Air Force operation to bring back Indian migrants from conflict hit Sudan.
 - Indian government's initiative to facilitate return of Indian migrants from the U.S. c)
 - d) Indian Navy's operation to provide drinking water supply to Maldives.

Answer: A