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FEBRUARY 1

General Studies-01

Stone tools offer insights into history of human evolution.

News: Based on the study of over 7,200 stone artefacts collected from the archaeological site at Attirampakkam in the Kortallayar river basin about 60 km from Chennai, researchers suggest that hominins in India may have developed a Middle Palaeolithic culture phase around 3,85,000 years ago and continuing up to around 1,72,000 years ago.

Beyond News

- According to earlier evidence, the Middle Palaeolithic culture in India was dated to around 1,25,000 years ago.
- The Middle Palaeolithic is an important cultural phase, associated as it is globally with both modern humans and Neanderthals or other archaic hominins, with complex histories of interaction, cultural transitions and change and dispersals.
- Based on stone tool and fossil studies, the Middle Palaeolithic culture (called the Middle Stone Age in Africa) is associated with modern humans in Africa, while it is associated with both modern humans and Neanderthals in Israel. But in Europe, the Middle Palaeolithic culture is associated only with Neanderthals.
- In 2011, Prof. Shanti Pappu from the Sharma Centre for Heritage Education in Chennai and her team reported the discovery of 1.5-million-year-old stone artefacts belonging to the Lower Palaeolithic (Acheulian) culture from Attirampakkam.
- The objects were buried in sediments at the lowest levels in the excavation. In the top three metres of the soil, the same site has yielded artefacts that reflect a distinct Middle Palaeolithic culture.



General Studies-02

Indian aid for Palestine diplomatic institute

News: Sources said that, prime Minister Narendra Modi will fly from Amman in Jordan on February 10 to arrive in Palestine where he is expected to lay the foundation stone of a new diplomatic training institute.

Beyond News

- Modi's visit will be the first by an Indian Prime Minister to Palestine and comes weeks after India voted in favour of Palestine's rights over Jerusalem in the United Nations General Assembly.
- Sources also said that, the Government of India has already sanctioned US\$4.5 million for the Indo-Palestine Diplomatic Institute which will be a unique institute in the region and it is one of the several events that are likely to feature in the PM's visit to Ramallah.
- Visit is aimed at de-hyphenating India's policy towards Israel and Palestine that was reflected in Mr. Modi's 2017 visit to Tel Aviv when he skipped Palestine.
- A new agreement on IT-training was sealed during President Mahmoud Abbas's visit to Delhi on May 16, 2017 when both sides signed five agreements.
- Continuing India's commitment, New Delhi also pledged \$1.25 million humanitarian assistance to UNRWA (UN Relief and Works Agency for Palestine Refugees in the Near East) in 2016.
- India's support to UNRWA is in contrast to U.S. policy to the organisation as President Donald Trump has announced slashing of American funds to UNRWA.

General Studies-03

INS Karanj boosts Navy's firepower

News: The Navy's third state-of-the-art Scorpene class submarine, INS Karanj, was launched by Reena Lanba, wife of Chief of Naval Staff Admiral Sunil Lanba.

Beyond News

- The new submarine is named after the earlier Kalvari class INS Karanj, which was decommissioned in 2003.
- Six Scorpene class submarines are being built under Project 75 by the Mazagon Dock Shipbuilders Limited (MDSL), Mumbai, under a \$3.75 billion technology transfer signed in October 2005 with the Naval Group of France.
- The Scorpene class is the Navy's first modern conventional submarine series in almost two decades,

Adding muscle
The deal to build six Scorpene submarines at Mazagon Dock Limited, Mumbai, was signed with DCNS, France in October, 2005

TYPE
Scorpene is a conventional diesel-electric attack submarine weighing about **1,600** tonnes

Crew 43

• The submarine's search periscopes are equipped with infra-red-low light level cameras and laser range finders

ARMOURY

- 5M 39 EXOCET missiles
- Heavyweight wire-guided surface
- Underwater target torpedoes and mines
- Mobile C303/S anti-torpedo decoys

KEY FEATURES

- Overall length of 67.5 metres
- Height of 12.3 metres
- 360 battery cells (each weighing 750 kg) power the extremely silent permanently magnetised propulsion motor
- The stealth is further enhanced through the mounting of equipment inside the pressure hull on shock absorbing cradles
- Two 1,250 kW MAN diesel engines for rapidly charging batteries

Karanj, the third Scorpene class submarine, being launched in Mumbai on Wednesday.

COMPILED BY DINAKAR PESSI

since INS Sindhusastrawas procured from Russia in July 2000.

- Wednesday's launch follows the launch of the first two Scorpene submarines – INS Kalavari and INS Khanderi.
- According to Navy officials, INS Kalvari, the first to be launched, was commissioned in December 2017 by Prime Minister Narendra Modi. INS Khanderi, which was launched in January 2017, is currently undergoing deep dive trials and is expected to be commissioned later this year.
- INS Kalvari, manned by a team of eight officers and 35 sailors, carries sea-skimming SM39 Exocet missiles and the heavyweight wire-guided Surface and Underwater Target (SUT) torpedoes. For self-defence, it has mobile anti-torpedo decoys.

'Bhu Seva' project to be rolled out by October

News: Land administration is going to be hassle-free with the rolling out of the 'Bhu Seva' project by October-end.

Beyond News

- It is being successfully piloted in the Jaggaiahpet mandal and the Vuyyuru municipality in Krishna district in Andhra Pradesh.
- Each land will be assigned a unique 'Bhudhaar' number, which will be the single point of reference for all transactions.
- Deputy Chief Minister (revenue) said that, this system will be a repository of 2.84 crore agricultural land parcels and 50 lakh urban and 85 lakh rural properties.
- A land would be geo-tagged and an 11-digit temporary Bhudhaar number starting with 99 would be given.
- An 11-digit permanent number starting with 28 (A.P.'s census code) would be assigned after the physical attributes and records available with the Revenue, Registration and Stamps, Survey, Municipal Administration, Panchayat Raj and Forest departments were cross-checked.
- The survey and mapping of lands were being done using high-resolution satellite imagery and Differentiated Global Positioning System (DGPS) and Electronic Total Stations (ETS) wherever possible.
- Farmers could get mutations done online automatically, which saves time and money, and all the electronic records would be aligned with the information contained in the field measurement books.

Rs. 370 cr. allotted for building border infra

News: An official said that, laying emphasis on building infrastructure along the Indo-Pak and Sino-India borders, the government has sanctioned nearly Rs. 370 crore to the BSF and the ITBP for construction of bunkers and special climate-controlled huts in forward areas.

Beyond News:

- A total of Rs. 369.84 crore has been sanctioned by the Home Ministry for construction of infrastructure for Border Security Force (BSF) and Indo Tibetan Border Police (ITBP).
- The amount will be spent for construction of bunkers, fortifying border outposts of the BSF along the Indo-Pak border, construction of climate-controlled huts, procurement of snow scooter for the ITBP besides other necessary works of the two forces.
- **The BSF guards the 2,526.86-km-long Indo-Pak border, including 237.2 km of the Line of Control, and 4096.7 km of the Indo-Bangladesh border.**
- The Indo-Pakistan border has been witnessing massive ceasefire violation from across the border since the beginning of 2017.
- ITBP guards the 3,488-km-long Sino-India border that runs through Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and Arunachal Pradesh.

The force is specially trained to operate in high altitude mountainous terrain along the border.

FEBRUARY 2

General Studies-02

Clinical establishments Bill a game changer

News: The Kerala Clinical Establishments (Registration and Regulation) Bill, 2017, passed by the Assembly, is a far-reaching and comprehensive legislation and the single most public health measure which is expected to change the face of health care in Kerala.

Beyond News

- Changes made by bringing in more transparency and accountability in the functioning of both public and private sector hospitals.
- There had been stiff opposition to the Bill from within the medical fraternity, with many raising apprehensions that small and medium hospitals would be adversely affected and that the cost of health care would actually go up.
- Though there were demands to waive the registration process for small hospitals with 10-20 beds, the subject committee which scrutinised the Bill has now given exemption to institutions or clinics which offer just consultation services, prescriptions and observation of patients, from registering under the council.

Government's focus

- Though this will certainly leave out a sizeable number of establishments from within the regulatory framework, the government's focus seems to have been to push through the Bill for the time being and set the regulatory process in motion.

- The argument that hospitals with less than 10 or 20 beds should be exempted from registration or that the cost of health care will go up does not stand scrutiny at all
- Unlike the Central Act, the State Bill does not talk about the government fixing the rates of procedures for hospitals.
- Instead, hospitals have been asked to display their own rates for various procedures openly. This would mean that people can choose between hospitals. Naturally, in the long run, this will bring down healthcare costs, as there will be public scrutiny of the charges of various hospitals.

General Studies-03

Highest-ever allocation to fast-forward Railway plans

News: In the highest-ever allocation, Union Finance Minister Arun Jaitley announced a capital expenditure of ₹1,48,528 crore for the **Railway** Ministry for the year 2018-19.

Beyond News

- A large part of these funds will be utilised for capacity addition.
- The government has decided to double 18,000 km of tracks and to work on third and fourth lines in several sectors.
- Finance Minister said that, five thousand kilometres of gauge conversion would augment capacity and transform almost the entire network into broad gauge.
- Jaitley also said that, 4,000 km of the railway network will be commissioned for electrification during 2017-18.
- The budget has also made provision for acquisition of 12,000 wagons, 5,160 coaches and approximately 700 locomotives during 2018-19.
- The Finance Minister said work on the eastern and western dedicated freight corridors was in full swing.
- ₹51,000 crore has been allocated for strengthening the Mumbai suburban network, the budget has allocated ₹17,000 crore to add 160 km of suburban network in Bengaluru to cater to the growth of the metropolis.



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New species of lizard discovered

News: The coastal belt of Thiruvananthapuram is home to many rare species of animals, a discovery by a group of researchers has proved.

Beyond News

- The team had discovered a new species of fan-throated lizard, belonging to the genus *Sitana*, from Poovar during an expedition that was undertaken during September-October 2016.
- The researchers' team representing the Thiruvananthapuram-based Travancore Nature History Society, and Jafer Palot of the Western Ghats Regional Centre of the Zoological Survey of India in Kozhikode.
- They collaborated with National Centre for Biological Sciences, Bengaluru, for the expedition.
- The new species, *Sitana attenboroughii*, has been named after Sir David Frederick Attenborough, an English veteran broadcaster and naturalist. **This is the first species of the genus *Sitana* to be recorded from Kerala.**

Fan-throated lizards

- According to the researchers, fan-throated lizards are small to medium-sized lizards that are ground-dwelling and are usually found in dry, scrubby, open habitats.
- The males possess a fan-like extension that they protrude during breeding season as a part of courtship and territorial display.
- They also found that the Poovar is the only beach in southern Thiruvananthapuram where sand-dunes and the lush growth of spiny grasses were noted during the survey and could also be the only micro-habitat in which *Sitania attenboroughii*
- With such habitats in the locality coming under threats caused by tourism and fire, immediate conservation efforts were needed, they said.



Nepal gets a high Rs. 650 crore outlay

News: India's annual financial allocation to Nepal for 2018-19 has nearly doubled under the Union Budget presented .

Beyond News

- The External Affairs Ministry has been allocated a total Rs. 15,011 crore, which indicates a marginal increase of Rs. 1,321 crore over the previous year's grant.

- For India's development and diplomatic engagement under the 'Neighbourhood First' policy, the Budget has allocated Rs. 5545 crore. Bhutan is traditionally the largest recipient of Ministry's allocation.
- It has maintained the same position even as the allocation increased by Rs. 71 crore to touch Rs. 2,650 crore.

For Nepal and Myanmar

- The giant leap in allocation was for Nepal, which received Rs. 650 crore from the Ministry.
- This year's allocation is the third consecutive and the largest increase.
- In 2016-17, Nepal received Rs. 332.72 crore, which was increased to Rs. 375 crore last year. At Rs. 280 crore, Myanmar's allocation too has improved from Rs. 220 crore of last year.
- Former Indian Ambassador to Nepal Ranjit Rae said that, the budgetary increase was a likely step ahead from the Indian commitment to help Nepal recover from the 2015 earthquake.

FEBRUARY 3

General Studies-02

Universal Health Scheme to be launched in two weeks

News: A day after the announcement of the National Health Protection Scheme by the Modi government, the Karnataka government has decided to roll out the Universal Health Coverage (UHC) in the third week of February, bringing all government health schemes under one umbrella.

Significance:

Karnataka would be the first State to implement the scheme in the country.

Beyond News:

- Under the UHC, entire population of the State (1.43 crore families) would be brought under the health scheme, irrespective of the income of the families.
- There would be no cap on the medical expenditure to be incurred by any patient in government hospitals at all levels primary, secondary and tertiary care hospitalisation.
- The estimated annual expenditure for implementation of the scheme would be Rs. 1,500 crore.
- Minister for Health and Family said that, UHC cards would be issued to all families/individuals in government healthcare utilities. Separate cards would be issued to the people suffering from non-communicable diseases.
- Within a month of the launch, the scheme would be implemented fully across the State.

India will work with Oli government, says Sushma.

News: Ministry of External Affairs said that, India was “looking forward” to work with the newly elected government of Nepal.

Beyond News:

- Ministry of External Affairs said in a statement that, External Affairs Minister conveyed to all political leaders of Nepal that India is looking forward to working with the democratically elected government to take forward bilateral ties to newer heights for mutual benefit, and to support the Government of Nepal as per its priorities, in its endeavours for rapid economic growth and development.
- Ms Swaraj reached Kathmandu on Thursday beginning an engagement with the CPN-UML leader and Prime Minister-elect K. P. Sharma Oli who was expected to take oath soon. The visit coincided with the announcement Rs 650 crore for Nepal in the Union Budget .
- Mr Oli along with his alliance partners were also noted for carryig out an anti-India campaign during the 2017 election. However, making a fresh beginning, Prime Minister Narendra Modi had phoned Mr Oli after his election victory and congratulated him.

General Studies-03

Pak. official helped organise J&K violence: NIA

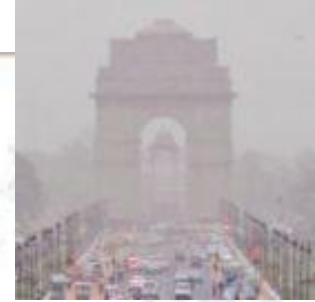
News: The National Investigation Agency (NIA) in a charge sheet has said a Pakistan High Commission staffer, who was expelled in 2016 on allegations of spying, had helped persons carry out terrorist and secessionist activities in Jammu and Kashmir. Several of these persons were arrested last year.

Beyond News:

- The charge sheet does not name the official but details the “pattern” of his meetings with separatist leaders that led to protests and violence in the Kashmir Valley.
- The official, Mehboob Akhtar, was declared a persona non grata and sent back to Pakistan after he was caught by the Delhi police in October 2016 for allegedly receiving sensitive documents pertaining to national security.
- The NIA filed a 12,794-page charge sheet against 12 people, including Lashkar-e-Taiba chief Hafiz Saeed and Hizbul Mujahideen head Syed Salahuddin in a city court last month.
- In the charge sheet, the agency has traced the militant activities in J&K since early 90s and says the protests in the Valley in the aftermath of killing of Hizbul Mujahideen commander Burhan Wani in 2016 were “not spontaneous” but a part of an “organised effort.”
- Wani was killed in an encounter with security forces.
- The charge sheet also says that the 2008 and 2010 unrest in J&K that saw over hundred people dead were also “organised” by anti-India forces.

Dust mitigation plan must for firms

News: The Environment Ministry has made it mandatory for companies seeking environment clearance to ensure that they put in place a dust mitigation plan.



Beyond News:

- The requirements, specified in a gazette notification on January 25, say that roads leading to or at construction sites must be paved and black-topped.
- There could be no soil excavation without adequate dust mitigation measures in place. No loose soil, sand, construction waste could be left uncovered. A water sprinkling system was mandatory, and the measures taken should be prominently displayed at the construction site.
- A study by the Indian Institute of Technology, Kanpur and commissioned by the Delhi government reported, in 2015, that road dust, burning of biomass and municipal solid waste, constituted the lion's share of the city's air pollution.
- The grinding and cutting of building materials in open area were prohibited and no uncovered vehicles carrying construction material and waste would be permitted.
- The standards were developed by the Central Pollution Control Board as part of the National Ambient Air Quality Standards (NAAQS), and will now empower the organisation to fine companies and agencies for not complying with norms.

Road dust, key villain:

- Road dust contributed 56% of all PM10 pollution, while it was 38% for PM2.5.
- Before PM2.5 became the focus of attention for its role in lodging itself in the lungs and for being a key component of diesel emissions dust was the key villain for a long time.
- Dust is a generic term for a vast mix of metals and non-metals silicon, aluminium, titanium, manganese, copper, barium, antimony, selenium and zinc.

Tulsi and ashvagandha to purify Hyderabad lake

News: The FTW(floating treatment wetland) on Nekkampur Lake was inaugurated on February 2, World Wetlands Day.

Beyond News:

- It has already been recognised by the India Book of Records as the largest FTW in the country.
- Measuring 3,000 sq. ft., the FTW is a joint effort of Dhruvansh, the Hyderabad Metropolitan Development Authority, the Ranga Reddy district administration and other organisations.



Floating treatment wetland (FTW):

- The floating treatment wetland (FTW) includes Several plants that helps to clean the lake by absorbing nutrients such as excess nitrates and oxygen present in the water. They thus reduce the content of these chemicals.
- Based on the soil-less hydroponics technique, the FTW comprises four layers. Floatable bamboo forms its base, over which Styrofoam cubicles are placed.
- The third layer consists of gunny bags. The final layer is of gravel. Hydroponics permits plants to grow only on sunlight and water. There is no need of soil.
- There are small holes at the bottom which facilitate the flow of nutrients from the water to the plants (biological uptake process), which are held upright by the gravel layer.
- Cleaning agents planted on the FTW include vetivers, canna, cattalis, bulrush, citronella, hibiscus, fountain grass, flowering herbs, tulsi and ashvagandha.
- Micro-organisms growing on the FTW and plant root systems break down and consume the organic matter in the water through microbial decomposition. The root systems filter out sediments and pollutants.
- The NGO claims that FTW is strong and can hold the weight of as many as four people. Compared to sewage treatment plants, this method is much cheaper.

Periodic biochemical oxygen demand (BOD) readings are taken from the Pollution Control Board. When the project began, the BOD was 27 mg/l.

FEBRUARY 4&5

General Studies-02

Indian, U.S. air forces to deepen cooperation in Indo-Pacific region: U.S. Air Force chief

News: Chief of U.S. Air Force General David L. Goldfein has said Indian and U.S. air forces will significantly ramp up operational cooperation to complement the strategic interests of the two countries in the **Indo-Pacific region where China has been expanding its military influence.**

Beyond News

Calling India a “central strategic partner” of the U.S. in pursuing common interests in the region, two of the world’s largest air forces were going to jointly shift the focus on the Indo-Pacific region and asserted that the rules-based order must be preserved in the critical sea lanes.



India, Japan and Australia would provide for deeper cooperation between the Indian and American air forces.

In June last year, two Lancer heavy strategic bombers of the U.S. Air Force had conducted flights over the South China Sea, sending a clear message to China against its military build-up in the disputed area.

Three U.S. aircraft carriers the USS Nimitz, USS Ronald Reagan and USS Theodore Roosevelt have also been operating in the Indo-Pacific region.

General Studies-03

New AI system can train robots for armies

News: Scientists have developed an artificial intelligence technique that will **teach robots and computer programmes to interact with a human instructor** and perform tasks for the army.

Beyond News

- Researchers at the US Army Research Laboratory and the University of Texas at Austin considered a specific case where a human provides real-time feedback in the form of critique.
- First introduced by researchers as Training an Agent Manually via Evaluative Reinforcement (TAMER), the team developed a new algorithm called Deep TAMER.
- It is an extension of TAMER that uses deep learning — a class of machine learning algorithms that are loosely inspired by the brain to provide a robot the ability to learn how to perform tasks by viewing video streams in a short amount of time with a human trainer.
- Many current techniques in artificial intelligence require robots to interact with their environment for extended periods of time to learn how to optimally perform a task.
- During this process, the agent might perform actions that may not only be wrong, like a robot running into a wall for example, but catastrophic like a robot running off the side of a cliff.
- Help from humans will speed things up for the agents, and help them avoid potential pitfalls, said Garrett Warnell, a researcher at the US Army Research Laboratory.

22 Indian sailors, ship missing

News: A fuel tanker with several international crew members, including 22 Indian sailors, has been missing for the past two days near West Africa, the ship's owners have announced.

Beyond News

- The tanker, loaded with around 13,500 tonnes of gasoline, was last contacted off the coast of Benin in the Gulf of Guinea.
- The ship is owned by Japan's Yamamaru Kisen.

- The region near Benin, especially the Gulf of Guinea, is known to be pirate-infested, and several ships have been targeted.

Tiger Census begins in Wayanad

News: An eight-day tiger survey, as part of the **All-India Tiger Estimation-2018**, began in the Wayanad Wildlife Sanctuary (WWS) and two territorial forest divisions in the district in Kerala.

Beyond News

- The survey, commonly known as Tiger Census, is conducted in WWS and South Wayanad and North Wayanad forest divisions.
- The forest area in the district have been divided in to 63 blocks, including 23 blocks in the sanctuary and 21 in North Wayanad and 19 in South Wayanad forest divisions, in accordance with the guidelines issued by the National Tiger Conservation Authority and the Wildlife Institute of India.

165 staffers at work

- Close to 165 trained field staffers are part of the survey.
- On the first three days, a carnivore sign survey will be conducted along three different trails in each block.
- Direct sighting of four species of carnivores, such as tiger, leopard, wild dog, and sloth bear as well as mega herbivores such as **elephant, gaur, sambar deer, and wild pig** will be recorded. Indirect evidence of wildlife such as pug marks, scat, and remains of killings will also be collected during the phase.
- The sighting of various species of vultures also will be recorded in the sanctuary, the **lone habitat of Asiatic vultures in the State.**
- Official said that, the collected data, after a three-day transect line survey scheduled for February 7, 8, and 9, will have to be submitted to the Periyar Tiger Conservation Foundation.



FEBRUARY 6

General Studies-02

'When 2 adults marry, none should interfere'

News: Two adults are free to marry and “no third party” has a right to harass or cause

A law unto themselves

2007: A Haryana court awarded the death sentence to five persons and one person to life imprisonment for killing a couple on the orders of a self-styled khap panchayat for marrying against societal norms

2014: A community panchayat in U.P. banned girls from wearing jeans and using mobile phones, claiming that these had a “bad” effect on them and were responsible for sexual harassment incidents

2015: The khap of Notara Bhopat village in Rajasthan ordered a woman to live with a man, whose wife eloped with her husband



SOURCE: PTI

harm to them, said Chief Justice of India Dipak Misra, speaking against honour killings .

Beyond News:

- When two people get into wedlock, no one should interfere. Neither parents, society, khap or panchayat... no one at all, said Justice Misra, leading a three-judge Bench that upheld the fundamental right of two people who wish to marry and live peacefully.

A senior counsel, who represented the khap panchayat, objected to the panchayats being portrayed as “inciters” of honour killings.

- The counsel said such panchayats were age-old traditions and they do encourage inter-caste marriages now.
- He argued that the objection of khaps to marriages between people from the same gotra was upheld in Section 5 of the Hindu Marriage Act of 1955.
- Only three per cent of honour killings were linked to gotra. The remaining 97% were due to religion and other reasons.

Marriage within the same gotra led to **genetic deformity in children**, the counsel argued.

Bill introduced in US House to end non-defence aid to Pakistan

News: A bill was introduced in the US House of Representatives to end non-defence aid to Pakistan as it “provides military aid and intelligence” to terrorists.

Beyond News:

- It sought that the amount be redirect to infrastructure projects in the US.
- Introduced by Congressmen Mark Sanford from South Carolina and Thomas Massie from Kentucky, the legislation will prohibit the US State Department and the US Agency for International Development (USAID) from sending American taxpayer money to Pakistan.

The lawmakers alleged that **Pakistan “knowingly” provides resources to terrorists.**

- Mr. Massie said the U.S. should not funnel money to a government that “provides military aid and intelligence to terrorists”.
- This common-sense bill puts America first by reallocating tax dollars to roads and bridges at home instead of funnelling money overseas, he added.
- The U.S., post 9/11, has provided nearly \$34 billion in aid to Pakistan, including \$526 million in 2017 alone.

General Studies-03

Agni-I missile with nuclear weapon carrying capability flight-tested successfully

News: India flight-tested the indigenously developed Agni-I ballistic missile that can carry a nuclear payload as part of a user trial by the Army from a test range off the Odisha coast.

Beyond News:

- The Strategic Forces Command of the Army conducted the user trial of the **700 km range missile** from launch pad-4 of the Integrated Test Range (ITR) at Abdul Kalam Island in Balasore.
- **Defense** sources said that, it was **18th version of Agni-I**, which could achieve all parameters within the stipulated time period.
- The missile was **inducted into service in 2004**.
- The surface-to-surface, single stage missile, powered by solid propellants, was launched as part of a regular training exercise by the armed forces.
- The trial reconfirmed the Army's readiness to fire it at short notice.

The missile has a specialised navigation system, which ensures it reaches the target with a high degree of accuracy and precision. It has proved its excellent performance in terms of range and accuracy.

- The 15-metre-long Agni-I, weighing 12 tonnes, can carry payloads up to 1,000 kg.
- The last trial was successfully conducted on November 22, 2016 from the same base.

FEBRUARY 7

General Studies-02

Supreme Court cancels 88 mining leases in Goa

News: The Supreme Court on Wednesday cancelled 88 mining leases in Goa that were renewed by the State government in 2015 just before the Mines and Minerals (Regulation and Development) Act mandated the auction of mining leases.

Beyond News

- All mining activity, involving the Iron and Manganese mines, in Goa would come to a halt by March 15.
- A Bench of Justices Madan B. Lokur and Deepak Gupta said the government would examine the applications for mining leases afresh in accordance with the law.



- It said that, the renewal of mining leases was hasty and illegal.

General Studies-03

Bhutan, Nepal, Bangladesh to be part of India's tiger census

News: India's tiger census, which began late last year, will see **coordination with Bhutan, Nepal and Bangladesh** in estimating the territorial spread of the animal in the subcontinent.

Beyond News

- While India has engaged with Nepal and Bangladesh in previous tiger counts, this is the first time all countries are uniting in arriving at tiger numbers, particularly in regions with shared borders.
- Since 2006, the Wildlife Union Environment Ministry-funded body has been tasked with coordinating the tiger estimation exercise.
- The once-in-four-years exercise calculated, in 2006, that India had only 1,411 tigers. This rose to 1,706 in 2010 and 2,226 in 2014 in later editions on the back of improved conservation measures and new estimation methods.
- The survey divided into four phases began last winter and is expected to reveal its findings in early 2019.
- Commissioned by the Union Environment Ministry's National Tiger Conservation Authority, the ₹10 crore exercise this year involves 40,000 forest guards traversing 4,00,000 sq. km. of forests; wildlife biologists independently assessing them; approximately a year's duration of field work; 14,000 camera traps; and coordination with 18 States.
- Along with tigers, the survey also collects information on the prey population of deer and other animals.



Spider fossil with a whip-like tail found in Myanmar

News: Scientists have discovered a new species of spider entombed in chunks of amber from northern Myanmar.

Beyond News

- They described four specimens of the arachnid, called *Chimerarachne yingi*, that inhabited a Cretaceous Period **tropical forest about 100 million years ago during the dinosaur age.**
- Alongside modern spider traits such as a silk-producing structure called a **spinneret**, it



possessed a remarkably primitive feature: a whip-like tail covered in short hairs that it may have used for sensing predators and prey.

- It is a key fossil for understanding spider origins and new fossil most likely represents the earliest branch of spiders, and implies that there was a lineage of tailed spiders that presumably originated in the Paleozoic (the geological era that ended 251 million years ago) and survived at least into the Cretaceous of Southeast Asia.
- Despite its fearsome appearance, the fanged Chimerarachne was only about three-tenths of an inch long, more than half of which was its tail.
- University of Kansas paleontologist Paul Selden said that, Chimerarachne represents “**a kind of missing link**” between true spiders and earlier spider forerunners that had tails but lacked spinnerets.
- The earliest arachnids, a group including spiders, scorpions, mites, ticks and others, dates to about 420 million years ago.
- The oldest-known true spiders lived about 315 millions year ago.
- Chimerarachne may have lived under bark or in the moss at the foot of a tree.

[ORR peripheries to go green](#)

News: The Telangana State government has turned its focus on developing forest blocks along the outer ring road.

Beyond News

- Municipal Administration and Industries Minister said that, 58,329 hectares of land was available in 194 forest blocks around the ORR under the HMDA limits.
- The officials should focus on the development of these blocks for creation of lung space for the residents, while special emphasis should be laid on mobilising funds for the same.
- The departments concerned should ensure effective coordination in the preparation of plans for development of these parks with focus on harnessing the potential of wellness, medical and eco-tourism offered by the city.
- In addition, efforts should be made to develop a walkway along the Musi riverfront on the lines of the KBR Park.
- Effort should be made to secure the cooperation of citizens as well as walkers’ associations in the development of these lung spaces in addition to encouraging avenue plantations in urban local bodies.
- The Forest Department, on its part, could contribute in promoting nurseries. The departments concerned should also identify mining zones and quarries in different places along the ORR and ensure that they were developed into parks.

There were 13 forest blocks spread over 1,360 hectares in GHMC limits, of which five had been developed fully and another eight were partially developed.

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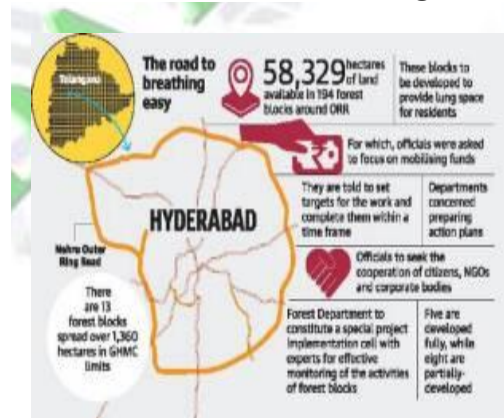
General Studies-02

India 'disturbed' by emergency

News: India issued another statement of concern over the growing crisis in the **Maldives**, but didn't respond to former President Mohamed Nasheed's appeal for military intervention.

Beyond News

- Ministry of External Affairs (MEA) said in a statement that, they are disturbed by the declaration of a state of emergency following the refusal of the government to abide by the unanimous ruling of the full bench of the Supreme Court on February 1, and also by the suspension of constitutional rights of the people of the Maldives.
- The government also criticised the arrest of the Supreme Court Chief Justice Abdulla Saeed and former President Abdul Gayoom on Monday night as "reasons for concern", adding that it "continues to carefully monitor the situation."
- The MEA **refused to respond to questions about Mr. Nasheed's call for international intervention.**
- Meanwhile defence sources said troops have been put on alert as the situation is still developing in the Maldives.
- No order has been issued to move any troops or aircraft towards the country, they said.
- Resources could be mobilised at a short notice, the sources added, but rejected the reports that India was preparing for action.



India, UAE to ink 12 pacts during Modi's visit

News: A top diplomat said that, **12 agreements will be signed** during Prime Minister Narendra Modi's visit to the UAE later this week as India and the oil-rich Gulf nation look to intensify economic cooperation.

Beyond News

- The agreements will include areas like finance and skills development.
- Modi will start his visit to three West Asian countries Palestine, the UAE and Oman on Friday with focus on cooperation **in key areas of defence, security and counter-terrorism.**
- The Prime Minister will participate in the 6th World Government Summit in Dubai on February 10-11 in which India is a partner country.
- This will be Mr. Modi's second visit to the UAE. He first visited the country in August 2015.
- According to the Ambassador, these visits are important for enhancing and strengthening the bilateral relations.
- Aaround 2.8 million Indians are living harmoniously in the UAE and repatriating \$13.6 billion a year from the Gulf nation to India.

General Studies-03

World's biggest rocket launched- Falcon Heavy

News: SpaceX's big new rocket blasted off on its first test flight, carrying a red sports car aiming for an endless road trip past Mars.



Why its important?

- Falcon Heavy became the most powerful rocket in use today, doubling the liftoff punch of its closest competitor.

Beyond News:

Height: 70 M | Number of engines: 27 | Weight : Approx 14 lakh Kg.

India successfully test-fires nuclear capable Prithvi-II

News :India successfully test-fired its **indigenously developed nuclear capable Prithvi-II missile** as part of a user trial by the Army from a test range in Odisha.

Beyond News:

- The trial of the surface-to-surface missile, which has a **strike range of 350 km**, was carried out from a mobile launcher from launch complex-3 of the Integrated Test Range at Chandipur near Balasore .
- Describing the trial as a complete success, they said all mission objectives were met during the test launch.
- The perfect test launch came after successful trial of Agni-5 on January 18 and Agni-1 missile conducted from Abdul Kalam Island off Odisha coast on February 6.
- Prithvi-II is capable of carrying 500-1,000 kilogram of warheads and is thrustured by liquid propulsion twin engines.
- The state-of-the-art missile uses advanced inertial guidance system with manoeuvring trajectory to hit its target, they said.
- Sources said that, inducted into the Armed forces of the country in 2003, the nine-metre-tall, single-stage liquid-fuelled Prithvi-II is the first missile to have been developed by the DRDO under the Integrated Guided Missile Development Programme (IGMDP)



Air pollution behind poor lung capacity among kids: study

News: Particulate matter pollution monitored over 15 different locations across the Capital for more than three months in a row this winter on a sample size of 343 revealed that 80% of the sample population had unhealthy or below the normal lung functioning.

Findings in the Study

- The study found that the southern and northern peripheries of the city — children seem to have better health but the air in all parts of the city is not good for our children.
- While one needs to remember that this may partly be due to the weaker economic background, the children across the city and country deserve good health.
- The air quality monitoring also highlights the fact that there is a base pollution load across Delhi of about 300 ug/m³ for PM10 and 200 ug/m³ for PM2.5, which is three times higher than the approved limits and the source is located in Delhi.
- It is important to note that the Graded Response Action Plan formulated hasn't been put to use fully since its inception.
- Multiple organisations and bodies across Delhi seem to be advocating for new plans every winter instead of implementing what's been put in place to mitigate the problem.

Reasons

- The major reason behind this emergency is industrial emission and vehicle fumes which has been sealed by cool temperature and still winds.
- At the same time, mass burning of crop waste across the north Indian hinterland has sent dense smoke billowing across one of the world's most populated regions.
- The air has heavy metals and other carcinogens at levels more than 30 times World Health Organization limits, conditions likened by medics to smoking at least 50 cigarettes in a day.



After effects

- In the longer term, consistent poor quality air is altering the demographics of cancer in the city.
- Earlier 90% of the lung cancer patients were smokers. Most were men in their 50s or 60s.
- However, in the last two years, half of my lung cancer patients have been non-smokers. There is a peak in people aged in their 40s, even people in their 30s. Our cancers are occurring earlier, more in non-smokers, and more in females.

NGT imposes Rs. 10-lakh fine on U.P. govt.

News: The National Green Tribunal on Monday imposed an environment compensation of Rs. 10 lakh on the Uttar Pradesh government for failing to stop illegal operation of e-waste plants on the banks of the Ramganga in Moradabad.

Beyond News

- Observing that there was complete inaction on the part of the State government, a Bench also imposed an environment compensation of Rs. 50,000 on the Moradabad District Magistrate.
- Green panel has directed the Central Pollution Control Board (CPCB) to submit an action plan for the entire Ramganga river by February 21.
- However, counsel appearing for the State Pollution Control Board submitted that there were no e-waste processing facility in the district and the waste was being illegally dumped on the banks of the river.

FEBRUARY 9

General Studies-02

India can play a role in Middle East peace process: Palestine President Abbas

News: Ahead of Prime Minister Narendra Modi's historic **Palestine** visit, President Mahmoud Abbas said that, he will discuss with him India's role in the Middle East peace process and the creation of a multilateral forum of negotiations to strike a final deal with Isarel.

Beyond News:

- Mr. Modi, **the first Indian Prime Minister to visit Palestine**, is reaching Ramallah tomorrow amid heightened tensions in the region after US President Donald Trump recognised Jerusalem as the capital of **Israel**.
- The unilateral U.S. decision to declare Jerusalem as the capital of Israel was challenged at the UN General Assembly where 128 nations, including India, voted to turn down the move as "null and void".
- Describing India as a "**very respected country in the international arena**", India can have a possible role in creating a multilateral forum of negotiations between the Palestinians and Israelis to reach a final agreement.

A number of MoUs are likely to be signed between the two sides during Mr. Modi's three-hour visit to Palestine under which India will provide funding for a number of projects in the fields of **health, education, culture and women's empowerment**.

A lot of Palestinian diplomats have received training in India and hundreds of Palestinians have availed scholarships to study at Indian institutions as part of New Delhi's effort towards capacity building in Palestine.

General Studies-03

NASA spacecraft captures farthest images away from Earth.

News: NASA's New Horizons probe **has captured the farthest images from Earth by a spacecraft**, surpassing Voyager 1's record of clicking a picture when it was 6.06 billion kilometres away from our planet.

Beyond News:

The routine calibration frame of the "Wishing Well" galactic open star cluster, made by the Long Range Reconnaissance Imager (LORRI) on December 5 last year, was taken when New Horizons was 6.12 billion kilometres from Earth, NASA has said.

That picture was part of a composite of 60 images looking back at the solar system, on February 14, 1990, when Voyager was 6.06 billion kilometres from Earth.

Voyager 1's cameras were turned off shortly after that portrait, leaving its distance record unchallenged for more than 27 years.

New Horizons is the fifth spacecraft to speed beyond the outer planets and so many of its activities have set distance records.

According to NASA, that New Year's flight past MU69 will be the farthest planetary encounter in history, happening one billion miles beyond the Pluto system – which New Horizons famously explored in July 2015.

INDIA-IP-RANKING

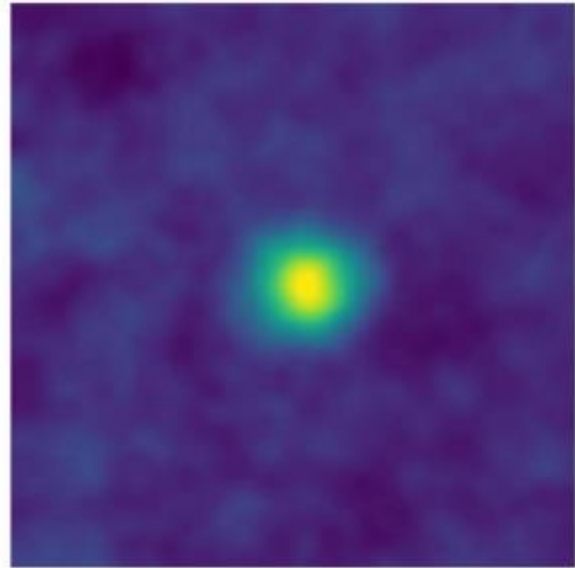
News: India has "increased substantially" its score in the latest international Intellectual Property (IP) index released by the U.S. Chambers of Commerce on Thursday, ranking 44th out of 50 countries.

Intellectual property (IP)

Intellectual property (IP) refers to creations of the mind, such as inventions; literary and artistic works; designs; and symbols, names and images used in commerce.

Beyond News:

India's overall score has increased substantially from 25% (8.75 out of 35) in the 5th edition of the Index to 30% (12.03 out of 40) in the 6th edition, according to the annual report.



Despite improvement in the score, India continues to remain towards the bottom of the ladder. It now ranks 44 out of 50 countries. Last year, India ranked 43rd out of 45 countries in the index, with an overall score of 8.4 points.

India's ranking, the report said, reflects a relatively strong performance in the new indicators as well as positive reform efforts on patentability of computer-implemented inventions (CIIs) and registration procedures for well-known marks.

The U.S. tops the list with 37.98 points, followed by the U.K. (37.97) and Sweden (37.03).

General Studies-04

Google fined ₹136 crore by Competition Commission for 'infringing anti-trust conduct'

News: The Competition Commission of India (CCI) imposed a fine of ₹136 crore on search engine major Google for unfair business practices in the Indian market for online search.

Beyond News:

- Passing the order on complaints that were filed back in 2012, the regulator said the penalty is being imposed on Google for “**infringing anti-trust conduct**”.
- Globally, this is one of the rare cases where Google has been penalised for unfair business ways.
- It was alleged that Google is indulging in abuse of dominant position in the market for online search through practices leading to search bias and search manipulation, among others.

The penalty amount of ₹135.86 crore translates to **5% of the company's average total revenue** generated from India operations from its different business segments for the financial years 2013, 2014 and 2015, according to the CCI order.

FEBRUARY 10

General Studies-01

4,400-year-old tomb discovered outside Cairo

News: Archaeologists in Egypt have discovered a 4,400-year-old tomb near the



country's famed pyramids at the Giza plateau just outside Cairo.

Beyond News:

- The Antiquities Ministry said that, the latest discovery that authorities hope will help revive the country's staggering tourism sector.
- It likely belonged to a woman known as Hetpet, who archaeologists believe was close to ancient Egyptian royals of the 5th Dynasty.
- The tomb is made of mud brick and includes wall paintings in good condition depicting Hetpet observing different hunting and fishing scenes.
- Other scenes also depict a monkey in pharaonic times, monkeys were commonly kept as domestic animals picking fruit.
- According to the ministry's statement, similar scenes have been found in other tombs belonging to the later 12th dynasty.
- Throughout 2017, the Antiquities Ministry made a string of discoveries across Egypt including some in the southern city Luxor known for its spectacular temples and tombs spanning different dynasties of ancient Egyptian history.

General Studies-02

Kerala, Punjab, T.N. top NITI Aayog's health index report.

News: Kerala, Punjab and Tamil Nadu were the top rankers in NITI Aayog's latest Health Index report which has, for the first time, attempted to establish an annual systematic tool to measure and understand the heterogeneity and complexity of the nation's performance in the health sector.

Beyond News:

- The document, developed by NITI Aayog with technical assistance from the World Bank and in consultation with the Ministry of Health and Family Welfare, indicates that Jharkhand, Jammu and Kashmir and Uttar Pradesh showed the maximum improvement in indicators such as Neonatal Mortality Rate, Under-five Mortality Rate, full immunisation coverage, institutional deliveries, and People Living with HIV (PLHIV) on Anti-Retroviral Therapy (ART).
- The next report will be released in June this year and district hospitals too would be ranked.
- Manipur registered maximum incremental progress in indicators such as PLHIV on ART, first trimester antenatal care registration, grading quality parameters of Community Health Centres, average occupancy of key state-level officers and good reporting on the Integrated Disease Surveillance Programme (IDSP).
- Lakshadweep showed the highest improvement in indicators such as institutional deliveries, TB treatment success rate, and transfer of National Health Mission funds from the state treasury to implementation agency.

State nod awaited for child rescue project roll out.

News: Having set up a district task force earlier this week to monitor the implementation of Operation Sarana Balyam, a **project aimed at rescuing children from labour and begging**, Social Justice

Department officials in the district are awaiting a direction from the government for the district-level rollout of the project.

Hand of help

Operation Sarana Balyam

Aim

- Rescuing children from labour and beggary
- Identifying whereabouts of destitute migrant children and deporting them back to their homes

The process

- Once a tip-off is received on child labour or beggary, children are rescued with police protection and produced before the Child Welfare Committee

Sarana Balyam is now being run in Pathanamthitta, Kollam, Kottayam and Alappuzha districts

Rescue officers have been appointed in all the four districts where the project is already under way. We have been permitted to avail the services of these officers in the district till the time such officers are appointed in Ernakulam.

SOCIAL JUSTICE DEPARTMENT SOURCE



Beyond News

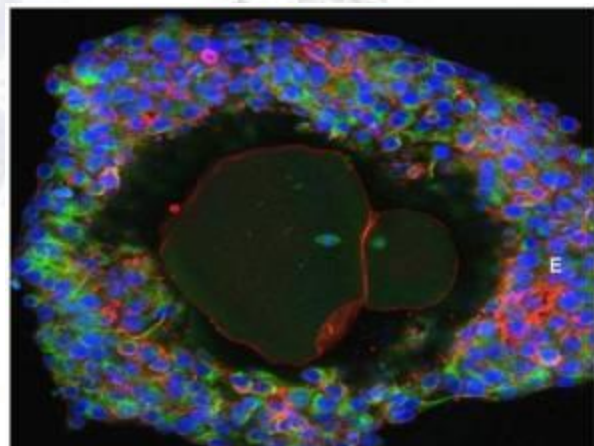
- The project is now being run in Pathanamthitta, Kollam, Kottayam and Alappuzha districts, with the government proposing to expand it across Kerala state.
- Minister for Social Justice told the Assembly that 41 children vending various goods and housed in unhygienic conditions had been rescued under the project in the past two years.
- The district task force chaired by the District Collector and the District Child Protection Officer as convener also has representatives of police, Health, Education, SC/ST Development and Forest departments.
- Once a tip-off is received on child labour or beggary, the children will be rescued with police protection, if it so warranted, and produced before the Child Welfare Committee (CWC).
- Social Justice Department sources said that, it was fully set to implement the project in the district upon receiving directions from the government.
- Apart from checking child labour and beggary, the project aims at identifying the whereabouts of destitute migrant children found in streets and deporting them back to their homes. That again calls for temporary shelters.

General Studies-03

Scientists grow human eggs to full maturity in laboratory.

News: Scientists have succeeded for the first time in growing human eggs in a laboratory from the earliest stages in ovarian tissue all the way to full maturity — a scientific step that had previously been taken in mice.

Why this news Important?



- This latest work, by scientists at two research hospitals in Edinburgh and the Center for Human Reproduction in New York, is the first time human eggs have been developed outside the human body from their earliest stage to full maturity.

Beyond News:

- Scientists from Britain and the United States said that, it could one day help in developing regenerative medicine therapies and new infertility treatments.
- In previous studies, scientists had developed mouse eggs in a laboratory to the stage where they produced live offspring, and had also matured human eggs from a relatively late stage of development.
- It could in future help **cancer** patients wishing to preserve their fertility while undergoing chemotherapy treatment, improve fertility treatments, and deepen scientific understanding of the biology of the earliest stages of human life.

Drones can help structure urban development: KTR

News

An all-women team and its solution for women's security walked away with top honours at the finals of 'Hackadrone 2018' in Hyderabad(Telangana), the country's first UAV hackathon.



Beyond News:

- The solution, developed by Team Drone Force comprising an engineering student from the city and two of her assistant professors Fatima and Swapna Bhandari, comes into play as soon as victim sends an alert from a mobile app.
- The solution sends real-time alerts to the control station and the victim's guardians. The control station would then deploy a UAV (unmanned aerial vehicle) to the location and start beaming images thereby promoting the response.
- Information Technology Minister said that, drone technology can play a major role in various areas, especially urban development and mining.
- Some of the areas in which drones can be of immense help were in the project to rejuvenate the Musi river, to monitor mining activities and even assess building violations without being intrusive.

Strongest solar magnetic field measured on Sun.

News: Astronomers in Japan have observed the strongest magnetic field ever directly measured on the surface of the Sun.

Sunspots

- Sunspots are areas of concentrated magnetic fields. A sunspot usually consists of a circular dark core (the umbra) with a vertical magnetic field and radially-elongated fine threads (the penumbra) with a horizontal field.



Beyond News

- HINODE's continuous high-resolution data allowed us to analyse the sunspots in detail to investigate the distribution and time evolution of the strong magnetic field and also the surrounding environment.
- The researchers using the HINODE spacecraft determined that the field was generated as a result of gas outflow from one sunspot pushing against another sunspot.
- Magnetism plays a critical role in various solar phenomena such as flares, mass ejections, flux ropes, and coronal heating.
- The penumbra harbours an outward flow of gas along the horizontal threads.
- The darkness of the umbrae is generally correlated with the magnetic field strength. Hence, the strongest magnetic field in each sunspot is located in the umbra in most cases.

FEBRUARY 11 & 12

General Studies-01

China differs with Nepal on Mount Everest's height: report

News: China continues to differ with Nepal over the height of Mount Everest and sticks to its own calculation of the world's highest peak which is four meters less than the Kathmandu's measurement.

Beyond News:

- China's response came after reports said that Beijing had agreed to accept Nepal's measurement of the mountain, which is almost four meters taller.
- China has not changed its measurement of the height of Mount Qomolangma, the Chinese name of the Mt Everest, which



stands at **8844.43 meters**, state-run Global Times reported.

- China recognises **Mount Qomolangma** as the world's tallest, measuring 8,844.43 meters above sea level, the National Administration of Surveying, Mapping and Geo-information (NASG) told the state-run Xinhua News Agency.

The peak of Mt Everest played a significant role in the settlement of boundary between Nepal and China, which earlier claimed the whole mountain as part of its territory after it took control of Tibet.

General Studies-02

SC refuses interim stay on Kambala buffalo race in Karnataka

News: The Supreme Court refused to grant Karnataka's buffalo race, Kambala, an interim stay. A bench however, fixed March 12 for a final hearing on the plea by animal rights body People for the Ethical Treatment of Animals (PETA) in the matter.

Beyond News:

- To pave the way for the festival, the State cabinet had on January 28 last year decided to amend the Prevention of Cruelty to Animals Act, (Central Act 59 of 1960), enacted to prevent infliction of unnecessary cruelty and suffering on animals.
- PETA has opposed the upcoming Kambala festival on grounds of cruelty to animals. Calling for banning the sport, it said the agitators have taken a leaf out of the pro-jallikattu protesters' book.
- Earlier, another animal rights' body, Federation of Indian Animal Protection Organisations (FIAPO), had approached the apex court challenging the bill to legalise traditional buffalo races in Karnataka.



Buffalo race

Bullock cart races are held in parts of north Karnataka and in the coastal districts of Udupi and Dakshina Kannada.

The Kambala race, held between November and March, involves a pair of buffaloes tied to a plough and anchored by one person.

They are made to run in parallel muddy tracks in a competition in which the fastest team wins. It is believed to be held to propitiate the Gods for a good harvest, besides being a recreational sport for farmers.

Tribal areas to soon get bike ambulances

News: Buoyed by the response to the free bike ambulance service in Mumbai, the State government is planning to expand the fleet and run similar services in tribal-dominated regions.

Beyond News:

The bike ambulance service, which was started in Mumbai in August last year to provide swift medical assistance to patients, has so far received around 1,500 calls from different parts of the metropolis.

It is difficult for a four-wheeler ambulance to go to hilly regions or reach the areas with narrow roads.

But bike ambulances can reach such places easily. Therefore, [this service will be operated] in inaccessible places in Jawhar, Mokhada, Nandurbar and Melghat regions.

The emergency first responder service is available through the '108' helpline. Paramedics ride the bikes to provide treatment to patients during the golden hour. The 10-bike fleet is operated by integrated services company BVG India.

General Studies-03

India's forest, tree cover up by 1% in 2 years: Centre

News: India's tree and forest cover has registered an increase of 1% or 8,021 sq. km in two years since 2015, according to the latest assessment by the government.

Beyond News:

- The India State of Forest Report (ISFR) 2017 was released by Environment Minister .
- According to the report, the total forest cover is 7,08,273 sq. km, which is 21.54% of the total geographical area of the country.
- Forest and tree cover combined is 8,02,088 sq. km or 24.39% of the total geographical area.
- The Environment Ministry said in the latest assessment that very dense forest in India has also increased by 1.36% as compared to 2015. ISFR is released every two years.
- In terms of percentage of forest cover with respect to the total geographical area, Lakshadweep with (90.33%) has the highest forest cover, followed by Mizoram (86.27%) and Andaman and Nicobar Island (81.73%).
- The top five States where maximum forest cover has increased are Andhra Pradesh (2,141 sq. km), Karnataka (1,101 sq. km), Kerala (1,043 sq. km), Odisha (885 sq. km) and Telangana (565 sq. km).
- The survey, which has for the first time assessed water bodies, said that these bodies inside forest cover have increased by 2,647 sq. km during last decade.

- As per the latest Food and Agriculture Organization (FAO) report, India is placed 8th in the list of top ten nations reporting the greatest annual net gain in forest area.

Cyberspace shouldn't help trigger terror: PM

News: Prime Minister Narendra Modi cautioned the world against the misuse of cyberspace to ensure it did not become a source of radicalisation, asserting that technology should be harnessed as a tool for development, not destruction.

Beyond News:

- The comments by Mr. Modi at the World Government Summit in his plenary address comes at a time when the world community is engaged in efforts to address the misuse of cyberspace by terrorists and hackers.
- He emphasised the role technology was playing in India's development.
- The Prime Minister told the audience that India is aspiring to assume leadership position in Artificial Intelligence, Nano, cybersecurity and cloud computing.
- India is the 'Guest Country' at the sixth edition of the World Government Summit, which is being attended by more than 4,000 participants from 140 countries.

Three new eel species found in Bay of Bengal

News: Scientists have discovered three new species of eel along the northern Bay of Bengal coast in the past few months.

Beyond News:

- Dark brown with white dots on the dorsal side, *Gymnothorax pseudotile* was discovered at the Digha coast of the Bay of Bengal. The other two species, *Gymnothorax visakhaensis* (uniformly brown) and *Enchelycore propinqua* (reddish brown body mottled with irregular creamy white spots), were discovered from the Visakhapatnam coast of the Bay of Bengal.
- While *Gymnothorax pseudotile* is about 1 feet to 1.5 feet long, *Gymnothorax visakhaensis* is about a foot long. *Enchelycore propinqua* is the smallest of them measuring less than a foot.
- Eels are found mostly at the bottom of rivers and seas. Across the world about 1,000 species of eels have been identified. In India, the number is around 125.
- For species belonging to the family Muraenidae, referred commonly as Moray eels, there are records of about 200 species of which more than 30 species are found in India.

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FEBRUARY 13

General Studies-02

Russia seeks ₹125 crore to carry out repairs on INS Chakra

News: Russian authorities have demanded over \$20 million for rectifying the damage suffered by nuclear submarine *INS Chakra*, which was dry-docked last week, even as the government is seeking to fix responsibility for the accident.

Beyond News

- According to defence sources, Russia has quoted \$20 million (approximately ₹125 crore) for fixing the nuclear submarine's front portion, which was damaged while the submarine was entering the harbour in Visakhapatnam.
- The developments around *INS Chakra* come even as the indigenously built nuclear ballistic missile submarine *INS Arihant*, which had suffered extensive damage because of human error over a year ago, is yet to be back to active sailing.
- On *INS Chakra*, Russian officials have conveyed to India that they would be making all the replacement panels in their own facility and would not be using any Indian facilities.
- The almost 5×5 ft. panels of the sonar dome would be brought to Visakhapatnam and fitted on to the leased submarine.
- Meanwhile, government sources indicate that they want responsibility fixed for the damage suffered by *INS Chakra*.

India, Oman agree to isolate sponsors of terror

News: External Affairs Ministry said that, India and Oman have agreed to isolate the sponsors of international terrorism.

Beyond News

- The declaration on battling terrorism came at the end of Prime Minister Narendra Modi's visit to the country during which both sides acknowledged that there was an "inter-linkage" between the stability of the Gulf region and the Indian subcontinent.
- The two sides also emphasised the need to isolate the sponsors and supporters of

Costly affair

India leased the Akula-II class nuclear attack submarine from Russia for a 10-year period in 2011 for over \$600 million. It was inducted into service as *INS Chakra* in April 2012.

THE DAMAGE

- *INS Chakra* suffered damage while entering the harbour in Visakhapatnam.
- A large hole was formed in the sonar dome in the forward portion.
- Damage to *INS Chakra* was reported in October 2017.



KEY STATS

Weight: **8,140** tonnes

Length: **114** metres (approx.)

Grand entry: The induction of the submarine into the Navy in Visakhapatnam

THE PROBE AND AFTER

- A Russian team visited India for a joint investigation in October 2017.
- Russia has quoted \$20 million (approximately ₹125 crore) as the repair cost.

Tryst in Muscat

India and Oman signed eight deals during Prime Minister Narendra Modi's visit to Muscat.

- Agreements on legal and judicial cooperation in civil and commercial matters.
- Agreement on mutual visa exemption for holders of diplomatic, special, service and official passports.
- MoU on cooperation in the field of health.
- MoU for cooperation in the peaceful uses of outer space.
- MoU on cooperation between Foreign Service Institute, Indian Ministry of External Affairs and Oman Diplomatic Institute.



Reaching out: Narendra Modi with Sultan bin Said Al Salhi.

- MoU on academic and scholarly cooperation between National Defence College, Sultanate of Oman and the Institute for Defence Studies and Analyses.
- MoU in the field of tourism cooperation between the two countries.
- Annexure to the MoU on military cooperation.

terrorism and agreed that the international community should take urgent action against all such entities, which support terrorism and use it as an instrument of policy.

- The delegations declared that both sides recognise “the close inter-linkage of the stability and security of the Gulf region with the Indian subcontinent.
- Modi appreciated Oman’s help in dealing with “specific” security challenges, the joint statement mentioned.
- A total of eight MoUs were signed on health, legal cooperation, tourism and military cooperation. Oman said it wanted its scientists to be trained in Indian space research facilities.

HC for drastic action to retrieve temple lands

News : In a bid to retrieve huge tracts of temple lands that had been either grabbed or under encroachment and to prevent further alienation of such immovable properties, the Madras High Court issued a slew of directions to the State Government as well as the Hindu Religious and Charitable Endowments (HR &CE) department.

Beyond News

- Justice ordered that public notices be issued forthwith informing land grabbers across the State to surrender the properties voluntarily to avoid penal action under Section 79B of the HR&CE Act of 1959.
- The Secretary, in turn, was ordered to take steps to alter the patta granted in favour of beneficiaries of illegal transfer of land.
- The HR&CE department was also ordered to collate information about temple lands and upload it on its website in four weeks.
- A detailed report on such encroachments should be filed in the court within six weeks.
- Justice directed the HR&CE Commissioner to initiate departmental action against officials and temple trustees responsible for illegal transfer of temple properties.
- Stating that a recent statistics revealed that the extent of temple properties had reduced from 5.25 lakh acres to 4.78 acres in the last five years with nearly 50,000 acres lying with encroachers and land grabbers.
- Judge ordered that public notices must be issued directing them to pay the arrears within four weeks or face prosecution under Section 34B of the HR&CE Act.

Alcoholism, poor health care access hit tribal hamlets

News : A study conducted in the tribal belt of Kuttampuzha in Kerala by the Health Department and the district unit of the National Health Mission (NHM) has identified alcoholism, lack of access to health care services, tobacco use, nutritional problems, unsafe drinking water, and poor sanitation as key problem areas.

It's a tough life

Time taken to travel from tribal hamlets to nearest primary health centre	PLACE	DISTANCE FROM KUTTAMPUZHA PHC	TIME TAKEN TO TRAVEL
	ELAMPLASSERRY	20 KM	2 HOURS
	KUNCHIPARA	18 KM	1.5 HOURS
	METHAMPARA	20 KM	2 HOURS
	PANTHAPARA	5 KM	15 MINUTES
	THALAVECHAPARA	18 KM	1.5 HOURS
	VELLARAMKUTH	16 KM	45 MINUTES
	VARIAM	30 KM	3 HOURS
	URIYAMPETTI	35 KM	3.5 HOURS
	THERA	32 KM	3.5 HOURS
	PINOOKUDI	12 KM	30 MINUTES



- NHM district manager said that, this is for the first time that a detailed study on people's lives in the tribal belt of the district has been scientifically done.

Findings in the Study

- There is no hunger in the hamlets, the food intake lacks nutrition as the diet includes only rice which is available through the Public Distribution System.
- There is little consumption of vegetables, fruits, meat, fish, egg, or milk.
- Other commodities like lentil, spices, and salt are available at the SupplyCo store, which is far away. And, people use the facility less frequently.
- It was also found that 86.3% of the population were anaemic. Among women, 95.9% had anaemia.
- The incomes of most families are from unskilled labour and forest resources like honey, herbs, bamboo, and rubber plantation.
- A major expense is for health care services, for which they shell out nearly ₹500 for a trip to the nearest Primary Health Centre (PHC).
- The government offers reimbursement to tribal population for treatment expenses, it is not properly executed.
- Water scarcity is severe.
- The study also found that alcoholism was not prevalent among the older generation. Moreover, they are worried about youngsters taking to alcohol. Here too there is perhaps an opening for intervention, he added.

General Studies-03

India posts marginal increase in forest cover, says report

News: India posted a marginal 0.21% rise in the area under forest between 2015 and 2017, according to the biennial India State of Forest Report (SFR) 2017.

Beyond News

- The document says that India has about 7,08,273 square kilometres of forest, which is 21.53% of the geographic area of the country (32,87,569 sq. km).
- The forest survey for the first time mapped 633 districts and relied on satellite-mapping.
- Getting India to have at least 33% of its area under forest has been a long standing goal of the government since 1988.
- Earlier this year, the government ceased to define bamboo as a tree to promote economic activity among tribals. The survey found that India's bamboo bearing area rose by 1.73 million hectares (2011) to 15.69 million hectares (2017).

FEBRUARY 14

General Studies-02

Pakistan backed terrorists will continue attacks in India, says U.S. intel chief

News: Terror groups supported by Pakistan will continue to carry out attacks inside India, the United States intelligence chief has warned.

Beyond News:

- Director of National Intelligence Daniel Coats' remarks came days after a group of Pakistan-based Jaish-e-Mohammad terrorists attacked the Army's Sunjuwan camp in Jammu on February 10, killing seven people, including six soldiers.
- On February 12, a gunfight broke out between security forces and militants, who took shelter in a building in Karan Nagar area of Srinagar after their attack on the CRPF camp in Karan Nagar area of Srinagar was foiled.
- Mr. Coats said in his testimony before the Senate Select Committee on Intelligence that, Pakistan, in fact, will continue to threaten the U.S. interests by deploying new nuclear weapons capabilities, maintaining its ties to militants, restricting counter- terrorism cooperation, and drawing closer to China.
- Without specifically referring to any terrorist incident by Pakistan-based groups, Mr. Coats told the lawmakers that he expected increased tension between the two Asian neighbours..



Use technology for welfare of children: Supreme Court

News: Supreme Court has said that, India's status as a technological powerhouse in the world would remain on paper if the state does not take advantage of its resources to benefit the children or track the missing ones.

Beyond News:

The apex court, while stressing the need for use of technology in Juvenile Justice Boards (JJBs) and Child Welfare Committees (CWCs), said it was "disheartened" that there was an acute shortage of computers and peripherals in these bodies.

- A Bench said that, the use of technology would help in dealing with crucial issues like tracing and tracking of missing children, rescuing those working in hazardous industries and victims of child sexual abuse.
- The apex court also said that the Centre and States need to look into this aspect and provide necessary software and hardware to JJBs and CWCs for their functioning.
- It directed the MWCD to continue to make creative use of information and communication technology not only for the purpose of collecting data but also for other issues connected with the Juvenile Justice (Care and Protection of Children) Act.
- The court said this in a judgment in which it passed a slew of directions for implementation of provisions of the Juvenile Justice (Care and Protection of Children) Act.
- The verdict came on a PIL seeking implementation of the Juvenile Justice Act and its rules. The petition has raised the issue of alleged apathy by the governments in implementing the welfare measure.

General Studies-03

[U.S. telescope to help solve mystery of dark energy](#)

News: A 45-year-old telescope in the U.S. will create the largest three-dimensional map of the universe, which could help scientists solve the mystery of dark energy that is believed to drive the accelerating expansion of the universe.

Beyond News:

- The 4-metre Nicholas U. Mayall Telescope, put inside a 14-storey, 500-ton dome atop a mile-high peak, closed to set the stage for installing the Dark Energy Spectroscopic Instrument (DESI).
- According to Xinhua, the new instrument would begin a five-year observing run at Kitt Peak National Observatory after its installation next year. Besides finding evidences about the universe's expansion, DESI would help set limits on theories related to gravity and the formative stages of the universe.
- Instead of one at a time they can measure the velocities of 5,000 galaxies at a time, they will measure more than 30 million of them in our five-year survey.
- It could even provide new mass measurements for a variety of elusive yet abundant neutrinos, a kind of subatomic particles.
- The expansion of the telescope's field-of-view will allow DESI to map out about one-third of the sky.
- Installation of DESI's components is expected to begin soon and to wrap up in April 2019, with first science observations planned in September 2019.

Drones beat humans at the EpicDuck Challenge

News: A study has found that, drones can be used to monitor wildlife more accurately than traditional counting approaches.

Beyond News:

- The researchers made fake bird colonies out of the rubber ducks on a beach in Australia. Experienced wildlife spotters challenged those who counted birds from drone imagery to see which group could get closest to the actual number of fake birds.
- The ground spotters counted the fake birds using binoculars or telescopes. Meanwhile, a drone was flown over the beach, taking pictures of the birds from the sky at different heights.
- Researchers made a computer algorithm to count the ducks automatically, which yielded results just as good as humans reviewing the imagery.



FEBRUARY 15

General Studies-02

China slams Modi's visit to Arunachal Pradesh

News:

China has slammed Prime Minister Narendra Modi's visit to Arunachal Pradesh, saying it was not helpful in creating "enabling conditions" for boundary talks and improvement of Beijing-New Delhi ties.

Beyond News

Xinhua news agency quoted foreign ministry spokesperson Geng Shuang as saying that China was "firmly opposed" to Mr. Modi's visit to the "disputed area."

The Chinese government has never recognised the so-called Arunachal Pradesh and is firmly opposed to the Indian leader's visit to the disputed area.

Mr. Geng said that China and India had reached "important consensus" on properly managing disputes, and the two sides were working to resolve the territorial disputes through negotiation and consultation.

He urged India to cherish “the hard-won momentum of improvements in bilateral relations and create enabling conditions for the boundary talks and the development of bilateral relations.”

Kerala has pressed for ban on Popular Front of India

News

Minister of State for Home Affairs Kiren Rijiju has said that, Kerala has sought a ban on the Popular Front of India (PFI), a Muslim organisation that is mainly operating out of the State.

Beyond News

- The issue was discussed at the annual DGP meet held in Madhya Pradesh’s Tekanpur in January, where Kerala police chief Lokanath Behera gave a detailed presentation on the PFI’s growth and activities in the State.
- The session was attended by Prime Minister Narendra Modi, Home Minister Rajnath Singh and other senior officials in the security establishment.
- Mr. Behera listed four cases where members of the PFI were involved in criminal activities.
- Last year, the National Investigation Agency sent a detailed report to the Home Ministry and mentioned four cases where cadres of the PFI had either been charge-sheeted or convicted.
- In 2010, some armed members of the PFI attacked Professor T. J. Joseph in Muvattupuzha, Ernakulam district, and chopped off his right palm. Mr. Joseph was targeted over a question paper he set for a college examination that had some references to the Prophet Mohammad, which the attackers said insulted the Prophet. In May 2015, a court convicted 13 PFI activists in the case.
- The NIA said it examined nine cases where men and women converted to Islam and in at least four of them, the involvement of members of the PFI was established.

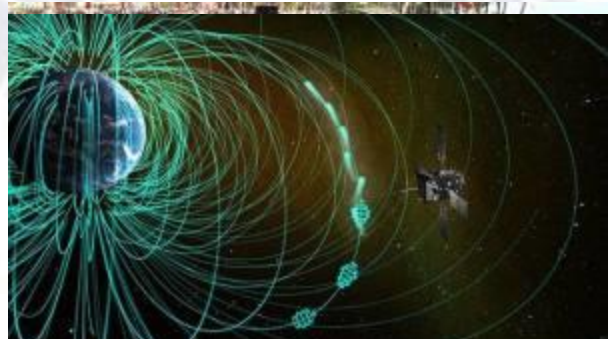
General Studies-03

Electrons behind colourful auroras observed for the first time

News :

Scientists have, for the first time, directly observed the shower of electrons bouncing across Earth’s magnetic field, which causes the spectacular, colourful phenomenon commonly known as the Northern Lights.

Beyond News



- While the cause of these colourful auroras has long been hypothesized, researchers had never directly observed the underlying mechanism until now. The spectacle of these subatomic showers is legendary.

Green, red, and purple waltz across the night sky, blending into one another for a fantastic show widely considered one of the great wonders of the world.

- Among a variety of auroras, pulsating auroral patches appearing at dawn are common but the physical mechanisms driving this auroral pulsation had so far not been verified through observation.
- With the advent of a new satellite with advanced measuring tools, researchers have now identified that this wonder is caused by the hard-to-detect interaction between electrons and plasma waves.

This interaction takes place in the Earth's magnetosphere, the region surrounding the Earth in which the behaviours of the electric particles is usually governed by the planet's magnetic field.

The global reconfiguration often drives a specific type of plasma waves called chorus waves, to rain electrons into the upper atmosphere. This stabilizes the system, and gives off a colourful light as the electrons fall.

[Straw management now mandatory in Punjab](#)

News: In an attempt to check the dangerous trend of stubble burning, the Punjab government has decided to make use of Super Straw Management System while using the combine harvester machines mandatory for harvesting the paddy (rice) crop.

Beyond News

These instructions are aimed at saving the environment from air pollution caused by stubble burning.

The owners of combine harvesters desirous of undertaking the harvesting of paddy in the State would now have to attach super straw management system with the harvester combine.

Punjab Pollution Control Board have also instructed that no harvester combine shall be allowed to harvest paddy in Punjab without functional super straw management system. Instructions have been issued under section 31 A of the Air (Prevention and Control of Pollution) Act, 1981.



FEBRUARY 16

General Studies-02

Supreme Court revises Tamil Nadu Cauvery water quota to 177.25 tmc

News: The Supreme Court in a verdict on the Cauvery river water dispute, reduced the allocation of water from **Karnataka** to Tamil Nadu.

Beyond News

- Karnataka will now supply 177.25 tmc instead of 192 tmc – a reduction of 14.75 tmc, from its Billigundlu site to Mettur dam in Tamil Nadu
- A Special Bench declared the Cauvery a “national asset” and largely upheld the water-sharing arrangements finalised by the Cauvery Water Dispute Tribunal (CWDT) in its award on February 5, 2007, said Karnataka was entitled to a “marginal” relief.
- The court rejected an argument by the Centre that Section 6A of the Inter-State Water Disputes Act of 1956 bestowed upon it discretion in framing a Cauvery water sharing scheme.
- The court said that subject to the formulation of a scheme, the water allocation arrangement should stand unchanged for the next 15 years.
- It said the argument did not stand to reason and a scheme had to be framed under Section 6A as per the Tribunal award.



General Studies-03

More villages join protest against Kondapochamma reservoir

News: Protests continue to strengthen in Bahilampur village in Telangana against the Kondapochamma reservoir in Mulugu mandal, with residents of Mamidyala village joining the agitation and stalling the ongoing work.

Beyond News

- Some 200 locals squatted in a tent erected in Bahilampur and had a heated argument with some TRS leaders about promises made by Chief Minister, not being fulfilled.
- Residents said that the promises must be fulfilled before forcing them to vacate the village.
- Villagers said that, heavy dust clouds had encompassed the village, a result of the construction activity, making it difficult to even breathe.

- In addition, the villagers of Singaram under Mallannasagar limits have also commenced a protest demanding constructing of double bedroom houses before they are asked to leave the village.

Orangutan population under threat at Borneo Island

News:

Hunting by people and habitation destruction by oil palm, paper, logging and mining industries helped drive a startling drop of about 50 percent in the orangutan population on the island of Borneo from 1999 to 2015.

Beyond News

- The researchers calculated a population decrease of about 148,500 during that 16-year period and projected another drop of 45,000 by 2050, painting a bleak picture for the future of these shaggy reddish tree dwellers that are among the world's most imperiled great apes.
- Orangutans inhabit lowland forests on Borneo, an island shared by Indonesia, Malaysia and Brunei, and Indonesia's island of Sumatra, eating wild fruits, insects, bark, flowers and leaves.



Hunting and habitat loss

- Deforestation was only part of the danger. Around 70 percent of the loss in Borneo's populations may have resulted from orangutan killings by people in forested areas.
- The researchers tallied arboreal nests for these apes and used satellite images to appraise forest loss, determining there were between 200,000 and 300,000 Borneo orangutans in 1999 and between 70,000 and 100,000 in 2015.

FEBRUARY 17

General Studies-02

Proposal to recognise Marathi as classical language being pursued, says Maharashtra CM

News: Maharashtra Chief Minister Devendra Fadnavis has assured that his government is pursuing the demand that Marathi be granted the status of 'classical language' with the Union government.

Beyond News:

The proposal was placed before a committee of **linguistic experts, which approved it**, and now it is under the consideration of the Union Ministry of Culture, the Maharashtra CM informed.

General Studies-03

Nearly 100 new planets discovered beyond our solar system.

News:

Scientists have confirmed nearly 100 new planets outside our solar system, bringing the total number of exoplanets found using NASA's K2 mission to almost 300.

Beyond News:

- One of the planets detected was orbiting a very bright star.
- The Kepler spacecraft was launched in 2009 to hunt for exoplanets in a single patch of sky, but in 2013, a mechanical failure crippled it. However, astronomers and engineers devised a way to save the telescope by changing its field of view periodically.
- This solution paved the way for the follow-up K2 mission, which is still ongoing as the spacecraft searches for exoplanet transits. These transits can be found by registering dips in light caused by the shadow of an exoplanet as it crosses in front of its host star.
- The dips are indications of exoplanets, which must then be examined more closely to confirm their nature.

The first planet orbiting a star similar to our own sun was detected in 1995. Today, some 3,600 exoplanets have been found, ranging from rocky Earth-sized planets to large gas giants like Jupiter.

[Delhi, Haryana told to resolve polluted water supply issue](#)

News: The National Green Tribunal (NGT) directed the governments of Delhi and Haryana to convene a meeting and resolve the matter pertaining to polluted water, which is allegedly being provided by the Haryana government to the Capital.



Beyond News:

- A Bench directed the chief secretaries of the two governments to meet on February 20 and settle the issue after the Delhi Jal Board (DJB) had moved an application in the tribunal.
- The DJB had alleged that the water that was being supplied by the Haryana government had high ammonia content to the extent that the water could not be treated and supplied as drinking water to the people in the national capital.
- The green panel passed the directions after both the authorities agreed to an amicable settlement.
- The DJB had claimed that while at the source point in Haryana, the ammonia content in the water was negligible, the source point in Delhi saw high levels of ammonia.

Cause:

The petition had alleged that the primary cause of pollution appeared to be the addition of untreated domestic and industrial waste in some areas, including Panipat and Sonipat.

[Milky Way ties with Andromeda in galactic arms race](#)

News: The Andromeda galaxy, our nearest large neighbour, is roughly the same size as the Milky Way, astronomers have found, putting the “gravitational arms race to rest”.

Beyond News:

It had been thought that Andromeda was two to three times the size of the Milky Way, and that



our own galaxy would ultimately be engulfed by our supposedly bigger neighbour.

- However, the latest research evens the score between the two galaxies. The study found the weight of the Andromeda is 800 billion times heavier than the Sun, on par with the Milky Way.
- The study used a new technique to measure the speed required to escape a galaxy.
- The research suggests scientists previously overestimated the amount of dark matter in the Andromeda galaxy.

The Milky Way and Andromeda are two giant spiral galaxies in our local universe, and light takes a cosmologically tiny two million years to get between them.

FEBRUARY 18 & 19

General Studies-01

Over 40 Indian languages, dialects heading to extinction

News

Officials said that, more than 40 languages or dialects in India are considered to be endangered and are believed to be heading towards extinction as only a few thousand people speak them.

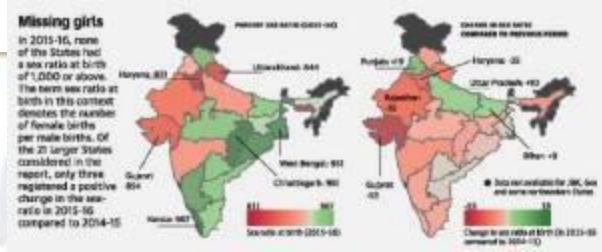
Findings in the Report

- According to a report of the Census Directorate, there are 22 scheduled languages and 100 non-scheduled languages in the country, which are spoken by a large number of people one lakh or more.
- A Home Ministry official said that, there are 42 languages which are spoken by less than 10,000 people. These are considered endangered and may be heading towards extinction.
- A list prepared by UNESCO has also mentioned about the 42 languages or dialects in India that are endangered and they may be heading towards extinction.

The languages or dialects which are considered endangered

- The languages or dialects which are considered endangered, include 11 from Andaman and Nicobar Islands (Great Andamanese, Jarawa, Lamongse, Luro, Muot, Onge, Pu, Sanenyo, Sentilese, Shompen and Takahanyilang), seven from Manipur (Aimol, Aka, Koiren, Lamgang, Langrong, Purum and Tarao) and four from Himachal Pradesh (Baghati, Handuri, Pangvali and Sirmaudi).
- The other languages in the endangered category are Manda, Parji and Pengo (Odisha), Koraga and Kuruba (Karnataka), Gadaba and Naiki (AP), Kota and Toda (Tamil Nadu),

Mra and Na (Arunachal Pradesh), Tai Nora and Tai Rong (Assam), Bangani (Uttarakhand), Birhor (Jharkhand), Nihali (Maharashtra), Ruga (Meghalaya) and Toto (West Bengal).



General Studies-02

Sex ratio at birth dips in 17 large States, Gujarat tops list

News: The sex ratio at birth (SRB) saw a decline in 17 out of 21 large states of the country, with Gujarat recording an alarming dip of 53 points, a Niti Aayog report stated and stressed on the need to check sex-selective abortion.

Findings in the Report:

- According to the report, among the 17 states which recorded substantial drop of 10 points or more, in Gujarat the SRB fell to 854 females from 907 females per 1,000 males born registering a drop of 53 points from 2014-15 (base year) to 2015-16 (reference year).
- Gujarat is followed by Haryana, which registered a drop of 35 points, Rajasthan (32 points), Uttarakhand (27 points), Maharashtra (18 points), Himachal Pradesh (14 points), Chhattisgarh (drop of 12 points), and Karnataka (11 points), the Healthy States, Progressive Indiareport states.
- The report stated that, there is a clear need for States to effectively implement the Pre-Conception and Pre-Natal Diagnostic Techniques (PCPNDT) Act, 1994 and take adequate measures to promote the value of the girl child.

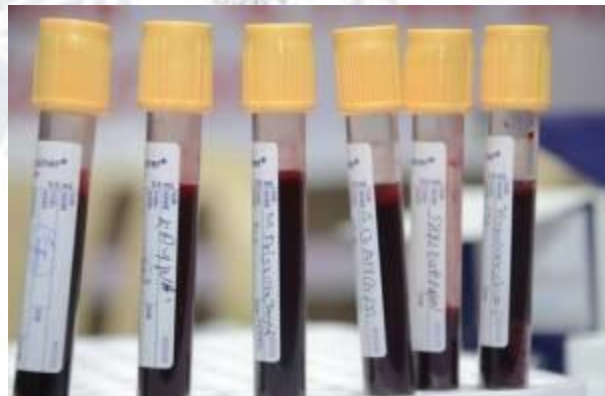
General Studies-03

SHERLOCK: A new paper-based DNA test to rapidly diagnose diseases

News: Scientists have developed the first inexpensive, miniature paper test that can precisely detect diseases from DNA samples and allows the results to be seen with the naked eye, just like pregnancy tests.

Beyond News:

- After dipping the paper strip into a processed sample, a line appears, indicating whether the target molecule was detected or not.
- The innovations build on the team's earlier version of SHERLOCK (Specific High Sensitivity Reporter unLOCKing) and add to a growing field of research that



harnesses CRISPR systems for uses beyond gene editing.

Applications:

- The team used SHERLOCK to detect cell-free tumour DNA in blood samples from lung cancer patients and to detect synthetic Zika and Dengue virus simultaneously, in addition to other demonstrations.
- The technology demonstrates potential for many healthcare applications, including diagnosing infections in patients and detecting mutations that confer drug resistance or cause cancer.
- It can also be used for industrial and agricultural applications where monitoring steps along the supply chain can reduce waste and improve safety.

Cas13:

- At the core of SHERLOCK's success is a CRISPR-associated protein called Cas13, which can be programmed to bind to a specific piece of RNA.
- Cas13's target can be any genetic sequence, including viral genomes, genes that confer antibiotic resistance in bacteria, or mutations that cause cancer.

[Andromeda galaxy is the same size as Milky Way](#)

News :Astronomers have discovered that our nearest big neighbour, the Andromeda galaxy, is roughly the same size as the Milky Way.

Beyond News

- It had been thought that Andromeda was two to three times the size of the Milky Way, and that our own galaxy would ultimately be engulfed by our bigger neighbour.
- But the new study evens the score between the two galaxies.
- It found the weight of the Andromeda is 800 billion times heavier than the Sun, on par with the Milky Way.
- The research suggests scientists previously overestimated the amount of dark matter in the Andromeda galaxy.
- The study used a new technique to measure the speed required to escape a galaxy.
- The Milky Way and Andromeda are two giant spiral galaxies in our local Universe, and light takes a cosmologically tiny two million years to get between them.
- With Andromeda no longer considered the Milky Way's big brother, new simulations are needed to find out what



will happen when the two galaxies eventually collide, suggests the study.

Guards get modern weapons to fight poaching

News: In a major initiative for wildlife protection, the forest guards in Assam were given modern weapons like self-loading rifles (SLRs) and 9 MM pistols to check poaching of rhinos, tigers and other wild animals.

'First time in country'

- Chief Minister said that, for the first time in the country, 10 wildlife fast-track courts have been set up to exclusively deal with poaching and other related crimes against wild animals.
- According to the plan, forest guards were given 954 SLRs, 272 INSAS rifles, 133 rifles of .12 bore, 20 of 9 MM pistols and 91 Ghatak rifles.
- Wildlife fast-track courts have been set up in 10 districts and such courts have been set up for the first time in the country.

Beyond News:

- Assam has five national parks and 19 wildlife sanctuaries. It is home to more than 91% of Indian rhinos (2,431 rhinos as per 2015 census). It is also home to 167 tigers, 248 leopards, 1,169 swamp deer besides a large number of wild buffaloes, different varieties of deer and other animals.
- According to an estimate tabled in the Assembly this month, altogether 74 rhinos have been killed by poachers since 2015 and 316 poachers arrested during 2015-17.

Aerial mapping of Bengaluru's solar energy potential takes off.

News: Laser mapping technology is being used in Bengaluru to map the city's potential to generate rooftop solar energy.

Beyond News:

- The initiative, which is based on a 2016 agreement of Bangalore Electricity Supply Company (Bescom) with the Centre for Study of Science, Technology and Policy (CSTEP) and Karnataka Renewable Energy Development Ltd. (KREDL), finally took flight at Jakkur aerodrome.
- Bescom has commissioned the mapping in a bid to meet its target of generation of 1,000 MW of rooftop solar energy by 2022 from Bengaluru alone.
- The aircraft will cover an approximate area of 1,100 sq. km, generating high resolution images of rooftops of buildings in the city. The mapping will be carried out by CSTEP and the data generated will be submitted to the Energy Department.

LiDAR technology (light detection and ranging)

- The LiDAR technology will send pulsed laser light on to the rooftop of a building and translate the reflected light into data points. Based on objects such as trees surrounding the rooftop, shadow-free area available for solar power generation will be calculated and an estimate will be arrived at as to the capacity of solar generation of each building in the city, said officials.
- The data mapping will continue for a fortnight for about two hours every day.

FEBRUARY 20

General Studies-02

Ban imposed on new borewells in 67 villages

News: Srikakulam district administration in Andhra Pradesh imposed a ban on new borewells in 67 villages which come under five mandals of Laveru, Ranasthalam, Etcherla, Ponda and G.Sigadam where groundwater was exploited indiscriminately in the last few years.

Beyond News

- Farmers and others will not be given permission for new borewells with the implementation of ban under the Water, Land and Tree Act-2002.
- Several major panchayats were affected in Ranasthalam mandal. The ban assumed significance in Pydibhimavaram which is the hub for industries in Srikakulam.
- Other prominent villages have also come up in red zone where water levels have fallen below 100 feet.
- Srikakulam Groundwater Department, which conducted a detailed survey recently, has observed that the situation was very bad in Laveru and Ranasthalam mandals where the groundwater table depleted significantly.
- Many industries located in the mandal are also reportedly exploiting the water beyond the stipulated limit, according to sources.



General Studies-03

Mangrove cover registers healthy growth



News: The India State of Forest Report (ISFR) 2017, released by the Forest Survey of India , shows that there has been a net increase of 37 sq. km of mangrove cover across Andhra Pradesh since 2015.

Beyond News:

- The increase between 2013-15 was 17 sq.km.
- The highest net increase of 18 sq. km has been recorded in Guntur district and in the case of Krishna, it is 11 sq.km.
- West Godavari district witnessed a negative growth (-1) between 2015 and 2017.
- The figure was arrived at with the help of satellite imagery.
- State Chief Wildlife Warden said that, protection measures being taken in the sanctuaries, afforestation taken up in the past few years are the very immediate reasons for the increase in mangrove cover. Those planted a few years ago could only be traced in the satellite imagery.

Regeneration

- The ISFR has concluded that '**plantation and regeneration**' were the prime reasons for the increase in mangrove cover in the State, which has 404 sq.km of total over, including 213 sq. km of moderate dense forest.

Scientists grow sheep embryos containing human cells

News: In a breakthrough, scientists have successfully grown sheep embryos containing human cells, bringing the ability to grow human organs inside other animals closer to reality.

'Important step'

- Researchers had recently been able to introduce human stem cells into early pig embryos, producing embryos for which about one in every 100,000 cells were human.
- Growing human organs inside animals may not only increase supply, but also offer the possibility of genetically tailoring the organs to be compatible with the immune system of the patient receiving them.
- These were only allowed to develop for 28 days.
- The team has now achieved a similar feat with sheep embryos, with an even higher ratio of human to animal cells.



- About one in 10,000 cells in these sheep embryos are human.

[Asteroid 'time capsules' help decode how life started on Earth](#)

News Asteroids play the role of time capsules showing what molecules originally existed in our solar system, and may help explain how life started on Earth, a study suggests.

Beyond News

- Finding complex molecules in asteroids provides the strongest evidence that such compounds were present on the Earth **before life formed**.
- Knowing what molecules were present helps establish the initial conditions that led to the formation of amino acids and related compounds that, in turn, came together to form peptides, small protein-like molecules that may have kicked off life on our planet. .

Studying meteorites

- Study materials from asteroids and meteorites, the smaller versions of asteroids that fall to Earth, to test the validity of our models for how molecules in them could have helped give rise to life.
- NASA scientists have been analysing compounds found in asteroids and meteorites for decades, and their work provides a solid understanding for what might have been present when the Earth itself was formed.

Molecules and life

- Life could have gotten started with molecules that are less sophisticated and less efficient than what we see today. Like life itself, these molecules could have evolved over time.
- The overall structure can be very similar and would be easier to make, though it does not have the ability to fold into as complex structures as modern proteins.
- There is a tradeoff between the simplicity of forming these molecules and how close these molecules are to those found in contemporary life.

FEBRUARY 21

[General Studies-01](#)

[History uncovered from underwater cave](#)

News: Archaeologists explored the world's largest underwater cave recently discovered in Mexico, presented findings, including fossils of giant sloths and



an elaborate shrine of the Mayan god of commerce.

Beyond News

- Researchers discovered last month that two large networks of underwater caves in Mexico's Yucatan peninsula, the Sac Actun and Dos Ojos networks, are in fact connected, forming the largest such structure on Earth.
- Diving with SCUBA gear, they have been exploring the ancient relics left in the caves over the millenia, in a project sponsored by Mexico's National Institute of Anthropology and History (INAH).
- Researchers believe that the water level in the caves has fluctuated over time, and that they were a source of water in times of severe drought sometimes a perilous one.
- Some of the animals and humans who ventured inside never made it out alive.
- Today, their remains are a treasure trove for scientists, enabling them to piece together bits of the cave's history dating all the way back to the Pleistocene epoch (2.6 million to 11,700 years ago).
- The animal remains include gomphotheres an extinct elephant-like animal as well as giant sloths and bears, archaeologists told a press conference.
- Then there are the artefacts left inside by humans: burnt human bones, ceramics, wall etchings and more.

General Studies-02

Pakistan chopper comes near LoC in J&K's Poonch sector

News: defence sources said that,an air violation was reported by a Pakistan military helicopter on February 21 as it came close to the Line of Control on their side.

Beyond News:

- A defense source also said that ,a Pakistan helicopter came within 300m of the LoC on their side and went back. The incident occurred in the Poonch general area. No firing or hostile action was undertaken by either side.
- As per agreed norms between India and Pakistan on the LoC, rotary wing aircraft cannot come within 1 km and fixed wing aircraft within 10 km of the LoC.
- Confirming the movement of the chopper in Poonch, Army officials said



the Pakistani helicopter came 300 metres close to LoC.

- Poonch witnessed major ceasefire violations by Pakistani troops since January 14.
- Security forces conducted rare house-to-house searches in the outskirts of Srinagar.

General Studies-03

Agni-II test-fired successfully

News:

Defence sources said that, India test-fired its medium range nuclear capable Agni-II missile with a strike range of 2,000 km from Abdul Kalam Island off Odisha coast.

Beyond News

- The trial of the surface-to-surface missile was conducted from a mobile launcher at the Launch Complex-4 of the ITR.
- The Intermediate Range Ballistic Missile has already been inducted into the services and the test was carried out by the Army's Strategic Forces Command (SFC) with logistic support provided by the Defence Research and Development Organisation (DRDO)
- The 20-mt-long Agni-II ballistic missile has a launch weight of 17 tonne and can carry a payload of 1,000 kg over a distance of 2,000 km.
- Agni-II, a two-stage missile equipped with advanced high accuracy navigation system and guided by a unique command and control system was propelled by a solid rocket propellant system.
- Agni-II was developed by the Advanced Systems Laboratory along with other DRDO laboratories and integrated by the Bharat Dynamics Limited, Hyderabad.

Fire destroys 60 hectares of forest

News: An incident of forest fire was reported on the Elambileri peak under the Meppadi forest range of the South Wayanad forest division in Kerala, where two such incidences were reported a few days ago.

Beyond News

- Close to 40 hectares of grassland was destroyed in the fire. The timely intervention of forest officials prevented the fire from spreading.
- Close to 70 persons, including forest watchers and members of the Vana Samrakshana Samithi, took nearly seven hours to douse the fire.



- It was reported that lower mammals and reptiles sustained injuries in the fire. A few days ago, a similar fire had broken out in the area and close to 20 hectares of land was destroyed.
- Trekking expedition to the Chembra peak has been suspended since January 15 as a part of averting forest fire. It was reported that more than 100 hectares of grassland was destroyed in the hill last year.
- High temperatures owing to the dearth of summer rain, heavy wind, and withered undergrowth caused the fire to spread rapidly.

FEBRUARY 22

General Studies-01

Cycas circinalis: 'living fossil' with a deadly twist

News: A plant species that has outlived the dinosaurs, the *Cycas circinalis*, a 'living fossil' found only in the Western Ghats, faces the threat of extinction due to the over-harvesting of its leaves for commercial purposes.



Beyond News

- While there are nine species of Cycas found across the country, almost all of which are classified as being endangered, the *Cycas circinalis*, found at altitudes between 1,500 and 1,800 meters, has traditionally been used by tribal communities for a variety of purposes.
- In the Nilgiris and other parts of the Western Ghats, where the plant is found, the seed is sometimes soaked in water (to remove a strong poison contained within) and ground into flour, after which it is eaten, while the seed is also said to be used in traditional, indigenous medicine.
- However, over the last few decades, the leaves of the *circinalis*, which are used for ornamental purposes like for setting up 'pandals' have been harvested in bulk from the remaining plants, often leading to them becoming stunted and unable to reproduce and increase in number.

Circinalis plants do not grow in large numbers in the wild, and the over exploitation of the leaves from the plant has caused a further decline over the last few decades.

General Studies-02

All students in Telangana to get health cards

News: The State government has decided to conduct health tests for over 30 lakh students across the State and issue health cards to them from the next academic year.

Beyond News

- Health Department officials had been directed to start comprehensive health check-ups for students from July and complete the process within six months.
- This would be followed by issue of health cards to the students.
- In addition, the government will distribute health and hygiene kits to close to eight lakh students enrolled in the SC/ST/BC/minority residential educational institutions, KGBVs, government high schools and other institutions.
- The Ministers directed the officials of the Health and Education departments to prepare a joint action plan for ensuring that there were no students in the state who were left uncovered by the scheme.
- Ministers said that, officials should accordingly prepare and release institution-wise schedules for the health tests so that all students in the State were covered under the first-of-its kind programme in the country.
- The government was already distributing health kits to more than 3 lakh girl students through the Education Department and efforts should be made to cover the remaining 5 lakh students enrolled in these institutions.

General Studies-03

Oldest detected supernova discovered

News : An international team of astronomers has discovered the oldest supernova ever detected – a huge cosmic explosion that took place 10.5 billion years ago.

Beyond News

- A supernova is the explosion of a massive star at the end of its life cycle.
- The exploding star, named DES16C2nm, was detected by the Dark Energy Survey (DES), an international collaboration to map several hundred million galaxies in order to find out more about dark energy – the mysterious force believed to be causing the accelerated expansion of the universe.



- Light from the event has taken 10.5 billion years to reach Earth, making it the oldest supernova ever discovered and studied.
- The universe itself is thought to be 13.8 billion years old.
- The researchers used three powerful telescopes – the Very Large Telescope and the Magellan, in Chile, and the Keck Observatory, in Hawaii – to measure the exploding star’s distance and brightness.

General Studies-04

India more corrupt than China, better than Pak: Transparency

International

News: India has been ranked worse than China and Bhutan in terms of ‘corruption perception’, but fares better than its other neighbours including Pakistan and Bangladesh, as per a global list released by graft watchdog Transparency International.

Beyond News

- In the Corruption Perception Index for 2017, India was ranked at the 81st place with a score of 40.
- Among the neighbouring countries, Pakistan was ranked at the 117th place with a score of 32, Bangladesh at 143th (score of 28), Myanmar at 130th (score 30) and Sri Lanka 91st (score 38).
- Bhutan has the best score of 67 among India’s neighbours and has been placed high on the index at the 26th place. China also fared better than India with a rank of 77 and score of 41.
- The index ranks 180 jurisdictions by their perceived levels of public sector corruption according to experts and business people and uses a scale of 0 to 100, where 0 denotes highly corrupt and 100 very clean.
- In the BRICS block of major emerging economies, South Africa is ranked the best (71st), followed by China and India, while Brazil is at 96th and Russia at 135th.



New Zealand and Denmark have topped the list, while Syria, South Sudan and Somalia have been ranked the lowest with scores of 14, 12 and 9 respectively.

FEBRUARY 23

General Studies-02

U.S. announces new H1-B visa approval policy, Indian firms to be hit

News: The United States administration has announced a new policy that makes very tough the procedure of issuing H-1B visas to those to be employed in one or more third-party worksites, a move that will hugely impact Indian IT companies and their employees.

Beyond News

- Under the new policy, a company will have to go an extra length to prove that its H-1B employee at a third-party worksite has specific and non-qualifying speculative assignments in a speciality occupation.
- Indian IT companies, which are among the major beneficiaries of H-1B visas, has a significant number of its employees deployed at third-party worksites.
- A significant number of American banking, travel and commercial services depend on on-site IT workers from India to get their job done.
- Effective immediately, the new guidance comes weeks ahead of the beginning of the H-1B visas filing season, which is expected to be April 2, for the fiscal year 2019 beginning October 1, 2018.
- The guidance says in order for an H-1B petition involving a third-party worksite to be approved, the petitioner must show by a preponderance of evidence that the beneficiary will be employed in a speciality occupation and the employer will maintain an employer-employee relationship with the beneficiary for the duration of the requested validity period.

CRPF to guard Indian embassy in Baghdad

News: In a first, the government is planning to send Central Reserve Police Force (CRPF) commandos to provide security to the Indian embassy in Baghdad.

Beyond News

- A Ministry of Home Affairs (MHA) official said the deployment was being made on the request of the Ministry of External Affairs (MEA).
- The embassy in 2014 issued an advisory asking Indians living in Iraq to leave the country owing to the "precarious security situation." The Iraqi government is locked in an armed conflict with the terrorist outfit Islamic State.
- The CRPF has agreed, in principle, to provide a contingent of 45 personnel.

General Studies-03

A soft robot that crawls like a snake

News: Harvard scientists have developed a soft, crawling robotic snake using kirigami an ancient Japanese paper-cutting technique.

Beyond News

- As the robot stretches, the flat kirigami surface is transformed into a 3D-textured surface, which grips the ground just like snakeskin.
- These soft robots could be used in exploration, inspection and search and rescue missions.

Rainwater harvesting structures raise groundwater table

News

The city-based NGO, Siruthuli's efforts in construction of rainwater harvesting (RWH) structures in public places across the city in Tamil Nadu has helped in improving the groundwater table.



Beyond News

- The NGO said that the district is situated in the rain-shadow region of the western ghats. Prevailing rocky earth condition of the region prevents natural percolation of rainwater into the earth.
- Sensing this, the Siruthuli had intervened and conducted a geo-hydrological study in 2004 to assess the feasibility of construction of rainwater harvesting structures to enable the recharge the groundwater table with the available run-off water that flows on the streets/roads of the city.
- This had resulted in recommendation of construction of about 2000 RWH structures across the city.
- Following the survey, the NGO took strenuous efforts to construct RWH structures such as digging borewells and other structures across the city depending on the formation of the location.
- It has constructed over 600 RWH structures since 2005.
- These structures efficiently recharge run-off surface water to the underground aquifers to increase the water level and its quality. This has resulted in creating sustainable groundwater table even where there is less rainfall.

FEBRUARY 24

General Studies-01

Primitive art: Neanderthals were Europe's first painters

News: The world's oldest known cave paintings were made by Neanderthals, not modern humans, suggesting our extinct cousins were far from being uncultured brutes.

Beyond News:

- A high-tech analysis of cave art at three Spanish sites dates the paintings to at least 64,800 years ago, or 20,000 years before modern humans arrived in Europe from Africa.
- That makes the cave art much older than previously thought and provides the strongest evidence yet that Neanderthals had the cognitive capacity to understand symbolic representation, a central pillar of human culture.
- Some archaeologists already viewed Neanderthals as more sophisticated than their commonplace caricature, the evidence until now has been inconclusive.
- The early cave art at La Pasiega, Maltravieso and Ardales includes lines, dots, discs and hand stencils and creating them would have involved specific skills, such as mixing pigments and selecting appropriate display locations.

Precise system:

- Scientists used a precise dating system based on the radioactive decay of uranium isotopes into thorium to assess the age of the paintings. This involved scraping a few milligrams of calcium carbonate deposit from the paintings for analysis.
- The technique can determine the age of calcium carbonate formations going back as far as 5,00,000 years, much further than the widely used radiocarbon method.

Ancient weapons unearthed in Odisha

News: Recent archaeological excavations carried out by Sambalpur University in Odisha's Bargarh district has unearthed stone tools, weapons and artifacts made by early humans centuries ago.

Beyond News:

- The excavation site, located in the upper Danta stream, a tributary of the river Jira, near Torajunga village, is a "storehouse of treasure".



Used for hunting:

- This discovery will help in understanding migration and subsequent colonisation by human beings in this part of India.
- The tools bear striking similarities with those found in eastern and southern Africa. Most of them were designed for hunting large animals, he said.
- The equipment and artefacts are a witness to the potential skills of early humans. We have recovered projectile points, hand axes, among other things.
- The soil samples collected will be sent to different geophysical laboratories of the country for carbon dating.
- Scientific investigations will also be carried out in the area to find out more about the environmental conditions in which the early humans thrived.

General Studies-02

TN ranked lowest on discom performance

News: Tamil Nadu has been ranked lowest in terms of State distribution companies' quarterly performance as of December 2017, post joining the Centre's Ujwal DISCOM Assurance Yojana (UDAY).

Beyond News:

- The State had joined the scheme over a year ago. The scheme, covering 31 States and Union Territories, emphasises both financial turnaround and improvement in operational efficiencies of the distribution companies.
- A key parameter in which the Tamil Nadu Generation and Distribution Corporation Limited (Tangedco) is lagging is the gap between the average cost of supply per unit of power and per unit average realised.
- The target for Tamil Nadu was Rs. 0.06 per unit and its achievement was Rs. 0.22 per unit, as per the data.
- N. government has taken over 75% of Tangedco's Rs. 30,420 crore debt. Tangedco is yet to issue the mandated government-guaranteed bonds for the remaining debt.



General Studies-03

Pakistan to face monitoring by international review group

News: Pakistan, which has put back on the "Grey List" for terror financing by the Financial Action Task Force (FATF) Plenary, will, under a "Compliance Document," now be required to furnish a fresh report to the International Co-operation Review Group (ICRG).

Beyond News:

- Earlier this week, Pakistan had claimed victory in the ongoing FATF meeting, as a preliminary discussion in the ICRG failed to build a consensus on putting it again on the watch list, after China, Turkey, Saudi Arabia and GCC countries objected to Pakistan's nomination.
- S. and Indian officials had called the claim "premature" and said that a final decision was still to come.
- FATF Chair said that, there were no objections to the nomination of Pakistan, a move that could see it face financial strictures, and ratings downgrades by international banking and credit rating agencies until Islamabad carries out a full crackdown on terror groups.

Forest dept. embarks on survey of water sources.

News: For the first time, the Telangana Forest department has deployed volunteers for survey of water sources in wildlife sanctuaries across the State as a preparatory measure for quenching the thirst of wild animals during coming summer.

Beyond News: A total of 126 volunteers from various walks of life, apart from NGOs and forest officials, are all set to scour the tiger reserves, protected areas and sanctuaries on February 24 and 25, looking for sources of unpolluted water for wild animals.

Challenges for animals:

- Availability of water is set to become a challenge for the wild animals during summer, as many of their regular waterholes dry up due to heat.
- The volunteers have been assigned beats in five major wild life areas, and told to look out for one waterhole for every four square kilometres.
- The volunteers have also been asked to watch out for pollution seeping into the waterholes, instances of man-animal conflict, the distance from the waterhole to the area where movement of wild animals is noted, and alternative places where water can be provided..

FEBRUARY 25 & 26

General Studies-01

Powerful 7.5-magnitude earthquake rattles remote Papua New Guinea

News: A powerful earthquake rattled forest villages and a large gold mine in central Papua New Guinea, and the government sent officers to the region to assess unverified reports of fatalities and check the extent of the damage.

Beyond News

- The magnitude 7.5 quake hit about 89 kilometers (55 miles) southwest of Porgera, the site of a large gold mine that employs more than 2,500 residents.
- The area also is home to a number of oil and gas operations and coffee plantations.
- Oil Search Managing Director Peter Botten said the company was closing down some production operations in the region as a precaution.
- The quake hit at a relatively shallow depth of 35 kilometers (22 miles), and shallow quakes tend to be more strongly felt than deep ones.
- The area lies along an earthquake zone known as the Papuan Fold Belt, which is the fault responsible for the mountain range that forms the spine of the nation.
- Papua New Guinea is located on the eastern half of the island of New Guinea, to the east of Indonesia. It is home to about 7 million people.



General Studies-02

U.K. industry body to shut India office

News: A U.K. industry body which facilitates defence and aerospace partnerships has decided to shut its office in India. Member-companies have however, expressed concern at the decision.

Beyond News:

- ADS (Aerospace, Defence, Security and Space) Group decided to shut down its India office by March end.
- While a few large U.K. companies such as BAE Systems have their own offices in India, the Small and Medium Enterprises which cannot afford to do so utilise the services of ADS to connect with the Indian industry.
- The closure move was taken by its Chief Executive Paul Everitt in December. Since then about 40 members had raised objections.

General Studies-03

'Overexploitation of water alters perennial streams'

News: Overexploitation of water for monoculture has altered some of the perennial streams in the ghats of the Netravathi river basin to intermittent streams coming in the way of perennial nature of the Netravathi, according to a study report by a team of researchers of the Indian Institute of Science (IISc), Bengaluru.

Findings in the Report:

- The swamp ecosystem in the basin, spread over 4,409 sq km in 11 taluks in Chikkamagaluru, Hassan, Kodagu, Dakshina Kannada and Udupi districts, is under higher threat due to horticulture expansion and land conversion for other development activities.
- The report “Carrying capacity of Netravathi river basin based on the ecological sensitiveness” has said that soil depth and texture decided the water holding capacity in the catchment.
- The Netravathi catchment is dominated by clayey soils which have fewer pores due to which infiltration capability is very low but have higher water holding capacity which supports larger vegetation and keeps the rivers perennial in natural condition. Soils are moderately deep to very deep in nature.
- The presence of deeper soils with clayey content in the ghats have higher retention capacity during post monsoons and summer keeping the Netravathi perennial. But over exploitation of water for monoculture has altered some of the perennial streams to intermittent streams.
- Referring to the forest cover of 2016 in the basin, it said that the area under forests stood at 51.67 % after losing significant green patch for mini-hydroelectric, infrastructure projects and monoculture plantations. The plantations constituted 26.42 % of the basin.
- The report remarked that the existing exotics should be replaced with endemic species.
- Community-based conservation approach in ecologically sensitive regions (ESR) of II and ESR III would help in the conservation of biological diversity.

New plant species from West Bengal

News: Scientists from the Botanical Survey of India have identified a new plant species from two protected National Parks in West Bengal.

Beyond News



- Named *Drypetes kalamii*, it is a small shrub found to be shorter version of its close relative *Drypetes ellisii*. This adds to the rich floral wealth of India.
- Standing just 1 metre tall, the newly described plant is unisexual in nature, which means they have separate male and female plants.

Medicinal cousin

- Dr K. Karthigeyan, scientist at BSI said, the new species is a close relative of a medicinal plant known in Sanskrit as Putrajivah .
- NASA had recently named a new bacterium after Dr Kalam, and we also chose his name as he is a big inspiration for students and young researchers, adds Dr Karthigeyan.
- The new species is found in wet, shaded areas of subtropical moist semi-evergreen forests, at a height ranging 50-100 metres. With pale yellow flowers in clusters and bright orange to red fruits, the plant is exclusive to the two national parks.
- By following the IUCN (International Union for Conservation of Nature) rules, the scientists have provisionally assessed the plant to be “Critically Endangered”. The report states forest fires and grazing as two plausible threats to the new species.

Moon's water may be widely distributed

News: A new analysis of data from India's Chandrayaan-1 mission and NASA's Lunar Reconnaissance Orbiter (LRO) suggests that Moon's water may be widely distributed across the surface, not confined to a particular region.

Beyond News

- The findings could help researchers understand the origin of the Moon's water and how easy it would be to use as a resource.
- If the Moon has enough water, and if it is reasonably convenient to access, future explorers might be able to use it as drinking water or to convert it into hydrogen and oxygen for rocket fuel or oxygen to breathe.
- The new finding of widespread water suggests that it may be present primarily as OH, a more reactive relative of H₂O that is made of one oxygen atom and one hydrogen atom.
- OH, also called hydroxyl, does not stay on its own for long, preferring to attack molecules or attach itself chemically to them. Hydroxyl would therefore have to be extracted from minerals in order to be used.
- For the study, the researchers analysed data from the Moon Mineralogy Mapper spectrometer on board Chandrayaan-1.
- The results point toward OH and/or H₂O being created by the solar wind hitting the lunar surface, though the team did not rule out that OH and/or H₂O could come from the Moon itself, slowly released from deep inside minerals where it has been locked since the Moon was formed.

Rustom-2 UAV successfully test-flown

News: India's under-development Unmanned Aerial Vehicle Rustom-2 was successfully test-flown by the Defence Research and Development Organisation (DRDO).



Beyond News

- This flight assumes significance because of the fact that this is the first flight in user configuration with a higher power engine.
- The flight was conducted at the DRDO's Aeronautical Test Range at Chitradurga in Karnataka.
- Rustom-2 belongs to a family of UAVs under development, besides Rustom-1 and Rustom-H.
- It is a Medium Altitude Long Endurance drone (MALE). It can fly up to an altitude of 22,000 feet and has an endurance of over 20 hours. It is capable of carrying payloads for electronic and signal intelligence missions.
- Currently, the three services employ hundreds of Israeli drones and have projected a requirement of hundreds of more UAVs, including armed variants, in the near future. The DRDO is also developing other drones in different categories.

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FEBRUARY -27

General Studies-02

HC: Do not deny cover for genetic defect

News: In a significant judgment, the Delhi High Court termed “unconstitutional” discrimination in health insurance policies of individuals with genetic disorders.

Beyond News

- Justice said that, a person suffering from a genetic disorder needed medical insurance as much as others.
- Genetic disorders have been the source of debate in the health insurance sector.

China home to 241 million old people: report

News: China is fast turning into an aging society as the number of people aged 60 and above has reached 241 million, accounting for 17.3 per cent of the total population, according to an officials.



Beyond News

- Since China first became an aging society in 1999, the number of people aged 60 or above has seen a net increase of 110 million.
- It is estimated that the number of seniors will peak around 2050 to reach 487 million, 34.9 per cent of the total population.
- As the old age population grew, which was largely attributed to the three decades old one child policy, China has permitted couples to have two children since 2016.
- China has stepped up nationwide education on ageing with the aim to raise citizens’ awareness and called on the public to care for the elderly.

General Studies-03

In a record, more than 4 lakh olive ridleys nest at Rushikulya

News: With 4,28,083 mother olive ridley turtles nesting, the endangered species has created an all-time record of mass nesting at



the Rushikulya rookery coast in the Ganjam district of Odisha this year.

Beyond News

- The mass nesting is expected to continue for another two to three days.

Mass nesting of olive ridley turtles has not yet started on the coasts along the Gahirmatha beach and the mouth of the Debi river, two other major nesting sites in Odisha.

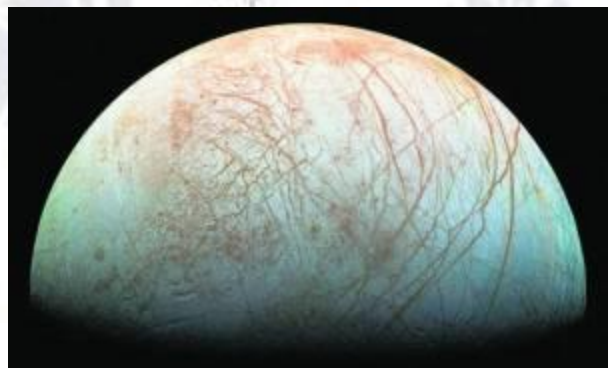
- Forest officials say the Gahirmatha beach is the largest mass nesting site for olive ridley turtles along the Indian coastline, followed by the rookery at the mouth of the Rushikulya river.
- With 3,65,000 nests, olive ridley turtles had created a record of mass nesting at Rushikulya in 2017. They have already broken the record this year, indicating that the environment of this coast continues to be conducive for their mass nesting. In 2016, for some unexplained reason, there was no mass nesting at this coast.

[Jupiter's moon Europa may host life](#)

News: Jupiter's icy moon Europa may host life in an ocean of liquid water hidden under its 10 kilometre-deep ice crust, scientists say.

Beyond News

- Researchers conducted a theoretical research to evaluate microbial habitability of Europa using data collected from similar environments on the Earth.
- It was recently discovered that the bacterium *Candidatus Desulforudis audaxviator* survives inside the mine without sunlight by means of water radiolysis, the dissociation of water molecules by ionising radiation.
- Jupiter's powerful gravitational attraction causes the Europa's orbit to be extremely elliptical, meaning the latter finds itself either too close or too far from the gas giant. This makes the icy moon suffer geometrical deformation as it moves at the mercy of Jupiter's immense tidal force.
- The energy released by the alternating states of elongation and relaxation makes Europa's subsurface capable of hosting an ocean of liquid water.
- Researchers evaluated how chemical imbalance in Europa could be initiated through the emanation of water leading to chain reactions between water and chemical elements found in Europa's crust.



- Uranium, thorium and potassium are the radioactive elements considered by the research, which estimated the concentrations for these materials in Europa, based on the quantities already observed and measured on Earth, in meteorites and in Mars.
- The ocean bed on Europa appears to offer very similar conditions to those that existed on primitive Earth during its first billion years. So studying Europa today is to some extent like looking back at our own planet in the past,” Galante said.

FEBRUARY- 28

General Studies-01

Climate change threatens King penguins: study

News: Climate change is likely to have a devastating impact on King penguins if global warming continues at its present rate, scientists warn.

Beyond News

- The main issue is that there is only a handful of islands in the Southern Ocean and not all of them are suitable to sustain large breeding colonies.
- Researchers said that, king penguins are in fact picky animals: in order to form a colony where they can mate, lay eggs and rear chicks over a year, they need tolerable temperature all year round, no winter sea ice around the island, and smooth beach of sand or pebbles.
- The study predicts that, for most colonies, the length of the parents’ trips to get food will soon exceed the resistance to starvation of their offspring, leading to massive King penguin crashes in population size, or, hopefully, relocation.
- Using the information hidden away in the penguin’s genome, the research team has reconstructed the changes in the worldwide King penguin population throughout the last 50,000 years.

Impact of human activities

- They discovered that past climatic changes, causing shifts in marine currents, sea-ice distribution and Antarctic Polar Front location, have always been linked to critical episodes for the King penguins.
- Researchers said that, King penguins have already survived such crises several times (the last time was 20 thousand years ago), and they may be particularly good at it.
- For the first time in the history of penguins, human activities are leading to rapid and/or irreversible changes in the Earth system, and remote areas are no exception, researchers said.
- In addition to the strongest impact of climate change in Polar Regions, Southern Ocean is now



subject to industrial fishing, and penguins may soon have a very hard time fighting for their food.

General Studies-02

CBSE to allow children with special needs to write board exams with laptops

News: Children with special needs appearing for class 10 and 12 board examination will be able to use computer or laptops to write their exam from this year, with the Central Board of Secondary Education (CBSE) approving the proposal, according to an official order.

Beyond News:

- The candidates will have to submit a certificate issued by a registered medical practitioner or qualified psychological consultant recommending use of a computer facility while also citing the grounds for the recommendation.
- The CBSE's Examination Committee in its recent meeting resolved to grant the additional concession for Candidates With Special Needs (CWSN) category from this year.
- The order said that, the use of computer shall be limited to only for typing the answers, for viewing the questions in enlarged font size and for listening the question items.
- Concerned candidates shall bring his/ her own computer or laptop duly formatted and the Centre Superintendent (CS) shall allow the candidate only after inspection of the computer by a computer teacher.
- The invigilator will sign the printouts of the answers typed by the candidate which will be facilitated by the CS.
- The board also approved the provision for a reader in case the student with disability does not want scribe facility and needs a person to read the question paper.

General Studies-03

North Atlantic right whales may face extinction

News: The dwindling North Atlantic right whale population is on track to finish its breeding season without any new births, prompting experts to warn again that without human intervention, the species will face extinction.

Beyond News

- Scientists observing the whale community off the US east coast have not recorded a single mother calf pair this winter. Last year saw a record number of deaths in the population.
- The combination of rising mortality and declining fertility is now seen as potentially catastrophic. There are estimated to be as few as 430 North Atlantic right whales left in the world, including just 100 potential mothers.
- Whales becoming entangled are now far less able to break free. Some are killed outright, others cannot swim properly, causing them to starve or to lose so much blubber that females become infertile.

- Scientists believe rapid warming of the Gulf of Maine, is drastically depleting that food source.
— Several environmental groups demand greater protection for right whales.

Threats

- Threats to the whales include entanglement in lobster fishing ropes and an increasing struggle to find food in abnormally warm waters.

₹9,435 crore small arms procurement cleared

News: The Defence Acquisition Council (DAC) gave approval for various procurement proposals at an estimated cost of about ₹9,435 crore.

Beyond News:

- This includes 41,000 Light Machine Guns (LMG) and over 3.5 lakh Close Quarter Battle (CQB) carbines for the three services.
- DAC approval is the first step in the long drawn Defence Procurement Procedure and will take several years for the final deals to be concluded. In the past all these deals have been repeatedly cancelled.
- These small arms would be procured under the Buy and Make (Indian) category and of the total quantities envisaged, 75% will be through Indian industry under “Buy and Make (Indian)” category and balance through Ordnance Factory Board (OFB).
- The cost of carbines and LMGs is ₹4,607 crore and ₹3,000 crore respectively.
- The DAC also approved the procurement of essential quantity of High Capacity Radio Relay (HCRR) for the Army and Air Force at a cost of over Rs 1092 crore and the Coast Guard will get two Pollution Control Vessels (PCV) at an approximate cost of Rs 673 crore.
- The HCRRs would provide fail-safe and reliable communication along with increased bandwidth in the Tactical Battle Area.
- The PCVs in addition to carrying out pollution control would also be capable of undertaking patrolling, search and rescue and limited salvage and fire-fighting operations at sea.



CSIR project to find pollution spots

- To warn people of pollution hotspots, the National Institute of Science, Technology and Development Studies (NISTADS) the policy arm of the Council of Scientific and Industrial Research



- (CSIR) is rolling out a project to install pollution sensors at the Capital's traffic junctions.

Aim: The aim was to develop a messaging alert system that will warn people of spikes in pollution in certain localities.

Test project

- For over a year, NISTADS researchers have been running a test project that involved a pollution-monitoring unit affixed on a van which went around specific localities in Delhi.
- It recorded the waxing and waning of particulate matter throughout the day.
- Generally, pollution levels tended to be higher in the morning and ebbed as the sun ascended.
- The process of data collection is still on and the NISTADS is also looking to develop a prototype of pollution sensor that can be easily affixed atop traffic junctions.

'Clean Air for Delhi'

Recently, the Delhi government and the Union Environment Ministry had joined hands for 'Clean Air for Delhi' campaign which witnessed nearly 7,000 environmental violations and 3,000 challans being issued for a range of infractions, ranging from open burning of waste, construction and road dust violations and vehicular pollution, and 635 cases of traffic congestion.

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