

19 May 2019: UPSC Exam Comprehensive News Analysis

TABLE OF CONTENTS

A. GS1 Related

ART AND CULTURE

1. World Heritage Site tag may continue to elude Hyderabad

B. GS2 Related

POLITY AND GOVERNANCE

1. Ashok Lavasa pulls out of poll panel meetings on model code
2. EC issues notice to Sunny Deol

INTERNATIONAL RELATIONS

1. U.S. lifts metal tariffs on Canada, Mexico
2. U.K. law secures rights of Sikhs to carry kirpans
3. Zarif rules out prospect of war with U.S.

C. GS3 Related

INDIAN ECONOMY

1. \$150 mn World Bank loan likely for Rebuild Kerala
2. 'U.S. curbs on Huawei may not delay the roll-out of 5G'
3. New U.S. immigration rules to benefit Indian professionals with special skills'
4. RBI now uses divergence to compel banks to improve their loan-loss ratios

DISASTER MANAGEMENT

1. Odisha fishermen vulnerable due to frequent cyclonic events

SCIENCE AND TECHNOLOGY

1. Distant flyby
2. Microscope to diagnose, treat diseases
3. Early life stress can modify DNA expression, a study finds

ENVIRONMENT AND ECOLOGY

1. Hornbills among top seed dispersers, most threatened

D. GS4 Related

E. Editorials

INTERNATIONAL RELATIONS

1. Why has the U.S. raised trade war stakes?

POLITY AND GOVERNANCE

1. What is India's stand on data storage?

ENVIRONMENT AND ECOLOGY

1. Climate risk protocols

F. Tidbits

G. Prelims Facts

H. UPSC Prelims Practice Questions

I. UPSC Mains Practice Questions

A. GS1 Related

Category: ART AND CULTURE

1. World Heritage Site tag may continue to elude Hyderabad

What's in the news?

- The National Monuments Authority (NMA) has given the go-ahead for the development of 54 row houses in the regulated zone of the 500-year-old Golconda Fort and Qutb Shahi Tombs Complex in the city.
- Topping a flurry of letters, the NMA in its 223rd meeting on April 15-16 gave the no-objection certificate to the builder for developing 10-metre high houses in the zone with a caveat — the colour scheme should match with that of the monuments.

Block continuity

- The location is 101 metres beyond the wall near the Patancheru Darwaza (gate) and in the line of sight of both monuments. The construction will block the visual continuity that has existed for centuries between the two locations.
- A number of archival images dating from the late 19th century show the domes from the high point of the Golconda fort and a view of the fort from the tombs.
- A visit to the site revealed that the construction would likely block the view. Experts opine that a slice of history would be lost.
- The **Patancheru Darwaza** was an important passage in the old road from the Inner Fort to the site of Old Golconda. The gate was the link to Golconda's origins.
- Experts assert that the site of 'Old Golconda' went far beyond this, and may have extended into this area of potential new construction between the fort and the tombs.
- A six-year conservation effort by the State government in tandem with the Aga Khan Trust for Culture has transformed the Qutb Shahi monuments into a must-visit site.

Securing 'World Heritage Site' status:

- To secure 'World Heritage Site' status for Golconda-Qutb Shahi Tombs [2014 nomination], it is imperative that the pedestrian linkage is restored along the original route used by the Qutb Shahis.
- This space is also extremely significant visually to retain the heritage character of the two sites.
- Critics opine that it is shocking to hear that private villas are planned on this significant archaeological zone.
- Some reporters allege that certain documents also point out that the Department of Heritage, Telangana, raised multiple concerns citing Ancient Monuments and Archaeological Sites and Remains (AMASR) Act against the issue of NOC, but to no avail.
- Currently, work is progressing at a rapid pace on the site.
- The ancient aqueduct that brought water from Durgam Cheruvu to the Golconda fort

has been turned into a wall by the builder.

- A 2003 satellite map shows five small water bodies between the fort wall and the out enclosure of tombs, but now the area is filled with rubble and flattened.

B. GS2 Related

Category: POLITY AND GOVERNANCE

1. Ashok Lavasa pulls out of poll panel meetings on model code

What's in the news?

- In a recent development, Election Commissioner Ashok Lavasa has reportedly recused himself from meetings on issues concerning the model code of conduct, pending his demand for including dissenting opinions in the final orders.

Context:

- In a letter to Chief Election Commissioner Sunil Arora, Mr. Lavasa is learnt to have said his various notes on the need for transparency in the recording and disclosure of all decisions, including the minority view, had gone unheeded, “forcing me to withdraw from participating in the deliberations on the complaints”.
- While not denying news reports that Mr. Lavasa had written such a letter, Mr. Arora had termed them an “unsavoury and avoidable controversy”.
- Lavasa did not offer any comments, saying he was “not speaking to anyone on this issue”.
- Asked whether he had recused himself from any meeting on the model code complaints, Mr. Arora said that no meetings had been held lately.
- It is important to note that Lavasa had given dissent notes in at least four cases, in which the Election Commission did not find any violation in the speeches of Prime Minister Narendra Modi and BJP president Amit Shah by a majority of 2:1.
- In a statement, the CEC said: **“There has been an unsavoury and avoidable controversy reported in sections of the media today about the internal functioning of the Election Commission of India (ECI) in respect of handling the model code of conduct. This has come when all the chief electoral officers throughout the country and their teams are geared up for seventh and last phase of polling, which is tomorrow [Sunday], followed by the gigantic task of counting on May 23.”**

‘No clones’

- “The three members of the ECI are not expected to be template or clones of each other. There have been so many times in the past when there has been a vast divergence of views as it can and should be. But the same largely remained within the confines of the ECI after demission of office unless appearing much later in a book written by the concerned ECs/CECs. I have personally never shied away from a public debate whenever required, but there is a time for everything,” the CEC said.
- Arora indicated that the issues raised by Mr. Lavasa would be examined by a group within the ECI.
- Arora went on to add that “At the last meeting of the Commission on May 14, it was unanimously decided that some groups shall be formed to deliberate the issues that arose in the conduct of Lok Sabha election 2019, just as it was done after the Lok Sabha election of 2014. Of the 13 issues and areas identified, the model code of conduct is one of them”.
- Former ECI legal adviser S.K. Mendiratta, who worked with the poll body for about 53 years, remarked that **in case of a difference of opinion on matters regarding the MCC, the dissent note was recorded in the files and only the majority view was communicated to the parties concerned through an order.**
- **The dissenting ruling is made part of the order only in quasi-judicial matters like the disputes related to the Representation of the People Act and election symbols.**

2. EC issues notice to Sunny Deol

What's in the news?

- The Election Commission has issued a notice to BJP candidate from Gurdaspur Sunny Deol for allegedly violating the model code of conduct.
- Poll officials took serious note of a public meeting held by Mr. Deol in Pathankot on the night of the 17th of May, 2019 after the silent period came in force.
- They also found that a loudspeaker was used in the public meeting in which around 200 people were present.
- In the notice, it was pointed out that by holding a public meeting during the silent period, Mr. Deol had violated the model code of conduct.
- It is important to note that election campaigning is completely banned 48 hours before the polling process.
- Polling in all 13 Lok Sabha seats in Punjab will be held on the 19th of May, 2019 (Sunday).

- Deol is pitted against Congress's Sunil Jakhar in the Gurdaspur parliamentary constituency.

Category: INTERNATIONAL RELATIONS

1. U.S. lifts metal tariffs on Canada, Mexico

What's in the news?

- President Donald Trump recently announced a deal to lift U.S. tariffs on steel and aluminium imports from Canada and Mexico that had created friction between the neighbours and blocked a new North American free trade agreement.
- Trump said, "I am pleased to announce that we've just reached an agreement with Canada and Mexico and will be selling our product into those countries, without the imposition of tariffs".
- His statement came moments after Canada released the text of the agreement between Ottawa and Washington in which they agreed to eliminate U.S. tariffs on steel and aluminium, and Canada's retaliatory measures, within no more than two days.
- Mexico confirmed it had reached a similar agreement with the U.S.
- It is important to note that the steep U.S. tariffs imposed in the year 2018 — 25% on steel and 10% on aluminium — became a major stumbling block to ratifying a new North American trade pact negotiated the same year (2018) by the three countries.

What did Canada and Mexico agree to?

- Canada and Mexico agreed to withdraw all complaints lodged against the U.S. at the World Trade Organization (WTO).
- They also agreed to monitor imports to ensure metals that are sold at "dumped prices" — below the cost of production — are not purchased in or shipped through Canada and Mexico.
- The U.S. Trade Representative's office said the agreement "provides for aggressive monitoring and a mechanism to prevent surges in imports of steel and aluminium."

2. U.K. law secures rights of Sikhs to carry kirpans

What's in the news?

- The U.K. government has passed an amendment by which Sikhs in the country will be allowed to carry kirpans and use it during religious and cultural functions.

- The 'Offensive Weapons Bill' received the royal assent recently.
- The Bill had been amended late last year (2018) to ensure that it would not impact the right of the British-Sikh community to possess and supply kirpans, or religious swords.
- A U.K. Home Office spokesperson said, "We have engaged closely with the Sikh community on the issue of kirpans. As a result, we have amended the Bill to ensure that the possession and supply of large kirpans for religious reasons can continue".
- The All Party Parliamentary Group for British Sikhs had led a delegation to the U.K. Home Office to ensure that the kirpan remains exempt when the new Bill becomes law.
- Large kirpans, with blades over 50 cm, are used by the community during ceremonies in gurdwaras as well as for events involving the traditional Sikh Gatka martial art.
- **The Offensive Weapons Act** covers new offences around possession of certain offensive weapons in public and enforces new restrictions on the online sale of bladed articles and corrosive products.

3. Zarif rules out prospect of war with U.S.

What's in the news?

- Iran's Foreign Minister recently discounted the prospect of a new war in the region. He said that no party should be under the "illusion" that the Islamic republic could be confronted.
- Tensions between Washington and Tehran have been on the rise as the U.S. has deployed a carrier group and B-52 bombers over what it termed Iranian "threats".
- "We are certain... there will not be a war since neither we want a war nor does anyone have the illusion they can confront Iran in the region," Mohammad Javad Zarif said at the end of a visit to China.
- He went on to add, "Trump does not want war but the people around him are pushing him towards war under the pretext of making America stronger against Iran".
- It is important to note that Iran-U.S. relations hit a new low last year (2018) as Mr. Trump pulled out of a 2015 nuclear deal and reimposed unilateral sanctions that had been lifted in exchange for Tehran scaling back its nuclear programme.
- The head of Iran's powerful Revolutionary Guards recently said that the country is currently locked in a "full-scale war of intelligence" with the U.S.
- He went on to add that "This is a combination of psychological warfare, cyberoperations, military mobility, public diplomacy and instilling fear".
- He further added that "America's majesty is on the decline and it is about to reach its end, and at the same time, we must watch out for probable dangers in such

C. GS3 Related

Category: INDIAN ECONOMY

1. \$150 mn World Bank loan likely for Rebuild Kerala

What's in the news?

- The World Bank's upcoming talks with the Kerala government and Union Department of Economic Affairs on 27th and 28th May, 2019 in New Delhi will be to secure its development policy loan (DPL) of \$150 million for the Rebuild Kerala initiative.
- At the two-day meeting, the terms and the repayment conditions will be worked out for the first tranche of the DPL.
- It is important to note that **though the State has been granted project-specific loans for infrastructure, it is the first time that the World Bank is offering the DPL.**
- The long-term DPL of \$150 million of the World Bank is to be equally provided by the International Development Association (IDA) and International Bank for Reconstruction and Development (IBRD).

State free to decide:

- **Since the DPL is not a project-specific aid, the World Bank authorities are likely to insist on tough conditions.**
- Unlike in the case of project-specific financial aid, there will be no monitoring from the World Bank for the DPL and **the State will be free to choose the sector in which to deploy the funds.**
- The aid will be made available to the State exchequer once approved and the State can use the money for achieving targets set under the **Rebuild Kerala initiative.**
- The State had already identified eight key sectors, including water resources, agriculture and roads and had submitted the formulated 'prior actions'.
- **Zero or very low interest rates, long-term repayments, including a five-to-10-year grace period or moratorium, are the highlights of the DPL.**
- Some experts have opined that the DPL to be granted by the World Bank is a lottery for the State facing a crisis.
- According to some sources, the State is also trying for the second tranche of \$200 million DPL in October, 2019.

- Once the negotiations are completed, the World Bank Board has to approve the DPL.
The Bank is aiming to provide the first tranche by June, 2019 end.

2. 'U.S. curbs on Huawei may not delay the roll-out of 5G'

Note to the Students:

- The following points cover the excerpts from an interview in which Aruna Sundararajan (Telecom Secretary and Chairman of the Telecom Commission), speaks about the roll-out of 5G among other important issues.

Analysis:

Will the U.S. ban on Huawei delay global roll-out of 5G?

- One doesn't believe it will. The U.S. is already well advanced in terms of 5G readiness, and so are countries like Japan, Korea and Sweden which are leading the 5G rollout.
- Each country, including India, will, of course, have to evaluate and assess what is required from their own security perspective and plan their roadmaps accordingly.

Will the spectrum allocation for 5G be a priority for the new government?

- Spectrum allocation is an important area for the government to enable new technologies such as 5G, which are estimated to have significant positive impact on cross-cutting industry verticals and services.
- Considering the positioning of 5G as a general purpose technology (GPT), it is indeed an immediate priority to provide necessary enabling environment, including spectrum, to enable early adoption of new technologies to drive the 'digital agenda' in the country.

Can India meet its own 2020 roll-out deadline for 5G?

- India has been a prudent and cautious market.
- The 3G and 4G standards entered India as matured technologies.
- Telecom service providers in the country are closely watching the 5G rollout preparedness in global markets.
- They are also assessing the demand-pull factors in terms of usage cases. The operators are giving priority for technology trials in partnership with OEMs to enable them to learn network planning and usage-case business models.

What could be the immediate 5G-related market opportunities?

- It is estimated that the immediate opportunity would be for roll-out of eMBB (enhanced mobile broadband) capability to deliver high-speed services as standards for other capabilities such as uRLLC (ultra-reliable low latency communication), MMTC (massive machine type communication) that are likely to be ready only by the end of 2020.
- There will be a significant learning on 5G rollout and technology aspects by 2020.
- Current offerings of OEMs on 5G are only candidate technologies as 5G standards are yet to get finalised for all capabilities.

Does India have the right ecosystem and pricing yet for 5G roll-out?

- We are in a much better position than we were during 4G introduction in terms of data appetite, usage of apps, ICT literacy, broadband penetration etc.
- The 5G high level task force (HLTF) has been constituted to strengthen the digital communication ecosystem in the country. Despite the fact that the telecom network deployment is capital-intensive in nature, the Indian market has always demonstrated cost leadership.
- By very nature of the need to provide ubiquitous connectivity in a telecom network, the aim is always to make the subscriber base as large as possible. India's large market is a key factor that will drive 5G.

What kind of newer digital opportunities will 5G bring?

- From the forecasts and successful trials abroad, 5G technology is proclaimed to have the potential of a general purpose technology considering its high throughput, near real-time and high quality services.
- Health, education, industrial automation, transportation, assisted-driving, security and surveillance, consumer experience and entertainment are quoted as potential sectors for 5G.
- New kinds of services, businesses, new streams of revenues are projected for both operators and enterprises in the years to come as per market reports.

India: A Serious shortage of capex?

- Industry experts and telcos such as Vodafone Idea argue that India has a serious shortage of capex and therefore, it should postpone 5G roll-out for some years. This is true.
- Vodafone-Idea has a view on its readiness on 5G roll-out. Operators may be assessing the demand for capital investment in light of 5G roll-outs announced in other countries and also taking note of the plans of other operators in the market.
- New technology roll-out in a telecom market is contagious and one expects the

launch by one player will see others roll it out as well.

- It is important to note that the gap in adoption from generation to generation, that is, 2G to 3G and 3G to 4G has been decreasing and it is a matter of time before we start seeing 5G networks in the country.
- The 5G HLTF's objective is to enable the process and the ecosystem in the country.

3. New U.S. immigration rules to benefit Indian professionals with special skills'

What's in the news?

- Indian professionals with specialised skills will be the biggest beneficiaries of U.S. President Donald Trump's proposed immigration policy, said K.V. Kumar, chairman and CEO, Indian American International Chamber of Commerce (IAICC).
- Kumar has worked with all U.S. Presidents starting with Ronald Reagan to Mr. Trump.
- The IAICC represents over six lakh small and medium Indian or Indian-origin enterprises around the globe.
- V. Kumar, chairman and CEO, Indian American International Chamber of Commerce (IAICC),

insisted that the proposed immigration scheme, which will focus on a points-based system that prioritises the admission of immigrants with certain education and employment qualifications, would definitely **help Indian professionals who are seeking U.S. visas/green cards.**

- He added, "It proposes to consider 57% of immigrants for skill-based green cards. That's over a fourfold increase from the existing 12%. A large population of Indians, who are currently on H-1B visas are going to benefit from it".
- Further, though family visas may be cut to 33% from 66% now, under the new scheme, visa processing for spouses and parents will be done at a fast pace.
- Based on his interaction with the SMB (small and medium business) community, Mr. Kumar further said, the Indian business community in the U.S. was quite upbeat about the proposed changes as it would increase the scope for talent transfer between the U.S. and India.

Concluding Remarks:

- India already is a huge beneficiary of U.S. visas and green cards. The U.S. will only be more gracious and willing to offer visas to eligible Indians.
- The fake Michigan University kind of incidents have spoilt the reputation of India. So, it is critical that governments, companies and educational institutions do a proper screening of visa applicants to avoid embarrassments.

- As per a Washington DC-based fact tank, Pew Research Center, during fiscal 2017, some 748,746 people were granted family-based permanent residency in the U.S.
- Under employment based immigration (12%), 1,37,855 people were given residency, 1,20,356 came under refugees (11%), under others (6%) came 68,618 asylees and parolees and another 51,592 people were given permanent residency under diversity (5%).
- In conclusion, these new proposals, if approved by the Congress, have the potential to dramatically alter the immigration landscape of the U.S.
- Some experts opine that it is encouraging that talent, skills and expertise will be given preference over family.

4. RBI now uses divergence to compel banks to improve their loan-loss ratios

What's in the news?

- Recently, at least three public sector banks that have reported earnings for the January-March 2019 quarter have mentioned 'divergence' in bad loan recognition and have made provisions for such loans.

Analysis:

When does divergence take place?

- Divergence takes place when the Reserve Bank of India (RBI) finds that a lender has under-reported (or not reported at all) bad loans in a particular year and hence asks the lender to make disclosures if under-reporting is more than 10% of bad loans or the provisioning.
- Three state-run banks — **Union Bank of India, Indian Bank and Central Bank of India** — had reported divergence while announcing the results.
- In all these banks, divergence was spotted for the financial year 2017-18.
- Higher provisioning for divergence was one of the reasons for them to report losses for the quarter.
- Interestingly, divergence was identified not because these banks hadn't classified the loan as non-performing assets (NPA) but **because they were late in classifying them.**

NPA classification

- Since the date of classification as NPA had been pushed back, the banks had to make higher provisioning due to the **ageing factor.**

- In the first stage of NPA, which is the 'sub-standard' category, 15-20% provision is required and for next category, which is 'doubtful', a 40% provision is required.
- During the annual inspection, RBI supervisors pointed out that if one bank has identified an account as NPA six months earlier, for example, then why have other banks delayed in recognising the same. So, banks have been asked to classify the account as NPA on an earlier date, which means, increase in provisioning requirement due to ageing factor.
- Some bankers said the identification was pushed back by two years in some cases. Since banks had to increase their provisioning, this resulted in higher provision coverage ratios (PCR).
- Central Bank of India's provision coverage ratio had improved to 76.6% as on March 31, 2019, from 63.31% a year earlier, while Union Bank's improved to 66.24% from 57.18%. Indian Bank's provision coverage ratio was 65.72%.
- In 2009, the RBI had mandated a 70% provision coverage ratio, which resulted in banks increasing their coverage. However, in April 2011, the mandate was withdrawn.

Provision coverage ratio:

- It is important to note that with the asset quality of banks starting to worsen from about 2013-2014, the PCR level of banks has fallen sharply.
- Now, the banking regulator has found a way to increase the loan-loss ratio without mandating any particular level.

Category: DISASTER MANAGEMENT

1. Odisha fishermen vulnerable due to frequent cyclonic events

What's in the news?

- It's been 15 days since Cyclone Fani swept through coastal Odisha but fishermen are not sure if they would be able to venture into the Bay of Bengal any time soon.
- As a matter of fact, many of their boats still lay upside down while fishing nets remain buried under mounds of sand – marks of the devastation left behind by one of the strongest summer cyclones to hit Odisha.
- Fishermen have exclaimed that this is probably one of the longest periods that they have sat idle and kept watching the sea. As a matter of fact, they are likely to wait for a few more days as the boats can be repaired only when power is restored.
- The fact that many are finding it difficult to feed their families as their savings and loans are getting exhausted with every passing day, only further underscores the

plight that they are facing.

- Some fishermen say that there were times when they used to spend 180 days fishing in the deep seas in a year. However, now, the number of fishing days barely crosses 100.
- **The fishing community in the State has been severely affected; the loss is estimated at ₹6.95 crore. The figure, however, does not reflect the real loss, given the employment the sector generates.**
- Cyclones and other atmospheric events have caused a rise in unemployment in the community over the years. The idle time begins from the issuance of advisories till the event takes place. **Extreme weathers are triggering migration from fisher villages, apart from alienation from fishing, a traditional livelihood option.**
- Its geographical location and physical environment make **Odisha Coastal Zone** vulnerable to frequent cyclonic disturbances. **The coastline of Odisha is only about 17% of India's east coast, but it has been affected by nearly 35% of all cyclonic and severe cyclonic storms that have crossed the east coast and by associated storm surges that have often inundated large tracts of coastal districts, according to a State government report.**

Land and sea interaction:

- Further, it is important to note that **the land and sea interaction is very high in Odisha, for which weather events are taking place so frequently.**
- The land masses of Puri and Jagatsinghpur districts are slightly inside the sea and get hit by atmospheric systems which are generated either from Andaman and Nicobar or from the southern side.
- Furthermore, the east coast is one of the six most cyclone-prone areas in the world.
- In the past 100 years, the Indian subcontinent experienced 1,019 cyclonic disturbances, of which 890 were along the east coast. Of these, 260 made landfall along the Odisha coast.
- With 29% of the total disturbances affecting the Odisha coast, its vulnerability is relatively high in comparison to West Bengal (14%), Andhra Pradesh (13%) and Tamil Nadu (7%).
- The revisit or recurrence time of a severe storm to the Odisha coast is around four years; for West Bengal it is five years.
- As far as cyclones are concerned, the revisit time for the Odisha coast is nearly two years, which is much shorter than that of other States, indicating that **Odisha is the most frequently cyclone affected coastal State in the country.**

Category: SCIENCE AND TECHNOLOGY

1. Distant flyby

What's in the news?

- The Kuiper belt object '**Ultima Thule**' gains its nickname for being the farthest world humans have explored using the New Horizons spacecraft.
- Now researchers have published a paper in Science analysing Ultima Thule's shape and red colour.
- A contact binary, its two lobes were initially separate and merged due to tidal forces.
- Researchers are also investigating its terrain.

A Note on "Ultima Thule":

- Ultima Thule is located in the Kuiper Belt , beyond the orbit of Neptune.
- Ultima Thule measures approximately 30 kilometers (18 miles) in diameter, and is irregularly shaped.
- Ultima Thule belongs to a class of Kuiper belt objects called the "Cold Classics," which have nearly circular orbits with low inclinations to the solar plane, and which have not been perturbed since their formation perhaps 4.6 billion years ago.
- Ultima Thule will therefore be the most primitive planetary object yet explored, and will reveal to us what conditions were like in this distant part of the solar system as it condensed from the solar nebula.

2. Microscope to diagnose, treat diseases

What's in the news?

- Recently, scientists have developed a specialised microscope with the potential to diagnose diseases like skin cancer as well as perform precise surgery without making any incisions in the skin.

A look at specifics:

- According to the study published in the journal Science Advances, the microscope allows medical professionals to pinpoint the exact location of an abnormality, diagnose it and treat it instantly.
- The technology being used allows scientists to scan tissue quickly, and when they see a suspicious or abnormal cell structure, they can perform ultra-precise surgery and selectively treat the unwanted or diseased structure within the tissue — without cutting into the skin.

- It could be used to treat any structure of the body that can be reached by light and requires extremely precise treatment, including nerves or blood vessels in the skin, eye, brain or other vital structures.
- Experts opine that for diagnosing and scanning diseases like skin cancer, this could be revolutionary.
- The study shows that the device allows imaging of living tissue up to about one millimetre in depth using an ultrafast infrared laser beam. It can not only digitally scan living tissue, but also treat the tissue by intensifying the heat produced by the laser.
- The researchers aim to make multiphoton microscope technology more versatile while increasing its precision.

3. Early life stress can modify DNA expression, a study finds

What's in the news?

- Recently, a Bengaluru-based group of researchers has discovered a link between stress during early life and problematic, externalising behaviour in the DNA of children of alcoholic parents.

What did the study include?

- In particular, they have studied 50 children of parents with alcoholism who had experienced stress in early life, which includes violent behaviour by alcoholic father towards mother and family, abuse and even sometimes their having to leave the home.
- They also studied 50 healthy children in a control group who had no such history.
- The results of the study were published in the journal Progress in Neuropsychopharmacology & Biological Psychiatry.

Biology and adversity

- Early adversity is known to have several biological effects.
- One of this is **DNA methylation**.
- **DNA methylation** is a process by which chemical changes occur to the DNA molecule. It also affects the functioning of what is called the hypothalamus-pituitary axis. This is a complex set of interactions between the hypothalamus and the pituitary gland in the brain and the adrenal glands (above the kidneys).
- It is important to note that the hypothalamus-pituitary axis is a major neuroendocrine system that controls reactions to stress, regulates digestion, the immune system, mood and emotions, sexuality and energy storage and expenditure.

- The present study provides further evidence of the association of early adversity in children of alcoholics with blunted cortisol activity, increased site-specific DNA methylation in a particular gene (SLC6A4) and high externalising behaviour.
- Further, the gene codes for the serotonin transporter.
- Serotonin is a very important chemical produced in the body and required for communication between neurons among other things and the activity of this protein is crucial for appetite, emotional well being, cognition and memory.

Stress and cortisol:

- In the course of the study, the children were subjected to a standard stress test, and their saliva was sampled every ten minutes and tested for levels of a chemical called cortisol.
- In normal individuals, it is expected that the level of cortisol spikes during stress.
- The scientists found that the children with chronic stress had a subdued rise in cortisol levels when exposed to acute stress.

Concluding Remarks:

- The study is unique in that it carries out a detailed assessment of HPA axis function by cortisol estimation during stress and also estimates chemical effects due to early adversity at the DNA level.
- The combined approach helped the researchers estimate adversity, HPA axis function, DNA methylation and behaviour.
- The study concludes that children of alcoholics might have a compromised HPA axis and epigenetic changes at the DNA level possibly resulting in increased externalising behaviour.

Category: ENVIRONMENT AND ECOLOGY

1. Hornbills among top seed dispersers, most threatened

What's in the news?

- Researchers from Nature Conservation Foundation, Mysore, have mapped the different frugivore (fruit eater) birds and their interactions that are important for the forest ecosystem.
- The study carried out in **Pakke Tiger Reserve in Arunachal Pradesh** noted that hornbills, one among the large-sized frugivores, are the top seed dispersers.
- However, unfortunately, they are also the most threatened.
- This is because they are hunted for meat, and the tribal communities use their feathers for head dresses.

- The study looked at 43 tree species, 48 frugivore bird species that were seen visiting them.
- A single bird species could visit different tree species, and a single tree species would be visited by different bird species.
- Thus, a complex network of over 400 interactions was created and studied.
- The trees were classified into small-, medium- and large-seeded. The large-seeded trees mainly depended on hornbills and imperial pigeons for their dispersal. The medium-size seeded trees were visited by bulbuls, barbets along with hornbills and imperial pigeons. Though the frequency of visits was similar for all four bird species, the number of fruits removed from trees was high for hornbills.
- Among the different bird species, **hornbills were found to be the most effective seed dispersers**. They were found to swallow and disperse most of the fruits they handled. They also removed maximum number of fruits — and therefore seeds — in every visit to a fruiting tree.
- They swallow the fruit as a whole causing no damage to the seed. **They are known to disperse seeds far away from the parent plant** – as a matter of fact, studies have shown that they can disperse up to 13 km.

Concluding Remarks:

- **Previous studies by the team also noted that when the number of hornbills decreased in an area, the regeneration of large-seeded plants that were primarily dispersed from them was also affected.**
- It is important to note that seeds that fall under the parent tree face heavy competition, predation by rodents and insects and fungal infections. So their chances of survival are very low.
- Plants depend on frugivore birds to disperse the seeds at favourable sites, which have low competition and predation pressures, to expand their geographic range.
- And so the decline of frugivores could severely affect the ecosystem.

D. GS4 Related

Nothing here for today!!!

E. Editorials

Category:INTERNATIONAL RELATIONS

1. Why has the U.S. raised trade war stakes?

Larger Background:

- On July 6, 2018, the United States administration slapped a tariff of 25% on \$50 billion worth of imports from China.
- China responded immediately with retaliatory tariffs on a similar scale.
- On May 10, 2019, U.S. President Donald Trump raised the tariff rate to 25% (from the existing level of 10%) on \$200 billion of imports from China.
- Currently, Washington is poised to extend tariffs on all imports from China, which implies that approximately \$325 billion of additional goods will enter the U.S. tax net.

Editorial Analysis:

When did the trade war begin?

- The first step was when the Trump administration decided, in January 2018, to impose tariffs on solar panels and washing machines.
- In March 2018, tariffs were slapped on steel and aluminium.
- China, already facing allegations of dumping cheap metal across global markets, retaliated with duties on \$3 billion of U.S. products.
- By May 2018, these tariffs were applied toward the European Union (EU), Mexico and Canada, respectively at 25% for steel and 10% for aluminium.
- Canada immediately announced plans to impose counter-tariffs on U.S. products worth about \$13 billion, with Mexico and the EU following suit.
- While the U.S. tariffs were levied on raw materials used across the manufacturing, construction and oil industries, the EU, Mexico and Canada targeted consumer goods.
- It is important to note that the trade dispute between the U.S. and China now includes around 10,000 products of global trade.

Why did Mr. Trump impose tariffs on China?

- The American President is a long-time critic of the U.S.'s deficit with its trading partners and believes that countries such as China do not provide a level-playing field for free trade, especially denial of market access.
- There is also bipartisan consensus in the U.S. that Beijing has taken advantage of the American economy for decades, including by theft of intellectual property, leading to the loss of millions of jobs.

Rising U.S. Trade Deficit with China:

- The U.S. trade deficit with China has soared, rising from around \$100 billion in 2000 to \$419 billion in 2018.

- The Trump administration considers this a threat to economic, hence national, security.
- In fact, in addition to the tariffs, the White House has curtailed investment from Chinese entities and visas to Chinese nationals (such as researchers) — and these are directly aimed at curbing industrial espionage.
- The recent controversy over the arrest in Canada of Meng Wanzhou, CFO of China-owned telecommunications giant Huawei, the declaration of a national emergency for the telecommunications sector leading to a restriction on Chinese products in this area, **and the placement of Huawei on the infamous Entity List for import control**, hints at the level of anxiety that the Trump administration has over Chinese industrial spying.

Can tariffs address the deficit problem?

- There are structural reasons why the trade deficit may be hard to reverse.
- The U.S. earns a bulk of its net income from services, such as finance, travel and tourism, whereas China exports a far greater proportion of manufactured goods.
- Therefore, even if the intention behind the crackdown on Chinese trade practices is purposeful protectionism — shielding U.S. domestic industries from foreign competition — **it is unclear that the massive shifts in global supply chains required to achieve that goal will happen any time soon**, or produce the macroeconomic effects that Mr. Trump hopes they will.

How does the Trump model of ‘tariff economics’ work?

- Consider the example of Apple Inc. Apple has approximately 27 China-based suppliers, most of whom manufacture electrical components for the tech giant.
- If, through the imposition of tariffs on the products that these suppliers manufacture, the effective cost of production for Apple rises to an uneconomical level, Apple might be compelled to look elsewhere for those components.
- If many such companies are impacted, that could potentially damage China’s economy to the benefit of relatively low-cost economies.
- However, for this competitive tariff ‘model’ to work in reality, the cost of production would have to come down substantially in the U.S. too.
- Trump has tweeted that he would offer companies such as Apple “ZERO tax, and indeed a tax incentive,” were they to relocate their production facilities to the U.S.
- However, an important question arises: Would this suffice, given the relatively higher cost of labour and capital in the U.S.? Possibly not.

What has the economic impact of the tariffs been?

- It is important to note that higher tariffs have already had an impact on prices for American companies and individuals.

- The price of steel and washing machines, for example, has already spiralled upward in the U.S. since the trade war kicked off.
- Reports suggest China's retaliatory tariffs, and the resulting steep fall in demand for U.S. export products, have impacted everything from soybean from North Dakota to bourbon from Kentucky and fossil fuels, copper and wood.
- General Motors has cut jobs at assembly plants in the Midwest owing to hundreds of millions of dollars of additional cost associated with the tariffs.
- Simultaneously, stock markets have almost inevitably reacted badly to every new announcement of additional tariffs.
- For example, after the latest failure of bilateral negotiations in Washington, the Dow Jones Industrial Average saw its worst one-day performance in months.
- However, the impact that tariffs on Chinese have on overall inflation should not be exaggerated. According to reports, researchers at the Federal Reserve Bank of San Francisco have estimated that "China tariffs have added 0.1% to inflation for consumers and 0.3% for business investment goods".
- Similarly, it may be a while before the full, price-based impact on the Chinese economy is felt.
- A study by Syracuse University in the U.S. shows that for electronic and computer products, for example, "non-Chinese multinational corporations operating in China supply 87% of the products that will be affected by tariffs, while Chinese firms send only 13%".

How has corporate America responded?

- Apple Inc. fired off a letter to the Trump administration in September 2018 warning that the tariffs were likely to hit many of its core products, including watches, headphones, chargers and adapters.
- The company said to Robert Lighthizer, Mr. Trump's senior trade negotiator, "Our concern with these tariffs is that the U.S. will be hardest hit, and that will result in lower U.S. growth and competitiveness and higher prices for U.S. consumers."
- More broadly, while industry groups have generally cheered the White House for taking on China over trade secrets theft or deliberate market manipulations, the mounting costs of tariffs has taken a toll on their operations, leading executives such as Rick Helfenbein, CEO of the American Apparel & Footwear Association to describe **Trump's policies as a "self-inflicted wound that will be catastrophic for the nation's economy"**.

What has India's position been?

- While India had last year (2018) secured an exemption from the U.S. on steel and aluminium tariffs, the U.S. Trade Representative said in March 2019 that India would no longer be eligible for preferential market access to the U.S. under the Generalised System of Preferences programme.

- This meant New Delhi lost out on \$190 million per year in duty reductions.
- This comes on the back of repeated allusions by Mr. Trump to India's high tariff barriers, for example impacting Harley-Davidson motorcycles and medical devices.
- With an overall bilateral trade value of \$126.2 billion in 2017, the U.S.'s goods and services deficit with India was \$27.3 billion (2017).
- It is important to note that in June 2018, India joined the EU and other countries in imposing retaliatory duties to counter Washington's tariff on steel and aluminium.

When can we expect the dispute to be resolved?

- In 2018, at the G20 summit in Buenos Aires, Argentina, Mr. Trump called a "temporary truce" with President Xi Jinping of China after the bruising year-long trade battle between their countries.
- The agreement that they reached was effectively to pause the trade war and apply themselves toward agreeing a pact.
- However, it failed to produce any tangible progress.

Concluding Remarks:

- In May 2019, negotiators from the two countries met again in Washington, even as Mr. Trump proceeded with his latest round of tariff rate hike on \$200 billion of Chinese imports from 10% to 25%.
- Unsurprisingly, those talks did not make much headway either.
- A solution remains elusive for now.

Category: POLITY AND GOVERNANCE

1. What is India's stand on data storage?

Editorial Analysis:

Larger Background:

- Facebook's Mark Zuckerberg recently expressed apprehension about nations wanting to store data locally.
- According to him, it gave rise to possibilities where authoritarian governments would have access to data for possible misuse.
- In an earnings call with investors in late April 2019, he reiterated his stance against data localisation, without mentioning a country.
- Earlier that month, the U.S. criticised India's proposed norms on data localisation as 'most discriminatory' and 'trade-distortive'.
- It is important to note that India is at a juncture where various bills are ready to be

signed into law that will set data localisation and protection regulations in stone.

What is data localisation?

- Data localisation laws refer to regulations that dictate how data on a nation's citizens is collected, processed and stored inside the country.

Does it matter where data resides?

- Among reasons supporting data localisation put out by the **Justice Srikrishna Committee report** last year (2018), a few key ones are:
- Data localisation is critical for law enforcement.
- Access to data by Indian law agencies, in case of a breach or threat, cannot be dependent on the whims and fancies, nor on lengthy legal processes of another nation that hosts data generated in India.
- If data generated in India is stored in the U.S., for example, it is dependent on technology and channels such as the undersea fibre optic cable network.
- Such reliance can be debilitating in the case of a tech or physical breakdown.
- **The report recommends that hence, at least a copy of the data must be stored in India.**
- It is important to note that technology playfields are not even. A developing country such as India may be playing catch-up with a developed nation, which may be willing to offer liberal laws.
- **It may not be wise for India to have the liberal rules as other nations would.**
- A key observation of the report is that it is ideal to have the data stored only locally, without even having a copy abroad, in order to protect Indian data from foreign surveillance.

Does India have rules in place for data protection?

- Currently, the only mandatory rule on data localisation in India is by the Reserve Bank of India for payment systems.
- Other than this, there are only reports or drafts of bills that are yet to be signed into law.
- Among material available in the public domain on data localisation is the white paper that preceded the Justice Srikrishna Committee report, inviting public comments.
- The second piece is the **Draft Personal Data Protection Bill, 2018** itself which has specific requirements on cross-border data transfers. This is seen as being more restrictive than the recommendations of the Srikrishna Committee.
- The **draft e-commerce policy** also has clauses on cross-border data transfer. For example, it suggests that if a global entity's India subsidiary transfers Indian users' data to its parent, the same cannot be transferred to a third party even with the

user's consent.

Shouldn't the level of protection vary according to the nature of data?

- The Justice Srikrishna Committee report has made a point about not treating all data alike.
- The data protection bill too differentiates between 'critical' and other data.

Why are companies reluctant to comply?

- The disadvantage for a company compelled to localise data is obvious — costs, in the form of servers, the UPS, generators, cooling costs, building and personnel.
- **Companies feel that infrastructure in India is not yet ready to support this kind of ecosystem.**
- For any large e-commerce player in India, costs may go up between 10% and 50% depending on how stringently the final law is worded.
- The big daddies of e-commerce and social media may not find it too difficult to comply.
- However, small companies providing services in India will find compliance tough.
- In fact, one of the objectives of data localisation is to give a fillip to the start-up sector in India, but stringent norms can make it costly for small firms to comply thereby defeating this objective.
- While this places small entities in a difficult position, the spirit of the Justice Srikrishna Committee report seems to imply that this is not reason enough to avoid compliance.
- While granting that the data protection bill comes after a lot of homework, observers feel it is still not comparable to the **EU General Data Protection Regulation (GDPR)**, which took a few years to draft, adding scholarly and academic depth to the consultations, inputs and the final wording of the law.

Experience from other countries:

- It is well known that Canada and Australia protect their health data very carefully.
- Vietnam mandates one copy of data to be stored locally and for any company that collects user data to have a local office, unlike the EU's GDPR; citing national interests, China mandates strict data localisation in servers within its borders.
- **International reports refer to data protection laws in Vietnam and China as being similar, in that they were made not so much to protect individual rights as to allow government to control data.**
- For the EU, it is clear that customer is 'king'.
- Their GDPR is agnostic to technology and sector. Interestingly, the U.S. has no single data protection law at the Federal level. It does, however, have individual laws such as the HIPAA (Health Insurance Portability and Accountability Act of 1996) for health

care, another for payments, and the like. Brazil, Japan, Korea and New Zealand have put in place data protection laws.

- Chile has recently announced the setting up of an independent data protection authority, while Argentina is currently reforming its privacy legislation.

How has India's policy on data localisation been received globally?

- In September 2018, the EU had said in its response to India's data protection draft bill that **“data localisation requirements appear both unnecessary and potentially harmful as they would create unnecessary costs, difficulties and uncertainties that could hamper business and investments”**.
- It added that if implemented, “this kind of provision would also likely hinder data transfers and complicate the facilitation of commercial exchanges, including in the context of EU-India bilateral negotiations on a possible free trade agreement”.
- For companies from one country doing business in another, it becomes cumbersome to have two different compliance levels.

Category: ENVIRONMENT AND ECOLOGY

1. Climate risk protocols

Editorial Analysis:

Larger Background:

- On May 10, 2019, 20 institutional investors from 11 countries convened by the UN Environment Finance Initiative (UNEP FI) made public a report that helps investors understand how to calculate the risk companies face from climate change.
- There are key factors that have necessitated this new protocol, which is more like an investor guide.

What led to the investor guide?

- This guide was made in line with recommendations by the Task Force on Climate-related Financial Disclosures (TCFD), a board formed as a result of an agreement at a G20 summit in London, 2009.
- This board consisted of representatives from large banks, insurance companies, asset managers, pension funds, large non-financial companies, accounting and consulting firms, and credit rating agencies.
- The TCFD in 2017 developed voluntary, consistent climate-related financial risk disclosures for use by companies in providing information to stakeholders.

- To do that they considered the physical, liability and transition risks associated with climate change and what constitutes effective financial disclosures across industries.

Why is the report significant?

- It is important to note that climate change is already impacting economies around the world and this will continue to intensify.
- Extreme weather events, including floods, tropical cyclones, and extreme hot and cold days are already physically impacting business operations.
- Several reports by the **Intergovernmental Panel on Climate Change (IPCC)** warn of myriad risk to economies but so far there's been no specific assessment of how companies can account for such risks.
- Further, policy and technology shifts mean that emission-intensive companies — thermal power and mining, for instance — would become less competitive.
- These changes pose potentially unprecedented risks — and opportunities — to institutional investors and other financial institutions which are exposed to such businesses.

How was it compiled?

- The 20 institutional investors made up an Investor Pilot Group (IPG) and used a methodology developed by an analytics firm called Carbon Delta and the IPG to determine the risk to their portfolios.
- Each of the IPG members prepared scenarios, on how an average rise of global temperature by 1.5°C, 2°C, and 3°C respectively would impact the “portfolios” the companies they had invested in.
- This was intended as a pilot project and a model for other companies to account for the risk of climate change to their business activities.

What does the report find?

- Investors face as much as 13.16% of risk from the required transition to a low-carbon economy: The 1.5°C scenario, in line with the latest special report by the IPCC, exposes companies to a significant level of transition risk, affecting as much as 13.16% of overall portfolio value.
- Extrapolating this to the total assets under management (AUM) for the largest 500 investment managers in the world — \$81.2 trillion — would represent a value loss of \$10.7 trillion.
- **Utilities, transportation, agriculture as well as mining and petroleum refining sectors are at high levels of policy risk.**
- On the bright side, there were profits to be made too and the report said that there was potentially \$2.1 trillion as ‘green profits’ for the taking.
- However, green revenues generated from the sale of low carbon technologies, which

support the transition, will help companies offset costs from complying with greenhouse gas (GHG) reduction policies.

- It is important to note that low carbon technology opportunities help offset risk.
- Suitably mixing technology opportunities across a portfolio will alleviate losses generated under the 3°C, 2°C and 1.5°C policy scenarios and could mean portfolio benefits by 3.21%, 6.94%, and 10.74% under these scenarios.
- Finally, if governments delay action to enact climate policies that reduce greenhouse gas emissions, the 30,000 companies in the universe faced a further cost of \$1.2 trillion compared to a scenario where climate policy is enacted smoothly and steadily with immediate effect, the report added.

What necessitated these new protocols?

- Governments have long been collaborating with scientists who use computer models to forecast how warming will impact their economies.
- These same models, which have been the basis for inter-governmental negotiations on the greenhouse gas emission cuts they must undertake, are now being used by large companies to plan — and hedge — for the risks posed by climate change.

What is in it for India?

- India, in spite of being one of the top greenhouse gas emitters, finds no mention in this report. However, the guidelines proposed can — in theory at least — be adopted by any company based anywhere in the world.
- India has committed to reducing the emission intensity of its GDP by 33-35% below 2005 levels by 2030.

F. Tidbits

Nothing here for today!!!

G. Prelims Facts

Nothing here for today!!!

H. UPSC Prelims Practice Questions

Q1. Consider the following statements with respect to "Ultima Thule" that was in the news recently:

1. Ultima Thule is located in the Kuiper Belt, beyond the orbit of Neptune.

2. Ultima Thule belongs to a class of Kuiper belt objects called the "Cold Classicals," which have nearly circular orbits with low inclinations to the solar plane, and which have not been perturbed since their formation perhaps 4.6 billion years ago.

Which among the above statements is/are correct?

- a) 1 Only
- b) 2 Only
- c) Both 1 and 2
- d) Neither 1 nor 2

Answer: c

Explanation:

- Ultima Thule is located in the Kuiper Belt, beyond the orbit of Neptune.
- Ultima Thule belongs to a class of Kuiper belt objects called the "Cold Classicals," which have nearly circular orbits with low inclinations to the solar plane, and which have not been perturbed since their formation perhaps 4.6 billion years ago.
- Ultima Thule will be the most primitive planetary object yet explored, and will reveal to us what conditions were like in this distant part of the solar system as it condensed from the solar nebula.

Q2. Consider the following statements with reference to the 'Kuiper Belt':

1. The Kuiper Belt is a large region in the cold, outer reaches of our solar system beyond the orbit of Neptune, sometimes called the "third zone" of the solar system.
2. Some researchers prefer to call it the Trans-Neptunian Region, and refer to Kuiper Belt objects (KBOs) as trans-Neptunian objects, or TNOs.
3. Astronomers think the icy objects of the Kuiper Belt are remnants left over from the formation of the solar system. Similar to the relationship between the main asteroid belt and Jupiter, it's a region of objects that might have come together to form a planet had Neptune not been there. Instead, Neptune's gravity stirred up this region of space so much that the small, icy objects there weren't able to coalesce into a large planet.

Which among the above statements is/are incorrect?

- a) 1 and 2 Only
- b) 2 and 3 Only
- c) All 1, 2 and 3
- d) Neither 1 nor 2 nor 3

Answer: d

Explanation:

- The Kuiper Belt is a large region in the cold, outer reaches of our solar system beyond the orbit of Neptune, sometimes called the "third zone" of the solar system.
- The region is named for astronomer Gerard Kuiper.
- Some researchers prefer to call it the Trans-Neptunian Region, and refer to Kuiper Belt objects (KBOs) as trans-Neptunian objects, or TNOs.
- Astronomers think the icy objects of the Kuiper Belt are remnants left over from the formation of the solar system. Similar to the relationship between the main asteroid belt and Jupiter, it's a region of objects that might have come together to form a planet had Neptune not been there. Instead, Neptune's gravity stirred up this region of space so much that the small, icy objects there weren't able to coalesce into a large planet.

Q3. Consider the following statements:

1. DNA methylation is a process by which chemical changes occur to the DNA molecule.
2. DNA methylation also affects the functioning of the hypothalamus-pituitary axis, which is a complex set of interactions between the hypothalamus and the pituitary gland in the brain and the adrenal glands.

Which among the above statements is/are correct?

- a) 1 Only
- b) 2 Only
- c) Both 1 and 2
- d) Neither 1 nor 2

Answer: c

Explanation:

- DNA methylation is a process by which chemical changes occur to the DNA molecule.
- DNA methylation also affects the functioning of the hypothalamus-pituitary axis, which is a complex set of interactions between the hypothalamus and the pituitary gland in the brain and the adrenal glands.
- The hypothalamus-pituitary axis is a major neuroendocrine system that controls reactions to stress, regulates digestion, the immune system, mood and emotions, sexuality and energy storage and expenditure.

Q4. In which of the following states is the 'Pakke Tiger Reserve' located?

- a) Assam
- b) West Bengal
- c) Mizoram
- d) Arunachal Pradesh

Answer: d

Explanation:

The 'Pakke Tiger Reserve' is located in Arunachal Pradesh

H. UPSC Prelims Practice Questions

1. India is currently at a juncture where various bills are ready to be signed into law that will set data localisation and protection regulations in stone. Examine this development in light of Facebook's recently expressed apprehension about nations wanting to store data locally. (15 Marks, 250 Words)
2. Examine the role of the Election Commission of India in the conduct of free and fair elections in India. (15 Marks, 250 Words)

