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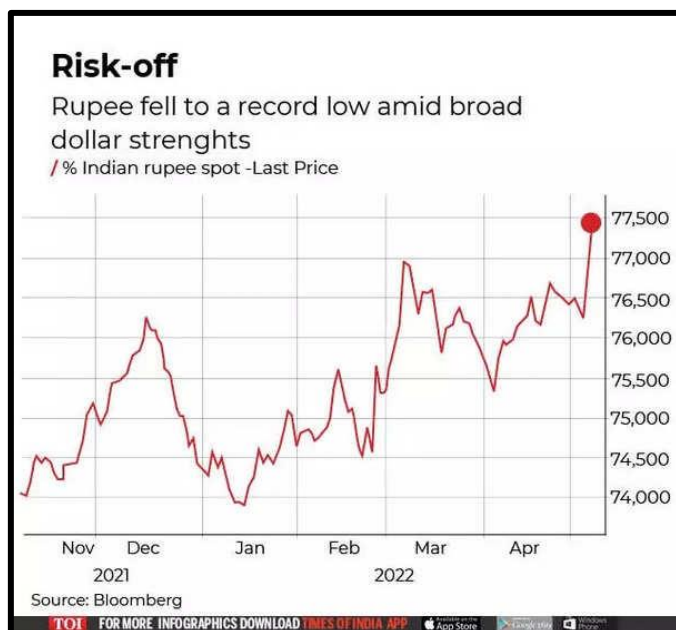
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Topic 1. FREE FALL OF RUPEE

Important for subject: Economy



Why in the news?

The Indian rupee reached its lowest level ever against U.S. dollar this week falling below 79 rupees, settling at the dollar mark and trading at as the lowest price of 79.05 in dollar terms on Wednesday.

- The Indian rupee has experienced a steady decline over the past year, dropping more than 6 percent to dollar U.S. dollar since the beginning of 2022.
- The International Monetary Fund (IMF) anticipates that the rupee will fall past 94 rupees to an amount of a dollar in FY29.
- India's reserves for forex have decreased under \$600 billion, soaring to more than \$50 billion from on September 3 of 2021.
- When the forex reserves were at a record-setting \$642 billion.
- **Reasons for depreciation:**
- **Increase of US rate of interest:** The Federal Reserve has been raising its benchmark interest rate, causing investors looking for more lucrative returns to move capital out of emerging markets like India and then back to the U.S.
- **The increase in the Current account deficit:** This implies that India's demand for imports due to rising global oil prices could impact the rupee's value until foreign investors invest enough funds into India in order to cover the deficit.

- Foreign investors aren't likely to make investments in India as the investment yields are rising within the U.S.
- **Inflation:** Higher inflation in India indicates it is because the RBI has created rupees at a higher speed than U.S. Federal Reserve is creating dollar.
- **Thus, higher supply of rupee causes of decline in forex:** A decline in the dollar value of assets that are held as reserves by the RBI.
- For instance, if some of the reserves are euros, and the euro decreases to the US dollar it will result in a decrease on the worth of reserves in forex.
- RBI Policy to correct currency Depreciation
- The RBI's policy is to let the rupee to discover its value naturally on the market, but without causing excessive panic in the minds of investors.
- State-owned banks are generally instructed by RBI to offer dollars for sale in order to provide assistance for the currency rupee.
- Through selling dollars to the market on the open in exchange for rupees.
- The RBI could boost the demand for rupees and help cushion the fall of the rupee.
- Reserves for foreign exchange Forex reserves are the assets kept in reserve by central banks in foreign currencies.
- These could include bonds, treasury bills, and other securities issued by the government.
- It is important to note that the vast majority of foreign exchange reserves are by the US dollar. US dollars.
- **India's Forex Reserve include:** Gold reserves for Foreign Currency Assets the Special Reserves for Drawing Rights Reserve position in the International Monetary Fund (IMF).
- Foreign Currency Assets (FCAs) are those that are valued according to an alternative currency to the currency of the country.
- FCA is the most significant part of the reserve for forex.
- The expression is in dollars.
- The FCAs contain the effects on appreciation and depreciation on non-US currencies like the pound, euro and yen that are held in foreign reserve of exchange.
- **RBI intervention:** The RBI can directly intervene in market for currency by purchasing or selling dollars.

- If the RBI wants to boost the value of rupee, it could sell dollars.
- Likewise, in the event that it is required to reduce the value of rupee it could purchase dollars.
- The central bank is also able to influence the value of rupee through its monetary policy.
- RBI can alter its repo rate (the amount in which RBI lends money to banks) and also the liquidity ratio (the portion of the money banks must invest in bonds issued by the government) to regulate the rupee.
- **Capital inflows. Reduce rate of capital outflows:** interest Swap agreements to avoid the exchange of currency in that the rupee's value is declining.

What determines the rupee's value?

- The worth of any coin is determined by the demand for the currency and the supply of it.
- If the amount of currency rises the value decreases (depreciation).
- **When the demand for a currency increases, its value rises (appreciation)**
Determinants of supply of currency: In the wider economy, central banks control the quantity of currency available.
- In the Forex market the availability of rupees is dependent on demands for the import of goods as well as diverse foreign currencies.
- If there is a significant demand to import oil (imported through India) this could result in an increase in the quantity of rupees (dollar is paid to imports and thus the increase in the rupee's relative supply) on the forex market, which can cause the value of rupees to fall.
- **Determinants of demand of currency:** the amount products and services that are produced by the economy.
- In the meantime, demand for currency on foreign exchange markets, on other hand, is dependent on the foreign demand for Indian exports as well as other assets that are domestically owned.
- For instance, if there is an overwhelming desire for foreign investors who want to invest in India this could result in an increase in the quantity of dollars on the forex market, which results in (relative demand for rupee decreases) the value of the rupee to increase against the dollar.

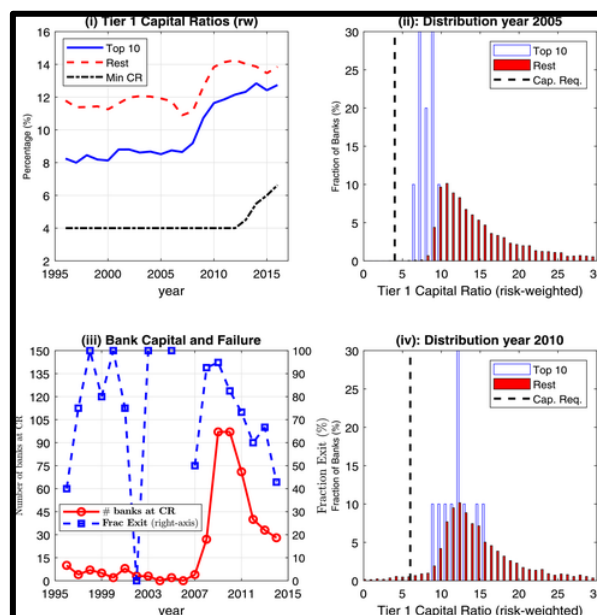
- **Tips:** As interest rates increase across the globe the possibility for a worldwide recession increases as countries adjust to tighter monetary rules.
- Higher interest rates increases prices of borrowing, and therefore, reduces investment as well as output of the nation.

Is a falling exchange rate necessarily a bad thing?

- Indeed, YES! The currency is usually regarded as a sign of the strength of an economy.
- Its size and the relative strength of the currency indicates a country's capacity to repay its debts externally.
- In the same way, currency appreciation increases obligations on the external market to pay for debt the value of debt increases.
- The majority of developing economies tend to be in deficit on their current and trade accounts, which can result in a rise India's exports unless they import raw materials that increase the cost.

Topic 2. CAPITAL BUFFERS

Important for subject: Economy



India's scheduled commercial banks (SCBs) as well as non-banking financial companies have sufficient capital buffers to withstand any shock that may emanate from the pandemic or the on-going geopolitical tensions in Europe, the Reserve Bank of India said in its biannual Financial Stability Report (FSR) released on Thursday.

- According to the report, Stagflation risks are mounting, as tightening financial conditions threaten to restrain the pace of growth.
- SCBs maintained robust capital positions, with the capital to risk weighted assets ratio (CRAR) rising to a new high of 16.7%.
- The gross non-performing assets (GNPA) ratio slipped to a six-year low of 5.9% and net non-performing assets (NNPA) ratio fell to 1.7% in March 2022.
- The provisioning coverage ratio (PCR) increased to 70.9% in March 2022, from 67.6% in March 2021
- **Capital requirements as per Basel Norms:** The Basel Committee on Banking Supervision (BCBS) issues Basel Norms for international banking regulations.
- The goal of these norms is to strengthen the international banking system by coordinating banking regulations around the world.
- **The Basel Committee has currently issued three guidelines to achieve its goal:** Basel I, II, and III. Basel I It was introduced in 1988. It was almost entirely concerned with credit risk.
 - It established the capital and risk-weighting structure for banks.
 - The required minimum capital was set at 8% of risk-weighted assets (RWA).
 - RWA refers to assets with varying risk profiles.
 - For example, an asset backed by collateral would be less risky than a personal loan with no collateral.
- **Capital is divided into two categories:** Tier 1 capital and Tier 2 capital.
- **Tier 1:** capital is the bank's core capital because it is the primary measure of the bank's financial strength.
 - The majority of core capital is made up of disclosed reserves (also known as retained earnings) and paid-up capital.
 - It also includes non-cumulative and non-redeemable preferred stock.
- **Tier 2 capital:** It is used as supplemental funding since it is less reliable than the first tier.
 - It consists of undisclosed reserves, preference shares, and subordinate debt. In 1999, India adopted the Basel 1 guidelines.
 - Basel II In 2004, Basel II guidelines were published by BCBS.
 - These were the refined and reformed versions of Basel I accord.

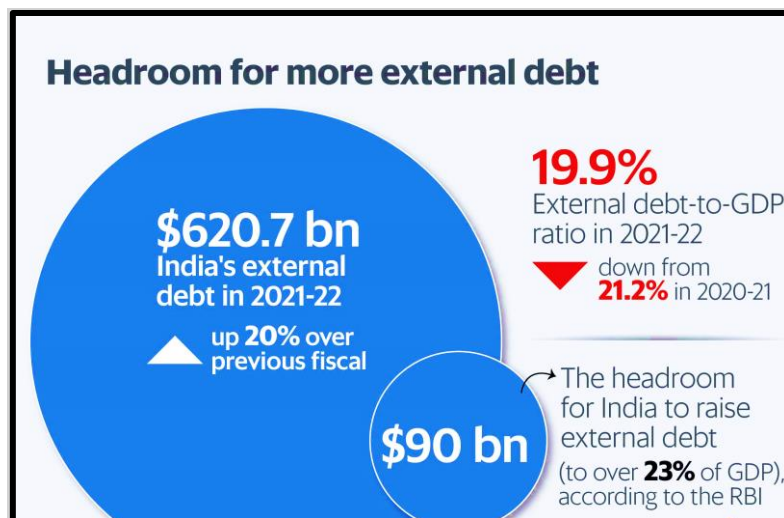
- The guidelines were based on three parameters, which the committee calls it as pillars.
- **Capital Adequacy Requirements:** Banks should maintain a minimum capital adequacy requirement of 8% of risk assets.
- **Supervisory Review:** According to this, banks were needed to develop and use better risk management techniques in monitoring and managing all the three types of risks that a bank faces, viz. credit, market and operational risks.
- **Market Discipline:** This needs increased disclosure requirements.
- Banks need to mandatorily disclose their CAR, risk exposure, etc to the central bank.
- Basel II norms in India and overseas are yet to be fully implemented though India follows these norms.
- Capital Adequacy Ratio (CAR) is the ratio of a bank's capital to its risk.
- It is also known as the Capital to Risk (Weighted) Assets Ratio (CRAR). In other words, it is the ratio of a bank's capital to its risk-weighted assets and current liabilities.
- This ratio is utilized to secure depositors and boost the efficiency and stability of financial systems all over the world.
- This is calculated by summing a bank's tier 1 capital and tier 2 capitals and dividing the total by its total risk-weighted assets.
- Basel III In 2010, Basel III guidelines were released.
- These guidelines were introduced in response to the financial crisis of 2008.
- The guidelines aim to promote a more resilient banking system by focusing on four vital banking parameters viz. capital, leverage, funding and liquidity.
- The capital adequacy ratio is to be maintained at 12.9%.
- The minimum Tier 1 capital ratio and the minimum Tier 2 capital ratio have to be maintained at 10.5% and 2% of risk-weighted assets respectively.
- In addition, banks have to maintain a capital conservation buffer of 2.5%. Counter-cyclical buffer is also to be maintained at 0-2.5%.
- Leverage: The leverage rate has to be at least 3 %.
- The leverage rate is the ratio of a bank's tier-1 capital to average total consolidated assets.
- **Funding and Liquidity:**

- **Basel-III created two liquidity ratios:** LCR and NSFR.
- The liquidity coverage ratio (LCR) will require banks to hold a buffer of high-quality liquid assets sufficient to deal with the cash outflows encountered in an acute short term stress scenario as specified by supervisors.
- The goal is to ensure that banks have enough liquidity for a 30-days stress scenario if it were to happen.
- The Net Stable Funds Rate (NSFR) requires banks to maintain a stable funding profile in relation to their off-balance-sheet assets and activities.
- NSFR requires banks to fund their activities with stable sources of finance (reliable over the one-year horizon).
- The minimum NSFR requirement is 100%.
- Therefore, LCR measures short-term (30 days) resilience, and NSFR measures medium-term (1 year) resilience.
- The deadline for the implementation of Basel-III was March 2019 in India.
- It was postponed to March 2020.
- In light of the coronavirus pandemic, the RBI decided to defer the implementation of Basel norms.
- The Provisioning Coverage Ratio It is the percentage of bad assets that the bank has to provide for from their own funds.
- In other words, it is the ability of banks to service its debt and meet its financial obligations such as interest payments or dividends.
- **Provision Coverage Ratio (PCR):** Provisions/Gross NPA RBI has initially set a 70% benchmark as PCR.
- This means the bank has to set aside 70% of its loans as a provisional buffer.
- The higher the PCR, the better it is for the banks as it is useful when their NPAs grow at a faster rate.
- Ideally, a PCR above 70% is good.
- **Gross non-performing assets vs Net non-performing assets:** Gross non-performing assets is a term used by financial institutions to refer to the sum of all the unpaid loans which are classified as non-performing loans.

- Credit institutions offer loans to their customers who fail to be honoured and within ninety days, financial institutions are obligated to classify them as nonperforming assets because they are not receiving either principle or net payments.
- Net non-performing assets is a term used by credit institutions to refer to the sum of the non-performing loans less provision for bad and doubtful debts.
- Credit institutions tend to provide a precautionary amount to cover the unpaid debts.
- Therefore, if one deducts provision for unpaid debts from the unpaid debts, the resulting amount refers to the net non-performing assets.
- **Tips:** Stagflation refers to an economy that is experiencing a simultaneous increase in inflation and stagnation of economic output.
- Stagflation was first recognized during the 1970s when many developed economies experienced rapid inflation and high unemployment as a result of an oil shock.

Topic 3. EXTERNAL DEBT

Important for subject: Economy



Why in the news?

The external debt of India climbed to \$620.7 billion at the end of March 2022, registering the increase to \$47.1 billion over the prior, Reserve Bank of India (RBI) data revealed.

- The debt-to-GDP ratio dropped to 19.9 percent at the end of March 2022, down from 21.2 percent a year earlier.
- In the absence of the valuation effect the external credit would've risen in the amount of \$58.8 billion rather than \$47.1 billion at the end of March 2022 compared to the end of March 2021.

- Gains on valuations resulting from an appreciation in dollar U.S. dollar vis-a-vis the Indian rupee and other major currencies like the Japanese euro and yen was estimated to be \$11.7 billion.
- The country's long-term debt (with the initial maturity of over one year) was \$499.1 billion, registering the increase of \$26.5 billion from the amount at the end of March 2021.
- The percentage of short-term loans in the total debt of external creditors was increased to 19.6 percentage from 17.6 percent.
- Short-term credit to reserves of foreign exchange was increased to 20 20%. U.S. dollar-denominated debt was the biggest part of external debt with a proportion of 53.2 percent.
- Net claims by non-residents in India were up by \$5.6 billion because of a higher reduction in Indian residents' foreign financial assets, in comparison to the decrease of foreign owned assets India.
- External debt the term refers the money that is borrowed from an entity outside of the country.
- External debt is to be repaid in the currency that it was borrowed.
- External loans can be obtained through foreign commercial banks as well as international financial institutions such as IMF, World Bank, ADB etc., and also from the governments of foreign countries.
- Usually, these kinds of debts can be described as tied loans, which means they are required to be used for a specific objective as determined by a consensus between both the borrower and lender.
- Corporate and government entities are able to borrow money from overseas.
- These come in the form of commercial loans that are financed from outside.
- The interest rate of foreign loans is tied to LIBOR (London Interbank Offer Rate).
- The actual interest rate is LIBOR plus any applicable spread, dependent on the credit score of the lender.
- Profil of Debt: External debt is classified as "External Commercial Borrowing", 'Currency Convertible Bonds' as well as the 'Government Borrowings'.
- Composition of India's debts that are external multilateral institutions like The International Development Association (IDA), International Bank for Reconstruction

and Development (IBRD), Asian Development Bank (ADB) etc. are considered multilateral lenders.

- Bilateral Countries that are involved in non-sovereign and sovereign arrangements like one-to-one loan agreements are known as bilateral creditors.
- India's bilateral creditors include Japan, Germany, the United States, France, etc.
- **International Monetary Fund:** the IMF provides loans to IMF in the form of SDR Trade Credit -It is when the credit and loans are granted for imports from supplier's overseas banks and financial institutions to non-sovereign and sovereign entities.
- **Commercial Borrowings:** It refers to borrowing from financial institutions, commercial banks and other financial institutions.
- It also includes money raised by the issuance of securitized securities like floating rate notes, bonds (FRN) and securitized loans from commercial banks, etc.
- **NRI Deposits (above one year):** The Rupee debt Total long-term Debt is a debt that has an initial maturity that is greater than one year.
- Is defined as repayments at-a-dvance or having an initial maturity of one year or less.
- **Composition in terms non-government and government external debts:** Government Debt External Debt on the Government Account as part of External Assistance and Other Government External Debt - includes defense debt, investments in Treasury government securities or bills through FPIs Central banks from abroad as well as international institutions, and IMF.
- Non-government Debt Central Bank Deposit-taking Corporations with the exception of those of the Central Bank Other Financial Corporations Non-financial Corporations Households as well as non-profit institutions that serve families (NPISHs).
- Direct Investment Intercompany Loaning the external debt-to-GDP ratio.
- This is the proportion of the amount of debt and the gross domestic product (GDP) of a nation.
- The ratio reveals the capacity of a country to repay its debts external to it.
- A country that has an external debt-to-GDP ratio that is low signifies that it has the capacity of selling and producing items and paying off its debts, without accumulating debt.
- Different geopolitical and economic factors such as recessions and the rate of interest, wars and so on.

- **Impact the financial balance of a nation** **Tips:** A country's public debt is sustainable in the event that the government can fulfil all its current and future payments obligations with no financial aid or default.
- **External loans are thought to be sustainable based on these parameters:** Low external debt to total debt ratio. Low proportion of short-term debts long-term debts, higher percentage in concessional loans.
- Exports to foreign debt are low.
- Ratio Negative growth of interest rates ratio high fixed to floating ratio of debt high ratio of external debt to foreign currency ratio

Topic 4. EASE OF DOING BUSINESS RANKING OF STATES AND UNION TERRITORIES

Important for subject: Economy

S. No.	State/UT	Rank 2019	S. No.	State/UT	Rank 2019
1	Andhra Pradesh	1	18	Daman and Diu	18
2	Uttar Pradesh	2	19	Punjab	19
3	Telangana	3	20	Assam	20
4	Madhya Pradesh	4	21	Jammu and Kashmir	21
5	Jharkhand	5	22	Andaman & Nicobar	22
6	Chhattisgarh	6	23	Dadra & N. Haveli	23
7	Himachal Pradesh	7	24	Goa	24
8	Rajasthan	8	25	Mizoram	25
9	West Bengal	9	26	Bihar	26
10	Gujarat	10	27	Puducherry	27
11	Uttarakhand	11	28	Kerala	28
12	Delhi	12	29	Arunachal Pradesh	29
13	Maharashtra	13	30	Chandigarh	29
14	Tamil Nadu	14	31	Manipur	29
15	Lakshadweep	15	32	Meghalaya	29
16	Haryana	16	33	Nagaland	29
17	Karnataka	17	34	Odisha	29
18	Daman and Diu	18	35	Sikkim	29
19	Punjab	19	36	Tripura	29

Seven states among the top performers in the 'ease of doing business' rankings of UTs and states Details Seven states - Andhra Pradesh, Gujarat, Haryana, Karnataka, Punjab, Telangana and Tamil Nadu were classified as top performers'. Himachal Pradesh, Uttar Pradesh, Odisha, and Madhya Pradesh are the other states classified in the category of "achievers". Manipur, Meghalaya, Nagaland, Tripura, Puducherry and Jammu and Kashmir were emerging businesses'. Seven states including Goa, Assam, Kerala, Rajasthan, Jharkhand, Chhattisgarh and Bengal were classified as 'aspirers'. Feedback was not available

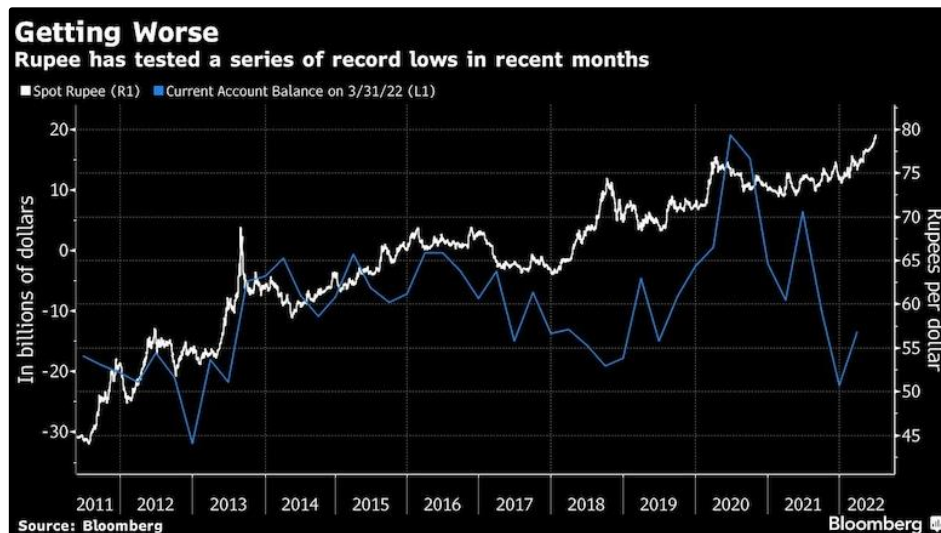
regarding Sikkim, Mizoram, Arunachal Pradesh, Lakshadweep and Ladakh due to the insufficient user data.

- This is a joint effort that was launched by Department for Promotion of Industry and Internal Trade (DPIIT) as well as the World Bank to improve the overall business environment in the United States.
- Ranking of all States along with Union Territories is done, by implementing the Business Reforms Action Plan (BRAP) by them.
- DPIIT from 2014 is evaluating States and UTs based on their performance in the implementation of prescribed reforms under the Business Reforms Action Plan (BRAP) exercise.
- Up to date, assessments for States/UTs have been made public for 2014, 2015 and 2016, 2017, 2017-18 and 2019.
- BRAP 2019 includes the list of modifications (187 actions for reform) to be carried out by 19 Departments of the state.
- The reforms are aimed at 12 areas of business regulation like Access to Information, Single Window System and Labour Environment, and more.
- The goal is to increase confidence in investors, promote a favourable conditions and increase the ease to Doing Business across the country through the introduction of the concept of healthy competition by introducing an assessment system that evaluates states based on their achievements during the implementation of the Business Reforms Action Plan.
- The most recent Ease of Doing Business ranking of union territories and states basing upon the Business Reforms Action Plan (BRAP) 2020 report, was announced by the Union Finance Minister.
- The BRAP 2020 includes 301 reform points covering 15 business-related regulatory areas like Access to Information, Single Window System, Labour, Environment, Land Administration & Transfer of Land and Property, Utility Permits and others.
- 118 new reforms were added to strengthen this reform agenda.
- Sectoral reforms that comprised 72 action points over 9 sectors including Trade License, Healthcare, Legal Metrology, Cinema Halls, Hospitality, Fire NOC, Telecom, Movie Shooting and Tourism were made available in the very first instance in order to increase the range for the agenda to reform.

- The states of this year have been classified under four categories, namely. Top Achievers, Achievers, Aspirers and Emerging Business Ecosystems.
- The assessment assigns an all weightage to feedback received from actual respondents or users on the ground who have provided feedback on the effectiveness of reforms.

Topic 5. RBI MEASURES TO INCREASE FOREX

Important for subject: Economy



In the face of global instability and the ongoing decline that the currency of India is experiencing against the US dollar In the midst of global uncertainty, the Reserve Bank of India on Wednesday announced a variety of measures designed to increase forex flow.

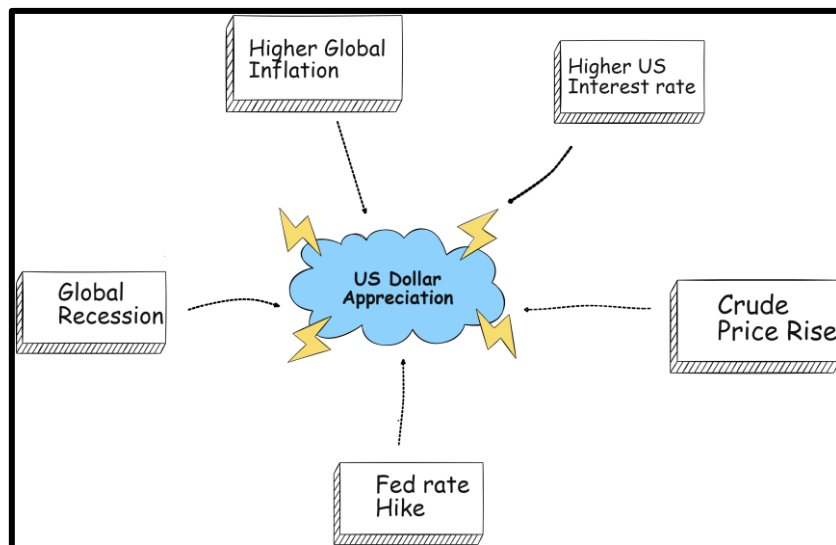
- The measures aim to increase the inflow of capital and, consequently growing the reserves of foreign exchange of India.
- **Various measures:** RBI has allowed banks to temporarily until October 2022 to fund fresh foreign Currency non-resident Bank-FCNR (B) as well as non-resident External (NRE) deposit accounts with no any reference to current regulations regarding interest rates.
- Presently in the present, interest rates on FCNR (B) Deposits are important for subject to the ceilings of the overnight Alternative Reference Rate (ARR).
- In the instance in the case of NRE deposits, the interest rates shouldn't be any higher than those offered by banks that offer equivalent local rupee-based term deposit.
- FPIs of government securities as well as corporate debt that are issued up to 30th October 2022 will be exempt from the limitation on short-term borrowing.

- At present, no more than 30% of each investment in corporate bonds and securities issued by the government may have a duration that is less than one calendar year.
- The FPI can be invested in instruments such as commercial paper and non-convertible debentures that have the initial maturity of one year from October 2022.
- FPIs are able to invest in brand new G-Secs that have 7-year and 14 year tenors, including the current issues of 7.10 percent G-Sec 2029 and 7.54 percent G-Sec 2036.
- At present, they are able to invest in securities issued by the government (G-Secs) that have 5-year, 10-year, and 30-year Tenors are the only ones available.
- The RBI has increased the limit of the automatic method for External Commercial Borrowings ECBs, increasing it from \$750 million per fiscal year to \$1.5 billion.
- RBI has determined that banks of category one are able to make use of the overseas currency lending (OFCBs) for lending foreign currency to businesses with a wider range of ends-use reasons.
- To the negative list that has been formulated for commercial loans made outside the country (ECBs).
- RBI has exempted banks of Cash Reserve Ratio and Statutory Liquidity Ratios on all foreign currency non-resident (Bank) or Non Resident (External) Deposits in Rupee.
- **RBI Forex management:** It is the Reserve Bank of India, is the custodian of India's foreign exchange reserves.
- It is charged with the task of managing their investments.
- The legal rules governing the managing foreign reserve funds are set out by the Reserve Bank of India Act 1934.
- The fundamental guidelines for the Reserve Bank's policy for managing foreign exchange reserves include safety, liquidity, and returns.
- The Reserve Bank of India Act allows to the Reserve Bank to invest the reserves in the following kinds of instruments Deposits with the Bank for International Settlements and other central banks.
- Deposits with commercial banks from abroad.
- Instruments of debt representing either sovereign or sovereign-guaranteed liabilities with a maximum of 10-years of remaining maturity.
- Other instruments and institutions that have been approved by the Central Board of the Reserve Bank.

- As per the regulations under the Act certain kinds of derivatives are covered under the Act. External Commercial Borrowings (ECB).
- It refers to credit granted to some eligible residents outside India within the guidelines set by the Reserve Bank of India in collaboration together with and the Government of India.
- **External Commercial Borrowings can be availed through:** Automatic Route-Through Authorized Dealers, AD Category -I banks Approval Route Perspective borrower must submit a request in the form of ECB to RBI via AD-Category-I banks to be examined.
- NRI accounts in India are covered under the previous month's The Non-Resident External (NRE) scheme NRE accounts are rupee-based account providing total security.
- These accounts could take forms of savings and current, recurring as well as fixed deposit.
- The risk of currency is on the depositor.
- It is financed by foreign earnings through inward remittances.
- Money is able to be completely repatriated (sent back) in any country, without limitations with the appealing post-tax refund, NRE temporary deposits are highly sought-after by non-residents.
- **Non-Resident Ordinary (NRO) scheme:** Automatic Route-Through Authorized Dealers, AD Category -I banks Approval Route Perspective borrower must submit a request in the form of ECB to RBI via AD-Category-I banks to be examined.
- NRI accounts in India are covered under the previous months.
- The Non-Resident External (NRE) scheme NRE accounts are rupee-based account providing total security.
- These accounts could take forms of savings and current, recurring as well as fixed deposit.
- The risk of currency is on the depositor.
- It is financed by foreign earnings through inward remittances.
- Money is able to be completely repatriated (sent back) in any country, without limitations with the appealing post-tax refund, NRE temporary deposits are highly sought-after by non-residents.

Topic 6. DOLLAR APPRECIATION AND INDIA

Important for subject: Economy



The US Dollar Index, which determines the exchange rate of the greenback against six major currencies, recently crossed the 20-year mark as of today, and currently trades at more than 100.

- Rise in Federal rate of interest.
- When inflation is rising, the interest rates in an economy typically catch up and result in massive capital inflows as well as a rising the demand for currencies.
- **Higher bond yield:** The yield of the 10 year US Treasury bond risen from 1.4 percent to 2.8 percent over the course of a year.
- This makes bonds in the country more appealing and leads to increased demands for foreign currencies.
- Reduced investment in bitcoins and other risky the risky assets and then repatriate the money home.
- The demand for dollars increased, increasing The Dollar Index.

What does this mean for the Indian rupee?

- **Flight of dollar and Depreciation of rupee:** India relies on dollar-denominated imports to meet more than 85 per cent of the requirements for crude oil and also imports more goods than what it sells.
- Thus, India's import bill typically increases when the dollar is stronger which increases the demand for dollars, leading to the depreciation of the rupee.

- Indians who pay in dollars to assist relatives will require more dollars when the exchange rate decreases.
- **Capital outflows:** Foreign Portfolio Investor (FPI) pull outs exacerbate the situation as this boosts the demand domestically for dollars.
- The outflow of foreign investors can lead to a decline in local stocks and bond prices increasing the yield of bonds and borrowing costs.
- The balance of payment deficit and import inflation.
- A stronger dollar tends to boost India's import bill and increase the gap between exports and imports.
- Many of the essential items and intermediate products that India imports are also more expensive and contribute to India's rising inflation.

How is the RBI handling this situation?

- **The RBI has two main weapons to stem the slide:** It could increase the rate of interest to make the domestic bond market more appealing international investors making them reconsider their pull outs.
- It is able to use its vast reserve of foreign currency to participate directly in the market for currency by selling dollars in exchange of rupee, thereby increasing the amount of dollars available in relation to demand.

Topic 7. US COMPLAINTS WTO OVER NON GMO

Important for subject: Economy

Why in the news?

The US has complained to the WTO that, despite numerous requests from its trade with its partners India provides "neither any scientific evidence nor Risk Assessment" to support its requirement to obtain Non-GMO (genetically modified source) and GMO-free status certificates for certain agricultural imports.

- The tolerance limit set by FSSAI for the possibility of the existence of GM is one percent of foodstuffs consignments.
- American firms find it difficult to comply with the requirements for certification as the US does not have any restrictions on GM food items.

- The US had asked India to provide the rationale for scientifically setting the tolerance at this point and to give relevant risk assessments, or international standards upon the basis of which this tolerance was established.
- **The US also highlighted the negative impact of GMOs on trade as well as inadequate biosafety regulations in India** **WTO Rules:** WTO members follow different ways of managing GMOs in animal and food feed, for example, when they inform consumers about the presence of GMOs through labels, and this often creates trade problems.
- WTO members utilize their participation in the Agreement on the Technical Barriers to Trade (TBT) and Agreement on the Application of Sanitary and Phytosanitary Measures to discuss their respective regulations for products and standards, which can be often a source of concern for both traders and producers.
- Agreement regarding The Application of Sanitary and Phytosanitary Measures.
- It came into force when the World Trade Organization on 1 January 1995.
- It defines the essential guidelines for food safety as well as standards for animal and plant health which governments are obliged to adhere to.
- Along together with Technical Barriers to Trade Agreement.
- It aims to determine how best to enforce standards while avoiding protectionist tactics that are disguised.
- The primary goal for SPS Agreement is to SPS Agreement is to maintain the sovereign right of every state to give the degree of health protection that it considers appropriate, while also ensuring that these rights are not used for reasons of protection and don't create unnecessary barriers for international trade.
- The SPS Agreement allows WTO members to establish their own standards regarding food safety, the health of animals and plants.
- However, the standards must be based on scientific research, used only in the manner required to safeguard the human, animal or plant life, health or life and not arbitrarily and unfairly discriminate against countries with identical or similar conditions are prevalent.
- Members are encouraged to apply international guidelines, standards and guidelines however, they may choose to adopt higher levels of protection when there is a scientific reason for it or if they are built on an appropriate evaluation of risk.

- The SPS Agreement allows countries to employ different methods of controlling as well as inspection and approval processes to check compliance with accepted standards.
- Transparency of government's SPS regulations is a crucial measure to prevent excessive obstacles to trade.
- As per article 7 in the SPS Agreement, members shall notify changes to their phytosanitary or sanitary measures and provide details on their phytosanitary and sanitary actions in accordance to the requirements of Annex B.
- The Members' Transparency Toolkit includes all the necessary details for members to meet their transparency obligations in relation to SPS measures.
- **Committee on Sanitary and Phytosanitary Measures:** The SPS Committee is the venue that WTO member's debate matters related to the implementation of the SPS Agreement and potential trade issues.
- Every decision is made through consensus.
- The Agreement also enjoins SPS Committee SPS Committee to develop a procedure for monitoring the process of international harmonization, and to work in conjunction with relevant organisations.

Which are the relevant standards-setting organizations that are relevant to SPS? SPS Agreement?

- **FAO/WHO Codex Alimentarius Commission (Codex):** to ensure food security World Organization for Animal Health (OIE) to help with animals' health and Zoonosis.
- **FAO International Plant Protection Convention (IPPC):** for plant protection. Agreement on the Application of Sanitary and Phytosanitary Measures v/s Agreement on Technical Barriers to Trade.
- **The SPS Agreement covers all measures which are intended to safeguard:** human or animal health from risks posed by food and the health of humans from or plant-borne diseases; and plant and animal health from diseases or pests regardless of whether they are technical specifications.
- The TBT (Technical Barriers to Trade) Agreement encompasses the entire range of technical rules, standards that are voluntary and procedures to ensure that they are

adhered to, except for when these are phytosanitary or sanitary measures, as specified by the SPS Agreement.

- SPS Agreement the only reason to not apply the same standards for animal and plant health is the scientific evidence which are based on an assessment of health risks that could be posed.
- However in the TBT Agreement governments may decide that international standards aren't appropriate due to other factors that include fundamental technological issues or geographic factors.
- TBT measures can cover every important subject from safety in the car to energy saving devices, and even the shape of food boxes.
- Examples of TBT measures include restrictions on the use of pharmaceuticals as well as the labelling of cigarettes.
- The majority of measures pertaining to the control of human diseases fall in the TBT Agreement, except for the diseases carried by animals or plants.
- Concerning food and nutrition labelling, requirements for labelling, claims and issues regarding quality and packaging requirements generally are not considered to be phytosanitary or sanitary procedures and are therefore not important for the purposes of TBT Agreement. TBT Agreement.
- Regulations that address the microbiological contamination of food products or establish acceptable levels for pesticides and veterinary drugs or define acceptable food additives fall in the SPS Agreement.
- Certain requirements for labelling and packaging are directly connected to the food's safety are also important for the subject matter: SPS Agreement.
- So the phytosanitary and sanitary measures are only applicable in order to safeguard human, animal or plant health according to research findings.
- The government may however make TBT regulations whenever necessary to achieve a variety of goals, including national security, or to stop the use of fraudulent techniques.
- **Tip:** The task of controlling GMO amounts in importable consumables started by the Genetic Engineering Appraisal Committee (GEAC).
- The role of FSSAI was diminished with the passage of Food Safety and Standards Act in 2006 and FSSAI was requested to handle the approvals for imported goods.

- In August 2020, FSSAI had issued the order that 24 food crops the country imports would need a 'non-GM-origin-cum-GM-free certificate' issued by a Competent National Authority of the exporting country. On February 8, the authority defined the GMO threshold of 1% on these crops for certification.
- Laboratories in India can detect as low as 0.01 percent of GMO in food products, the report states.
- Therefore, the country should be prepared to accept imports only if there's none traceable or trace of GMO in the food items including processed foods and also an GMO-free certificate.

Topic 8. THE STATES' START-UP RANKING 2021

Important for subject: Economy



These results from the third edition of the Ranking of States on Support to Start-up Ecosystems was released through the Ministry of Commerce and Industry, Shri Piyush Goyal at New Delhi.

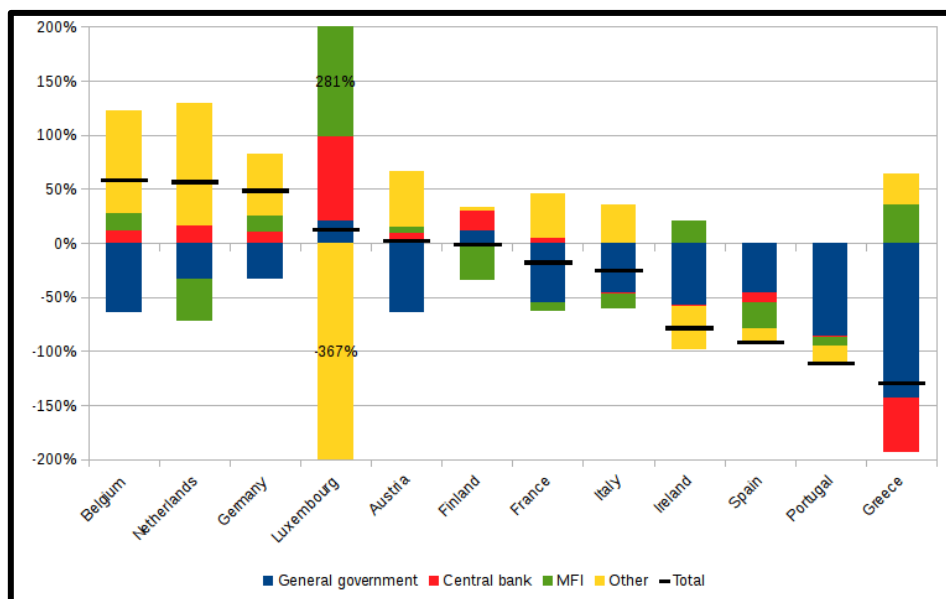
- **It placed States as well as Union Territories into 5 Categories including:** Top Performers, Best performers and Leaders, aspiring leaders as well as Emerging Start-up Ecosystems.
- **The participants are evaluated based on seven broad Reform Areas comprising 26 Action Points that range from:** Institutional Support encouraging innovation and

entrepreneurship Access to Market Incubation Support, Funding Support and Mentorship Support Capacity Building Enablers Ranks: Top Performer Gujarat as well as Karnataka as the most successful with a 100 percentile score in the category A of states and union territories that have greater than one million (Census 2011.).

- Meghalaya was ranked first in the category B, the region with a population smaller than one million (except Delhi).
- The Top Performer Kerala, Maharashtra, Odisha and Telangana were listed as top performers in category A, with scores between 60 and 69 per centile.
- Jammu & Kashmir was the top performer in the category B.
- Leader of Assam, Punjab, Tamil Nadu, Uttar Pradesh, and Uttarakhand in category A with 30 to 59 percentile as well as Arunachal Pradesh Andaman Nicobar Island as well as Goa within category B.
- **Aspiring Leaders:** Delhi did poorly, having been placed in the category of aspiring leaders along together with Chhattisgarh, Madhya Pradesh and Rajasthan with an average of 11-29 percentile within category A.
- Chandigarh, Dadar & Nagar Haveli and Daman & Daman Diu, Himachal Pradesh, Manipur, Nagaland, Puducherry and Tripura were classified as potential leaders in the category B.
- The emerging start up ecosystems Andhra Pradesh and Bihar, with scores of more than 10 percent placed in the category A.
- Ladakh as well as Mizoram were both ranked as in category B.
- **About the States' start-up ranking:** The Department for Promotion of Industry and Internal Trade has been conducting the States "Start-up Ranking Exercise" from 2018.
- The purpose of this exercise is to make it easier of starting a business and conducting business throughout the United States.
- This exercise, called the State Start-up Ranking Exercise seeks to assist the states as well as union territories in establishing their start-up ecosystems and gain from the best practices of every region and state.

Topic 9. INTERNATIONAL INVESTMENT POSITION

Important for subject: Economy



The reserves of foreign currency in India are down from a record of \$642 billion at the 29th of October, 2021 up to \$590.50 billion by June 2022. This is a drop in the range of \$51.50 billion. However, it is a relief that the current amount of reserves for forex is large enough to cover nearly all of the imports for a year.

Whether the metric of import cover reflects adequacy of reserves?

- Partially, since the forex of India is used to fund the deficit in its currency account i.e. the import bill, and the ongoing stream of capital-outflows.
- The growth in forex reserves is due to surplus in the capital account.
- Thus, India has had a structural deficit in its current account that was financed by capital inflows.

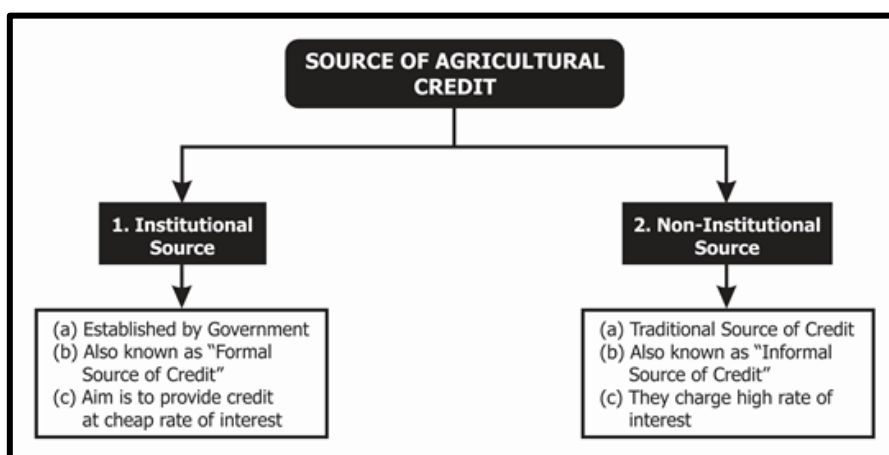
Alternatives?

- International Investment Position or IIP It is the summation of the financial position net of a country, viz.
- Net of the value of the financial assets of people who live in an economy. These assets include claims against non-residents and reserves of gold obligations and assets of inhabitants of the economy to non-residents.
- **International Investment Position:** Asset Liabilities Assets include both portfolio and direct financial investments of people living outside India and reserve assets.

- Liabilities are the direct and portfolio investments made by non-residents in India Positive.
- IIP means India's financial assets amount to higher than liabilities, while a negative.
- IIP signifies there are liabilities in the country higher than its assets.
- India is a net IIP negative country that has its debts exceeding assets.
- In absolute terms, India's outstanding portfolio of investments total \$277 billion.
- Short-term credit of \$1.0 billion gives an import cover of 3.25 months.
- So, Import cover has to be considered alongside IIP which provides a complete image of the quality of reserves

Topic 10. AGRICULTURAL CREDIT

Important for subject: Economy



Mandated to offer and regulate credit for agricultural production, NABARD has deviated from its mission when it has invested in private businesses.

- So, it's time to look into the possibility of a separate bank called ' Rashtriya Kisan which is totally committed to rural and agricultural development.

Issue?

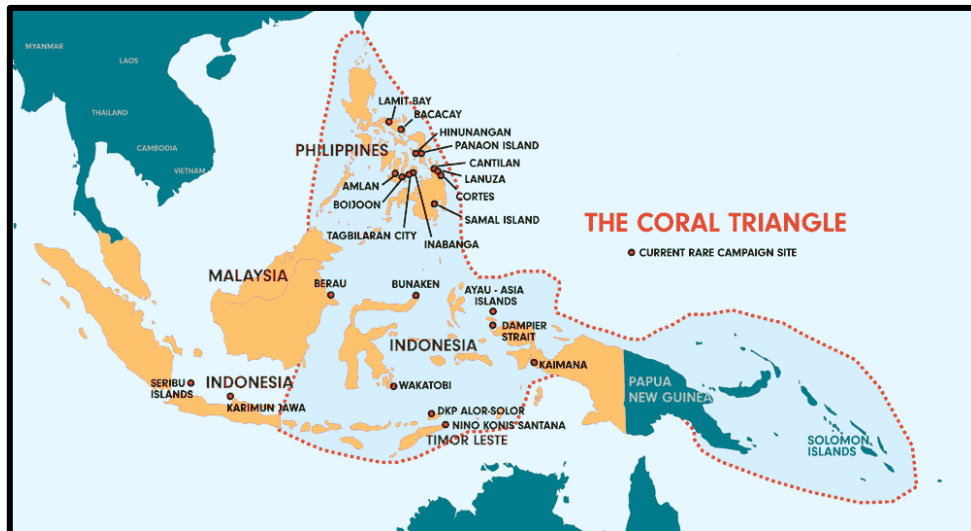
- In the past 10 years, the amount of credit for agriculture has risen by over 350 percent.
- However, the agricultural sector's performance is not as good as the subsidised credit the sector has received.
- **Misuse of agricultural credit:** The subsidised credit is not even reaching 20% out of 12.56 crore marginal and small farmers across the country.

- In a few States in some states, credit distribution to the farming sector was more than their GDP (GDP) as well as the proportion of loan to crop granted to inputs required was extremely uneven.
- Credit diverted for non-agriculture reasons.
- Sources of Credit for Agriculture.
- The sources of credit for agriculture can broadly be classified into no and institutional sources.
- Other sources that are not institutional include cash-lenders commission agents and trader's landlords, relatives, and relatives, however Institutional sources include cooperatives commercial banks like those of the SBI Group, RBI and NABARD.
- The main credit agencies of institutions that are based in India comprise Commercial Banks (CBs), Regional Rural Banks (RRBs) which are predominantly funded through the Scheduled Commercial Banks and state governments.
- There are also Cooperative Banks which are further divided into rural cooperatives as well as urban cooperatives.
- Scheduled Commercial Banks are the most popular credit provider, then followed by Cooperatives and Regional Rural Banks.
- It has been observed that following being nationalized by commercial banks in India at the time of 1969 commercial banks in general have steadily increased their percentage of institutional credit to the sector of agriculture.
- **National Bank for Agriculture and Rural Development (NABARD):** NABARD is a bank for development that focuses specifically on the rural part in the nation.
- It is the highest-ranking institution of banking that offers financing to rural development and agriculture.
- The headquarter of the organization is located in Mumbai India's financial capital.
- It is accountable for the development of small industry, the cottage industries as well as other rural or village-based projects.
- This is an official institution founded in 1982 under the act of Parliament - National Bank for Rural and Agriculture Development Act of 1981.
- **Features:** NABARD's initiatives are focused on building a more financially thriving and economically open rural India by focusing on specific goals for departments that can be classified broadly into three categories that include Developmental, Financial and Supervision.

- It offers refinance assistance for the construction of infrastructure in rural areas.
- It develops district-level credit plans that inspire and guide the banking industry towards achieving these goals.
- It oversees Cooperative Banks and Regional Rural Banks (RRBs) and assists the banks develop good banking practices, and then integrate them with their CBS (Core Banking Solutions) platform.
- It is involved in the development of the Union government's development programs in addition to their implementation.
- It also provides instruction to artisans who make handicrafts and assists them to create a platform to sell these item.
- NABARD has a variety of international partnerships, including the most prestigious global organisations and World Bank-affiliated institutions which are breaking new ground in the areas of rural development and agriculture.
- Rural Infrastructure Development Fund (RIDF) is managed by NABARD.
- The Rural Infrastructure Development Fund (RIDF) was created through the Government of India in 1995-96 to fund ongoing rural infrastructure projects.
- The Fund is administered through the National Bank for Agriculture and Rural Development (NABARD).
- The principal goal that this Fund is to offer loans to State Governments as well as State-owned corporations in order to help them to complete ongoing construction projects in rural areas.
- The projects to be funded by RIDF is classified into three broad categories, namely: a) the agriculture sector and related sectors (b) Social sector, and c) rural connectivity

Topic 11. CORAL TRIANGLE

Important for subject: Environment



As per a research study on the global impact of temperatures that exceed 2 degrees Celsius for the next 60 years from 2040 to 2100 could affect more than 30000 species living on land as well as in the ocean.

- **Coral Triangle:** The Coral Triangle is a marine region that is located in the western part of the Pacific Ocean.
- It encompasses water bodies of Indonesia, Malaysia, the Philippines, Papua New Guinea, Timor-Leste and Solomon Islands.
- The name is derived from the staggering amount of corals, seventy-five percent of all coral species in the world can be found here. There are nearly 600 kinds of corals that build reefs.
- The region hosts six of the seven species of marine turtles Mangrove forests, as well as thousands of species of fish in the reef.
- **Other species include: Coral Triangle:** The Coral Triangle is a marine region that is located in the western part of the Pacific Ocean.
- It encompasses water bodies of Indonesia, Malaysia, the Philippines, Papua New Guinea, Timor-Leste and Solomon Islands.
- The name is derived from the staggering amount of corals, seventy-five percent of all coral species in the world can be found here.
- There are nearly 600 kinds of corals that build reefs.

- The region hosts six of the seven species of marine turtles Mangrove forests, as well as thousands of species of fish in the reef.
- **Threats:** Demand for Tuna from the world has driven fishermen to take fish at levels that are unsustainable which has led to an alarming drop in fish stocks of tuna in the Coral Triangle.
- In the same way, Live Reef Fish which were traded all over Southeast Asia as a luxury food item has once increased in size quickly.
- **Destructive Fishing methods:** like the use of cyanide poisoning and dynamite fishing Blasting, and dynamite fishing are commonly used.
- **Bycatch:** fish that aren't targeted are caught using gillnets on trawls and longlines and then released to the sea.
- Within the Coral Triangle, the impacts of bycatch on sharks, marine turtles that are endangered and juvenile fish.
- **Climate Change:** like the use of cyanide poisoning and dynamite fishing blasting, and dynamite fishing are commonly used. Bycatch: fish that aren't targeted are caught using gillnets on trawls and longlines and then released to the sea.
- Within the Coral Triangle, the impacts of bycatch on sharks, marine turtles that are endangered and juvenile fish.

Topic 12. JUST STOP OIL

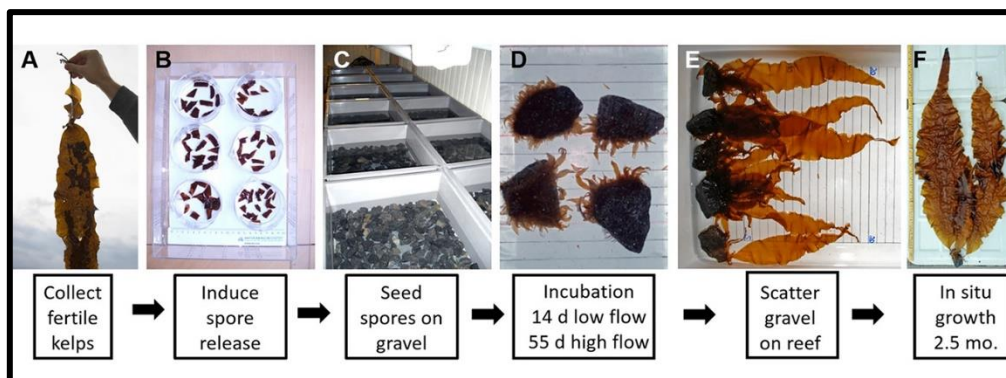
Important for subject: Environment

Unique method to demonstration Just Stop Oil: Launched in January of this year Just Stop Oil describes itself as "a group of people who are working together to ensure that the government stops new fossil fuel licenses as well as production".

- Organised by the climate groups Extinction Rebellion as well as Insulate Britain and funded by donation, the organization promotes "Non-Violent Direct Action" and promotes non-violent civil protest to "demand their freedom, rights and justice.
- Utilize tactics like boycotts, strikes, mass protests and disruptions to end their support from the state".

Topic 13. SCIENTISTS STRIVE TO RESTORE WORLD'S EMBATTLED KELP FORESTS

Important for subject: Environment



Disappearing Kelp forest

What are kelp forests?

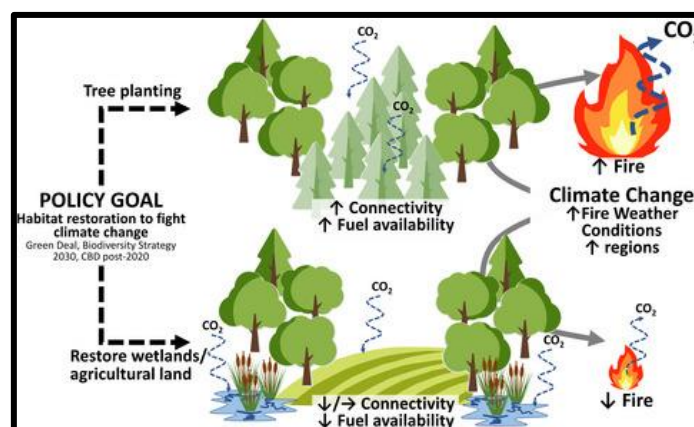
- Kelp forests are found along more than one-quarter of globe's coastlines they are one of the world's largest bio-diversity ecosystems.
- However, these vital habitats are disappearing because of the warming of oceans as well as other human-related effects.
- Kelp forests are usually referred to in the context of "underwater forests".
- Created by the massive growth of several species of kelp, they create an environment that is three-dimensional and extremely productive ecosystem.
- Most often, they are found in waters with temperatures of less than 20 degC Kelps are huge brown algae that adhere to the ocean floor ('benthic').
- The kelps are not only able to develop at a rapid rate in proper conditions - as much as 30 cm per day they can also grow to 45 meters in length for the huge Kelp.
- Recent abrupt wipe outs of massive kelp forests along the coasts in Tasmania and California revealed how little was available about preserving or restoring these important marine ecosystems.
- The loss of wild kelp forests decreases the protection of coastal communities against storm surges and eliminates significant carbon storage.
- In the world, more than one million tonnes of wild kelp is harvested every year, according to the 2019 statistics from the United Nations' Food and Agriculture Organization.
- A large portion, around 40 percent, has been gathered in the waters off Chile along with seaweeds that are wild brown sold to markets that sell commercially for a variety

of reasons, such as pharmaceuticals, food production as well as textiles and biotechnology.

- The Kelp substance is extensively used in pharmaceutical products such as toothpaste coatings for pills as well as food production, such as beer or ice cream.
- The practice of fishing through kelp forests with destructive techniques like bottom trawling is also linked to dramatic declines in the kelps.
- Being an aquatic species that is cold the kelp forest is sensitive to temperature rises.
- As the temperature of the ocean rises due to the emission of greenhouse gases, huge dying off of the kelp forest are becoming likely, and their return uncertain.
- The main difference between farmed and wild kelp is the location it grows in the water column.
- Wild kelp is attached with the ocean floor, and farmed kelp grows above it by lines or platforms.
- While giant kelp can be described as perennial the bull kelp dies in winter, but is seen again in summer, making it difficult to identify.
- **Kelp can be a moving target:** Extreme storms could uproot whole forests in the span of a single night.
- Green Gravel Action Group.
- This international research group will conduct a study on Green Gravel restoration in different regions to test the possibility of restoring seaweeds from kelp.

Topic 14. CAN PLANTING TREES MITIGATE CLIMATE CHANGE?

Important for subject: Environment



While trees are crucial carbon sinks, they also have substantial evidence that suggests that the potential of trees to reduce climate change is greatly under-estimated.

- Insufficient survival of saplings poor planting locations as well as the lack of high-quality seeds, trees that are planted in the wrong locations and large-scale plantations without a plan are just a few reasons why tree plantation efforts aren't always effective in the long run.
- The planting of trees can benefit in numerous ways. But, the emphasis should shift from the afforestation (planting the new forest) to Reforestation (restoring forest ecosystems).
- According to research of research conducted in Central Himalayas and the Coromandel Coast (south-eastern coast of India).
- The trees planted have shown wildly varying survival rates for 5 to 10 years.
- There are areas of tropical montane forests that are stunted that are found in valleys in grasslands that roll across the high areas of the montane in South India; this ecosystem is now being damaged by the invasive nature of trees.
- Due to their isolation and unique climate conditions, Shola forests are isolated and unique in climatic conditions.
- Shola forests are distinguished by high levels of endemism.
- The animals and plants that are that are found there are native to the region, and these species can't be found elsewhere around the globe.
- **For example:** Nilgiri Tahr. (Iucn status threatened) They can be found on the coast of South India in the Southern Western Ghats high-altitude Mountains of the states Karnataka, Kerala and Tamil Nadu.
- In no other part of the world can you find such forests.
- The hola tree has some of the highest regrowth rates.
- They don't get established quickly and are extremely vulnerable to climate changes. Shola forests have a higher capacity to retain water than other soil.
- They provide the water that flows through rivers like Cauvery, Thamirabarani, and Vaiga.
- They are the main reason for the moderate climates of several cities located near their slopes.
- For example, Coimbatore. They are part the world's Biodiversity Hotspot.
- Intergovernmental Panel on Climate Change It is an international organization that evaluates the scientific research regarding climate change.

- It was created around 1988, by World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP).
- To provide decision-makers regular reviews of the scientific foundations of the climate's changing patterns, their impact and risks for the future, as well as alternatives for mitigation and adaptation.
- IPCC assessments offer a scientific foundation for governments of all levels to create climate-related policies.
- In addition, they are the basis for negotiations at the UN Climate Conference - the United Nations Framework Convention on Climate Change (UNFCCC).
- The Trillion Tree Campaign is an initiative that aims to create one trillion trees in the world.
- It aims to replenish the forests of the world and fight the effects of climate change through a natural solution.
- The project was launched at Plant Ahead 2018 in Monaco by an NGO Plant-for-the-Planet.
- The 2020 World Economic Forum, held in Davos in Switzerland, announced the launch of the One Trillion Tree initiative platform that will allow businesses, governments as well as civil society to help support the UN Decade on Ecosystem Restoration (2020 to 2030) that is which is led by UNEP and FAO.

Topic 15. NAIROBI FLIES ARE CAUSING DISEASE IN SIKKIM

Important for subject: Environment



It's also known as Kenyan dragon bugs, also known as flies from Kenya they are beetle-like bugs that are part of two species: *Paederus eximius* as well as *Paederus Sabaeus*. Native to East Africa. As with all insects, beetles attract the bright luminescence.

- Thrive in areas that have heavy rainfall.

- They combat pests that eat crops.
- They are also beneficial to humans.
- However, sometimes, when they get into contact with humans directly and a cause of harm.
- Health officials claim that the flies don't bite, but if they're disturbed by skin they release a powerful acidic substance, called pederin, which can cause burns.
- Outside of Africa In the world outside Africa, outbreaks have occurred at the borders of India, Japan, Israel and Paraguay over the years.

Topic 16. ENVIRONMENT MINISTRY PROPOSES TO SOFTEN THE PROVISIONS OF THE ENVIRONMENT PROTECTION ACT (EPA)

Important for subject: Environment

Environment ministry proposes to relax the regulations that are in Environment Protection Act (EPA) through the replacement of a clause which is a means of incarcerating violators by one that demands the amount of a fine. In the event of serious violations that lead to a serious harm or death the violation will be covered by the provisions of the Indian Penal Code, 1860 and Section 24 of EP Act.

- Two significant changes are proposed: the appointment of one "adjudication officer" who would determine the penalty to be imposed for environmental violations.
- The penalties imposed by the Funds will be deposited in the "Environmental Protection Fund".
- If there is a violation of the Act the penalties can be anywhere from 5 lakh to 5 crore.
- The Environment Protection Act provisions will apply to punishments under the single-use plastic ban.
- The abolition of prison sentences is also applicable in also the Air Act, which is the primary legislation combating air pollution as well as the Water Act, which deals with violations of water bodies.
- The genesis of the adoption of the EPA originates at the United Nations Conference on the Human Environment that was held in Stockholm in June 1972 (Stockholm Conference).


- **No Court shall take cognizance of any offence under this Act except on a complaint made by:** The Central Government or any authority that is on behalf of the previous.
- **Constitutional Provisions:** The EPA Act was adopted pursuant to Article 253 in the Indian Constitution which provides for the enactment of legislation making international agreements effective.
- The Constitutional Article 48A stipulates that the state must strive to improve and protect the quality of the environment, and also to protect the forest and wildlife of the country.
- Article 51A also states that each person is responsible for protecting the environment.

Topic 17. NEW PATHWAY TO REGULATE NITRATE ABSORPTION IN PLANTS

Important for subject: Environment

Controlling nitrate absorption in plants

A novel pathway has been found, which can use gene editing to achieve this objective



Approach: The researchers used rice and tobacco plants to study the mechanism. ■ SPECIAL ARRANGEMENT

- Plants mainly absorb nitrogen from the soil in the form of nitrates and ammonium
- An important macronutrient, nitrogen is a part of chlorophyll, amino acids and nucleic acids

■ There is a need to regulate and optimise nitrogen intake in plants, so that the excess is not dumped in soil and water

■ The hormone auxin is responsible for well-developed roots across all plants, influencing nitrate absorption

ALTERNATE PATHWAY

■ The regulatory micro-RNA switch - miR444 - is known to turn off at least five genes

called MADS box transcription factor genes

■ A target gene of miR444 called MADS27, has a three-pronged effect: regulating nitrate absorption and root development, and stress tolerance

■ Tinkering with MADS27 may help regulate nitrate absorption and engineer abiotic stress tolerance

Researchers, led by researchers from The National Centre of Biological Sciences, Tata Institute of Fundamental Research, Bengaluru (NCBS- TIFR) discovered a new pathway to regulate the absorption of nitrates in plants.

- **Importance of Nitrogen for plants:** The nitrogen is among the macronutrients that are most crucial and required for the growth of plants.
- It is a component of amino acids, chlorophyll and nucleic acids among others.

- It comes mostly from the soil, where it is mostly taken in the form of ammonium and nitrates in the roots.
- Nitrates play an important role in controlling gene expression across the genome which in turn controls the structure of the root system and flowering times and leaf development.
- This is why the majority of activity takes place within roots to absorb and convert nitrogen into beneficial Nitrates.
- The nitrates absorbed in turn control the development of plants and are also useful as macronutrients.
- **Nitrate overuse and its impact:** The presence of Nitrates is essential for growth of plants and to improve the grain production.
- However, the excessive use of fertilizers containing nitrates for example, could result in the release of nitrates into soil that leads to the build-up of nitrates into soil and water.
- This accumulation contributes to the pollution of water and soil and contributes to the increase in greenhouse gases.
- To prevent this from happening it is recommended to make the best utilization of nitrates.
- Furthermore, since the entire process of absorption of nitrates occurs in the roots.
- A well-developed root system is required for this process to happen effectively.
- On one level we know that the hormone called auxin is the reason for healthy roots in all plants.
- Numerous genes are believed to aid in the production of auxin and improve the transport of nitrate and its assimilation within plants.
- **Regulatory switches:** Alternative Pathway to regulate the absorption of nitrate.
- The MADS27 gene, which regulates the absorption of nitrate, the development of roots and resistance to stress is activated by the micro-RNA miR444.
- This provides a means to regulate these plant properties.
- Researchers studied the mechanism of this in both rice (monocot) as well as tobacco (dicot) plants.

Topic 18. ALL 198 MEMBERS OF THE UNITED NATIONS UNANIMOUSLY ADOPTED JULY 1, 2022 THE LISBON DECLARATION ON OCEAN CONSERVATION

Important for subject: Environment



Lisbon Declaration on ocean conservation acknowledged that countries in need including the small islands developing countries as well as less developed countries, require assistance in building capacity. Of the event also committed to the prevention, reduction and control of marine pollution.

- **It includes:** Nutrient pollution Untreated wastewater Solid waste discharges Dangerous substances, emissions from the maritime sector which includes shipwrecks, shipping, and shipwrecks.
- Anthro marine noise.
- Other commitments comprise the development and promotion of innovative financing options to develop sustainable economies based on oceans and also expanding natural-based solutions that help preserve and protect coastal communities.
- "BBNJ Treaty" or the "BBNJ Treaty", also called" the "Treaty of the High Seas" is an international treaty concerning the conservation and sustainable utilization of marine biological diversity in regions that are not under national jurisdiction.
- In the process of negotiation in the United Nations.
- The BBNJ negotiations are being conducted in the context of UNCLOS launched during the One Ocean Summit in February 2022.
- The High Ambition Coalition on Biodiversity beyond National Jurisdiction gathers several delegations involved in the BBNJ negotiations to achieve a united and ambitious result at the highest level of political power.

Topic 19. GHARIAL (CROCODILES)

Important for subject: Environment



Pakistani officials have demanded the transfer of hundreds Gharial crocodiles out of Nepal in an attempt to restore a species which was last seen in Pakistan in 1985.

- The species is almost extinct in other countries than Nepal and India in India, where it is found on the Ganges River and its tributaries.
- Pakistan is hoping for its return to a predator that was that has not been seen in the country for more than four decades: the Gharial crocodile.
- It could also serve as a base for wildlife tourism, which could become an income source for communities in the area.
- **About Gharial:** Apex predators like gharials help maintain ecological balance. The population of Gharials is a reliable indicator of clean water in the river.
- **Locality:** The Chambal River that flows through north western slopes of Vindhya Mountains (Madhya Pradesh) is considered to be the primary habitat for gharials.
- Other Himalayan rivers include Ghagra, Gandak river, Girwa river, Ramganga river Nara Canal is a canal of the Indus DehAkro I and II complexes of wetland located in Pakistan.
- The dangers include illegal mining of sand, poaching, and more pollution of the river dam construction massive-scale fishing operations as well as floods.
- **Other species of crocodiles Mugger:** IUCN status-vulnerable Salt water crocodile IUCN status-Least Concern.
- All kinds of crocodiles under CITES Appendix I Wildlife Protection Act, 1972 in Schedule I

Topic 20. MODIFIED PSLV PLACES THREE FOREIGN SATELLITES INTO ORBIT

Important for subject: Science and Technology



India Space Research Organization's (ISRO) mainstay launch vehicle is on its 55th mission. PSLV-C53

What is PSLV-C53 mission?

- The mission brought three Singaporean satellites into their planned orbits.
- It also served an additional function for ISRO who determined to utilize four stages, known as the PS4 to serve as a permanent platform orbiting for conducting scientific experiments

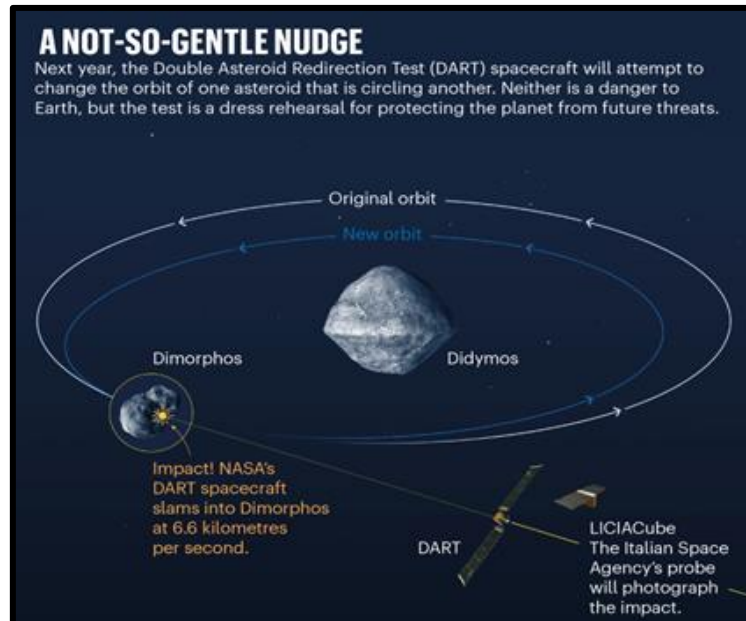
What is PSLV Orbital Experimental Module (POEM)?

- PSLV Orbital Experimental Module PSLV Orbital Experiment Module an instrument that can assist in the conduct of experiments on the last, and subsequently abandoned stage of ISRO's most reliable rocket called it's the Polar Satellite Launch Vehicle (PSLV).
- The PSLV is a four-stage rocket, where the three stages that are used up are tossed back into the ocean while the final step (PS4) after launch into orbit is then discarded in space.
- However the PSLV-C53 mission will use the final stage that has been discarded is used as a "stabilised platform" to conduct experiments.
- POEM comes with a special navigation Guidance and Control (NGC) system to control stability of the attitude, which is to control the direction of any aircraft within the limits of permissible.

- The NGC acts as the brain of the platform to ensure it is stable with a certain level of accuracy.
- POEM draws its energy from solar panels that are positioned on top of the PS4 tank, as well as a Li-Ion battery.
- It can navigate with "four sunlight sensors as well as a magnetic meter Gyros and the NavIC" It has special control thrusters with Helium gas storage.
- **It is enabled with a telecomm and feature PSLV:** This is the 3rd generation launch vehicle in India.
- It's the very first Indian launch vehicle equipped with liquid stages.
- It is made up of four phases.
- **First Stage:** PS1 PSLV utilizes the rocket's motor which is supplemented by six solid strap-on boosters.
- **Second Stage:** PS2 PSLV utilizes an Earth storage liquid rocket engine for its second stage.
- Known as the Vikas engine created by the Liquid Propulsion Systems centre.
- **Third Stage:** PS3 the third stage PSLV is an unpowered rocket motor which provides the upper stage with high thrust following an atmospheric stage of launch.
- **Fourth Stage:** PS4 the fourth stage is considered to be the highest stage of PSLV consisting of two Earth-storable liquid engines.

Topic 21. EARTH'S TOP ASTEROID DEFENCES

Important for subject: Science and Tech



If an asteroid menace emerged, Earth would need to be prepared.

- Researchers are always striving to provide the world with the most effective range of defense strategies.
- Asteroid defense four strategies are the most likely, however other strategies are being investigated to offer us the best chance of stopping a swift space-based visitor.
- **Huddle inside the cellar:** For asteroids less than 20 meters in diameter, the population can evacuate the affected zone and then hide and cover themselves.
- The effect of a larger asteroid could be catastrophic for a specific region, continent, or the entire world depending on the size.
- **Then, send in the nuclear weapons:** Instead of burying the device close to the centre of the object that is threatening.
- **The nuclear deflection scenarios are stand-off blasts:** The energy melts part of the asteroid, and then propels the space rock along an alternative and safer route in a distance far enough from Earth that fallout and radiation will not be a concern.
- **It can be accelerated using spaceships:** Kinetic impactor (KI) technique may be a third option and it is currently being (and is currently being) being tested.
- **The HTML0 KI technique is easy to follow:** ram a spacecraft into the asteroid that is of interest and then use the spacecraft's acceleration to alter the speed (and the orbit) of the Asteroid.

- **Let gravity take over:** The technique would require operating a spacecraft with a massive mass, located close to the asteroid that is of interest and then using the weight of the spacecraft in order to draw the object.
- Since the spacecraft's position can be controlled, it could pull the object in any direction, and shift its orbit to ensure it doesn't reach the Earth.
- Asteroids are sometimes referred to as minor planets.
- They are the remains of a rocky formation leftover from the early creation of the solar system, which occurred around 4.6 billion years ago.
- Most asteroids are irregularly-shaped however, some are almost round and have a tiny moon companion to them (some are able to have more than one moon).
- **Classification of Asteroids: Main Asteroid Belt:** The majority of asteroids are located within the asteroid belt that lies between Mars and Jupiter.
- **Trojans** The asteroids have an orbit that is shared with the bigger planet, however, they don't collision with it since they are grouped around two distinct locations within their space (called the L4 as well as the L5 lagrangian points).
- The gravitational pull of the sun and planets are equal.

Topic 22. DHURVA SPACE TESTS SATELLITE ORBITAL DEPLOYER ON BOARD PSLV

Important for subject: Science and Technology



Lithium-cobalt oxide battery.

- It is being used in consumer electronics and is gaining applications in electric vehicles.
- It's fairly inexpensive.

- Lithium-nickel-manganese-cobalt is a newer, higher performing range of battery chemistry.
- It was designed for the electronic car market, but is gaining greater use due to its growing cost efficiency.
- Lithium iron phosphate is the most secure technology that has good performance, but a bit expensive.
- It is very popular in China but is likely to become overtaken by Lithium-nickel-manganese-cobalt over the longer term; and Lithium-nickel-cobalt-aluminium oxide developed to reduce cobalt consumption and is known as a solid performer and of reasonable cost.
- It's also becoming popular in other countries, including China.
- Greenbushes mine is located in Western Australia is the largest hard-rock lithium mine in the world.
- Lithium and most lithium minerals are mined along with other high-value metallic minerals such as tin, niobium-tantalum (columbite-tantalite) and uranium (in pyrochlore).
- In Nigeria the lithium-containing minerals (spodumene as well as lepidolite) are believed to be related to columbite, Cassiterite (coltan) and other minerals in the vast belt of rare metal-bearing rocks kinds known as pegmatite.

Topic 23. DRDO CARRIES OUT TEST FLIGHT OF AUTONOMOUS UAV

Important for subject: Science and Technology

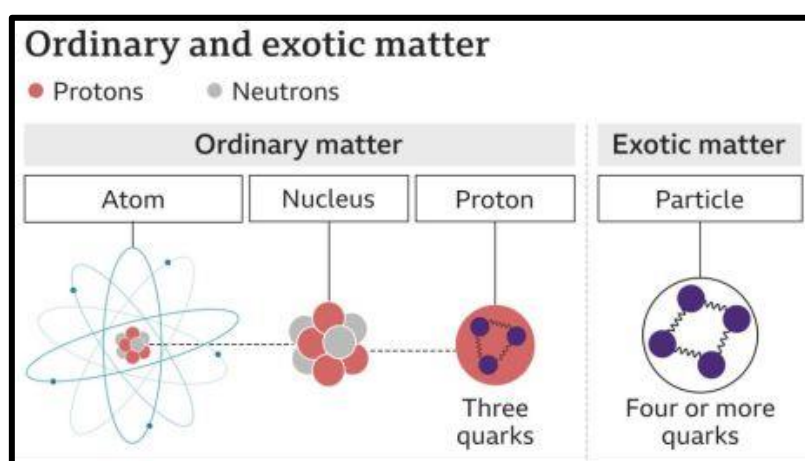
The Defence Research and Development Organisation (DRDO) has successfully completed the first test flight of the new Unmanned Aerial Vehicle (UAV) which is a self-contained Flying Wing Technology Demonstrator, from the Aeronautical Test Area, Chitradurga, and Karnataka.

- Unmanned Aerial Vehicle is a smaller size autonomous aircraft that is currently testing different technologies for autonomous aircrafts that will be built in the near future.
- Unmanned Aerial Vehicle (UAV) is powered by a tiny turbofan engine.
- The engine is Russian TRDD-50MT that was originally developed specifically for the cruise missile.

- "A small turbofan engine is currently being designed locally to meet the requirements.
- The UAV was created and developed in collaboration with Aeronautical Development Establishment (ADE), Bengaluru, and a premier research lab at DRDO In a completely autonomous mode.
- The UAV demonstrated a flawless flight with take-off, point navigation, and an easy landing.
- DRDO is currently in the process of creating UAVs with different classes that satisfy the requirements of the Armed Forces Rustom-2 as well as an indigenous Medium Altitude Long Endurance (MALE).
- UAV currently in development achieved a milestone, reaching an altitude of 2500 feet, and the endurance for 10 hours by the month of December 2021.
- The UAV is now being designed to be able to attain an altitude as high as 30,000ft as well as an 18 hours of endurance DRDO is the R&D arm of the Ministry of Defence.
- DRDO was established in 1958 following the amalgamation of the operating Technical Development Establishment (TDEs) of the Indian Army and the Directorate of Technical Development & Production (DTDP) along with the Defence Science Organization (DSO) The goal of DRDO is to empower the nation with state-of-the advanced indigenous defence technology and systems

Topic 24. THREE NEW 'EXOTIC' SUB-ATOMIC PARTICLES DISCOVERED AT CERN

Important for subject: Science



The Large Hadron Collider beauty (LHCb) experiment that is studying the tiny distinctions in matter and nonmatter investigating a particular particle known as "beauty" quark, also known

as "beauty quark", or "b quark" -- has discovered three particles that have never been seen before.

- It is a quest to discover the basic elements of the universe Big Bang recreation. Three "exotic" additions -- an entirely new type of "pentaquark" and the first-ever pair of "tetraquarks" -- to the increasing number of new hadrons discovered within the LHC will aid physicists to comprehend how quarks join to form these particles.
- CERN (CERN) Conseil European for la Research Nucleaire is the initial name of the European Organisation for Nuclear Research which manages an accelerator for particles which houses the LHC which is the world's biggest and most complicated collider.
- The Quark particle is an elementary particle which are available in 6 "flavours": up, down, charm top, bottom, and strange.
- They typically join in groups of threes and twos to form hadrons like neutrons and protons which compose the atomic nuclei.
- They can also be combined into five-quark and four-quark particles known as pent quarks and tetraquarks.
- However, they also can be combined into particles of five and four quarks which are referred to as pent quarks or tetra quark.
- In CERN's release CERN release, the most exotic hadrons that have been discovered over the last two decades are tetraquarks, or pent quarks that contain an enchanting quark as well as a charm antiquark.
- The other 3 or 4 quarks being an or down quark and their antiquarks.
- CERN is located in Geneva near the border between France and Switzerland.
- It is comprised of 22 member states.
- Discovered the mysterious Higgs boson during 2012.
- **Large Hadron Collider (LHC):** It is an atom smasher machine.
- It is the world's biggest and most powerful particle accelerator.
- It's basically two 16-mile-round rings that cross paths in four spots.
- It is comprised of a 27-kilometer superconducting magnetic ring that has several acceleration structures that boost the power of the particles in the process.
- Higgs boson particle in 2012, the Nobel prize-winning research of Higgs boson (also called a 'God particle') validated the Standard Model of Physics.

- It predicts that around 60 percent of the time, the Higgs boson will degrade to two quarks at the bottom.
- In the 1960s, Peter Higgs was the first person to suggest that such a particle could exist.
- The Higgs particle is a boson.
- Bosons are believed to be particles the source of all physical forces.
- Other bosons that are known include the photon, W Z and W bosons along with the gluon.

Topic 25. WHAT IS THE LARGE HADRON COLLIDER, NOW READYING TO SEEK ANSWERS TO FUNDAMENTAL QUESTIONS OF PARTICLE PHYSICS?

Important for subject: Science and Tech



The largest particle collider in the world The Large Hadron Collider (LHC) begins smashing proton particles against each other with unimaginable levels of energy from the 5th of July.

What is Large Hadron Collider?

- It is the largest and most powerful particle accelerator.
- It is a massive complex, intricate machine designed to study particles which are the smallest components of everything structurally.
- It is a track-loop with a length of 27 kilometers that is buried 100m underground on the border between France and Switzerland.

What is the process of working it?

- In its operating state it shoots two protons in speeds of light in opposing directions within a ring of electromagnets that are superconducting.

- The magnetic field produced by the superconducting electromagnets keep the protons within a narrow beam, and helps them move throughout the process when they traverse beam pipes, and then collide.
- Before collision another kind of magnet is employed to squeeze particles closer to increase the likelihood of collisions.
- These particles are small that the process of creating collisions is similar the firing of two needles ten kilometers apart with the same precision, so that they reach a point of no return.
- Because the electromagnets at the LHC are powerful and carry nearly the same amount of current as a lightning bolt and require to be at a temperature that is cool.
- LHC utilizes an efficient distribution system made of liquid helium in order to keep its vital components extremely cold at 271.3 degrees Celsius which is much more frigid than interstellar space.
- All controls of the accelerator's services, and technological infrastructure are within CERN Control Centre.
- CERN Control Centre The beams within the LHC are arranged to collide in four places around the accelerator ring which correspond to the locations that four detectors for particle particles, ATLAS, CMS, ALICE and LHCb.
- Previous runs as well as "God Particle" discovery 2012, scientists from CERN have announced to the world about the announcement of the Higgs boson, or the 'God Particle' in the first LHC run.
- The discovery ended the decades-long search for the subatomic 'force-carrying' particle and confirmed it was the Higgs mechanism which was a theory proposed in the mid-sixties.
- The Higgs boson as well as its related energetic field have been believed to played an important part in the formation in the Universe.
- This resulted in Peter Higgs and his collaborator Francois Englert receiving Nobel Prizes in 2013.
- Nobel Prize for physics in 2013.

What is Higgs Boson?

- In 2012, Nobel-prize-winning finding of the Higgs boson (also called 'God particle') validated the Standard Model of Physics.

- It also predicts that 60 percent of the times the Higgs boson will degrade to two bottom quarks.
- In the 1960s, Peter Higgs was the first person to propose that this particle could exist.
- The Standard Model of particle physics is the theory that describes 3 of 4 basic force (the electrical, the weak and powerful interactions without mentioning the gravitational force) throughout the universe, and classifies the elementary particles that are known to exist.
- Scientists aren't sure how to incorporate gravity into Standard Model. Standard Model.
- The Higgs particle is a boson.
- Bosons are believed to be particles that are the source of all physical forces.
- Other bosons that are known include the photon, W Z and W bosons, as well as the gluon. Boson in particle physics.
- Bosons are subatomic particle which has a spin quantum number with an integer number.
- Bosons are one of two major subatomic particle classes which is the fermions.
- They have an odd half-integer spins. Each observed subatomic particle is either boson or a fermion.
- **CERN:** The European Organization for Nuclear Research is also known as CERN is an European research and development organization that has the biggest particle physics lab that exists in the world.
- Established in 1954, the CERN organization is located in the north western suburb in Geneva along the Franco-Swiss border and includes 23 members from 23 states.
- This is an official United Nations Observer.

Topic 26. IS GROWING SPACE TOURISM POSING A RISK TO THE CLIMATE?

Important for subject: Science



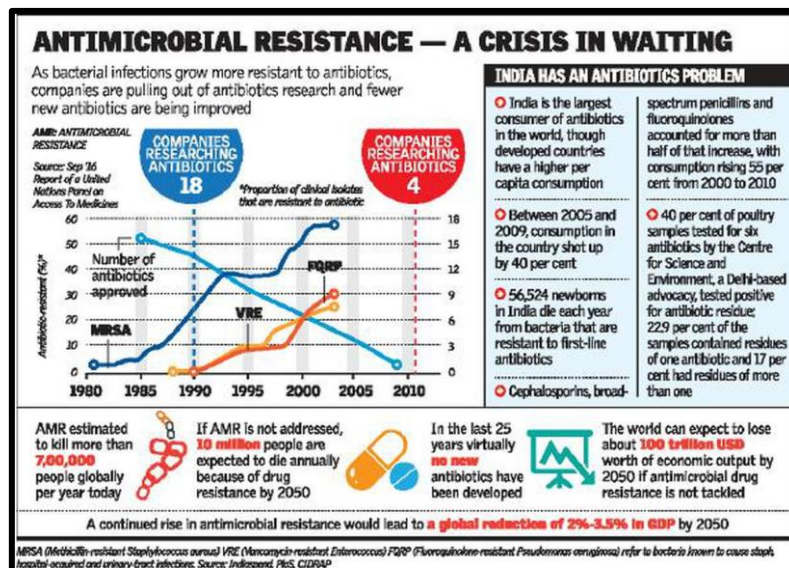
Recent research indicates that the rapidly expanding space tourism industry "may affect progress made by Montreal Protocol in reversing ozone depletion."

- **Space Tourism:** Space tourism allows people who are not a tourist to go to space for leisure, recreational or business reasons.
- The objective of space exploration is to create a space accessible to those who aren't astronauts but are interested in traveling into space for reasons other than scientific.
- With a starting point of \$350 million in the year 2019.
- It is predicted to reach more than \$1 trillion by 2040.
- **Different space tourism venture:** Space tourism allows people who are not a tourist to go to space for leisure, recreational or business reasons.
- The objective of space exploration is to create a space accessible to those who aren't astronauts but are interested in traveling into space for reasons other than scientific.
- With a starting point of \$350 million in the year 2019.
- It is predicted to reach more than \$1 trillion by 2040.
- **Impact of Space Tourism on environment:** The environmental damage that rockets cause is far more severe, since they release gaseous and solid chemicals directly into the atmosphere.
- The current space tourism growth patterns also suggest a possibility for the loss of the layer of ozone that lies above the Arctic.
- The pollutants that come from the heating and fuel used in rockets generated by spacecraft that return to Earth together with the debris generated by spacecraft's flights, are particularly damaging to the layers of ozone.

- The main concern is carbon black (BC) soot produced by rockets that are directly released into the air.
- Soot particles can have a much greater impact in the world's climate than any others sources of soot because BC particles are nearly 500 times more effective at keeping heat.
- **It undermines the Montreal Protocol Montreal Protocol:**
- It is an international treaty which was signed at Montreal in 1987.
- It was intended to safeguard the ozone layer of the Earth by controlling the production and consumption of more than 100 chemicals known as Ozone depleting compounds (ODS).
- This is also the one UN treaty that has been ratified by every country on Earth which is 198 UN Members.
- The Multilateral Fund for the Implementation of the Montreal Protocol was created in 1991.
- The Multilateral Fund's activities are implemented by four international agencies: UN Environment Programme (UNEP), UN Development Programme (UNDP), UN Industrial Development Organisation (UNIDO) and the World Bank Hydro chlorofluorocarbons (HCFCs) are gases used worldwide in refrigeration, air conditioning and foam applications, but they are being phased out under the Montreal Protocol since deplete the ozone layer.
- The developed countries have reduced the consumption HCFCs and will remove them by 2020.
- Countries in the developing world agreed to complete the elimination of HCFCs before 2030.
- The phase down of HFCs.
- The Kigali Amendment Another group of chemicals hydrofluorocarbons (HFCs) are used as alternatives to ozone depleting substances to help support the speedy elimination of CFCs and HFCs. conditioners
- HFCs are currently widespread in refrigerators, air aerosols, foams, and other items.
- All parties of Montreal Protocol Montreal Protocol reached agreement on 15 October 2016 in Kigali, Rwanda to phase-down HFCs

Topic 27. WHY INDIA SHOULD SUPPORT ANTIBIOTICS DEVELOPMENT

Important for subject: Science



Recent report from GRAM, Global Research for Antimicrobial resistance (GRAM) about Antimicrobial resistance (AMR).

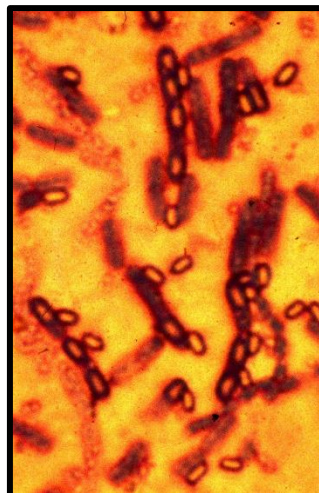
- Resistance to antimicrobials (AMR) It is a condition that occurs when the virulence of bacteria, viruses, fungi and parasites alter with time and stop to react to antibiotics, making infections more difficult to treat and increasing the risk of spreading disease as well as death, serious illness and even death.
- Statistics regarding Antimicrobial Resistance (AMR):** According to the report from GRAM, approximately 49.5 million people were suffering from at least one drug-resistant illness or AMR was directly associated with 12.7 thousand deaths in 2019.
- AMR is among the biggest health problems facing the public in India which accounts for close to 30 percent of deaths caused by the sepsis of new-borns all over India.
- A majority of the deaths are caused by multidrug resistant (MDR) infections acquired in hospitals approximately 30% of COVID-19-related deaths that occur in India are due to the inability to treat secondary bacterial illnesses due to MDR pathogens with appropriate antibiotics.
- The reason for resistance to antimicrobials is that in the presence of antimicrobials bacteria, microbes can be destroyed or, if they are resistant to the gene, they will survive.

- They will then reproduce and their progenitors will soon become the predominant type in the microbial community.
- In the course of replication, changes occur which, in some can help a particular microbe survive the exposure to antimicrobial.
- Bacteria with DNA that is resistant to drugs could transfer a copy the genes to bacteria that are not drug-resistant.
- Microbes can also inherit genes from one another which include genes that make microbes drug-resistant.
- Bacteria multiply in the billions.
- Most often, healthcare professionals have to rely on incomplete or inaccurate information to identify an illness and, consequently, prescribe an antimicrobial in case of need or prescribe a broad-spectrum antibiotic when a particular one could be more effective.
- The extensive use of antimicrobials and close contact among sick patients creates a fertile environment for the spread of antimicrobial-resistant germs.
- In the practice, adding antimicrobials into agricultural feeds promotes resistance to drugs.
- Take on the AMR crisis by ensuring that you have adequate funding for studies and improvements to the most recent quick and inexpensive methods of preventing and controlling contamination methods.
- Making and imposing antimicrobial stewardship programs across the country, and ensuring the same people have access into life-saving drugs.
- Recommendations for improving the effectiveness of antibiotics has been affected by an investment loss and the demise of large pharmaceutical companies out of the AMR region because of the poor return on investment.
- Furthermore, compensation rules in many countries have discouraged hospitals from using the expensive antibacterial drug since less costly conventional alternatives are readily widely available.
- There is a urgent need to reverse this trend and create an improved version that sustainably assists in tackling the AMR catastrophe in the long run. Push-Pull model.
- In the event that "push" incentives decrease the cost to develop a brand new antibacterial medicine, and "pull" incentives praise most efficient a hit outcome.

- Small pharma companies getting aided with initial-level investments from public-non-public partnership is an example of the frenzy type.
- The pull issue is about providing government contracts to corporations which expand the use of important antibiotics to treat resistant infections that are drug-resistant.
- Furthermore further, it is possible to create an AMR Action Fund may be developed that could be used to handle the demanding conditions that come with the advancement of modern antibiotics and boost their effectiveness.

Topic 28. ANTHRAX- THE INFECTIOUS DISEASE FOUND IN KERALA

Important for subject: Science



Anthrax also referred to as malignant pustule, or wool sorter's syndrome, is a serious but rare illness caused by rod-shaped bacteria called *Bacillus anthracis*.

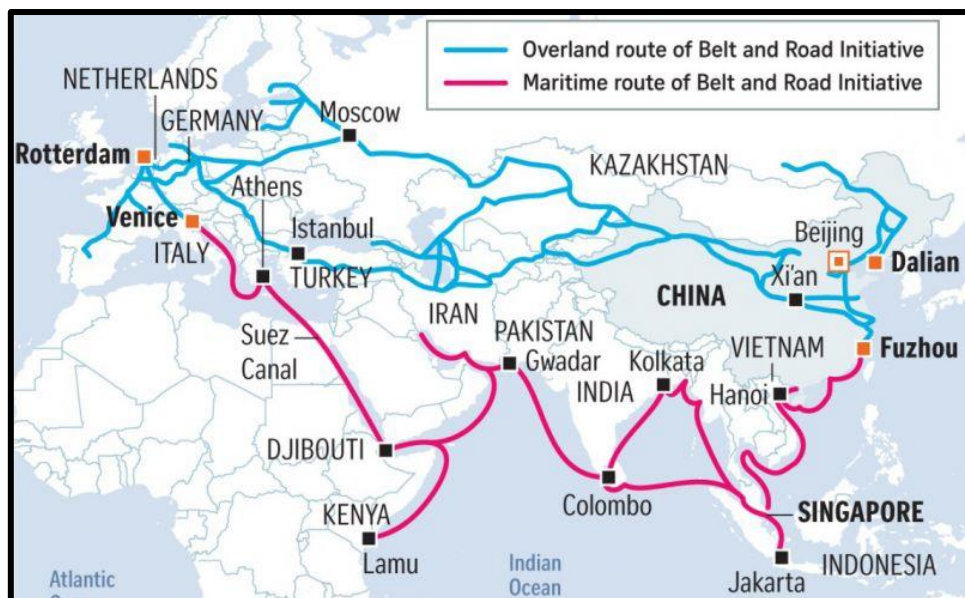
- It is a natural phenomenon that occurs in soil. According to WHO it is the most common disease that affects herbivores.
- Both wild and domestic animals being affected.
- Most often, they are animals that reside in the southern states of India.
- As per the WHO, Anthrax is generally not considered to be a disease that is contagious.
- In addition, instances of transmission from person to person are very uncommon. Anthrax is considered to be a zoonotic illness which means it can be transmitted naturally by mammals (usually vertebrates) to human beings.
- The disease can be contracted by coming into contact with infected animals or other animal products affected by bacteria.

- The flies are also believed to contribute to massive epidemics of the disease according to WHO.
- Herbivores can contract the disease via contaminated soil and food, whereas carnivores and omnivores are affected by contaminated bones, meat, and other food items.
- Wild animals are sick due to eating anthrax-infected carcasses.
- Anthrax is a disease that can be contracted by introducing spores into the body through breathing, eating food with contaminated ingredients or drinking contaminated water or through scrapes, cuts, or scratches on the skin.
- The signs of livestock species such as sheep, cattle and goats, the initial indicator is usually the sudden demise of one or two animals in the herd. Before their deaths, they may be exhibiting signs of high fever.
- In nature sudden deaths are a usual sign of death, usually associated with bloody discharge out of the natural orifices (mouth or nasal, ear, and anus) Bloating, insufficient rigour mortis, and the absence of clotting blood, as per WHO.
- In humans, symptoms of cutaneous anthrax may include tiny blisters that can cause itching in a painful, non-inflammatory skin sore with an eerie black centre, and possible swelling in the area.
- It is the most frequent method of acquiring the disease, and it is not always fatal.
- Inhalation anthrax can be characterized by fever, chills and shortness of breath.
- Nausea and coughing to name just a few.
- It's the most fatal type of disease that could cause death in two days.
- Additionally, symptoms of gastrointestinal anthrax may include vomiting and nausea (with blood) and constricted neck pains and diarrhoea.
- The most vulnerable people at for contracting the illness include those who work with animals for example, veterinarians, farmer's wool sorters, livestock handlers and lab professionals.
- Treatment Antibiotic treatment that is administered early in the course of disease has been shown to be effective to treatment, as per the WHO.
- Penicillin has always been the preferred antibiotic and recently, ciprofloxacin as well as doxycycline have also been utilized as alternatives.
- One method to stop the spread of the disease is to administer vaccination of livestock, so that the disease can't be spread.

- There are vaccines available for humans, however they are usually only available to people who are at risk like laboratory workers and those who work with animals.

Topic 29. CHINA'S BELT AND ROAD INITIATIVE

Important for subject: International Relation



In the recent meeting held by G7 heads at the G7 summit in Germany, United States President Joe Biden and his allies presented their \$600-billion plan, dubbed "the Partnership for Global Infrastructure and Intelligence (PGII)" to create infrastructure projects in both middle-income countries. It's being viewed as a threat the Chinese's Belt and Road Initiative (BRI) estimated at one trillion U.S. dollars by some experts.

What is China's Belt and Road Initiative?

- 2013 was the year that Chinese president Xi Jinping in his travels in Kazakhstan and Indonesia, outlined his plan of constructing the Silk Road Economic Belt and a 21st Century Maritime Silk Road that would break the "bottleneck" in Asian connectivity.
- This idea led to the creation of BRI.
- More than 60 nations have signed BRI accords with China as infrastructure projects under the initiative underway or being planned throughout Asia, Africa, Europe as well as Latin America.
- For financing BRI initiatives, China offers huge loans at commercial rates which countries must pay back within a set period of time.

- The West has been accused by the west of China of committing debt-trapping through the issuance of "predatory loans" which force nations to surrender crucial property to China.
- Research suggests that countries with low or middle incomes tend to seek out China when they are unable to get loans from anywhere else.
- In recent years the BRI has been seen to show an increase in its pace of growth in the amount of annual Chinese loan to nations that are part of the program dwindled from its record that was \$125 billion as of 2015, to \$50-55 billion by 2021.
- The BRI's investment in Pakistan In his trip in Pakistan the President. Xi and then Pakistan Prime Minister Islamabad unveiled BRI's most prestigious project and the largest in a single country, the China Pakistan Economic Corridor (CPEC).
- The China Pakistan Economic Corridor (CPEC) China-Pakistan Economic Corridor (CPEC) is a set of infrastructure projects being constructed across Pakistan from 2013.
- In the middle of the CPEC included the 700 million transformation of Gwadar, Pakistan's capital city.
- Gwadar into a modern port city that would be "the "Singapore in Pakistan".
- CPEC runs through the disputable region of Kashmir in which Indian as well as Pakistani border guards occasionally engaged in a shootout over border lines along the Line of Control.
- It is the Government of India, which has tensions with Pakistan opposes the CPEC project because the upgrades for Karakoram Highway are underway.
- Karakoram Highway are taking place in Gilgit Baltistan; territory that India asserts to be its territory.
- May 2022 Chinese power companies that operate across Pakistan threatened to shut down coal power plants if the company did not pay the charges of 300 billion Pakistani rupees (approximately \$1.5 billion).

What is the situation in Sri Lanka?

- The BRI was launched in Sri Lanka, multiple infrastructure projects that were financed by China were brought under the umbrella of the BRI following its launch in 2013.

- In 2021 Colombo exited India and Japan from a plan to construct an East Container Terminal at the Colombo port, and negotiated with China to join the task.
- Incapable of paying the massive loan and suffering the cost of \$300 million because of delays, government leased Hambantota port to the Chinese state-owned firm on an agreement for 99 years in the year 2017.
- Other major projects in BRI include the construction of Colombo International Container Terminal, the Central Expressway and the Hambantota International Airport among others.

Are there any projects within Afghanistan?

- Afghanistan hasn't been fully included in the BRI even though the existence of a Memorandum of Understanding (MoU) was concluded with China in the year 2016.

What has happened to projects coming from India and China been progressing in the Maldives?

- The most renowned BRI projects that was completed by the Maldives is the two-kilometer long China-Maldives Friendship Bridge which is a \$200 million four-lane bridge.
- A majority of China's investments in the Maldives occurred under the administration of former President Abdullah Yameen, seen as pro-China.
- Over time, the opposition to the massive credit of China along with Yameen was defeated in 2018. Yameen was defeated in the year 2018.
- The Maldives currently under the administration of President has sought to distance itself from BRI and focuses more on its "India First" policy.
- India has in recent years been seeking to establish stronger relations and ties with Maldives under the Prime Minister Narendra Modi's "Neighbourhood First" policy.

What's the deal with Bangladesh?

- Bangladesh that was a member of the BRI in 2016 has been promised the second highest amount of investment (about \$ 40 billion) across South Asia after Pakistan.
- In 2016, the Chinese government announced Dhaka BRI investments worth 40 billion dollars, India followed up in 2017 by offering the \$5 billion line of credit and economic aid.

- BRI Projects include China and Bangladesh Friendship Bridges, special economic zones as well as the \$689.35 million Karnaphuli River tunnel and the upgrade of Chittagong's port Chittagong port, as well as rail lines connecting Chittagong ports and the Chinese Yunnan province.

Topic 30. KARAKALPAK PROTESTS REFLECT THE SHATTERED PROMISE OF MIRZIYOYEV'S 'NEW UZBEKISTAN'

Important for subject: International Relation

A plan to lower the autonomous region into a province triggered massive protests. Karakalpak Stan is home to around 40% of Uzbekistani territory is an ethnically diverse area with a large percentage of minorities of ethnic origin - Karakalpaks as well as Kazakhs.

- In the Soviet period, Karakalpakstan was merged with the Uzbek Soviet Socialist Republic, however, it remained as an independent republic.
- The latest edition of the Uzbek Constitution states that Karakalpakstan has not only the right to political autonomy, but also the right to sovereignty and secession.
- This can be done through an independent referendum, as stipulated in the constitution.
- The amendments proposed would eliminate the term "sovereign" when mentioning Karakalpakstan as well as remove Karakalpakstan with the ability to secession and demand that Karakalpak legal documents are conforming not just to Uzbek Constitution but also with Uzbek Constitution but also with the laws of Uzbekistan.
- The protests that are currently taking place have focused solely on the symbolic nature of Karakalpakstan.
- The protesters haven't called for Karakalpakstan's independence, but at least for at this point.
- Instead, they demand to see a greater determination from Tashkent to adhere to the current arrangement in politics and pay greater focus on the area.
- However the protests show evidence of the deeper socioeconomic issues that have been a problem for Uzbekistan.
- Both Karakalpakstan and the other distant Uzbek provinces were financially deprived for a long period of time.

- The ecological problems associated with Karakalpakstan's Aral Sea specific to Karakalpakstan have not been solved.
- The levels of investment in the region remain low, causing a slowdown in economic growth.
- The combination of all that with a growing population can lead to an explosive political scene.

Topic 31. MYANMAR HOSTS FIRST REGIONAL MEETING SINCE COUP

Important for subject: International Relation



Myanmar's military on Monday hosted its first high-level regional gathering since the Army was elected last year.

- About Lancang-Mekong Cooperation (LMC).
- It is a multilateral arrangement that was established in 2016 to facilitate collaboration between the riparian states that comprise Mekong River and the Lancang River and Mekong River.
- Lancang is the name given to it by Chinese.
- Lancang is the region of the Mekong that flows through China.
- Cambodia, Laos, Myanmar, Vietnam and Thailand are five countries that flow downstream from the Mekong River.
- The main purpose behind the structure is to allow China to control the flow of water through its hydropower dams in conjunction with other states with riparian's.
- China has constructed 10 dams along the upper portion of the Mekong and the section that it refers to as the Lancang.
- LMC Special Fund was created in the year 2016 to support small - and medium-sized initiatives by the Lancang and Mekong countries.

- The recent gathering was with the theme "Solidarity for Peace and Prosperity" in the city of Bagan.
- Of Bagan which is one of the UNESCO World Heritage site.

Topic 32. A SHORT HISTORY OF THE DEMAND FOR 'DRAVIDA NADU', ITS EVOLUTION

Important for subject: History

DMK MP A Raja recently brought back the issue of the issue of ' Dravida Nadu which is the concept of the creation of a separate Tamil Nadu, in the presence of CM MK Stalin. Stalin's need of Dravida Nadu The 20th century protests against the colonial regime in Madras state (of which, together with Tamil Nadu, portions of the present-day Andhra Pradesh, Karnataka, and Kerala were part) frequently included representations that reflected regional goals.

- The South Indian Liberal Federation, often referred to by its acronym Justice Party, which was established on the 17th of November 1917, by the Sir Pitti Theagaraya Chetty and Dr. T M Nair, and Dr C Natesa Mudaliar, was the first group to fly an anti-Brahmanism flag and fight against the caste system that placed Brahmins at the highest of the social ladder.
- In 1920 in 1920, Justice Party won the first elections in 1920. Justice Party won the first legislative council elections within the Government of India Act, 1919.
- The Justice Party then established the government.
- Periyar who was the leader of the Self-Respect Movement (1925), was both anti-caste and anti-religion.
- He envisioned the creation of an autonomous Dravida homeland, or Dravida Nadu that consists of Tamil, Malayalam, Telugu and Kannada people, and he formed a political group called Dravidar Kazhagam (DK) to achieve this dream.
- He was a vocal advocate for major social reforms which included equal rights for women in society as well as promoting women's birth control to ensure their health and well-being.
- He also spoke out against the rule of Hindi and stressed the distinct distinctive cultural identity that is Tamils. Tamil nation.
- In 1938 in 1938, in 1938, the Justice Party and Self-Respect Movement joined forces, a sign of the union of the two parties and the movement.

- When the war broke out in 1944, the brand new outfit was called Dravidar Kazhagam.
- DK was anti-Brahmin and anti-Congress.
- He was also anti-Aryan. DK also started a movement to create an independent Dravida nation.
- DK continued to insist that Dravida Nadu and Periyar refused to participate in elections.
- The year 1949 saw Annadurai separated from the Periyar because of ideological differences and also his DMK was a part of the electoral process.
- The DMK's main platforms were social democracy as well as Tamil nationalist culture.
- Linguistic nationalists: It is the Linguistic Provinces Commission (or S K Dhar Commission) formed in 1948 was opposed to an underlying linguistic foundation for the reorganisation of states, believing it could result in further division. In 1952, the freedom activist Potti Sriramulu was killed in the midst of a hunger strike lasting 56 days that was aimed at establishing a separate Telugu state.
- In 1953, the States Reorganisation Commission (SRC) was formed by Justice Fazl Ali, historian K M Panikkar, and the parliamentarian H N Kunzru.
- Its report was support the idea of a linguistic division among states.
- However, it warned that "It is not feasible nor necessary to organize the State according to only one test, whether of the culture or language.
- The States Reorganization Act of 1956, which included some of the suggestions made by the SRC and redrawn states' boundaries in accordance with their linguistic classifications and established three states: Tamil Nadu, Andhra Pradesh, Mysore and Kerala in the southern region of India

Topic 33. ALLURI SITARAMA RAJU

Important for subject: History



Premier Secretary Narendra Modi unveils a statue of 30 feet bronze of Alluri Sitarama Raju Bhimavaram (Andhra Pradesh) He is a hero for the tribal people of Andhra Pradesh.

- He unified diverse tribes and taught them guerrilla warfare and taught them how to fight the power of colonialism.
- He was among the most brave revolutionaries and freedom fighters.
- Alluri Seetarama was the founder of the famed "Rampa Rebellion" or Manyam Rebellion from 1922 to 1924.
- Over the course over two decades, the soldier was fighting multiple times against the British forces, and always won against them.
- He was given the title "Manyam Veerudu" or the "Manyam Veerudu" or the "Hero of Jungle".
- Reasons For Rampa Rebellion Firstly, the British rule put podu cultivation in danger as a type of shifting cultivation in which plants and trees are removed from a piece of land by burning them and the ashes are mixed with the soil to grow new crop.
- This was banned by the government when they seized forest land to use for their own purposes by calling it a 'reserved forest'.
- Second, the gathering of small forest items like roots and leaves, was prohibited in the Forest Act of 1882.
- The tribespeople were also forced into work by the colonial authorities.
- While they were being exploited under the muttadars but the British laws and system of government threatened their traditional way of life.

- In 1986 in the year 1986, The Indian Postal Department issued a stamp in his honour that featured his fight for Independence.

Topic 34. PROJECT BANDHAN

Important for subject: Agriculture

Project Bandhan launched to tackle the pink bollworm problem in cotton.

- The trap is a phenomena, which disrupts mating employed to limit the population of pests.
- **Project Bandhan and Innovative technique:** As the pink bollworm outbreak spreads through cotton plantations across North India, stakeholders including the Central Institute of Cotton Research (CICR), state agricultural universities as well as private players like SABC.
- **South Asia Biotechnology Centre (SABC):** are setting on large-scale demonstrations of the effectiveness of new technologies like mating disruption and pheromone traps to fight the most feared pest.
- The concept is to plan to protect the plant throughout the entire season beginning with the time of flowering to harvest.
- Mating disruption is an ingenious technique based on pheromones that disrupts the reproduction cycle of the pink bollworm (PBW).
- In such a manner that the number of PBW in the population is dramatically decreased and the crop damage is minimized.
- The Central Insecticide Board and Registration Committee (CIBRC) has approved the technology for the integrated pest control (IPM) strategies to control PBW within India for the first time in 2019-20.
- In this regard, CICR and the other players have launched PBK not, a metric-based solid dispenser rope that can be easily linked to cotton plants.
- The PBK not is charged by the air around it with Gossypure which is a scent that can confuse males.
- Trained by SABC in the field of farm labour tagging PBK not technology located in Sirsa (Haryana) stopping them from mating with females, and also reducing the number eggs laid, and limiting the population of PBWs.

- "The mating disruption is now an effective tool for managing insects such as PBW," said Bhagirath Choudhary who is Director of South Asia Biotechnology Centre (SABC), Jodhpur, which has been implementing a massive "Project Bandhan" to prevent spreading PBW in 16 districts across seven states that grow cotton this the kharif.
- Bandhan Project Bandhan will be carried out in 19 clusters across India as a partnership together with Ambuja Cement Foundation, PI Foundations, Agro vision Foundation, State Agriculture Universities, KVKs and local associations under the technical direction of ICAR-CICR Nagpur.
- **pink bollworm (PBW):** The PBW, which appears early in the kharif period of North the country, has a brief life-cycle and can reproduce for four generations within a single crop cycle, which could threaten cotton in the early stages, flowers, bolls that are green and cotton loose, affecting the quality of cotton lint.
- It is a bug that is known for its pranks in the cotton farming.
- The bollworm in pink is indigenous to Asia However, it has now become an invading species in the majority of the cotton-growing regions in the world.
- The female moth eggs inside cotton bolls and, when it emerges from eggs, they cause damage by feeding.
- Since cotton is used to produce the purpose of both fiber and seed oil the damage is twice.
- Their destruction of protective tissues surrounding the boll can open a point to access for other insects as well as fungi.
- Infestation of cottons that are susceptible is usually controlled by insecticides.
- Bollworm populations are managed by mating disruption chemical treatments, and the release of males sterile who met with females, but are unable to fertilize their eggs.

Topic 35. AUSTRALIA HONEY BEES PUT IN LOCKDOWN DUE TO DEADLY VARROA PARASITE

Important for subject: Agriculture



Many millions of Australian bees have been placed in "lockdown" as well as thousands are expected to be destroyed after a fatal parasite was discovered in the nation.

- **Varroa Mites:** The Varroa mite also called Varroa destructor is an insect parasite that feeds from honeybee larvae as well as honey bees that are mature.
- These tiny red bugs look similar to ticks and ticks carry dangerous viruses.
- If a honeybee contract virus during the larval stage of development, adult honey bees may emerge as weak and malformed.
- If each generation is weak, it can cause the colony to collapse.
- Varroa mites are an extinct species that originated in Asia and then have spread to every continent on which honey bees are found, with the exception for Australia.
- The varroa destructor was initially located at a port in Sydney this week. However, it has since been seen in hives that are located 100km further away.
- The outbreak is likely to be a financial burden for the food and honey production industries millions of dollars.
- The keeper who is in a new biosecurity zone won't be able move bees, hives or honeycombs until the next time.
- Australia is the sole continent that was free of varroa mites that represent the biggest threat to bees around the world.
- **The pests:** approximately the size of a sesame seed are able to reduce and kill colonies by eating their food and transmission of viruses.

Why it is important?

- Bees are crucial to our existence.

- They also help to pollute our food, and also maintain our ecosystem's balance.
- Without them, there'd exist massive hunger, and ecological collapse.

Topic 36. WB LOAN TO PM AYUSHMAN BHARAT

Important for subject: Governance

The World Bank has approved loans in the amount of USD 1.75 billion (about 13,834.54 crore) 13,834.54 million) to help finance the PM Ayushman Bharat program in India and private investment to help boost the economy's growth.

- Of the loan total one billion dollars will be allocated to the health sector.
- The rest of the remaining \$750m will come under the heading of development policy loans (DPL) to cover the financial gaps that exist through private sector investments within the economic.
- The World Bank Board of Executive Directors approved two additional loans totalling \$500 million USD each, to aid and improve India's health sector.
- With this financing combination in the amount of \$1 billion The World Bank will support India's famous Pradhan Mantri- Ayushman Bharat Health Infrastructure Mission (PMABHIM) which was which was launched in October 2021.
- **Mantri-Ayushman Bharat Health Infrastructure Mission (PM-ABHIM):** PM Ayushman Bharat Health Infrastructure Mission intends to achieve robust results for Public Health leapfrogging India to one of the top nations on earth regarding the management of Public Health outbreaks.
- This Scheme operates as a centrally sponsored Scheme that includes a few Central Sector components.
- The Scheme comprises the following components:
- Centrally Sponsored Scheme (CSS) Components:
- **Ayushman Bharat:** Health and Wellbeing Centres (AB-HWCs) located in the rural regions: Assistance for the development of infrastructure in 17788 Sub-Health Centres are proposed in seven High Concentration States (Bihar, Jharkhand, Odisha, Punjab, Rajasthan, Uttar Pradesh and West Bengal) and three North Eastern States (Assam, Manipur and Meghalaya).

- In the other States the infrastructure support for SHCs without buildings is already provided under FCXV Health Grants through Local Governments and through NHM too.
- For the UTs the support for the UTs is provided by NHM.
- This arrangement will remain in place.
- **Ayushman Bharat:** Health & Wellness Centres (AB-HWCs).
- **In urban regions:** Support for 11044 Urban Health and Wellness Centres across the country is planned under this part.
- **Block Public Health Units (BPHUs):** Support for 3382 BPHUs across 11 states with high focusor Uts (Assam, Bihar, Chhattisgarh, Himachal Pradesh, UT and Jammu and Kashmir, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, Uttar Pradesh and Uttarakhand) are included in this section.
- In the other States that are not included, support to establish BPHUs is given under FCXV Health Grants through local Governments.
- For the UTs the planned District Integrated Public Health Labs under the PM Ayushman Bharat Health Infrastructure Mission at the Districts will serve the requirements of the Blocks within the UTs.
- Integrated District Public Health Laboratories across all districts.
- Critical Care Hospital Blocks are located in all districts that have a population greater than 5 lakhs in state-run medical schools or District Hospitals.
- Of five components of CSS the elements are Ayushman Bharat and Ayushman Bharat Health and Wellness Centres (AB-HWCs) in rural areas, Ayushman Bharat - Health and Wellness Centres (ABHWCs) in urban areas as well as Block Public Health Units are partially funded through the 'FCXV Health Grants via Local Governments'
- Central Sector (CS) Components Prime Minister Ayushman Bharat Health Infrastructure Mission comprises one of the CS components:
- Critical Care Hospital Blocks in 12 Central Institutions.
- Intensifying surveillance for infectious diseases and the response to outbreaks.
- Assistance of 20 Metro Surveillance Units five Regional NCDCs as well as the implementation of IHIP across every state.
- The strengthening of surveillance capacities in Points of Entry.

- The support for the 17 brand new Points of Entry Health Units and the strengthening of 33 existing units.
- Strengthening Disaster and Epidemic Preparedness. Assistance to 15 health emergency operation centres and 2 Mobile hospitals that are based on containers.
- Bio-security preparedness and building Pandemic Research and Multi Sector, National Institutions and Platforms for One Health.
- Assistance in the creation of the National Institution for One Health and the regional Research Platform for WHO South East Asia Region, 9 Bio-Safety Level III laboratories and 4 brand new Regional National Institutes of Virology (NIVs).
- The Central Sector components of the proposed Scheme will be executed by central agencies/subordinate offices and autonomous bodies that are part of the Department of Health & Family Welfare and the Department of Health Research, using the current procedure.

Topic 37. DRAFT NATIONAL POLICY FOR PERSONS WITH DISABILITIES

Important for subject: Governance



Department of Empowerment of Persons with Disabilities (DEPwD) has extended the time for the public to submit comments on the draft national policy for persons with disabilities. Draft National Policy for Persons with Disabilities: Key points According to the draft policy, the current national programme on prevention of disabilities focused on “traditional causes”, but there were other causes of disability, such as malnourishment, medical negligence, socio-cultural factors and impairment caused by disasters.

- The Rights of Persons with Disabilities (RPD) Act, 2016 expanded the number of disabilities from seven to 21.

- However, the issue of disability remained unresolved on majority of the issues.
- The draft policy called for a comprehensive national programme on prevention of disabilities and other medical conditions that could manifest as a disability.
- The draft stated that one-third of most disabilities in children were preventable, if detected early.
- The draft policy also said the States and Union Territories should add a provision on compliance with the RPD Act when granting permission or recognition to educational institutions.
- Besides, a module on disability should be included in MBBS and other medical courses for better understanding of the issue.
- The Ministry of Road Transport and Highways will be directed to issue necessary guidelines for making modification in the personal vehicles being used by persons with disabilities as per requirement.
- Revision of the policy was required as the existing national policy on disability was drafted in 2006, after which India signed the United Nations Convention on the Rights of Persons with Disabilities in 2007.
- National Policy for Persons with Disabilities 2006 Ministry of Social Justice and Empowerment formulated the National Policy for Persons with Disabilities in February 2006 which deals with Physical, Educational & Economic Rehabilitation of persons with disabilities.
- **Focus of the policy Prevention of Disabilities:** Rehabilitation measures includes physical rehabilitation, educational rehabilitation, and economic rehabilitation.
- **Rehabilitation Measures:** Rehabilitation measures includes physical rehabilitation, educational rehabilitation, and economic rehabilitation.
- **Women with disabilities:** Rehabilitation measures includes physical rehabilitation, educational rehabilitation, and economic rehabilitation.
- **Children with Disabilities:** Children with disabilities are the most vulnerable group and need special attention.
- **The Government would strive to:** Ensure right to care, protection and security for children with disabilities; ensure the right to development with dignity and equality creating an enabling environment where children can exercise their rights, enjoy equal opportunities and full participation in accordance with various statutes.

- Ensure inclusion and effective access to education, health, vocational training along with specialized rehabilitation services to children with disabilities.
- Ensure the right to development as well as recognition of special needs and of care, and protection of children with severe disabilities.
- **Barrier-free environment:** The goal of barrier free design is to provide an environment that supports the independent functioning of individuals so that they can participate without assistance, in everyday activities.
- **Issue of Disability Certificates:** The Government of India has notified guidelines for evaluation of the disabilities and procedure for certification.
- The Government will ensure that the persons with disabilities obtain the disability certificates without any difficulty in the shortest possible time by adoption of simple, transparent and client friendly procedures.


Topic 38. A ROAD SAFETY QUARTET AND THE ROAD AHEAD

Important for subject: Polity

What are the new findings on road safety published in the Lancet?

Preventive Interventions
A new analytical series on road safety worldwide, published by The Lancet, proposes that India and other countries could cut accident-related deaths by 25 to 40% based on evidence that preventive interventions produce good outcomes when applied to four well-known risk factors — high speed, driving under the influence of alcohol, not using proper helmets, not wearing seatbelts and not using child restraints

Maximum Burden
Low and Middle Income Countries (LMIC) bear the maximum burden of road fatalities and injuries, with high economic costs — an average of three to five per cent of GDP — suffered by these countries in 2014.



Lack of Uniformity
India amended its law on motor vehicles in 2019, but its implementation by State governments is not uniform or complete.

The United Nations is holding a high-level summit about Global Road Safety on June 30 and July 1 2022 to discuss the developments and issues.

- **Problems with road safety:** Globally, about 14 lakh people die each year in accidents on the road each year, and almost five crore are injured.
- The majority of those killed are cyclists, pedestrians as well as motorcyclists.

- Income Countries (LMIC) are the ones who bear the highest cost of road deaths and injuries, and have high economic costs, ranging from 3 to 5 percent of GDP.
- India and other countries may reduce the number of deaths due to accidents by 25-40 percent based on research that shows prevention-based interventions yield positive results.
- When it comes to four of the most well-known risk factors, high speed, driving while under intoxication, wearing proper helmets, not wearing seat belts or using child-proofing.
- A low emphasis is given to structural changes like improving the standards of engineering for road signs, roads and signals, as well as education for scientists involved in accident investigation and enhancing policing skills.
- The emphasis is not on the responsibility of government departments for the creation, design and maintaining road infrastructure.
- To increase road safety.
- **Results:** Positive user behaviour (slower traveling, wearing safety helmets and seat belts, and etc. -- can save lives.
- Structural issues that arise from urbanization and motorization that are not planned construction of highways without reconciling.
- Slow and sluggish traffic with a plethora of abandoned vehicles, frequent wrong-side-of-the-road driving, and the absence of police officers to supervise the vehicles and curbs.
- **Drunk driving:** Poor trauma care in non-urban centres contributes to the high mortality and disability rate.
- Improved engineering and enforcement could reduce fatalities easily.
- **Motor Vehicle (Amendment) Act 2019:** 2019 makes amendments of the Motor Vehicle Act, 1988 and introduces some new traffic regulations for road safety.
- Compensation for victims of road accidents.
- The government of the central region will devise a program to provide cashless assistance to road accident victims during the golden hour.
- The Act defines the golden hour as the period that lasts up to an hour after a trauma in which the probability of preventing death by immediate medical attention is the greatest.
- The Act increases the amount of minimum payment for hit-and-run cases by:

- In the event of death between Rs 25,000 and two lakh rupees.
- **In the event of serious injuries, from in the event of a serious injury, from Insurance compulsory:** The Act mandates that the government of India establish an Motor Vehicle Accident Fund, to offer compulsory insurance coverage to all road users throughout India.
- **Good Samaritans:** The Act defines the term "good Samaritan," which refers to a person who offers emergency medical or non-medical aid to a victim on the scene of an accident.
- **Recall of vehicles** The Act permits authorities at the federal level to issue an order recall of motor vehicles in the event that an issue with the vehicle could cause harm to the surrounding environment, the driver or other road users.
- **National Transportation Policy:** The central government can come up with a National Transportation Policy, in concert with the state governments.
- **Road Safety Board:** The Act establishes the establishment of a National Road Safety Board, to be established through the federal government by an announcement.
- The Board will provide advice to the state and federal government on the various aspects related to traffic safety and road safety

Topic 39. NIGERIA'S LATEST LITHIUM FIND: SOME KEY QUESTIONS

ANSWERED

Important for subject: Geography



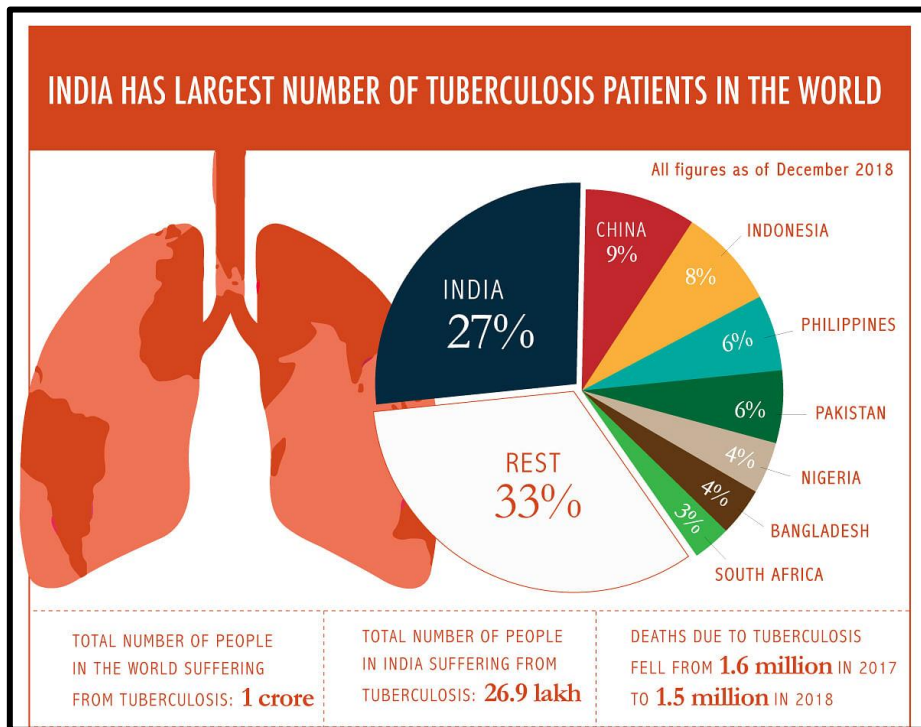
The Geological Agency described the lithium as high-grade because what's discovered has a 1-13 percent oxide amount.

- Normally, exploration starts with levels as low as 0.4 percent. Grade (in percent) is an indicator of the concentration of lithium within the minerals or rocks that contain it.
- So, the more expensive the grade, the better it is economically viable.
- The higher grades are extremely uncommon for lithium-containing metals.
- Lithium is a metal mineral which is highly sought-after in manufacturing industries.
- In the past, the majority of lithium demand was divided into glasses and ceramics (35 percent) and metallurgical powders, greases, polymers and other applications in the industrial sector (over 35 percent).
- The lower than 30 percent was spent on batteries.
- By 2030, however batteries will be responsible for a quarter of demand.
- Lithium-ion batteries tend to be more expensive, but they offer superior performance and are now the most popular technology.
- **The different types are:** Lithium-cobalt oxide battery.
- It is being used in consumer electronics and is gaining applications in electric vehicles.
- It's fairly inexpensive.
- Lithium-nickel-manganese-cobalt is a newer, higher performing range of battery chemistry.
- It was designed for the electronic car market, but is gaining greater use due to its growing cost efficiency.
- Lithium iron phosphate is the most secure technology that has good performance, but a bit expensive.
- It is very popular in China but is likely to become overtaken by Lithium-nickel-manganese-cobalt over the longer term; and Lithium-nickel-cobalt-aluminium oxide developed to reduce cobalt consumption and is known as a solid performer and of reasonable cost.
- It's also becoming popular in other countries, including China.
- Greenbushes mine is located in Western Australia is the largest hard-rock lithium mine in the world.
- Lithium and most lithium minerals are mined along with other high-value metallic minerals such as tin, niobium-tantalum (columbite-tantalite) and uranium (in pyrochlore).

- In Nigeria the lithium-containing minerals (spodumene as well as lepidolite) are believed to be related to columbite, cassiterite (coltan) and other minerals in the vast belt of rare metal-bearing rocks kinds known as pegmatite.

Topic 40. TB IN INDIA

Important for subject: Schemes



Tuberculosis (TB) is caused by bacteria *Mycobacterium tuberculosis* which tends to cause lung infections.

- Tuberculosis can be treated and prevented.
- The spread of TB can be spread from one person to person via the process of the lung disease cough, cough, or expel spit, they push the TB-causing bacteria into air.
- One-quarter of the globe's population is suffering from latent TB This means that people are infected with TB bacteria, but aren't yet suffering from the disease and are not able to transmit the disease.
- People with weak immune systems, like those suffering from HIV malnutrition, diabetes or and those who smoke cigarettes, are at a greater chance of becoming ill.
- **WHO also TB:** WHO's post-2015 End TB Strategy, adopted by the World Health Assembly in 2014 and aims to stop the worldwide.
- TB epidemic in line with the newly-adopted Sustainable Development Goals.

- It is a model for countries to decrease TB incidence by 80percent, TB deaths by 90 percent, and reduce the devastating costs for TB-afflicted households in 2030.
- It is important to note that the Strategy is not a "one size is all" strategy, and its effectiveness is contingent on the ability to adapt to various country settings.
- India as well as TB India is the country with the highest prevalence of tuberculosis (TB) and multidrug-resistant (MDR) TB based on estimates published in the Global TB Report. Schemes
- The revised National TB Control Program RNTCP utilizes a World Health Organisation (WHO) Recommended Directly Observed Therapy Short Course (DOTS) strategy. It reaches over a billion people through 632 districts and reporting units.
- The RNTCP is accountable to implement plans for the Government of India five year TB National Strategic Plans.
- Through the RNTCP both the diagnosis and treatment of TB are available for free.
- **The original goals that were set by RNTCP in India were:** RNTCP in India were to reach and keep an TB treatment rate of at most 85 percent for new Sputum Positive (NSP) patients, and to maintain and achieve detection of at minimum 70 percent of the estimated individuals who are sputum positive for the first time within the community.
- Nikshay Poshan Yojana (NPY) A DBT scheme that provides nutritional support was launched in April 2018 by the Ministry of Health and Family Welfare (MOHFW), Government of India under the Revised National TB Control Programme (RNTCP).
- It offers support of Rs. 500 per month during the course of treatment for TB patients.
- National Strategic Plan (NSP) for Tuberculosis (2017-2025) with the aim of eliminating TB in 2025.
- **The main area of focus is:** Early diagnosis of all TB patients and prompt treatment using quality guaranteed drugs and treatment regimens together with appropriate support for patient's strategies to increase compliance.
- Engaging with patients seeking medical attention within the private health sector.
- Prevention strategies include active case detection and contact tracing for vulnerable populations with high risk of infection.
- Control of airborne infectious diseases.
- Multi-sectoral response for addressing social determinants.

PIONEER ACADEMY

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DADAR Address :
306/7/8, 3rd Flr., Blue Pearl Society, Senapati Bapat Road, Plot No. 14, Near
Janata Cloth Market, Near Dadar Railway Station, Dadar (W), Mumbai - 400 028
Mob : 93241 69627 / 91375 41508

ANDHERI



ANDHERI Address :
3rd Flr., Syndicate Chamber, Above Vaibhav Restaurant, Next to
Better Home Hotel, Opp. Andheri (E) - 400 601
Mob : 84518 55673 / 70302 92316

KALYAN



KALYAN Address:
2nd Flr., 2, Suyash Plaza, Opp. Railway Station, Near Deepak Hotel,
Kalyan (W) - 421 301
Mob.: 81691 40960

PIMPRI-CHINCHWAD



PIMPRI CHINCHWAD Address:
3rd Flr., Kunal Plaza, Mumbai Pune Road, Chinchwad Station,
Chinchwad, Pune - 411019
Mob.: 9975459324 / 9503459325

NERUL



NERUL ACADEMY
16, 20 & 21, 1st Flr., Om Surya complex, Opp. Nerul Railway station,
Beside Abhodaya Bank, Sector 15, Nerul (E), Navi Mumbai - 400707
Mob.: 93212 87241 / 93212 89027

BORIVALI



BORIVALI ACADEMY
313/314, 3rd Flr., V Star Plaza, Chandavarkar Rd., Near Saraswat Bank,
Sunder Nagar, Borivali (W), Mumbai - 400092
Mob.: 93212 49713 / 96533 04874

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