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# **CHROME IAS ACADEMY**

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**ESSENTIAL FACTS –  
JANUARY 2019**

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**PRELIMINARY EXAMINATION - 2019**

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Essential Facts is the collection of most important news which is relevant for Civil Services Preliminary Examination. Chrome IAS firmly believes that this compilation will be helpful for the aspirants and will add on to their existing knowledge base.

Rig-Veda brilliantly sums up the essence of the process of preparation in a single quote, wherein it says, "Let noble thoughts come to us from all directions". Chrome IAS is gradually trying to become a major stakeholder in the journey of becoming a civil servant.

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## ECONOMY

### RBI

- Analysis of the balance sheets of the central banks of 10 comparable economies shows that the RBI's reserves as a percentage of its balance sheet is among the highest.
- However, the bulk of these reserves are notional and thus their value can only be unlocked when the underlying assets are sold. This makes transferring the excess reserves to the government all the more difficult.
- RBI's reserves is about ₹10.5 lakh crore which forms 26.2% its balance sheet.
- Only two central banks — those of South Africa and Russia — have a reserve ratio higher than this.
- The other two BRICS nations, China and Brazil, have reserve ratios of 1.7% and 0.2%, respectively.

### MSME

- The RBI has appointed an eight-member expert committee headed by former SEBI chairman U.K. Sinha to comprehensively review and propose long-term solutions for revival of the micro, small and medium enterprises (MSME) sector.
- The MSME sector has been facing stress due to the demonetisation exercise and implementation of GST.

### Tax-to-GDP ratio

- The direct tax-to-GDP ratio of 5.98 per cent achieved during 2017-18 fiscal is the best in the last 10 years.
- It was 5.57 per cent in 2016-17 and 5.47 per cent in 2015-16.
- There is a constant growth in direct tax-GDP ratio over last three years.
- The number of individuals filing return of income has also increased by about 65 per cent during this period from 3.31 crore in 2013-14 to 5.44 crore in 2017-18.

## **Bank Merger**

- The Union Cabinet approved the merger of Vijaya Bank and Dena Bank with Bank of Baroda (BoB).
- This merger will create the country's second largest public-sector lender after SBI.
- The amalgamation will be the first-ever three-way consolidation of banks in India.

## **Capital Requirements**

- Indian banks are required to maintain a minimum capital to risk weighted asset ratio (CRAR) at 9%, against the global Basel-III requirement of 8%.
- On top of that, they have to keep a capital conservation buffer that is supposed to climb to 2.5% by March 2019.

## **FEOA**

- Vijay Mallya became the first person to be declared a fugitive economic offender by the special court hearing cases under the Fugitive Economic Offenders Act (FEOA).
- The FEOA allows for declaring a person as an offender after an arrest warrant has been issued against the individual and the value of offences exceeds ₹100 crore.
- Another condition for declaring a person a fugitive economic offender (FEO) is when the individual refuses to return to the country to face prosecution.
- As per the new law, a special FEOA court can order the confiscation of a FEO's properties, including those which are benami, and the proceeds of crime in and outside India. Once properties are confiscated, the Union government has the right over them, and it can dispose them after 90 days.

## Taxation

- Government's dependence on tax revenue has steadily increased, with tax revenue making up a little more than 70% of its total receipts in 2018-19, up from 65% in 2014-15.
- Correspondingly, the share of revenue from non-tax sources (such as dividends from PSUs and the RBI) and capital receipts (such as disinvestment proceeds) has been declining.
- The government cannot take the risk of increasing tax rates, whether direct or indirect, for fear of a backlash from the public. So, the only option it has to boost tax revenues is to increase the tax base and stop evasion.
- The expansion of the GST taxpayer base, improving the return filings compliance and using the large amount of data available to detect tax evasion would become the cornerstone of the government's measures to enhance tax revenues.
- The other trend the government would be banking on is that increased economic activity and a higher GDP growth rate will boost consumption and hence, indirect tax collections, other analysts say.
- The indirect tax rate is fixed, so if there is price inflation, then the government receives a tax on that as well because product prices go up and so the tax component also goes up.
- When the GDP grows, consumption also grows, and so more indirect taxes are received.
- An increasing proportion of its indirect tax collections are coming from a single source — oil.
- PSU dividends as a proportion of non-tax revenue have been growing over the years, from 16% in 2014-15 to 21.4% in 2018-19.

## ATMs

- There are around 2.2 lakhs Automated Teller Machines (ATMs) in the country.
- These include 1,43,844 ATMs of public sector banks, 59,645 ATMs of private banks and 18,003 of foreign banks, payments banks, small finance banks and White Label ATMs.
- White Label ATMs are owned and operated by non-bank entities.

## Tokenisation

- The Reserve of India (RBI) has allowed all card payment networks to offer tokenisation service.
- Tokenisation involves a process in which a unique token masks sensitive card details.
- The token is then used to perform card transactions in contact-less mode at Point Of Sale (POS) terminals, Quick Response (QR) code payments, etc.

## Credit Guarantee Fund

The Government is planning to set up a Credit Guarantee Fund (CGF) for encouraging start-up companies with a view to providing funding facilities in the country.

## National Anti-Profitteering Authority (NAA)

The National Anti-Profitteering Authority (NAA) has been constituted under Section 171 of the Central Goods and Services Tax Act, 2017 to ensure that the reduction in rate of tax or the benefit of input tax credit is passed on to the recipient by way of commensurate reduction in prices.

## Composition Scheme

- Currently, the Composition Scheme allows small manufacturers and traders, with an annual turnover of less than ₹1 crore, to file quarterly returns and pay GST at nominal rates.
- These traders, however, cannot avail input tax credits or deal in items exempt from GST.

## Tokenisation

- The Reserve Bank of India's (RBI) decision to allow card payment providers to offer tokenisation services will ensure the safety of digital transactions and reduce chances of fraud.
- Tokenisation involves a process in which a unique token masks sensitive card details like card and CVV number.
- The token is used to perform card transactions in contactless mode at Point Of Sale (POS) terminals, Quick Response (QR) code payments, etc.
- Tokenisation is expected to increase digital transactions in India.

## Gold scheme

- The Reserve Bank of India (RBI) made some changes in the Gold Monetisation Scheme (GMS) .
- Apart from individual and joint depositors, the scheme could now be availed by charitable institutions, the Central government, the State government or any other entity owned by the Central government or the State government.

## GDP

- India's GDP is expected to grow at 7.3% in the fiscal year 2018-19, and 7.5% in the following two years, the World Bank has forecast, attributing it to an upswing in consumption and investment.
- The bank said India will continue to be the fastest growing major economy in the world.
- China's economic growth is projected to slow down to 6.2% each in 2019 and 2020 and 6% in 2021.

## Private consumption

- Domestic private consumption, that accounts for a major portion of India's gross domestic product (GDP), is expected to develop into a \$6 trillion growth opportunity. Currently it is at \$1.5 trillion.
- That would make India the world's third-largest economy by 2030, says a latest study by the World Economic Forum (WEF).
- **How the potential will be realised?**
  - The potential would only materialise if business and policy-makers pursue an inclusive approach towards the economic and consumption growth.
  - Second, India will have to manage socio-economic inclusion of rural India as, by 2030, 40% of Indians will be urban residents.
  - Finally, business and policy-makers will have to take the initiative on improving health and liveability for India's citizens.

## **GST**

- Henceforth, companies with annual turnover up to ₹40 lakh will stay out of the GST net (₹20 lakh earlier).
- In the case of companies in the north-eastern and hill States, the limit has been doubled to ₹20 lakh.
- The annual turnover limit for eligibility for the Composition Scheme has also been raised to ₹1.5 crore.
- The GST Council decided to allow Kerala to levy a cess of up to 1% for up to two years on intra-State supplies to help finance its disaster relief efforts.

## **Capital Buffer**

- The Reserve Bank deferred the implementation of the last tranche of Capital Conservation Buffer (CCB) by a year.
- This move would leave about an estimated ₹37,000 crore capital in the hands of banks. This would help banks increase lending by over ₹3.5 lakh crore by leveraging ten times the capital.
- Accordingly, minimum capital conservation ratios of 2.5% would be applicable from March 31, 2020. Currently, the CCB of banks stands at 1.875% of the core capital.
- The CCB is the capital buffer that banks have to accumulate in normal times to be used for offsetting losses during periods of stress. It was introduced after the 2008 global financial crisis to improve the ability of banks to withstand adverse economic conditions.

## **Industrial Growth**

- Industrial output growth dropped to a 17-month low of 0.5% in November.
- The drop is on account of contraction in manufacturing sector.
- Factory output is measured in terms of the Index of Industrial Production (IIP).
- The manufacturing sector constitutes 77.63% of the index.



**FDI**

- Mauritius, the favourite hotspot of foreign investors to route their investments to India, has witnessed a 70 per cent decline in foreign direct investment (FDI).
- Singapore which overtook Mauritius has turned out to be the preferred country for routing FDI with a 78 per cent jump in investments.
- FDI equity flows routed through Mauritius declined sharply reflecting the impact of the amended DTAA (double tax avoidance agreement).
- After the DTAA amendment, India gets taxation rights on capital gains arising from alienation of shares acquired on or after April 1, 2017, in a company resident in India with effect from financial year 2017-18.
- Japan came third in the FDI chart .
- FDI inflows since 2000 has been routed through Mauritius and Singapore which enjoyed special status under the DTAA signed with India in 1982 and 1994, respectively.
- The DTAA provided for a capital gains tax exemption to resident entities of these countries on transfer of Indian securities. These agreements were amended in 2016 with the purpose of source-based taxation of capital gains on shares, preventing round tripping of funds, curbing revenue loss and preventing double non-taxation.
- In 2017-18, Mauritius was the top source of FDI into India with \$13.41 billion investments followed by Singapore.

**PCA**

- Restrictions under prompt corrective action are imposed when a bank breaches certain risk thresholds with respect to
  - capital adequacy ratio,
  - net non-performing asset ratio,
  - return of assets and
  - leverage ratio.
- Under the PCA framework, there are 11 public sector banks which have a 20% share in the loan market.
- Government wants at least a few banks to come out of curbs so that lending can get a boost.

**BFS**

- The Board for Financial Supervision (BFS) comes under Reserve Bank of India (RBI).
- It has been entrusted by the central bank board to review the performance of the banks under PCA.
- BFS is chaired by the RBI Governor and includes the four deputy governors and a few other board members.

**Global Economy**

- India will likely be a larger economy than the US by 2030, while China will top the list.
- Seven of the top 10 economies in the world by 2030 are likely to be from current emerging markets based on purchasing power parity (PPP) exchange rates and nominal GDP.
- Most multilateral agencies see growth in India accelerating as China moderates..
- The combined US, Japan and euro-area GDP share of world GDP (based on market exchange rates) fell to 46% in 2018 from 51% in 2010, and is expected to slide further to 40% by 2030.

**ECB**

- In a bid to improve ease of doing business, the Reserve Bank of India has decided to liberalise external commercial borrowing (ECB) norms, allowing all companies that are eligible for receiving foreign direct investment, to raise funds through the ECB route.
- The RBI has decided to keep the minimum average maturity period at 3 years for all ECBs, irrespective of the amount of borrowing. Earlier, the minimum average maturity period was five years.
- The ceiling for borrowing remains at \$750 million.
- RBI had capped funds raised via ECBs at 6.5% of GDP, at current market prices.

### Exim Bank

- The Cabinet o approved an infusion of ₹6,000 crore of capital in the Exim Bank of India.
- The Cabinet also approved an increase in the authorised capital of Exim Bank from ₹10,000 crore to ₹20,000 crore.
- The capital infusion would enable the bank to augment its capital adequacy and support Indian exports.

### e-Commerce

- The rules mandate that no entity in which an e-commerce company has stake can sell its wares on that e-commerce company's portal.
- Any vendor who receives 25% or more of its inputs from an e-commerce group company cannot sell on that e-commerce portal.

### IIP vs ASI

- Index of Industrial Production (IIP) is a composite indicator that measures changes in the volume of production of a basket of industrial products over a period of time, with respect to a chosen base period.
- It is compiled and published monthly by the CSO with a time lag of six weeks from the reference month.
- The all-India IIP provides a single representative figure to measure the general level of industrial activity in the economy on a monthly basis.
- On the whole, the new series had 809 items from the manufacturing sector as against 620 from the old 2004-05 series.
- ASI is the main source of long term industrial statistics while the IIP is a monthly indicator based on items and factories selected from ASI.
- IIP is based on a fixed set of items and factories chosen in the base period whereas the ASI is a record-based survey of establishments registered under the Factories Act, 1948 in which the sampling frame and the sampled establishments undergo significant changes.
- ASI captures information of new items and factories whereas the IIP does not.
- Also, the IIP is based on a much smaller sample of factories as compared to that of ASI.

- Growth rates in IIP are based on volume of production whereas growth rates in ASI are derived on the basis of Value Added (Output – Input).
- Further, establishments selected in IIP are generally larger in size whereas ASI establishments cover both large and smaller units. So, the growth rates in IIP are lower as the smaller units that have a thinner base and hence show higher growth.

### **e-Way Bills**

- Non-filers of GST returns for six consecutive months will soon be barred from generating e-way bills for movement of goods.
- The move would help check Goods and Services Tax evasion.
- The e-way bill system was rolled out on April 1, 2018, for moving goods worth over ₹50,000 from one State to another.
- The system for within the State movement was rolled out in a phased manner from April 15.
- The revenue department is working towards integrating the e-way bill system with NHAI's FASTag mechanism beginning April to help track movement of goods.

### **Debt-to-GDP ratio**

- N.K. Singh Committee has made recommendations on public debt.
- Centre's total debt as a percentage of GDP reduced to 46.5% in 2017-18 from 47.5% as of 2014.
- The total debt of the States, however, has been rising over this period, to 24% in 2017-18, and is estimated to be 24.3% in 2018-19.
- The N.K. Singh-headed FRBM (Fiscal Responsibility and Budget Management) Review Committee report had recommended the ratio to be 40% for the Centre and 20% for the States, respectively, by 2023.
- Outstanding liabilities of States have increased sharply during 2015-16 and 2016-17, following the issuance of UDAY bonds in these two years.

### SEZ

Ministry of Commerce & Industry had constituted a Group consisting of SEZ stakeholders under the chairmanship of Shri Baba Kalyani, to study the SEZ policy of India.

### GSTAT

- The Union Cabinet approved the creation of a National Bench of the Goods and Services Tax Appellate Tribunal (GSTAT).
- GSTAT would serve as the forum of second appeals to do with the applicability of GST, and will also be the first common forum of dispute resolution between the Centre and the States.
- GSTAT will consist of a technical member from the Centre and a representative of the States.
- CGST Act empowers the Centre to constitute, on the recommendation of the GST Council, an appellate tribunal for hearing appeals against the orders passed by the Appellate Authority.

### e-Commerce

- In December, the government tightened norms for e-commerce firms and barred online retailers like Flipkart and Amazon from selling products of the companies in which they have stakes.
- The government also prohibited e-commerce companies from entering into an agreement for exclusive sale of products.
- A vendor cannot procure more than 25% of products from group companies of the same marketplace where they intend to sell them.

### Public Credit Registry

- The PCR has been envisaged as a database of core credit information – an infrastructure of sorts on which users of credit data can build further analytics.
- It will facilitate linkages with related ancillary information systems outside the banking system, including corporate filings, tax systems (including the Goods and Services Network or GSTN), and utility payments.

## SBM Bank

SBM( State Bank Mauritius )Bank (India)Ltd becomes first foreign bank to set up wholly owned subsidiary in India.

## Poverty

- In 2011, 268 million were surviving on less than \$1.90 a day.
- \$1.90 a day is the World Bank measure for extreme poverty.
- Poverty estimates are derived from household consumption data. According to the World Data Lab, which monitors global poverty using advanced statistical models, less than 50 million Indians may be living on less than \$1.90 a day now.

## Input Tax Credit

- Input credit means at the time of paying tax on output, you can reduce the tax you have already paid on inputs.
- Say, you are a manufacturer – tax payable on output (FINAL PRODUCT) is Rs 450 tax paid on input (PURCHASES) is Rs 300 You can claim INPUT CREDIT of Rs 300 and you only need to deposit Rs 150 in taxes.

## PCA

- 11 of the 20 public sector banks in the country are under the RBI's PCA framework. It
- Under the PCA framework, the RBI has specified certain regulatory trigger points in terms of three parameters — capital to risk weighted assets ratio (CRAR), net non-performing assets (NPA) and Return on Assets (RoA), for initiation of certain structured and discretionary actions in respect of commercial banks hitting such trigger points.
- Currently, banks having negative RoA for certain consecutive years are brought under PCA framework
- The main objective of PCA is to alert the banking regulator (RBI) about a bank heading for trouble.
- It helps RBI take corrective measures to restore financial health of a bank.

### **Price Support Scheme**

- The Centre has procured 52.83 lakh tonnes of pulses and oilseeds so far under the price support scheme (PSS).
- The PSS is operationalised on the State governments' request when the prices fall below the minimum support price (MSP).
- The procurement is undertaken by nodal agencies such as Nafed at the MSP.
- Only fair average quality commodities are purchased.

## SCIENCE & TECH

### Ultima Thule

- A NASA spaceship, New Horizons, is zooming toward the farthest, and quite possibly the oldest, cosmic body ever photographed by humankind, a tiny, distant world called Ultima Thule 6.4 billion kilometres away.
- The mysterious object is in a dark and frigid region of space known as the Kuiper Belt.
- Real-time video of the actual flyby is impossible, since it takes more than six hours for a signal sent from Earth to reach the spaceship and another six hours for the response to arrive.
- It was discovered in 2014 with the help of the Hubble Space Telescope, and is believed to be 20-30 km in size.
- Scientists decided to study it with New Horizons after the spaceship, which launched in 2006, completed its main mission of flying by Pluto in 2015.

### Space Diplomacy

- As part of New Delhi's space diplomacy, a tool the foreign ministry has been trying to wield as part of its neighbourhood-first policy to counter China's influence in the region, India will set up five large ground stations and more than 500 small terminals in five neighbouring countries — Bhutan, Nepal, Maldives, Bangladesh and Sri Lanka.
- These stations and terminals will help put in place applications ranging from television broadcasting to telephony and internet, disaster management and tele-medicine.
- Isro meanwhile can use these ground stations to communicate with its own satellites.
- The first of the five ground stations is coming up in Bhutan's capital Thimphu.

### Samwad with Students

- As part of the enhanced outreach programme of Indian Space Research Organisation (ISRO), a new platform named "Samwad with Students" (SwS) was launched in Bengaluru.



- Through the SwS initiative, ISRO aims to constantly engage youngsters across India to capture their scientific temperament.
- The new conversation mission will inspire students cutting across schools and colleges.

### Chang'e-4

- A Chinese space probe, Chang'e-4, touched down on the far side of the moon.
- The moon is tidally locked to Earth, rotating at the same rate as it orbits our planet, so most of the far side — or “dark side” — is never visible to us.
- Previous spacecrafts have seen the far side, but none has landed on it.
- The probe, which has a lander and a rover, touched down at a targeted area near the moon's south pole in the Von Karman Crater.

### Ultima Thule

- Ultima Thule, an icy celestial body, is shaped like a giant snowman.
- It was formed when two spheres, or “lobes,” slowly gravitated towards each other until they stuck together.
- The New Horizons spacecraft on Tuesday flew past Ultima Thule, which was discovered via telescope in 2014
- Ultima Thule's surface reflects very low light as the sun's rays are 1,600 times fainter there than on the earth.
- The body completes its own rotation in about 15 hours.
- NASA dubbed the larger lobe Ultima, and the other, which is about three times smaller, Thule.
- Some 4.5 billion years ago a cloud of frozen pebbles began to join forces, gradually forming two bodies — Ultima and Thule.
- Slowing turning, they eventually touched at each other at an “extremely slow speed” — maybe just one to a few kilometres per hour. The lobes are really just “resting on each other.”

## Yutu 2

- China has named the lunar rover, successfully deployed to carry out a string of experiments on the unexplored far side of the moon, as 'Yutu 2'.
- The rover's touchdown is part of China Chang'e-4 lunar probe.
- China's lunar probe is part of its 'Made in China-2025' project, which focuses on advanced technology, including space applications.
- It follows the BeiDou Navigation Satellite System — China's homegrown Global Positioning System that started worldwide service last month.

## Helium-3

- China is moving forward with plans to build a research base on the moon.
- It is also said to be considering mining there for helium-3, a rare substance on earth that can be used as a fuel in nuclear fusion power generation.

## Dark matter

- In a first, scientists have found evidence that the mysterious dark matter — believed to make up most of the mass of the universe — can be heated up and moved around, as a result of star formation in galaxies.
- This effect is known as 'dark matter heating'.
- Scientists found that galaxies that stopped forming stars long ago had higher dark matter densities at their centres than those that are still forming stars today. This supports the theory that the older galaxies had less dark matter heating.

## ISS

- After cultivating lettuce in space three years ago, crew members aboard the International Space Station could be growing beans in 2021.
- The food grown in space could be crucial to sustain the crew in future deep space missions.
- The longest stays at the International Space Station have been six months, while people travelling to Mars will need to be prepared to stay in space for at least a year.

- The beans would be placed in a centrifuge to sprout and grow in the space station. The centrifuge would be rotated to create different amounts of gravity.

### Gas Hydrates

- Methane and carbon dioxide (CO<sub>2</sub>) can exist as gas hydrates at temperatures and pressures seen in interstellar atmosphere.
- Gas hydrates are formed when a gas such as methane gets trapped in well-defined cages of water molecules forming crystalline solids.
- In terrestrial conditions, gas hydrates are formed naturally under the sea bed and glaciers under high pressure, low temperature conditions.
- Methane hydrate is a potential source of natural gas.
- The methane and CO<sub>2</sub> hydrates were produced in the lab at very low pressures.
- The carbon dioxide hydrate produced in the lab raises the possibility of sequestering or storing carbon dioxide as hydrates by taking advantage of ice existing in environmental conditions favourable for hydrate formation.
- CO<sub>2</sub> hydrate is thermodynamically more stable than methane hydrate. So if methane hydrate has remained stable for millions of years under the sea bed, it would be possible to sequester gaseous CO<sub>2</sub> as solid hydrate under the sea bed.

### HD 21749b

- NASA's latest planet-hunting probe has discovered a new world outside our solar system.
- This is the third new planet confirmed by the Transiting Exoplanet Survey Satellite (TESS) since its launch last year.
- The planet is named HD 21749b.
- It's the coolest small planet that we know of around a star this bright.
- We know a lot about atmospheres of hot planets, but because it's very hard to find small planets that orbit farther from their stars, and are therefore cooler, we haven't been able to learn much about these smaller, cooler planets.

### **Mona Lisa Effect**

- In science, the “Mona Lisa Effect” refers to the impression that the eyes of the person portrayed in an image seem to follow viewers as they move.
- Researchers have demonstrated that this effect does not occur with the Mona Lisa painting by Leonardo da Vinci.

### **Gaganyaan**

- ‘Gaganyaan’ would send a manned mission to space by 2022.
- The Human Space Flight Centre [based in Bengaluru] will carry out all activities related to the human programme. Under it will function the Gaganyaan Project.
- Gaganyaan will be launched aboard the GSLV-MkIII.

### **Solar plasma**

- Plasma particles from the solar wind make their way into the Moon’s night side, filling up the wake region, long thought to be devoid of plasma particles.
- This has significance in understanding bodies like the Moon which do not have global magnetic fields.
- Plasma environment of the Moon is generated mainly by its interaction with the solar plasma wind flowing towards it from the Sun.
- This plasma wind consists of charged particles such as protons and is partly absorbed by the side of the Moon facing the sun.
- The rest of the solar plasma wind incident on the Moon flows around it, but leaves a wake (a void) on the side not facing the sun (the night-side of the Moon).
- Earlier, it was believed that this wake was devoid of any particles. But recent Moon missions such as Chandrayaan-1, Kaguya, Chang’e-1 and Artemis have found evidence of refilling of near lunar wake (heights of 100 km to 200 km above the lunar surface on the night side) with solar wind protons.
- Unlike the Earth, the Moon has no global magnetic field originating from a magnetized core. It has weak crustal fields that are too small to shield it globally from charged solar plasma particles incident on it.
- At some regions the crustal fields are quite strong and these are known as magnetic anomalies. The plasma particles scatter off these anomalous crustal fields.

- The interaction between the Moon and the solar plasma is a topic of interest now because understanding it can help us study any celestial body which has no atmosphere or global magnetic field, such as asteroids and some planetary satellites.

### Mobile-CRISPRi

- Scientists have repurposed the gene-editing tool CRISPR to study which genes are targeted by particular antibiotics, providing clues on how to improve existing antibiotics or develop new ones.
- Resistance to current antibiotics by disease-causing pathogens is a global problem. The technique, known as Mobile-CRISPRi, allows scientists to screen for antibiotic function in a wide range of pathogenic bacteria.

### The Cow

- On June 17, the ATLAS survey's twin telescopes in Hawaii found a spectacularly bright anomaly 200 million light years away in the Hercules constellation.
- Dubbed AT2018 or "The Cow," the object quickly flared up, then vanished almost as quickly.
- Scientists now speculate that the telescopes captured the exact moment a star collapsed to form a compact object, such as a black hole or neutron star.

### Far side of moon

- China's Chang'e-4 probe has successfully transmitted back images from the far side (also known as the dark side) of the Moon.
- Chang'e-4 is the first probe ever to land on that side.
- Over billions of years, Earth's gravitational pull has brought the Moon's spin into sync with its orbit.
- It takes exactly 28 days for the Moon to complete one rotation, and the same time to make one orbit around Earth. This leads to a phenomenon called "tidal locking".
- With the Moon's rotation and orbit keeping it forever in step with the Earth, only one part of it is visible from this planet at any time. The unseen part is the "far side of the Moon".

- Although it is also called the “dark side of the Moon” this is actually a misnomer. Viewed from Earth, half the Moon is sunlit at any time; and during a new moon, the near side is dark while it is the far side that is fully lit. The far side of the moon is also lighter in colour.
- All previous Moon landings, manned and unmanned, have been on the near side. This has been primarily because the Moon would have blocked radio communication between its far side and Earth.
- To work around this problem, the Chinese mission has used a “relay satellite”, called Queqiao (Magpie Bridge). It is in orbit around a strategically selected point, called L2. Signals between the far side and Earth are transmitted via the relay satellite.
- While Chang’e-4 is the first spacecraft to actually land on the far side, its images of that side are not the first. In 1959, the Soviet spacecraft Luna 3 clicked a number of photographs of the far side, from over 60,000 km away.
- Chang’e-4 landed on January 3 in the Von Kármán Crater in the South Pole-Aitken Basin on the far side of the Moon. The SPA Basin (2,500 km wide, 13 m deep) and the Von Kármán Crater (180 km) are both large impact craters.
- Chang’e-4 landed at an altitude of minus 6,000 m.
- A study of the Moon’s craters will seek to establish their compositions and ages, a history of collisions between Earth and the Moon, and various other aspects of the early Solar System.

### **Global Housing Technology Challenge**

- The Centre kicked off a global challenge for builders and research organisations to come out with new technologies to reduce construction period of houses from years to months.
- The primary aim is to select the most cost-effective technology to speed up construction of affordable housing to meet the target of building nearly 1.2 crore houses by 2022.

### **Cotton**

- A small green shoot is growing on the moon in an out-of-this-world first after cotton seed germinated on board a Chinese lunar lander.
- This is the first time humans have done biological growth experiments on the lunar surface.

## Young Scientists Programme

- For the first time, ISRO has announced the 'Young Scientists Programme' to encourage the scientific talent and increase scientific pool in the country.
- Under this programme 3 students from each state and UT will be selected for ISRO programme for one month during which they will visit ISRO centres, interact with senior scientists and will have access to Research and Development facilities.

## UNNATI

- India to train experts from 45 countries India will train 45 countries in nano-satellite making through a new capacity building programme.
- The programme is named Unispace Nanosatellite Assembly and Training(UNNATI).

## Samvad

ISRO has initiated 'Samvad with students' programme where ISRO chairman meets the students during his outstation visits and address their queries and quench the scientific thrust.

## Saturn's Rings

- Saturn's rings may be a relatively recent addition, according to data obtained from NASA's Cassini spacecraft.
- The findings challenge the notion favoured by some astronomers that the rings developed soon after Saturn formed about 4.5 billion years ago along with the other planets, including the earth.
- Others felt the rings were much younger, but lacked crucial data like their mass to estimate their age reliably.
- The ring mass turned out to be 45% lower than previous estimates based on 1980s data from NASA's Voyager spacecraft. Lower mass indicates a younger age.
- Scientists suspect the rings formed perhaps when a large icy comet or moon ventured too close to Saturn and was shattered by gravitational forces or moons collided in orbit.

## Artificial intelligence

- India ranks third in the world in terms of high quality research publications in artificial intelligence (AI).
- China stands first.

## Placenta

- The placenta regulates how much oxygen and nutrients it transports to babies during challenging pregnancies.
- The placenta is a poorly understood organ and hard to study in pregnant women.
- But its ability to function properly is vital as it impacts pregnancy outcomes and the lifelong health of mother and child.
- The placenta develops during pregnancy and connects the developing baby to the mother.
- It serves as the lungs, kidneys, gut and liver for growing babies and carries oxygen and nutrients to the foetus whilst secreting hormones and discarding waste.
- The placenta mitochondria have a remarkable ability to adapt and compensate for environmental impacts such as when women are living in low oxygen areas at high altitude and not eating enough of a healthy diet during pregnancy.

## Cassini

- Using Cassini spacecraft's observations of Saturn's rings, researchers have estimated length of a day on the planet.
- It is 10 hours 33 minutes and 30 seconds.
- The wave patterns on the rings, caused by the planet's internal vibrations, prompted the discovery.

## Elephantiasis

- Maharashtra is all set to roll out the World Health Organization (WHO)-recommended triple-drug therapy for lymphatic filariasis to speed up elimination of the disease.
- Lymphatic filariasis, commonly known as elephantiasis, is a neglected tropical disease.



- Infection occurs when filarial parasites are transmitted to humans through mosquitoes.
- The infection is usually acquired in childhood, causing hidden damage to the lymphatic system.

### Swine flu

- It is called H1N1 influenza.
- It is highly contagious.
- It is acute respiratory disease of pigs.
- It is caused by type A influenza virus that regularly causes outbreaks of influenza in pigs.
- Swine flu viruses do not normally infect humans.
- However, sporadic human infections with swine flu have occurred.
- Most commonly, these cases occur in people with direct exposure to pigs.
- However, there have been cases of human-to-human spread of swine flu.

### Yellow Fever

- Yellow fever spreads through mosquitoes.
- It is often associated with jaundice, hence the name yellow
- It leads to death in a significant proportion of patients.
- Yellow fever vaccine is known as 17D.

### Monkey fever

- Kyasanur Forest Disease (KFD) is also known as monkey fever.
- It is a viral disease.
- It is transmitted to humans through a species of ticks usually found on monkeys.
- It even leads to death.

### Microsat-R

- ISRO's first mission of 2019 will put into space a 130-kg military imaging satellite, Microsat-R.
- The satellite would be placed in a polar orbit 274 km away from Earth. This is much lower than any of its civil Earth observation spacecraft, which fly pole to pole over the globe at between 400 km and 700 km.
- Microsat-R is meant for military use.

### Armyworm

- Sri Lanka's maize farmers are battling a tiny but powerful enemy – the fall armyworm.
- The fall armyworm is said to have come from India, carried by strong winds across the Palk Strait.
- The worm has acquired the local name sena (army) worm, as it comes in big groups and attacks crops, particularly maize.
- The insect is known to be native to tropical and subtropical regions of the Americas. It has travelled east to other tropical regions.
- In recent months, fall armyworm infestations were reported in different parts of India, including Telangana, Karnataka, Tamil Nadu, West Bengal and Gujarat.

### Sickle-Cell

- Scientists have long known what causes sickle-cell disease and its devastating effects: a single mutation in one errant gene.
- At the moment, the only remedy for sickle-cell disease is a dangerous and expensive bone marrow transplant, an option rarely used.
- Now it has been found that an effective gene therapy using stem cells from bone marrow can treat it.
- The stem cells are genetically modified, and then infused back into the patient's bloodstream.
- The goal is for the modified cells to take up residence in the bone marrow and form healthy red blood cells.
- This would be the first genetic cure of a common genetic disease.

- In sickle-cell disease, blood cells stuffed with haemoglobin are distorted into sickle shapes.
- The misshapen cells get stuck in blood vessels, causing strokes, organ damage and episodes of agonizing pain — called crises — as muscles are starved of oxygen.
- Children usually return to normal between crises, but teenagers and adults may suffer chronic pain.

### **NCDs**

- Non-communicable diseases (NCDs) — mainly cardiovascular diseases, chronic respiratory diseases, diabetes and cancer — continue to be the top killers in the South-East Asia Region.
- The four ‘major’ NCDs are caused, to a large extent, by four modifiable behavioural risk factors: tobacco use, unhealthy diet, insufficient physical activity and harmful use of alcohol.
- The NCDs disproportionately affect the poor, impoverish families, and place a growing burden on health care systems.
- Non-communicable diseases such as diabetes, cancer and heart disease, are collectively responsible for over 70% of all deaths worldwide, or 41 million people.

### **blaNDM-1**

- In a significant find in the global spread of multi-drug resistant (MDR) bacteria, scientists have found a “superbug” gene — first detected in over a decade back — in one of the last “pristine” places on Earth that is some 12,870 km away.
- Soil samples taken in Svalbard — a Norwegian archipelago between mainland Norway and the North Pole — have now confirmed the spread of blaNDM-1 (called New Delhi Metallo-beta-lactamase-1) into the High Arctic.
- Carried in the gut of animals and people, the new research said that blaNDM-1 was found in Arctic soils that were likely spread through the faecal matter of birds, other wildlife and human visitors to the area.

## GM chickens

- Genetically modified chickens that produce human proteins in their eggs can offer a cost-effective method of manufacturing drugs widely used for treating cancer and other diseases.
- High quantities of the proteins can be recovered from each egg using a simple purification system and there are no adverse effects on the chickens themselves, which lay eggs as normal.
- Eggs are already used for growing viruses that are used as vaccines, such as the flu jab.
- This new approach is different because the therapeutic proteins are encoded in the chicken's DNA and produced as part of the egg white

## SOCIAL SECTOR

### National Health Authority

- Govt cleared the constitution of a National Health Authority (NHA) through an executive order, thus taking the Pradhan Mantri Jan Arogya Yojana (PM-JAY) out of the ambit of the Ministry of Health.
- The ministry's role will now be limited to acting as the nodal ministry for NHA in parliamentary matters, like the presentation of annual reports.
- The Cabinet also approved a proposal to upgrade the post of the NHA CEO to that of a Secretary to the Government of India with full financial powers.
- Till now, all funds released by the National Health Agency, which is implementing the PM-JAY, were done through the Ministry of Health.
- The NHA's governing board will be chaired by the Minister for Health and Family Welfare, while its members will include NITI Aayog CEO and NHA CEO.
- The proposal envisages statutory backing for NHA eventually. Till then, it will be an adjunct office of the ministry — like the department of health research — with complete functional autonomy.
- A part of the overarching Ayushman Bharat scheme, it is currently administered by the National Health Agency, which is a registered society under the Ministry of Health. While the ministry is not responsible for the day-to-day running of the scheme, it does have a say in policy matters.
- Now, the NHA will be responsible for its operational guidelines, fixing the ceiling of premium amounts, and developing mechanisms for strategic purchase of healthcare from the private sector.

### Open Defecation

- Swachh Bharat Mission aims to eliminate open defecation across the country by October 2, 2019.
- According to the Mission, Madhya Pradesh and Rajasthan are already open defecation free or ODF states.
- Bihar has achieved 98.97% coverage of toilets for every household, while Uttar Pradesh has achieved 100%, according to government data, although the state has yet to be declared ODF.

### **Bhoomi Rashi**

- The Ministry of Road Transport & Highways has recently launched the Bhoomi Rashi portal.
- The purpose of the portal is to fully digitize and automate the entire process of land acquisition.

### **Sikkim**

Sikkim will be the first state to roll out Universal Basic Income (UBI) and has started the process to introduce the unconditional direct cash transfer scheme.

### **Ayushman Bharat**

- West Bengal pulled out of the Centre's Ayushman Bharat scheme.
- The ambitious Ayushman Bharat or the National Health Protection Scheme aims to cover over 10 crore poor and vulnerable families (approximately 50 crore beneficiaries) by providing health cover up to ₹5 lakh per family per year.
- The expenses incurred are to be shared between the Centre and the State in 60:40 ratio.

### **Bhartiya Shiksha Board (BSB)**

- It will be the country's first national school board for Vedic education.
- It will be a fully-funded autonomous body under the HRD Ministry.
- Apart from affiliating traditional pathshalas, BSB will also be assigned the responsibility of evolving new kinds of schools that offer a blend of Vedic and modern education.

### **NREGA**

The National Rural Employment Guarantee (NREGA) scheme has been given an additional allocation of ₹6,084 crore to tide over the next three months. This lifts the total allocation to MGNREGA for 2018-19 to ₹61,084 crore, which is the highest ever allocation.

### **Pradhan Mantri Rozgar Protsahan Yojana (PMRPY)**

- Pradhan Mantri Rozgar Protsahan Yojana (PMRPY), the flagship scheme of the Central Government for employment generation has crossed the milestone of one crore beneficiaries.
- PMRPY was announced in 2016 and is being implemented by Ministry of Labour and Employment through the Employees' Provident Fund Organization (EPFO).
- Under the scheme, Government is paying full employers' contribution of 12% (towards Employees' Provident Fund and Employees' Pension Scheme both), for a period of 3 years in respect of new employees who have been registered with the EPFO on or after 1st April 2016, with salary up to Rs. 15,000 per month.
- The entire system is online and AADHAR based with no human interface in the implementation of the scheme.

### **AMRIT**

- The Health Ministry has decided to throw open AMRIT stores to private players in a bid to increase access to affordable drugs.
- The Affordable Medicines and Reliable Implants for Treatment (AMRIT) pharmacies — the first of which was opened at AIIMS, Delhi in 2015 — sell expensive drugs such as those used for treating cancer and cardiovascular diseases at a cost that is 30-40 per cent cheaper.
- Unlike Jan Aushadhi stores, which are run by the Ministry of Chemicals and Fertilisers, AMRIT stores do not sell generic versions of drug but sell branded drugs.
- The World Health Organisation estimates that in 2015, an estimated 8 per cent of the Indian population had been pushed below the poverty line by high out-of-pocket payments for health care.

### **NCRB**

- The National Crime Records Bureau is looking to deliver a richer and more varied picture by categorising offences like attacks on journalists, RTI activists, hate crimes, lynchings and fake news.
- It will be for the first time that NCRB's annual report will provide data on crimes that have been in discussion but were not logged in separate categories.
- The new data will tabulate how many people were killed in police lathicharge, police firing or by a riotous mob.

- Earlier crimes were classified in 40 categories, which have been increased to 70 crime heads in NCRB report.
- Among other interesting inclusions this time are crimes committed in schools, or by political leaders, “sants” (religious leaders), khap panchayats, illegal immigrants, transgenders, bank officials, students, private bodyguards and incidents of stone pelting, encounters of civilians and death of security personnel in terrorist incidents.
- An organised crime category will for the first time reveal how many crimes were committed by supari or contract killers, sand and mining mafia, examination racketeers or hawala operators.
- While dealing with crimes involving communication devices under the IT Act, the report will analyse cases of fake news on social media, cyber stalking of women and children apart from any incident of abetment to suicide via an online activity.
- People who have committed rape after befriending a woman or a girl on social media or created a fake profile, morphed a picture or defamed a woman online would also be part of the latest statistics.
- Till now, government didn't collect data on attacks on RTI activists, journalists, social activists, whistle-blowers and witnesses who struggle or write on issues related to corruption, gender-based violence, caste, or expose illegal activities related to any mafia or a political party.
- The cost of medicines is estimated to comprise as much as 70 per cent of the total out-of-pocket expenditure that families have to make on healthcare.

### **Jan Shikshan Sansthan**

- Jan Shikshan Sansthan (JSSs) are established to provide vocational training to non-literate, neo-literate, as well as school drop outs by identifying skills as would have a market in the region of their establishment.
- Jan Shikshan Sansthan (JSSs), have been categorized into three categories, namely, Category 'A', Category 'B' and Category 'C'. Different quantum of assistance has been provided for each category.

### **DAY-NRLM**

- The Deendayal Antodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM) is aimed at alleviation of rural poverty through building sustainable community institutions of the poor.



- It seeks to mobilize about 9 crore households into SHGs and link them to sustainable livelihood opportunities by building their skills and enabling them to access formal sources of finance, entitlements and services from both public and private sectors.
- It is envisaged that the intensive and continuous capacity building of rural poor women will ensure their social, economic and political empowerment and development.


## UDAN

- Under the UDAN scheme, the government aims to connect unserved and under-served airports.
- On the routes selected under the scheme, a fixed number of seats are sold at fares, for which a cap is decided by the government.
- Airlines bid for routes with VGF they require to meet the costs and this funding is contributed by the civil aviation ministry and respective state governments. Upon technical qualification, the airline with the lowest VGF bid is selected to operate on the route with a three-year exclusivity.

**INDIA BOARDS UDAN**

**World's cheapest domestic air travel scheme, UDAN, was launched by Prime Minister Narendra Modi in Shimla on April 27, 2017**

- Introduced by Civil Aviation Ministry under National Civil Aviation Policy unveiled in 2016
- UDAN is acronym for '**Ude Desh ka Aam Nagarik**'- meaning '**for every common man to fly**'
- Three initial flights were launched in the routes Shimla-Delhi, Kadapa-Hyderabad and Nanded-Hyderabad
- Government aspires to connect unserved and underserved regions of the country through revival of existing airstrips and airports
- Airfare for a 1-hour journey of approximately 500 km on a fixed wing aircraft or for 30-minute journey on a helicopter would be capped at ₹ 2,500
- The seating capacity of aircraft under UDAN scheme will range from 19 to 78, and 50% of the seats in every flight will have a fare cap of ₹ 2,500 per seat per hour



## **Ayushman Bharat**

- Health and wellness centres — which will cater to people’s primary healthcare needs — is a leg of the Ayushman Bharat scheme.
- These centres will provide comprehensive healthcare, including for non-communicable diseases and maternal and child health services.
- These centres will also provide free essential drugs and diagnostic services.
- Pradhan Mantri Jan Arogya Yojna is the secondary and tertiary care arm of Ayushman Bharat.
- The National Health Policy aims to double the government spend on health from the existing 1.15% of GDP to 2.5% by 2025.

## ENVIRONMENT & ECOLOGY

### Cinereous Vulture

- It is usually during the winter that a distinctly dark large bird – the Cinereous vulture, with a black-tipped pink beak – migrates from the mountainous regions of Europe and Asia to warmer places, including India.
- While earlier records of this migratory bird have revealed that it comes to northern parts of India up to Rajasthan, bird watchers and researchers were baffled to find it in Hazaribagh, Jharkhand.

### Olive Ridleys

- The average lifespan of the turtle is 50.
- The conservation status of the animal is 'vulnerable' according to the IUCN.
- The breeding season normally commences in January.
- The prime reason for the rise in the deaths is the absence of the 'Turtle Excluder Device' in fishing operations.

### Thirsty landscaping

- Bangkok is fighting floods with 'thirsty landscaping'.
- Parks are designed as places not only as a green space in the middle of the congested city but also as a place that could also retain large amounts of water, reducing monsoon flooding around urban areas.
- Parks and "green roofs" planted with vegetation soak up rain during the annual monsoon and help dense urban centres like Bangkok adapt to climate change.

### NCAP

- Govt. has launched a programme to reduce particulate matter (PM) pollution by 20-30% in at least 102 cities by 2024.
- The National Clean Air Programme (NCAP) is envisaged as a scheme to provide the States and the Centre with a framework to combat air pollution.
- The NCAP will be a mid-term, five-year action plan with 2019 as the first year.

- The approach for NCAP includes collaborative, multi-scale and cross-sectoral coordination between the relevant central ministries, state governments and local bodies
- In 2018, 14 of the world's 15 most polluted cities were in India.
- The tentative national level target of 20%–30% reduction of PM2.5 and PM10 concentration by 2024 is proposed under the NCAP taking 2017 as the base year

### **Ocean Heating**

- Ocean heating is a very important indicator of climate change.
- A new analysis found that the oceans are heating up 40 percent faster on average than a UN panel estimated five years ago.
- About 93% of excess heat — trapped around the Earth by greenhouse gases that come from the burning of fossil fuels — accumulates in the world's oceans.
- A key factor in the more accurate measurement of ocean heating is an ocean monitoring fleet called Argo, which includes nearly 4,000 floating robots that “drift throughout the world's oceans to measure its temperature, pH, salinity and other bits of information,”.

### **NCEF**

- National Clean Energy Fund (NCEF) was created out of cess on coal at ₹400 per tonne to provide financial support to clean energy initiatives.
- Inter-Ministerial Group chaired by the Finance Secretary was constituted to approve the project/schemes eligible for financing under NCEF.
- Out of India's total installed capacity of about 345 GW of power, gas-based capacity is about 25 GW or 7.2% of the total. However, its share in terms of generation is only 3.8% as 14,305 MW of gas-based capacity is stranded due to non-availability of domestic gas and unaffordability of imported gas. The consequence is that a large amount of assets in this sector have turned ‘non-performing’ or ‘unproductive’.

## Clean Air Programme

- Last week, the Centre launched across the country — a Rs 300-crore National Clean Air Programme (NCAP).
- It proposes a “tentative national target” of 20%-30% reduction in PM2.5 and PM10 concentrations by 2024, with 2017 as the base year for comparison.
- NCAP will be rolled out in 102 cities that are considered to have air quality worse than the National Ambient Air Quality Standards.
- The government has stressed that NCAP is a scheme, not a “legally binding” document with any specified penal action against erring cities.

## Desalination Plants

- Desalination plants harm environment.
- Desalination plants worldwide produce bigger-than-expected flows of highly salty waste water and toxic chemicals that are damaging the environment.
- About 55% of the brine is produced in desalination plants processing seawater in Saudi Arabia, the United Arab Emirates and Qatar.
- The hyper-salty water is mostly pumped into the sea.
- Brine is water comprising about 5% salt. By contrast, global sea water is about 3.5% salt
- Brine often includes toxins such as chlorine and copper used in desalination.
- Brine can cut levels of oxygen in seawater near desalination plants with profound impacts on shellfish, crabs and other creatures on the seabed.

## Volkswagen

The National Green Tribunal (NGT) directed Volkswagen India to deposit ₹100 crore with the Central Pollution Control Board (CPCB).

## AWBI

- Animal Welfare Board of India is a statutory advisory body on Animal Welfare Laws and promotes animal welfare in the country.
- It was established in 1962 under the Prevention of Cruelty to Animals Act, 1960.

- It ensures that animal welfare laws in the country are diligently followed, provide grants to Animal Welfare Organizations and advises the Government of India on animal welfare issues.
- The Board consists of 28 Members. The term of office of Members is for a period of 3 years.

### **Great Indian Bustards(GIB)**

- It is the country's most critically endangered bird.
- It is the State bird of Rajasthan.
- The GIB's last remnant wild population of about 50 in Jaisalmer district accounts for 95% of its total world population.
- No progress has been made on the proposal for establishing a captive breeding centre in Kota district and a hatchery in Jaisalmer for conservation of the State bird of Rajasthan.

### **Humpback Dolphins**

- These dolphins usually live in shallow, coastal waters.
- The Indian Ocean Humpback Dolphin is known to occur within the Indian Ocean from South Africa to India. T
- The habitat preference of the dolphins for shallow waters places them in some of the world's most intensively utilised, fished, shipped, modified and polluted waters.
- IUCN currently categorises the Indian Ocean Humpback Dolphin as Endangered.
- Dolphins are endangered cetacean species, protected under Schedule I of the Wildlife Protection Act, 1972.
- There have been reports of dolphin sightings on the west coast of Mumbai
- Dolphins are hardly spotted near Mumbai coast as there is silt in the water. During winters, the wind is from land to sea (northerly winds), which carry silt away from the shore and that is possibly the reason that the dolphins were spotted near the shore.

## Loktak

- The Manipur government has a plan to set up a bird sanctuary at the Loktak lake.
- Thousands of migratory birds flock to the Loktak lake, the largest freshwater lake in north-eastern India, every year.
- However, in the past few years there has been a sharp decline in the number of migratory birds coming to the lake.
- Birdwatchers blame human intrusion, bird poaching and hydroelectric power project near the lake for the decline in the number of migratory birds and brow-antlered deer in the Keibul Lamjao national park in the vicinity.
- Keibul Lamjao National Park is the natural habitat of the endangered brow-antlered deer.

## Nitrogen Pollution

- Eighteen research institutions in India are among a group of 50 institutions — called the South Asian Nitrogen Hub (SANH) — in the United Kingdom and South Asia that have secured £20 million (about ₹200 crore) from the U.K. government to assess and study the quantum and impact of “nitrogen pollution” in South Asia.
- While nitrogen is the dominant gas in the atmosphere, it is inert and doesn’t react.
- However, when it is released as part of compounds from agriculture, sewage and biological waste, nitrogen is considered “reactive”, and may pollute and even exert a potent greenhouse gas (heat trapping) effect.
- Nitrous oxide (N<sub>2</sub>O) is 300 times more potent than carbon dioxide but isn’t as prevalent in the atmosphere. However, this is poised to grow.

## Microplastic

- In a first, scientists have detected the presence of microplastics in groundwater in the U.S.
- Microplastics are already known to contaminate the world’s surface waters, yet scientists have only just begun to explore their presence in groundwater systems.
- Plastic in the environment breaks down into microscopic particles that can end up in the guts and gills of marine life, exposing the animals to chemicals in the plastic.

- As the plastics break down, they act like sponges that soak up contaminants and microbes and can ultimately work their way into our food supply.

### **NCAP**

- There are 139 Indian cities that breach air pollution standards but are not included in the Centre's National Clean Air Programme (NCAP).
- The NCAP was launched by the government earlier this month and is a ₹300 crore initiative to reduce particulate matter (PM) pollution by 20-30% in at least 102 cities by 2024.

### **Golden langur**

- Assam announced the success of the Golden Langur Conservation Breeding Programme in the State.
- In April 2018, the zoo authorities shifted a pair of golden langurs — Bolin and Lovely — from the display enclosure to the isolated site.
- The golden langur (*Trachypithecus geei*) is currently endangered.
- Apart from a small area in north-western Assam, small populations are found in Bhutan and Tripura.

### **Elephant survey**

- First captive elephant survey is in: 2,454 is official count.
- 58 per cent of all captive elephants are concentrated in two states: 905 in Assam and 518 in Kerala.



## POLITY & GOVERNANCE

### AFSPA

- The entire State of Nagaland has been declared 'disturbed area' for six more months under the AFSPA.
- AFSPA empowers security forces to conduct operations anywhere and arrest anyone without any prior notice.
- The AFSPA has been in force in Nagaland for several decades. It has not been withdrawn even after a framework agreement was signed in 2015, between NSCN-IM and government.

### LS Speaker

- Lok Sabha Speaker suspended 21 members of the Lower House for four days for creating a ruckus in the House.
- The action was taken under Rule 374 A of the Lok Sabha, meaning they cannot attend the remaining days of the session.

### Citizenship Bill

The Bill paves the way to grant citizenship to six religious minorities — Hindus, Jains, Sikhs, Parsis, Christians and Buddhists — from Pakistan, Afghanistan and Bangladesh who came to India before 2014.

### DNA technology Bill

- The Lok Sabha passed a bill that allows regulated use of DNA technology to establish the identity of certain defined categories of persons, including offenders, suspects, and undertrials.
- The DNA Technology (Use and Application) Regulation Bill allows the use of the technology to establish the identity of persons in matters of crime, parentage dispute, emigration or immigration and transplantation of human organs.
- The Bill provides for establishment of national and regional DNA data banks and each data will maintain the indices, including crime scene index, suspects' or undertrials' index and offenders' index.

## Quota Bill

- The Constitution (124<sup>th</sup> Amendment) Bill of 2019 provides up to 10% reservation for economically weaker sections of society.
- The proviso to Article 368 (power of Parliament to amend the Constitution and procedure thereof) holds that an amendment to a fundamental right coming under Part III of the Constitution need not be ratified by the Legislatures of one half of the States.
- The Bill, passed by both the Houses of Parliament, adds new clauses to Articles 15 and 16 of the Constitution. Both the Articles come under the part of 'Fundamental Rights'. They are part of the 'right to equality.'
- Constitution. The new clause (6) to Article 15 allows the government to carve reservation for the economically weaker sections of society in higher educational institutions, including private ones, whether they are aided or not by the State. Minority educational institutions are exempted.
- Likewise, the new clause (6) to Article 16 provides for quota for economically deprived sections in the initial appointment in government services.
- The Constitution does not provide for economic reservation. The Indira Sawhney judgment has capped the reservation limit to 50%. Now, the new Bill increases reservation to 60%.

## Assam Accord

- It was formulated in 1985.
- It fixed the cut-off date for migrants from Bangladesh to March 24,1971.

## Police chiefs

- The Supreme Court rejected the pleas made by five States to implement their own local laws for selection and appointment of their State police chiefs.
- .In July 2018, the Supreme Court restrained State governments from appointing DGPs without first consulting the Union Public Service Commission (UPSC).
- The State government concerned has to send UPSC the names of the probables three months before the incumbent DGP is to retire.
- The UPSC will prepare a panel of three officers fit to be DGP and send it back.
- The State shall "immediately" appoint one of the persons shortlisted by the UPSC.

## Citizenship Bill

- After hundreds of Hindus and Sikhs came to India alleging persecution in Pakistan, the then UPA government decided to give them long-term visas.
- Most of them had come on pilgrim visa, which expired.
- Long-term visas were given to Hindus, Jains, Sikhs, Parsis, Christians and Buddhists from Pakistan, Afghanistan and Bangladesh.
- Citizenship Amendment Bill, 2019, proposes to grant citizenship to Hindus, Jains, Sikhs, Parsis, Christians and Buddhists from Pakistan, Afghanistan and Bangladesh who came to India before December 31, 2014.
- In 2015, the Home Ministry had empowered the District Collectors in Chhattisgarh, Gujarat, Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and Delhi to grant citizenship and naturalisation certificates to the non-Muslim migrants from the three neighbouring countries under Section 5 and 6 of the Citizenship Act, 1955.
- Under the Citizenship Act, 1955, one of the grounds to acquire citizenship by naturalisation is that the applicant must have resided in India during the past 12 months and for 11 out of 14 years in India.
- The Bill proposes to relax the duration from 11 to seven years, only for persons belonging to the six religions from the three countries.
- The Bill faces resistance in Assam as it would negate the Assam Accord of 1985 paving the way for giving citizenship, mostly to illegal Hindu migrants from Bangladesh.

## Autonomous Councils

- The Union Cabinet approved a constitutional amendment to increase the financial and executive powers of the 10 autonomous councils in the Sixth Schedule areas of the northeast.
- The amendment would impact a population of about 1 crore tribals living in Assam, Meghalaya, Tripura and Mizoram.
- The Finance Commission would be mandated to recommend devolution of financial resources to the councils, the government said in an official statement.
- Till now, the autonomous councils have depended on grants from Central Ministries and the State governments for specific projects.
- At least one third of the seats would be reserved for women in the village and municipal councils in the Sixth Schedule areas of Assam, Mizoram and Tripura.

- The proposed amendments provide for elected village municipal councils, ensuring democracy at the grass-roots level.
- The State Election Commissions would hold elections to the autonomous councils, village and municipal councils in the areas of Assam, Mizoram and Tripura.

## AGRICULTURE

### Project Trinitea

- Recognising the rising importance of small tea growers (STG) in the supply chain, tea estates in North India are testing a project called 'Trinitea,'
- The project aims at providing support to the STG at the farm and market level such as customised farm management, access to real time information on climate, soil and markets, etc.
- A MoU was signed between the Indian Tea Association (ITA) the apex body of North Indian tea producers and Solidaridad for jointly implementing this project.
- Solidaridad is a network which works to promote sustainable production of 13 commodities across nine regions globally.
- The STG sector's share in total Indian tea crop has been rising steadily and now constitutes 47% of the total production.

### Agri Export Zones

- The concept of Agri Export Zone (AEZ) was introduced in 2001 to take a comprehensive look at a particular produce/product located in a contiguous area for the purpose of developing and sourcing the raw materials, their processing/packaging, leading to final exports.
- The concept hinged primarily on convergence of existing Central and State Government schemes to take care of financial interventions required at various stages of value chain, partnership among various stakeholders viz. Central Government, State Government, farmer, processor, exporter etc.; and focus on targeted products and areas to identify required policy interventions.
- In 2004, an review conducted by Department of Commerce concluded that the notified AEZs had not been able to achieve the intended objectives.
- It was decided that there will be no creation of new AEZs, unless there were strong and compelling reasons. No new AEZs have been set up after 2004.

### National Bamboo Mission

- The restructured National Bamboo Mission (NBM) was approved in April, 2018 for implementation till the end of 14th Finance Commission i.e. 2019-20.
- The scheme aims to inter-alia supplement farm income of farmers with focus on the development of complete value chain of bamboo sector linking growers with industry.

- The scheme is being implemented in non-forest Government land, farmers field in States where it has social, commercial and economical advantage.

### **Interest Subvention**

- With a view to ensuring availability of agriculture credit at a reasonable cost/at a reduced rate of 7% per annum to farmers, the Government of India, is implementing an interest subvention scheme of 2% for short term crop loans up to Rs.3.00 lakh.
- The scheme is implemented through public sector banks and private sector banks {reimbursement through Reserve Bank of India (RBI)}, Regional Rural Banks and Cooperatives {reimbursement through National Bank for Agriculture and Rural Development (NABARD)}.
- Currently, besides 2% interest subvention, the farmers, on prompt repayment of crop loans on or before the due date, are also provided 3% additional interest subvention.
- Thus, in case of prompt payee farmers the short term crop loans are provided at an effective interest rate of 4% per annum.
- The benefit of interest subvention is extended for a period of up to six months (post-harvest) to small and marginal farmers having KCC on loan against negotiable warehouse receipts with the purpose of preventing distress sale of produce.

### **KALIA**

- The Odisha government has come up with a support scheme whose primary targets are small farmers, cultivators and landless agricultural labourers.
- Called KALIA, the scheme involves payments to encourage cultivation and associated activities.

## INTERNATIONAL

### Yellow vest

“Yellow vest” is an anti-government demonstration in France.

### Sittwe Port

- Infrastructure at Sittwe Port in Myanmar, constructed with India’s assistance, is ready for operation.
- The construction of Sittwe Port is part of the Kaladan Multi Modal Transit Transport Project.
- Its objective is to create a multi-modal sea, river and road transport corridor for shipment of cargo from the eastern ports of India to Myanmar through Sittwe port as well as to North-Eastern part of India via Myanmar.

### Migrant workers

- Among all the Gulf nations, the largest outflow of Indian workers in 2018 was to UAE, with about 1 lakh (or 35%) of the total workers being granted emigration clearances.
- It was followed by Saudi Arabia and Kuwait with 65,000-odd and 52,000-odd workers headed to these countries.
- In 2017, Saudi Arabia had relinquished its position as being the most attractive destination among Gulf countries for Indian workers. the Nitaqat scheme for protection of local workers — the decline in expat workers, including from India is attributed to this scheme and the economic conditions.
- Qatar stands out by being the only country in the Gulf region, where the number of workers shows an increase in 2018 as compared to the previous year.
- There are an estimated 6 to 7.50 lakh Indian migrant workers in Qatar, constituting the largest expatriate community and nearly double the number of native Qataris.

## 2+2

- India and the U.S. reviewed the progress on finalising two key agreements during the 2+2 meeting.
- The agreements are the Industrial Security Annex (ISA) and the Basic Exchange and Cooperation Agreement for Geo-spatial Cooperation (BECA), a foundational agreement.
- The third foundational agreement is Communications Compatibility and Security Agreement.
- The ISA is particularly essential as the Indian industry looks for a greater role in defence manufacturing. It allows sharing of classified information from the U.S. government and American companies with the Indian private sector, which is so far limited to the Indian government and the defence public sector undertakings.

## ADB

- Having committed \$3.03 billion in loans to India in 2018, the Asian Development Bank (ADB) plans to scale up its lending to \$4 billion annually.
- ADB committed the highest ever annual lending to India in 2018.
- The bank's lending commitment included \$557 million in loans for the private sector.

## Vienna Convention

- The Vienna Convention on Diplomatic Relations was established in 1961.
- It is an international treaty that defines a framework for diplomatic relations between independent countries.
- It specifies the privileges of a diplomatic mission that enable diplomats to perform their function without fear of coercion or harassment by the host country.
- This forms the legal basis for diplomatic immunity.
- Its articles are considered a cornerstone of modern international relations.



## Rupee Pact with Iran

- The Indian pharma industry now has an opportunity to increase exports to Iran, following a rupee payment mechanism agreed upon recently by India and the Persian Gulf nation.
- Under the agreement, Indian refiners make payments in rupee for oil imports from Iran, to designated accounts maintained with UCO Bank.
- A portion thus received is to be used by Iran to pay for imports from India, including pharmaceuticals.
- The rupee payment agreement came within weeks of the sanctions to cover oil imports from Iran.
- While imposing the sanctions again, the U.S. provided a time window of exemption under which India and a few other countries could continue to import oil for some time, but of relatively less quantity.
- Constituting mostly APIs (bulk drugs), Indian pharma exports to Iran have been declining in recent years.

## Aadhaar

- Aadhaar is now passport to Nepal and Bhutan.
- Indians under 15 and over 65 can use it.

## ILO

International Labour Organisation (ILO) has published a report called 'Future of Work'.

## France

France announced a fine of €50 million (\$57 million) on U.S. search giant Google, using the EU's strict General Data Protection Regulation (GDPR) for the first time.

## IMF

- The IMF predicted the global economy to grow at 3.5% in 2019 and 3.6% in 2020.
- The IMF also cut its 2019 growth forecast for developing countries to 4.5%.

## **UN**

United Nations (UN) has published a report - The World Economic Situation and Prospects.

## **IAFTX**

- Indian Africa Field Training Exercise (IAFTX)-2019 is being conducted at Pune.
- The joint training exercise is being conducted with more than a dozen African countries & India.
- It aims at synergising humanitarian mine action and joint peace operations.

## **Red Fort Declaration**

- India and South Africa will update their Strategic Partnership by agreeing on a comprehensive “roadmap” on the way ahead, as well as relaxing visa restrictions.
- South African President Cyril Ramaphosa will be in India as the chief guest at the Republic Day parade.
- The Strategic Partnership between India and South Africa, called the Red Fort Declaration, was signed in March 1997.

## **Macedonia**

- Greek lawmakers ratified an agreement to end a nearly three decade-long dispute over neighbouring Macedonia’s name.
- The country will be renamed North Macedonia.
- It is on the path to NATO membership.
- Under the deal, Macedonia changes its name to North Macedonia and Greece will drop its objections to the country joining NATO and eventually the European Union.



## PISA

- India ends PISA boycott, signs pact with OECD.
- PISA — introduced in 2000 by OECD — tests the learning levels of 15-year-olds in reading, mathematics and science.
- The test is conducted every three years.
- India stayed away from PISA in 2012 and 2015 on account of its dismal performance in 2009, when it was placed 72nd among the 74 participating countries.
- The then government had blamed “out of context” questions for the poor show in 2009.
- The country, subsequently, chose to not participate in the 2012 and 2015 cycle.

## MISCELLANEOUS

### Idu Mishmis

- As conservationists and wildlife authorities grapple with the issue of man-animal conflict around sanctuaries and nature reserves, a tribal community in Arunachal Pradesh is championing a unique 'brotherhood' they say helps save the tiger.
- The Idu Mishmi community in Arunachal's Dibang Valley considers tigers to be "big brothers" and holds that killing the big cat amounts to "homicide". This, they believe is a "unique conservation strategy", which helps the big cat population to thrive in the area.
- The report notes the presence of tigers at 3,630 metres – the highest in the eastern Himalayas — and says the Mishmi hills have more tigers than the designated tiger reserves of the north-eastern state.
- This has prompted the government to propose that the 4,149-sq.km Dibang Wildlife Sanctuary (DWS) be declared a tiger reserve.



### Ladakh

- Ladakh is set to host the world's largest single-location solar photo-voltaic plant.
- The Ladakh project will be located at Hanle-Khaldo in Nyoma, a strategically important area 254km from Leh.

## Legacy person

A legacy person is someone who figures in a set of pre-1971 documents such as the 1951 NRC and voters' lists up to 1971, who an applicant can trace his or her lineage to.

## Bru

- Around 35,000 Bru refugees living in relief camps in Tripura.
- Thousands of Bru refugees from Mizoram had fled to Tripura during ethnic violence in 1997.

## Gandhi Peace Prize

- After a gap of four years, the Centre announced the awardees for the prestigious Gandhi Peace Prize for 2015 to 2018.
- The Gandhi Peace Prize, which is given to individuals and institutions for their contribution towards social, economic and political transformation through non-violence and other Gandhian methods, was last conferred upon the Indian Space Research Organisation in 2014.
- This is the first time that the awardees of four years have been announced together ever since the award was instituted in 1995.
- As per the code of procedure on the Ministry of Culture's website, the award should ideally be announced on Gandhi Jayanti, October 2, each year.
- The award carries a cash prize of Rs 1 crore, a citation and a handicraft item.
- The International Gandhi Peace Prize was instituted by the government on the 125th birth anniversary of Mahatma Gandhi and is open to people of all nationalities.

## Saksham

'Saksham', an annual high intensity one-month long people-centric mega campaign of Petroleum Conservation Research Association (PCRA) under the aegis of Ministry of Petroleum and Natural Gas has been launched.

## **Rajasthan**

Rajasthan govt issued a strict order to stop the sale of liquor after 8 p.m at all shops in the State.

## **Vande Bharat**

- The Indian Railways has named the indigenously manufactured superfast Train 18 as 'Vande Bharat Express'.
- It will ply from the national capital to Varanasi.

## **Malaysia**

Malaysia has been stripped of the right to host the 2019 World Para Swimming Championships for threatening to refuse to allow Israeli athletes to take part.

## **Trevor**

- A lone duck named Trevor that lived on the tiny Pacific island nation of Niue has died.
- One of the world's biggest coral islands, Niue does not have natural ponds or wetlands.

## **Suman Kumari**

- Suman Kumari is Pakistan's first Hindu woman judge.
- The country's first judge from the Hindu community was Justice Rana Bhagwandas.

## **LCA**

Hindustan Aeronautics Limited (HAL) is mandated to produce the Light Combat Aircraft 'Tejas' for the Indian Air Force (IAF).

## Sea Vigil

- India conducted its largest coastal defence drill, Exercise Sea Vigil, to test its preparedness along the entire 7,516.6 km-long-coastline and exclusive economic zone of the country.
- Exercise Sea Vigil aims to comprehensively and holistically validate the efficacy of the measures taken since 26/11.
- It aims to simultaneously activate the coastal security mechanism across all 13 coastal States and Union Territories.
- Post 26/11, the Navy was designated as the agency responsible for overall maritime security, including offshore and coastal security, while the Coast Guard was designated as the agency responsible for coastal security in territorial waters.

## ASI

- The 125-year-old Old High Court Building in Nagpur, Maharashtra, and two Mughal-era monuments in Agra — Haveli of Agha Khan and Hathi Khana — are among the six monuments declared protected and of national importance by the Archaeological Survey of India (ASI) in 2018.
- The ancient Neemrana Baori in Rajasthan's Alwar district; the Group of Temples at Ranipur Jharail in Odisha's Bolangir; and the Vishnu Temple in Kotali, Pithoragarh district, Uttarkhand, are the three other monuments that have been listed.
- In 2016 and 2017, no new monument was included in the list of sites of national importance.
- The last monument to be included in the list, in 2015, was the Vishnu Temple in Nadavayal in Kerala's Wayanad district.
- There were 3,686 centrally protected monuments/sites under the ASI in the country; the number has now increased to 3,693.
- Uttar Pradesh (745 monuments/sites), Karnataka (506) and Tamil Nadu (413) have the highest number of ASI-maintained sites.

## Asurgarh

Archaeologists have unearthed artefacts believed to be 2,300-year-old while carrying out excavation at the Asurgarh Fort in Odisha's Kalahandi district.

## Dioscorea

- A quaint fossilised leaf is one of the most recent finds throwing light on India's past.
- The leaf fossil is the first of Dioscorea yams from Asia and hints at a Gondwanan origin to these plants.
- Dioscorea is a kind of yam that grows as a herbaceous vine in the humid tropics of India and other countries.
- The fossil was named Dioscorea eocenicus: the first ever Dioscorea fossil recorded from Asia.
- Currently, species of Dioscorea in India are found in the humid, tropical forests of the country. Based on this, the team infer that such tropical forests must have flourished in this part of Rajasthan during early Eocene.
- As the Indian subcontinent broke away from the supercontinent Gondwanaland many millions of years ago and drifted towards the Equator, the resulting tropical weather created lush tropical forests here. As the landmass moved further north and away from the equator, dry vegetation replaced these forests.

## Renukaji Dam Multipurpose Project

- An agreement for Renukaji Dam Multipurpose Project will be signed six states- Uttar Pradesh, Haryana, Himachal Pradesh, Delhi, Rajasthan and Uttarakhand.
- Under this Project, three storage projects are proposed to be constructed on the river Yamuna and two of its tributaries - Tons and Giri in the hilly regions of Uttarakhand and Himachal Pradesh of Upper Yamuna Basin.
- These three projects were identified as National Projects in 2008 under which 90% funding of the cost of irrigation & drinking water component will be provided by the Govt. of India as central assistance and the rest 10% cost of the irrigation and drinking water component will be borne by the beneficiary states.
- Renukaji Dam project has been conceived as a storage project on Giri River (tributary of river Yamuna) in Sirmour District of Himachal Pradesh.
- The project envisages construction of 148 M high rock filled dam for supply of 23 cumec water to Delhi and other basin states. The project will also generate 40 MW of power.
- After the construction of the said dam, the flow of river Giri will increase about 110% which will meet the drinking water needs of Delhi & other basin states up to some extent in lean period.



- Stored water of Renukaji Dam will be used by UP, Haryana, Delhi, and Rajasthan.

### **Wandering pole**

- Rapid shifts in the Earth's north magnetic pole are forcing researchers to make an unprecedented early update to a model that helps navigation by ships, planes and submarines in the Arctic.
- The wandering pole is driven by unpredictable changes in liquid iron deep inside the Earth. It's moving at about 50 km (30 miles) a year. It didn't move much between 1900 and 1980 but it's really accelerated in the past 40 years.
- Scientists must periodically update the World Magnetic Model to map this process, and the most recent version — produced in 2015 — was intended to last until 2020.
- However, the magnetic field has been changing so quickly and erratically that researchers realised drastic steps were needed.
- The changes are essential as the system is used by aircraft, ships and even smartphones.

### **Numaligarh**

- The Cabinet Committee on Economic Affairs, chaired by the Prime Minister, has given its approval to the project for capacity expansion of Numaligarh Refinery in Assam from 3 MMTPA (Million Metric Tonne Per Annum) to 9 MMTPA.
- It involves setting up of crude oil pipeline from Paradip to Numaligarh and product pipeline from Numaligarh to Siliguri.

### **Pulicat lake**

- It is a safe haven for migratory birds.
- The lake is the second largest brackish water ecosystem in the country after the Chilika lake in Odisha.

*Let the Noble ideas come to You from all sides !*