

CONTENTS

S. No.	Topic	Page No.
<u>I. POLITY & GOVERNANCE</u>		
1.	100% Electrification of Indian Railways	1
2.	Supreme Court refuses to stay amendments to SC/ST Act	1
3.	Ancient Monuments and Archaeological Sites and Remains Act, 1958 Amendments	2
<u>II. SOCIAL JUSTICE</u>		
4.	Solar Mamas	2
5.	Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (Prevention and Control) Act, 2017	3
6.	India's female workforce participation	3
<u>III. ECONOMY</u>		
7.	Monetary limit for filing cases in DRT doubled to Rs. 20 lakh	4
8.	Small loans could turn bad: Rajan	5
9.	Index of Industrial Production (IIP) grows at 6.6% in July	6
10.	Pradhan Mantri Jan Dhan Yojana	6
<u>IV. ENVIRONMENT</u>		
11.	Eight Avian Species Declared "Extinct" in New Study	7
12.	Ethanol Blended Petrol Programme for Ethanol Supply Year 2018-19	8
13.	Heritage tag for two irrigation facilities in Telangana	8
<u>V. INTERNATIONAL RELATIONS</u>		
14.	Iran to hand over Chabahar port to India	9
15.	India-US defence relationship	10
16.	CPEC, a Debt Trap	11
17.	United States goes tough on ICC	11
18.	MILEX 18	12
<u>VI. SCIENCE & TECHNOLOGY</u>		
19.	Upgraded research reactor 'Apsara-U	13
20.	NASA's Cassini spacecraft	13
21.	Kepler Space Telescope	14
22.	NITI Aayog, Intel and TIFR collaborate to set up a Model International Center for Transformative AI (ICTAI)	15
23.	Cabinet approves MoU between EXIM Bank and BRICS banks for blockchain research	16
<u>VII. PRELIMS/MISCELLANEOUS</u>		
24.	Nomadic Elephant-2018	16

25. Pradhan Mantri Annadata Aay SanraksHan Abhiyan	17
26. New Coins found	18
27. New version of Vaishnav Jan to	18
28. Gatka	18
29. Brihadisvara Temple	19
30. SLINEX-2018	19
31. Yudh Abhyas 2018	19
32. First wet mid-air refuelling of LCA Tejas successfully carried out using IL-78 MKI tanker	19
33. Bonnethead Shark	19
34. Pondicherry Shark	19
35. Dataset Search	20

Questions	20
-----------	----

I. POLITY & GOVERNANCE

TOPIC: GS II, INFRASTRUCTURE

1. 100% Electrification of Indian Railways

Source: PIB

Why in news:

The Cabinet Committee on Economic Affairs, chaired by the Prime Minister, has approved the proposal for electrification of un-electrified broad gauge routes of Indian Railways which is likely to be completed by 2021-22.

Current scenario:

- Around two thirds of freight and more than half of passenger traffic in Indian Railways move on electric traction using only 37% of the total energy expenses of Indian Railways.

Advantages:

1. Capacity & Speed

- Seamless train operation by eliminating detention of trains.
- Enhancement in capacity due to higher speed.

2. Energy Security

- Reduce in fossil fuel consumption and dependence on imported petroleum.
- Energy security.

3. Energy bill savings

- Savings in fuel bill of around Rs. 13,510 crore per annum.
- Reduced maintenance cost.
- Saving 15-20% energy.

4. Sustainability

- Reduction in carbon footprint and environmental cost.
- Fulfilling India's commitment in COP21.
- Reduction in GHG emissions.

5. Employment Generation

TOPIC: GS II, ASPECTS OF GOVERNANCE

2. Supreme Court refuses to stay amendments to SC/ST Act

Source: The Hindu

Why in news:

- The Supreme Court has refused to stay the recent amendments to the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989 which attempts to restore the legislative intent of the original Act of 1989 which barred

anticipatory bail to a person accused of insulting or hurting a person from the SC, ST community.

- The SC has already issued directions to prevent misuse Of SC/ST Act of 1989.

About the Amendments to the SC ST Act:

The Amendment Bill sought to insert three new clauses after Section 18 of the original Act:

- Preliminary enquiry shall not be required for registration of a First Information Report against any person.
- The arrest of a person accused of having committed an offence under the Act would not require any approval.
- The provisions of Section 438 of the Code of Criminal Procedure which deals with anticipatory bail shall not apply to a case under this Act, notwithstanding any judgment or order of any Court.

Background:

- The Centre brought the amendment after nationwide protests against the SC order which abolished the automatic arrest and ordered police to conduct a preliminary enquiry within seven days before taking any action.
- After the parliament amended the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act to overturn a Supreme Court verdict, two PILs challenging the validity of the amendment were filed in the apex court in the wake of which the SC has given its view of refusing to SC agreed to hear the PILs and issued notice to the Centre to justify the validity of the amendment within six weeks.
- It, however, refused to stay operation of the law.

Why has the SC refused to stay the amendments?

- The effect of the draconian provision is that once any citizen of this country is charged under atrocity act he will be immediately arrested without following due process of law or preliminary inquiry and he is barred from applying for anticipatory bail.
- The court opined that the amendment is most draconian, barbaric and destroy the very basic structure of Constitution as it takes away liberty of the person to apply for anticipatory bail.
- It was also pointed out that in both the Houses of Parliament this amendment was passed by the voice vote, without any discussion or debate.
- The amendments were introduced without explaining why the Supreme Court judgement was wrong.

3. Ancient Monuments and Archaeological Sites and Remains Act, 1958 Amendments

Source: The Hindu

Why in news:

Historians have opposed changes to the Ancient Monuments and Archaeological Sites and Remains Act, 1958.

What are the intended changes?

- It proposes to allow the construction of Centre-approved public infrastructure within a 100 metre radius of Archaeological Survey of India (ASI)-protected monuments
- Insertion of a new definition of “public works” in section 2 of the Act.
- Amendment to section 20A of the Act so as to allow any department or office of the central government to carry out public works in the prohibited area after obtaining permission from the Central Government.

AMASR Act and iconic monuments:

- Iconic monuments in India like Taj Mahal, Ajanta Caves, The Great Stupa at Sanchi and the Sun Temple of Konark, among others are designated as “ancient monuments of national importance” and are protected under the AMASR Act.
- The Archaeological Survey of India is the custodian of these monuments.
- There was a realization that protecting critically threatened monuments was becoming difficult. Encroachments and illegal construction close to these monuments were happening on a large-scale and the penal provisions in the AMASR Act for endangering ancient monuments were not stringent enough to provide effective deterrence
- As a result of the increased pressure of habitation, especially in urban areas, protected monuments and sites were getting encircled in from all sides which affected their safety, security and aesthetics. The AMASR Act was substantially amended in 2010 to strengthen several of its provisions.

Amendment in 2010:

- It emphasised over creation of a “Prohibited Area” 100 metres around every national monument where no construction, public or private be permitted.
- “Regulated Area” 200 metres beyond the prohibited area, where any construction requires permission of a newly constituted National Monuments Authority.

- Given the unique nature of each monument, the Act also proposed heritage bye-laws for each monument to be prepared by an expert body.
- Previous government’s decision to designate a 100-metre prohibited perimeter around every monument was upheld by the Supreme Court of India.

Advantages of proposed amendments:

- Prohibition of new construction within prohibited area is adversely impacting various public works and developmental projects of the Central Government.
- It will pave way for certain constructions limited strictly to public works and projects essential to public within the prohibited area and benefit the public at large.

Concerns:

- It must be kept in mind that any construction, whether for a public project or private purpose, will pose risks to a monument.
- Allowing an exception for “public works” can be misused and it will restrict the National Monuments Authority or the Archaeological Survey of India in ensuring that such construction do not pose a threat to a monument.
- Public works are often large infrastructure projects. Allowing these in the immediate vicinity of a protected monument will defeat the very purpose of the AMASR Act and will be a violation of Article 49 of the Constitution which casts obligation on the state to protect every monument or place of object of artistic or historic interest of national importance.

II. SOCIAL JUSTICE

TOPIC: GS II, WELFARE OF VULNERABLE SECTIONS OF THE SOCIETY

4. Solar Mamas

Source: The Hindu

Why in news:

- A group of 45 women from 10 countries called ‘solar mamas’ who learnt the skills needed for the fabrication of solar panels, lights and photovoltaic circuits have been felicitated by the Barefoot College in Rajasthan.
- They are a group of nearly 30 rural women solar engineers from six African countries who have been trained under India’s developmental support for harnessing solar energy.
- The ‘Solar Mamas’, who come from across Africa, are trained at Barefoot college in Rajasthan’s Tilonia village.

Functions of Solar Mamas:

- They are trained to fabricate, install, use, repair and maintain solar lanterns and household solar lighting systems in their villages.
- The women are also trained in solar electrification and other entrepreneurial skills such as bee-keeping and tailoring.
- Under Government of India-supported programmes, the college in Rajasthan has been promoting and training rural women solar engineers from Africa in household solar lighting systems.
- They will replicate the model in their villages by installing solar lanterns and panels, and train the women in their communities for the electrification of their homes.

Barefoot College:

- The Barefoot College also called as Social Work and Research Centre, empowers marginalised women by training them to become solar engineers, artisans, dentists, broadcasters and doctors for their own villages.
- It has been setup for imparting solar electrification skills and distributing solar kits.
- The institution has till now trained over 15,000 women in various skills.
- Training in solar energy applications is the Barefoot College's latest initiative. It was launched in 2005 and it is now supported by the Ministry of External Affairs.
- It caters to the groups of women from India, and from Latin America, other parts of Asia, the Pacific Islands, and African countries.

TOPIC: GS II, HEALTH

5. Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (Prevention and Control) Act, 2017

Source: The Hindu

Why in news:

- The Ministry of Health has announced the implementation of the Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) Act 2017 which seeks to ensure equal rights to persons affected by HIV and AIDS.
- Provisions of this Act address HIV-related discrimination, strengthen existing programme by bringing in legal accountability, and establish formal mechanisms for inquiring into complaints and redressing grievances.

Important features of the act:

- The Act lists various grounds on which discrimination against HIV positive persons and those living with the condition is prohibited which includes denial, termination, discontinuation or unfair treatment with regard to: employment, educational establishments, health care services, residing or renting property, standing for public or private office, and provision of insurance.
- The requirement for HIV testing as a prerequisite for obtaining employment or accessing health care or education is also prohibited.
- Every HIV infected or affected person below the age of 18 years has the right to reside in a shared household and enjoy the facilities of the household.
- It prohibits any individual from publishing information or advocating feelings of hatred against HIV positive persons and those living with them.
- A person between the age of 12 and 18 years who has sufficient maturity in understanding and managing the affairs of his/her HIV or AIDS-affected family shall be competent to act as guardian of another sibling below 18 years of age .
- Every person in the care and custody of the state shall have the right to HIV prevention, testing, treatment and counselling services.

What the present act lacks?

- It only protects the infected individuals from prejudiced behaviour and communities that are vulnerable to infection or individuals who are yet to be tested but are kind of those infected are still subjected to stigma and biased perspectives.
- The need is to adopt a holistic approach to successfully combat discrimination against the infected and the vulnerable, and create safe spaces for them.
- The stigma is more severe with the LGBTQ community who are HIV positive and the act does not mention any provision explicitly securing rights of them.
- The act does not mention any provision for rectifying public perception and educating people about HIV so that the acceptance of HIV infected people in society which is still a challenge can reduce.

TOPIC: GS I, SOCIAL JUSTICE

6. India's female workforce participation

Source: The Hindu

Reason for low female workforce participation in India:

- The Economic Survey 2017-18 revealed that women comprise only 24% of the Indian workforce.

- Marriage is a career stopper for the majority of Indian women and this cultural abhorrence towards women working continues.
- The cultural barrier for women working outside the home is so strong that in most traditional Indian families, quitting work is a necessary precondition to the wedding itself. This issue is far more significant in higher income section of the Indian society which implies that the richer the family is, lower the chances for women to pursue a career.
- Childbirth and taking care of elderly parents or in-laws account for the subsequent points where women drop off the employment pipeline.
- As India grows economically, the number of women in workplaces is declining steadily despite the fact that enrolment of girls in higher education courses is growing steadily from 39% in 2007 to 46% in 2014.

Issues associated with lower female participation:

- On the macroeconomic level, this suggests that we're giving up on a 27% boost to the country's GDP.
- At the individual level, without any recourse to financial means, women stay tied to the family.
- Ending a marriage is such a daunting task socially and legally that even the thought of embarking on it without financial independence is terrifying.

Way forward:

- With India aspiring to be a global superpower, cultural impediments should be set free and women need to be given wings of freedom to explore the right to live with independence and support self financially.

III. ECONOMY

TOPIC: GS III, INDIAN ECONOMY AND ISSUES RELATING TO PLANNING, MOBILIZATION OF RESOURCES, GROWTH

7. Monetary limit for filing cases in DRT doubled to Rs. 20 lakh

Source: Economic Times

Why the news:

The government Thursday doubled the pecuniary limit to Rs 20 lakh for filing loan recovery application in the Debt Recovery Tribunals (DRT) by banks and financial institutions.

- As a result, no bank or financial institution or a consortium of banks or financial institutions can approach the DRTs if the amount due is less than Rs 20 lakh.

- The move is aimed at helping reduce pendency of cases in the 39 DRTs in the country.

Background:

- As per RBI data on global operations (with provisional data as on March 2018), aggregate amount of Rs. 3,98,671 crore was written-off by banks over the last four financial years. Over the same period, their NPAs reduced by Rs. 2,57,980 crore due to recoveries.
- Banks and financial institutions' recovery of dues takes place on ongoing basis through legal mechanisms, which inter-alia includes Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, Recovery of Debts to Banks and Financial Institution (DRT) Act and Lok Adalats.

About Debt Recovery Tribunals (DRTs):

- DRTs were set up after the passing of Recovery of Debts due to Banks and Financial Institutions Act (RDBBFI), 1993.
- They were established to facilitate the debt recovery involving banks and other financial institutions with their customers.
- Section 3 of the RDBBFI Act empowers the Central government to establish DRTs.
- Under existing norms, DRT is supposed to dispose of matter referred to it within 180 days of receipt of application and appeal can be filed against DRT order with Debt Recovery Appellate Tribunals (DRATs). There are 39 DRTs and 5 DRATs functioning at various parts of the country.
- A DRT is presided over by a presiding officer who is appointed by the central govt. and who shall be qualified to be a District Judge; with tenure of 5 years or the age of 62, whichever is earlier.
- No court in the country other than the SC and the HCs and that too, only under articles 226 and 227 of the Constitution have jurisdiction over this matter.

Powers and functions of DRTs:

- The Debts Recovery Tribunal (DRT) enforces provisions of the Recovery of Debts Due to Banks and Financial Institutions (RDBBFI) Act, 1993 and also Securitization and Reconstruction of Financial Assets and Enforcement of Security Interests (SARFAESI) Act, 2002.
- They are fully empowered to pass comprehensive orders and can travel beyond the Civil procedure Code to render complete justice.
- A Debts Recovery Tribunal (DRT) can hear cross suits, counter claims and allow set offs. However, a DRT cannot hear claims of damages or deficiency of services or breach of contract or criminal

negligence on the part of the lenders. In addition, DRT cannot express an opinion beyond its domain, or the list pending before it.

- DRT can appoint Receivers, Commissioners, pass ex-parte orders, ad-interim orders, interim orders apart from powers to Review its own decisions and hear appeals against orders passed by the Recovery Officers of the Tribunal.

TOPIC: GS III, INCLUSIVE GROWTH AND ISSUES ARISING FROM IT

8. Small loans could turn bad: Rajan

Sources: The Hindu, India Today

Why the news:

Former RBI Governor Raghuram Rajan has cautioned that the next crisis in India’s banking sector could come from **loans given to the unorganised micro and small businesses, called MUDRA loans, and credit extended through the Kisan credit card.**

- He has also cautioned the government to **refrain from setting ambitious credit targets or waiving loans.**
- He also flagged the **Credit Guarantee Scheme for MSMEs**, run by the Small Industries Development Bank of India, calling it “a growing contingent liability” that needs to be examined with urgency.

Background:

A total of ₹6.37 lakh crore has been disbursed under the MUDRA scheme by public and private sector banks, regional rural banks and micro-finance institutions till date, as per data from the Micro Units Development and Refinance Agency (MUDRA) website.

- Rajan's warnings come at a time the Indian banking is reeling under an unprecedented bad loans problem. The NPAs of the 38 listed banks collectively crossed Rs 10.17 lakh crore in the fourth quarter of the last fiscal, with the 21 public sector banks (PSBs) accounting for the bulk of it.
- Besides, PSBs have collectively written-off over Rs 1,154 crore in NPAs in the last fiscal till December 31, which was a 103% jump from the amount written off in 2016-17.

About the Pradhan Mantri MUDRA Yojana (PMMY):

- The PMMY Scheme was **launched in April, 2015.**
- The objective of MUDRA scheme is to refine collateral-free loans given by the lenders to small borrowers.
- It has a corpus of Rs 20,000 crore and has the provision of lending from Rs 50,000 to Rs 10 lakh to small entrepreneurs.

- Banks and MFIs can draw refinance under the MUDRA Scheme after becoming member-lending institutions of MUDRA.
- Mudra Loans are available for non-agricultural activities upto Rs. 10 lakh and activities allied to agriculture such as Dairy, Poultry, Bee Keeping etc, are also covered.
- The unique feature of this scheme is that the **MUDRA Card** permits an access to working capital through ATMs and card machines.
- PMMY scheme also puts in place **MUDRA Bank** which monitors the network of microfinance institutions and also helps to register new institutions as well.
- There are **three types of loans** under PMMY:
 1. Loans up to Rs. 50,000 are categorized as **SHISHU.**
 2. Loans from Rs. 50,001 to Rs 5 lakh are categorized as **KISHORE.**
 3. Loans from Rs. 5,00,001 to Rs 10 lakh are categorized as **TARUN.**

While there is no processing fee for Shishu and Kishore, Tarun loan attracts a fee of 0.5 per cent of the loan amount (plus applicable tax).

Nuggets from the 'note'

What Raghuram Rajan told the parliamentary panel

<p>Why did NPAs occur</p> <ul style="list-style-type: none"> • Over-optimism of promoters and banks, growth slowdown, delay in statutory approvals, loss of interest in delayed projects, malfeasance among bankers and frauds 	<p>a referee and not a player</p> <p>Why asset quality review</p> <ul style="list-style-type: none"> • Banks were not recognising bad loans, not making adequate provisions for long-time NPAs and had slowed down credit growth
<p>Did RBI create the NPAs</p> <ul style="list-style-type: none"> • Bankers, promoters and circumstances created NPAs. The RBI is primarily 	<p>Eye on the future</p> <ul style="list-style-type: none"> • Govt. should refrain from setting ambitious credit targets and waiving loans • Need an empowered group to clean up banks



Objectives of MUDRA Scheme:

- MUDRA loans are available for non-agricultural activities and activities allied to agriculture such as dairy and poultry. It aims to fund those who have a business plan to generate income from a non-farm activity - like manufacturing, processing, or trading - but don't have enough capital to invest.
- MUDRA scheme aims reduce the unemployment by providing micro enterprises with credit facility which will not only increase the country's GDP but also create jobs.
- Boost the financial inclusion by taking the last mile credit delivery to micro businesses.

- Integration of informal economy into the formal sector as most of the time income from the informal sector is not taxed.

TOPIC: GS III, INDIAN ECONOMY

9. Index of Industrial Production (IIP) grows at 6.6% in July

Source: The Hindu

Why in news:

According to data released by Central Statistics Office (CSO), factory output measured in terms of the Index of Industrial Production (IIP) grew at 6.6% in July 2018. This growth was on the back of good performance by manufacturing sector and higher offtake of capital goods and consumer durables.

- Besides, IIP growth for June 2018 was also revised downwards to 6.8% from the provisional estimate of 7% released in August 2018.
- The IIP growth in April-July 2018 period was 5.4% compared to 1.7% year ago.

July 2018 IIP:

- Manufacturing sector (Weightage: 77.6): It recorded 7% growth.
- Electricity sector (Weightage: 7.9%): It recorded 6.7% growth.
- Mining (Weightage: 14.3%): It recorded 3.7% growth.
- Consumer durables sector: It recorded impressive growth of 14.4% as against dip of 2.4% in July 2017.
- Capital goods production: It grew by 3% as against decline of 1.1% in July 2017.
- In terms of industries, 22 out of 23 industry groups in the manufacturing sector showed positive growth during July 2018.

About Index of Industrial Production (IIP)

- The all India Index of Industrial Production (IIP) is composite indicator that measures short-term changes in volume of production of basket of industrial products during given period with respect to chosen base period.
- It is compiled and published monthly by Central Statistical Organization (CSO), Ministry of Statistics and Programme Implementation (MoSPI).
- Base year: The CSO had revised the base year of the IIP from 2004-05 to 2011-12 in May 2017 to capture structural changes in economy and improves quality and representativeness of indices. The revised IIP (2011-12) reflects changes in industrial sector and also aligns it

with base year of other macroeconomic indicators like Wholesale Price Index (WPI) and Gross Domestic Product (GDP).

- Sector wise items and weightages: IIP covers 407 item groups. Sector wise, the items included falls into 3 categories viz. Manufacturing (405 items), Mining (1 item) & Electricity (1 item). The weights of the three sectors are 77.63%, 14.37%, 7.9% respectively.

The combined weightage of eight core Industries in IIP is 40.27%.

TOPIC: GS III, INCLUSIVE GROWTH AND ISSUES ARISING FROM IT

10. Pradhan Mantri Jan Dhan Yojana

Source: Business Standard

Why in news:

The Government has decided to make the Pradhan Mantri Jan Dhan Yojana (PMJDY) an open-ended scheme and added more incentives to encourage people to open bank accounts.

Major changes:

- The overdraft limit for account holders has now been doubled to Rs 10,000, no conditions attached for over-draft of up to Rs 2,000.
- The free accident insurance cover for those opening Jan Dhan accounts after August 28 too has been doubled to Rs 2 lakh.
- The upper age limit for availing the facility has also been hiked to 65 from the earlier 60 years.

Background:

- There are approximately 32.41 crore Jan Dhan accounts having a total deposit balance of Rs 81,200 crore.
- 53 per cent of the PMJDY account holders are women, while 83 per cent of the total accounts are seeded with Aadhaar.
- About 30 lakh people have so far availed the over-draft facility.

It has been decided to continue the flagship financial inclusion programme PMJDY with focus on opening account from every household to every adult. The pipeline of Jandhan-Aadhaar-Mobile (JAM) will continue to provide the necessary backbone for coverage of these activities and thereby accelerating the pace of digitised financially included and insured society.

About PMJDY:

The primary aim of this scheme is to provide poor people access to bank accounts.

- The scheme covers both urban and rural areas of India. All bank accounts will be linked to a debit

card which would be issued under the Ru-Pay scheme. Rupay is India's own unique domestic card network owned by National Payments Corporation of India and has been created as an alternative to Visa and Mastercard.

- Under the first phase of this scheme, every individual who opens a bank account becomes eligible to receive an accident insurance cover of up-to Rs 1 Lakh for his entire family.
- Life Insurance coverage is also available under PMJDY. Only one person in the family will be covered and in case of the person having multiple cards/accounts, the benefit will be allowed only under one card i.e. one person per family will get a single cover of Rs 30,000.
- The scheme also provides incentives to business and banking correspondents who serve as link for the last mile between savings account holders and the bank by fixing a minimum monthly remuneration of Rs 5000.

IV. ENVIRONMENT

TOPIC: GS III, CONSERVATION

11. Eight Avian Species Declared "Extinct" in New Study

Source: India Today

Why the news:

- Scientists have declared eight species of birds to be extinct in what are being seen as the first avian extinctions of the 21st century.
- The study was conducted by "BirdLife International". It assessed 51 species judged "critically endangered" on the International Union for the Conservation of Nature's (IUCN) "Red List" by using a new statistical method.

Findings of the study:

The study conducted by the non-profit organisation, 'BirdLife International' tracked 51 critically endangered species over eight years only to find out that three are extinct, one is extinct in the wild and four others are on the verge of extinction if not already gone.

They assessed the animals according to the criteria for species being assigned to the International Union for the Conservation of Nature (IUCN) Red List.

- While four of the eight species have been labeled by BirdLife as extinct or near-extinct, the nonprofit organisation reported that three species have completely been wiped out.
- The species gone extinct include Spix's macaw, the Alagoas foliage-gleaner, the cryptic tree hunter,

the Pernambuco pygmy-owl, the poo-uli, or black-faced honeycreeper and the glaucous macaw.

- Five of these new extinctions have occurred in South America and have been attributed by scientists to deforestation. Four out of the eight species declared extinct belong to Brazil.

Reasons of extinction:

- According to the research, illegal logging of trees, felling of plantations and pasture and diminishing woodland areas in South America are the causes behind the extinction of these species.
- South America is the continent where habitat loss and degradation are on the rise primarily due to rampant deforestation, to make way for large-scale industrial activities.
- Most of the species were found to be threatened by other species in the enclosed, island-like habitats that they are found in.
- Nearly 30 per cent of the extinctions were linked to hunting and trapping by human hands.

Important Bird and Biodiversity Areas (IBAs):

- The IBAs are "places of international significance for the conservation of birds and other biodiversity" and are "distinct areas amenable to practical conservation action," according to BirdLife International.
- Declaring a site as an Important Bird and Biodiversity Area does not ensure that the site gets legal protection or becomes inaccessible to people. Instead BirdLife International encourages national and State governments to recognise the areas as sites of vital importance for conservation of wildlife and to empower local community-based conservation initiatives.

About Birdlife International:

BirdLife International (formerly the International Council for Bird Preservation) is a global partnership of conservation organisations that strives to conserve birds, their habitats and global biodiversity, working with people towards sustainability in the use of natural resources.

- It is the world's largest partnership of conservation organisations, with over 120 partner organisations.
- BirdLife International publishes a quarterly magazine, World Birdwatch, which contains recent news and authoritative articles about birds, their habitats, and their conservation around the world.
- BirdLife International is the official Red List authority for birds, for the International Union for Conservation of Nature.

**TOPIC: GS III, CONSERVATION,
ENVIRONMENTAL POLLUTION
AND DEGRADATION**

**12. Ethanol Blended Petrol Programme for
Ethanol Supply Year 2018-19**

Source: PIB

Why in news:

The Cabinet Committee on Economic Affairs has given its approval to revise/fix the price of ethanol derived from B-heavy molasses/partial sugarcane juice and fix a higher price for 100% sugarcane juice based ethanol for the forthcoming sugar season 2018-19 during ethanol supply year from 1st December 2018 to 30th November 2019 .

Impact:

- The decision will serve multiple purposes of reducing excess sugar in the country, increasing liquidity with the sugar mills for settling cane farmer's dues and making higher ethanol available for Ethanol Blended Petrol (EBP) Programme.
- All distilleries will be able to take benefit of the scheme and large number of them are expected to supply ethanol for the EBP programme. Remunerative price to ethanol suppliers will help in reduction of cane farmer's arrears, in the process contributing to minimizing difficulty of sugarcane farmers.
- Ethanol availability for EBP Programme is expected to increase significantly due to higher price being offered for procurement of ethanol from B heavy molasses / partial sugarcane juice and 100% sugarcane juice for first time.
- Increased ethanol blending in petrol has many benefits including reduction in import dependency, support to agricultural sector, more environmental friendly fuel, lesser pollution and additional income to farmers.

Background:

- Government has notified administered price of, ethanol since 2014. This decision has significantly improved the supply of ethanol during the past four years. The ethanol procured by Public Sector OMCs has increased from 38 crore litre in ethanol supply year 2013-14 to estimated 140 crore litre in 2017-18.
- Consistent surplus of sugar production is depressing sugar price. Consequently, sugarcane farmer's dues have increased due to lower capability of sugar industry to pay the farmers. Government has taken many decisions for reduction of cane farmer's dues.
- With a view to limit sugar production in the Country, Government has taken multiple steps including,

allowing diversion of B heavy molasses / sugarcane juice for production of ethanol. As the ex-mill price of sugar has increased from the earlier estimated price, there is a need to revise price of B heavy molasses / partial sugarcane juice and 100% sugarcane juice for production of ethanol.

- It is worth noting that as compared to ethanol derived from C heavy molasses route, diversion of B heavy molasses reduces the sugar by about 20% and increases ethanol availability by about 100%. On the other hand, diversion of sugarcane juice reduces sugar by 100% and increases ethanol availability by about 600%.

Concerns and challenges:

- There has been a consistent shortfall in supply of ethanol in the past, mainly on account of the cyclical nature of the sugarcane harvests in the country.
- There is "lack of an integrated approach in the EBP across its value chain."

Way ahead:

- The National Policy on Bio-fuels has set a target of 20% blending of biofuels, both for bio-diesel and bio-ethanol. This will require an integrated approach in the Ethanol Blending Programme (EBP). The time is ripe for a cogent and consistent policy and administrative framework in the program implementation for the success of EBP.

Ethanol Blended Petrol Programme:

- It was launched by the Government in 2003 on pilot basis which has been subsequently extended to the Notified 21 States and 4 Union-Territories.
- It aims to promote the use of alternative and environment friendly fuels.
- This intervention also seeks to reduce import dependence for energy requirements and give boost to agriculture sector.
- Government is implementing Ethanol Blended Petrol Programme through the Oil Marketing Companies (OMCs).

**TOPIC: GS III, DIFFERENT TYPES
OF IRRIGATION AND IRRIGATION
SYSTEMS STORAGE**

**13. Heritage tag for two irrigation
facilities in Telangana**

Source: The Hindu

Why the news:

A meeting of the International Executive Council, the highest decision making body of International Commission on Irrigation and Drainage (ICID), at Saskatoon in Canada has accepted Telangana

government's nomination of Sadarmatt anicut across river Godavari in Nirmal district and Pedda Cheruvu in Kamareddy district in the ICID Register of Heritage Irrigation Structures.

About Sadarmatt anicut:

- It was constructed during 1891-92 across Godavari river on the left arm on downstream of Sriram Sagar Project near Medampally village in Nirmal.
- The anicut, which is English word for Telugu's ana-katta, meaning a rainfall bund was built by Nawab Iqbal-ud-Dowla who bore the title of Vicar-ul-Umrah Bahadur about 50 km downstream of the Sri Ram Sagar Project (SRSP) and is chiefly fed by Sawrnavagu stream.
- The anicut was constructed only for irrigation purpose to provide water to 13,100 acres of land. While major crop being irrigated under Sadarmatt is paddy (contributing 80% of irrigated area), the other crops include maize and turmeric.
- It has also served as a picnic spot for people from an area which may not be as vast its catchment area of nearly 40,000 sq miles but is spread over old undivided Adilabad, Karimnagar and Nizamabad districts.

About Pedda Cheruvu:

- The Pedda Cheruvu (big tank in Telugu) was built in 1897 during the rule of Mir Mahaboob Ali Khan, the sixth Nizam of Hyderabad State. This tank was taken up under the second round of Mission Kakatiya to be developed as a mini tank bund with an estimated outlay of ₹ 6.6 crore.
- It also provides drinking water for residents of the area. Womenfolk play Bathukamma during the Navaratri festival on its bund and immerse them in its waters. It is a picnic spot for residents of the area who come to its bund for relaxation and have a panoramic view of nature. Consequently, the Government wanted to develop it as a tourist spot by creating the necessary infrastructure.

About International Commission on Irrigation and Drainage (ICID):

The ICID is a Technical and Voluntary Not-for-profit, International NGO, dedicated to enhance the worldwide supply of food and fibre for all people by improving water and land management, and the productivity of irrigated and drained lands.

- The ICID By-laws have been enacted its International Executive Council for the due implementation of the provisions of the Constitution of the Commission. It is headquartered in New Delhi.
- ICID has been involved in the global discussions leading to Agenda 21, World Water Vision, World

Water Forums etc., which have become the focal point of several of its technical activities.

- In recognition of its significant contribution to the programs and objectives of International Year of Peace proclaimed by the UN General Assembly, on 15 September 1987 ICID was designated as a Peace Messenger by the UN Secretary General.

V. INTERNATIONAL RELATIONS

TOPIC: GS II, INDIA AND ITS NEIGHBOURING COUNTRIES

14. Iran to hand over Chabahar port to India

Source: The Hindu

Why in news:

Iran has decided to hand over the operational responsibility of a part of the Chabahar port to an Indian company in a month.

About Chabahar port:

- Iran's Chabahar port is located on the Gulf of Oman and is the only oceanic port of the country.
- The port gives access to the energy-rich Persian Gulf nations' southern coast and India can bypass Pakistan once the Chabahar port becoming functional.



Why Chabahar port is important for India?

- India can bypass Pakistan for transporting goods to Afghanistan.
- Chabahar port will boost India's access to Iran, the key gateway to the International North-South Transport Corridor that has sea, rail and road routes between India, Russia, Iran, Europe and Central Asia.
- With Chabahar port becoming functional, there will be a significant boost in the import of iron ore, sugar and rice to India. The import cost of oil to India will also see a considerable decline.

- It will be beneficial to India in countering Chinese presence in the Arabian Sea which China is trying to ensure by helping Pakistan develop the Gwadar port.
- With Chabahar port being developed and operated by India, Iran also becomes a military ally to India.
- Chabahar could be used in case China decides to flex its navy muscles by stationing ships in Gwadar port to reckon its upper hand in the Indian Ocean, Persian Gulf and Middle East.
- It will lead to better economic ties between Afghanistan and India.

What is the stand of US on Indo-Iranian Chabahar deal?

- Like all the countries of the world US has also suggested India to stop buying oil from Iran as from 4th November, the sanctions with respect to Iranian crude oil will be enforced. However it has indicated to undertake waivers if it is necessary as after the 2+2 dialogue with the U.S, India expects to carve out Chabahar project as it is strategically important to India.

TOPIC: GS II, BILATERAL AND MULTILATERAL GROUPINGS

15. India-US defence relationship

Source: The Hindu

Why in news:

India and US have signed three defence agreements during recently concluded 2+2 Dialogue in Delhi. These are the Communications Compatibility and Security Agreement (COMCASA), hotlines between the Defence and Foreign Ministers of both countries, and the first tri-services military exercises between the two countries.

Factors for emerging strategic convergence between India and US:

Post Cold War world scenario provided an opportunity to both countries to review their relationship in the light of changing global and regional realities.

With the opening of the Indian economy, the American private sector began to look at India with greater interest.

Presence of three-million-strong Indian diaspora in US played significant role to influence USA to come closer to India.

Trade related issues which have not been solved:

- India still have not received a clear-cut assurance of its GSP (Generalised System of Preferences) status or waivers on steel and aluminium tariffs imposed by Washington. Instead, U.S. has

imposed its expectations on India to increase imports of American oil and gas as well as aircraft in order to wipe out the trade surplus India enjoys.

- U.S has also demand India to stop fully importing oil from Iran by November which is simply unreasonable. It would hurt India dearly not only because of costs at a time when the dollar is strengthening and fuel prices are going up, but also in terms of its substantial engagement with Iran.
- No public statement was made on what the U.S. will do for securing India's investment in the Chabahar port once its full sanctions kick in on November 4.

About COMCASA:

- It is one of the three foundational defence pacts that needs to be signed by a country in order to obtain high-tech military hardware from the US.
- With Communications Compatibility and Security Agreement (COMCASA), India has concluded three of the four foundational agreements with the U.S. that had been planned for years.
- India had earlier signed two of them — General Security Of Military Information Agreement (GSOMIA) in 2002 and the Logistics Exchange Memorandum of Agreement (LEMOA) in 2016.
- The agreement will give Indian military access to high-end secured and encrypted communication equipment which are installed on American platforms obtained by Indian Armed Forces. These platforms are C-130 J, C-17, P-8I aircraft, and Apache and Chinook helicopters.
- The act is also called as the Communication and Information on Security Memorandum of Agreement (CISMOA).
- It will also provide a legal framework for the transfer of encrypted communication security equipment from the US to India.
- It is believed to be safer and more secure than the system that India uses right now.
- Some critics have pointed out that the agreement could jeopardise India's established military ties with Russia and access to their weapons systems.

Significance of COMCASA:

- It will enable Indian military to get a better picture of the Indian Ocean Region (IOR) which is seeing increasing Chinese movements.
- With COMCASA, the Indian armed forces will get to fully exploit the capability of the military platforms procured from the US. For instance, India will get access to Combined Enterprise Regional Information Exchange System, or CENTRIXS, which is the secure communication

system network of the US. Navy ships with CENTRIXS on board can communicate securely with the U.S. Navy when needed and can benefit from the wider situational picture of the region as they have a large number of ships and aircraft deployed. This will reduce the stress on the assets and allow prioritising the deployments more efficiently.

Challenges and safeguards:

- It is believed that there are concerns that this will allow U.S. Navy access to India's own secure communication network and also that the information shared with the U.S. will be accessible by Pakistan.
- Data acquired through such systems cannot be disclosed or transferred to any person or entity without India's consent.

TOPIC: GS II, INDIA AND ITS NEIGHBOURING NATIONS

16. CPEC, a Debt Trap

Source: The Hindu

What is CPEC?

- The China–Pakistan Economic Corridor (also known as CPEC and North-South economic corridor) is an all-weather economic corridor consisting of a number of projects currently under construction at a cost of \$54 billion.
- It aims to encourage trade along an overland route that connects Kashgar (Xinjiang Uyghur Autonomous Region, China) and Gwadar (Balochistan, Pakistan), through the construction of a network of highways, railways, optical fiber and pipelines.
- It is an extension of China's One Belt One Road initiative and the importance of CPEC to China is reflected by its inclusion as part of China's 13th five-year development plan.
- China is financial backing for the China Pakistan Economic Corridor (CPEC) but it is a debt trap for Pakistan that could compromise Pakistan's sovereignty.

How CPEC is a debt trap for Pakistan?

- Through CPEC, China would snatch several assets of Pakistan and will reduce it to a Chinese colony.
- China has surplus industrial capacity, unemployed technical personnel and foreign exchange, which will be utilised in CPEC
- China is not giving any free money and is charging high interest rates to develop infrastructural projects in smaller countries. When these countries fail to repay the loan, it grabs those projects. Recently, Sri Lanka was forced to lease

out its Hambantota sea port for 99 years to China as it was unable to repay loan.

- China has built massive infrastructure in other countries but business was not conducted and the countries are facing difficulty in payment of loans.
- China has a massive population of 1.37 billion but does not have sufficient arable land and is one of the largest importer of agricultural products. Chinese companies would capture thousand of acres of Pakistani land under the garb of mechanisation, using modern electronic gadgets to solve agricultural problems pertaining to fertilisers, seeds, livestock and supply chain.
- In CPEC, a large chunk of the road and railway line would be built on Pakistan's resources as China wants to connect its land-locked restive Province of Xinjiang from Gwadar port.
- Pakistan will have to repay \$90 billion by 2030, which is a difficult task. China would also disseminate its ideology and culture in Pakistan
- On power generated by investments of China it will be charging Rs 8.50 per kilowatt an hour, while the reasonable rate is rupees five only. In this way, on the one hand, public will have to pay more, on the other, since there is too much of theft, the Government will not be able to repay the debt.
- All Chinese companies have obtained tax concessions in Pakistan hence, neither Pakistan will earn money from taxes nor will the Pakistanis get employment as they do not have sufficient skilled manpower. Companies in China mostly employ Chinese workers.
- China would dump cheap goods in Pakistan and would destroy local industries. Pakistani industries will also fail to compete because of augmented electricity rates and excessive taxation.

TOPIC: GS II, IMPACT OF POLICIES OF THE COUNTRIES ON INDIA

17. United States goes tough on ICC

Source: The Hindu

Why in news:

Recently, the United States threatened to arrest and sanction court officials of ICC if it moves to charge any of its citizen who served in Afghanistan with war crime terming any probe of U.S. service members as an unjustifiable investigation.

About ICC:

- ICC is the world's first intergovernmental legal body with permanent international jurisdiction

to prosecute individuals for genocide, crimes against humanity and war crimes.

- It is based in The Hague, Netherlands.
- It was established by the Rome Statute which was adopted in July 1998 and entered into force in July 2002. It has 123 member states.
- ICC is seen as a successor to Nuremberg trials after World War II and ad-hoc UN war crimes tribunals for the former Yugoslavia and Rwanda.
- The Rome Statute is multilateral treaty which serves as ICC's foundational and governing document.
- India has not signed Rome Statute.
- It is independent of United Nations (UN). However it may receive case referrals from UN Security Council and can initiate prosecutions without UN action or referral.
- US signed the treaty (Rome Statute) in 2000 but never ratified it, citing concerns over sovereignty.
- Russia cited similar issues and opted out of ICC when it declared Russia's annexation of Crimea as an armed conflict.
- China and India have not signed it.

TOPIC: GS II, BILATERAL AND MULTILATERAL GROUPINGS

18. MILEX 18

Source: The Hindu

Why in news:

- Military Exercise for the Bay of Bengal Initiative for Multi Sectoral Technological and Economic Cooperation nations named MILEX-18 has started at Aundh Military Station (Pune).
- The exercises were proposed by India during at the BIMSTEC summit in Kathmandu last month that brought together leaders of India, Nepal, Bangladesh, Bhutan, Sri Lanka from South Asia and Myanmar, and Thailand.
- It is aimed at helping BIMSTEC nations practise "planning and conduct of counter terrorist operations". Each country was asked to send a contingent of 30 personnel including five officers and 25 soldiers in addition to three observers.
- Nepal and Thailand have decided not to send their full contingents at the first-ever military exercise of the regional grouping BIMSTEC. Nepal also conveyed that its Army Chief would not be able to attend the Chiefs' conclave at the exercise.

- All participating nations except Nepal have confirmed their Army Chiefs would attend the Chiefs' conclave.

Why Nepal pulled out?

- Nepal, which had initially confirmed a full contingent, pulled out in the last minute and instead sent three observers citing the busy schedule of its new army chief. However, Nepal is scheduled to hold its second military exercise with China.
- The reason cited for Nepal to pull out of the exercise was strong opposition from various quarters, including the party members of current government of Nepal which is considered to be pro Chinese.
- Nepal has also stated that BIMSTEC is purely a developmental forum among the seven members which does not prioritise military exercises.
- India and Nepal conduct bilateral military exercise known as Surya Kiran.

Nepal China relation:

- Nepal has concluded an agreement with China to gain access to Chinese ports, including Tianjin, Shenzhen, Lianyungang and Zhanjiang.
- Nepalese goods will also have access to dry ports at Lanzhou, Lhasa and Xigatse.
- Nepal's exports through Chinese ports will never materialize to the extent that its current account will be worsened by infusion of Chinese goods and capital.

Lessons for Nepal:

- Many neighbours of India play the China card with India and the India card with China but current government of Nepal may end up taking his country in a very different direction with his unnecessary provocations to India.
- No country has come out healthier after a tight embrace with China. Nepal should look at examples ranging from Malaysia to Sri Lanka, and even Pakistan right now.

Way forward:

- India needs to develop sharper instruments to coerce hostile leadership in the neighbourhood. The blockade was a blunt instrument which caused substantial harm to the common people.
- Nepal on other side should focus on what is good for people of Nepal and set aside political backlashes. Use of Chinese port will leave the economy in bad shape increasing the deficit as Indian ports are easy to access than the Chinese.

VI. SCIENCE & TECHNOLOGY

TOPIC: GS III, SCIENCE AND TECHNOLOGY- DEVELOPMENTS AND THEIR APPLICATIONS AND EFFECTS IN EVERYDAY LIFE

19. Upgraded research reactor 'Apsara-U'

Sources: PIB, Indian Express

Why in news:

Bhabha Atomic Research Centre (BARC), Trombay has re-commissioned India's oldest nuclear research reactor named 'Apsara', which was shut down permanently in 2009 for repair. The refurbished version of this reactor has been named as 'Apsara-upgraded' (Apsara-U) and also has double capacity compared to its earlier version. It is located within India's nuclear weapons facility at BARC's Trombay campus (Maharashtra).

About Apsara Nuclear reactor:

- Apsara which went critical on 4 August 1956 was the first nuclear research reactor in Asia.
- The reactor was designed by the Bhabha Atomic Research Center (BARC) and built with assistance from the United Kingdom (which also provided the initial fuel supply consisting of 80% enriched uranium).
- Apsara is a light water swimming pool-type reactor with a maximum power output of one megawatt thermal (MWt).
- The reactor burns enriched uranium in the form of aluminum alloyed curved plates. Fuel for the reactor is supplied under contract from the United Kingdom, provided that the fuel is safeguarded.
- The Apsara reactor is utilized for various experiments including neutron activation analysis, radiation damage studies, forensic research, neutron radiography, and shielding experiments.
- The reactor is also used for research and the production of radioisotopes.

About the Apsara- Upgraded:

- "Apsara-upgraded", made indigenously, uses plate type dispersion fuel elements made of Low Enriched Uranium (LEU).
- By virtue of higher neutron flux, this reactor will increase indigenous production of radio-isotopes for medical application by about fifty percent and would also be extensively used for research in nuclear physics, material science and radiation shielding.
- This development has re-emphasised the capability of Indian scientists and Engineers to

build, complex facilities for health care, science education and research.

Bhabha Atomic Research Centre (BARC):

- BARC is India's premier nuclear research facility based in Mumbai, Maharashtra. It is multi-disciplinary research center with extensive infrastructure for advanced research and development. Its R&D covers entire spectrum of nuclear science, engineering and related areas. BARC's core mandate is to sustain peaceful applications of nuclear energy, primarily for power generation.

TOPIC: GS III, AWARENESS IN SPACE

20. NASA's Cassini spacecraft

Source: NASA, India Today

Why in news:

A new long-term study using data from NASA's Cassini spacecraft has revealed a surprising feature emerging at Saturn's northern pole as it nears summertime: a warming, high-altitude vortex with a hexagonal shape.

Key facts:

- When Cassini arrived at the Saturnian system in 2004, the southern hemisphere was enjoying summertime, while the northern was in the midst of winter. The spacecraft spied a broad, warm, high-altitude vortex at Saturn's southern pole, but none at the planet's northern pole.
- A new long-term study has now spotted the first glimpses of a northern polar vortex forming high in the atmosphere as Saturn's northern hemisphere approached summertime.
- This warm vortex sits hundreds of kilometres above the clouds, in a layer of atmosphere known as the stratosphere.
- The edges of this newly-found vortex appear to be hexagonal, precisely matching a famous and bizarre hexagonal cloud pattern we see deeper down in Saturn's atmosphere.
- The vortex is akin to the famous hexagon seen deeper down in Saturn's clouds.
- The results suggest that the lower-altitude hexagon may influence what happens above, and that it could be a towering structure hundreds of miles in height.

Background:

- Saturn's cloud levels host the majority of the planet's weather, including the pre-existing north polar hexagon. This feature was discovered by NASA's Voyager spacecraft in the 1980s and has been studied for decades; it is a long-lasting wave

potentially tied to Saturn's rotation, a type of phenomenon also seen on Earth in structures such as the Polar Jet Stream.

- Its properties were revealed in detail by Cassini, which observed it in multiple wavelengths – from the ultraviolet to the infrared – using instruments including its Composite Infrared Spectrometer (CIRS). However, at the start of the mission this instrument could not peer further up in the northern stratosphere, which had temperatures around -158 degrees Celsius – some 20 degrees too cold for reliable CIRS infrared observations – leaving these higher-altitude regions relatively unexplored for many years.

About Cassini Mission:

- Launched in 1997, the Cassini mission — a cooperation between NASA, the European Space Agency and the Italian Space Agency — has sent back thousands of stunning images and made numerous discoveries about the ringed planet and its moons.
- Cassini–Huygens is an unmanned spacecraft sent to the planet Saturn. Cassini is the fourth space probe to visit Saturn and the first to enter orbit. Its design includes a Saturn orbiter and a lander for the moon Titan. The lander, called Huygens, landed on Titan in 2005. The spacecraft was launched on October 15, 1997. This was the first landing ever accomplished in the outer Solar System.
- The Cassini mission came to an end in September 2017.

Objectives of Cassini mission:

- Determine the three-dimensional structure and dynamic behavior of the rings of Saturn.
- Determine the composition of the satellite surfaces and the geological history of each object.
- Determine the nature and origin of the dark material on Iapetus's leading hemisphere.
- Measure the three-dimensional structure and dynamic behavior of the magnetosphere.
- Study the dynamic behavior of Saturn's atmosphere at cloud level.
- Study the time variability of Titan's clouds and hazes.
- Characterize Titan's surface on a regional scale.

TOPIC: GS III, AWARENESS IN SPACE

21. Kepler Space Telescope

Source: NASA

Why in news:

NASA's planet hunting Kepler space telescope - which has led to the discovery of over 2,300 planets so far -

was roused from sleep mode and has restarted its scientific operations. The US space agency has been closely monitoring the probe since it is expected to run out of fuel soon.

- The Kepler team is planning to collect as much science data as possible in its remaining time and beam it back to Earth before the loss of the fuel-powered thrusters that would make it difficult to aim the spacecraft for data transfer.

Background:

- The space telescope, originally launched in March 2009, has had a tumultuous year. The team placed Kepler into hibernation in July, as their new planet-hunter, the Transiting Exoplanet Survey Satellite (TESS), began testing for its own mission. The hibernation-like state was to ensure that the data from Kepler's 18th mission, stored onboard the spacecraft, would be able to make its way back to Earth.

About Kepler Mission:

- Launched in 2009, the Kepler mission is specifically designed to survey our region of the Milky Way galaxy to discover hundreds of Earth-sized and smaller planets in or near the habitable zone and determine the fraction of the hundreds of billions of stars in our galaxy that might have such planets.
- Achievements: In total, the Kepler mission has confirmed the existence of 2,652 exoplanets and 30 of those exist within the Small Habitable Zone, the area of space surrounding a star where a planet could theoretically support a surface of liquid water (and potentially extraterrestrial life).

About TESS mission:

The Transiting Exoplanet Survey Satellite (TESS) is the next step in the search for planets outside of our solar system, including those that could support life. The mission will find exoplanets that periodically block part of the light from their host stars, events called transits.

- TESS was launched on April 18, 2018, aboard a SpaceX Falcon 9 rocket.
- The mission will monitor at least 200,000 stars for signs of exoplanets, ranging from Earth-sized rocky worlds to huge gas giant planets. TESS, however, will focus on stars that are 30 to 100 times brighter than those Kepler examined. This will help astronomers better understand the structure of solar systems outside of our Earth, and provide insights into how our own solar system formed.
- The primary mission objective for TESS is to survey the brightest stars near the Earth for transiting exoplanets over a two-year period.

- **Orbit:** TESS will occupy a never-before-used orbit high above Earth. The elliptical orbit, called P/2, is exactly half of the moon's orbital period; this means that TESS will orbit Earth every 13.7 days. Its closest point to Earth (67,000 miles or 108,000 kilometers) is about triple the distance of geosynchronous orbit, where most communications satellites operate.
- **How it works-** It will use transit method to detect exoplanets. It watches distant stars for small dips in brightness, which can indicate that planet has passed in front of them. Repeated dips will indicate planet passing in front of its star. This data has to be validated by repeated observations and verified by scientists.
- It is led by the Massachusetts Institute of Technology with seed funding from Google.

TOPIC: GS III, AWARENESS IN THE FIELDS OF IT, SPACE, COMPUTERS, ROBOTICS, NANO-TECHNOLOGY

22. NITI Aayog, Intel and TIFR collaborate to set up a Model International Center for Transformative AI (ICTAI)

Source: PIB

Why the news:

NITI Aayog, Intel, and Tata Institute of Fundamental Research (TIFR) are collaborating to set up Model International Center for Transformative Artificial Intelligence (ICTAI) in Bengaluru.

- This initiative is part of NITI Aayog's 'National Strategy for Artificial Intelligence' Discussion Paper that focuses on establishing ICTAI in the country through private sector collaboration.
- The model centre is aimed at solving major challenges in India with special focus on application-based AI research in healthcare, agriculture and smart mobility.

About the Model ICTAI:

- Model ICTAI will aid in Developing and deploying AI-led application-based research projects.
- It will conduct advanced research to incubate AI-led solutions in three important areas – healthcare, agriculture and smart mobility – by bringing together expertise of Intel and TIFR.
- It will experiment, discover and establish best practices in domains of ICTAI governance, fundamental research, physical infrastructure, compute and service infrastructure needs, and talent acquisition.

- Through this collaborative effort, the model ICTAI is chartered to develop AI foundational frameworks, tools and assets, including curated datasets and unique AI algorithms.
- The intent is to develop standards and support policy development related to information technology such as data-storage, information security, privacy, and ethics for data capture and use.
- The model Centre also plans to develop AI foundational technologies to promote applied research that can scale for national impact and will lead to the creation of a vibrant and self-sustaining ecosystem.
- Another key area of its focus will be collaboration with industry leaders, startups, and AI services and product companies to productize technologies and IP that are developed at the model ICTAI.
- It will support skilling and talent development for world-class AI talent.
- ICTAI will also collaborate with industry leaders, startups, and AI services and product companies to productize technologies and IP that are developed by it.
- The learning and best practices developed through this model ICTAI will be used by NITI Aayog to set up future ICTAIs across country.

About artificial intelligence (AI):

- Artificial Intelligence comes from computer systems that have been programmed to — or have learnt to — do tasks that would otherwise require human intelligence. Many apps and software are already making mundane work easier by doing a certain part of it for us, based on acquired intelligence.

Concerns associated with AI:

- Automation threatens 69% of the jobs in India, while it's 77% in China, according to a World Bank research. The transition is expected to happen in a decade, according to experts. Therefore, if automation is not planned well and addressed holistically, it is a disaster in the making.

Opportunities linked with AI:

- While there is a risk to jobs due to these trends, the good news is that a huge number of new jobs are getting created as well in areas like cybersecurity, cloud, big data, machine learning and AI. The new job roles that will dominate the IT workforce are within digital domains such as big data, artificial intelligence, Internet of Things (IoT), cloud computing and cybersecurity. It is clearly a time of career pivot for IT professionals to make sure they are where the growth is.

Seven- point strategy:

- The government has recently drawn up a seven-point strategy that would form the framework for India's strategic plan to use AI.
- The strategy includes developing methods for human machine interactions; ensuring safety and security of AI systems; creating a competent workforce in line with AI and R&D needs, understanding and addressing the ethical, legal and societal implications of AI, measuring and evaluating AI technologies through standards and benchmarks, among others.

TOPIC: GS III, AWARENESS IN THE FIELDS OF IT, SPACE, COMPUTERS, ROBOTICS, NANO-TECHNOLOGY

23. Cabinet approves MoU between EXIM Bank and BRICS banks for blockchain research

Source: PIB

Why in news:

- The Union Cabinet chaired has given its ex-post facto approval for the Memorandum of Understanding (MoU) on Collaborative Research on Distributed Ledger and Block chain Technology in the context of Development of digital economy by Export-Import Bank of India (Exim Bank) with the participating member banks, under the BRICS Interbank Cooperation Mechanism.
- The MoU was signed between Exim Bank, Banco Nacional de Desenvolvimento Economico e Social (BNDES, of Brazil), China Development Bank (CDB), State Corporation Bank for Development and Foreign Economic Affairs (Vnesheconombank of Russia) and Development Bank of Southern Africa (DBSA).

Major Impact:

- Distributed Ledger/Block chain technology holds potential for solutions to various challenges being faced in the financial sector space of the BRICS nations.
- The MoU intends to enhance understanding of Distributed Ledger/Block Chain technology, through the joint research efforts to identify areas within respective business operations where it may have the potential for applications aimed at enhancing the operational efficiencies.

Background:

- The Xiamen Declaration signed in China on digital economy by the BRICS leaders had highlighted the importance of the digital economy and how the BRICS nations could leverage the thriving and

dynamic digital economy that will foster global economic development and benefit everyone. Accordingly, a Memorandum of Understanding (MoU) on Collaborative Research on Distributed Ledger and Block chain Technology in the Context of the Development of the Digital Economy was suggested to be linked by all member banks.

About the BRICS Inter-Bank Cooperation Mechanism (BICM):

- In order to develop and strengthen economic ties and investment cooperation between BRICS countries, in 2010 state financial institutions for development and export support of the BRICS nations entered into a Memorandum on cooperation, thus creating the BRICS interbank cooperation mechanism.
- BICM is primarily aimed at developing comprehensive long-term cooperation among member development banks for facilitating and supporting cross-border transactions and projects of common interest, while concomitantly strengthening and enhancing trade and economic relations among member countries.
- One of the main purposes of cooperation is to set up a scheme designed to provide financing and banking services for future investment projects that could be beneficial for the economic development of the BRICS countries.
- On the basis of agreements that have been signed within the framework of the BRICS interbank cooperation mechanism, the member banks have taken steps towards developing multilateral financial cooperation within the BRICS countries and created basic mechanisms for settling payments and financing investment projects in local currencies.
- The participants of the BRICS interbank cooperation mechanism are the Brazilian Development Bank (BNDES), Vnesheconombank of Russia, Export-Import Bank of India, China Development Bank Corporation, Development Bank of Southern Africa (DBSA) and New Development Bank.

VII. PRELIMS/MISCELLANEOUS

24. Nomadic Elephant-2018

Why in news:

- Indo-Mongolia joint exercise Nomadic Elephant-2018, commenced at Mongolian Armed Forces (MAF) Five Hills Training Area, Ullanbaatar, Mongolia.
- It is thirteenth edition of exercise.

- Exercise Nomadic Elephant is an annual, bilateral exercise since 2006 which is designed to strengthen the partnership between Indian Army and Mongolian Armed Forces.
- The exercise aims at improving their tactical and technical skills in joint counter insurgency and counter terrorist operations in rural and urban scenario under United Nations mandate.
- Exercise Nomadic Elephant-2018 will contribute immensely in developing mutual understanding & respect for each others military and also facilitate in tackling the world wide phenomenon of terrorism.

- Under the PDPS, the Centre proposes to cover all oilseeds. Under PPSS, states will have the option to roll out PPSSs in select districts. Under this, a private player could procure crops at MSP when market prices drop below MSP and they will later be compensated through a service charge up to a maximum of 15% of the MSP.
- The difference between the MSP and actual selling/modal price will be directly paid into the farmer's bank account. Farmers selling crops in the recognised mandis within the notified period can benefit from it.

Advantages:

- It will also help revive the rural economy by assuring better income to farmers.
- With better prices across crop, it will ensure crop diversification and reduce the stress on soil and water.
- In the current physical procurement, government agencies end up stock-piling food grains which results in incurring storage costs and significant wastage and leakages as well. Hence, if effectively implemented, the AASHA scheme will result in savings for the Centre.

Challenges:

- The experience Bhavantar Bhugtan Yojana in Madhya Pradesh last year revealed that traders plotted with each other and depressed the prices at mandis. They forced farmers to sell at lower prices and pocketed the compensation from the government. Many small and marginal farmers are unable to sell their produce under the Bhavantar scheme. They face the double burden of lowered price and no compensation.
- Failure to create a system of checks and balances can derail the scheme from achieving its desired aim.
- Price Support Scheme would be easier to implement, with nodal agencies doing the procurement. However, providing funds would be a challenge for the Centre as the state governments consider it financially burdensome.
- PPSS - The PPPS may work, but private procurers may be wary of the Centre's delayed payments.

Way Forward:

- The Centre needs to find out the way to handle procurement and disposal efficiently.
- To ensure that PMAASHA to work, the Centre needs to break the trader lobbies at mandis which could be achieved by widening the competition by inter-linking mandis. e-NAM can help in achieving this but, states need to be proactive in undertaking regulatory reforms.



25. Pradhan Mantri Annadata Aay SanraksHan Abhiyan

Why in news:

- The Union Cabinet has approved a new umbrella scheme ‘Pradhan Mantri Annadata Aay SanraksHan Abhiyan’ (PM-AASHA).
- It is aimed at ensuring remunerative prices to the farmers for their produce as announced in the Union Budget for 2018.

About PM-AASHA:

Schemes covered by PM AASHA are:

1. Price Support Scheme (PSS)
 2. Price Deficiency Payment Scheme (PDPS)
 3. Private Procurement and Stockist Scheme
- These three components will complement the existing schemes of the Department of Food and Public Distribution.
 - Under the PSS, physical procurement of pulses and oilseeds will be done by central agencies.
 - The expenditure and losses due to procurement will be borne by the Centre.

26. New Coins found

Why in news:

- The Archaeological Survey of India under ministry of culture has recently discovered 254 Copper Coins in the premises of Khirki Mosque
- According to ASI, some of the coins belong to the reign of Shershah Suri and his successors.
- It is noteworthy that in 2003 a hoard of 63 Coins was found from the same premises.



About Khirki Mosque:

- The mosque was built by Khan-i-Jahan Junan Shah, the Prime Minister of Firoz Shah Tughluq (1351-88) which is believed to be one of the seven mosques built by him.
- Built with rubble stone, and thickly plastered, the Khirki Mosque is double-storeyed, The lower storey consisting only of a series of basement cells.
- Battered bastions occupy its four corners, imparting it the look of a fortified building.
- Gateways project from its three sides, except on the west, each flanked by tapering minarets, the main entrance being from the east.
- Corresponding with the openings of cells on the lower storey, the upper storey contains perforated windows (khirkis), which have given it its present name.
- The pillared courtyard is divided into twenty- five squares, five on each side, each square consisting of nine smaller squares. Among the larger squares, three on each side, two on the corners and one in the middle, together with the square in the centre of the courtyard, are each covered with a cluster of nine small low domes of Tughluq pattern. Among the remaining squares, four on the diagonals are left uncovered to admit light, while the others are covered with flat roofs. This ingenious way of covering the courtyard is repeated only in one other mosque erected by the

same builder. These two are the only examples of closed mosques in northern India.

27. New version of Vaishnav Jan to

Why in news:

- As part of the 150th birth anniversary of Mahatma Gandhi, the Information and Broadcasting Ministry is working on a new version of Vaishnava Jana To, the favourite bhajan of the father of nation. Multiple singers to sing the bhajan at the Taj Mahal and other iconic spots.
- It is one of the most popular Hindu bhajans, written in the 15th century by the poet Narsinh Mehta in the Gujarati language. The bhajan was included in Mahatma Gandhi's daily prayer.
- The bhajan speak about the life, ideals and mentality of a Vaishnava Jana.

28. Gatka

About Gatka:

It is a traditional martial art associated with Sikhism.

- The Punjabi name gatka properly refers to the wooden stick used.
- It is a traditional South Asian form of combat-training in which wooden sticks are used to simulate swords
- Gatka can be practiced either as a sport (khela) or ritual (rasmi). The sport form is played by two opponents wielding wooden staves called gatka. These sticks may be paired with a shield
- It is believed to have originated when sixth Sikh guru Hargobind adopted 'Kirpan' for self defense during Mughal era and tenth Guru Gobind Singh made it compulsory for everyone to use the weapons for self defense.

Other States:

1. Huyen langlon, Manipur:

- In the Meitei language, huyen means war while langlon or langlong means net knowledge or art.
- Huyen langlon consists of two main components: thang-ta (armed combat) and sarit sarak (unarmed fighting).

2. Kalaripayatu, Kerala

3. Khomlainai (Bodo wrestling), Assam

4. Mukna, Manipur:

- It is popular in Imphal, Thoubal and Bishnupur. The game is generally played on the last day of the Lai Haraoba festival and is an intrinsic part of the ceremonial functions.

5. Silambam, Tamil Nadu

29. Brihadisvara Temple

Why in news:

- Rajarajesvaram or Peruvudaiyar Koyil, is a Hindu temple dedicated to Shiva located in Thanjavur, Tamil Nadu.
- It follows Dravidian architecture.
- It is called as Dhakshina Meru (Meru of south).
- Built by Raja Raja Chola I between 1003 and 1010 AD, the temple is a part of the UNESCO World Heritage Site known as the "Great Living Chola Temples", along with the Chola dynasty era Gangaikonda Cholapuram temple and Airavatesvara temple that are about 70 kilometres.
- Built out of granite, the vimana tower above the sanctum is one of the tallest in South India.

30. SLINEX-2018

- India, Sri Lanka joint naval exercise SLINEX-2018 was recently held at Trincomalee, Sri Lanka.
- SLINEX exercise started in 2005 was previously held once in two years and now it has been converted to annual event this year onwards.
- SLINEX exercise is continuation of ongoing operational interaction between both navies wherein regular ships visits are being undertaken between the two countries.
- SLINEX 2017 was held at Visakhapatnam in September 2017 wherein two ships SLNS participated from Sri Lanka Navy.

31. Yudh Abhyas 2018

- As part of the ongoing Indo-US defence cooperation, a joint military training Exercise Yudh Abhyas 2018 will be held at Chaubattia in Uttarakhand.
- This will be the 14th edition of the joint military exercise hosted alternately by both countries.
- The joint exercise Yudh Abhyas 2018 will simulate a scenario where both nations will work together in counter insurgency and counter terrorism environment in mountainous terrain under United Nation charter.

32. First wet mid-air refuelling of LCA Tejas successfully carried out using IL-78 MKI tanker

What's the news?

Indian Air Force (IAF) successfully carried out first ever mid-air refuelling of indigenously developed Light

Combat Aircraft (LCA) Tejas MK-1 over Gwalior, Madhya Pradesh.

- With this, India joins in elite group of countries which have successfully developed air-to-air refuelling system for military aircraft.

Key points:

- It was first wet mid-air refuelling of LCA Tejas (LSP8) carried out by transferring 1,900 kg of fuel from IAF's Russian-origin Ilyushin-78 (IL-78) tanker at altitude of 20,000 feet. This operation had refuelled all internal tanks and drop tanks of LCA Tejas.
- Before this wet contact trial, IAF had successfully conducted 'dry-air refuelling contact trials' where drogue (basket) extended from tanker aircraft IL-78 by fuel hose, which was only tracked and plugged into using LCA's Tejas' refuelling probe without transferring fuel.

Significance:

- With this first trial of air-to-air refuelling, LCA gets much closer to important battle-ready tag, called final operational clearance (FOC). Besides, air-to-air refuelling capability for LCA will be force multiplier for IAF as it enhances potential of aircraft to stay airborne for much longer periods of time, thus increasing its range and endurance. It will also enable IAF options to exploit operational potential of LCA as well as to participate in international exercises without having to stop or stage through several locations enroute.

33. Bonnethead Shark

It is the first known omnivorous shark species identified by scientists recently. (Omnivores feed on a variety of food of both plant and animal origin).

- Sixty percentage of its diet consists of seagrass. The species graze upon seagrass, in addition to eating bony fish, crabs, snails and shrimp.
- The bonnethead shark is abundant in the shallow waters of the Western Atlantic, and the Gulf of Mexico.
- Though small by shark standards, adult females — the larger of the sexes — can still reach an impressive five feet long.
- Lacking the kind of teeth best suited for mastication, the shark may rely on strong stomach acids to weaken the plants' cells so the enzymes can have their digestive effects.

34. Pondicherry Shark

Researchers recently spotted 'Pondicherry shark', an endangered species protected under the provisions of

the Wildlife (Protection) Act, in the East Godavari River Estuarine Ecosystem region.

- It is also known as Long nosed shark
- Scientific name: *Carcharhinus hemiodon*.
- It belongs to the Carcharhinidae family with a growth of 3.3 feet.
- IUCN Status: Critically Endangered.
- Known as 'Pala Sora' in the local parlance, the Pondicherry Shark is on the verge of extinction even according to the conventional fishermen.
- The shark is among the 25 "most wanted lost" species that are the focus of Global Wildlife Conservation's "Search for Lost Species" initiative.

35. Dataset Search

- Google has launched Dataset Search, a new search engine for scientific community that will help them make sense of millions of datasets present online.

- It will also help scientists, data journalists and geeks to find data required for their work and their stories or simply to satisfy their intellectual curiosity.
- It will help to find datasets wherever they're hosted, whether it is publisher's site, digital library or an author's personal web page.
- It can be used to find references to most datasets in environmental sciences, social sciences, as well as government data and data provided by news organizations.
- It will have twin benefits of creating data sharing ecosystem that will encourage data publishers to follow best practices for data storage and publication and give scientists way to show impact of their work through citation of datasets that they have produced.

Question:

1. Making Indian railways 100 % electrified will not only enhance its efficiency but also make it environment friendly. However this project is not as easy as it appears. Discuss.
2. While making laws, taking the importance of our heritage into consideration is as important as the intended smoothness and efficiency in completing the government projects. Discuss this in the context of recent changes in AMASR Act.
3. Acquired Immune Deficiency Syndrome (AIDS) Act 2017 is a significant step towards empowering the HIV victims in the country. However it is still insufficient. Comment.
4. Rising trend of non communicable diseases in India is worrying as it neither desirable nor affordable for the country having a large poverty ridden population. Comment. What are the factors responsible for this? Do you think it is related to the rapid changes taking place in the Indian society due to Globalisation?
5. Low women workforce participation is a massive blow to India's economy. Why? In India a different trend can be noticed. Women from a prosperous society are less likely to be employed. Explain.
6. USA is campaigning everywhere and every country to revise their relation with Iran for advancing its own interests. However if India does so, it will be counter productive for US interests in the long run. Do you agree?
7. While India wants to improve its relations with USA in its all the aspects, USA is primarily focused selling more and more weapons only . Comment
8. China's One Belt One Road policy is nothing but an instrument to undermine the sovereignty of smaller states. Explain. What measures should India take to counter this policy in its neighbor? Throw light on the live examples of the consequences of OBOR in India's neighbourhood.
9. After World War II, those countries who resolved to create rule based world order and created world institutions for realizing this dream are themselves the destroyer of these agencies. Comment

10. BIMSTEC started as a platform for economic development of the countries surrounding the bay of Bengal but it is gradually showing its security related aspects. Analyse.
11. What Pakistan did in SAARC, Nepal is doing in BIMSTEC. Do you agree. Playing China card with India by its smaller neighbouring country is well understood but do you agree that Nepal is using this policy unnecessarily? What are the possible reasons for Nepal for showing such overtones? What measures should India undertake to counter this policy?