

GS SCORE

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Polity & Governance

1

Cabinet Approves the National Health Protection Mission

“ The Union Cabinet approved the launch of Ayushman Bharat - National Health Protection Mission. The Scheme aims to provide a cover of Rs. 5 lakh per family per year to about 10.7 crore families (no cap on family size and age) belonging to poor and vulnerable population. The scheme will subsume the on-going centrally sponsored schemes, Rashtriya Swasthya Bima Yojana and the Senior Citizen Health Insurance Scheme. States would need to have State Health Agency (in the form of a trust, society, or not for profit company) to implement the scheme. ”

Underlined Concepts

Key Features of the Scheme

- ▶ **Benefits:** The scheme aims to provide insurance coverage for secondary and tertiary health care. This will include pre- and post-hospitalisation expenses. A defined transport allowance per hospitalisation will also be paid to the beneficiary. A beneficiary covered under the scheme will be allowed to take cashless benefits from any public/private empanelled hospitals across the country.
- ▶ **Eligibility:** The entitlement under the scheme will be decided on the basis of deprivation criteria in the Socio-Economic Caste Census database. The different categories in rural areas include:
 - Families having only one room with kucha walls and kucha roof,
 - Families having no adult member between age 16 to 59 years, and
 - Female headed households with no adult male member between age 16 to 59 years, among others.
- ▶ For urban areas, 11 defined occupational categories are entitled for the benefits under the scheme.
- ▶ **Financing:** The payments for treatment will be done on package rate (to be defined by the government in advance) basis. The package rates will include all the costs associated with treatment. States/ UTs will have the flexibility to modify these rates within a limited bandwidth. For coordination between the centre and states, it is proposed to set up Ayushman Bharat National Health Protection Mission Council chaired by the Union Health and Family Welfare Minister. The expenditure incurred in premium payment will be shared between central and state governments in specified ratio as per Ministry of Finance guidelines.

Proposed Benefits

Ayushman Bharat - National Health Protection Mission will have major impact on reduction of Out of Pocket (OOP) expenditure on ground of:

- ▶ Increased benefit cover to nearly 40% of the population (the poorest & the vulnerable).

- ▶ Covering almost all secondary and many tertiary hospitalizations (except a negative list).
- ▶ Coverage of 5 lakh for each family (no restriction of family size).

This will lead to increased access to quality health and medication. In addition, the unmet needs of the population which remained hidden due to lack of financial resources will be catered to. This will lead to timely treatments, improvements in health outcomes, patient satisfaction, improvement in productivity and efficiency, job creation thus leading to improvement in quality of life.

Expenditure Involved

The expenditure incurred in premium payment will be shared between Central and State Governments in specified ratio as per Ministry of Finance guidelines in vogue. The total expenditure will depend on actual market determined premium paid in States/UTs where Ayushman Bharat - National Health Protection Mission will be implemented through insurance companies. In States/UTs where the scheme will be implemented in Trust/Society mode, the central share of funds will be provided based on actual expenditure or premium ceiling (whichever is lower) in the pre-determined ratio.

Number of Beneficiaries

Ayushman Bharat - National Health Protection Mission will target about 10.74 crore poor, deprived rural families and identified occupational category of urban workers' families as per the latest Socio-Economic Caste Census (SECC) data covering both rural and urban. The scheme is designed to be dynamic and aspirational and it would take into account any future changes in the exclusion/inclusion/ deprivation/ occupational criteria in the SECC data.

National Health Policy 2017

The primary aim of the National Health Policy, 2017, is to inform, clarify, strengthen and prioritize the role of the Government in shaping health systems in all its dimensions- investments in health, organization of healthcare services, prevention of diseases and promotion of good health through cross sectoral actions, access to technologies, developing human resources, encouraging medical pluralism, building knowledge base, developing better financial protection strategies, strengthening regulation and health assurance.

2

Plea to Raise Minimum Age for Marriage

“Population explosion is a growing menace to fundamental rights, and one of the steps to check this is to raise the minimum age for marriage, a petition filed in the Supreme Court said. It is likely to be listed before a Bench led by Chief Justice Dipak Misra.”

Underlined Concepts

Background

- ▶ Petitioner advocate said “fertility depends on the age of marriage”. Therefore the minimum age for marriage for men and women should be made 25 years and 21 years respectively from **the current 21 years and 18 years**.
- ▶ Earlier also in 2014, increasing the legal age of marriage for girls from minimum 18 years was mooted by the Madras High Court as a way out to check instances of hundreds of women getting married at a young age only to be separated a few years later.

Population Rise in India

- ▶ According to UN report, India will overtake China to become the world's most populous country.
- ▶ India will continue to grow until 2061 and will start declining when its population has gone well past 1678.7 million people and by then it will be the most populous country in the world.

Reasons for Population Rise

- ▶ High Illiteracy which contributes to improper family planning in India.
- ▶ Widening Gap between Birth and Death Rates.
- ▶ Low age of at marriage is also a contributing factor which results in early fertilization and hence population rise.

- ▶ The religiously orthodox and conservative people are against the use of family planning measures.

Government Initiatives to Tackle the Rising Population

- ▶ The government has launched a scheme to utilize the services of ASHA to deliver contraceptives at the doorstep of the beneficiaries.
- ▶ Pregnancy testing kits have been made an integral part of ASHA kit and are being used to diagnose pregnancy early, so as to ensure early registration of pregnancy/safe abortion services.
- ▶ **Santushti Strategy:** Under this strategy, Jansankhya Sthirata Kosh, invites private sector

gynaecologists and vasectomy surgeons to conduct sterilization operations in Public Private Partnership mode. The private hospitals/ nursing homes who achieved target of 10 or more are suitably awarded as per the strategy.

- ▶ Dedicated counselors are placed at high case load facilities for providing family planning counseling to clients.
- ▶ Mission Parivar Vikas has been launched under which districts with Total Fertility rate of above 3 have been identified as high focus areas to accelerate access to high quality family planning choices based on information, reliable services and supplies.

3

Rajasthan Bill on Rape

“ Rajasthan became the second state in the country to pass a Bill proposing capital punishment for rape and gang rape of girls aged 12 years and below. A similar Bill passed by Madhya Pradesh in November 2017 is still awaiting the President's assent. ”

Underlined Concepts

About the Bill

- ▶ Section 376-AA states that whoever rapes a girl of up to 12 years of age shall be punished with death or rigorous imprisonment for a term that shall not be less than 14 years but may extend to the remainder of his natural life. The convict will also be liable to pay a fine.
- ▶ Section 376-DD on the other hand specifies that those found guilty of gang-raping a girl of up to 12 years shall be punished with death, or awarded rigorous imprisonment for a term not less than 20 years and extending to the remainder of their natural lives. The convicts will also be liable to pay a fine.

Some Facts

- ▶ The National Crime Records Bureau-2016 report ranked Rajasthan on the fifth position in crimes against women, with 27,422 cases being reported in 2016.
- ▶ The total number of rape cases registered in 2016 came up to 3,656, half a dozen of which involved

children under six years of age; 37 pertained to kids under 12; 195 were against those below 16; and 539 concerned those between 16 and 18.

Changes Made in Rape Laws in India

- ▶ The Criminal Law Amendment Act of 2013 was brought into effect after the horrific Delhi Gang Rape case which shocked the whole nation with the brutality of the act committed.
- ▶ The offence rape was amended and given a broader meaning which was comprehensive enough to include any kind of penetration and also in any body part of the woman or girl. This was the most important change because earlier section 375 of the IPC only stipulated the Penile Vaginal penetration as rape.

What is Capital Punishment?

- ▶ Capital punishment or death penalty is the execution of an offender sentenced to death after conviction by a court of law for a criminal offense.

Is Capital Punishment Desirable?

Yes

- ▶ Supporters believe that people who commit murder, have taken the life of another and hence have forfeited their own right to life.
- ▶ It is claimed that it has a deterrent effect on offenders for whom the threat of imprisonment is insufficient restraint.
- ▶ In many countries with capital punishment, a vast majority of citizens are in favor of retaining capital punishment.

No

- ▶ **Right to Life:** Everyone has an inalienable human right to life as life is valuable, even of those who commit murder.

- ▶ The death penalty doesn't seem to deter people from committing serious violent crimes. The death penalty in India has little in relation to deterring or combating violent crime. As per the Home Ministry's statistics, there has been no visible increase in the levels of ordinary crime and violence despite the reduction of executions in India.
- ▶ In countries with costly and lengthy appeals procedure like India, capital punishment becomes more expensive option than long-term imprisonment.

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A. India's Ranking Improves in Gender Diversity

- ▶ India's ranking in gender diversity has improved with the representation of women in top leadership positions rising to 20 per cent in 2018, even as the country ranks fifth lowest in having women in such roles according to Grant Thornton's Women in Business: Beyond Policy to Progress Report .
- ▶ The findings in this report are drawn from 4,995 interviews conducted between July and December 2017 with chief executive officers, managing directors, chairs, and other senior decision-makers from all industry sectors in mid-market businesses in 35 countries.

Gender Diversity

- ▶ Gender diversity is equitable or fair representation between genders. Gender diversity most commonly refers to an equitable ratio of men and women, but may also include non-binary gender categories.
- ▶ Gender diversity on corporate boards has been widely discussed, and many ongoing initiatives and study promote gender diversity in fields traditionally dominated by men, including computing, engineering, medicine, and science.

Global Gender Gap Index

- ▶ Released by the World Economic Forum (WEF)
- ▶ The Global Gender Gap index ranks countries on how they are faring to bring gender equality in four broad areas.
- ▶ They are education, economics, health and politics.
- ▶ The index lies between 0 and 1, with 1 denoting complete parity and 0, complete inequality.

B. AmaGaon AmaVikas Programme

- ▶ The Odisha government has launched AmaGaon, AmaVikas (Our Village, our development) to reach out to the people in rural areas and involve them in the developmental activities.
- ▶ Mobile video vans for 'AmaGaon AmaVikas' program will move across the State to highlight various welfare schemes for villages in the state.
- ▶ Through these Wi-Fi enabled latest technology video wall vans, people can directly send their grievances to the Chief Minister's Office at the Secretariat in Bhubaneswar.

- ▶ This initiative will help people in solving their grievances instantly.
- ▶ In the first phase of programme, these vans will reach Koraput, Jajpur, Ganjam and Sambalpur districts of state.

C. Cooperative Election Authority

- ▶ The Haryana government would set up a Cooperative Election Authority in the State for supervising the election process in cooperative bodies.
- ▶ The Cooperative Election Authority will be responsible for superintendence, direction and control of the election process in the cooperative organisations.

Functions of State Cooperative Election Authority

- ▶ SCEA is empowered to appoint any officer or employee of the State Government, or any Co-operative Society, or any Local Body on any post with such designation and duties for the purpose of conducting the elections; and it is obligatory on every officer or employee so appointed, to perform the duties assigned to him and such officer or employee has to work under the general superintendence and control of the State Co-operative Election Authority.
- ▶ SCEA is expected to prescribe code of conduct to be implemented in the area of operation of the society according to the nature of business or class of societies.
- ▶ SCEA may appoint Observers and Zonal officers, with a view to keep watch for smooth and fair conduct of elections as and when required.
- ▶ SCEA is empowered to issue such special or general orders or directions for fair and free elections, which may not be inconsistent with the provisions of the Act and the Rules.
- ▶ SCEA is expected to prescribe estimated amount of election expenditure for societies or class of societies to be deposited in the 'Election Fund' in advance by the society to enable it to conduct the election.

D. ASICS 2017

- ▶ The Annual Survey of India's City-Systems (ASICS) 2017, which uses 150 parameters to judge 23 cities, has placed Pune at the top and Bengaluru at the bottom of the rankings.

- ▶ While Pune scored 5.1 out of a maximum score of 10, Bengaluru got just 3. But Indian cities lagged behind global cities like New York and London, which scored 8.8.
- ▶ The survey was carried out by the NGO Janaagraha Centre for Citizenship and Democracy.
- ▶ It broadly looks at urban planning and design, capacity and resources of Urban Local Bodies, the degree of empowerment of the civic body, and processes for transparency and citizen participation.
- ▶ Cities such as Surat and Ahmedabad moved up the rankings by 12 and seven positions respectively from 2016.
- ▶ Bhubaneswar moved up by six spots, while Chennai dropped by 11 places. Bengaluru was down seven places.
- ▶ While financial management has improved in some cities, there has been little progress in devolution of powers to civic bodies.
- ▶ Just three out of the 23 cities enacted town planning legislations since economic liberalisation in 1991, while the rest rely on laws enacted nearly six decades ago.
- ▶ As per the report, local bodies suffer from fragmented governance. On average, Indian cities score 4.9 on this parameter.
- ▶ Their municipal commissioners had an average tenure of only 10 months. On the other hand, London, where the mayor is elected for five years and has far-reaching powers, scores 9.8.
- ▶ Only in Mumbai and Pune does the elected local body determine urban planning. In the remaining cities, it is 'parastatal' bodies which are not directly accountable to the electorate that call the shots, stated the report.

E. Akshaya Patra Foundation

- ▶ As a not-for-profit organisation, Akshaya Patra Foundation works to fight for the social issues like hunger and illiteracy in India. The organisation is headquartered in Bengaluru, India.
- ▶ Under the Government's Mid-day Meal Scheme, Akshaya Patra implements its Mid-Day Meal Programme to eliminate classroom hunger and bring children back to schools.
- ▶ The programme provides nutritious mid-day meals to children in Government and Government aided schools across India.
- ▶ Since its inception in 2000, the organisation has been working tirelessly to reach more children with fresh, healthy food every day.
- ▶ Akshaya Patra leverages technology to cater to millions of children across India. The state-of-

the-art kitchens of the organisation are subjects of study, sparking curiosity amongst enthusiasts around the world.

- ▶ The organisation is also renowned for its governance and transparency. Akshaya Patra has been awarded the ICAI Gold Shield Award for 'Excellence in Financial Reporting' five years in a row since the financial year 2008-09.

F. Prime Minister's Employment Generation Programme (PMEGP)

- ▶ The government has approved the continuation of Prime Minister's Employment Generation Programme (PMEGP) beyond the 12th Plan period for three years to 2019-20 with a total outlay of Rs 5,500 crore. The scheme will create sustainable estimated employment opportunities for 15 lakh persons in three financial years.
- ▶ PMEGP is a major credit-linked subsidy programme being implemented by the Ministry of MSME since 2008-09.
- ▶ The Scheme is aimed at generating self-employment opportunities through establishment of micro-enterprises in the non-farm sector by helping traditional artisans and unemployed youth in rural as well as urban areas.
- ▶ The Khadi and Village Industries Commission (KVIC) is the nodal implementation agency for the PMEGP at the national level.
- ▶ At the state/district level, state offices of KVIC, Khadi and Village Industries Boards (KVIBs) and District Industry Centres (DIC) are the implementing agencies.
- ▶ The scheme's targets are fixed by taking into account the extent of backwardness of state; extent of unemployment; extent of fulfilment of previous year targets; population of state/union territory; and availability of traditional skills and raw material.

G. Transformation of 115 Aspirational Districts

- ▶ Government think-tank National Institution for Transforming India (NITI) Aayog has announced to rank 115 backward (aspirational) districts by April 2018.
- ▶ It was announced at 'Transformation of Aspirational Districts' conference Districts' conference.
- ▶ Among the 115 districts, 35 are affected by Left Wing violence. The districts were identified on the basis of indicators of education, health, nutrition, basic infrastructure, rural household

- electrification, and access to potable water and individual toilets.
- ▶ Jharkhand tops the list, with 19 backward districts, followed by Bihar with 13 districts; Chhattisgarh is at the third spot with 10 districts.
 - ▶ Niti Ayog is developing a real-time monitoring mechanism of key performance indicators and will rank the districts on a continuous basis.

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GS SCORE

Economy

1

Finance Bill 2018 Passed by Lok Sabha

“ The Finance Bill, 2018 was passed in Lok Sabha. It was introduced in Lok Sabha alongside the presentation of the Union Budget. At the stage of passage, the government moved some amendments to the Bill. ”

Underlined Concepts

What is a Finance Bill?

- ▶ A Finance Bill is a Money Bill as defined in Article 110 of the Constitution.
- ▶ The proposals of the government for levy of new taxes, modification of the existing tax structure or continuance of the existing tax structure beyond the period approved by Parliament are submitted to the Parliament through this Bill.
- ▶ The Finance Bill is accompanied by a Memorandum containing explanations of the provisions included in it. The Finance Bill can be introduced only in the Lok Sabha.
- ▶ However, the Rajya Sabha can recommend amendments in the Bill. The Bill has to be passed by the Parliament within 75 days of its introduction.

Key Features of the Bill

- ▶ **Income Tax:** For salaried individuals, a standard tax deduction of Rs. 40,000 has been introduced. The deduction for transport allowance and medical expenses has been removed.
- ▶ **Education Cess:** The 3% Education Cess has been replaced by a 4% Health and Education Cess for non-resident persons, including foreign companies.
- ▶ **Corporate Tax:** Currently, companies with turnover of less than Rs. 50 crore pay corporate tax at the rate of 25%. This threshold has been increased to Rs. 250 crore.

- ▶ **Deductions for Farm Producer Companies:** Tax deduction of 100% has been introduced for farm producer companies with a total turnover up to Rs. 100 crores. The benefit will be available for a period of five years starting from 2018-19.
- ▶ **Long-term Capital Gains:** Currently, long term capital gains from transfer of equity instruments or a unit of business trust is exempt from payment of income tax. These transfers will now be taxed at 10%, if the profit from the transaction exceeds one lakh rupees. For computing gains, the purchase price would be considered as the higher of the actual purchase price or the price as on January 31, 2018.
- ▶ **Fiscal Responsibility and Budget Management Act, 2003 (FRBM Act):** The FRBM Act is being amended based on the recommendations of the Fiscal Reform and Budget Management Committee (Chair: Mr. N. K. Singh). The amendments include bringing down the central government's debt to GDP ratio to 40% and setting an operational target for the fiscal deficit at 3% by 2021. This target for debt to GDP ratio will have to be achieved by 2025. Further, the deadline for achieving the operational target for fiscal deficit has been extended from 2018 to 2021.
- ▶ **Salaries and Pensions:** The Bill amends five laws to make changes related to the emoluments of the President of India, the Vice President, Governors of the states, and Members of Parliament (MPs).

The emoluments of: (i) the President have been increased from Rs. 1.5 lakh to Rs. 5 lakh per month, (ii) the Vice-president from Rs. 1.25 lakh to Rs. 4 lakh per month, (iii) the Governors from Rs. 1,10,000 to Rs. 3,50,000 per month, and (iv) MPs from Rs. 50,000 to Rs. 1 lakh. Emoluments of MPs will be indexed to inflation, and will be revised every five years.

Controversial Part in the Bill

- ▶ The Finance Bill had proposed to repeal the Public Provident Fund Act, 1968, and include all small savings schemes including PPF under the Government Savings Banks Act, 1873. Although it said that structurally nothing would change, it did propose, perhaps inadvertently, to take away a key advantage.

- ▶ PPF currently enjoys the freedom from court attachment (but not attachment under any order of income tax and estate duty authorities), i.e., the balance to the credit of a subscriber in his account is not subject to attachment under any order or decree of a court in respect of any debt or other liability incurred by him.
- ▶ However, after the implication of the proposal to shift PPF to the Government Savings Banks Act became clear and led to confusion, the government came out with a clarification stating that no existing benefit proposed will be withdrawn, pointing specifically to the fact that PPF accounts cannot be attached through a court order.

2

Cabinet Approves Introduction of the Arbitration and Conciliation (Amendment) Bill, 2018

“ The Union Cabinet approved the introduction of the Arbitration and Conciliation (Amendment) Bill, 2018 in the Parliament.

It seeks to amend the Arbitration and Conciliation Act, 1996. In 2015, certain amendments were made to the 1996 Act. These are related to: (i) time period of arbitral awards; and (ii) applicability of certain provisions to international commercial arbitration. ”

Underlined Concepts

What is Arbitration?

- ▶ Arbitration is a method for settling disputes privately, but its decisions are enforceable by law. An arbitrator is a private extraordinary judge between the parties, chosen by mutual consent to sort out controversies between them.
- ▶ Arbitrators are so called because they have an arbitrary power; for if they observe submissions and keep within due bounds their sentences are definite from which there is no appeal.
- ▶ Arbitration offers greater flexibility, prompt settlement of national and international private disputes and restricted channels of appeal than litigation.
- ▶ Arbitration is a simplified version of a trial involving no discovery and simplified rules of evidence. Either both sides agree on one arbitrator, or each

side selects one arbitrator and the two arbitrators elect the third to comprise a panel.

- ▶ Arbitration hearings usually last only a few hours and the opinions are not public record. Arbitration has long been used in labour, construction, and securities regulation, but is now gaining popularity in other business disputes. Litigation is expensive, time consuming and full of complexities.

Key Features of the Bill approved by the Cabinet are:

- ▶ **Arbitration Council of India:** The Bill seeks to establish an independent body called the Arbitration Council of India (ACI) for the promotion of arbitration, mediation, conciliation and other alternative dispute redressal (ADR) mechanisms. Its functions include: (i) grading arbitral institutions and accrediting (i.e. granting

recognition standards to) arbitrators; and (ii) making policies for the establishment, operation and maintenance of uniform professional standards for all ADR matters.

- ▶ **Composition of the ACI:** The ACI will consist of a Chairperson who is either: (i) a Judge of the Supreme Court; or (ii) a Judge of a High Court; or (iii) Chief Justice of a High Court; or (iv) an eminent person. Other members will include eminent academicians and government appointees.
- ▶ **Speedy appointment of arbitrators:** The Bill seeks to facilitate appointment of arbitrators without approaching the court. The parties may instead approach arbitration institutions designated by the Supreme Court or the High Court.
- ▶ **Relaxation of time limits:** Currently, arbitral tribunals are required to make their award within a period of 12 months for all arbitration proceedings. The Bill proposes to remove the time restriction for international arbitrations.
- ▶ **Confidentiality of proceedings:** All details of arbitration proceedings shall be kept confidential except for the details of the arbitral award.

Advantages of Arbitration over Litigation

- ▶ Arbitration carries a number of advantages over usual method of dispute resolution of redressal through a court of Law.
- ▶ Arbitration promises privacy. In a civil court, the proceedings are held in public.
- ▶ Arbitration provides liberty to choose an arbitrator, who can be a specialist in the subject matter of the dispute. Thus, arbitrators who are
- ▶ sector specialists can be selected to resolve the dispute fairly and expeditiously.
- ▶ The venue of arbitration can be a place convenient to both the parties. Likewise, the parties can choose a language of their choice.
- ▶ Even the rules governing arbitration proceedings can be defined mutually by both the parties.
- ▶ A court case is a costly affair. The claimant has to pay advocates, court fees, process fees and other incidental expenses. In arbitration, the expenses are less and many times the parties themselves argue their cases. Arbitration involves few procedural steps and no court fees.
- ▶ Arbitration is faster and can be expedited. A court has to follow a systematic procedure, which takes an abnormally long time to dispose off a case.
- ▶ A judicial settlement is a complicated procedure. A court has to follow the procedure laid down in the Code of Civil Procedure, 1908 and the Rules of the Indian Evidence Act. An arbitrator has to follow the principles of natural justice. The Arbitration and Conciliation Act, 1996 specifically states that the Arbitral Tribunal shall not be bound by the Code of Civil Procedure, 1908 and the Indian Evidence Act, 1872.
- ▶ Section 34 of the Act provides very limited grounds upon which a court may set aside an award. The Act has also given the status of a decree for the award by arbitrators. The award of the arbitrators is final and generally no appeal lies against the award.
- ▶ In a large number of cases, 'Arbitration' facilitates the maintenance of continued relationship between the parties even after the settlement.

3

Cabinet Approves Introduction of the Commercial Courts (Amendment) Bill

“ The Union Cabinet approved the introduction of the Commercial Courts, Commercial Division and Commercial Appellate Division of High Courts (Amendment) Bill, 2018 in Parliament.

The Bill seeks to amend the Commercial Courts, Commercial Division and Commercial Appellate Division of High Courts, 2015. The Act enables the creation of commercial divisions and commercial appellate divisions in high courts, and commercial courts at the district level.

These courts will adjudicate commercial disputes (e.g., disputes related to transactions between merchants and traders). ”

Underlined Concepts

Key Features of the Bill

- ▶ The Bill brings down the specified value of a commercial dispute to 3 lakhs from the present 1 crore: Therefore, commercial disputes of a reasonable value can be decided by commercial courts. This would bring down the time taken (presently 1,445 days) in resolution of commercial disputes of lesser value and thus further improve India's ranking in the Ease of Doing Business.
- ▶ The amendment provides for establishment of Commercial Courts at District Judge level for the territories over which respective High Courts have ordinary original civil jurisdiction, i.e., in the cities of Chennai, Delhi, Kolkata, Mumbai and State of Himachal Pradesh. The State Governments, in such territories may by notification specify such pecuniary value of commercial disputes to be adjudicated at the district level, which shall 'not be less than three lakhs rupees and not more than the pecuniary jurisdiction of the district court. In the jurisdiction of High Courts other than those exercising ordinary original jurisdiction, a forum of Appeal in commercial dispute decided by commercial courts below the level of District judge is being provided, in the form of Commercial Appellate Courts to be at district judge level.
- ▶ The introduction of the Pre-Institution Mediation process in cases where no urgent, interim relief is contemplated will provide an opportunity to the parties to resolve the commercial disputes outside the ambit of the courts through the authorities constituted under the Legal Services Authorities Act, 1987. It will also help in reinforcing investor's confidence in the resolution of commercial disputes.
- ▶ Insertion of new Section 21A enables the Central Government to make rules and procedures for PIM.

- ▶ To give prospective effect to the amendment so as not to disturb the authority of the judicial forum presently adjudicating the commercial disputes as per the extant provisions of the Act.

Why the Bill Proposed?

- ▶ With the rapid economic development there has been considerable increase in commercial activities and consequent steep rise in number of commercial disputes at domestic and international level. Increase of Foreign Direct Investment (FDI) and overseas commercial transactions have further contributed to a significant increase of commercial disputes.
- ▶ For faster resolution of matters relating to commercial disputes and to create a positive image particularly among the foreign investors about the independent and responsive Indian legal system, the Commercial Courts, Commercial Division and Commercial Appellate Division of High Courts Act, 2015 was enacted and commercial courts were established at District Levels in all jurisdictions, except in the territories over which the High Courts have original ordinary civil jurisdiction.
- ▶ These five High Courts, i.e., the High Courts of Bombay, Delhi, Calcutta, Madras and of Himachal Pradesh, exercise ordinary original civil jurisdiction in regard to territories of cities of Mumbai, Delhi, Kolkata, Chennai and the territory of the State of Himachal Pradesh respectively. In such territories of these High Courts as per proviso to Sub-Section (1) of Section 3 there are no commercial courts at district level and instead Commercial Divisions have been constituted in each of these High Courts. The specified value of such commercial disputes to be adjudicated by the Commercial Courts or the Commercial Division of High Court, as the case may be is presently Rs. 1 crore.

4

Misuse of SWIFT

“ In the Latest Banking Scam in Punjab National Bank, It was found that funds were siphoned off from the bank by employees who willfully manipulated SWIFT, the electronic messaging system used for overseas funds transfer.

The Reserve Bank of India said it had alerted banks of possible misuse of the SWIFT system on at least three occasions since August 2016.

The Reserve Bank of India has scrapped quasi bank guarantee instruments such as the Letter of Undertaking and Letter of Comfort that blew a Rs. 14,000 crore hole in the books of Punjab National Bank as the regulator attempts to plug a loophole and improve banks' due diligence in trade credit. ”

Underlined Concepts

Letter of Undertaking

- ▶ Letter of Undertaking in simple terms is bank guarantee issued by Indian bank against which overseas bank provide finance on Libor rates. Libor linked finance used by importers are Buyers Credit, Suppliers Credit, ECB etc. Libor linked finance used by exporters is PCFC (Packing Credit in foreign currency).

Letter of Comfort

- ▶ A Letter of Comfort is a written document that provides a level of assurance that an obligation will ultimately be met. In its traditional context, a letter of comfort is given to organizations or persons of interest by external auditors regarding statutory audits, statements, and reports used in a prospectus. The letter of comfort will be attached to the preliminary statements as assurance that it will not be materially different from the final version.

About SWIFT

- ▶ SWIFT stands for the Society for Worldwide Interbank Financial Telecommunications.
- ▶ It is a messaging network that financial institutions use to securely transmit information and instructions through a standardized system of codes.
- ▶ SWIFT founders designed the network to facilitate communication about Treasury and correspondent transactions only. The robustness of the message format design allowed huge scalability through which SWIFT gradually expanded to provide services to the following: Banks, Brokerage

Institutes, Trading houses, Depositories, Foreign Exchanges and Money Brokers.

How it works?

- ▶ SWIFT assigns each financial organization a unique code that has either eight characters or 11 characters.
- ▶ The code is called interchangeably the bank identifier code (BIC), SWIFT code, SWIFT ID, or ISO 9362 code.

How SWIFT was misused in PNB?

- ▶ This was accomplished by issuing Letters of Undertaking (LoU) on behalf of companies associated with Nirav Modi, to avail credit from overseas branches of Indian banks.
- ▶ None of the aforementioned fraudulent transactions were registered on the bank's Core Banking Solution (CBS), thus enabling it to go unnoticed.
- ▶ LoUs were advanced in favour of Nirav Modi's firms to overseas branches of Indian banks, for the import of pearls for a period of one year.
- ▶ The loophole in the software framework of the bank was the patchy implementation of its Core Banking System (CBS) and its non-linkage with SWIFT.

Core Banking Solution (CBS) is a software product that links all the customers of a bank, regardless of their home branch. The CBS' primary objective is to centralise details of financial transactions, and maintain a universal database of the credit-history of customers of individual branches.

5

India to Join EBRD

“ *The Union Cabinet chaired by the Prime Minister has approved India's Membership for European Bank for Reconstruction & Development (EBRD). Necessary steps will be initiated by the Department of Economic Affairs, Ministry of Finance to acquire the membership of the EBRD.*

India is all set to become the 69th member of the European Bank for Reconstruction and Development (EBRD) after shareholders of the international financial institution gave their nod to the country's candidature.]]

Underlined Concepts

About EBRD

- ▶ The EBRD was founded in April 1991 during the dissolution of the Soviet Union by representatives of 40 nations from 3 continents and two European institutions, the European Investment Bank (EIB) and the European Economic Community (EEC, now European Union – EU), after reaching agreement on the bank's charter, size, and distribution of power among shareholders.
- ▶ The European Bank for Reconstruction and Development (EBRD) was established to support countries of the former Eastern Bloc in the process of establishing their private sectors.
- ▶ It's Headquarters are located in London, UK.
- ▶ The EBRD is committed to furthering progress towards 'market-oriented economies and the promotion of private and entrepreneurial initiative'.

The Deciding Authority

The EBRD's board of governors, which represents all the existing shareholders of the UK-based bank, voted in favour of India's membership application.

Impact on India:

- ▶ Membership of EBRD would enhance India's international profile and promote its economic interests. Access to EBRD's Countries of Operation and sector knowledge.
- ▶ India's investment opportunities would get a boost.
- ▶ It would increase the scope of cooperation between India and EBRD through co-financing

opportunities in manufacturing, services, Information Technology, and Energy.

- ▶ EBRD's core operations pertain to private sector development in their countries of operation. The membership would help India leverage the technical assistance and sectoral knowledge of the bank for the benefit of development of private sector.
- ▶ This would contribute to an improved investment climate in the country.
- ▶ The membership of EBRD would enhance the competitive strength of the Indian firms, and provide an enhanced access to international markets in terms of business opportunities, procurement activities, consultancy assignments etc.
- ▶ This would open up new vistas for Indian professionals on the one hand, and give a fillip to Indian exports on the other.
- ▶ Increased economic activities would have the employment generating potential.
- ▶ It would also enable Indian Nationals to get the employment opportunity in the Bank.

Financial Implications:

The minimum initial investment towards the membership of EBRD will be approximately €1 (one) million. However, this assumption is based on India deciding to buy the minimum number of shares (100) required for obtaining the membership. If India were to buy a higher number of Bank shares, the financial implications could be higher. In-principle approval of the Cabinet at this stage is being obtained for joining the Bank.

6

Cabinet Approves Establishment of National Financial Reporting Authority

[[*The Union Cabinet chaired by the Prime Minister has approved the proposal for establishment of National Financial Reporting Authority*

(NFRA) and creation of one post of Chairperson, three posts of full-time Members and one post of Secretary for NFRA. ”

Underlined Concepts

Why Need for Establishing NFRA Arisen?

- ▶ The need for establishing NFRA has arisen on account of the need felt across various jurisdictions in the world, in the wake of accounting scams (PNB Scam), to establish independent regulators, independent from those it regulates, for enforcement of auditing standards and ensuring the quality of audits to strengthen the independence of audit firms, quality of audits and, therefore, enhance investor and public confidence in financial disclosures of companies.
- ▶ The decision aims at establishment of NFRA as an independent regulator for the auditing profession which is one of the key changes brought in by the Companies Act, 2013. The inclusion of the provision in the Act was on the specific recommendations of the Standing Committee on Finance (in its 21st Report).

Impact

- ▶ The decision is expected to result in improved foreign/domestic investments, enhancement of economic growth, supporting the globalisation of business by meeting international practices, and will also assist in further development of audit profession.

Jurisdiction

- ▶ The jurisdiction of NFRA for investigation of Chartered Accountants and their firms under Section 132 of the Act would extend to listed companies and large unlisted public companies, the thresholds for which shall be prescribed in

the Rules. The Central Government can also refer such other entities for investigation where public interest would be involved.

- ▶ The inherent regulatory role of ICAI as provided for in the Chartered Accountants Act, 1949, shall continue in respect of its members in general and specifically with respect to audits pertaining to private limited companies, and public unlisted companies below the threshold limit to be notified in the rules.
- ▶ The Quality Review Board (QRB) will also continue quality audit in respect of private limited companies, public unlisted companies below prescribed threshold and also with respect to audit of those companies that may be delegated to QRB by NFRA. Further, ICAI shall continue to play its advisory role with respect to accounting and auditing standards and policies by making its recommendations to NFRA.

Quality Review Board (QRB)

As per Section 28B of the Chartered Accountants Act, 1949, the board shall perform the following functions:

- ▶ To make recommendations to the council with regard to the quality of services provided by the members of the Institute.
- ▶ To review the quality of services provided by the members of the Institute including audit services.
- ▶ To guide the members of the Institute to improve the quality of services and to adhere to various statutory and other regulatory requirements.

7

Pharma Promotion Tax Exempt: Tribunal

“ A recent decision of the Income Tax Appellate Tribunal’s (ITAT) Pune bench allowing pharmaceutical companies to account for their spending on doctors as a deductible expenditure has sparked off a fresh debate on ethics. Since the companies are out of the purview of the Medical Council of India (MCI), money spent on promotions, which in some cases could be gifts, travel, hospitality and so on for doctors, besides medical conferences and samples, can be claimed as deductible expenditure. Doctors accepting such promotions may be violating the code of ethics of the MCI. ”

Underlined Concepts

Medical Council of India

- ▶ It is the statutory body for establishing uniform and high standards of medical education in India.
- ▶ It was formed in 1933.
- ▶ It's Head Quarters is located in New Delhi.
- ▶ It is the statutory body for establishing uniform and high standards of medical education in India.
- ▶ The Council grants recognition of medical qualifications, gives accreditation to medical schools, grants registration to medical practitioners, and monitors medical practice in India.

National Medical Council

Provisions:

- ▶ The Bill replaces existing apex medical education regulator Medical Council of India (MCI) with National Medical Council (NMC), a new body to ensure transparency.
- ▶ It empowers NMC to lay down policies for maintaining high quality and high standards in medical education and make necessary regulations in this behalf and ensure coordination among Autonomous Boards.
- ▶ It provides for constitution of four autonomous boards entrusted with conducting undergraduate and postgraduate education, assessment

and accreditation of medical institutions and registration of practitioners under NMC.

- ▶ The Commission will have 25-members including Chairman and Member Secretary. It will have 12 ex-officio members and 11-part-time members of which five will be doctors elected to the Commission. The selected members will be picked by a search committee headed by Cabinet Secretary.
- ▶ The Bill proposes a common entrance exam and national licentiate examination which every candidate, who completes five years of MMBS course need to clear to become medical practitioner or get entry into post-graduation studies.
- ▶ This examination will also bring those students who do medical education from abroad at par with those who graduate from Indian institutions.

ITAT:

- ▶ ITAT is a quasi judicial institution set up in January, 1941 and specializes in dealing with appeals under the Direct Taxes Acts.
- ▶ It was set up by virtue of section 5A of the Income Tax Act, 1922.
- ▶ The orders passed by the ITAT are final, and an appeal lies to the High Court only if a substantial question of law arises for determination.
- ▶ It functions under the Department of Legal Affairs in the Ministry of Law and Justice.

A. Current Account Deficit in Q3 of 2017-18

- ▶ India's Current Account Deficit (CAD) in the third quarter (Oct-Dec) of 2017-18 increased to USD 13.5 billion (2% of GDP) from USD 8 billion (1.4% of GDP) in the corresponding quarter of 2016-17. CAD in the second quarter (July- Sept) of 2017-18 was USD 7.2 billion (1.1% of GDP).
- ▶ The year-on-year increase of the CAD was largely on account of a higher trade deficit (difference between the country's imports and exports) of USD 44.1 billion (compared to USD 32.8 billion in second quarter of 2017-18). Net foreign direct investment reduced by USD 5.4 billion from the corresponding quarter in the previous year.
- ▶ Portfolio investment recorded net inflow of USD 5.3 billion in third quarter of 2017-18, as against an outflow of USD 11.3 billion in corresponding quarter last year.
- ▶ Net receipts on account of non-resident deposits amounted to USD 3.1 billion in third quarter of 2017-18, as against net repayments of USD 18.5 billion a year ago.
- ▶ Foreign exchange reserves increased by USD 9.4 billion, compared with a decrease of USD 1.2 billion in the third quarter of 2016-17.

- ▶ **Current Account Deficit:** The current account deficit is a measurement of a country's trade where the value of the goods and services it imports exceeds the value of the goods and services it exports.
- ▶ FDI net inflows are the value of inward direct investment made by non-resident investors in the reporting economy. FDI net outflows are the value of outward direct investment made by the residents of the reporting economy to external economies.

B. 80:20 Scheme on Gold

- ▶ The scheme was introduced in August 2013 with the aim of curbing gold imports.
- ▶ Under the scheme, up to 80% of gold imports could be sold in the country while at least 20% of imports had to be exported before bringing in new consignments of the yellow metal.
- ▶ Further, the permission to import the next lot was given only upon fulfilment of the export mandate. The policy was aimed at tackling the widening fiscal deficit.

- ▶ A CAG report published in 2016 found that the 80:20 scheme had resulted in a loss of Rs. 1 lakh crore to the exchequer.
- ▶ On November 28, 2014, the scheme was scrapped. "It has been decided by the Government of India to withdraw the 80:20 scheme and restrictions placed on the import of gold.

C. Maharashtra Adopt Food Park Model

- ▶ M/s Satara Mega Food Park Pvt. Ltd. at Village Degaon, District Satarawas is the first Mega Food Park in the state of Maharashtra.
- ▶ This is the 12th Mega Food Park operationalized in the country so far and the 10th operationalized during the tenure of present government.
- ▶ India's first mega food park 'Srini Mega Food Park', sprawling over 147-acre space, was opened in Chittoor in Andhra Pradesh in 2012.
- ▶ The Mega Food Parks Scheme aims to provide a mechanism to bring together farmers, processors and retailers and link agriculture production to the market so as to ensure maximization of value addition, minimization of wastages and improving farmers' income.
- ▶ The primary objective of the Scheme is to provide modern infrastructure facilities for the food processing along the value chain from the farm to the market with a cluster based approach based on a hub and spokes model.

About Mega Food Park Scheme

The Scheme of Mega Food Park aims at providing a mechanism to link agricultural production to the market by bringing together farmers processors and retailers so as to ensure maximizing value addition, minimizing wastage, increasing farmers income and creating employment opportunities particularly in rural sector. The Mega Food Park Scheme is based on "Cluster" approach and envisages creation of state of art support infrastructure in a well-defined agri / horticultural zone for setting up of modern food processing units along with well-established supply chain. Mega food park typically consist of supply chain infrastructure including collection centers, primary processing centers, central processing centers, cold chain and around 30-35 fully developed plots for entrepreneurs to set up food processing units.

D. World Bank Predict 7.3% Growth

According to the World Bank's Global Economic Prospects Report, the Gross Domestic Product (GDP) growth is expected to rise at 7.3% in 2018-19, and with this growth, India is set to regain the top spot in world's fastest-growing economies.

World Bank's Global Economic Prospects Report

- ▶ Because of the disruptions occurred in the economy from the Goods and Services Tax (GST), the report reduced the growth estimate for 2017-18 by 0.1% from its June 2017 projection.
- ▶ However, it raised the growth forecast for 2018-19 by 0.1% from the June figure.
- ▶ The report forecasted India's GDP growth of 7.5% in 2019-20 and 2020-21.
- ▶ The World Bank outlined the benefits from GST in the medium run and said that GST is expected to benefit economic activity and fiscal sustainability by reducing the cost of complying with multiple state tax systems, drawing informal activity into the formal sector, and expanding the tax base.
- ▶ As per the report, India's global trade recovery is expected to lift exports in coming days. It also said that India will gain from recent reforms including the demonetisation, and the 'Make in India' initiative. And these steps have helped improve the ease of doing business.
- ▶ The World Bank estimated for China's economic growth for 2017 at 6.8% and forecasted its moderation to 6.4% in 2018.
- ▶ In its report, the World Bank said that the world economy is recovering from the financial crisis that hit the world in 2011. And as per it, 2018 is the first year since the financial crisis which is on track to operate with near full capacity.
- ▶ Recently, India's Statistics and Programme Implementation Ministry have reported that India's GDP will grow by only 6.5% in 2017-18 compared to 7.1% in 2016-17.

IMF Estimates

- ▶ The World Bank's report estimate is in line with the International Monetary Fund's (IMF) projection of 6.7% for 2017.
- ▶ The IMF, however, forecasted a slightly higher growth estimate of 7.4% for 2018.

E. Cabinet Identified Champion Services Sectors

- ▶ The Department of Commerce has proposed the concept to give focused attention to 12 identified Champion Services Sectors for promoting their development, and realizing their potential.

- ▶ These include Information Technology & Information Technology enabled Services (IT &ITeS), Tourism and Hospitality Services, Medical Value Travel, Transport and Logistics Services, Accounting and Finance Services, Audio Visual Services, Legal Services, Communication Services, Construction and Related Engineering Services, Environmental Services, Financial Services and Education Services.
- ▶ A dedicated fund of Rs. 5,000 crores has been proposed to be established to support initiatives for sectoral Action Plans of the Champion Sectors.

F. National e-Mobility Programme

- ▶ Union Minister of State (IC) Power and New & Renewable Energy launched the National e-Mobility Programme.
- ▶ The Programme aims to provide an impetus to the entire e-Mobility ecosystem including vehicle manufacturers, charging infrastructure companies, fleet operators, service providers, etc.
- ▶ The Programme will be implemented by Energy Efficiency Services Limited (EESL) which will aggregate demand by procuring electric vehicles in bulk to get economies of scale.
- ▶ These electric vehicles will replace the existing fleet of petrol and diesel vehicles.
- ▶ EESL had procured 10,000 e-vehicles last year and will issue a new tender very soon for 10,000 more e-vehicles to cater to the growing demand.
- ▶ With these 20,000 electric cars, India is expected to save over 5 crore litres of fuel every year leading to a reduction of over 5.6 lakh tonnes of annual CO2 emission.
- ▶ During the programme, it was also highlighted that there would be no need for license for establishing the charging infrastructure in the country.

G. Cabinet Approves Easing of Spectrum Cap

- ▶ The Union Cabinet chaired by Prime Minister has approved two key measures in telecom sector to facilitate investments, consolidation in the sector and enhancing ease of doing business. These include restructuring the deferred payment liabilities of spectrum auction of telecom service providers and revising the limit of the cap for spectrum holding for telecom service providers.

Restructuring of Deferred Payment Liabilities of telecom Service providers for spectrum:

- ▶ By giving one-time opportunity to opt for higher number of installment (max. 16 installments) apart from currently permitted 10 installments.
- ▶ The increased installment is based upon the principle that the Net Present Value (NPV) of the Payment Due is protected as per respective notice inviting application for auction of spectrum from 2012.
- ▶ The total amount received will be higher by Rs. 74,446.01 crore till 2034-35.

Revision of Limits of Cap for Spectrum Holding

Based upon the recommendations of TRAI and Telecom Commission, the Cabinet approved the revision of limits of cap for spectrum holding which are as follows:

- ▶ The overall spectrum cap is revised from the current limit of 25% to 35%.
- ▶ The current intra-band cap is removed. Instead, there is a cap of 50% on the combined spectrum holding in the sub-1 GHz bands (700 MHz, 800 MHz and 900 MHz bands).
- ▶ There will be no cap for individual or combined spectrum holding in above 1 GHz band.
- ▶ The revised spectrum caps limits may be revisited after Final Acts of World Radiocommunication Conference (WRC) 2019.

TRAI had recommended revision in the existing limits of cap for spectrum holding taking into consideration the technological advancement, efficient use of spectrum, measures to facilitate consolidation etc.

With the restructuring of the deferred payment liability, the cash flow for the telecom service providers will increase in the immediate timeframe providing them some relief. Revising the limit for the spectrum cap holding will facilitate consolidation of telecom licensees and may encourage the participation in the future auction.

H. Marshall Islands will Launch the World's First Legal Tender Cryptocurrency

- ▶ The Marshall Islands, a Pacific island republic between Hawaii and Australia, is launching the world's first sovereign cryptocurrency that can be used as legal tender. It is creating its own digital currency in order to raise some hard cash to pay bills and boost the economy.
- ▶ Aptly called Sovereign (SOV), the digital currency is developed in partnership with Israeli startup Neema. The cryptocurrency will be the nation's second federally recognized legal tender, on par with the US dollar.
- ▶ The government has scheduled an initial currency offering (ICO) for later this year to distribute

SOV to residents of the island. In addition to free allocation of the digital currency to locals, the state will allow the participation of global investors afterward.

- ▶ Venezuela became the first country to launch its own cryptocurrency when it launched the virtual Petro, backed by crude oil reserves. The Marshall Islands' SOV will be different because it will be recognized in law as legal tender, effectively backed by the government.
- ▶ The Marshall Islands' SOV will require users to identify themselves, thus avoiding the anonymity that has kept bitcoin and other cryptocurrencies from gaining support from governments.
- ▶ The Marshall Islands will issue 24 million SOVs in what it calls an Initial Currency Offering. Half of those will go to the government and half to Neema.
- ▶ The Marshall Islands intends to initially sell 6 million SOVs to international investors. It says that it will use the money to help pay for the budget, invest in projects to mitigate the effects of global warming and support those people who are still affected by U.S. nuclear testing. The country intends to hand out 2.4 million SOVs to residents.

About Marshall Islands

- ▶ The Marshall Islands is an island country located near the equator in the Pacific Ocean, slightly west of the International Date Line. Geographically, the country is part of the larger island group of Micronesia.
- ▶ The Marshall Islands include the Ratak (sunrise chain) and Ralik (sunset chain), two parallel chains of 29 coral atolls, thousands of tiny islets, and hundreds of very small low-lying islands, all scattered over a wide area of the Pacific Ocean.
- ▶ The Kwajalein Atoll, with a huge central lagoon, is the largest coral atoll on the planet. The U.S maintains a strong military presence on Kwajalein, and from here controls a missile testing range.
- ▶ The Marshall Islands is closely aligned with the U.S. under a Compact of Free Association and uses the dollar as its currency. Under the compact, the U.S. provides the Marshall Islands with about \$70 million each year in assistance.

I. Government Constitutes a Steering Committee on Fintech Related Issues

- ▶ The Government constituted a Steering Committee on Fintech related issues to consider various issues relating to development of Fintech space in India with a view to make Fintech related regulations more flexible and generate enhanced

entrepreneurship in an area where India has distinctive comparative strengths vis-à-vis other emerging economies.

- ▶ The Steering Committee will also focus on how Fintech can be leveraged to enhance financial inclusion of MSMEs.
- ▶ The Steering Committee may also invite participants from the private sector.
- ▶ The panel will also include among its members the Electronics and Information Technology Secretary, the Financial Services Secretary, the MSME Secretary, the Chairperson of the Central Board of Excise and Customs, Chief Executive Officer of the Unique Identification Authority of India, a Deputy Governor of the Reserve Bank of India, and a Joint Secretary Department of Economic Affairs.

★★★★★★★★

GS SCORE

Science & Technology

1

Dual Mechanism for Embryonic Stem Cells to Maintain Pluripotency

“ Researchers at Pune’s National Centre for Cell Science (NCCS) have found a dual mechanism that keeps specific genes off, which helps the embryonic stem cells maintain pluripotency—their ability to give rise to all the cell types. The dual mechanism functions in such a way that even if one mechanism fails, the other can function as a back-up and help the embryonic stem cells maintain pluripotency. ”

Underlined Concepts

About Stem Cells

- ▶ Stem cells have the remarkable potential to develop into many different cell types in the body during early life and growth. In addition, in many tissues they serve as a sort of internal repair system, dividing essentially without limit to replenish other cells as long as the person or animal is still alive.
- ▶ When a stem cell divides, each new cell has the potential either to remain a stem cell or become another type of cell with a more specialized function, such as a muscle cell, a red blood cell, or a brain cell.
- ▶ Stem cells are distinguished from other cell types by two important characteristics:
 - First, they are unspecialized cells capable of renewing themselves through cell division, sometimes after long periods of inactivity.
 - Second, under certain physiologic or experimental conditions, they can be induced to become tissue- or organ-specific cells with special functions.

Adult Stem Cells

- ▶ Adult or somatic stem cells exist throughout the body after embryonic development and are found inside of different types of tissue.
- ▶ These stem cells have been found in tissues such as the brain, bone marrow, blood, blood vessels, skeletal muscles, skin, and the liver.
- ▶ They remain in a quiescent or non-dividing state for years until activated by disease or tissue injury.
- ▶ Adult stem cells can divide or self-renew indefinitely, enabling them to generate a range of cell types from the originating organ or even regenerate the entire original organ.

Classification of Stem Cells

The full classification includes:

- ▶ **Totipotent:** The ability to differentiate into all possible cell types. Examples are the zygote formed at egg fertilization and the first few cells that result from the division of the zygote.
- ▶ **Pluripotent:** The ability to differentiate into almost all cell types. Examples include embryonic

stem cells and cells that are derived from the mesoderm, endoderm, and ectoderm germ layers that are formed in the beginning stages of embryonic stem cell differentiation.

- ▶ **Multipotent:** The ability to differentiate into a closely related family of cells. Examples include hematopoietic (adult) stem cells that can become red and white blood cells or platelets.
- ▶ **Oligopotent:** The ability to differentiate into a few cells. Examples include (adult) lymphoid or myeloid stem cells.
- ▶ **Unipotent:** The ability to only produce cells of their own type, but have the property of self-renewal required to be labeled a stem cell. Examples include (adult) muscle stem cells.

About Embryonic Stem Cells

- ▶ Embryonic stem cells are obtained from the inner cell mass of the blastocyst, a mainly hollow ball of cells that, in the human, forms five to six days after an egg cell is fertilized by a sperm.
- ▶ Embryonic stem cells are pluripotent, meaning they can give rise to every cell type in the fully formed body, but not the placenta and umbilical cord.
- ▶ They provide a renewable resource for studying normal development and disease, and for testing drugs and other therapies.

Blastocyst is an embryo which has been left to develop until day 5 or 6 and presents a complex cellular structure formed by approximately 200 cells. The blastocyst phase is the development stage prior to implantation of the embryo in the mother's uterus.

Applications of Embryonic Stem Cells

- ▶ Embryonic Stem Cell therapies have been proposed for regenerative medicine and tissue replacement after injury or disease.
- ▶ It can help in treatment of diseases that could potentially be treated by pluripotent stem cells including a number of blood and immune-system related genetic diseases, cancers, and disorders; juvenile diabetes.
- ▶ It can also help in investigation of early human development, study of genetic disease and as in vitro systems for toxicology testing.

Role of Endocytosis

- ▶ Embryonic stem cells contain multiple endocytosis-associated genes whose expression is suppressed unlike in the case of the specialised or differentiated cells.
- ▶ The precise mechanism by which the expression of endocytosis-associated genes are turned off in embryonic stem cells and the role of endocytosis has now been deciphered by the Researchers.

Endocytosis, is the process by which materials move into the cell.

2

Nerve Agent

“ *The former Russian spy Sergei Skripal and his daughter have been exposed to an unknown nerve agent. Hereby, discussing the concept of nerve agent which can be useful for prelims examination.* **”**

Underlined Concepts

What are Nerve Agents?

- ▶ Nerve agents, sometimes also called nerve gases, are a class of organic chemicals that disrupt the mechanisms by which nerves transfer messages to organs. The disruption is caused by the blocking of acetylcholinesterase, an enzyme that catalyzes the breakdown of acetylcholine, a neuro-transmitter.
- ▶ Poisoning by a nerve agent leads to constriction of pupils, profuse salivation, convulsions, and

involuntary urination and defecation, with the first symptoms appearing in seconds after exposure. Death by asphyxiation or cardiac arrest may follow in minutes due to the loss of the body's control over respiratory and other muscles. Some nerve agents are readily vaporized or aerosolized, and the primary portal of entry into the body is the respiratory system.

- ▶ Nerve agents can also be absorbed through the skin, requiring that those likely to be subjected to

such agents wear a full body suit in addition to a respirator.

- ▶ They are highly toxic chemicals that prevent the nervous system from working properly, and can be fatal.
- ▶ Nerve agents take different forms - including powder and gas - but they tend to be a liquid, which can seep through the skin.

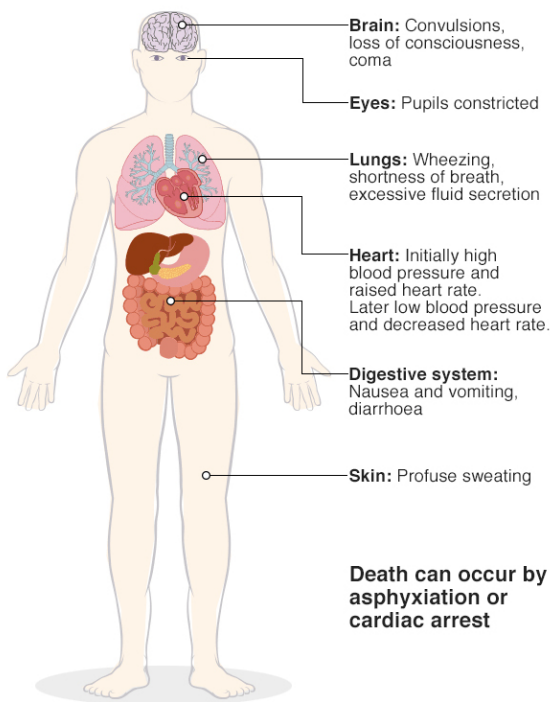
Symptoms

- ▶ The symptoms of poisoning come on quickly, and include chest tightening, difficulty in breathing, and very likely asphyxiation. Associated symptoms include vomiting and massive incontinence.

Antidotes

- ▶ Antidotes do exist, one being atropine, but have to be administered quickly, otherwise the effect of the nerve agent cannot be reversed. Some antidotes can be administered as prophylactics to troops about to go into battle, if there is a risk of nerve agents being employed.

What nerve agents do to the body



Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction:

- ▶ The Chemical Weapons Convention (CWC) is a universal non-discriminatory, multilateral, disarmament treaty that bans the development, production, acquisition, transfer, use, and stockpile or retaining Chemical Weapons (CW).
- ▶ Headquarters for this organization were established in the Hague, the Netherlands. The CWC entered into force on 29 April 1997, 180 days after deposit of the 65th instrument of ratification.

- ▶ The treaty puts all the States Parties on an equal footing. Countries having stockpiles of chemical weapons are required to declare and destroy them in a specified timeframe and those, who produce and use chemicals that can be converted into chemical weapons have to be open and transparent about the use they put these chemicals to.
- ▶ The CWC also requires the complete and verifiable (inspectable) destruction of existing CW stockpiles. The CWC addresses one of the national programmes and indirectly addresses the threat of chemical terrorism.

Organisation for the Prohibition of Chemical Weapons (OPCW):

- ▶ With the entry-into-force of the Chemical Weapons Convention (CWC) on 29 April 1997, the Organisation for the Prohibition of Chemical Weapons (OPCW) was formally established.
- ▶ The OPCW Technical Secretariat is located in the Hague, the Netherlands.
- ▶ The OPCW mission is to implement the provisions of the CWC and to ensure a credible, transparent regime to verify the destruction of chemical weapons; to prevent their re-emergence in any member State; to provide protection and assistance against chemical weapons; to encourage international cooperation in the peaceful uses of chemistry; and to achieve universal membership of the OPCW.
- ▶ The cooperation between the United Nations and the Organisation for the Prohibition of Chemical Weapons is regulated by the relationship agreement between both organisations adopted by the General Assembly in September, 2001.

What are Novichok Agents?

- ▶ The name Novichok means 'newcomer' in Russian and applies to a group of advanced nerve agents developed by the Soviet Union in the 1970s and 1980s.
- ▶ One of the chemicals - called A-230 - is reportedly five to eight times more toxic than VX nerve agent, which can kill a person within minutes.
- ▶ A number of variants of this chemical have been manufactured, and one of them was reportedly approved for use by the Russian military as a chemical weapon.
- ▶ Some of the agents are also reported to be 'binary weapons', meaning the nerve agent is typically stored as two less toxic chemicals. When they are mixed together, they react to produce the more toxic agent.

3

Two Factor Authentication

“ The survey conducted by digital security firm Gemalto stated that a majority of IT professionals in India expect their organisations to start using two-factor authentication to protect enterprise applications in the future, with almost half expecting this to happen within the next year, according to a private survey.

It added that biometric and one-time password-based authentication would be the preferred mode.

Two-factor authentication would be able to contribute towards their organisation's ability to comply with data protection regulations and pass security audits.

The respondents indicated that the reason behind this may be the increasing volume of cloud applications in use and the lack of strong cybersecurity solutions. ”

Underlined Concepts**What is Two Factor Authentication?**

Two Factor Authentication, also known as 2FA, two step verification or TFA (as an acronym), is an extra layer of security that is known as “multi factor authentication” that requires not only a password and username but also something that only, and only, that user has on them, i.e. a piece of information only they should know or have immediately to hand - such as a physical token.

Using a username and password together with a piece of information that only the user knows makes it harder for potential intruders to gain access and steal that person's personal data or identity.

As recently as February, 2011, Google announced two factor authentication, online for their users, followed by MSN and Yahoo.

Using a Two Factor Authentication process can help to lower the number of cases of identity theft on the Internet, as well as phishing via email, because the criminal would need more than just the users name and password details.

What are Authentication Factors?

The ways in which someone can be authenticated usually fall into three categories known as the factors of authentication, which include:

- ▶ Knowledge factors -- something the user knows, such as a password, PIN or shared secret.
- ▶ Possession factors -- something the user has, such as an ID card, security token or a smartphone.
- ▶ Inherence factors, more commonly called biometrics -- something the user is. These may be personal attributes mapped from physical characteristics, such as fingerprints, face and voice. It also includes behavioral biometrics, such as keystroke dynamics, gait or speech patterns.
- ▶ **Benefits are:**
 - Improved Security
 - Reduced Data Theft
 - 2FA allows different users to securely log in or gain access into a shared system or database.
 - 2FA also helps companies cut down their operational costs. With this reliable information security solution, the employees can access databases, servers and web portals securely from their devices.

4

India Aims to Eliminate TB by 2025

“ At the end of 50 years of tuberculosis control activities, the disease remains a major health challenge in India. As per new estimates, the number of new cases every year has risen to 2.8 million and mortality is put at 4,80,000 each year. These figures may go up when the national TB prevalence survey is undertaken in 2017-18.

Against this backdrop, the Ministry of Health and Family Welfare, in its National Strategic Plan for Tuberculosis Elimination (2017-2025), has set a highly ambitious goal of “achieving a rapid decline in burden of TB, morbidity and mortality while working towards elimination of TB by 2025.” ”

Underlined Concepts

Tuberculosis

- ▶ Tuberculosis is usually caused by Mycobacterium tuberculosis or various other strains of mycobacterium.
- ▶ It is an infectious disease and is air borne.
- ▶ It mostly affects the lungs but also can cause harm to other parts of the body.
- ▶ There is also an increasing concern about multi-drug resistant TB (MDR-TB).
- ▶ MDR-TB develops in the host body when the availability of drug is insufficient to kill 100% of the bacteria due to the interruption in the course of antibiotic medicine.
- ▶ It is resistant to first line anti-TB drugs and is treated with second line anti-TB drugs, a combination of multiple medicines called SHREZ.
- ▶ Extensively Drug Resistant TB (XDR) develops when the concentration of TB in an area becomes extremely high that it becomes very difficult to control it. It is a condition where the strains are resistant to one or two medicines in the second line anti-TB drugs. Owing to poor management of cases and further mutations, there is a resistance to both first line and second line anti-TB drugs which is called Total Drug Resistant TB (TDR).

Why is Tuberculosis a major cause of Concern?

TB is the ninth leading cause of death worldwide and the leading cause from a single infectious agent, ranking above HIV/AIDS.

- ▶ TB is an infectious disease caused by the bacillus Mycobacterium tuberculosis.

- ▶ It typically affects the lungs (pulmonary TB) but can also affect other sites.
- ▶ The disease is spread when people who are sick with pulmonary TB expel bacteria into the air, for example by coughing.
- ▶ Broader influences on the TB epidemic include levels of poverty, HIV infection, under nutrition and smoking.

Strategies to end TB

- ▶ From 2000 to 2015, global and national efforts to reduce the burden of tuberculosis (TB) disease were focused on achieving targets set within the context of the Millennium Development Goals (MDGs) established by United Nations.
- ▶ In 2016, the MDGs were succeeded by a new set of goals, known as the Sustainable Development Goals (SDGs).
- ▶ The consolidated goal on health is SDG 3. One of these targets, (Target 3.3), explicitly mentions TB.
- ▶ SDG 3 also includes a target (Target 3.8) related to universal health coverage (UHC) in which TB is explicitly mentioned. This includes an indicator on the coverage of essential prevention, treatment and care interventions.
- ▶ Emphasis is also given to the importance of death registration within national vital registration systems for accurate tracking of causes of death (WHO Global Task Force on TB Impact Measurement).

Features of the National Strategic Plan for TB Elimination:

- ▶ The plan aims to achieve a 100% case detection by 2020 and complete elimination of the disease by 2025.
- ▶ Four strategic pillars of Detect-Treat-Prevent-Build (DTPB) have been developed for achieving the goals of the national strategic plan. The implementation will be the combined efforts of all the stake holders.
- ▶ It aims at creating a synergy through a shift from a regulatory approach to a partnership approach to stream line the services in the largely unorganized and unregulated private sector.
- ▶ Anti-TB drug "Bedaqualine" has been introduced under the Conditional Access Programme (CAP).
- ▶ A proposal is made to explore the possibility of development of a first line anti-TB drug in the public sector, under the "Make in India" programme.
- ▶ Plan envisions a corpus fund for TB maintained under Bharat Kshay Niyantran Pratishtan (India TB control Foundation).
- ▶ e-Nikshay an online platform has been made user-friendly, so as to let the doctors notify the cases as and when they come across the infected patients.
- ▶ Various media campaigns have been planned to educate the masses about TB and its prevention. Swasth e-Gurukul is one such initiative of the World Health Organization.

5

Stephen Hawking

“ Stephen William Hawking died on 14 March (Albert Einstein’s birthday) at the age of 76 after decades of battling the incurable disease amyotrophic lateral sclerosis (ALS). His early scientific work transformed our understanding of general relativity, Einstein’s theory of gravitation. Later in life, Stephen became an immensely successful popularizer of science; his courage and high spirits in the face of his disability inspired millions. ”

Underlined Concepts

Contributions of Stephen Hawking

- ▶ He predicted theoretically that black holes emit radiation, this is often called Hawking radiation. Sub-atomic particle pairs — such as photons and neutrinos — near that point of no return could result in one particle being ejected. This became known as Hawking radiation.
- ▶ For the first time he showed how quantum fluctuations (i.e. minuscule variations in the distribution of matter), might give rise to the spread of galaxies in the universe.
- ▶ In 1983, together with Jim Hartle at Chicago University, he proposed a “wave function of the universe” that, in theory, could be used to calculate the properties of the universe we see around us.
- ▶ Existence of millions of Mini Black Holes formed by the force of the original Big Bang explosion.

- ▶ He also answered the famous unified field theory, which was one of the Einstein’s unanswered theories.

Awards and Honours received by Stephen Hawking

- ▶ Professor Hawking has been awarded over a dozen honorary degrees including the CBE – Commander of the Most Excellent Order of the British Empire – in 1982.
- ▶ He was awarded with Adams Prize, Einstein Award, Presidential Medal of Freedom, Eddington Medal, Maxwell Medal, Heineman Prize, Hughes Medal, RAS Gold Medal, Dirac Medal, Wolf Prize, Prince of Asturias, Gemant Award, Naylor Prize and Fundamental Physics Prize.

What is Amyotrophic Lateral Sclerosis?

- ▶ Amyotrophic lateral sclerosis (ALS) is a group of rare neurological diseases that mainly involve the

- nerve cells (neurons) responsible for controlling voluntary muscle movement.
- ▶ Voluntary muscles produce movements like chewing, walking, and talking. The disease is progressive, meaning the symptoms get worse over time.
 - ▶ Currently, there is no cure for ALS and no effective treatment to halt, or reverse, the progression of the disease.

6

WHO called for the Elimination of the so-called 'One Centimetre Per Hour' Benchmark

“ The World Health Organization (WHO) has revised a benchmark used by health professionals worldwide in caring for women during child-birth because it has caused a surge in interventions like caesarean sections that could be unnecessary. Since the 1950s, a woman progressing through labour at a rate slower than one centimetre of cervical dilation per hour has been considered “abnormal”. ”

Underlined Concepts

What Causes Cervical Dilation?

- ▶ At the end of pregnancy, when the baby drops down into the pelvis, the baby's head puts pressure on the cervix. This constant pressure causes human body to release oxytocin, which is the hormone that causes contractions.
- ▶ The contractions push the baby even farther down onto the cervix, which causes it to dilate, which causes more contractions and so on. It's the combination of hormones and pressure from the baby's head that cause cervix dilation.

One Centimeter Per Hour Benchmark

- ▶ Dilation of the cervix is measured in centimeters. During labor, cervix stretches from 0 cm to a fully dilated 10 cm.
- ▶ During a vaginal exam, cervix dilation is measured by how many finger widths fit into the opening of the cervix. If the tip of one finger fits, the cervix is 1 cm dilated. If 2 finger tips fit, that signifies 2 cm. The distance the two fingers can stretch wide indicates further dilation.
- ▶ While rates of interventions like c-sections vary among regions, WHO has seen what it considers a worrying rise in such practices worldwide. Interventions that were once used to manage complicated childbirths have become commonplace, the agency warned. Pregnancy is not a disease and child birth is a normal phenomenon, where you expect the woman to

be able to accomplish that on her own without interventions.

- ▶ However, what has been happening over the last two decades is that more and more medical interventions being applied unnecessarily to women and there have been situations where several woman are getting too many interventions that they do not need.
- ▶ While cautioning against any one-size-fits-all benchmarks, the new WHO guidelines say that for a woman delivering her first child, any labour that does not extend beyond 12 hours should be considered normal.
- ▶ For a subsequent pregnancy, the figure drops to less than 10 hours.

WHO

- ▶ The World Health Organization (WHO) is a specialized agency of the United Nations that acts as a coordinating authority on international public health.
- ▶ Established on 7 April, 1948, it succeeded the Health Organization, which was an agency of the League of Nations.
- ▶ It is a member of the United Nations Development Group and its headquarters are located at Geneva.
- ▶ WHO coordinates international efforts to control outbreaks & sponsors programs to prevent and

treatment of infectious diseases such as SARS, malaria, tuberculosis, influenza, and HIV/AIDS.

- ▶ The WHO supports the development and distribution of safe and effective vaccines, pharmaceutical diagnostics, and drugs, such as through the Expanded Program on Immunization. After over two decades of fighting smallpox, the WHO declared in 1980 that the disease had been eradicated – the first disease in history to be eliminated by human effort. The WHO aims to eradicate polio within the next few years.

Publications of WHO

It includes:

- ▶ Bulletin of the World Health Organization
- ▶ Eastern Mediterranean Health Journal
- ▶ Human Resources for Health, journal published in collaboration with BioMed Central
- ▶ Pan American Journal of Public Health
- ▶ World Health Report, series of global health policy reports

7

India-Based Neutrino Observatory Gets Cabinet Nod

“ Centre gave its nod for building country’s first India-based Neutrino Observatory (INO) at Bodi West Hills in Theni district of Tamil Nadu. The clearance was given by the Union Environment Ministry’s Expert Appraisal Committee (EAC). The project will now be sent for an approval from Tamil Nadu Government and National Board of Wildlife (NBWL), as Mathikettan Shola National Park in Kerala’s Idukki district is about 4.9 km from the proposed site. ”

Underlined Concepts

About INO

- ▶ The INO laboratory will host experiments such as the neutrino-less double beta decay and the search for dark matter.
- ▶ The INO project will be set up near Pottipuram village in the Bodi West Hills of Theni district in Tamil Nadu. The project is at an estimated cost of 1,500 crore rupees.
- ▶ The project will be jointly supported by the Department of Atomic Energy and the Department of Science and Technology.
- ▶ The infrastructural support will be given by the State Government of Tamil Nadu since the project is located in Tamil Nadu.
- ▶ IICHEP will be established in Madurai that is about 110 km. from the proposed site of the Neutrino Observatory.
- ▶ The purpose of construction of 50,000 tonne magnetised ICAL is for studying the properties of the neutrino, especially the mass hierarchy among different types of neutrino.

The Goals of INO are:

- ▶ To study neutrinos which are fundamental particles belonging to the lepton family. Neutrinos come in 3 flavours, one associated with electrons and the others with their heavier cousins the muon and the Tau.
- ▶ Development of detector technology and its varied applications.
- ▶ The INO Project Director is Naba Mondal who is a Senior Professor at Tata Institute of Fundamental Research, Mumbai and was earlier associated with the pioneering experiments at the underground laboratory at Kolar Gold Fields.

The Project Includes:

- ▶ Construction of an underground laboratory and associated surface facilities in Bodi West hills of Theni District of Tamil Nadu.
- ▶ Construction of a Iron Calorimeter (ICAL) detector for studying neutrinos.

- ▶ Setting up of National Centre for High Energy Physics at Madurai.

International Effort

- ▶ By this India will join the elite club of USA, Russia, France, Italy, China and Japan.
- ▶ China has started underground neutrino detectors –JUNO.

What are Neutrinos?

- ▶ Neutrinos are the elementary particles, which have no charge and have very little mass(10^{-37}).
- ▶ Electrically neutral, weakly interactive fundamental particles.

Applications

▶ **Nuclear Proliferation Detection**

- They could be used to remotely detect nuclear proliferation, as radiations are routinely generated by radioactive activities (especially plutonium 239 a by-product of nuclear reactor).

▶ **Data Communication:**

- They could be used for faster data communication, because they travel large distances without getting attenuated .

▶ **Mineralogy:**

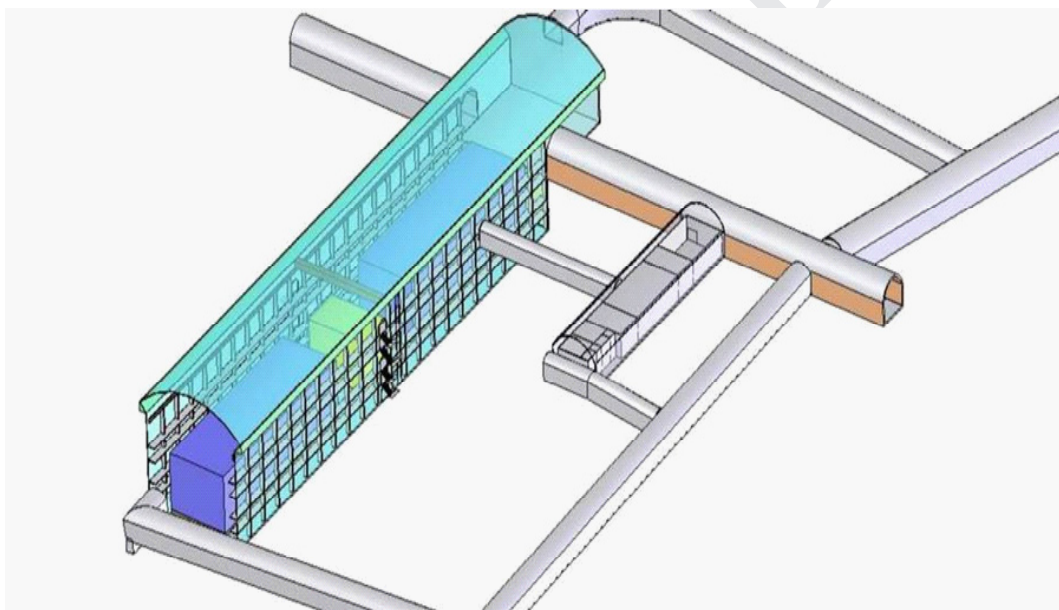
- As they change their direction and spin, depending upon the medium they pass, they could be utilized to map resources inside earth.

▶ **Disaster Prediction:**

- Geoneutrinos produced by radioactive decay of (Th, U) can give valuable information about earthquakes.

▶ **Information Bearers of Universe:**

- Neutrinos could also be helpful in unearthing the mystery of dark matters , because they are few of the particles that pass through dark matter.



8

Concept of Living Will

“ Supreme Court of India has held that right to die with dignity is a fundamental right. The Bench also held that passive euthanasia and a living will also be legally valid. Under passive euthanasia the doctors treating such a patient will withdraw medical support provided the patient has left behind a “living will” for pulling the “plug” in such situations.

The decision was in response to a petition by a non-government organization, which argued that a person with terminal illness should be given the right to refuse being placed on life support. ”

Underlined Concepts

What is Euthanasia?

- ▶ Euthanasia is the intentional and painless taking of the life of another person, by act or omission, for compassionate motives. In contemporary practice it means that someone's life is ended for sympathetic reasons by some active or passive steps taken by another person.
- ▶ Active euthanasia involves taking specific steps such as injecting the patient with a lethal substance, e.g. Sodium Pentothal which causes the person to go in deep sleep in a few seconds and the person dies painlessly in sleep, thus it amounts to killing a person by a positive act in order to end suffering of a person in a state of terminal illness. It is considered to be a crime all over the world (irrespective of the will of the patient) except where permitted by legislation, as observed earlier by Supreme Court. In India too, active euthanasia is illegal and a crime under Section 302 or 304 of the IPC. Physician assisted suicide is a crime under Section 306 of IPC (abetment to suicide).
- ▶ Passive euthanasia, otherwise known as 'negative euthanasia', however, stands on a different footing. It involves withholding of medical treatment or withholding life support system for continuance of life, e.g., withholding of antibiotic where without doing it, the patient is likely to die or removing the heart-lung machine from a patient in coma.
- ▶ Passive euthanasia is further classified as voluntary and non-voluntary. Voluntary euthanasia is where the consent is taken from the patient. In non-voluntary euthanasia, the consent is unavailable on account of the condition of the patient for example, when he is in coma.

Concept of Living Will

The Supreme Court also allowed people to draw up what it termed "living wills" on how they would like to be treated if critically sick. The judges ruled that the right to die is fundamental right under Article 21

of the Indian Constitution and that it would approve advance "living wills".

- ▶ A living will, called a directive to physicians or advance directive, is a document that lets people state their wishes for end-of-life medical care, in case they become unable to communicate their decisions. It has no power after death.
- ▶ It empowers a person of sound mind and health to make a 'living will' specifying that in the event of him/her slipping into a terminal medical condition in future, his/her life should not be prolonged through life support system. The person concerned can also authorise, through the will, any relative or friend to decide in consultation with medical experts when to pull the plug.

Advantages of Living Wills

- ▶ They respect the patient's human rights, and in particular their right to reject medical treatment.
- ▶ Creating them encourages full discussion about end of life decisions.
- ▶ Knowing what the patient want means that doctors are more likely to give appropriate treatment.
- ▶ It will help medical professionals in taking difficult decisions.
- ▶ A patient's family and friends don't have to take the difficult decisions.

Negative of Living Will

- ▶ Living wills negate informed consent. Since no one knows the future, by definition their care or non-care instructions must generally be written. Thus, when an incapacitation occurs, the patient's feelings and desires about this specific circumstance may not be known.
- ▶ The living will puts tremendous power into the hands of doctors, who are empowered to decide whether and when the living will takes effect, when treatment should be withdrawn or withheld.

A. Bengaluru Maps its Solar Wealth

- ▶ Bengaluru has started the initiative of mapping the solar potential of rooftops.
- ▶ Flying over villas, high-rises, independent, smaller houses and large apartment complexes, the 'web-based rooftop photovoltaic tool using aerial LIDAR (Light Detection and Ranging) project', being executed by the Centre for Study of Science, Technology and Policy (CSTEP) for the Bangalore Electricity Supply Company (Bescom), has been mapping rooftop solar prospects.
- ▶ This data, which will be put in the public domain, could help people reduce their electricity bills and also make some money by consuming and/or selling the solar energy generated.
- ▶ The helicopter has a camera that emits laser pulses. Reflections from the ground get captured, creating a rough 3D map.
- ▶ This raw data will be sent to the Defence Ministry for vetting, after which will begin the process of shadow analysis and creation of a model city map.
- ▶ In about seven months, the outcome of the project could be a game-changer for both Bescom and its consumers.
- ▶ Bescom will move to achieve the 1 GW solar target for 2021-22, with a map of the most lucrative rooftops to generate solar power.

LIDAR, which stands for Light Detection and Ranging, is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth. These light pulses—combined with other data recorded by the airborne system—generate precise, three-dimensional information about the shape of the Earth and its surface characteristics.

A LIDAR instrument principally consists of a laser, a scanner, and a specialized GPS receiver. Airplanes and helicopters are the most commonly used platforms for acquiring LIDAR data over broad areas. Two types of LIDAR are topographic and bathymetric. Topographic LIDAR typically uses a near-infrared laser to map the land, while bathymetric lidar uses water-penetrating green light to measure seafloor and riverbed elevations.

LIDAR systems allow scientists and mapping professionals to examine both natural and manmade environments with accuracy, precision, and flexibility. NOAA scientists are using LIDAR to produce more accurate shoreline maps, make digital elevation models for use in geographic information systems, to assist in emergency response operations, and in many other applications.

B. Saposhi

- ▶ It is a new Malware detected by cybersecurity agencies.
- ▶ The Malware can take over electronic devices and use them for Distributed Denial of Service (DDoS) attacks.
- ▶ Saposhi Malware is capable of taking over electronic devices and turning them into bots (device taken over by malware) which can then be used for any purpose, including DDoS attacks which, with enough firepower, can cripple entire industries.

Types of Malwares

- ▶ **Virus:** Viruses attach themselves to clean files and infect other clean files. They can spread uncontrollably, damaging a system's core functionality and deleting or corrupting files.
- ▶ **Trojans:** This kind of malware disguises itself as legitimate software, or is included in legitimate software that has been tampered with. It tends to act discretely and create backdoors in security to let other malware in.
- ▶ **Spyware:** It hides in the background and takes notes on what you do online activities including passwords, credit card numbers, surfing habits and more.
- ▶ **Worms:** Worms infect entire networks of devices, either local or across the internet, by using network interfaces. It uses each consecutive infected machine to infect more.
- ▶ **Ransomware:** Also called scareware, this kind of malware can lock down computer and threaten to erase everything — unless a ransom is paid to its owner.
- ▶ **Adware:** Though not always malicious in nature, particularly aggressive advertising software can undermine security just to serve ads — which can give a lot of other malware a way in.

- ▶ **Botnets:** Botnets are networks of infected computers that are made to work together under the control of an attacker.

Government of India has launched Cyber Swachhta Kendra – Botnet Cleaning and Malware Analysis Centre for analysis of malware and botnets that affect networks and systems.

The Centre will operate in close co-ordination and collaboration with Internet Service Providers (ISP) and Anti-Virus companies. Whenever an infection is detected, the Centre will send alerts on the infected IP addresses to the Internet Service Providers, who in turn will inform the end-user about the malware and botnet infections on their system. The Centre will also work in close collaboration with the Banks to detect malware infections in their banking network and enable remedial actions. The launch of the Centre will help the Internet service providers and the banks to keep their networks clean and prevent cases of cyber fraud and theft.

C. Global Centre for Nuclear Energy Partnership

- ▶ Recently, India and Vietnam committed to enhancing joint co-production in defence, including transfer of technology from India in their ongoing defence cooperation, during the visit of President Tran Dai Quang of Vietnam.
- ▶ The two sides also built on previous statements on maritime security in the “Indo-Pacific” region, calling for free and open sea lanes.
- ▶ India and Vietnam exchanged three agreements on enhancing trade and agricultural research and a MoU on Cooperation between the Global Centre for Nuclear Energy Partnership (GCNEP) and the Vietnam Atomic Energy Institute (VINATOM).
- ▶ The two countries had signed a civil nuclear cooperation agreement in 2016 and the MoU will enhance training and research collaboration possibilities.

Global Centre for Nuclear Energy Partnership (GCNEP)

- ▶ Government of India approved the establishment of Global Centre for Nuclear Energy Partnership (GCNEP) near Bahadurgarh, District Jhajjar, Haryana, in September 2010. GCNEP is the sixth R&D unit under the aegis of Department of Atomic Energy (DAE).
- ▶ GCNEP will help in capacity building, in association with the interested countries and the IAEA, involving technology, human resource development, education & training and giving a momentum to R&D in enlisted areas. The main objectives of the centre include:

- Development of enhanced nuclear safeguards to effectively and efficiently monitor nuclear materials and facilities.
- Promoting the development of advanced, more proliferation resistant nuclear power reactors.
- Training manpower in the field of Nuclear Security and Radiological Safety.
- Educating in the field of Advanced Nuclear Energy Systems, Isotopes and Radiation Technologies, nuclear forensic.
- Establishing accreditation facilities for radiation monitoring.

The centre will house following 5 schools to carry out its objectives:

- School of Advanced Nuclear Energy System Studies (SANESS)
- School of Nuclear Security Studies (SNSS)
- School on Radiological Safety Studies (SRSS)
- School of Nuclear Material Characterization Studies (SNMCS)
- School for Studies on Applications of Radioisotopes and Radiation Technologies (SARRT)

In addition, DAE Outreach Programme Cell will also be setup for publicity of technologies developed by DAE for rural areas.

D. Silver Copper Telluride

- ▶ A team of researchers led by Dr. Kanishka Biswas from Bengaluru’s Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) has developed a novel compound that exhibits poor thermal conductivity in the 25-425 degree C range but shows good electrical conductivity.
- ▶ The compound, silver copper telluride (AgCuTe), shows potential as a thermoelectric material for converting waste heat into electricity.
- ▶ Since, nearly 65% of utilized energy is wasted as heat, due to the low thermal conductivity of the compound silver copper telluride, one end of the 8 mm-long rod that is contact with waste heat remains hot while the other end maintains cold temperature. The temperature difference is essential for the generation of electrical voltage. At the same time, the material exhibits good electrical conductivity like metal.
- ▶ In the AgCuTe material, both cations [silver and copper] contribute to low thermal conductivity but silver contributes more. Over 170 degree C,

both silver and copper ions flow like liquid within the rigid tellurium sublattice, thereby reducing the thermal conductivity to the level of glass without affecting the hole (electrical carrier) transport.

- ▶ In contrast, the tellurium atoms (anion) are strongly bound and the lattice is very rigid. The strongly bound tellurium provides a conduction channel for holes, thus, rendering good electrical conductivity as seen in metals.

E. Meteorite found in Rajasthan

- ▶ A study of two meteorites which fell in Assam and Rajasthan over a span of 13 hours in 2017, by the Geological Survey of India (GSI), has concluded that they may contain “significant clues to the origins of life.
- ▶ After studies, experts have found that the Mukundpura meteorite is a carbonaceous meteorite, one of the most primitive types. The meteorite belongs to a very rare and primitive group of meteorites called CM group of carbonaceous chondrites.
- ▶ Meteorites mostly originate from the asteroid belt between Mars and Jupiter. Carbonaceous meteorite may contain clues to the formation of early life. This is a rare type, since carbonaceous meteorites constitute only 3%-5% of all meteorite falls.
- ▶ Also, this meteorite could be carrying some of the most pristine primordial matter recovered from space as it is made up of materials which were formed during the early stages of the formation of the solar system. A detailed analysis could provide clues about the origin of life and the formation and evolution of the solar system.

About Carbonaceous Chondrites:

- ▶ Carbonaceous chondrite meteorites, unlike other meteorites, contain very primitive traces of carbon, and carbon forms the backbone of all life on earth.
- ▶ They represent some of the most pristine matter known, and their chemical compositions match

the chemistry of the Sun more closely than any other class of chondrites.

- ▶ They are formed in oxygen-rich regions of the early solar system, so, most of the metal is not found in its free form but as silicates, oxides, or sulfides.
- ▶ Most of them contain water or minerals that have been altered in the presence of water, and some of them contain larger amounts of carbon as well as organic compounds. This is especially true for the carbonaceous chondrites that have been relatively unaltered by heating during their history.

F. New Classification of Diabetes

- ▶ Scientists unveiled a revised classification for diabetes.
- ▶ There are five distinct types of diabetes that can occur in adulthood, rather than the two currently recognized.
- ▶ People with diabetes have excessively high blood glucose, or blood sugar, which comes from food.
- ▶ Some 420 million people around the world today suffer from diabetes, with the number expected to rise to 629 million by 2045, according to the International Diabetes Federation.

Two sub-types:

Currently, the disease is divided into two sub-types.

- ▶ With type-1 — generally diagnosed in childhood and accounting for about 10% of cases — the body simply doesn’t make insulin, a hormone that helps regulate blood sugar levels.
- ▶ For type-2, the body makes some insulin but not enough, which means glucose stays in the blood.
- ▶ This form of the disease correlates highly with obesity and can, over time, lead to blindness, kidney damage, and heart disease or stroke.
- ▶ It has long been known that type-2 diabetes is highly variable, but classification has remained unchanged for decades.

Five Clusters of Diabetes

Cluster	Characteristics	Name
1	Early disease onset (at a young age), essentially corresponds with type 1 diabetes and LADA, relatively low BMI, poor metabolic control, insulin deficiency (impaired insulin production), GADA+	Severe Autoimmune Diabetes (SAID)
2	Similar to cluster 1 but GADA–, high HbA1c, highest incidence of retinopathy	Severe Insulin-Deficient Diabetes (SIDD)
3	Insulin resistance, high BMI, highest incidence of nephropathy	Severe-Insulin Resistant Diabetes (SIRD)
4	Obesity, younger age, not insulin resistant	Mild Obesity-related Diabetes (MOD)
5	Older age, modest metabolic alterations	Mild Age-related Diabetes (MARD)

G. Shakti Shala Solar Park

- ▶ The world's largest solar park set up at an investment of Rs. 16,500 crore at Pavagada in Karnataka's Tumakuru district was launched .
- ▶ The first phase Shakti Sthala solar park having total capacity of 2,000 megawatts (MW) was inaugurated in drought-prone Pavagada region of Tumkur district.
- ▶ It has been executed within record time of two years, with zero land acquisition.
- ▶ The move was intended to curb the mass migration of people from the region which has been declared drought-hit in 54 of the last 60 years.
- ▶ The park's development is anchored by the Karnataka Solar Power Development Corp. Ltd (KSPDCL), an entity formed in March 2015 as a joint venture between Karnataka Renewable Energy Development Ltd (KREDL) and Solar Energy Corp. of India (SECI).
- ▶ The park will create employment and act as an incentive for natives and farmers to explore new opportunities of socio-economic growth in the region.

Solar power is the conversion of energy from sunlight into electricity, either directly using photovoltaics (PV), or indirectly using concentrated solar power. Concentrated solar power systems use lenses or mirrors and tracking systems to focus a large area of sunlight into a small beam. Photovoltaic cells convert light into an electric current using the photovoltaic effect.

H. Imprint II

- ▶ In a major boost for research and innovation in the country, the Central Government has sanctioned a sum of Rs. 1,000 crore for the phase two of the Impacting Research Innovation and Technology (IMPRINT) India programme.
- ▶ Under the IMPRINT-II, a fund is being created by the Department of Science and Technology and Ministry of Human Resource Development together,
- ▶ Contribution will also come from industry and other interested Ministries.

About IMPRINT India

- ▶ The initiative, 'IMPRINT India', is a pan-IIT and IISc joint collaboration to develop a blueprint for research of immediate relevance to society requiring innovation, Direct scientific research into identified areas, and to ensure higher funding support for research into these areas.
- ▶ This novel initiative with twofold mandate is aimed at:

- Developing new engineering education policy.
 - Creating a road map to pursue engineering challenges.
- ▶ IMPRINT provides the overarching vision that guides research into areas that are predominantly socially relevant.

I. Vaterite

- ▶ A team of biologists from the University of Cambridge, UK, has found that a very rare and unstable mineral called Vaterite is a dominant component of the protective silvery-white crust that forms on the leaves of a number of alpine plants.
- ▶ It was named after the German mineralogist Heinrich Vater.
- ▶ It is also known as mu-calcium carbonate. Vaterite was often associated with outer space and had been detected in planetary objects in the Solar System and meteorites.
- ▶ Vaterite is not very stable in the Earth's humid atmosphere as it often reverts to more common forms of calcium carbonate, such as calcite.
- ▶ Naturally occurring vaterite — a form (polymorph) of calcium carbonate — is rarely found on Earth.
- ▶ Small amounts of vaterite crystals have been found in some sea and freshwater crustaceans, bird eggs, the inner ears of salmon, meteorites and rocks.
- ▶ It can be used for drug delivery as vaterite has special properties that make it a potentially superior carrier for medications due to its high loading capacity, high uptake by cells and its solubility properties that enable it to deliver a sustained and targeted release of therapeutic medicines to patients.

J. Rydberg Polarons

- ▶ Scientists have observed a new class of quantum matter at the very smallest scales in one of the coldest environments ever made. This discovery could pave the way for new technologies including innovations in superconductivity and other cutting-edge fields.
- ▶ This is an intricate experiment that builds upon several advances that were achieved over the past two decades.
- ▶ It uses ideas from two different fields, which have already been discovered:
 - Bose Einstein Condensation, and
 - Rydberg atoms.

- ▶ A particularly interesting implication is for cosmology. We know that our universe is filled with a mysterious 'dark matter' which exerts a gravitational force on other forms of matter.
- ▶ Some theories of dark matter postulate that it is a cosmic Bose Einstein Condensate, perhaps composed of an as-yet-unknown type of particle. If we are indeed living in an invisible all pervading Bose Einstein Condensate, this experiment can suggest ways to detect it.

K. Ice VII

- ▶ Scientists have found the first ever samples of naturally occurring ice-VII on Earth. The samples were found in a diamond.
- ▶ Commonly used is called as ice-I. When water freezes, the oxygen atoms move into a hexagonal arrangement. That's why ice expands and has lower density than water. Compressing ice can change the shape of the crystals, turning ice-I into ice-II (rhombus-shaped crystals), ice-III (tetragonal crystals), and so on.
- ▶ Ice-VII, with its cubic crystals, is unique in that it remains stable even as pressure increases dramatically. It's 1.5 times more dense than ice-I as well.
- ▶ There's (almost) nowhere on Earth for ice-VII to form, because it requires both low temperatures and high pressure exceeding 30,000 atmospheres (3 gigapascals). The only place one can reach that pressure is deep in the Earth's mantle, but it's too hot for ice to form there.

- ▶ The formation of ice-VII doesn't require freezing temperatures — as long as the pressure is high enough, ice-VII can form at room temperature.

L. How safe are Mine Protected Vehicles

- ▶ Recently, Maoists in Chhattisgarh detonated an Improvised Explosive Device (IED) under a Mine-Protected Vehicle (MPV), destroying the vehicle and killing nine CRPF personnel.

What is MPV?

- ▶ A Mine-Protected Vehicle (MPV) offers armored protection to its crew and passengers against ballistic and land mine threats.
- ▶ It typically has a body reinforced with solid steel or alloy, with a floor of extra thick steel sheets.
- ▶ It uses a V-shaped hull of steel and monocoque (where body and chassis are in one piece) construction that directs the force of the blast away from the vehicle's occupants.
- ▶ V-shaped hull propelled in the air to only a third of the height compared to a flat hull exposed to the same force of blast.
- ▶ The monocoque technology ensures that the wheels, which are expected to take the first impact, are separated from the chassis, preventing the crew compartment from being thrown high in the air.
- ▶ The vehicle can seat 12 soldiers, and has a provision for a remote weapon station or a mounted turret for a light or medium machine gun.

★★★★★★★★★

Environment

1

Conservation Assured | Tiger Standards (CA | TS) Partnership

“ The Conservation Assured | Tiger Standards (CA|TS), a new survey of current management methodologies at 112 sites located in 11 tiger-range countries, including India stated that only 13 percent of the tiger conservation areas met the global standards of an accreditation system. The survey is the first and largest rapid assessment of site-based tiger conservation across Asia and has been driven by 11 conservation organisations and tiger-range governments that are part of the CA|TS coalition. ”

Underlined Concepts

About CA|TS

- ▶ Conservation Assured | Tiger Standard (CA|TS) is a new conservation tool to set minimum standards for effective management of target species and to encourage assessment of these standards in relevant conservation/protected areas.
- ▶ The first species-specific CA standards are for the tiger.
- ▶ CA|TS aims to be a key element in realizing the ambitious goal of doubling the global tiger population by 2022.
- ▶ Developed by WWF and partners, the Global Tiger Forum (GTF) has endorsed CA|TS and has requested member countries to establish National Review Committees for purpose of initiating CA|TS.
- ▶ Nepal is the first TRC to implement the process; Bhutan, Bangladesh, Thailand, Indonesia, Malaysia and India are following Nepal's lead.

How does CA|TS Work and Who is Using it?

- ▶ Sites taking part will initially be 'registered' (standards not yet attained) then, when all required standards are met, they are 'approved' (standards achieved). An approved site has achieved excellence in tiger site management. Sites are evaluated through an assessment and independent review process.
- ▶ Of the 13 tiger range countries Nepal, India, Bangladesh and Russia have registered and rolled out CA|TS, whilst discussion is ongoing with Bhutan, Indonesia, Thailand, Malaysia and China.

Sites that are CA|TS Approved

Chitwan National Park in Nepal and Sikhote-Alin Nature Reserve in Russia.

Facts from the Survey

- ▶ Half of the assessed sites (52.5 percent) report fairly strong management, although there are improvements needed.
- ▶ Despite poaching being one of the greatest threats faced by big cats, 85 percent of the areas surveyed do not have staff capacity to patrol the sites effectively.

- ▶ 61 per cent of the areas in South-east Asia have a very limited anti-poaching enforcement.

Why is CA|TS Important?

- ▶ Protected areas are a good strategy for retaining forest cover, however, their role in protecting wildlife depends on the quality of management. Many studies show that tiger numbers can continue to decline in protected areas, particularly due to

bushmeat (tiger prey) hunting or the poaching of tigers themselves for trophies, traditional medicines and other illegal activities.

- ▶ Until CA|TS, there has not been a set of criteria which not only provide clarity on management of tiger sites, but also encourage further development and sharing of best practices across the tiger range countries.

GS SCORE

A. Smartphone Tech Most Damaging to Environment

- ▶ Data centres and smartphones will be the most damaging information and communications technologies to the environment by 2040 a study has found.
- ▶ Researchers from the McMaster University in Canada studied the carbon footprint of consumer devices such as smartphones, laptops, tablets, desktops as well as data centres and communication networks as early as 2005.
- ▶ Not only did they discover that software is driving the consumption of information and communications technology, they also found that ICT has a greater impact on emissions than we thought, and most emissions come from production and operation.
- ▶ Today, it sits at about 1.5%. If trends continue, ICT will account for 14% of the global footprint by 2040, or about half of the transportation sector worldwide. For every text message, for every phone call, every video, there's a data centre making this happen.

B. How India Counts its Tigers

- ▶ Indian Tiger Census is published by the Wildlife Institute of India.
- ▶ **Different Methods for Tiger Census are:**
 - **Pugmark technique:** It has been one of the most popular ways of counting tigers. Each tiger is known to leave a distinct pugmark on the ground and these are different from the others in the big cat family. Photographs or plaster casts of these pugmarks are then analysed to assess the tiger numbers.
 - **Installation of cameras:** Cameras could be left in dense forests for several days to capture images of individual tigers.
 - **Double-sampling method:** This is the new method adopted by Wildlife Institute of India in Tiger Census 2015. The first stage involved ground survey by the forest department. Under this forest department staff collect evidences of tiger presence such as pugmarks, scat, scratches on trees or other such unmistakable signs of tiger presence.

The next stage involved camera trapping. Based on the ground surveys, locations were chosen for installing cameras. These cameras are heat and motion sensitive. They lie idle till they detect any motion or a sudden change in temperature which means, they capture just about anything that moves — other animals, even birds. All these get captured by the camera.

Each tiger is known to have a very unique stripe pattern. This is used to differentiate one tiger from the other.

C. Achieving Energy Efficiency Key to Meeting Lower Emissions Commitment

- ▶ The World Bank, in its report titled Utility scale DSM opportunities and business models in India, has pegged India's energy efficiency market at Rs. 1.6 trillion by considering end-use energy efficiency opportunities, which rose four times in six years from Rs. 44,000 crore in 2010, against the backdrop of the success of the government's UJALA scheme to distribute LED bulbs (Bachat Lamp Yojana).
- ▶ Till now, more than 280 million light emitting diode (LED) bulbs have been sold across the country which has resulted in energy savings of 36,545 million units (MUs) and avoided peak demand of 7,317 MW. In monetary terms, savings of around Rs. 14,618 crore have been achieved.
- ▶ The report also recognized promotion of energy efficiency among consumers through initiatives and schemes such as incentives for adopting and manufacturing energy efficient appliances (Super-Efficient Equipment Programme), standards and labelling scheme, consumer outreach activities and voluntary building codes (energy conservation building code that has been made mandatory for commercial buildings).
- ▶ The report also mentions that the renewed DSM market potential is envisaged to deliver 178 billion units of electrical energy savings per annum that roughly translates to 18-20% of the current levels of all India annual electricity consumption and 150 million tonnes (mt) of annual CO₂ emissions reduction potential.
- ▶ Apart from this, demand response, solar photovoltaic (SPV) rooftop systems, along with emerging smart grid technologies, offer tremendous potential for utility DSM in India.

D. First Solar Alliance Meet

- ▶ India has announced \$1.4 billion for solar energy, one of the world's largest investment plans in solar energy at the first conference of the International Solar Alliance (ISA).
- ▶ The announcement came at the first conference of the International Solar Alliance, which India co-hosted with France. The summit was co-chaired by Prime Minister Narendra Modi and French President Emmanuel Macron, who is on a four-day visit to India.
- ▶ India will provide assistance of \$1.4 billion for solar energy worldwide, while French President has committed to allocate €700 million in additional spending to its commitment to solar energy by 2022, taking the total commitment to €1 billion.
- ▶ The assistance of \$1.4 billion will cover 27 projects in 15 countries.
- ▶ India has committed to generating 175 GW (gigawatt) of electricity from renewable sources by 2022 (100 GW from solar and 60 GW from wind).
- ▶ During the summit, setting up of a Project Preparation Facility (PPF) by India to assist its development partner countries towards the preparation of viable projects was also announced.
- ▶ The first conference of ISA was attended by 23 heads of state and heads of government and several other top-level officials from many countries.

E. National Biodiversity Authority

- ▶ The National Biodiversity Authority (NBA) was established by the Central Government in 2003 to implement India's Biological Diversity Act (2002) as an Autonomous and Statutory Body of the Ministry of Environment, Forest and Climate Change, Government of India.
- ▶ The NBA has its headquarters in Chennai, Tamil Nadu.
- ▶ The NBA is a Statutory Body and it performs facilitative, regulatory and advisory functions for the Government of India on issues of conservation, sustainable use of biological resources and fair and equitable sharing of benefits arising out of the use of biological resources.
- ▶ The Biological Diversity Act (2002) mandates implementation of the provisions of the Act through decentralized system with the NBA focusing on advising the Central Government on matters relating to the conservation of biodiversity, sustainable use of its components

and equitable sharing of benefits arising out of the utilization of biological resources; and advising the State Governments in the selection of areas of biodiversity importance to be notified under Sub-Section (1) of Section 37 as heritage sites and measures for the management of such heritage sites.

F. Scheme To Promote In-Situ (In The Farm Itself) Management Of Crop Residue

- ▶ The Cabinet Committee on Economic Affairs (CCEA) has approved Central Sector Scheme for in-situ management of crop residue in Punjab, Haryana, Uttar Pradesh and NCT of Delhi.
- ▶ It will promote agricultural mechanization for next two years (2018-20) to provide cost-effective and eco-friendly solution to farmers to deal with problem of stubble burning that result in raising air pollution levels in Delhi and neighbouring states every winter.
- ▶ Under this scheme, the proceeds from central fund will be used to establish Farm Machinery Banks (FMBs) for Custom Hiring of in-situ crop residue management machinery.
- ▶ Government will provide 80% financial assistance of project cost to cooperative societies of farmers, FPOs, SHGs, registered farmers societies or farmers groups, private entrepreneurs and group of women farmers.
- ▶ It will also provide 50% financial assistance to farmers for procurement of agriculture machinery and equipment for in-situ crop residue management.
- ▶ Beneficiaries will be identified and selected for establishment of Farm Machinery Bank for Custom Hiring and procurement of machines on individual ownership basis by state nodal department/DLEC.
- ▶ They may tie up with Banks for credit requirements of beneficiaries.
- ▶ The central fund will also be used to create awareness among farmers about in-situ management of crop residue.
- ▶ The activities will involve mass awareness campaigns through documents, short and long films, radio and TV programmes, demonstration camps at various levels and capacity building programme etc.
- ▶ It will also include advertisement in print media, star campaigning, award for village or gram Panchayat for achieving Zero Straw Burning etc.

Art & Culture

1

Sufism in the Simplest Terms

“ Sufism or tasawuf is the name for various mystical movements in Islam. The word Sufi means wool. The preachers from Arabia wore wool to protect themselves from dust winds.

The Sufi movement is believed to have begun in Persian countries against the highly puritan Islamic culture. ”

Underlined Concepts

Sufism

- ▶ It aims at establishing direct communication between god and man through personal experience of mystery which lies within Islam.
- ▶ The Sufis while accepting the Shariat did not confine their religious practice to formal adherence and stressed cultivation of religious experience aimed at a direct perception of god.
- ▶ A number of Sufi orders developed out of silsilah in and outside India. All these orders had their specific characteristics. However, there were a number of features which are common to all Sufi orders.
- ▶ Sufism stressed on the elements of love and devotion as effective means of the realization of God. Love of God meant love of humanity and so the Sufis believed service to humanity was tantamount to service to God.
- ▶ In Sufism, self discipline was considered an essential condition to gain knowledge of God by sense of perception.
- ▶ While orthodox Muslims emphasize on external conduct, the Sufis lay stress on inner purity.
- ▶ While the orthodox believe in blind observance of rituals, the Sufis consider love and devotion as the only means of attaining salvation.

- ▶ According to Sufis one must have the guidance of a pir or guru, without which spiritual development is impossible.
- ▶ Sufism also inculcated a spirit of tolerance among its followers.
- ▶ Other ideas emphasised by Sufism are meditation, good actions, repentance for sins, performance of prayers and pilgrimages, fasting, charity and suppression of passions by ascetic practices.
- ▶ Devotion is more important than fast (Roza) or prayer (Namaz).
- ▶ Sufism does not believe in caste system.
- ▶ Sufism emphasizes upon leading a simple life.
- ▶ Sufi saints preached in Arabic, Persian and Urdu etc.

Growth of Sufism in Islamic World

- ▶ Sufism began to acquire the form of an organised movement with the establishment of the Turkish rule under the Ghaznavis and then under the Seljuqs in various parts of Central Asia and Iran in the later 10th and 11th centuries.
- ▶ The period marks the development of two parallel institutions in the Islamic world – the Madarasa system (seminary, higher religious school) in its new form as an official institution of orthodox

Islamic learning and the Khanqah system as an organized, endowed and permanent centre for Sufi activities.

Sufi Movement in India

- ▶ The Sufi movement in India commenced in the 11th century A.D. Al Hujwiri, who established himself in north India was buried in Lahore and regarded as the oldest Sufi in the sub-continent.

- ▶ Among the important Sufi Orders in the history of Medieval India were those of the Chishtiya, Suhrawardiya, Qadiriya and Naqshbandiya.
- ▶ Chisti and the Suhrawardi Silsilahs were popular during the Sultanate period.
- ▶ The Suhrawardi Silsila which was founded in India by Shaik Bahauddin Zakaria (AD 1182-1262).
- ▶ The Chisti Silsila introduced in India by Khwaja Moinuddin Chisti, who died in AD 1236.

2

E.V. Periyar

“Erode Venkata Ramasamy referred to as Thanthai Periyar, was an Indian social activist, and politician who started the Self-Respect Movement and Dravidar Kazhagam.

Born in 1879, Periyar is remembered for the Self Respect Movement to redeem the identity and self-respect of Tamils. He envisaged a Dravida homeland of Dravida Nadu and launched a political party, Dravidar Kazhagam (DK). Periyar started his political career as a Congress worker in his hometown Erode. After failing to bend the Congress to his view, Periyar resigned from the party in 1925 and associated himself with the Justice Party and the Self Respect Movement, which opposed the dominance of Brahmins in social life, especially the bureaucracy.”

Underlined Concepts

Self Respect Movement

- ▶ He was the leader of the self-respect movement. It was a popular movement, which occurred in Tamil Nadu in 1925. It had two aims:
 - Demanding the sanction of more concessions and privileges (which would cause discrimination against the Brahmins) to surpass Brahmins in education and social status.
 - Achieving 'Swayam Maryada' or self-respect.
- ▶ Periyar E.V. Ramaswamy, a great social reformer took an active part in the anti-liquor movement and Vaikam Satyagraha in 1924.
- ▶ This movement formed a part of the many social reforms occurred during that period.
- ▶ Its main approach was to improve upon the socio-economic conditions of the low castes Tamils.

- ▶ The main objectives of this movement were inculcation and dissemination of knowledge of political education; Right to lead life with dignity and self-respect and do away with the exploitative system based on superstitions and beliefs.
- ▶ Abolition of the evil social practices and protection of women rights. Establishment and maintenance of homes for orphans and widow, and opening of educational institutions for them.
- ▶ This movement gained popularity in no time and became a political platform.
- ▶ He attacked the laws of Manu, which he called the basis of the entire Hindu social fabric of caste.
- ▶ He founded the Tamil journals Kudiarasu, Puratchi and Viduthalai to propagate his ideals.
- ▶ In 1938, the Tamil Nadu Women's Conference appreciated the noble service rendered by E.V.R. and he was given the title "Periyar".

- ▶ On 27th June, 1970, the UNESCO organisation praised and adorned him with the title "Socrates of South Asia"

Dravidar Kazhagam

The justice party could not continue its popularity and in 1936 no party candidate was elected to state legislature. After the defeat, justice party approached Periyar and Justice party came under Periyar who decided to withdraw from politics and transformed Justice party into a social organization Dravidar Kazhagam(Dravidian Organization).

Anti-Hindi imposition agitations of Tamil Nadu

The Anti-Hindi imposition agitations of Tamil Nadu were a series of agitations that happened in the Indian state of Tamil Nadu (formerly Madras State and part of Madras Presidency) during both pre- and post-Independence periods. The agitations involved several mass protests, riots, student and political movements in Tamil Nadu concerning the official status of Hindi in the state.

As the day of switching over to Hindi as sole official language approached, the anti-Hindi movement gained momentum in Madras State with increased support from college students. On 25 January, a full-scale riot broke out in the southern city of Madurai, sparked off by a minor altercation between agitating

students and Congress party members. The riots spread all over Madras State, continued unabated for the next two months, and were marked by acts of violence, arson, looting, police firing and lathi charges. The Congress Government of the Madras State, called in paramilitary forces to quell the agitation; their involvement resulted in the deaths of about seventy persons (by official estimates) including two policemen. To calm the situation, Indian Prime Minister Lal Bahadur Shastri gave assurances that English would continue to be used as the official language as long as the non-Hindi speaking states wanted. The riots subsided after Shastri's assurance, as did the student agitation.

The agitations of 1965 led to major political changes in the state. The DMK won the 1967 assembly election and the Congress Party never managed to recapture power in the state since then. The Official Languages Act was eventually amended in 1967 by the Congress Government headed by Indira Gandhi to guarantee the indefinite use of Hindi and English as official languages. This effectively ensured the current "virtual indefinite policy of bilingualism" of the Indian Republic. There were also two similar (but smaller) agitations in 1968 and 1986 which had varying degrees of success.

A. Bababudandargah

- ▶ The long-standing dispute over the Guru Dattatreya Bababudan Dargah in Chikkamagalur was taken to a logical end.
- ▶ The state cabinet resolved that the shrine atop the hill is the property of Religious Endowment department and does not belong to Wakf Board.
- ▶ The State government has opposed the demand to declare the Sri Guru Dattatreya Bababudan Swami Dargah near Chikkamagaluru as an exclusively Hindu place of worship, accepting the report submitted by an expert committee headed by Justice Nagamohan Das.
- ▶ With this, the government has confirmed that the cave shrine will retain its syncretic nature as a dargah venerated by both Hindus and Muslims.

About Dargah

- ▶ Baba Budangiri shrine - shrine named after the saint Sufi saint Baba Budan, who is revered by both Muslims and Hindus.

Dispute related to it

- ▶ Prior to 1964, the shrine Shree Guru Dattatreya Bababudan Swamy Dargah was a symbol of religious harmony, where both Hindus and Muslims offered prayers at the same shrine.
- ▶ In 1964, the area was allotted to the Waqf Board by the Karnataka government.
- ▶ In 1978, Annappa Shetty, a local leader of Chikkamagaluru filed a case with the district court and claimed that the property belongs to the Hindus.
- ▶ The district court's judgement pronounced that the shrine is visited by both Hindus and Muslims, and ordered that the status quo be maintained.
- ▶ The court also upheld the rights of Shah Khadri regarding the inheritance. The custodian of the shrine is called Sajjade Nishin and the family of Shah Khadri has inherited the position of the custodian for decades now.
- ▶ In 1989, the Waqf Board appealed the district court's judgement and moved the Karnataka High Court. The HC upheld the district court's judgement and in 1991, the board filed a special leave petition with the Supreme Court.

B. Kanchipuram

- ▶ Kanchipuram also known as Kanchi, is a city in the Indian state of Tamil Nadu.

- ▶ Located on the banks of the Vegavathy river, Kanchipuram has been ruled by the Pallavas, the Medieval Cholas, the Later Cholas, the Later Pandyas, the Vijayanagara Empire, the Carnatic kingdom, and the British, who called the city "Conjeeveram".
- ▶ Historically, Kanchipuram was a centre of education and was known as the ghatikasthanam, or "place of learning". The city was also a religious centre of advanced education for Jainism and Buddhism between the 1st and 5th centuries.
- ▶ The city is well known for its hand woven silk sarees and most of the city's workforce is involved in the weaving industry.
- ▶ Kanchipuram has been chosen as one of the heritage cities for HRIDAY - Heritage City Development and Augmentation Yojana scheme of Government of India.

HRIDAY

HRIDAY seeks to promote an integrated, inclusive and sustainable development of heritage sites, focusing not just on maintenance of monuments but on advancement of the entire ecosystem including its citizens, tourists and local businesses.

The Scheme is being implemented in 12 identified Cities namely, Ajmer, Amaravati, Amritsar, Badami, Dwarka, Gaya, Kanchipuram, Mathura, Puri, Varanasi, Velankanni and Warangal. The scheme is implemented in a mission mode.

C. Race to Save 3,000-year-old Treasures in A.P. Village

- ▶ A small village in west Godavari district of Andhra Pradesh is yielding clues to life in the region some 3000 years ago. The State Archaeology department has dug up artefacts from burial sites here dating back to 1,000 B.C. and the megalithic era.
- ▶ Rudramkota in Velperupetamandal of West Godavari district has so far yielded human figures, terracotta figurines, and red and black pottery, from a dolmen burial.
- ▶ The artefacts found include charred bones, seeds, beads of crystal and stones like chalcedony, carnelian and steatite. There are pointers to social life, such as a dagger, broken parts of a javelin, two ploughs, legged pottery and urns, besides red and black pottery.

- ▶ However, it faces a challenge: to complete the excavations early because the area will be flooded by the Polavaram project.

Polavaram Project

Polavaram Project is a multi-purpose irrigation project which has been accorded national project status by the Union Government. This dam across the Godavari River is under construction located in West Godavari District and East Godavari District in Andhra Pradesh state and its reservoir spreads in parts of Chhattisgarh and Odisha States also.

Polavaram project dam being built on River Godavari can help divert and utilise Godavari water to Krishna and other rivers. If executed well, this project can make the state drought-free forever.

D. Kuthiyottam Ritual

- ▶ On February 28, 2018, the Kerala State Commission for the Protection of Child Rights registered a suomotu case in connection with the Kuthiyottam ritual. The commission will examine if the ritual, reportedly involving piercing children's skin with a hook, violated child rights in any manner.
- ▶ The Kuthiyottam ritual is usually performed every year during the Pongala festival at the Attukal Bhagavathy Temple in Thiruvananthapuram, Kerala.
- ▶ According to Kerala's Department of Tourism, the Attukal Pongala festival is the largest congregation of women for a festival in the world. Pongala, which means 'to boil over', is a ritual in which women prepare a pudding made from rice, jaggery, coconut and plantains cooked together, and offer it to the goddess. The ritual can only be performed by women.

Kuthiyottam Ritual

- ▶ Nearly 1,000 young boys undertake a seven-day penance before Pongala day. These boys are said to represent the wounded soldiers of the goddess. The boys have to observe strict discipline

and stay inside the temple for seven days. The rigours include sleeping on the floor, strict diet restrictions, and bathing three times a day. They also have to prostrate 1,008 times before the deity. The ritual also reportedly involves piercing the child's skin with a small hook and knotting a thread through it to symbolise their bond with the Goddess.

E. Artefacts of "Pre Iron Age" Found in Odisha

- ▶ Archaeological Survey of India, which has been excavating a mound at Jalalpur village of Odisha's Cuttack district, has now come across stone and bone tools believed to be of early Iron Age.

Important Facts

- ▶ The discovery includes faunal remains, carbonised grains and stone and bone tools of early iron-age to pre-historic period.
- ▶ Yellow and dark grey colour soil noticed during the excavation signifies the rural settlement flourished in different eras. Circular wall, semi-circular wall, crescent shape wall and mud platforms of different size and shape have been discovered.
- ▶ Recently, teeth of three types of sharks, stone tools were unearthed from the site.
- ▶ Among the artefacts retrieved from the site include red ware, red slipped ware, grey and black wares, pots of different shapes, bowls, bowl-on-stand, ring based bowls, miniature pots, storage jars, pots .
- ▶ Similarly, important antiquities retrieved from the site are polished stone axes and adzes, bone points, terracotta sling balls, terracotta wheel, beads of carnelian, and sand stone, hopscotch, barbed bone point, bone drill, bone arrow-head, bone spear-head, stylus and needle made of antler, bone borer cum side scraper and bone spatula.

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International Affairs

1

India to Help Build Nuclear Plant in Bangladesh

“ India, Bangladesh and Russia have signed a tripartite memorandum of understanding (MoU) for cooperation in the construction of the Rooppur nuclear power plant in Bangladesh.

According to the MoU Indian companies can now participate in construction and installation works in the “non-critical” category for the Rooppur nuclear power plant in Bangladesh.

The Rooppur project is the first initiative under an Indo-Russian deal to undertake atomic energy projects in any third country. ”

Underlined Concepts

About the MoU Signed

The MoU was signed in Moscow by the Department of Atomic Energy of India, the Ministry of Science and Technology of Bangladesh and Rosatom.

Russia is building a Nuclear Power plant in Bangladesh on a 'Turnkey Basis'. Indian Companies can be involved in Construction and Installation works and in the supply of Equipment of a non-critical category.

The Memorandum of Understanding sets a framework for interaction of Russian contractor, and Indian and Bangladeshi experts in the implementation of works related to the project.

The parties, in particular, will cooperate in personnel training, exchange of experience and consulting support. Russia is constructing two nuclear reactors with a capacity of 1,200 MW each in Rooppur, which will be Bangladesh's first nuclear power project.

▶ Turnkey Project is a type of project in which the contractor will complete the whole project and they will be liable for any problems that arise in the plant.

Significance

- ▶ The Rooppur project is the first initiative under an Indo-Russian deal to undertake atomic energy projects in any third country.
- ▶ This will also be the first time Indian companies will be able to participate in a nuclear power project abroad.
- ▶ It will be the third South Asian country after India and Pakistan to access nuclear energy, a development that could alter the power structure in South Asia.
- ▶ It will improve India-Bangladesh relationship and give it a new dimension to enhance cooperation between the two South Asian neighbours.

Challenges

- ▶ India is not a member of the Nuclear Suppliers Group (NSG) and hence cannot participate directly in construction of atomic power reactors.
- ▶ India lacks the experience for such projects in other countries.
- ▶ China may try to stall the project by utilising its diplomatic leverage over Russia and Bangladesh.

India and NSG

- ▶ Nuclear Suppliers Group (NSG) is a group of nuclear supplier countries that seek to prevent nuclear proliferation by controlling the export of materials, equipment, and technology that can be used to manufacture nuclear weapons.

- ▶ India has not signed Nuclear Non-Proliferation Treaty which is a key requirement for any country to join NSG.
- ▶ However, analysing the India's commitment to bifurcate its civilian and military nuclear programs along with its nonproliferation record ensures indigenously developed technology is not shared with other countries and India has also ratified an Additional Protocol with the International Atomic Energy Agency (IAEA) which means that its civilian reactors are under IAEA safeguards and open for inspections. This makes India's case of entry into the Elite club reasonable and justified.

2

H-4 Visa Users, Spouses of H-1B Visa Holders

“ The Trump administration's proposal to withdraw the provision of giving work permits to the spouses of the H-1B visa workers, most of them Indians, will make America less attractive for foreign talent, according to an influential US immigration advocacy body. ”

Underlined Concepts

About H1B Visa

- ▶ The H-1B visa is a non-immigrant visa given by the United States to employ skilled workers from other countries for various specialised fields of occupation for a certain period of time.
- ▶ Donald Trump promised to end the misuse of visa programmes by companies to undercut American workers, referring to an incident that involved Indian companies and IT professionals on H-1B visas.
- ▶ The Indian IT industry believes that the root cause of the problem is shortage of STEM skills (or those in the areas of Science, Technology, Engineering and Math) in the U.S.

About H-4 Visa

- ▶ H-4 visa holders are immediate family members of H-1B visa holders. Most H-4 visa holders are spouses who want to join their partner in a new country.
- ▶ They can live in the United States on a continuous basis. They can also travel to and from the

country as needed. H-4 visa holders can either join their spouse immediately or choose to move to America at a later date.

- ▶ They also have the right to attend college in the United States and may even enjoy discounted tuition.
- ▶ As of 2017, India has highest number of people with H-4 Visa in USA, accounting for 86% of the total H-4 Visa Holders.

Who Qualify for H-4?

The only people who qualify are dependents. In the United States, those people are spouses and unmarried children under the age of 21.

How Long does an H-4 Visa Last?

No official termination date exists for an H-4 visa. Instead, the holder of the primary visa, the H-1B, will determine length of stay. When that visa expires, both the H-1B and H-4 holders are no longer eligible for American residency.

What can a Person do with an H-4 Visa?

The holder enjoys several privileges available to American citizens. They can:

- ▶ Get a state driver's license
- ▶ Get a tax ID
- ▶ Go to college
- ▶ Open a bank account

The most important thing that a holder cannot get a Social Security number. This type of visa doesn't allow the holder to join the American labor force immediately.

What are the Advantages of H-4 Visa EAD (Employment Authorization Document)?

- ▶ The visa holder does not need an official job offer to apply for an EAD.
- ▶ The EAD holder can start a business rather than work for someone else.
- ▶ The EAD holder can work for any company at any job in any profession, part-time or full-time.
- ▶ The EAD holder doesn't have to work at all if that's their choice.

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Snippets

Snippets related to International Affairs

A. First US LNG Shipment to Reach India

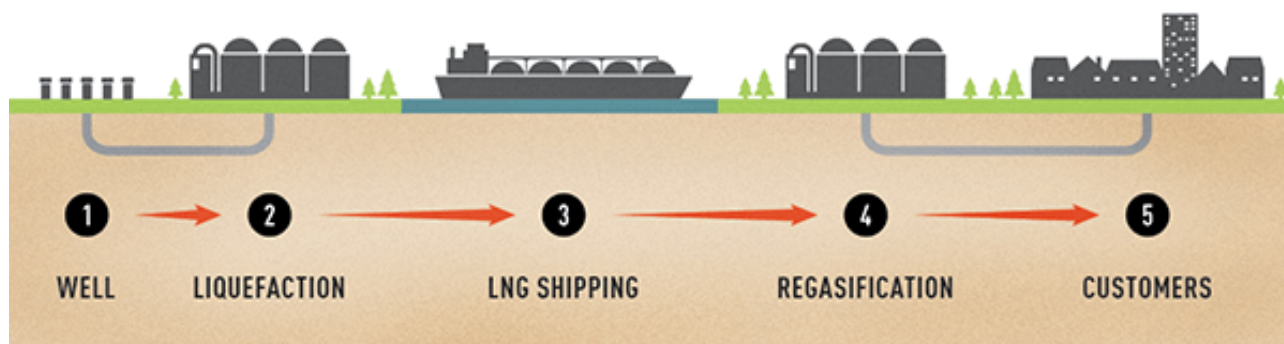
- ▶ India will receive its first LNG import from the U.S.
- ▶ The sale purchase agreement was signed in December, 2011, and the cargo is expected to discharge LNG at the Dabhol terminal of GAIL on or around March 28.
- ▶ Under the terms of the agreement, GAIL would purchase approximately 3.5 million tonnes of LNG per year from Cheniere's Sabine Pass. With supplies commencing from the U.S., GAIL will have a diversified portfolio both on price indexation and geographical locations.
- ▶ This long-term pact would go a long way in strengthening ties between GAIL and Cheniere and reinforcing India-U.S. trade ties. GAIL, which commands 75% market share in gas transmission, is expanding pipeline network by about 5,000

km at an investment of more than \$3 billion to operate more than 16,000 km by 2020.

- ▶ "The commencement of this agreement marks the start of a long and productive relationship between Cheniere and GAIL.

About LNG

- ▶ LNG is a clear, colourless and non-toxic liquid which forms when natural gas is cooled to -162°C (-260°F). The cooling process shrinks the volume of the gas 600 times, making it easier and safer to store and ship. In its liquid state, LNG does not ignite.
- ▶ When LNG reaches its destination, it is turned back into a gas at regasification plants. It is then piped to homes, businesses and industries where it is burnt for heat or to generate electricity.
- ▶ LNG is now also emerging as a cost-competitive and cleaner fuel, especially for shipping heavy-duty road transport.



Advantages of LNG

- ▶ It makes it possible to use natural gas in areas where natural gas is not available via the national delivery network or municipal distribution system.
- ▶ It is a more economic source of energy when compared to black products (fuel oil and diesel) and LPG.
- ▶ It is suitable for consumer purposes such as process, steam recovery, heating and cooking in sectors like tourism, steel, paper and ceramic.
- ▶ Because of its high energy content, the total amount of energy needed is reduced.
- ▶ It expands 600 times to reach its gaseous state (1 unit of LNG = 600 units of natural gas).

- ▶ A large amount of natural gas can be stored and transported at low pressure.
- ▶ It can be used in all burning devices by making minor changes.
- ▶ Because it is a clean fuel, it contributes to improved product quality and reduces maintenance costs.

B. Myanmar Puts Off Border Pact

- ▶ The Union Cabinet had approved the agreement between India and Myanmar on land border crossing to enhance economic interaction between people of the two countries.
- ▶ But Myanmar has indefinitely deferred signing an agreement with India to streamline the free movement of people within 16 km along the border.

What is the Pact About?

- ▶ Earlier this year, the Union Cabinet had approved the agreement between India and Myanmar.
- ▶ This is in relation to streamlining the free movement of people within 16 km along the border.
- ▶ The arrangement on land border crossing is to enhance economic interaction between people of the two countries.
- ▶ As per the proposal, there would be no restrictions on the movement of people across the borders.
- ▶ However, the domiciles would be allotted border passes. Those going across for agriculture, work or to meet relatives should carry the pass at all times.
- ▶ India and Myanmar share a 1,643 km unfenced border along Arunachal Pradesh (520 km), Nagaland (215 km), Manipur (398 km) and Mizoram (510 km) and permit a 'free movement' regime upto 16 km beyond the border.

C. 8.3 Km Stretch of the Indo-Bangladesh Border as a 'Crime-Free Zone'

- ▶ The Director Generals of the Border Security Force (BSF) and Border Guard Bangladesh (BGB) have declared an 8.3 km stretch of the Indo-Bangladesh border as a 'crime-free zone'
- ▶ This stretch is one of the most vulnerable with cattle smuggling and other criminal activities prevalent.
- ▶ Both border guarding forces with the help of the civil administrations of the two countries, NGOs and the local populace will help in ensuring that no crime takes place along the stretch.
- ▶ Both the forces will work together to ensure that no crime or anti-social activity occurs along this stretch.
- ▶ This is a pilot project that will be reviewed after 5-6 months.
- ▶ The stretch will be extended to other trouble-prone areas.
- ▶ Bangladesh and India share a 4,156 km long international border, includes 262 km in Assam, 856 km in Tripura, 180 km in Mizoram, 443 km in Meghalaya, and 2,217 km in Bengal.

D. Comprehensive and Progressive Agreement for Trans-Pacific Partnership

The CPTPP is a new free trade agreement between Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam. Once the CPTPP enters into force, it will be one of the largest free trade agreements in the world and will provide enhanced market access to key Asian markets.

Benefits of CPTPP

- ▶ Asia-Pacific markets are growing quickly and provide significant opportunities for trade and investment.
- ▶ The CPTPP will provide enhanced market access to key Asian markets, including Japan, Malaysia and Vietnam.
- ▶ Once the CPTPP enters into force, it will be one of the largest free trade agreements in the world—11 countries representing nearly 500 million people, with a combined GDP of \$13.5 trillion, or 13.5% of global GDP.
- ▶ The expected gains from the CPTPP will benefit a wide range of sectors, including financial services, fish and seafood, forestry, agriculture and agri-food, and metals and minerals.

Difference between CPTPP and TPP

- ▶ The CPTPP incorporates, by reference, the obligations (rules and market access outcomes) contained in the original TPP agreement, except for the list of 22 original TPP provisions, the application of which the parties have agreed to suspend upon entry into force of the agreement.
- ▶ Canada secured a number of these suspensions, particularly in the area of intellectual property and investor-state dispute settlement, to optimize and rebalance the agreement among the remaining member countries.
- ▶ Also notable is that the expected economic benefits of a CPTPP for Canada are greater than they were for the TPP. According to economic modelling, Canada's GDP gains would total \$4.2 billion under the CPTPP, compared with \$3.4 billion under the TPP. This is due to the fact that without the U.S. in the agreement, Canadian business will gain a "first mover" advantage in key CPTPP markets such as Japan, and Canada will continue to enjoy privileged access to the U.S. market through NAFTA.

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Miscellaneous News

Geographical News

1. La Nina and Monsoon Connection

La Nina, a phenomenon associated with the cooling of Pacific waters, will be neutral during this monsoon, raising hope for normal rainfall this year.

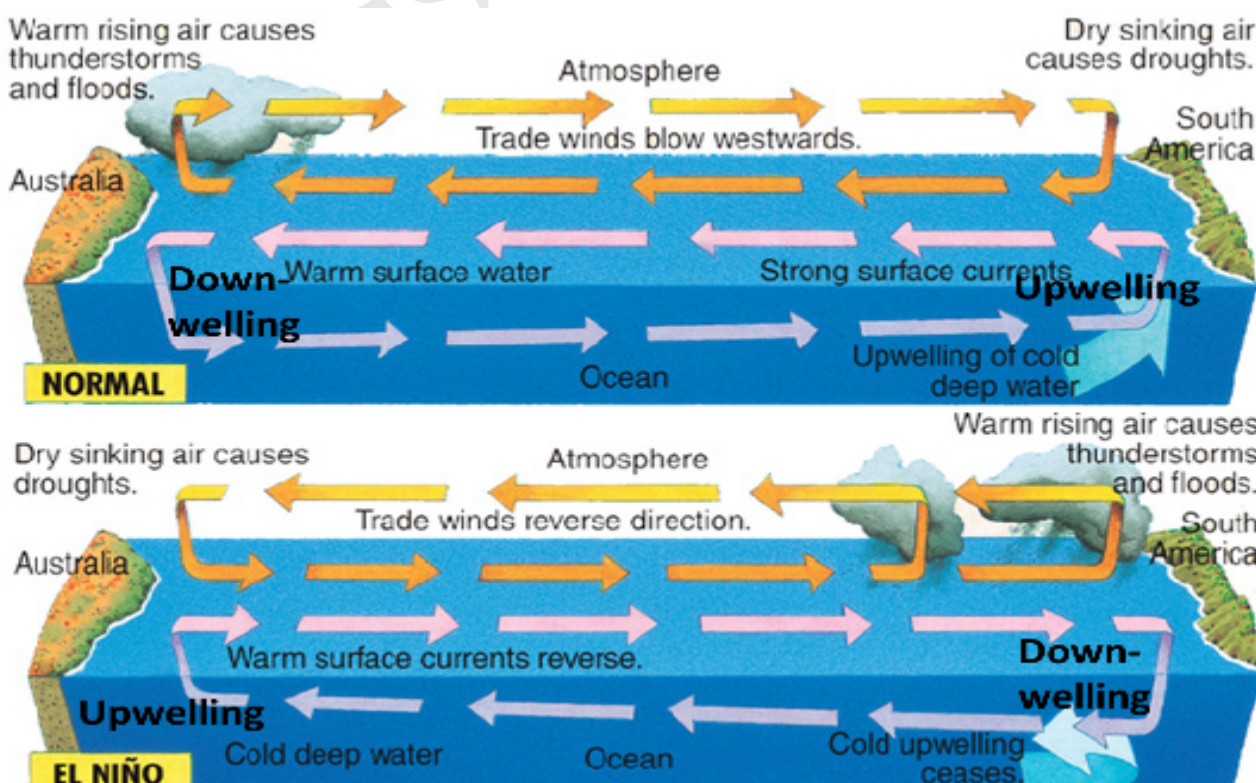
Neither El Nino nor La Nina is expected to impact the monsoon this year. The mean monsoon output in the neutral years, however, is way above that of El Nino years (86%) and below the mean for La Nina years (99%). These differences highlight the strong connection of the Indian monsoon with El Nino and La Nina, which are opposite conditions in the Pacific Ocean.

El nino and La Nina have very significant impact on the Indian monsoon. They are responsible for the strength of Monsoon and Trade winds. About them and their impact on the Indian Monsoon:

El Nino:

- ▶ Direction of walker cell reverses.

- ▶ South equatorial current weakens (reason unknown) & strong counter current activates.
- ▶ Weak piling up of water at Northern Australia.
- ▶ Weakening of west Pacific Pool.
- ▶ Ocean water move towards Peruvian coast.
- ▶ Create LP system over there and rainfall at Atacama Desert.
- ▶ The rising and diverging wind above Peru descends over Australia = HP condition – drought in Northern Australia.
- ▶ The reversal in wind direction alters submarine cycle as well.
- ▶ Down-welling at Peruvian coast – loss in fishing business.
- ▶ It is a warm current which appears off the coast of Peru in December (3-36°S of Equator), also known as child Christ as it appears around Christmas.



- ▶ It is temporary replacement of Cold Peruvian/ Humbolt current which normally flows against the coast & appears once in 3-7 years.
- ▶ Responsible for widespread flood & droughts in various tropical regions of the world.
- ▶ Warming of tropical Pacific water affects the global pattern of pressure & wind system, including monsoon winds in Indian Ocean.
- ▶ High pressure of Indian Ocean & low pressure at said area of Pacific Ocean shifts some of the monsoon winds to Pacific Ocean side which results in scarcity of rainfall in India.
- ▶ Bring drought condition in Indonesia as well as forest fire.

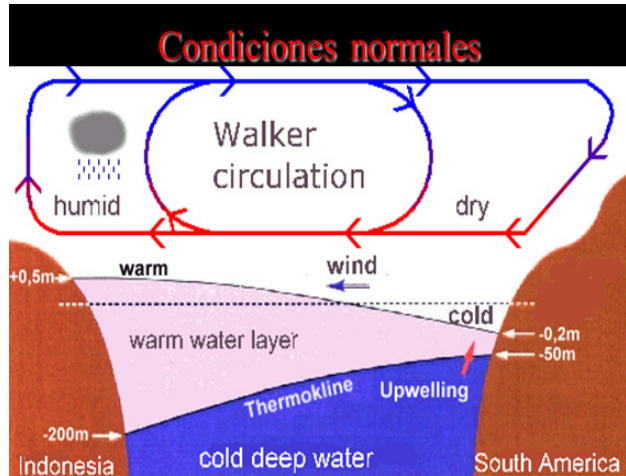
La Nina (The Girl in Spanish)

- ▶ After El Nino when weather conditions return to normal, trade winds become strong.
- ▶ Hence, they cause abnormal accumulation of cold water in Central & Eastern Pacific Region.
- ▶ This creates a high pressure region in Pacific Ocean as compared to Indian Ocean.
- ▶ Heavy rainfall – flood condition in Northern Australia – good monsoon in India.
- ▶ Very good fishing business at Peruvian coast – price crash.
- ▶ Drought in Atacama.
- ▶ La Nina brings heavy monsoon showers in India due to N–E monsoon along with monsoon laden Pacific winds from tropical Pacific Ocean although it marks an active hurricane season at Peru.

Impact of El Niño and La Nina on Indian Weather

- ▶ El Nino and La Nina are among the most powerful phenomenon on the Earth.
- ▶ These are known to alter climate across more than half the planet and dramatically impact weather patterns.
- ▶ Over Indian subcontinent, El Nino during winter results in development of warm conditions. During summer, it leads to dry conditions and deficient monsoon.
- ▶ It also leads to drought in Australia. On the other hand, La Nina results in better than normal monsoon in India. At the same time, in Australia it has caused floods.
- ▶ In the recent past, India experienced deficient rainfall during El Nino years 2002 and 2009 whereas monsoon was normal during El Nino years (1994 and 1997).
- ▶ This so far implies that in about 50 per cent of the years with El Nino during summer, India experienced droughts during monsoon. This implies that El Nino is not the only factor that affects monsoon in India.

- ▶ There are other factors that affect India's rainfall pattern. These include North Atlantic SST, Equatorial SE Indian Ocean SST, East Asia Mean Sea Level Pressure, North Atlantic Mean Sea Level Pressure and North Central Pacific wind at 1.5 km above sea level.



Characteristics of Indian Monsoon

- ▶ A large part of the country receives rainfall mainly in the summer from the South West Monsoon winds.
- ▶ The amount of rainfall varies from time to time, often resulting in floods and droughts. Sometimes the rainfall occurs early and at times it is delayed.
- ▶ Most of the rainfall is caused due to the obstruction of moisture bearing winds by the mountain ranges.
- ▶ Some regions receive over 200 cms of rain and suffer from floods while others receive less than 50 cms.

Benefits of a Good Monsoon to India

- ▶ The Monsoon benefits India's food production and irrigation projects. 60% of the farmers have no irrigation sources, which is why they depend on rainfall to let their crops grow.
- ▶ A large percentage of the Indian population work on farms, and 15% of the country's economy comes from agriculture. In the absence of monsoon, or when the rain does not fall as expected, extreme deterioration in the crop harvest is reported, and this directly hampers the Indian Economy.
- ▶ Nearly 20% of electricity in India is generated from hydroelectric plants. Without monsoon, the power plants in India would fail to produce the amount of required electricity, resulting in increased power rates and blackouts.
- ▶ Monsoon help in refilling these water reservoirs, storehouses, underground aquifers, lakes and dams to fulfill the demand for water during dry months.

2. First All Women Railway Station in AP

- ▶ Phirangipuram is going to be Andhra Pradesh's first all-women rail station.
- ▶ It will be the third-of-its-kind railway station in the country after Jaipur's Gandhi Nagar and Mumbai's Matunga.
- ▶ It will be a big step in addressing gender equality in the biggest public sector organisation in the country.
- ▶ The railway station on the Guntur-Narsaraopet line would be handed over to an all-women crew – from the station master to the signalling staff to the ticket-checking employees.
- ▶ Only the third-of-its-kind railway station in the country after Jaipur's Gandhi Nagar and Mumbai's

Matunga, the all-women station is set to create history.

3. Danger Islands

- ▶ Danger Island is the western most and the southern most island of the Great Chagos Bank, which is the world's largest coral atoll structure, located in the Chagos Archipelago in the Indian Ocean.
- ▶ The Danger Islands have been identified as an "important bird area" by Bird Life International because it supports Adélie penguin colonies and seabirds.
- ▶ According to the March 2018 expedition leader, penguins in this area—which has remained cold—are thriving, whereas on the western side of the Antarctic Peninsula—where warming has occurred—their numbers have been declining.

Military Exercises

1. Western Naval Command Concludes Exercise XPL-18

- ▶ The Western Naval Command of the Indian Navy concluded a large scale operational exercise in the Arabian Sea termed Exercise 'Paschim Leher' (XPL).
- ▶ It tested the operational readiness of the Western Naval Command and the execution of its operational plans.
- ▶ Over 40 naval assets including the aircraft carrier INS Vikramaditya, frontline ships of the Western Fleet and Eastern Fleet participated in the exercise.
- ▶ The XPL 2018 enabled testing and revalidation of operational plans and manoeuvres in a hostile maritime scenario on India's Western Seaboard. Defence of Indian offshore assets, such as oil rigs, escort operations of Indian merchant ships as well as coastal defence, were also rehearsed.

- ▶ It is the joint military exercise between the Indian Army and Seychelles People's Defence Forces.
- ▶ This exercise is the eighth in the series of bilateral exercises being conducted in the beautiful island nation.
- ▶ The exercise is named "Lamitye" which in the local dialect 'Creole', means friendship. India and Seychelles have been conducting this joint exercise since 2001 with the aim of enhancing military cooperation and interoperability between the armies of the two countries.

About Seychelles

- ▶ Seychelles is an archipelago and sovereign state in the Indian Ocean.
- ▶ Seychelles is the 115-island country.
- ▶ Its capital is Victoria.
- ▶ It lies east of mainland East Africa. Other nearby island countries and territories include Comoros, Mayotte island (region of France), Madagascar, Réunion island (region of France) and Mauritius to the south.

2. Lamitye 2018

Awards in News

1. Kochon Prize

- ▶ ICMR wins the 2017 Kochon Prize for TB research.
- ▶ The 2017 Kochon Prize was awarded to the Indian Council of Medical Research (ICMR) in New Delhi for building a tradition of excellence in TB research and development.

Kochon Prize

- ▶ The \$65,000 Prize is awarded annually by Stop TB Partnership to individuals and/or organizations that have made a significant contribution to

combating TB. The ICMR emerged the winner from amongst 18 nominations.

2. Pritzker Prize

- ▶ Indian architect Balkrishna Doshi was awarded with 2018 Pritzker Prize for being able to interpret architecture and transform it into buildings that respect Eastern culture.
- ▶ Doshi was recognised for his exceptional work, his commitment and dedication to his country and its communities and for his influence as a professor.

- ▶ Previous winners include world-renowned architects like Zaha Hadid, Frank Gehry, IM Pei and Shigeru Ban.

About Balkrishna Doshi

- ▶ Doshi is the first Indian architect to receive architecture's highest honor.
- ▶ Born in Pune, India in 1927, Doshi began his studies in architecture in the year, 1947. After a period in London, he moved to France to work under Le Corbusier, and from there he returned to India in order to oversee work on Le Corbusier's plans for Chandigarh, and on Le Corbusier's projects in Ahmedabad such as the Mill Owner's Association Building (1954) and Shodhan House (1956).
- ▶ Doshi also later worked with Louis Kahn on the Indian Institute of Management in Ahmedabad, beginning in 1962.
- ▶ For the past 70 years, Doshi has shaped the discourse of architecture and urban design, with a particularly strong influence in native India, through projects including private residences,

schools, banks, theaters, and low-income housing developments.

About The Pritzker Architecture Prize

- ▶ The purpose of the award is to honor a living architect or architects whose built work demonstrates a combination of those qualities of talent, vision, and commitment, which has produced consistent and significant contributions to humanity and the built environment through the art of architecture.
- ▶ The international prize, which is awarded each year to a living architect/s for significant achievement, was established by the Pritzker family of Chicago through their Hyatt Foundation in 1979. It is granted annually and is often referred to as "architecture's Nobel" and "the profession's highest honor."
- ▶ The award consists of \$100,000 (US) and a bronze medallion. The award is conferred on the laureate/s at a ceremony held at an architecturally significant site throughout the world.

Other Important News

1. Sainthood for Former Pope Paul VI

- ▶ The late Pope Paul VI, who led the Roman Catholic Church in the 1960s and 1970s during one of its most turbulent modern periods and enshrined its opposition to contraception, will be made a saint this year, Pope Francis has decided.
- ▶ Paul became pope in 1963 after the death of Pope John XXIII. He guided the Church through the conclusion of the Second Vatican Council, which had started under his predecessor, and the implementation of its modernizing reforms. He died in 1978.
- ▶ He headed the Church through the 1960s when many priests left religious orders and vocations to the religious life fell sharply in the turbulent era of social change.
- ▶ Paul is perhaps best known for his controversial encyclical Humane Vitae (On Human Life), which enshrined the Church's ban on artificial birth control in 1968.
- ▶ Paul spent much of his career in the Vatican's diplomatic service before becoming cardinal of Milan.
- ▶ Paul was beatified in 2014 after a first miracle was attributed to him. Earlier this year, a Vatican theological and medical commission approved a second miracle attributed to him.
- ▶ The Church teaches that God performs miracles but that saints who are believed to be with God in heaven intercede on behalf of people who

pray to them. A miracle is usually the medically inexplicable healing of someone and is one of the essential criteria to attain sainthood.

- ▶ Paul will become the third pope that Francis has made a saint since his election five years ago. The others are John XXIII, who died in 1963, and John Paul, who died in 2005.

2. Global Innovation Barometer

- ▶ The GE Global Innovation Barometer (GIB) for 2018 reveals growing confidence among business leaders around the world.
- ▶ The GIB for 2018 shows that there has been a sharp increase in the number of Indian business executives who say India has an innovation-conducive environment, from only 28% in 2014 to 67% now.
- ▶ India over-indexes against the global average for all hypes, except fintech (75% compared to 69% globally) and driverless transport (68% compared to 62% globally).
- ▶ Indian business executives show considerable enthusiasm for smart cities, which over-indexes against the global average by 35 percentage points (87% compared to 62% globally).
- ▶ The dominance of smart cities is also reflected in the impact-ranking, taking the first position at 87% against the global average of 71%.
- ▶ Skills gaps continue to be a top concern among Indian businesses, with 77% of executives believing

this is an issue which they are facing in their industry, compared to the global average of 74%.

3. World Happiness Report

- ▶ World Happiness Report, 2017, was released recently at the United Nations at an event celebrating International Day of Happiness.
- ▶ India was ranked 133rd among 156 countries in the World Happiness Index 2018, recently released by the UN Sustainable Development Solutions Network.
- ▶ The index ranked the countries based on factors (parameters) such as inequality, life expectancy, GDP per capita, social freedom, generosity, public trust (i.e. a lack of corruption in government and business) and social support.

- ▶ Together these parameters are used to generate a happiness score of country on a scale from 1 to 10. This year it is sixth such list released since it was first published in 2012. The 2018 report, for the first time ranked happiness of foreign-born immigrants in 117 countries.

The Criteria for the Ranking

The happiness rankings are based on six factors.

- ▶ GDP per capita,
- ▶ Healthy years of life expectancy,
- ▶ Social Support,
- ▶ Trust (measured by a perceived absence of corruption),
- ▶ Perceived Freedom to make life decisions, and
- ▶ Generosity (measured by recent donations).

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