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Category: INTERNATIONAL RELATIONS

1. Time running out to curb terror, Pak. told

What's in the news?

- In a recent development, the FATF plenary session in Orlando, U.S., issued a stern statement at the end of its outcome document, telling Pakistan that it could face blacklisting (the next step) at its next session in October 2019, if it did not follow a 27-point check-list on bringing in stricter laws to curb the access of funds to terror groups inside the country, including the Islamic State, al-Qaeda, the Lashkar-e-Taiba and the Jaish-e-Mohammad.
- The FATF put off the blacklist, reportedly due to support for Pakistan from China, Turkey and Malaysia, but **the entire 38-member body stressed that Pakistan had missed two action plan deadlines.**

Views Expressed by Ministry of External Affairs, Government of India:

- Ministry of External Affairs spokesperson Raveesh Kumar said India expected Pakistan “to take all necessary steps to effectively implement the FATF Action Plan fully within the remaining time frame, that is, by September 2019, in accordance with its political commitment to the FATF and take credible, verifiable, irreversible and sustainable measures to address global concerns related to terrorism and terrorist financing.”

Ignoring Risks:

- The task force said Pakistan had failed to understand the “transnational” or cross-border terror financing risk it posed.
- It also listed 10 of the most important tasks, including the effective implementation of UN sanctions against designated entities and more robust prosecution of terror financiers.
- It is important to note that India was not a sponsor of the original move to put Pakistan on a compliance ‘grey list’ last June (2019), but has supported the U.S., the U.K., Germany and France in efforts to make Pakistan accountable.
- Pakistan was put on the grey list in 2018, the second time it has been on it since 2012-2015.

Indian efforts:

- The mention of transnational terrorist financing is significant in light of India’s efforts to isolate Pakistan on the international stage in the context of its support for terror in Kashmir.
- **“The FATF expresses concern that not only did Pakistan fail to complete its action plan items with January deadlines, it also failed to**

complete its action plan items due May 2019. The FATF strongly urges Pakistan to swiftly complete its action plan by October 2019 when the last set of action plans are set to expire. Otherwise, the FATF will decide the next step at that time for insufficient progress,” a FATF statement read.

- It is important to note that in June 2018, Pakistan was placed on a FATF greylist of countries whose laws do not adequately deal with money laundering and terrorist financing and agreed to a 10-point action plan to strengthen its anti-money laundering and combating the financing of terrorism and proliferation regime.
- When the last FATF plenary session concluded in February 2019, days after a terrorist attack killed over forty Indian security personnel in Pulwama, Jammu and Kashmir, **Pakistan had avoided being blacklisted despite pressure from India.**
- Pakistan-based terror outfit, Jaish-e-Mohammad (JeM) claimed responsibility for the attack. However it also did not take Pakistan off of the greylist as the country had wanted.
- In April 2019, Pakistan Foreign Minister Shah Mahmood Qureshi had said that **being greylisted could cost Pakistan \$10 billion a year.**

Blacklist, greylist criteria:

- To stay off of the FATF blacklist, the support of at least three of a total of 36 (excluding two regional organisations) FATF members is required.
- Fifteen members need to support a country's move off of the greylist, as per the FATF charter.
- FATF continued to call for countermeasures against Iran and North Korea.
- The FATF noted that Iran had not completed its action plan which expired in January 2018 and listed seven points for Iran to complete, noting however that Iran had made progress, including by passing the Anti-Money Laundering Act.
- Countermeasures against Iran would continue to be suspended, a statement released said, with **“the exception of FATF calling upon members and urging all jurisdictions to require increased supervisory examination for branches and subsidiaries of financial institutions based in Iran, in line with the February 2019 Public Statement.”**

2. Indian airlines told to skip Iran's airspace

What's in the news?

- The civil aviation regulator recently decided to ban Indian carriers from flying over the Iranian airspace, fearing an increase in hostilities between the U.S. and Iran and

to ensure the safety of passengers, crew and aircraft flying the route.

- The decision, which **will impact Air India and IndiGo**, comes a day after the **Federal Aviation Administration (FAA) banned U.S. carriers from flying over the Iranian airspace, days after Iran shot down an unmanned U.S. spy drone.**
- In a statement, the Directorate-General of Civil Aviation (DGCA) said, “Indian operators, in consultation with the DGCA, have decided to avoid the affected part of Iranian airspace to ensure safe travel for passengers. They will reroute flights suitably.”

Taking a look at the Impact:

- This move will affect flights to Europe and the U.S. from India and vice versa.
- Air India’s Europe and U.S.-bound flights will be impacted.
- IndiGo and Air India Express’s Qatar-bound flights will have to take a different route as they fly over Iranian airspace.
- Several European carriers have also decided not to fly over Iran.
- Air India chairman and managing director Ashwani Lohani said, **“There will be no substantial effect on Air India’s flights. Details are being worked out for re-routing the incoming flights.”**
- However, it is important to note that the diversion will put an additional financial burden on Air India which has been incurring losses since the ban on flying over Pakistani airspace a few months ago.
- Further, Etihad Airways has suspended operations through Iranian airspace over the Straits of Hormuz and the Gulf of Oman, and will use alternative flight paths on a number of routes to and from Abu Dhabi until further notice, the airline said.
- “These changes will cause delays on some departures from Abu Dhabi, due to increased congestion in available airspace, and will increase journey times on some routes,” it added.

3. Kartarpur bridge work in Pakistan stalls

What’s in the news?

- Pakistan is reluctant to build a bridge on its side to connect with the one being built on the Indian side for seamless movement to the Kartarpur shrine.
- It is believed that the bridge on the Pakistani side would cut into their defence embankment, and the neighbouring country had refused the proposal after initially agreeing to it.
- The Kartarpur corridor, which will connect Dera Baba Nanak in Gurdaspur to Kartarpur in the Narowal province of Pakistani Punjab, is being constructed to

commemorate the 550th birth anniversary of Guru Nanak, founder of Sikhism.

- **The Guru spent the final years of his life at Kartarpur.**
- It is important to note that the corridor is to be constructed before November 23, 2019.
- Currently, a 4.2-km all-weather road is being constructed to overcome the threat of floods on the Indian side. A bridge was to be built connecting the road with the corridor on Pakistan's side, **but they are not agreeing to it.** The Indian side does not want to block the path of the Ravi river as any construction will inundate areas on the Indian side.
- It is important to note that Prime Minister Narendra Modi, while replying to a congratulatory message by his Pakistani counterpart Imran Khan, asked for early operationalisation of the corridor.
- India and Pakistan had another round of talks to discuss the technical details of the corridor earlier in the month of June 2019.

Specific Demands being made by Pakistan:

- **Pakistan was adamant on capping the number of daily visitors at 700, while India's demand is 5,000.**
- Pakistan has not responded to India's demand of allowing 10,000 pilgrims on special days.
- They are also adamant on allowing pilgrims in groups of at least 15 persons while India wants permission for individuals.
- **It is also insisting on putting a permit fee, while India has demanded visa-free, no-fee movement.**

India's Concern:

- India was also concerned about the corridor being used to push Khalistani separatist propaganda, and the government had conveyed the threat to Pakistan.

4. Navy teams to escort crude carriers

What's in the news?

- Amid escalating tensions in the Gulf region, which is crucial for India's energy security, **the Indian Navy is considering deploying small teams on board large crude carriers passing through the region.**
- The proposal is currently under discussion among various stakeholders. Discussions are still ongoing and the exact modalities will depend on the outcome.
- The proposal is to have small Navy teams comprising an officer and personnel on all

energy-carrying platforms — ultra large crude carriers and very large crude carriers — to advise on protection measures.

- The teams will be deployed on transiting crude carriers depending on the necessity.

Steps Taken up by the Indian Navy:

- Recently, after a series of attacks on ships transiting through the Persian Gulf, the Navy deployed two ships in the region, destroyer INS Chennai and offshore patrol vessel INS Sunayna, under **Operation Sankalp** to “**re-assure Indian-flagged vessels operating/transiting through Persian Gulf and Gulf of Oman**”.
- This is being done in addition to the aerial surveillance in the area by Navy aircraft.
- The **Information Fusion Centre** (Indian Ocean Region), which was opened by the Navy in Gurugram last December (2019), is keeping a close watch on the movement of ships in the Gulf region, the Navy has stated.

Protection advisory:

- Furthermore, Director-General of Shipping issued advisories to all **Indian-flagged vessels operating in the Strait of Hormuz and the Persian/Arabian Gulf region to undertake “appropriate protection measures”**.

Concluding Remarks:

- Tensions in the region have mounted following the spat between Iran and the U.S. and peaked after an advanced U.S. unmanned drone was shot down by Iran.
- Tehran alleged it violated its airspace.
- It is important to note that much of India’s energy needs is sourced from the Gulf region and any potential disruption would have an adverse impact on the economy.

5. Iran vows to ‘firmly confront’ any aggression by the U.S.

What’s in the news?

- Iran recently said that it would respond firmly to any U.S. threat against it amid escalating tension between Tehran and Washington over the shooting down of an unmanned U.S. drone by the Islamic Republic.
- It is important to note that an Iranian missile destroyed a U.S. Global Hawk surveillance drone. Tehran said the drone was shot down over its territory and Washington said it had occurred in international airspace.
- S. President Donald Trump recently said that he aborted a military strike to retaliate for Iran’s downing of the U.S. drone because it could have killed 150 people, and

signalled he was open to talks with Tehran.

More sanctions:

- Speaking in Washington, Mr. Trump said the U.S. government was imposing new sanctions on Tehran.
- Military action was “always on the table,” he added, but he said he was open to reversing the escalation and could quickly reach a deal with Iran that he said would bolster the country’s flagging economy.

Position Taken by Iran:

- Iran has vowed to defend its borders.
- “Regardless of any decision they (U.S. officials) make... we will not allow any of Iran’s borders to be violated. Iran will firmly confront any aggression or threat by America,” Foreign Ministry spokesman Abbas Mousavi said.
- It is important to note that worries about a confrontation between Iran and the U.S. have mounted despite Mr. Trump saying that he has no appetite to go to war with Iran.
- Tehran has also said it is not seeking a war but has warned of a “crushing” response if attacked.
- The U.S. Federal Aviation Administration recently issued an emergency order prohibiting U.S. operators from flying in an overseas area of Tehran-controlled airspace over the Strait of Hormuz and Gulf of Oman.
- Some other international airlines are taking related precautions.

Airspace safe: Tehran

- However, Iran has said that its airspace was “safe and secure” for all planes to cross.
- The U.S. and Saudi Arabia have blamed Iran for attacks on two oil tankers recently in the Gulf of Oman and on four tankers off the United Arab Emirates, both near the strategic Strait of Hormuz.
- Iran has denied any involvement.

6. U.S. report expresses concern on communal violence in India

What’s in the news?

- The U.S. Secretary of State released the State Department’s ‘2018 Report on International Freedom’, which is an annual submission it makes to the U.S. Congress as mandated by law.
- The report consists of country-wise chapters.

- The chapter on India detailed mob-related violence and discusses conversion, the legal status of minorities and government policies.

Renaming of cities:

- The report said that the “The government continued its challenge in the Supreme Court to the minority status of Muslim educational institutions, which affords them independence in hiring and curriculum decisions. Proposals to rename Indian cities with Muslim provenance continued, most notably the renaming of Allahabad to Prayagraj. Activists said these proposals were designed to erase Muslim contributions to Indian history and had led to increased communal tensions.”
- The report went on to add that “There were reports of religiously motivated killings, assaults, riots, discrimination, vandalism, and actions restricting the right of individuals to practice their religious beliefs and proselytize.”
- It added that authorities often failed to prosecute perpetrators of “cow vigilante” attacks.
- The report also said that “There were reports by nongovernmental organizations (NGOs) that the government sometimes failed to act on mob attacks on religious minorities, marginalized communities, and critics of the government.
- It went on to add that some senior officials of the Hindu-majority Bharatiya Janata Party (BJP) made inflammatory speeches against minority communities, and that according to some NGOs, **authorities often protected perpetrators from prosecution.**
- “As of November, there were 18 such attacks, and eight people killed during the year,” said the report.

7. Palestinians reject U.S.’s West Asia ‘peace plan’

What’s in the news?

- In a recent development, Palestinian officials dismissed the economic plan as proposed by Jared Kushner to form the first economic portion of the Trump administration’s long-awaited West Asia peace plan.

A Closer Look at the Plan:

- The White House recently released the first of a two-part Middle East peace plan, outlining the Trump administration’s “economic vision” for Palestinian territories and neighboring Arab countries.
- **The long-awaited proposal calls for a \$50 billion investment in Palestinian territories along the West Bank and Gaza from private**

companies and donor countries to jumpstart local economies and boost conditions in Jordan, Egypt and Lebanon, which would each receive a portion of the funds.

- “Peace to Prosperity is a vision to empower the Palestinian people to build a prosperous and vibrant Palestinian society,” the White House wrote in a fact sheet about the plan.
- “It consists of three initiatives that will support distinct pillars of the Palestinian society: the economy, the people, and the government.”

Position Taken up by Palestine and Hamas:

- Senior Palestine Liberation Organization (PLO) official Hanan Ashrawi said Mr. Kushner’s plans were “all abstract promises” and said only a political solution would solve the conflict.
- Hamas was more blunt, saying: “Palestine isn’t for sale”.
- The Trump administration’s \$50 billion West Asia economic plan calls for creation of a global investment fund to lift the Palestinian and neighbouring Arab state economies, according to U.S. officials.
- One proposal is for the construction of a **\$5 billion transportation corridor to connect the West Bank and Gaza.**
- Ashrafi, a veteran Palestinian negotiator, said the Trump administration’s stance was an “entirely wrong approach”, adding: “They can end the occupation, which is the most basic requirement for prosperity. There can be no prosperity under occupation.”

Category: POLITY AND GOVERNANCE

1. Increase number of judges, CJI urges PM

What’s in the news?

- In a recent development, Chief Justice of India Ranjan Gogoi has written to Prime Minister Narendra Modi seeking to increase the strength of judges and raise the retirement age of High Court judges to 65.
- Justice Gogoi has also urged the Prime Minister to make tenure appointments of retired Supreme Court and High Court judges under Articles 128 and 224A, respectively, to clear cases pending for years.
- The CJI, who wrote three letters to the PM, said **58,669 cases had been pending in the top court and the number was increasing.**

Points raised by the CJI:

- The CJI said that with the **paucity of judges, the required number of Constitution Benches to decide important cases involving questions of law was not being formed.**
- Specifics raised by the CJI:
- “You would recall that way back in 1988, about three decades ago, the judge strength of the SC was increased from 18 to 26, and then again after two decades in 2009, it was increased to 31, including the CJI, to expedite disposal of cases to keep pace with the rate of institution,” the CJI wrote.
- “I request you to kindly consider, on top priority, to augment the judge-strength in the SC appropriately so that it can function more efficiently and effectively as it will go a long way to attain ultimate goal of rendering timely justice to the litigant public,” Justice Gogoi wrote.

Case of many vacancies:

- He said though the size of the feeder cadre of Chief Justices and judges of the High Courts had increased in the past, the strength had not been increased proportionally in the top court.
- In his second letter, **he urged Mr. Modi to consider bringing a constitutional amendment to increase the retirement age of High Court judges from 62 to 65.**
- “One of the prime reasons why we are not able to contain the ever-growing pendency is shortage of HC judges. At present, 399 posts, or 37% of sanctioned judge-strength, are vacant. The existing vacancies need to be filled immediately. However, despite best efforts put in by all stakeholders, it has not been possible to appoint judges to bring the **working judge-strength anywhere close to the sanctioned judge-strength,**” Justice Gogoi wrote.

Raising the retirement age of the HC Judges:

- On raising the retirement age of the HC judges, he wrote: “This, in turn, would help in improving the vacancy position and consequently reducing pendency of cases. This would also be in consonance with the [repeated] recommendations made by parliamentary standing committees.”
- Justice Gogoi said, **“A judge takes time to evolve and by the time he is in a position to put innovative thoughts based on rich experience to practice, he finds himself nearing retirement. This can be avoided if the age of retirement is raised to an appropriate level so that his vast experience, deeper insight and expertise can be utilised for a longer**

C. GS3 Related

Category: DISASTER MANAGEMENT

1. Odisha uses satellite imagery to create unique flood hazard atlas

What's in the news?

- In a recent development, Odisha has come out with a unique flood hazard atlas on the basis of historic flood inundation captured through satellite imagery from 2001 to 2018.
- This is expected to help the State manage floods more efficiently.
- The **National Remote Sensing Centre (NRSC)** of the Indian Space Research Organisation (ISRO), Hyderabad, conducted the study on flood hazard zonation for Odisha.
- The atlas was released by Chief Minister Naveen Patnaik at the State-level Natural Calamity Meeting.

Flooding caused by rivers in Odisha:

- Vast areas of the State are inundated every year due to the flooding of major rivers — Mahanadi, Brahmani, Baitarani, Subarnarekha and Rushikulya.
- Furthermore, other rivers, like the Vamsadhara and the Budhabalanga, also cause flash floods due to instant run-off from their hilly catchments.
- According to the **Odisha State Disaster Management Authority (OSDMA)**, damages due to floods are caused mainly by the Mahanadi, the Brahmani and the Baitarani, which have a common delta where floodwaters intermingle, and, when in spate simultaneously, wreak considerable havoc.
- It is important to note that **the entire coastal belt is prone to storm surges, which is usually accompanied by heavy rainfall, thus making the estuary region vulnerable to both storm surges and river flooding.**
- Furthermore, a few districts in the western and southern parts of Odisha are prone to flash floods.

A Look at Specifics:

- The NRSC analysis says about 8.96% (13.96 lakh hectares) of land in Odisha was

affected by floods during 2001-2018.

- Out of total flood-affected area (13.96 lakh hectares), about 2.81 lakh hectares of land falls under high (inundated seven-nine times) to very high (inundated 10-14 times) flood hazard categories.
- Eight out of 30 districts — Bhadrak, Kendrapara, Jagatsinghapur, Balasore, Puri, Jajpur, Khordha and Cuttack — are more flood-affected than others.
- As high as 77% of Bhadrak and 70% of Kendrapara have been categorised as flood hazard.
- According to the **Earth Observation, Application and Disaster Management Support Programme Office of ISRO**, “A large number of satellite images acquired over 18 years (2001-2018) were used. All satellite data sets were analysed and flood layers were extracted. All the flood layers corresponding to a year are combined as one inundation layer, so that this layer represents the maximum flooded area in one year.”
- As a matter of fact, all such combined flood layers were integrated into flood hazard layer representing the observed flood-inundated areas with different frequencies. This layer was integrated with the digital database layers of Odisha.
- It is important to note that **the atlas would serve as a useful resource of information for policy makers, planners and civil society groups.**

Category: SCIENCE AND TECHNOLOGY

1. IIT Guwahati uses water-repelling cotton for sustained drug release

What's in the news?

- In a recent development, **sustained release of drugs for as long as 110 days has been achieved** by researchers at the Indian Institute of Technology (IIT) Guwahati by immobilising the drugs on cotton that is extremely water repelling (superhydrophobic).
- A team from the Department of Chemistry found that 30% of the drug was released within 48 hours and the remaining drug over a period of 110 days.
- Two drugs — aspirin and tetracycline — were tested for sustained drug release.

Collaboration:

- The researchers have extended this approach [use of superhydrophobic cotton coated with the drug for sustained release] to make bandages for wound healing.
- Animal studies will be undertaken soon.
- The collaborative work with the Delhi-based International Centre for Genetic

Engineering and Biotechnology (ICGEB) has already begun.

What did the researchers find?

- The researchers found that the duration of drug release can be tuned by varying the degree of water repelling property of cotton.
- For instance, when water repellence was reduced from 155 degree to 125 degrees, the duration of drug release reduced sharply from 110 days to over 50 days.
- When the cotton was moderately water-repelling (125 degrees), 64% of the drug was released over 48 hours and the remaining drug was released over 50 days in the case of both the drugs tested.

Altering properties:

- To make the supremely water-absorbing cotton to repel water the researchers coated the cotton with a naturally occurring protein — bovine serum albumin (BSA).
- The BSA protein is dissolved in water and when ethanol is added it forms nanoparticles, which get embedded on the cotton.
- The BSA nanoparticles are made to bind to each other to form a 3D coating on the cotton with the addition of a cross-linker (5ACI).
- The residual acrylates of 5ACI are further exploited to react with amine-containing long-chain hydrocarbons. The long hydrocarbon chain of the alkyl amine renders hydrophobicity to cotton.
- Two essential criteria are needed for achieving extreme water repellence — topography which can trap a layer of air and low surface energy coating that makes the cotton inert so it does not react with water.
- In this case, the BSA nanoparticles provide the required topography and the long hydrocarbon chain of the alkyl amine makes the cotton inert.
- The researchers can tailor water repellency to varying degrees — 125-150 degrees — by selecting an appropriate alkyl amine to react with the residual acrylates on the BSA nanoparticles.
- The drug to be loaded onto the extremely water-repelling cotton is dissolved in ethanol and the cotton is soaked in the drug-containing ethanol.
- When the cotton is removed, the ethanol evaporates leaving behind the drug molecule on the cotton. Superhydrophobicity returns once ethanol evaporates.

How it works?

- When the cotton containing the drug comes in contact with water, the air that is trapped gets displaced.
- Water slowly starts penetrating the cotton and comes in contact with the drug molecule and dissolves it.
- The dissolved drug diffuses out of the cotton and thus the slow release of drug over a

period of over three months is achieved.

- When cotton is supremely water repelling, there is sustained release for about 110 days after the burst-release in the first 48 hours. When the cotton is moderately water-repelling, 64% of drug is released in 48 hours and the remaining over the next 50 days.
- Both the drugs were released in a similar fashion and the bioactivity of the tetracycline released at one, three and seven days was examined.
- As a matter of fact, the bioactivity was similar to the native drug at all three time periods. Tetracycline was able to prevent the proliferation of both *E. coli* and *Streptococcus aureus*.

Category: ENVIRONMENT AND ECOLOGY

1. Remotely sensed indices unreliable in informing elephant forage

What's in the news?

- A field study by researchers from Bengaluru shows that a popularly used index that remotely estimates density of vegetation does not yield a reliable estimate of food abundance for elephants in tropical forests.
- In fact, researchers show that this index has a negative correlation with graminoids (grassy food – grasses, sedges and rushes – preferentially consumed by elephants) in tropical forests.

Monitoring vegetation:

- For both academic and practical purposes, there is the practice of remotely monitoring vegetation in an area and representing it in terms of maps and parameters.
- One such parameter used is the **normalized difference vegetation index (NDVI)** which is measured remotely from satellite data.
- This has been used to estimate the amount of food abundance available to herbivorous animals, for example, elephants.
- The NDVI is used, for instance, in attempts to track the presence of elephants using the vegetation they consume.
- However, this work clearly establishes that this can be misleading, and field-based studies are the ones which can yield definitive results. The work is published in the journal *Biotropica*.
- Experts point out that **there is a need to establish this, because the obvious has not been understood.**
- The researchers were led by T.N.C Vidya from the Evolutionary and Organismal

Studies that were carried out:

- They carried out the study in the Nagarhole National Park, in the Nilgiris-Eastern Ghats in southern India and sampled five 20m X 5 m vegetation plots along each of 17 transects (lines along which the regions to be sampled can be marked out) in the wet season in 2011 and 22 transects in the dry season.
- The transects included three forest types: moist deciduous, dry deciduous and teak forests.
- The researchers found that the abundance of food plants is not correlated with NDVI. This should be a prerequisite before using NDVI as a proxy of food abundance.
- The NDVI is a simple indicator which tells how much of the ground is covered with vegetation.
- It basically calculates the difference between the red and near infrared components of light reflected by objects, from, say, a satellite.
- Since healthy vegetation strongly absorbs red and reflects near infrared light, this difference can indicate the presence of healthy vegetation and map it into a colour code.

Negative correlation:

- The researchers found that NDVI was negatively correlated to grasses.
- This means grass abundance tends to be low in locations where NDVI is high and vice-versa.
- Though this is counterintuitive, there is a reason as to why this occurs:
- **While canopy cover and shrub abundance contribute positively to NDVI, they negatively affect grass abundance. Because of the poor correlation, NDVI cannot be reliably used as a measure of forage abundance in a multi-storeyed forest with a low proportional abundance of food species.**
- Grasses form a large component of food of elephants and also ungulates (hoofed animals) like deer, sambar and gaur.
- Finally, NDVI is extremely useful... and has been used to inform the ecology of various species, from elephants and red deer to mosquitoes and birds. But it is known to perform badly to help assess changes in primary productivity of plants under a dense canopy.

Nothing here for today!!!

E. Editorials

Category: SCIENCE AND TECHNOLOGY

1. Why is the litchi toxin causing deaths?

What's in the news?

- Acute encephalitis syndrome (AES) in Bihar's Muzaffarpur, Vaishali, Sheohar and East Champaran districts has so far claimed the lives of over 100 children.
- More than 400 children with AES have been admitted to various hospitals.
- Most of the deaths have been attributed to low blood sugar level (hypoglycaemia).

Editorial Analysis:

What is acute encephalitis syndrome?

- AES in short, it is a basket term used for referring to hospital, children with clinical neurological manifestations which include mental confusion, disorientation, convulsion, delirium or coma.
- Meningitis caused by virus or bacteria, encephalitis (mostly Japanese encephalitis) caused by virus, encephalopathy, cerebral malaria, and scrub typhus caused by bacteria are collectively called acute encephalitis syndrome.
- While microbes cause all the other conditions, encephalopathy is biochemical in origin, and hence very different from the rest.
- There are different types of encephalopathy.
- In the present case, the encephalopathy is associated with hypoglycaemia and hence called hypoglycaemic encephalopathy.

Is encephalitis different from hypoglycaemic encephalopathy?

- The two conditions show very different symptoms and clinical manifestations.
- Fever on the first day is one of the symptoms of encephalitis before the brain dysfunction begins. While fever is seen in children in the case of hypoglycaemic encephalopathy, fever is always after the onset of brain dysfunction (actually due to the brain dysfunction).
- And not all children exhibit fever.
- Some children have no fever, while others may have mild or very high fever.
- The blood sugar level is usually normal in children with encephalitis but is low in children with hypoglycaemic encephalopathy.

- In the case of encephalitis, fever (due to virus infection) for a day or two is followed by the onset of symptoms caused by the brain getting affected.
- However, in hypoglycaemic encephalopathy, children go to bed without any illness but manifest symptoms such as vomiting, convulsion and semi-consciousness early next morning (between 4 a.m. to 7 a.m.).
- At that time, the blood sugar level is low, hence the name hypoglycaemic encephalopathy.
- The most important difference between the two is the presence of white blood cells in the cerebrospinal fluid.
- In encephalitis, there are more white blood cells per unit volume of cerebrospinal fluid, which is a reflection of inflammation in the brain.
- In contrast, no increase in white blood cells is seen in hypoglycaemic encephalopathy as there is no inflammation in the brain.

What killed so many children in Bihar?

- In a majority of cases, children died due to hypoglycaemic encephalopathy.
- According to a Press Information Bureau (PIB) release, hypoglycaemia (low blood sugar level) was reported in a “high percentage” of children who died in Muzaffarpur.
- Unlike hypoglycaemic encephalopathy, encephalitis does not cause low blood sugar level so death in a high percentage of children couldn't have been due to encephalitis.

Why has it affected only young children?

- It is an observed fact that malnourished children between two to 10 years fall ill and die due to hypoglycaemic encephalopathy.
- It is not known why older children or adults do not suffer the same way.
- This clear discrimination by age is also a reason why the underlying cause of the illness cannot be a virus.
- A virus does not discriminate by age, and children younger than two years too are affected by Japanese encephalitis.
- It has also been documented that most of the children falling ill are from families camping in orchards to harvest the fruits.
- These children tend to collect and eat the fruits that have fallen on the ground.
- Hypoglycaemic encephalopathy outbreaks are restricted to April-July, with a peak seen in June. This is because litchi is harvested during this period.

Is litchi fruit responsible for causing hypoglycaemic encephalopathy?

- In 2012-2013, a two-member team headed by virologist Dr. T. Jacob John suspected, and confirmed the next year, a toxin found in litchi fruit that was responsible for causing hypoglycaemic encephalopathy.

- In 2017, an India-U.S. team confirmed the role of the toxin called methylene cyclopropyl glycine (MCPG).
- **Early morning, it is normal for blood sugar to dip after several hours of no food intake.** Undernourished children who had gone to sleep without a meal at night develop hypoglycaemia.
- The brain needs normal levels of glucose in the blood. The liver is unable to supply the need. So the alternate pathway of glucose synthesis, called fatty acid oxidation, is turned on. That pathway is blocked by MCPG.
- Litchi does not cause any harm in well-nourished children, but only in undernourished children who had eaten litchi fruit the previous day and gone to bed on an empty stomach.

Why is the toxin more dangerous for undernourished children?

- In well-nourished children, reserve glucose is stored as glycogen (glucose polysaccharide) in the liver.
- Whenever the glucose level goes down, glycogen is broken down into glucose and circulated in the blood for use.
- But undernourished children lack sufficient glycogen reserve that can be converted into glucose. Therefore, the natural mechanism in undernourished children is unable to correct the glucose level in blood, leading to hypoglycaemia.
- Normally, when glycogen reserve in the liver is exhausted or is not sufficient, the body converts the fatty acid (non-carbohydrate energy source) into glucose.
- However, in the presence of the litchi toxin, the conversion of fatty acid into glucose is stopped midway.
- As a result, no glucose is generated and the low blood glucose level is not corrected by the body.

How does the toxin cause coma and even death in children?

- The toxin acts in two ways to harm the brain and even cause death.
- Because of the toxin, the body's natural mechanism to correct low blood glucose level is prevented, thus leading to a drop in fuel supply to the brain.
- This leads to drowsiness, disorientation and even unconsciousness.
- When the toxin stops the fatty acid conversion into glucose midway, amino acids are released which are toxic to brain cells.
- The amino acids cause brain cells to swell resulting in brain oedema.
- As a result, children may suffer from convulsions, deepening coma and even death.

Can hypoglycaemic encephalopathy be prevented in undernourished children?

- Yes, by making sure that undernourished children do not eat plenty of litchi fruit,

ensuring that they eat some food and not go to bed on an empty stomach.

- Since 2015, the prevention strategy as recommended by Dr. Jacob John's team has helped in sharply reducing the number of deaths from hypoglycaemic encephalopathy in Muzaffarpur.
- In 2017, the India-U.S. team published a paper corroborating these findings and recommendations.

Can hypoglycaemic encephalopathy be treated?

- Yes, hypoglycaemic encephalopathy can be easily treated.
- A full and complete recovery can be achieved if children with hypoglycaemic encephalopathy are infused with 10% dextrose within four hours after the onset of symptoms.
- Infusing 10% dextrose not only restores blood sugar to a safe level but also stops the production of amino acid that is toxic to brain cells by shutting down the body's attempt to convert fatty acid into glucose.
- Together with dextrose infusion, infusing 3% saline solution helps in reducing oedema of the brain cells.
- The concentration of ions in the fluid outside the brain cells becomes more than what is inside the cell; this causes the fluid from the cells to come out thus reducing oedema and damage to brain cells.
- Using 5% dextrose, as is the norm in cases of general low blood sugar level, may help children with hypoglycaemic encephalopathy recover from hypoglycaemia, but the accumulation of amino acid is not turned off.
- And so, even if children survive, they will have brain damage.
- If dextrose infusion is not started within four hours after the onset of symptoms, the brain cells may not recover but will die.
- As a result, even if they survive, children suffer from various aspects of brain damage — speech getting affected, mental retardation, muscle stiffness/weakness and so forth.

Category: INDIAN ECONOMY

1. How will Jet's insolvency process play out?

What's in the news?

- Jet Airways, the troubled private airline that has failed to meet its huge debt obligations, was admitted to the National Company Law Tribunal (NCLT) recently.
- This happened after a consortium of lenders led by State Bank of India (SBI) that had lent money to the airline over the years approached the NCLT to begin insolvency

proceedings.

- It is important to note that the shares of the airline soared more than 120% after news broke that the airline has been admitted by the NCLT for bankruptcy proceedings.

Editorial Analysis:

- In accordance with the procedures laid out under the Insolvency and Bankruptcy Code, 2016, the court ordered an interim resolution professional to take control of Jet Airways.
- The professional appointed by the court will now look at ways to salvage the most value out of the airline so that the money can be used to pay back lenders.

Why did Jet Airways fail?

- It was founded by Naresh Goyal in 1992, and began flying a year later.
- It was one of the earliest private entrants into India's airline industry after the government slowly began to liberalise the economy.
- The opening up of the airline industry to more private companies in the ensuing years caused a boom in air travel in the country.
- At the same time, greater competition put increasing pressure on airlines to either deliver better services to justify their high prices, or cut costs to operate more efficiently as budget airlines.
- Jet, which was unable to adapt to changing market conditions, suffered losses for many consecutive years.
- The unpredictability of the price of oil in the global market also played a role in messing up its cost calculations.
- In the first quarter of financial year 2018, Jet posted a loss of ₹1,323 crore.
- Since that huge loss, its management has tried to pump additional money into the airline to meet its operating costs and has also announced various aggressive measures to cut down costs.
- However, all this may have come a little too late.
- Kingfisher and Sahara are two other private airlines which failed under the pressures of competition.
- Air India, which is again burdened by a huge amount of debt like Jet, was another prominent loser in the battle for market share.
- But unlike Air India, Jet does not have the government to bail it out of its financial trouble.

What made lenders approach the bankruptcy court?

- It is estimated that Jet may owe about ₹20,000 crore in the form of short- and long-term debt obligations to an array of lenders.

- A consortium of lenders that loaned money to Jet has already been in talks with some potential buyers such as Etihad (UAE) and Tata Sons who could invest capital in Jet in order to make the airline fully operational once again.
- However, these talks have failed to materialise into an actual deal given the high level of debt on Jet's balance sheet.
- It is worth noting that buyers of troubled companies are generally reluctant to take responsibility for the debt of the troubled entity as it will affect their own return from the investment.
- The lender consortium led by the SBI, on the other hand, may believe that it can salvage more value from the failed airline through the insolvency proceedings carried out under the purview of the court.
- Further, the lenders may also be able to gain greater control over Jet's management by approaching court.
- Goyal's resignation from the airline's board in March 2019 may have been in expectation of unilateral action by the lender consortium to take it to the doorstep of the bankruptcy court.
- Goyal's exit may give Jet's lenders the confidence to infuse more money in case they decide to make the airline fully operational.
- The removal of the old management may also make Jet more endearing to buyers who prefer to wrest full control over it.
- It is worth noting that Jet shares soared after the company was admitted to the NCLT. This suggests that investors expect value to be extracted out of Jet through the bankruptcy proceedings.

What lies ahead for the airline and its lenders?

- Jet Airways is the first airline company in India to be admitted to undergo bankruptcy proceedings under the Insolvency and Bankruptcy Code, 2016.
- In contrast to other companies that have previously undergone bankruptcy proceedings under the bankruptcy code, Jet has very few assets, especially when compared to the size of its debt obligations.
- Many of the airline's aircraft have already been seized by lenders after Jet stopped making payments.
- This leaves banks such as the SBI with very little to salvage from the airline, so it is very doubtful whether Jet's lenders will be able to make any significant recovery of their debts just by selling off its assets.
- The resolution professional in charge of Jet may thus want to keep the airline running as a going concern so that it might fetch the best value for lenders in the long run.
- Potential buyers may be interested in capitalising on the airline's brand value and trying to re-launch the carrier by infusing fresh capital.
- Buyer interest, however, will depend largely on the amount of debt that lenders are willing to write off.
- Finally, the sale of Air India earlier this year (2019) failed to attract any bids due to

the airline's heavy debt burden that the lenders were unwilling to write off before the sale.

- If no buyer shows interest in purchasing Jet as a going concern, the only option left may be to sell each of Jet's assets individually. Jet will then cease to exist as a company.

Category: INDIAN ECONOMY

1. Libra unveiled

What's in the news?

- Facebook recently announced that it is going to launch a global digital currency by the first half of 2020.
- The currency has been named Libra.
- It will be run by the Libra Association, which is a Geneva-based entity that has over two dozen founding partners, including Facebook, Mastercard, Visa, Uber and the Vodafone group.
- Almost immediately, concerns were raised by some lawmakers, commentators and even the co-founder of Facebook, Chris Hughes, who is now one of the foremost critics of the social media network he helped create.

Why does the world need Libra?

- A white paper released by the Libra Association says its mission "is to enable a simple global currency and financial infrastructure that empowers billions of people".
- The point it makes is this: **in a world with cheap data and smartphones, about 1.7 billion adults are still outside the organised financial system in the world. This, despite a billion of them having mobile phones and nearly half a billion having Internet access.**
- The reasons for this are high fees, lack of access, and absence of documentation.
- Libra is being pitched as a solution to this.
- The promise is of financial inclusion on a global scale.
- The white paper says: "Moving money around globally should be as easy and cost-effective as — and even more safe and secure than — sending a text message or sharing a photo, no matter where you live, what you do, or how much you earn."

It is apparently being built on the block chain technology. How similar is it to Bitcoin?

- It is true that Bitcoin and Libra are both based on block chain technology, which

refers to a form of distributed ledger — not centralised — of transactions.

- These are created by complicated math functions that make them almost incorruptible. But beyond this, there is very little in common between Bitcoin and Libra.
- Libra is an initiative of 28 influential corporate entities.
- Bitcoin, which the world first came to know of in 2008, is seen as a product of libertarian values. Its founder, whose identity remains a mystery to this day, is referred to as Satoshi Nakamoto.
- Libra is going to be nothing like Bitcoin. The association white paper says, “We believe that collaborating and innovating with the financial sector, including regulators and experts across a variety of industries, is the only way to ensure that a sustainable, secure and trusted framework underpins this new system.”
- Those are just some of the differences.

Though Bitcoin has come a long way, it has remained a niche currency. Why should Libra’s fate be any different?

- Bitcoin, though built on a sound technological base, has had to encounter challenges relating to regulation across the world.
- Governments of the world, including India, have been wary of it functioning outside the ambit of organised finance. With huge swings in value, it remains one of the most volatile currencies.
- Libra immediately has a few things working in its favour. A currency, to be a success, needs to have acceptability amongst many people. Facebook, with its over 2 billion users, and its partners could tick this box. Also, the Libra Association is promising to play by the regulatory rule book.
- Plus, to make it a relative stable currency, not prone to wild fluctuations, the creators of Libra are backing this up with a reserve of real assets.
- Still, going by the opposition to the idea, it isn’t going to be a smooth sail for Libra.

Why is Libra being opposed?

- Bloomberg has reported that the French Finance Minister, Bruno Le Maire, has called on the Group of Seven central bank governors to “prepare a report on Facebook’s project for their July meeting. His concerns include privacy, money laundering and terrorism finance”.
- Markus Ferber, a German member of the European Parliament, has also been reported as saying that Facebook could become a “shadow bank” and that regulators should be on high alert.

F. Tidbits

Nothing here for today!!!

G. Prelims Facts

Nothing here for today!!!

H. UPSC Prelims Practise Questions

Q1. Consider the following statements:

1. The normalized difference vegetation index (NDVI) is a simple indicator which tells how much of the ground is covered with vegetation.
2. It basically calculates the difference between the red and near infrared components of light reflected by objects, from, say, a satellite.
3. Since healthy vegetation strongly absorbs red and reflects near infrared light, this difference can indicate the presence of healthy vegetation and map it into a colour code.

Which among the above statements is/are correct?

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

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Ans: c

Explanation:

- The normalized difference vegetation index (NDVI) is a simple indicator which tells how much of the ground is covered with vegetation.
- It basically calculates the difference between the red and near infrared components of light reflected by objects, from, say, a satellite.
- Since healthy vegetation strongly absorbs red and reflects near infrared light, this difference can indicate the presence of healthy vegetation and map it into a colour code.
- The normalized difference vegetation index (NDVI) is measured remotely from satellite data. This has been used to estimate the amount of food abundance available to herbivorous animals, for example, elephants.
- The NDVI is used, for instance, in attempts to track the presence of elephants using the vegetation they consume.

[/su_spoiler]

Q2. Consider the following statements:

1. National Remote Sensing Centre (NRSC) is one of the primary centres of Indian Space Research Organisation (ISRO), Department of Space (DOS).

2. NRSC has the mandate for establishment of ground stations for receiving satellite data, generation of data products, dissemination to the users, development of techniques for remote sensing applications including disaster management support, geospatial services for good governance and capacity building for professionals, faculty and students.

Which among the above statements is/are correct?

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

[su_dropcap]See[/su_dropcap][su_spoiler title="Answer"]

Ans: c

Explanation:

- National Remote Sensing Centre (NRSC) is one of the primary centres of Indian Space Research Organisation (ISRO), Department of Space (DOS).
- NRSC has the mandate for establishment of ground stations for receiving satellite data, generation of data products, dissemination to the users, development of techniques for remote sensing applications including disaster management support, geospatial services for good governance and capacity building for professionals, faculty and students.
- NRSC operates through multiple campuses to meet national and regional remote sensing data and applications needs of the country.[/su_spoiler]

Q3. Consider the following statements:

1. The blood sugar level is usually normal in children with encephalitis but is low in children with hypoglycaemic encephalopathy.
 2. In encephalitis, there are more white blood cells per unit volume of cerebrospinal fluid, which is a reflection of inflammation in the brain. In contrast, no increase in white blood cells is seen in hypoglycaemic encephalopathy as there is no inflammation in the brain.
- Which among the above statements is/are correct?
- a) 1 Only
 - b) 2 Only
 - c) Both 1 and 2
 - d) Neither 1 nor 2

[su_dropcap]See[/su_dropcap][su_spoiler title="Answer"]

Ans: c

Explanation:

- The blood sugar level is usually normal in children with encephalitis but is low in children with hypoglycaemic encephalopathy.
- In the case of encephalitis, fever (due to virus infection) for a day or two is followed by the onset of symptoms caused by the brain getting affected. However, in hypoglycaemic encephalopathy, children go to bed without any illness but manifest symptoms such as vomiting, convulsion and semi-consciousness early

next morning (between 4 a.m. to 7 a.m.). At that time, the blood sugar level is low, hence the name hypoglycaemic encephalopathy.

- In encephalitis, there are more white blood cells per unit volume of cerebrospinal fluid, which is a reflection of inflammation in the brain. In contrast, no increase in white blood cells is seen in hypoglycaemic encephalopathy as there is no inflammation in the brain.

Q4. With which of the following statements does "Operation Sankalp" that was recently in the news relate to?

- a) An Indian Naval Operation in the Persian Gulf and the Gulf of Oman to reassure Indian flagged vessels transiting through the area following the recent maritime incidents in the region.
- b) An Indian Air Force Search Operation launched in the wake of the disappearance of the An-32 twin engine turboprop transport aircraft of the Indian Air Force.
- c) A joint operation between the Indian Army and Border Roads Organisation along the India-China border.
- d) A joint military exercise between India and France

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Ans: a

Explanation:

An Indian Naval Operation in the Persian Gulf and the Gulf of Oman to reassure Indian flagged vessels transiting through the area following the recent maritime incidents in the region. "Operation Sankalp" is an Indian Naval Operation in the Persian Gulf and the Gulf of Oman to reassure Indian flagged vessels transiting through the area following the recent maritime incidents in the region.

I. UPSC Mains Practise Questions

1. Facebook's announcement that it is going to launch a global digital currency by the first half of 2020 raises important concerns. Comment. (250 Words, 10 Marks)
2. Discuss the effectiveness of satellite technology as a means to aid and assist disaster mitigation and relief efforts. (250 Words, 15 Marks)