31 Mar 2019: UPSC Exam Comprehensive News Analysis

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A. GS1 Related

Nothing here for today!!!

B. GS2 Related

Category: POLITY AND GOVERNANCE

1. J&K-Centre ties will snap if Article 370 goes: Mehbooba

Note to Students:

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- We at BYJU'S have done a detailed video based lecture on YouTube that covers the issue of Article 370 in detail. The link is as below:
- https://www.youtube.com/watch?v=j3-BtNYYvAI&t=1s

In this coverage of Article 370, we take into account another article which featured in the Hindu on the 28th of March, 2019 as well. The article is titled, "A blow against Article 370", and will give a deeper perspective on the issue.

Larger Background:

- The constitutional relationship between J&K and the Indian Union has been the subject of numerous discussions in recent times. This has rekindled the long-standing debate on the continued relevance of Article 370.
- As in Article 370, the provisions of the Indian Constitution do not automatically apply to J&K. To extend constitutional provisions and amendments to the State, a presidential order to that effect has to be passed.
- This order requires the concurrence of the State government, where the subject matter does not relate to the subjects specified in the Instrument of Accession (defence, external affairs, and communications). For other cases, only consultation is required.
- Accordingly, a 1954 presidential order extended various provisions of the Indian Constitution to J&K. This order was made with the concurrence of the State government and also ratified by the State Constituent Assembly.
- After the J&K Constitution came into effect in 1957, the State Constituent Assembly was dissolved. Since then, more than 40 such orders have been made, through which most constitutional provisions have been extended to the State.
- Some experts take the view that the sheer number of such orders, as well as the circumstances under which they were made, have considerably eroded J&K's special status under Article 370.
- Having said this, it is also important to note that the state of J&K is not unique; there are special provisions for several States which are listed in Article 371 and Articles 371-A to 371-I.

A gradual decline: Different Stages of dilution

1. First Stage of Dilution

- From the 1950s there has been a gradual dilution of the procedural norms followed by these presidential orders.
- In passing the 1954 order, procedural propriety was followed in the fullest possible sense as the requisite concurrence was obtained not only from an elected State government but also the State Constituent Assembly.
- The presidential orders made after the dissolution of the State Constituent Assembly — except a 1986 order extending Article 249, and the present 2019 order — can be seen as the first level of dilution.
- This is so because for all these orders, while the concurrence of an elected State government was obtained, the State Constituent Assembly did not exist and, therefore, could not give its ratification.
- Further, although the Supreme Court upheld this practice in the Sampat Prakash case (1968), it has been criticised as being beyond the scope of Article 370.

2. Second Stage of Dilution

- The 1986 order represents a second level of dilution.
- This is because it was made when J&K was under Governor's rule as per Section 92 of the J&K Constitution.

- In the absence of an elected council of ministers, the Governor could not have validly given the requisite concurrence to the presidential order.
- It is important to note that even if the Governor acting without a popularly elected government can be considered as a “state government” for the purposes of concurrence, the Governor must at least have had some nexus with the State and some independence from the Centre.
- However, this is not the case in practice, since the Governor is not only an unelected nominee of the Central Government but also holds office during the latter’s pleasure. Not surprisingly, the 1986 order was challenged in the J&K High Court; it is still pending.

3. Third Stage of Dilution

- Some experts point out that if the 1986 order was problematic, the third level of dilution brought about by the 2019 order is almost the final blow.
- In December 2018, the President assumed all the functions of the State government and the Governor through a proclamation under Article 356.
- In an order passed on the same day, the President directed that all powers assumed by him would be exercisable by the Governor as well, “subject to the superintendence, direction, and control of the President”.
- This is the main point of distinction between the 1986 and 2019 orders.
- During Governor’s rule, as was the case in 1986, the Governor is at least on paper expected to act independently.
- However, in the present case involving President’s rule, the Governor is reduced to a mere delegate of the Centre and is expected to act as per the aid and advice of the Central Government.
- Some critics have opined that a presidential order made through obtaining such a Governor’s concurrence is tantamount to the Centre talking into a mirror and makes a mockery of Article 370.

What’s in the news?

- Hitting back at Finance Minister Arun Jaitley for advocating repeal of special status for Jammu and Kashmir, PDP president Mehbooba Mufti said on 30th of March, 2019, the relationship between the Union and the State would be over if Article 370 of the Constitution is revoked.

Context:

- Jaitley had on 28th March, 2019, advocated repeal of J&K’s special status and said Article 35A, which restricts non-permanent residents from buying property in the State, is “constitutionally vulnerable” and was hampering economic development of the State.

Reaction by PDP president Mehbooba Mufti:

- “Jaitley must understand this. It is not an easy thing to say. If you scrap (Article) 370, your relation with Jammu and Kashmir will be over,” Ms. Mufti said while speaking to party workers at her residence in Srinagar.
- The former Chief Minister said Article 370 was a bridge between the Union and the State and if the special provision of the Constitution was revoked, then New Delhi would have to “renegotiate” its relationship with J&K.

Rethink on union:

- If Article 370 is revoked, Jammu and Kashmir would have to rethink whether it wanted to stay with India, she said. “Because if you have given us a special position in the Constitution of India and you break that, then we will have to rethink whether we would even want to stay with you without conditions,” she said.

Category: INTERNATIONAL RELATIONS

1. Australia to toughen laws on social media

What’s in the news?

- Australia pledged on 30th March, 2019 to introduce new laws that could see social media executives jailed and tech giants fined billions for failing to remove extremist material from their platforms.
- "Big social media companies have a responsibility to take every possible action to ensure their technology products are not exploited by murderous terrorists," Prime Minister Scott Morrison said in a statement.

A Look at Specifics:

- The tough new legislation will be brought to Parliament next week as Canberra pushes for social media companies to prevent their platforms from being "weaponised" by terrorists in the wake of the Christchurch mosque attacks.
- Facebook said it "quickly" removed a staggering 1.5 million videos of the white supremacist massacre livestreamed on the social media platform. A 17-minute video of the March 15, 2019 rampage that claimed the lives of 50 people was widely available online and experts said it was easily retrievable several hours after the attack.
- Morrison, who met with a number of tech firms recently said that Australia would encourage other G20 nations to hold social media firms to account.
- Attorney-General Christian Porter said the new laws would make it a criminal offence for platforms not to "expeditiously" take down "abhorrent violent material" like terror attacks, murder or rape.
- Executives could face up to three years in prison for failing to do so, he added, while social media platforms would face fines of up to 10% of their annual turnover.
- "Mainstream media that broadcast such material would be putting their licence at risk and there is no reason why social media platforms should be treated any differently," Mr. Porter said.
- The government was so far "underwhelmed" by the response from tech giants at their recent meeting with Mr. Morrison, Communications Minister Mitch Fifield told reporters.

2. Trump 'told' Kim to ship n-weapons to U.S.

What's in the news?

- On the day that their talks in Hanoi collapsed last month (February, 2019), U.S. President Donald Trump handed North Korean leader Kim Jong-un a piece of paper that included a blunt call for the transfer of Pyongyang's nuclear weapons and bomb fuel to the United States, according to the document.
- Trump gave Mr. Kim both Korean and English-language versions of the U.S. position at Hanoi's Metropole hotel on February 28, 2019, according to a source familiar with the discussions.
- It was the first time that Mr. Trump himself had explicitly defined what he meant by denuclearisation directly to Mr. Kim, the source said.

An Abrupt end to the Summit:

- A lunch between the two leaders was cancelled the same day. While neither side has presented a complete account of why the summit collapsed, the document may help explain it.
- The document's existence was first mentioned by White House National Security Adviser John Bolton in television interviews he gave after the two-day summit.
- Bolton did not disclose in those interviews the pivotal U.S. expectation contained in the document that North Korea should transfer its nuclear weapons and fissile material to the U.S.
- The document appeared to represent Mr. Bolton's long-held and hard-line **"Libya model"** of denuclearisation that North Korea has rejected repeatedly.
- It probably would have been seen by Mr. Kim as insulting and provocative, analysts said.
- Trump had previously distanced himself in public comments from Mr. Bolton's approach and said a "Libya model" would be employed only if a deal could not be reached.
- The idea of North Korea handing over its weapons was first proposed by Mr. Bolton in 2004. He revived the proposal last year (2018), when Mr. Trump named him as National Security Adviser.

What was the document meant to do?

- The document was meant to provide the North Koreans with a clear and concise definition of what the U.S. meant by "final, fully verifiable, denuclearisation," a source familiar with discussions said.

- As a matter of fact, after the summit, a North Korean official accused Mr. Bolton and Secretary of State Mike Pompeo of "gangster-like" demands, saying Pyongyang was considering suspending talks with the U.S. and may rethink its self-imposed ban on missile and nuclear tests.
- The English version of the document called for "fully dismantling North Korea's nuclear infrastructure, chemical and biological warfare programme and related dual-use capabilities; and ballistic missiles, launchers, and associated facilities."
- Aside from the call for the transfer of Pyongyang's nuclear weapons and bomb fuel, the document had four other key points.
- It called on North Korea to

1. provide a comprehensive declaration of its nuclear programme and full access to U.S. and international inspectors;
2. to halt all related activities and construction of any new facilities;
3. to eliminate all nuclear infrastructure; and
4. to transition all nuclear programme scientists and technicians to commercial activities.

The summit in Vietnam's capital was cut short after Mr. Trump and Mr. Kim failed to reach a deal on the extent of economic sanctions relief for North Korea in exchange for its steps to give up its nuclear programme.

3. Iran seeks improved trade ties with India amid sanctions

Note to Students:

- The points outlined below are from perspectives given by Hamid Reza Fouladgar, head of the seven-member Parliamentary delegation from Iran that is visiting India to improve bilateral ties.

What's in the news?

- Amid U.S. sanctions, Iran is exploring ways to increase its bilateral trade with India, including expanding banking channels.
- However, having said that "Only one bank (UCO Bank) has business relationship with Iran. We need to expand that," said Hamid Reza Fouladgar, head of the seven-member Parliamentary delegation from Iran that is visiting India to improve bilateral ties.
- "There is need to sign free trade agreements with India to reduce customs and tariffs on both sides to improve bilateral trade," he added.
- "The volume of trade between Iran and India stands between $10 billion and $13 billion, which has tremendous potential for improvement.
- "The Iranian Parliament recently ratified an agreement to avoid double taxation between Iran and India," he said.
- Talking about U.S. sanctions, Mr. Fouladgar said, "We are paying the price for our freedom in the form of restrictions and sanctions. This is in spite of the fact that we have fulfilled all our commitments towards the nuclear deal. However, the U.S. continues not to fulfil its commitment.
- "The IAEA [International Atomic Energy Agency] had inspected our facilities 14 times and agreed that Iran had fulfilled all its commitments towards the nuclear deal but the U.S. is now putting pressure on Iran in the name of human rights violations."

Perspective on the Chabahar Port:

- Early this year (2018), India had taken over operations of the strategic Chabahar in Iran opening a new strategic route connecting Iran, India, and Afghanistan, bypassing Pakistan.
- "The Chabahar Port will be helpful for India to access central and west Asia. With Chabahar Port, India and Iran can start luxury ships for tourism, which will take 72 hours. It's a very inexpensive route compared to [doing it by air]. Chabahar is connected to Tehran through rail. There is a plan to introduce a special tourist train throughout Iran," Mr. Fouladgar added.
- To boost tourism, Iran had started offering stapled visas and e-visas to Indians.

C. GS3 Related

Category: INDIAN ECONOMY

1. Most anti-cancer drugs costly despite price cap, says AIDAN

What's in the news?

- Despite price capping of 42 anti-cancer drugs by the government recently, "most cancer medicines still remain unaffordable to most Indians because there is no curb on profiteering by pharma manufacturers," the All India Drug Action Network (AIDAN), a non-government organisation, said in a release on the 30th of March, 2019.
- AIDAN works towards increasing access to essential medicines and promoting their rational use.

Context:

- The release stated that the "formula for price capping itself was developed by the Standing Committee for Affordable Medicines and Health Products, chaired by Niti Aayog, which is not equipped with the technical expertise housed at the National Pharmaceutical Pricing Authority (NPPA) nor the data for analysing and designing a methodology to cap margins. It was unfortunately accepted by the NPPA without further due diligence."

What do the experts say?

- Some experts point out that the formula does not disturb the margins of companies before the medicines reach the stockist. They add that capping of margins should begin from the cost price plus manufacturer's margin, or the landed cost, whichever is applicable.
- Others say that the uniform ceiling price caps for life-saving medicines are much more effective. They add that given the wide variation in prices and the extremely high prices of some medicines, graded margin capping should have been implemented.

Concluding Remarks:

- The release said that after the current exercise, there are wide variations in the prices of different brands of the same medicine.
- "Giving examples of the high prices of drugs, the release said that a strip of 5 mg tablets of Axitinib, used to treat kidney cancer, cost ₹41,737. A 50 ml bottle of Cetuximab, used to treat head, colon, rectum and neck cancer cost ₹94,544.

2. GSP withdrawal by U.S. likely to affect India's plastics exports: Plexconcil

Larger Background:

- Recently, U.S. President Donald Trump decided to rescind the benefits Indian exports enjoy under the Generalised System of Preferences (GSP) programme.

Note to Students:

1. We at BYJU'S have covered the issue on the Generalised System of Preferences (GSP) programme in considerable detail in our YouTube based video lecture as available on the below link:

https://www.youtube.com/watch?v=WpJhyxHG-EU

A Brief Look at the Recent Past:

- India-U.S. trade tensions escalated in the year 2018 when the U.S. took two consecutive decisions to increase import tariffs on steel and aluminium, and place India's eligibility for GSP benefits under review.
- As a matter of fact, shortly after, India said it would impose retaliatory tariffs on imports from the U.S. and even notified the list of items on which these would apply.
- Meanwhile, the U.S. stood fast on not exempting India from its tariff hikes, with Mr. Trump complaining about India's high import tariffs several times.
- The GSP review, however, stretched on, with the two countries holding frequent talks to address the concerns.

- India, for its part, postponed the deadline for the imposition of the retaliatory tariffs six times.

What prompted the U.S. to review India's GSP status?

- Washington's decision to review India's GSP status stemmed from complaints from American medical and dairy industries, both of which said India was not providing "equitable and reasonable access to its market".
- India has said it had tried hard to cater to most of the U.S. demands and reach an understanding, but key points of difference, especially regarding India's cultural concerns to do with dairy products, could not be accommodated.
- Given this, and the fact that the U.S. has been expressing discontent over India's policies to do with data localisation and FDI rules in e-commerce, the decision to withdraw the GSP status should not come as a surprise. The question is, how will New Delhi react?

Reaction by the Government of India:

- Following the U.S. announcement, the Commerce Ministry of the Government of India, was quick to downplay the impact, saying that the GSP benefits amounted to only $190 million, while India's total exports under GSP to the U.S. stood at $5.6 billion.
- It is also important to note that Indian officials have stressed that talks on the issue would still continue during the 60-day period after which the GSP decision would come into effect.

What's in the news?

- The move by the United States (U.S.) to terminate India's designation as beneficiary developing country under the Generalized System of Preferences (GSP) programme because it no longer complied with the statutory eligibility criteria, **is likely to affect plastic exports from India said a trade body.**
- "At the Plastic Export Promotion Council (Plexconcil), we conducted an analysis and found that in India's case, the GSP concessions extended by the U.S. amounted to a duty reduction of $30 million per annum on imports of plastic products worth $600 million for the period January to December 2018," said Ravish Kamath, chairman, Plexconcil.
- He said some of the product segments which may face a decline in exports to U.S. due to withdrawal of GSP concessions include plastics raw materials, consumer and houseware items and polyester films.
- Sribash Dasmohapatra, executive director, Plexconcil said, "We feel that the withdrawal of GSP benefits would negatively impact the exports of Plexconcil member-exporters to the U.S. and we have requested the Union Commerce Ministry to engage in discussions with the U.S. to allow continuation of GSP and or incentivise exporters through some other measure as they may deem appropriate."

Trade surplus for India

- In 2018, India and the U.S. reported a bilateral trade (only merchandise goods) worth $84.9 billion, up 20% from the previous year.
- The trade was in favour of India, which reported a surplus of $17.9 billion during 2018, down 15.1% from $21.1 billion a year earlier.
- Peeved by the fact that India and some other countries were enjoying a trade surplus with U.S. without giving an 'equal access' to American goods in their respective countries, the Office of the United States Trade Representative on March 4, 2019 issued a press release stating that United States would terminate India's designation as beneficiary developing country under the GSP programme because it no longer complied with the statutory eligibility criteria.
- Under the GSP programme, certain products could enter the U.S. duty-free if beneficiary developing countries met the eligibility criteria established by the Congress.
- According to the United States Trade Representative (USTR), the total U.S. imports under GSP in 2017 was $21.2 billion, of which India was the biggest beneficiary with $5.6 billion.

Category: SCIENCE AND TECHNOLOGY

1. Navy inducts indigenous transport ship

What's in the news?

- The sixth indigenously designed and built transport ship, LCU L56, has been inducted into the Navy, the Defence Ministry said on 30th of March, 2019.

How will this help?

- Amphibious operations capability, including transport of troops and equipment, will be enhanced with the addition of this Landing Craft Utility ship.

Specifics of the Warship:

- The warship was built and designed by Garden Reach Shipbuilders & Engineers Limited (GRSE), Kolkata. The LCU was GRSE's 100th warship.
- The ship can accommodate 216 personnel and is equipped with two indigenous CRN 91 guns, read a statement by GRSE.
- "The LCU is 63-metre-long and 11-metre-wide and has a displacement of 830 T with a low draught of 1.7 m. It can achieve a speed of 15 knots. The ship is fitted with the state-of-the-art equipment and advanced systems such as Integrated Bridge System (IBS) and Integrated Platform Management System," read the statement.
- GRSE has emerged the first Indian shipyard to make and deliver 100 warships to the Indian Navy, Indian Coast Guard and Mauritius Coast Guard.

2. Nanomagnet assembly to make up efficient logic gate

What's in the news?

- Recently, a group at Indian Institute of Technology (IIT) Hyderabad has proposed a novel design methodology for constructing an adder logic gate using nanomagnets from magnetic quantum dot cellular automata.

Why is this significant?

- At a stage when conventional CMOS (Complementary metal oxide semiconductor) devices are approaching a saturation in terms of power efficiency, this comes as an effective step towards a complementary approach.
- It is important to note that AI applications such as speech and face recognition, used for instance in self-driving cars, require 3D cameras and real-time processing.
- These are computation-intensive and in dire need of efficient solutions.
- This technology is a complementary solution to CMOS devices in this, being both power efficient and non-volatile.

A Look at Some Specifics:

- In a paper published in IEEE Transactions in Nanotechnology, the group shows how modifying the shape and alignment of the nanomagnet assembly can improve earlier models of such adders.
- Santhosh Sivasubramani, research scholar and the first author of the paper, explains the advantage: Power dissipation in CMOS logic circuits can be divided into dynamic and static dissipation.
- The former is caused by on-currents passing through the CMOS logic gates due to logic operations, and the latter by leakage currents in the CMOS gates even during standby mode in which no logical operations are executed.
- If the system is turned off, it loses its state data; however, in nanomagnetic computing, it possess the property of non-volatility. "Dramatic reductions in power consumption are possible in magnetic chips down to as little as one-millionth the amount of energy per operation used by transistors in modern computers," he says.

Perspective on Graphene:

- Initially, around year 2000, copper wires were used in the circuit along with the nanomagnets.
- However, the size of these wires were large compared with the nanomagnets.

- This group, under the leadership of Amit Acharyya from Department of Electrical Engineering, IIT Hyderabad, tried and succeeded in using graphene wires which circumvented this problem. “Now, to make the logic gates, we are proposing nanomagnets with special shape and alignment,” says Dr. Acharyya.
- To obtain a MQCA (Magnetic Quantum-dot Cellular Automata) circuit that performs a logic operation, such as addition, normally three oval nanomagnets need to be used for input and one for output.
- Further, the input nanomagnets need to be driven by an external driver magnet.
- The two techniques the team advocates are using slant-edged nanomagnets (which are rectangular in shape but with a slant cut at one corner) and also those that are aligned at 45 degree angle with respect to the other nanomagnets used.
- This drastically reduces the number of nanomagnets needed and also the power consumption. “We already have undertaken the work on getting 32-bit and 64-bit adder circuits developed using this proposed concept so that larger circuits implementation will become feasible,” says Dr. Acharyya.

3. Saturn’s tiny moons

What’s in the news?

- New analysis of observations by Saturn mission, Cassini spacecraft in its close flyby show interesting sides to the five tiny moons embedded among its rings.
- These are covered with material from the planet’s rings as well as icy particles blasting from Enceladus, its large moon.

What does this imply?

- This hints at competing processes shaping these tiny moons, researchers from NASA say.

Few More Noteworthy Points:

- While humans have known about Saturn since ancient times, knowledge of these inner moons—known as Pan, Daphnis, Atlas, Pandora, and Epimetheus— is relatively modern.
- Pan, for example, was discovered in 1985, while Daphnis only dates back to 2005.
- The Cassini spacecraft discovered several of those moons.
- And when the spacecraft’s 19-year mission ended in 2017, NASA destroyed the beloved craft through the “Grand Finale,” in which Cassini plummeted into Saturn’s atmosphere via a carefully chosen route that would not disrupt any of the planet’s moons.
- The route allowed for an unprecedented look at these inner moons, too, using Cassini’s Visible and Infrared Mapping Spectrometer (VIMS).

4. IIT Madras converts petroleum waste toluene into useful product

What’s in the news?

- Using platinum nanocatalyst, a two-member team at the Indian Institute of Technology (IIT) Madras has successfully converted petroleum waste-product toluene into benzoic acid.

Analysis:

- It is important to note that Benzoic acid is used as a food preservative (E210) and medicine for fungal/bacterial infection.
- Toluene is converted into benzoic acid through selective and controlled oxidation in the presence of a catalyst — binaphthyl-stabilised platinum nanoparticles (Pt-BNP).
- Generally, organic reactions are carried out using organic solvents, which makes it expensive and also generates toxic waste.
- Hence, in a departure from current practice, the team led by G. Sekar from the institute’s Department of Chemistry has used water as solvent to make it environment-friendly. Also, a green oxidant (70% aqueous tert-butyl hydroperoxide or TBHP) is used for converting toluene into benzoic acid.
- “When toluene is oxidised, it gives four products. But when we use the catalyst that we developed, only benzoic acid is produced. No alcohol, aldehyde or ester is produced,” says Prof. Sekar.

- The yield of benzoic acid varied from 68-96% depending on whether the toluene used is electron-deficient or electron-rich. The results of the study were published in the journal Applied Catalysis B: Environmental.

A Look at the catalysts the team developed:

- Central to the work is the novel catalysts that the team developed.
- Generally, platinum nanoparticles are not stable in nature as they tend to agglomerate and become macroparticles.
- The catalytic activity is reduced once it becomes macroparticles.
- The binaphthyl that is bound to platinum nanoparticles acts as a stabiliser and prevents nanoparticle agglomeration.
- "Binaphthyl bound to platinum nanoparticles makes the catalyst easy to handle and stable. It is the stability of the catalyst to remain as nanoparticles that allows us to recover it and reuse the catalyst up to five times," says Prof. Sekar.
- **There was no change in the size of the catalyst even after being reused five times.**
- Toluene when oxidised gets converted into benzoic acid. Molecular oxygen when used alone does not oxidise toluene and so no benzoic acid is generated. So the researchers used TBHP as an oxidiser.
- "The catalyst reacts with TBHP to initiate the oxidisation reaction where toluene gets converted into benzoic acid through a series of reaction steps," says Rajib Saha, a PhD student at IIT Madras and co-author of the paper.

Concluding Remarks:

- When used alone, a large quantity (four parts of TBHP to 1 part of toluene) of TBHP would be required for the conversion, which will not be economically favourable. In order to reduce the amount of TBHP used, the researchers also used molecular oxygen.
- "In the presence of molecular oxygen, only two parts of TBHP are needed for the conversion. So molecular oxygen behaves as a co-oxidiser," says Prof. Sekar. "Molecular oxygen is cheap, so using it along with TBHP helps in reducing the cost." The use of TBHP along with molecular oxygen also increased the yield of benzoic acid.

Category: ENVIRONMENT AND ECOLOGY

1. Climate change may hit India's wind power

What's in the news?

- Experts have pointed out that increased warming in the Indian Ocean and the resultant weakening of the Indian summer monsoon may come in the way of India's goal of leading the world's wind power generation.

A Look at Specifics:

- Analyzing the available wind and atmospheric data from 1980-2016, researchers from Harvard University, U.S., and National Climate Center in Beijing, China, found the potential electricity production of windmills across India had decreased by about 13%. And this trend might continue.
- However, researchers in India have raised doubts about the results of the study.
- "The data used by the team does not correlate with the live data we have. We have started additional studies to validate these results and will publish the findings soon," says Dr. K. Balaraman, Director General, National Institute of Wind Energy, Chennai, under the Government's Ministry of New and Renewable Energy.
- In the paper published last December (2018) in Science Advances, the researchers showed a decline in electricity production in the States of Rajasthan, Maharashtra, Gujarat, and Karnataka.
- No significant decline was seen in Tamil Nadu, which is located on the east coast and, thus, had different wind conditions during summer.

Long-term goals:

- "The government could concentrate on setting up more projects in this region [Tamil Nadu] as the lifetime of wind turbines is 20 to 30 years. We need to look at long-term goals," says Meng Gao, a postdoctoral

fellow at the School of Engineering and Applied Sciences, Harvard University and the first author of the study.

- The researchers showed that 63% of the annual production of electricity from wind is contributed by winds in spring (March-May) and summer (June-August).
- Interestingly, they found a decrease in wind power during these months. This could be due to the weakening of the Indian summer monsoon during this period.

Perspective on Summer winds:

- Summer winds in India are driven by the temperature contrast between the Indian subcontinent and the Indian Ocean, and the warming in the Indian Ocean reduced this contrast.
- Also, warming of the Equatorial Indian Ocean resulted in a decline in the wind speed.
- The Indian government has set a target of 60 GW of cumulative wind power capacity by 2022.
- The researchers say that this goal can be beneficial only if planners in India take these historical reconstructions into account while setting up wind power installations in the future.
- "Our findings can provide suggestions on where to build more wind turbines to minimise the influences of climate change," said Prof. Michael B. McElroy, from the School of Engineering and Applied Sciences, Harvard University and senior author of the study in a release.

D. GS4 Related

Nothing here for today!!!

E. Editorials

Category: POLITY AND GOVERNANCE

1. Will VVPAT silence those sceptical of EVMs?

What's in the news?

- The Election Commission indicated to the Supreme Court on 29th March, 2019, that if the 50% Voter Verified Paper Audit Trail (VVPAT) slip verification is carried out, it will delay counting by six days.
- Twenty-one Opposition parties had moved the Supreme Court against the EC's guideline that VVPAT counting would take place only in one polling station in each Assembly segment in the coming Lok Sabha election.

What is the VVPAT and how does it function?

- The Voter Verifiable Paper Audit Trail device is an add-on connected to the Electronic Voting Machine.
- It allows voters to verify if their vote has indeed gone to the intended candidate by leaving a paper trail of the vote cast.
- After the voter casts his or her mandate by pressing a button related on the ballot machine (next to the symbol of the chosen party), the VVPAT connected to it prints a slip containing the poll symbol and the name of the candidate.
- The slip is visible to the voter from a glass case in the VVPAT for a total of seven seconds and the voter can verify if the mandate that s/he has cast has been registered correctly.
- After this time, it is cut and dropped into the drop box in the VVPAT and a beep is heard, indicating the vote has been recorded.
- Prior to voting, the VVPAT unit is calibrated to ensure that the button pressed on the ballot unit of the EVM is reflected correctly on the printed slips by the VVPAT.
- The presence of the slips that correspond to voter choice on the EVM helps retain a paper trail for the votes and makes it possible for the returning officer to corroborate machine readings of the vote.
- The VVPAT machines can be accessed only by polling officers.
- The units are sealed and can be opened during counting by the returning officer if there's a contingency.
- The VVPAT has been a universal presence in all EVMs in the Assembly elections from mid-2017. Only a few VVPAT machines are tallied to account for the accuracy of the EVM.

- Currently slips in one randomly chosen VVPAT machine per Assembly constituency are counted manually to tally with the EVM generated count.
- The EC has stated that VVPAT recounts have recorded 100% accuracy wherever it has been deployed in Assembly elections.

Why is the VVPAT necessary?

- The EC began to introduce EVMs on an experimental basis in 1998, and it was deployed across all State elections after 2001.
- EVMs have made a significant impact on Indian elections.
- Prior to the deployment of EVMs, elections were held with ballot papers.
- In some States, the election process was vitiated by rigging, stuffing of ballot boxes and intimidation of voters.
- Besides this, ballot paper-based voting resulted in the casting of a high number of invalid votes — voters wrongly registering their choices instead of placing seals, and so on.
- The EVMs allowed for elimination of invalid votes as the voting process was made easier — registering the vote by pressing a button.
- It also allowed for a quicker and easier tallying of votes.
- Cumulatively, the tallying and elimination of invalid votes reduced the scope for human error.
- Secondly, the EVMs made it difficult to commit malpractices as they allowed for only five votes to be registered every minute, discouraging mass rigging of the scale that was seen in earlier days when ballot papers were used.
- That said, there have been questions raised about the security of the EVMs and whether they can be manipulated and tampered with.
- The EC has addressed the possibility of tampering by gradually introducing newer security and monitoring features, upgrading EVMs with technological features that allow for dynamic coding and time-stamping of operations on ballot units and later, features such as tamper-detection and self-diagnostics.
- Furthermore, there are administrative steps that prevent EVMs from being stolen and tampered with.
- The introduction of the VVPAT adds another layer of accountability to the electoral process. The recount rules out any EVM tampering, despite the safeguards, through an “insider fraud” by EC officials or EVM manufacturers.

What problems have been encountered?

- In the initial phase of VVPAT implementation in the Lok Sabha by-elections in States such as Uttar Pradesh, Bihar and Maharashtra and the Assembly election in Karnataka, there was a high rate of failure of VVPAT machines due to manufacturing glitches.
- In the Lok Sabha by-elections in 2017, the rate of VVPAT replacement, owing to glitches, was more than 15%, higher than the acceptable rates of failure (1-2%).
- In Karnataka, the failure and replacement rate was 4.3%.
- Coincidentally, the failure rate of the EVM unit (excluding the VVPAT) was very low.
- These glitches also caused severe disruptions to polling.
- To account for failure rates, the EC has tried to provide back-up machines to allow for swift replacement.
- The EC admitted later that the machines had high failure rates owing to hardware issues that occurred during the transport of EVMs and their exposure to extreme weather conditions.
- It sought to correct these problems by repairing components related to the printing spool of the VVPAT machines.
- The deployment of many corrected machines in the Assembly elections held recently in Madhya Pradesh, Rajasthan and Chhattisgarh resulted in much reduced replacement rates (close to 2.5% in Madhya Pradesh and 1.9% in Chhattisgarh).
- This suggests that the EC is relatively better prepared to handle VVPAT-related glitches in the upcoming Lok Sabha election, where the VVPATs will be deployed in nearly 10.5 lakh polling stations nationwide.

Is the current rate of VVPAT recounts enough?

- Political parties, primarily of the Opposition, have demanded a greater VVPAT recount than the one booth per Assembly/Lok Sabha constituency rule that is now in place.
- The EC responded to a plea by the Opposition parties in the Supreme Court that there was a need for 50% VVPAT recount, saying such an exercise would delay the counting by six days.
- Statistically speaking, it does not require a 50% sample to adequately match VVPAT tallies with those of EVMs.
- The Indian Statistical Institute, Kolkata, has presented a report on possible and appropriate VVPAT counts to the EC, in which it said a sample verification of 479 EVMs and VVPATs of a total 10.35 lakh machines would bring the level of confidence in the process to 99.9936%.
- The logic behind counting only one booth per constituency in each State stems from the understanding that there are nearly 10.35 lakh polling stations and 4,125 Assembly constituencies in the country.
- By counting the slips in at least one VVPAT in each Assembly constituency, the EC argues, a relatively high sample size of the EVMs (0.5%) is verified.
- Critics have argued that this sample size is not enough to statistically select a potentially tampered EVM within a high confidence level and adjusting for a small margin of error (less than 2%) as the unit of selection must be EVMs in each State rather than the entire country as a whole.

Concluding Remarks:

- One suggestion, by the former bureaucrat Ashok Vardhan Shetty, is for adjusting the VVPAT counting process to factor in the size of the State, population of the constituency and turnout to account for a higher confidence level and a low margin of error.
- This would entail the certain tallying of more than one VVPAT per constituency, in fact close to 30 per constituency in smaller States and less than five per constituency for larger States.
- The Supreme Court has said the EC must increase the VVPAT count to more than the current number.

Category: INDIAN ECONOMY

1. Bringing Nirav back

A Brief Look at Specifics:

- The long-awaited push by India to extradite Nirav Modi — the key accused in the Punjab National Bank fraud case — kicked off last week.
- Things didn't go quite according to plan: Mr. Modi's legal team had been in talks with the Metropolitan Police's extradition unit and he was to hand himself over as part of a voluntary process this week.
- However, he was arrested recently after an Indian-origin clerk at a bank in central London recognised him and alerted the police, pushing things forward unexpectedly.

What happened to his bail plea?

- He has twice been denied bail following hearings at Westminster Magistrates Court — most recently on 29th March, 2019.
- This came despite assurances such as £1 million in security, an offer to wear an electronic tag and his defence team's insistence that he saw London as a "haven" which he had no intention of fleeing.
- Chief Magistrate Emma Arbuthnot said there was a risk he would fail to surrender to the court and pointed to the large amount involved in the alleged fraud ($1-2 billion), as well as his attempts to move elsewhere — including by seeking citizenship in the South Pacific island of Vanuatu.
- She acknowledged that there were "inconsistencies" in some of the witness accounts against him but did not believe these were enough grounds to override cause for concern.

What happens next?

- Modi will remain in prison — for now HM Wandsworth, one of Western Europe's biggest prisons.
- He will appear through videolink for a brief technical hearing on April 26, 2019.
- The prosecution has until May 24, 2019 to present the papers, which will be followed by further time for the defence to present theirs.

- Modi can appeal the bail ruling to a higher court, parallel to the extradition proceedings. Moving to the main extradition trial at Westminster Magistrates Court could take months: with Vijay Mallya, the case management hearings began in June 2017 after his arrest in April, while the trial began in December, 2018.

Are there lessons from the Mallya case?

- The Mallya case had been cast as a watershed moment for the way in which Indian authorities worked with Britain on extradition.
- That case was meant to have honed India's understanding of the system and the standards, documentation and evidence that were expected in such cases.
- However, that it still needs improvements became quickly evident on 29th March, 2019 as the judge and defence lawyer made sharply worded criticism of the state of the papers — in particular the numbering and indexing — with the judge insisting on the presentation of "clean" papers henceforth.

What are the differences?

- While Mr. Mallya maintained a high profile before the start of proceedings here and owned property in the U.K., the prosecution positioned Mr. Modi as being uncooperative with authorities. They allege that he had attempted to bribe and threatened to kill a witness and applied pressure on others, and contested the defence's suggestion that he had never left the country since the scandal broke, pointing to a trip to the U.S. they said he made this February. The judge herself described the allegations of witness intimidation and attempts to destroy evidence (including a phone and a server) as "very unusual" in a fraud case.

How will the case proceed?

- Barrister Toby Cadman, acting for the Crown Prosecution Service, who is representing India, told the court that Mr. Modi was wanted in India on charges of fraud and money laundering.
- Under dual criminality requirements in the U.K.-India extradition treaty, an extradition offence must be punishable by at least 1 year in prison under both countries' legal systems.
- However, the treaty states that extradition may be refused if the offence is of a "political character" and this could come into play and be invoked by the defence team as it was in the Mallya case.
- As the defence's bail arguments also made plain, they are likely to point to the inconsistencies in witness accounts and challenge the idea of a systematic and deliberate attempt to defraud the bank through letters of undertaking.

F. Tidbits

Nothing here for today!!!

G. Prelims Facts

Nothing here for today!!!

H. UPSC Prelims Practice Questions

Q1. Consider the following statements:

1) Toluene when oxidised gets converted into benzoic acid.
2) Benzoic acid is used as a food preservative (E210) and medicine for fungal/bacterial infection.
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:

• Toluene when oxidised gets converted into benzoic acid.
• Benzoic acid is used as a food preservative (E210) and medicine for fungal/bacterial infection.
• Toluene is converted into benzoic acid through selective and controlled oxidation in the presence of a catalyst — binaphthyl-stabilised platinum nanoparticles (Pt-BNP).

Q2. Consider the following statements:

1. A nanomagnet is a submicrometric system that presents spontaneous magnetic order at zero applied magnetic field.
2. The small size of nanomagnets prevents the formation of magnetic domains.
Which among the above statements is/are incorrect?
a) 1 Only
b) 2 Only
c) Both 1 and 2
d) Neither 1 nor 2

Answer: d

Explanation:

• A nanomagnet is a submicrometric system that presents spontaneous magnetic order at zero applied magnetic field. The small size of nanomagnets prevents the formation of magnetic domains.
• One application for nanomagnets is in microcontrollers, like those used for low-power, real-time control systems.

Q3. Consider the following statements:

1. Iran shares borders with Iraq, Turkey, Azerbaijan, Turkmenistan, Armenia, Afghanistan, and Pakistan.
2. Chabahar Port is a seaport in Chabahar located in southeastern Iran, on the Gulf of Oman.
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:

Iran shares borders with Iraq, Turkey, Azerbaijan, Turkmenistan, Armenia, Afghanistan, and Pakistan. Chabahar Port is a seaport in Chabahar located in southeastern Iran, on the Gulf of Oman.

Q4. Consider the following:

1. NASA's Cassini spacecraft spent more than a decade examining Saturn's rings more closely than any spacecraft before it.
2. Saturn's rings are made of billions of pieces of ice, dust and rocks. Some of these particles are as small as a grain of salt.

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: b

Explanation:

• NASA's Cassini spacecraft spent more than a decade examining Saturn's rings more closely than any spacecraft before it.
• Saturn's rings are made of billions of pieces of ice, dust and rocks. Some of these particles are as small as a grain of salt.

I. UPSC Mains Practice Questions

1. The recent decision by the U.S. to rescind the benefits Indian exports enjoy under the Generalised System of Preferences (GSP) programme has far-reaching implications for the Indian Economy. Critically Examine. (10 Marks; 250 Words)
2. The Chabahar port in Iran can serve as a veritable gateway for India into Central Asia. Examine. (10 Marks; 250 Words)

See previous CNA