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SIMPLIFYING IAS EXAM PREPARATION

- IAS SELF STUDY GUIDE -

SECURE SYNOPSIS

MAINS **2019**

GS-III

MAY **2019**



NOTE: Please remember that following '*answers*' are *NOT* '*model answers*'. They are NOT synopsis too if we go by definition of the term. What we are providing is content that both meets demand of the question and at the same time gives you extra points in the form of background information.



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General Studies Paper - III

Topic: Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment. Inclusive growth and issues arising from it.

Q) Priority Sector Lending in Agriculture is often seen to be negatively correlated to the climatic conditions of a region. Critically analyse the statement in the backdrop of a recent move of the Banks that decided not to extend loans to regions hit by drought in India. (250 words)

The hindu

Why this question:

Recently Bank of Maharashtra, a state-run lender, has decided not to extend loans in eight zones in Maharashtra and Madhya Pradesh which are hit by drought. Thus it becomes necessary for us to analyse the correlation of droughts and priority sector lending in agriculture.

Key demand of the question:

Analyse in detail the negative correlation of climatic conditions of a region with that of lending by Banks to the farmers.

Directive word:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

In a few introductory lines explain the context of the question.

Body:

In brief discuss –

- Explain Priority Sector Lending (Agriculture)? – Priority Sector includes the following categories: (i) Agriculture, (ii) Micro, Small and Medium Enterprises, (iii) Export Credit, (iv) Education, (v) Housing, (vi) Social Infrastructure, (vii) Renewable Energy and (viii) Others. The activities covered under Agriculture are classified under three sub-categories viz. Farm credit, Agriculture infrastructure and Ancillary activities.
- Why Banks are defying the lending to drought hit regions? – Bad loans from agricultural advances in the branches of such zones, present pathetic condition of agriculture owing to water distress etc.
- Explain why is there a negative correlation? What are its impact ?
- What should be the remedial action?

Conclusion:

Conclude with what needs to be done to address the situation.

Introduction:

- Priority Sector Lending (PSL) is an important role given by the Reserve Bank of India (RBI) to the banks for providing a specified portion of the bank lending to few specific sectors like agriculture and allied activities, micro and small enterprises, poor people for housing, students for education and other low income groups and weaker sections. This is essentially meant for an all round development of the economy as opposed to focusing only on the financial sector.
- Recently Bank of Maharashtra, a state-run lender, has decided not to extend loans in eight zones in Maharashtra and Madhya Pradesh which are hit by drought.

Body:

Priority sector lending norms:

- Currently, all domestic and foreign banks with at least 20 branches are required to lend a minimum of 40 per cent of their total loans (Adjusted Net Bank Credit (ANBC) or credit equivalent amount of off-balance sheet exposure (whichever is higher)) to the priority sector (agriculture, micro enterprises, education, social housing, etc).



- They are also required to meet sub-targets, such as 18 per cent for agriculture (8 per cent for small and marginal farmers), 7.5 per cent for micro enterprises and 10 per cent for weaker sections.
- Those with less than 20 branches will also need to fulfil the overall PSL norms of 40% of adjusted net bank credit (ANBC) in a phased manner by 2020

PSL norms are often seen negatively by banks because:

- It diverts funds from the productive sectors, imposes economic burdens on the banks in the form of loan losses and payment defaults and also imposes opportunity costs of lending to non-priority sectors of the economy.
- These negative effects are increased transaction costs, increased NPAs and the decreased deposit mobilization. Since the subsidized nature of loans under the directed credit forces the banks to pay lower interest rates on deposits, this makes the deposits a less attractive avenue for the people which ultimately impact the banks.
- **Agriculture and credit risk:**
 - Problem with priority sector loans is the lack of understanding of the sub-sectoral target groups, especially agriculture and the small and medium sector, as also weaker sections.
 - Further, given the vagaries of the monsoon that agriculture is susceptible to and the undiversified risk portfolios in such rural areas, the credit risks for such banks from such PSL would be extremely high.
 - The guidelines for agricultural credit and lending to weaker sections are extremely complex the commercial banks may not be the best equipped to handle beneficiary identification, credit risk assessment and loan disbursement to these sectors.
 - Same would be the case for PSL to the micro, small and medium enterprise (MSME) sector. The sector, with its unorganized operations and lack of proper accounting records and financial statements, poses higher costs and greater risks in credit disbursement.

PSL norms are needed because:

- Those who are directly affected comprises of mainly weaker sections of society like farmers and small scale industries.
- PSL was created to ensure support for sectors of the economy that do not receive adequate credit or support from financial institutions due to questions of profitability.
- It is also claimed that PSL results in social returns and improved lending portfolios of the banks.
- The directed lending promotes social equity and facilitates increase in employment and investment in less developed regions and the vulnerable sections of the society.
- Average PSL ratio overall is well above the target over the entire period, with some degree of variation. However, the average lending to agriculture and weaker sections is much below the RBI target. All banks have defaulted on their sub-sectoral targets, especially that of 18% for agriculture, in most years.
- Priority sector loans have contributed far less to the gross non-performing assets (NPAs) .priority sector lending may not be responsible for compromising banks' credit risk minimization strategies, or risk accumulation.
- Removal of existing loan limits of up to ₹5 crore to micro and small units and up to ₹10 crore to medium enterprises, will help banks make good the shortfall in MSME loans that qualify as priority sector lending.

Way forward:

- Banks should be allowed to choose the category they wish to lend to. Foreign banks may then choose to lend in the form of export credit rather than to agriculture.
- Creation of a development finance institution that would provide a mix of grants and loans to under-served sectors and geographies.
- The new institution can raise capital from commercial banks through existing innovative instruments like the PSL certificates, specify minimum sectoral disbursement targets and choose projects based on independent risk assessment and intended outcomes.
- This will support the policy objectives of increased credit and reduce systemic risk, making PSL work in the long run
- Similarly, private sector banks may choose to lend housing credit in urban areas, rather than being forced to lend agricultural finance.
- The government may rely on specialized institutions such as the National Bank for Agriculture and Rural Development (NABARD) to fulfil sectoral lending targets, while at the same time ensuring structural reforms in these sectors to make lending to them more viable.



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Q) What do you understand by currency swap ? Discuss the pros and cons of currency swap and explain how it acts as a tool for quantitative easing of the Indian economy ? (250 words)

[Livemint](#)

Why this question:

The question is in the light of recent move of RBI of the currency swap. The article discusses in detail as to how the central bank is using swaps as an indirect tool to loosen monetary policy, and in what ways it could result in an inflationary spurt later.

Key demand of the question:

The answer must provide for a detailed narration of the concept of currency swap, pros and cons and how it functions as a tool of quantitative easing with reference to the recent step taken by Reserve bank of India.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

Shortly narrate the context of the question.

Body:

Answers must discuss the following aspects :

- In brief define what you understand by currency swap – A currency swap between two countries is an agreement or contract to exchange currencies (of the two countries or any hard currency) with predetermined terms and conditions. Often the popular form of currency swap is between two central banks
- How does currency swap between countries work? – A currency swap is similar to an interest rate swap, except that in a currency swap, there is often an exchange of principal, while in an interest rate swap, the principal does not change hands. In currency swap, on the trade date, the counter parties exchange notional amounts in the two currencies.
- What is the advantage of currency swap? – help mitigate the risk of unwanted interest rate fluctuations. For example, It may be more expensive to borrow in the United States than it is in Japan, or vice versa. In either circumstance, the domestic company has a competitive advantage in taking out loans from its home country. Its cost of capital is lower.
- Context of India's currency swap – Under the current swap auction, RBI will buy US dollars from banks totaling to \$5 billion. Minimum bid size would be \$25 million and in multiples of \$1 million thereafter.
- Discuss and list down the benefits and issues associated, take cues from the article.

Conclusion –

Conclude with way forward and state how the RBI's latest move is in line with its easy monetary policy stance.

Introduction:

- A bilateral currency swap is an **open-ended credit line from one country to another at a fixed exchange rate**. The country which avails itself of this loan pays interest to the country which provides it, at a benchmark interest rate such as the Libor (London Inter-bank rate).
- India has such arrangements with many Asian nations, but the arrangement with Japan is among the largest of such deals, valued at \$75 billion. The government hopes that this deal will act as a buffer to shore up the rupee, which has depreciated by 14 per cent against the dollar recently.

Body:

Pros of Currency Swap:

- The currency swap makes it easier to improve liquidity conditions.
- Currency swap agreements help in saving for a rainy day when the economy is not looking in good shape.
- The swap agreements also contribute towards stabilising the country's balance of payments (BoP) position.
- The agreement aids in improving confidence in the Indian market.
- The agreement will aid in bringing greater stability to foreign exchange and capital markets in India



- This facility will enable the agreed amount of foreign capital being available to India for use as and when need arises.
- Currency swaps can be done in multiple ways. If the amount that is being exchanged is fully exchanged when the transaction is initiated, at the maturity date the exchange is being reversed. The idea behind this is that in the meantime, until the maturity date, the market may reverse, thus the brokerage house managed the risk.

Cons of Currency Swap:

- There is one main disadvantage to currency swaps, and this is related to their original purpose.
- At first, they were agreements to get around exchange controls, but then after these barriers were eliminated, they are being used mainly to hedge investments.
- The risk when using a currency swap is that at the time the maturity is being reached, the floating interest rate would represent a bigger cost than the whole purpose of the swap. To mitigate this downside, longer term periods are favoured.

Currency Swap as a tool for quantitative easing:

- **Quantitative Easing** consists of large-scale asset purchases by central banks, usually of long-maturity government debt but also of private assets, such as corporate debt or asset-backed securities. Typically, QE occurs in unconventional circumstances, when short-term nominal interest rates are very low, zero or even negative.
- In recent times, the rupee has been falling against the dollar because of its widening current account deficit (the difference between imports and exports of goods and services).
- This leads to importers upping their demand for dollars far beyond what exporters bring into the country.
- While the RBI had amassed foreign currency reserves of over \$426 billion by April 2018, it has had to use up some of this in recent weeks to prop up the rupee.
- Though present forex reserves at over \$390 billion are still comfortable, having a \$75-billion loan-on-demand from Japan gives the RBI an additional buffer to fall back on, should it need extra dollars.
- The rupee has depreciated the most among Asian currencies amid emerging market volatility triggered by rising US interest rates, pricier crude, geopolitical concerns and intensifying protectionism and trade wars.
- It has fallen over 13% since start of 2018, having recovered from 74.48 to the dollar earlier this month to close at 73.41.
- The arrangement will be used only when required, and will help meet short-term liquidity mismatches.
- India has taken several steps to contain its current account deficit, which could swell to an estimated 2.8% of GDP, and is seen as the root cause of rupee volatility.

Conclusion:

- All in all, currency swaps present more advantages than disadvantages and forex brokers are using them as a valuable risk management tool. Used together with other risk management tools like hedging, they help forex brokers navigate through difficult financial periods.

Q) Despite issues concerning convergence, the WTO needs to be sustained as an international platform to formulate trade rules and bring convergence on divergent matters. Comment. (250 words)

[The hindu](#)

Why this question:

India is to host the second mini-ministerial meet of the World Trade Organization (WTO), on May 13-14, 2019. The article is in the backdrop of interests of developing and least developed countries in global trade.

Key demand of the question:

One is expected to analyse in detail the issues of convergence at the WTO between the developed and the developing countries. And what needs to be done to overcome it.

Directive word:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In a few introductory lines explain the background of the context of the question.

**Body:**

In brief discuss –

- Discuss the issues concerning WTO ? – investment facilitation, rules for e-commerce, gender equality and subsidy on fisheries etc.
- Explain why is there a deadlock between group of countries at the WTO?
- Discuss the need for negotiating these issues in a convergent manner.
- Take hints from the article and form a balanced opinion on the issue.

Conclusion:

Conclude that the WTO needs to be sustained as countries need an international platform to formulate trade rules and bring convergence on divergent matters.

Introduction:

- India will host the second mini-ministerial meet of the World Trade Organisation (WTO), on May 13-14, 2019. To discuss the interests of developing and least developed countries in global trade, this informal meet will also focus on the accusation by the U.S. that these economies benefit from exemptions meant for the poorer nations.

Body:**The issues concerning WTO:**

- **WTO is facing existential crisis** during a time when developed economies have adopted protectionist attitude.
- Inability of WTO to bring together the developed and developing countries to build consensus on Doha Agenda.
- Growing tension between developing countries who want to address “legacy issues” and inequalities, and developed countries move to new issues like e-commerce and investment facilitation
- **Agreement on Agriculture:**
 - The disagreements between developed countries (the European Union and the U.S.) and developing countries (Malaysia, Brazil and India) to discipline the farm regime in their favour continue, thereby threatening the WTO’s comprehensive development agenda.
 - At the 11th Ministerial Conference of WTO, the US blocked a permanent solution on government stockholding for food security purposes, India and developing countries toughened its stand on new issues including e-commerce and investment facilitation for digital trade.
- **Politicisation of the Appellate Body appointment and reappointment process:**
 - The quasi-attribution of permanent Appellate Body seats to the U.S. and the European Union (EU).
- **The “Overreaching” or judicial activism of United States:**
 - USA has systematically blocked the filling of vacancies for ‘judges’ to the seven-member AB, it has acutely affected the functioning of the body, even as disputes continue to pile up.
 - The US stand will **adversely affect the development interest of the developing world.**
 - At the **Buenos Aires**, the developed countries led by the US and the European Union formed **groups on e-commerce, investment facilitation and MSMEs** within the WTO with more than 70 members in each group.
- **Non-tariff Barriers:**
 - Developed countries design and implement stringent non-tariff measures (NTMs) which exacerbate the problems faced by poor countries that are willing to export. NTMs significantly add to the cost of trading.
 - However, the costs of acquiescence with many NTMs are asymmetrical across exporters because compliance depends on production facilities, technical know-how and infrastructure — factors that are usually inadequate in developing economies.
 - These countries are, therefore, unable to compete in international markets and hardly gain from sectors with comparative advantage such as agriculture, textiles and apparels.
- **Trade:**
 - There is a trade war between US and China despite both being a member of WTO. This negates the core non-discriminatory principle of WTO.
 - US and China have imposed counter-productive duties, accusing each other of harming their domestic interests. WTO has not been able to prevent the trade wars despite best efforts and has been labelled as a talk shop.



The need for negotiating these issues in a convergent manner:

- Multilateral agreements within the WTO framework have far-reaching implications on global trade unlike bilateral deals.
- The economies of the developing and less developed world (with little bargaining power) were unable to gain market access in most of the developed economies (which were influential in negotiations), especially when it came to agricultural commodities.
- Outside the WTO system, weaker countries will be disadvantaged.
- Regionalism cannot be an alternative. Regional trade groups have succeeded in some places and they have not elsewhere.
- India's own experience with bilateral trade agreements has not always been good.
- The world therefore benefits from a multilateral trade body –though a fairer one than the WTO of the 1990's.
- A weakened EU and Britain need a robust multilateral system

Way forward:

- WTO needs to reinvent itself, focusing on issues where consensus can be built.
- WTO needs to strengthen the dispute settlement mechanism as there are issues in appointment of judges in new appellate body.
- WTO needs to enhance discussion mechanism by introducing wider consultations. It has been a long-standing complaint by the smaller participants that the consultations or decision making is limited to the green room of DG of WTO.
- There is a need of free trade is required more by developing countries like India than developed countries.
- There is need for the structural reform in the WTO functioning as multilateral trading system. Despite WTO being a democratic organization, there is a need to make it more effective in protecting the interests of small nations against stronger countries.
- Transforming the global trading system WTO so that it could promote shared prosperity among all the countries.
- The much wanted need around the world is structural transformation which is a jobs-and-development-focused digital industrialisation strategy
- Development and inclusiveness must remain at the heart of WTO's work.

Conclusion:

- **The Delhi meeting** can be a breakthrough if members negotiate these issues in a convergent manner. The time is opportune for developing countries to voice their concerns and push for a stable and transparent environment for multilateral trade.
- India must do its homework to focus on the unresolved issues and address the newer ones which are of interest to developed nations, mainly investment facilitation.
- The WTO needs to be sustained as countries need an international platform to formulate trade rules and bring convergence on divergent matters.

Q) What do you understand by Banking correspondents? Highlight the advantages of Business/Banking correspondents with special reference to the role they can play in meeting the goal of financial inclusion. Also Discuss the issues being faced by them in the realization of financial inclusion. (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The Article highlights that the Business correspondents (BCs) operating in the Direct Benefit Transfer (DBT) scheme and other banking services are finding it tough to operate due to reduction in fees and unaffordability of the Aadhar enabled payment system (AEPS).

Key demand of the question:

The answer must provide for a detailed narration of who is a Business correspondents (BCs) in the Banking system? role played by BC in ensuring financial inclusion of all sections of the society.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer

Introduction:

write a few introductory lines about the banking/Business correspondent.

Body:

Answers must discuss the following aspects :

- Who are they? Business correspondents are retail agents engaged by banks for providing services at locations other than a bank branch or an ATM.
- Permitted services include: identification of borrowers, collection and preliminary processing of loan applications, collection of small value deposit, disbursement of small value credit, sale of micro insurance, MF products and pension products.
- History: In 2006, RBI issued guidelines for engagement of BCs by banks for providing banking and financial services.
- Who can act as BCs? The RBI has provided a long list of entities and persons who can act as BCs.
 - Some of these are NGOs/ MFIs set up under Indian Societies/ Trust Acts (excluding non banking financial companies (NBFCs)), Societies registered under mutually aided co-op. societies (MACs) Act or the Coop. Acts of States, Section 25 companies, Post Offices, Individual kirana/ medical/fair price shop owners etc.
 - In June 2018, Union government announced that all 2.9 lakh common service centres (CSCs) in the country will operate as business correspondents of banks.

Conclusion –

Conclude with way forward.

Introduction:

- Banking Correspondents (BCs) are individuals/entities engaged by a bank in India (commercial banks, Regional Rural Banks (RRBs) and Local Area Banks (LABs)) for providing banking services in unbanked / under-banked geographical territories. A banking correspondent works as an agent of the bank and substitutes for the brick and mortar branch of the bank. He is an approved bank agent providing basic banking service using a micro ATM.

Body:

BCs and Financial Inclusion:

- identification of borrowers;
- collection and preliminary processing of loan applications including verification of primary information/data;
- creating awareness about savings and other products and education and advice on managing money and debt counselling;
- processing and submission of applications to banks;
- promoting, nurturing and monitoring of Self Help Groups/ Joint Liability Groups/Credit Groups/others;
- post-sanction monitoring;
- follow-up for recovery; disbursement of small value credit; recovery of principal / collection of interest
- collection of small value deposits
- sale of micro insurance/ mutual fund products/ pension products/ other third party products and
- Receipt and delivery of small value remittances/ other payment instruments.
- BCs lower the costs of serving the poor. They address many of the behavioural constraints believed to adversely affect savings.
- BCs, who reside in the vicinity of their clients and are often from the same community, can more easily address constraints specific to regions.
- Many of the poor who live in small villages at some distance from the larger villages and small towns in which bank branches are located can now access banking services with the help of BCs.

So far, more than 22 crore bank accounts have been opened under the scheme, utilizing a network of more than one lakh business correspondents (BCs). However, it is widely believed that many accounts were opened in response to political pressure on banks to achieve programme targets. Others may have been opened to avail of the insurance benefits that the accounts enabled or under the expectation that government transfers would require a savings account. As a consequence, duplicate accounts with zero balances represent a high percentage of the total accounts.



Issues faced by BCs:

- **Financial Viability:** The sustainability of the BC model is dependent on the volume of transactions. These volumes are extremely low and are also struggling to make a profit as the current commission structure is inadequate to cover agents' costs.
- **Cash Management and Liquidity:** The most prominent problems faced by the agents are related to cash management and liquidity issues. BCs typically transfer as much money to agents as the security deposit paid by them. However, there are typically large gaps between deposit and withdrawals due to location specific characteristics, such as rural areas being withdrawal heavy due to incoming remittances.
- **Operational Issues:** Agents have reported issues with the base branch claiming branch officials restrict agents to opening only 5 accounts per day and even simple requests to display account numbers on cards given to clients take months to be processed. Technical glitches faced by agents also hinder BC work, ranging from improper functioning of the bank server to other software glitches.
- **Agent inactivity and lack of knowledge about the product:** Clients complain that the agent in charge of collecting their deposits never visited them. In other areas accounts were opened but no agents were appointed for the clients. Poor services or lack of information about the account and its features as the primary reason for inactivity.
- **Standardization and Documentation:** There is a lack of systematic documentation of processes that all agents should follow irrespective of the BC and/or principal bank that they operate with

Way forward:

- There should also be greater clarity with regards to the **cost sharing for cash management** and associated risks between the banks and BCs.
- Banks should be encouraged to let their BCs offer a more diverse product mix to increase revenue. If possible, utility bill payment facilities and other value added linkages should also be introduced along with Non-frill Accounts.
- **A certain level of financial literacy** is necessary to make this model a success. The government, the RBI and principal banks should spearhead the implementation in order to make the BC model profitable.
- The RBI and principal banks should invest time and effort in **promoting** the BC model and its benefits. The RBI should also place a greater effort and emphasis on building acceptance of the BC model amongst its prospective account holders.
- **Standardization** would build a uniformity of roles and responsibilities among agents.

Conclusion:

- Apex institutions such as the RBI and principal banks need to set guidelines to promote risk-sharing between BCs and banks, which is the basis of most of the current issues brought up in this post. The RBI must acknowledge that this model is sustainable, but only in the long run with mass penetration and high transaction volumes.

Q) What are NBFCs ? How are they different from banks ? Discuss their financial activities and the issues currently being faced by the Indian NBFCs. (250 words)

[Livemint](https://www.insightsias.com/livemint)

Why this question:

The article highlights the ripple effect of the NBFCs crisis on the Indian economy. Non-banking financial companies (NBFCs) are facing a crisis, particularly the smaller ones that are struggling with asset-liability mismatch amid corporate governance issues. Thus, it is important for us to ponder on the topic from exam point of view.

Key demand of the question:

The answer must provide for a detailed discussion on what are NBFCs, their role and activities in the economy, what are the issues currently they are facing and what needs to be done to resolve it.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer

Introduction:

write a few introductory lines defining what are NBFCs – is a Company that offers financial assistance and other banking services without actually being a bank. It is a Company registered under the Companies Act, 1956.

Body:

Answers must discuss the following aspects:

- What are the characteristics of NBFC? How are they different from Banks?
- Business they undertake? – Loans and advances, Acquisition of shares/stocks/bonds/debentures/securities, Leasing, Hire-purchase, Insurance business, and Chit business.
- Further, Companies whose primary business constitutes receiving deposits either in instalments or lump sum in any manner are also deemed as NBFCs. However, NBFCs exclude institutions engaged in the following kinds of business: Agriculture activity, Industrial activity, Purchase or sale of any goods (other than securities) or Providing any services and sale/purchase/construction of immovable property.
- Discuss How are NBFCs different from banks?
- Then move on to discussing the problems of the NBFCs – asset-liability mismatch amid corporate governance issues, NBFCs had borrowed short term from banks and mutual funds while lending to developers of long-term projects, which got held up because of various factors, willful corporate defaulters etc.
- Suggest solutions – take cues from the article.

Conclusion –

Conclude with way forward.

Introduction:

- A **Non-Banking Financial Company (NBFC)** is a company registered under the **Companies Act, 1956** engaged in the business of loans and advances, acquisition of shares/ stocks/ bonds/ debentures/ securities issued by Government or local authority or other marketable securities of a like nature, leasing, hire-purchase, insurance business, chit business.
- However, it does not include any institution whose principal business is that of agriculture activity, industrial activity, purchase or sale of any goods (other than securities) or providing any services and sale/purchase/construction of immovable property.

Body:

Comparison between NBFC and Banks:

NBFCs lend and make investments, and hence their activities are similar to that of banks; however, there are a few differences as given below:

- NBFC cannot accept demand deposits;
- NBFCs do not form part of the payment and settlement system and cannot issue cheques drawn on itself.
- Deposit insurance facility of Deposit Insurance and Credit Guarantee Corporation is not available to depositors of NBFCs, unlike in case of banks.
- Unlike Banks which are regulated by the RBI, the NBFCs are regulated by multiple regulators; Insurance Companies- IRDA, Merchant Banks- SEBI, Micro Finance Institutions- State Government, RBI and NABARD.
- The norm of Public Sector Lending does not apply to NBFCs.
- The Cash Reserve Requirement also does not apply to NBFCs.

Role of NBFC in Indian economy:

- **Profitability :**
 - NBFCs are more profitable than the banking sector because of lower costs. This helps them offer cheaper loans to customers. As a result, NBFCs' credit growth is higher than that of the banking sector with more customers opting for NBFCs.



- **Infrastructure Lending :**
 - NBFCs contribute largely to the economy by lending to infrastructure projects, which are very important to a developing country like India. Since they require large amount of funds, and earn profits only over a longer time-frame, these are riskier projects and deters banks from lending
- **Promoting inclusive growth :**
 - NBFCs cater to a wide variety of customers both in urban and rural areas. They finance projects of small-scale companies, which is important for the growth in rural areas. They also provide small-ticket loans for affordable housing projects. All these help promote inclusive growth in the country.
- **Variety of sectors:**
 - NBFCs are beginning to meet the consequent unmet demand for credit across a variety of sectors and ensuring continuing credit flows to the real economy.
- NBFCs have been maintaining low net NPA ratios of 3.5% unlike their banking sector counterparts.
- NBFCs have been found to be relatively more resilient to stress applied for credit risk as observed by the RBI in its financial stability reports of the past two years. NBFCs, even under severe stress conditions, continued to remain stable.
- NBFCs have been able to complement the credit intermediation by banks by serving regions, sectors and customer segments that banks have either been unable or unwilling to serve profitably.
- NBFCs often take lead role in providing innovative financial services to Micro, Small, and Medium Enterprises (MSMEs) most suitable to their business requirements.
- NBFCs do play a critical role in participating in the development of an economy by providing a fillip to transportation, employment generation, wealth creation, bank credit in rural segments and to support financially weaker sections of the society.
- Emergency services like financial assistance and guidance is also provided to the customers in the matters pertaining to insurance.

NBFC's aid economic development in the following ways

- Mobilization of Resources – It converts savings into investments
- Capital Formation – Aids to increase capital stock of a company
- Provision of Long-term Credit and specialised Credit
- Aid in Employment Generation
- Help in development of Financial Markets
- Helps in Attracting Foreign Grants
- Helps in Breaking Vicious Circle of Poverty by serving as government's instrument

Issues faced by NBFCs:

- NBFC is passing through a turbulent period following a series of defaults by Infrastructure Leasing and Financial Services (IL&FS) and the subsequent liquidity crunch.
- Several corporates, mutual funds and insurance companies had invested in short-term instruments such as commercial papers (CPs) and non-convertible debentures (NCDs) of the IL&FS group that has been defaulting on payments since August.
- This has stoked fears that many of them could have funds stuck in IL&FS debt instruments which, in turn could lead to a liquidity crunch in their own backyard.
- There are rising fears that the funding cost for NBFCs will zoom and result in a sharp decline in their margins.
- Higher borrowing costs and narrowing options to raise funds will pose challenges for retail non banking finance companies (NBFCs) in the fiscal year ending March 2019 .
- The bond yields have gone up sharply to around the 8% mark. That is making borrowing costlier even at the short end of the yield curve.
- NBFCs are likely to witness higher pricing pressure as competition in the retail segment intensifies going forward this is expected to be accentuated by narrowing funding avenues and higher systemic rates.
- Higher fuel prices, weaker dollar and the trade war could hit the SME sector badly. This would mean defaults by SMES, which have been a traditional market for NBFC lending.
- Investors are worried about a credit downgrade backlash on NBFCs. That could mean huge write-offs for investors.
- Mutual funds who have invested in market instruments of NBFCs have faced increased redemption pressures.

**Way forward:**

- Given the growing size and dominance of the NBFC sector, it is important that the threshold capital levels for entry be substantially increased. It may be prudent for RBI to evaluate the need to shore up minimum capital requirements for various NBFCs.
- While RBI has identified systemically important NBFCs, it needs to step up the monitoring of NBFCs which belong to large, diversified groups. Checks and balances are needed to ensure that risks do not build up in the sector due to structures which are too-complex-to-manage.
- RBI could consider re-visiting some of the unimplemented recommendations of the Working Group on Issues and Concerns in the NBFC Sector chaired by Usha Thorat in 2011.
- One such recommendation was the introduction of a liquidity coverage ratio for NBFCs. The objective was to ensure that NBFCs have cash balances and holdings of government securities which may fully cover gaps between cumulative outflows and cumulative inflows for the first 30 days. This would be the buffer in times of stress.

Q) What are key functions and Principles of Budgeting in India? How far has India evolved in refining its budgetary processes? Elucidate. (250 words)

Indian Polity by Lakshmikanth

Why this question:

The question is straightforward and aims to analyse the evolution of budgetary process in India and functions and key principles of budgeting in India.

Key demand of the question:

Analyse in detail the key functions and Principles of Budgeting in India and its evolution.

Directive word:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In a few introductory lines comment on the significance and uniqueness of the Budgetary process in India.

Body:

In brief discuss –

- Discuss the historical evolution of budgetary process in India since the British times.
- Discuss the key functions of a government budget – Public Policy Document, Instrument of Economic Development, public policy document, Instrument of Budgetary Control, Instrument of Accountability etc.
- What are the important principles like – principle of annularity, rule of lapse, fiscal discipline, inclusiveness, accuracy etc.
- Reassert the significance in development and growth of the country

Conclusion:

Conclude with reassertion of importance of such processes.

Introduction:

- A budget is a statement containing a forecast of revenues and expenditures for a period of time, usually a year. It is a comprehensive plan of action designed to achieve the policy objectives set by the government for the coming year. Under **Article 112** of the Indian Constitution, a statement of estimated receipts and expenditure of the government of India has to be laid before parliament in respect of every financial year which runs from 1st April to 31st March.

Body:

Key functions of Budgeting in India:

- **Forecasting:** this entails making a calculated attempt into knowing what the future holds. Forecasting may not be perfect as evidence has shown but it is better to have a forecast to work with than not having any as this will help you get prepared.
- **Planning:** planning depends on forecast that has been made in the past to make decision about the future. The estimated data generated by forecasting are used to make plans. Government agencies, for example



health authorities use forecast from estimated population to plan on the number of health centers to open in a community and the number of beds and other health equipment that will be put in that hospital.

- **Management:** Budgeting is an executive or managerial function. As an effective tool of management, budgeting involves planning, coordination, control, evaluation, reporting and review. Many of the budgetary innovations such as: functional classification, performance measurement through norms and standards, accounting classification to correspond to functional classification, costing and performance audit and use of quantitative techniques.
- **Control:** Control essentially implies a hierarchy of responsibility, embracing the entire range of executive agencies, for the money collected and expenditure, within the framework of overall accountability to the legislature. In a democracy, control assumes new dimensions and gives rise to exceedingly difficult problems.
- **Public Policy Document:** The budget serves as a public policy document expressed in money and is an embodiment of implied policy objective in monetary terms.
- **Redistribution of Wealth:** The most important function of budget is redistribution of wealth. However, that needs proper integration of revenue and expenditure side.
- **Instrument of accountability:** Budget is an instrument to make elected legislators accountable to people. It also upholds the economic, social and cultural rights of the people.

Principles of Budgeting in India:

- **Principle of Annuality:** This implies that a budget is prepared every year on annual basis. Annuality in budget formation is a widespread phenomena. In some countries of OECD, yearly budgets are now framed within a multi-year framework.
- **Rule of Lapse:** Principle of Annuality also implies that the money left unspent in a year must also lapse to the public treasury and government should not be able to spend it unless it is re-sanctioned in next year's budget. This is called Rule of Lapse and is useful as an effective tool of financial control.
- **Fiscal Discipline:** Budget should be balanced and should be able to display congruence between the income and expenditure. This is known as Fiscal Discipline and it adheres to the Keynesian School of Thought. Fiscal discipline helps to eliminate fiscal deficits and offset fiscal surplus.
- **Inclusiveness:** Budget should be comprehensive and inclusive of diverse budget estimates. An inclusive budget includes all government revenue and expenditures and helps evaluating the much required trade-offs between different policy options.
- **Accuracy:** Budget figures are essentially predictions of the amount of money to be generated in the forthcoming year and its expenditure.
- **Transparency and Accountability:** Budget transparency and accountability are two of the eight basic indicators of good governance as propounded by United Nations.

Evolution of Budgeting:

- Broadly, the evolution of budgeting has passed through three stages.
- Firstly, the budgeting system was a sub-system of the British administration. The financial objectives were subordinate to the limited objectives of the colonial power. Control of expenditure and accountability were the hallmarks of this period.
- Secondly, with the attainment of Independence, the developmental priorities of the nation superseded the limited objectives of the British Raj.
- In the third phase, a planning- orientation has been sought to be imparted to the budgetary exercises.
- These three phases correspond to the systems known as **incremental budgeting, performance budgeting and zero base budgeting respectively.**

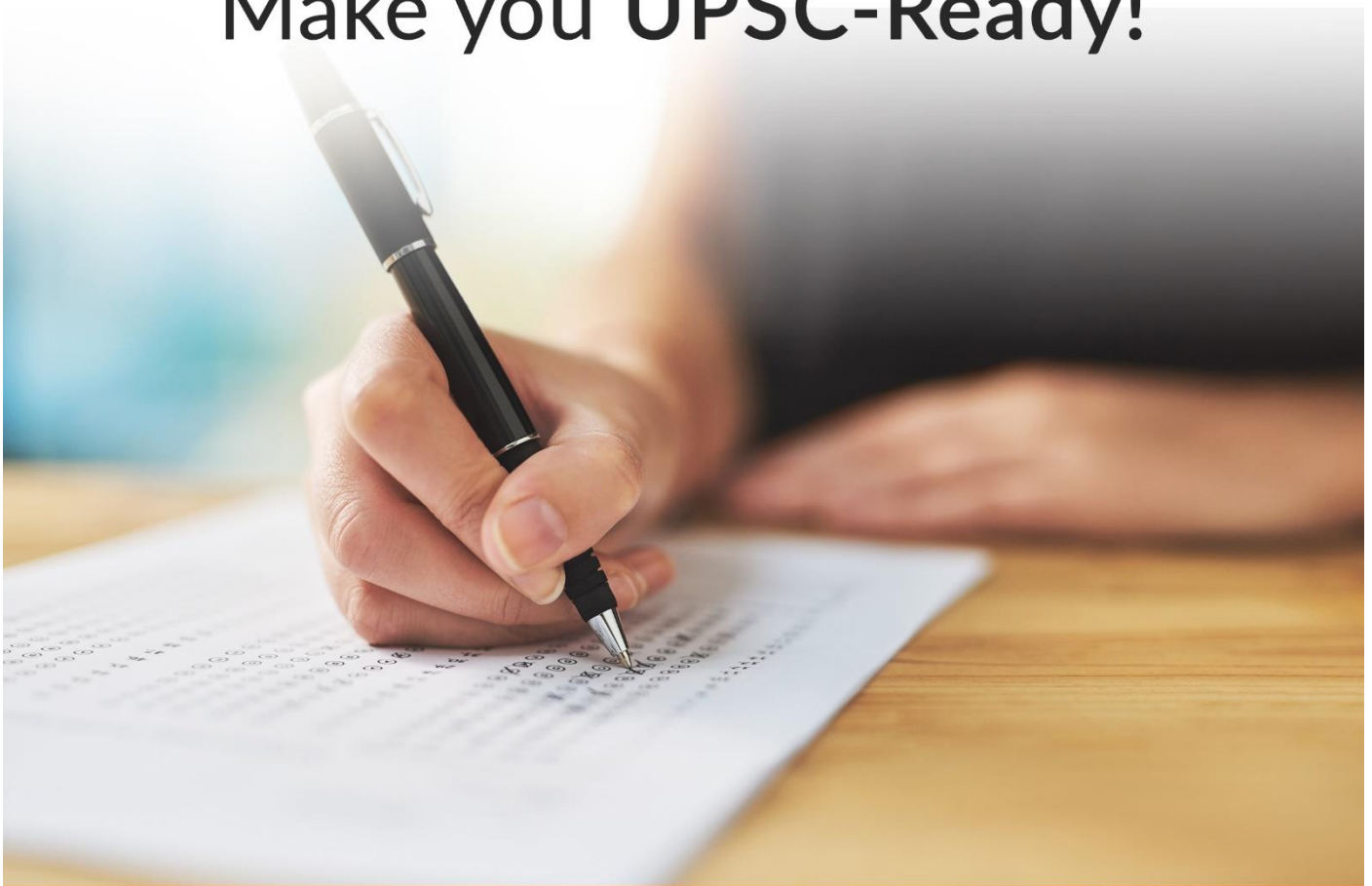
Conclusion:

- The budget is an expression of the government's public policy. It informs the public as to how the government plans to earn and sell. But, most importantly, the budget reflects the government's balance sheet. In a large democracy like India, budgets take on a life of their own as it has a widespread impact on numerous areas. Hence, it is imperative to have knowledge about what it stands for and its importance.



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Q) Why cannot an outgoing government present a full budget? Discuss the issues involved and need for clear guidelines on this also elaborate on the utility of an Interim budget in such a scenario. (250 words)

Indian Polity by Lakshmikanth

Why this question:

The question is to evaluate the method of Interim budget – its need, functionality and procedure. Also, one has to discuss the utility of Interim budget.

Key demand of the question:

Analyse in detail the features of an Interim budget, how is it different from a full budget? what are the nuances of it.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines explain that Conventionally, a government at the end of its term goes in for a vote on account rather than a full Budget. Therefore, the debate on the issue. While few favor the full budget, others oppose it on the ground that this is an election year and the government has already presented 5 full budgets.

Body:

In brief discuss –

- Discuss the procedure of budget – role of Article 266, 114 of the constitution.
- What is vote on account? Why is it presented?
- Interim budget? – An Interim Budget is not the same as a ‘Vote on Account’. While a ‘Vote on Account’ deals only with the expenditure side of the government’s budget, an Interim Budget is a complete set of accounts, including both expenditure and receipts. An Interim Budget gives the complete financial statement, very similar to a full Budget.
- Compare and contrast the full budget with that of an interim budget.
- Discuss measures/ solutions required in direction to resolve and overcome the present controversies.

Conclusion:

Conclude with what needs to be done, suggest way forward.

Introduction:

- Traditionally, in an election year, the outgoing government presents **an interim budget or so-called vote on account**. The interim budget, or Vote on Account, is only for three/four months before the new government presents a full-fledged budget in July.
- The outgoing government cannot present an economic survey, bring a finance Bill or introduce new services during in the interim budget and doing so will be unconstitutional. Although, several governments, including the Congress-led United Progressive Alliance in 2009, haven’t shied away from making policy pronouncements in interim budgets.

Body:

Issues involved in Budget during election year:

- The budget involves altering both taxes and outlays on schemes, this could influence the voters in an election year and goes against the principle of free and fair elections.
- **Constitutionally, the government can make tax changes in the interim budget.** However, the 12 interim budgets since Independence have respected the fact that the government is a custodian for a few months and have refrained from announcing big-ticket changes or new schemes
- With the general elections due, the ruling government would look at making available cheap loans and free accidental insurance to small businesses.
- While an incoming government has the freedom to change the estimates in the interim budget when it presents the final budget after taking office, outgoing governments in India have generally followed the convention of avoiding major policy announcements or taxation proposals in the interim budget.
- Going by recent history, however, interim budgets have been passed thrice since 2000.



- There is also the matter of the Presidential address to the Budget Session whereby the government makes its vision statement.
- If the budget proposes populist schemes, it will become difficult for the new government if it is led by another political party to withdraw these.

Utility of Interim Budget:

- The budget for the year approved by Parliament gives the government spending rights only till the end of the financial year ending March 31.
- If for any reason the government is not able to present a full budget before the financial year ends, it will need parliamentary authority for incurring expenditure in the new fiscal year until a full Budget is presented.
- Through the interim Budget, Parliament passes a vote-on-account that allows the government to meet the expenses of the administration until the new Parliament considers and passes the Budget for the whole year.
- In an election situation, the vote-on-account is usually for a four-month period.
- In an interim Budget, the vote-on-account seeks parliament's nod for incurring expenditure for part of a fiscal year.
- However, the estimates are presented for the entire year, as is the case with the regular Budget.
- However, the incoming government has full freedom to change the estimates completely when the final Budget is presented.

Conclusion:

- Thus, there needs to be proper codes laid down in the constitution regarding the kind of budget and the extent to which the government of the day use its power in the interim budget.

Q) Explain the concepts of budgetary deficit and fiscal deficit. (250 words)

Indian economy by Dutta and Sundaram

Why this question:

The question is from the static portions of GS – III paper and is intended to evaluate the concepts of budgetary deficit and fiscal deficit.

Key demand of the question:

Analyse in detail the concepts of budgetary deficit and fiscal deficit.

Directive word:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Provide for a brief introduction of the two concepts or highlight their significance.

Body:

In brief discuss –

- Definition of the two – budgetary deficit and fiscal deficit.
- What is difference between fiscal deficit and budget deficit? – Budgetary deficit is the difference between all receipts and expenses in both revenue and capital account of the government.
- A fiscal deficit occurs when a government's total expenditures exceed the revenue that it generates, excluding money from borrowings. Deficit differs from debt, which is an accumulation of yearly deficits.
- Discuss the significance of the two in the economy.

Conclusion:

Conclude by reasserting their significance.

Introduction:

- **Budgetary deficit** is the difference between all receipts and expenses in both revenue and capital account of the government and indicate the financial health of a country. A **fiscal deficit** occurs when a government's total expenditures exceed the revenue that it generates, excluding money from borrowings.

Body:

Budgetary deficit:

- The government generally uses the term budget deficit when referring to spending rather than businesses or individuals. Accrued deficits form national debt.



- A budget deficit happens when current expenses exceed the amount of income received through standard operations.
- Certain unanticipated events and policies may cause budget deficits.
- Countries can counter budget deficits by raising taxes and cutting spending.

Danger of Budget Deficits

- One of the primary dangers of a budget deficit is inflation, which is the continuous increase of price levels.
- Ultimately, a recession will occur, which represents a decline in economic activity that lasts for at least six months.
- Continued budget deficits can lead to inflationary monetary policies, year after year.

Strategies to Reduce Budget Deficits

- Countries can counter budget deficits by promoting economic growth through fiscal policies, such as reducing government spending and increasing taxes.
- For example, one strategy is to reduce regulations and lower corporate taxes to improve business confidence and increase Treasury inflows from taxes.
- A nation can print additional currency to cover payments on debts issuing securities, such as Treasury bills and bonds. While this provides a mechanism to make payments, it does carry the risk of devaluing the nation's currency, which can lead to hyperinflation.

Fiscal Deficit:

- The difference between total revenue and total expenditure of the government is termed as fiscal deficit.
- It is an indication of the total borrowings needed by the government.
- Generally fiscal deficit takes place either due to revenue deficit or a major hike in capital expenditure.
- Capital expenditure is incurred to create long-term assets such as factories, buildings and other development.

Challenges posed by Fiscal Deficit:

- It can mean that the Government is spending money on unproductive programmes which do not increase economic productivity. (For example MNREGA, most of the money is eaten midway by the Sarpanch and Local officers.)
- As government borrows from RBI which meets this demand by printing of more currency notes (called deficit financing), it results in circulation of more money. This may cause **inflationary pressure in the economy**.
- When Government keeps borrowing and borrowing to fill up the fiscal deficit pothole, then bond yield will increase. It is not good because more and more of taxpayers' money (i.e. Government 's incoming money) will go in repaying that bond interest rate rather than going into education or healthcare.
- Government may be compelled to borrow to finance even interest payment leading to emergence of a **vicious circle and debt trap**.
- Fiscal deficit "Crowds out" investment from private sector as Government borrows most of the cash.
- Borrowing is in fact financial burden on future generation to pay loan and interest amount which retards growth of economy.

Strategies to Reduce Fiscal Deficit:

- A deficit is usually financed through borrowing from either the central bank of the country or raising money from capital markets by issuing different instruments like treasury bills and bonds.
- A drastic reduction in expenditure on major subsidies. Reduction in expenditure on bonus, LTC, leaves encashment, etc. Austerity steps to curtail non-plan expenditure.
- Tax base should be broadened and concessions and reduction in taxes should be curtailed. Tax evasion should be effectively checked. More emphasis on direct taxes to increase revenue. Restructuring and sale of shares in public sector units.
- Famous economist John Maynard Keynes opined that deficits actually assist nations in climbing out of economic recessions.
- However, fiscal conservatives believe that deficits should be avoided by the government which should be inclined towards a balanced budget policy.

Conclusion:

- Thus, both the measures gives an indication of the health of the economy. It helps to guide the macro-economic policies of the Government for better usage of the public finances.



Q) Discuss in detail the crisis being faced by NBFCs in India? Suggest what measures need to be taken to resolve the same? (250 words)

[Indianexpress](#)

Why this question:

The article highlights the ripple effect of the NBFCs crisis on the Indian economy. Non-banking financial companies (NBFCs) are facing a crisis, it brings out the urgency with which RBI needs to urgently address the liquidity issues plaguing the NBFC sector.

Demand of the question:

The answer must explain what are NBFCs, their role and activities in the economy, what are the issues currently they are facing and what needs to be done to resolve it.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

The answer to the question is direct, one must explain in detail the issues being faced by NBFCs and what measures are needed to tackle the same.

The article captures both the dimensions, the students must take hints and structure the answer in detail.

Conclusion:

Conclude with what should be the way ahead.

Introduction:

- A **Non-Banking Financial Company (NBFC)** is a company registered under the **Companies Act, 1956** engaged in the business of loans and advances, acquisition of shares/ stocks/ bonds/ debentures/ securities issued by Government or local authority or other marketable securities of a like nature, leasing, hire-purchase, insurance business, chit business.
- However, it does not include any institution whose principal business is that of agriculture activity, industrial activity, purchase or sale of any goods (other than securities) or providing any services and sale/purchase/construction of immovable property.

Body:

How the NBFC crisis has panned out

Aug 2018: IL&FS crisis becomes public. With a debt of ₹91,000 crore, it defaults several times in Sep.

Sep: Crisis leads to sell-off in shares of several NBFCs. This leads to redemption pressure on many MF schemes.

Jan 2019: Essel Group's debt troubles become public. MFs and NBFCs enter into a "standstill agreement" with the promoter family to not sell the pledged shares of Zee Entertainment Enterprises.

Feb: Reliance group and its lenders and MFs enters into an Essel-like pact.

Apr: CARE Ratings downgrades debt programme of Reliance Capital and two of its arms, Reliance Commercial Finance and Reliance Home Finance.

May: Icra downgrades ratings on long-term bonds of Yes Bank with a negative outlook.

NBFC crisis:

- NBFC is passing through a turbulent period following a **series of defaults by Infrastructure Leasing and Financial Services (IL&FS)** and the **subsequent liquidity crunch**.
- Several corporates, mutual funds and insurance companies had invested in short-term instruments such as commercial papers (CPs) and non-convertible debentures (NCDs) of the IL&FS group that has been defaulting on payments since August.



- This has stoked fears that many of them could have funds stuck in IL&FS debt instruments which, in turn could lead to a liquidity crunch in their own backyard.
- There are rising fears that the funding cost for NBFCs will zoom and result in a sharp decline in their margins.
- Higher borrowing costs and narrowing options to raise funds will pose challenges for retail non banking finance companies (NBFCs) in the fiscal year ending March 2019.
- The bond yields have gone up sharply to around the 8% mark. That is making borrowing costlier even at the short end of the yield curve.
- NBFCs are likely to witness higher pricing pressure as competition in the retail segment intensifies going forward this is expected to be accentuated by narrowing funding avenues and higher systemic rates.
- Higher fuel prices, weaker dollar and the trade war could hit the SME sector badly. This would mean defaults by SMES, which have been a traditional market for NBFC lending.
- Investors are worried about a credit downgrade backlash on NBFCs. That could mean huge write-offs for investors.
- Mutual funds who have invested in market instruments of NBFCs have faced increased redemption pressures.
- A kind of contagion then spread to other financial stocks, and the benchmark indices crashed, creating wider impacts.
- Following the credit crunch after IL&FS crisis, RBI provided special incentives to banks to enable the flow of funds to NBFCs.

Way forward:

- Given the growing size and dominance of the NBFC sector, it is important that the threshold capital levels for entry be substantially increased. It may be prudent for RBI to evaluate the need to shore up minimum capital requirements for various NBFCs.
- While RBI has identified systemically important NBFCs, it needs to step up the monitoring of NBFCs which belong to large, diversified groups. Checks and balances are needed to ensure that risks do not build up in the sector due to structures which are too-complex-to-manage.
- RBI could consider re-visiting some of the unimplemented recommendations of the Working Group on Issues and Concerns in the NBFC Sector chaired by Usha Thorat in 2011.
- One such recommendation was the introduction of a liquidity coverage ratio for NBFCs. The objective was to ensure that NBFCs have cash balances and holdings of government securities which may fully cover gaps between cumulative outflows and cumulative inflows for the first 30 days. This would be the buffer in times of stress.

Q) What do you understand by Green New Deal (GND)? Evaluate its prospects for India's ailing economy. (250 words)

[livemint](https://www.insightsias.com/livemint)

Why this question:

The question is around the concept of Green new deal and the prospects it has for Indian economy.

Key demand of the question:

The answer must discuss what is the concept of GND, its prospects and way forward.

Directive word:

Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer

Introduction:

write a few introductory lines on the importance of such concept.

Body:

Answer should have the following dimensions covered:

- Discuss the concept of Green New Deal – It is a big, bold transformation of the economy to tackle the twin crises of inequality and climate change. It would mobilize vast public resources to help us transition from an economy built on exploitation and fossil fuels to one driven by dignified work and clean energy.
- Explain What is the Green New Deal proposal?
- Discuss how The Green New Deal could work in India too, allowing for a qualitative difference to the economy.



- Take hints from the article and discuss at depth.

Conclusion –

Conclude with significance and what should be the way forward.

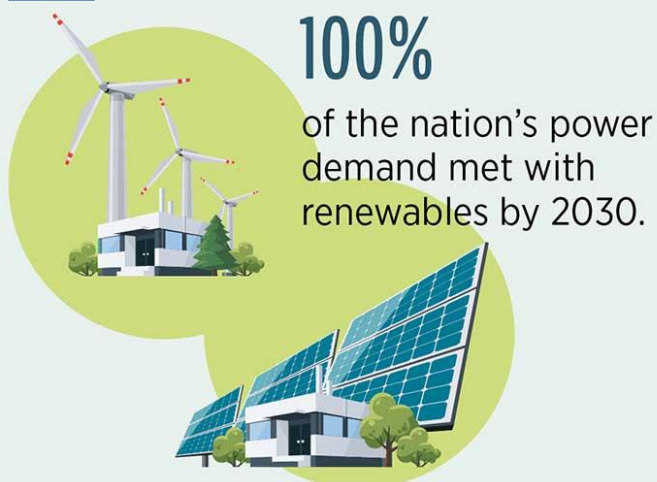
Introduction:

- Green New Deal (GND) is a set of **proposed economic stimulus programs in the United States that aim to address climate change and economic inequality**. The GND “is a four-part programme for moving America quickly out of crisis into a secure, sustainable future”.
- The name refers to the **New Deal, a set of social and economic reforms and public works projects** undertaken by President Franklin D. Roosevelt in response to the Great Depression. It combines **Roosevelt’s economic approach** with modern ideas such as **renewable energy and resource efficiency**.

What Is the Green New Deal?

A **45 percent** cut in carbon emissions by 2030 could keep global warming to **2.7°F**. Here’s how to save the planet and create jobs:

1 What works for the environment...



2 ...can also work for the economy.



THE Nation.

Sources: Data for Progress; IPCC
2018 Infographic: Tracy Matsue Loeffelholz

Body:

It includes **seven goals** previously introduced by Ocasio-Cortez:

- Shift 100 percent of national power generation to renewable sources.
- Build a national energy-efficient “smart” grid.
- Upgrade all buildings to become energy efficient.
- De-carbonize manufacturing and agricultural industries.
- De-carbonize, repair, and upgrade the nation’s infrastructure, especially transportation.
- Fund massive investment in the drawdown and capture of greenhouse gases.
- Adopting these goals would make “green” technology, industry, expertise, products, and services a major U.S. export.

GND and India:

- There are two main reasons why GND might find ready acceptance in India.
- One, it meets India’s push to reduce the country’s carbon footprint and stack up large capacities in renewable energy generation.
- Two, public sector’s importance in the GND blueprint aligns with ruling party’s social-democrat tilt in economic policy.



GND's prospects for India's ailing economy:

- GND might work in India too, with some modifications to fit in with Indian conditions.

The three main targets of GND stand out: **decarbonization** (accelerated electrification of vehicles is one way), **jobs creation** (which converts GND mainly into an economic transformation policy and less of an environment policy) and **protection for those hit hardest by the transition**.

- **Economic Impact:**
 - Businesses can create a profitable competitive advantage by adopting Green New Deal goals.
 - States have already set goals to become carbon-free.
 - The Green New Deal funds new jobs, including installing solar panels, retrofitting coastal infrastructure, and manufacturing electric vehicles. It asks for new trade rules to stop “the transfer of jobs and pollution overseas.”
 - It recognises that public funds would be needed for these changes and need to be leveraged.
- **Infrastructure:**
 - The resolution requires that any new infrastructure spending must address climate change.
 - It wants the government to push for more zero-emissions vehicles and invest in high-speed rail and other public transit.

Way forward:

- GND has found tremendous support among the youth in the US which has been participating in mass political action to not only push for legislation but to also shake up an inert political class in denial about global warming and climate change.
- A pan-US youth movement called the **Sunrise Movement** is trying to forge a consensus in the Democratic Party to support GND.
- Student politics in India motivates multiple voices to either immediately ask why students should get involved in politics, or provide unwarranted advice on how students should focus only on studies (actually exams) and not get distracted by politics.
- However, most college students are eligible to vote. Therefore, asking them to make a judgement call on politics at the municipal, state and national level but to block their political instincts once they enter the campus is asking for a compartmentalized personality.
- The political expression of issues that affect them, like global warming or climate change must be expressed.
- India needs its Sunrise moment.

Q) The problem with the Indian economy is not “jobless” growth. It is the inadequacy and instability of incomes for millions. Critically Analyse. (250 words)

[Livemint](#)

Why this question:

The article discusses in detail the prevailing conditions of poverty amidst election promises made by prime Minister Modi stating there will be only two castes now: those who are poor and those who want to free them from poverty.

Key demands of the question:

The answer must analyse why there is poverty in our country and in what way it is not about the jobless growth in the country but about the instability in the incomes of the people.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction

In a few introductory lines explain the conditions of poverty in the country.

Body

The body of the answer has to capture the following aspects:

- Discuss what you understand by jobless growth.
- How is it related to poverty in India?
- What makes Indian economy prone to jobless growth? what are the implications?



- How is it not about joblessness but about income instability?
- Take hints from the article to elaborate and conclude with significance.

Conclusion

Conclude with way forward.

Introduction:

- A significant percentage of India's poor are, in fact, employed even though they might not have regular jobs. With unemployment turning out to be a big challenge for the government currently, and rural areas in distress due to agriculture's all-time-low economic returns, India has started debating employment seriously.

Body:

- **Jobless growth:** In a jobless growth economy, unemployment remains stubbornly high even as the economy grows. This tends to happen when a relatively large number of people have lost their jobs, and the ensuing recovery is insufficient to absorb the unemployed, under-employed, and those first entering the workforce.

Jobless growth and poverty:

- Problem is, our discussions usually centre around two solutions: **create jobs through government spending on infrastructure and take up skill development that would offer some employability to the youth.** Add to it the disproportionate focus on economic growth leading to job creation. These strategies are age-old, and are not in sync with job market characteristics. We have a high youth unemployment rate, and those who are employed are not able to lead a decent life.
- 39 per cent of young workers in emerging and developing countries live in moderate and or extreme poverty. This means surviving on less than US \$3.10/day. Worse, in emerging and developing countries, 16.7 per cent of young workers live on income below the extreme poverty threshold of US \$1.90/day. (**Global Employment Trends for Youth 2018 by the International Labour Organization (ILO)**).
- In developing countries, **95 per cent of employed youth are in informal sectors.** In another discouraging trend, the ILO report says that youths are three times as likely as adults to be unemployed. "Globally, the ratio of youth to adult unemployment rates has changed very little in recent years, serving to illustrate the particularly disadvantaged situation of young people in the labour market."
- According to the **Fifth Annual Employment-Unemployment Survey, 2015-16**, with an increase in education levels across India, the unemployment rate has also risen in the age group of 18-29 years.
- India's employment is found primarily in informal sectors; a substantial percentage of it comes from daily wages in development projects and agriculture.
- Their earnings are uncertain, and with very little wealth to fall back on, they easily slip back into poverty. This is the plight of small farmers, small entrepreneurs and workers in the informal sector of India.

Measures needed:

- The most important is provision of **universal social security.** In a dynamic, market-based economy, in which enterprises will wax and wane and jobs will be insecure, citizens must have adequate social security to provide for various emergent requirements, especially breaks in income, health emergencies, and old-age pensions.
- The **political economy must be reformed** with stronger associations at the bottom, such as **collectives of small producers and unions of workers.**
- Collectives can provide resources that individual enterprises cannot afford, and associations and unions can give more bargaining power to people at the bottom to improve the terms of trade in their favour—the prices they get, and the wages they are paid.
- **Laws applying to small enterprises must be simplified** and their implementation made easier. The burden of complicated and badly administered regulations is highest for small enterprises.
- **Labour laws and regulations are necessary, and their content improved and implementation eased.** They must be reformed for faster and more inclusive growth.
- **Small enterprises provide more employment than large ones and will continue to provide most jobs and incomes in the economy.**
- Access to finance, access to markets, access to technology, fair prices, and reduction of harassment from authorities are their principal problems. They must be tackled.

Conclusion:

- Informal employment shouldn't be equated with non-job status. Rather, the strategy should be to maximise decent job creation in these sectors.
- When we talk about skill development, we usually don't consider the skills being employed in informal sectors by workers as legitimate skills. Instead, we tend to force them into a new set of skills that they have to start with afresh.



- This might lengthen the process of job creation and employment. To sum up, we need to think anew about the way we create jobs.

Q) “With the New government India needs a New Bombay Plan”. Elucidate. (250 words)

[Livemint](#)

Why this question:

The article is in the backdrop of the new government that has come into place and places the need for new Bombay plan for the Indian economy.

Key demand of the question:

The answer must discuss the relevance of Bombay plan for the present economy and the nuances of the same.

Directive word:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Begin with brief write up on what was Bombay plan

Body:

Discussion should include the following aspects –

- Explain what was Bombay plan? How is it relevant even today?
- Discuss its potential to change the direction of economic development in the country and how it also happens to be one that is worth emulating today.
- Explain why it is necessary for the new government to have a vision in this direction?

Conclusion:

Conclude with significance of such plans in bringing an overhaul in the economy of the country.

Introduction:

- The Bombay Plan is the name commonly given to a World War II-era set of proposals the development of the post-independence economy of India. The plan, published in 1944/1945 by eight leading Indian industrialists. It proposed state intervention in the economic development of the nation after independence. A key principle of the Bombay Plan was that the economy could not grow without government intervention and regulation.

Body:

Objectives of Bombay Plan:

- The prime objectives of the plan were to achieve a balanced economy and to raise the standard of living of the masses of the population rapidly by doubling the present per capita income within a period of 15 years from the time the plan goes into operation.
- Under the assumption that the fledgling Indian industries would not be able to compete in a free-market economy, the Plan proposed that the future government protect indigenous industries against foreign competition in local markets.
- This plan envisages that the economy could not grow without government intervention and regulation. In other words, the future government protects indigenous industries against foreign competition in local markets.
- Although the Bombay Plan did not itself propose a socialist agenda, “virtually all” commentators acknowledge “that there is a direct line of continuity from the Bombay Plan of 1944-1945 to the First Five-Year Plan in 1950.”

Significance of Bombay Plan for new India:

- Its uniqueness, far-sightedness and focus on the social sector.
- It had even promoted ‘State Capitalism’ (the genesis of the mixed economy) although the concept might have been put there to prepare India for free-market capitalism.
- It was a national plan for long-term economic and social development sought by the leadership of indigenous business in their own interest as well as in the national interest.
- The original Plan underlines the necessity of economic unity. It only happened in 2017 when India introduced a nationwide Goods and Services Tax.



- It had come up with a cascade of priorities where the State's intervention is required – education, public health, agricultural growth, progressive taxation and the need to tackle black money and wealth hoarded abroad.
- The document clearly states that public sector industries should be sold to private investors at some point – disinvestment, in today's parlance.

Conclusion:

- Given the state of India's economy today, with High NPA's, twin-balance sheet problem and reduced investment by the private sector. There is an increased need for Government spending to spur the economy.

Q) “Though cryptocurrency often has been viewed as a disrupter to the traditional notions of currency, it might outlast national currencies as a concept.” Critically analyse. (250 words)

[livemint](https://www.livemint.com)

Why this question:

The article provides for a detailed analysis of how cryptocurrencies though have been doubted for long by various countries, it is gaining significance as a currency that can challenge the traditional ones.

Demand of the question:

Answer must discuss in detail the nuances of cryptocurrency. One must trace its evolution from being doubted to the one now that has been gaining significance for known and unknown factors.

Directive word:

Critically analyse – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction

Start with definition of cryptocurrency.

Body

Discuss the following points in detail:

- What are cryptocurrencies? How are they used?
- Explain how though widely seen as a disruption for the traditional banking and financial institutions, cryptocurrencies have gained significant traction over the last half a decade, at the same time creating a regulatory nightmare for banking regulators across the globe. At present, there are around 969 cryptocurrencies in existence across the globe, with a total market capitalization close to 116 Billion USD.
- Quote reasons for their popularity.
- What are the associated pros and cons?
- What needs to be done?

Conclusion

Conclude with significance and way forward.

Introduction:

- A cryptocurrency is a digital or virtual currency that uses cryptography for security. Cryptocurrencies use decentralized technology to let users make secure payments and store money without the need to use their name or go through a bank. They run on a distributed public ledger called blockchain, which is a record of all transactions updated and held by currency holders. The most common cryptocurrencies are Bitcoin, Ethereum, Ripple, and Litecoin.
- **Facebook** has announced a digital currency called **Libra** that will roll out for use in 2020 and allow the platform's billions of users across the globe to make financial transactions online.

Body:

Current state of Cryptocurrencies:

- Experts and central banks across the world are slowly arriving at the conclusion — written about in various research papers but not yet implemented in policy — that cryptocurrencies are here to stay.
- The world's premier cryptocurrency is within sniffing distance of \$9,000 apiece, and investors still seem bullish on it.



- The current value—at \$8,918 on 29 May—is below its peak of \$19,600-plus in late 2017, which was achieved after an exponential rise all through that year.
- That ascent took online traders by storm and stoked fears of a tulip mania-like “bubble” just before it crashed dramatically; by the end of 2018, it had slid to about one-fifth of its peak value.
- Bitcoin’s market capitalization is now over \$150 billion, reportedly.
- India banned crypto-currencies in 2018, shortly after a Chinese clampdown.

Cryptocurrency is a disrupter to traditional notions of currency:

- The government is wary that regulation will provide legitimacy to “what is currently ambiguous,” and may lead to further rise in its valuation and end up contributing “to the investment bubble”.
- A currency that is not based on any real economic activity, unlike a sovereign currency whose value is based on the relative value of a tradeable basket of goods and services, cannot prima facie inspire much comfort.
- Bitcoin’s value, astronomical even now at about \$8,300 but much below January 2018’s stratospheric levels, is based on demand for a fixed supply of Bitcoins in the future it cannot exceed 21 million in number, of which 18 million has already been mined.
- The security offered by encryption of cryptocurrency may be breached by hackers who are always lurking for any point of weakness. This may end up costing investors huge amounts of money because prices are attached to the currencies.
- Cryptocurrency exists only in essence such that there are no physical coins and notes. As a result, there is, therefore, no central place where the currency can be deposited for safe keeping.
- Lack of regulation of cryptocurrency means it is not under any control or supervision. This attracts more investors thereby increasing their chances of investing in this technology.
- Cryptos are feared not just for their sheer speculative propensities, but also for their capacity to undermine sovereign currencies (the latter is an exaggerated apprehension).
- Virtual currency is being traded anonymously over the Internet and used for a host of anti-national and illegal activities, from terror funding to illicit trade of arms and drugs and so on.
- The online use of this currency, was without any border restrictions or geographical constraints, resulting in danger to the integrity and sovereignty of the nation.
- However, it does not make sense to go overboard and criminalise merely adventurous crypto speculators. There are no official or other data available that point towards misuse of cryptocurrencies for illegal ends

However, there are a few advantages of cryptocurrencies:

- One of the reasons why cryptocurrencies have gained global appeal is because of their secure nature. Cryptocurrencies are encoded into a database.
- Cryptocurrency trading draws its legitimacy from the unanimity of the participants in its network. It has gained global approval by most leaders as a legal medium of payment.
- No transaction fees are usually charged for transactions involving cryptocurrency.
- Cryptocurrency does away with the need for a regulator.
- By making everything public, cryptocurrency negates the need for a middleman.
- According to bitcoin.org, no individual or organisation can manipulate Bitcoins because it is cryptographically secure and do not contain customers’ personal information.

Measures needed:

- Governments the world over have banned cryptocurrencies as a medium of exchange, and India is no exception.
- Yet in India, an estimated 30 lakh Bitcoins are reportedly in circulation. From a value of a little over ₹60,000 at the start of 2017, the Bitcoin now commands a value of nearly ₹6 lakh, with a global market cap of \$10.2 trillion. Cryptos are recognised in the US as an asset class.
- Firms like Paypal, Uber, Visa and Mastercard have all signed up as part of the consortium to control it. Each has invested \$10 million.
- Criminalising possession of cryptocurrencies will impact such investments.
- Bankers and investors now consider the cryptocurrency market at par with derivatives. The NYSE plans Bitcoin futures through a platform called **Bakkt**.

Conclusion:

- Underlying the crypto movement is a libertarian belief: Cryptos are an alternative asset to fiat currencies; controlled by none, they cannot be manipulated by governments with vested interests. Legalising the cryptomarket can help beneficiaries emerge from the shadows and make productive investments in an



economy witnessing a digital transformation. Crypto conduct calls for regulation, but not outright criminalisation.

Q) What do you understand by sandbox which is often mentioned in the context of financial technologies companies ? Discuss its importance to Indian economy. (250 words)

The hindu

Why this question:

Recently the Securities and Exchange Board of India (SEBI) has released a discussion paper on a framework for a 'regulatory sandbox' for fintech testing.

Key demand of the question:

One must explain in detail what is the concept of sandbox, what are its utilities, how is it useful in effective regulations of Fintech companies.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

One can start by bringing out the highlights of the discussion paper brought out by SEBI.

Body:

In brief discuss –

- Highlights of the paper.
- Definition: A live, testing environment where new products, processes, services and business models could be deployed on a limited set of eligible customers for a specified period of time, with certain relaxations in the regulations and guidelines.
- Objective: The sandbox is intended to serve as a testing ground for new business models and technologies that benefit the investors, Indian markets and the Indian economy at large.
- To begin with, all market participants that are registered with the SEBI will be eligible to test within the sandbox. At a later stage, SEBI may allow sandbox access to fintech start-ups and other fintech firms as well.
- To be eligible to be tested in the sandbox, a solution need to show that it directly benefits the investors and poses no risks to the financial markets among other parameters.

Conclusion:

based on your discussion, conclude with significance of such a concept.

Introduction:

- In the computer science world, a sandbox is a **closed testing environment designed for experimenting safely with web or software projects**. The Securities and Exchange Board of India (SEBI) has released a discussion paper on a framework for a 'regulatory sandbox,' wherein companies dealing with financial technologies can test new technologies and products in a live market environment.

Body:

Regulatory Sandbox:

- regulatory sandbox can be defined as a live, testing environment where new products, processes, services and business models could be deployed on a limited set of eligible customers for a specified period of time, with certain relaxations in the regulations and guidelines.
- The concept of regulatory sandbox is used in a similar manner in the digital economy arena: testing grounds for new business models that are not protected by current regulation, or supervised by regulatory institutions.
- The indicative list of products, services and technologies where this concept could be applicable includes retail payments, money transfer services, marketplace lending, mobile technology applications, data analytics and application program interface (API) services

Importance of Regulatory Sandbox for India:

- The sandbox is intended to serve as a testing ground for new business models and technologies that benefit the investors, Indian markets and the Indian economy at large.
- To begin with, all market participants that are registered with the SEBI will be eligible to test within the sandbox.



- At a later stage, SEBI may allow sandbox access to fintech start-ups and other fintech firms as well.
- These testing grounds are especially relevant in the fintech world, where there is a growing need to develop regulatory frameworks for emerging business models.
- The purpose of the sandbox is to adapt compliance with strict financial regulations to the growth and pace of the most innovative companies, in a way that doesn't smother the fintech sector with rules, but also doesn't diminish consumer protection.
- It allows the regulator, the innovators, the financial service providers (as potential deployers of the technology) and the customers (as final users) to conduct field tests to collect evidence on the benefits and risks of new financial innovations, while carefully monitoring and containing their risks.
- Meanwhile, to be eligible to be tested in the sandbox, a solution need to show that it directly benefits the investors and poses no risks to the financial markets among other parameters.

Conclusion:

- A regulatory sandbox would benefit fintech firms by way of reduced time to launch innovative products at a lower cost. This will further improve the financial inclusion in India.

Q) Discuss the need for a robust and transparent securitisation framework in Indian financial systems also discuss measures to develop the market further. (250 words)

Reference

Why this question:

The Reserve Bank of India (RBI) constituted a committee to review the existing state of mortgage securitization in India and suggest measures to deepen it.

Key demands of the question:

The answer must analyse the need for robust and transparent securitization framework in Indian financial systems. Discuss the present issues, causes etc.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction

In a few introductory lines define need for securitization framework.

Body

The body of the answer has to capture the following aspects:

- Discuss the Committee on the Development of Housing Finance Securitization Market.
- Explain the details why the committee had to come in place, need for restructuring etc.
- Discuss that The mortgage securitization market in India is primarily dominated by direct assignments among a limited set of market participants on account of various structural factors impacting both the demand and the supply side, as well as certain prudential, legal, tax and accounting issues.
- For a vibrant securitisation market to develop, it is imperative that the market moves to a broader issuance model with suitable structuring of the instruments for diverse investor classes.
- At the same time, as the international experience shows, it is critical to address the issues of misaligned incentives and agency problems resulting from information asymmetry problems between the originators and investors in the market, which can exacerbate systemic risk.
- Thus, a careful design of a robust and transparent securitization framework assumes paramount significance.

Conclusion

Conclude with significance of the same.

Introduction:

- **Securitization** is the process of taking an illiquid asset, or group of assets, and through financial engineering, transforming it (or them) into a security.
- It is a risk management tool used to reduce idiosyncratic risk associated with the default of individual assets. Banks and other financial institutions use securitization to lower their exposure to risk and reduce the size of



their overall balance sheet. RBI recently set up committee for development of housing finance securitisation market.

Body:

- The move is aimed at bringing in standardisation of asset securitisation practices to enable better management of credit and liquidity risks.

Terms of reference:

- To review the existing state of mortgage backed securitisation in India and suggest measures to deepen it.
- To assess the role of various counterparties, including servicers, trustees, rating agencies, in the securitisation process and suggest steps to address the key risks.
- The committee will also study the best international practices, and lessons learnt from the global financial crisis.
- It will propose measures to further develop these markets in India by identifying critical steps required, such as definition of conforming mortgages, mortgage documentation standards, digital registry for ease of due diligence and verification by investors, and avenues for trading in securitised assets.

Need of committee:

- The mortgage securitisation market in India is primarily dominated by direct assignments among a limited set of market participants on account of various structural factors impacting the demand and the supply side, as well as certain prudential, legal, tax and accounting issues.
- The move comes at a time when housing finance companies and NBFCs have been facing higher borrowing costs and slowdown in funding after a liquidity squeeze in the market.
- The RBI noted that globally, residential and commercial mortgages are supported by well-lubricated securitisation markets, under which mortgage originators package portfolios of mortgages and resell them in capital markets as mortgage-backed securities or covered bonds.
- Thus, a careful design of a robust and transparent securitisation framework assumes paramount significance.

Measures needed:

- For a vibrant securitisation market to develop, it is imperative that the market moves to a broader issuance model with suitable structuring of the instruments for diverse investor classes.
- It is critical to address the issues of misaligned incentives and agency problems resulting from information asymmetry problems between the originators and investors in the market, which can exacerbate systemic risk.

Conclusion:

- A well-functioning securitisation markets can enable better management of credit and liquidity risks on the balance sheets of banks as well as non-bank mortgage originators and, in turn, help lower the costs of mortgage finance in the economy. The move is a positive impetus for the sector and will help on the liquidity front.

Q) What do you understand by Outcome budget ? How is it different from performance budget ? Explain. (250 words)

Indian polity by Lakshmikanth

Why this question:

The question is to evaluate – outcome budget, performance budget.

Key demand of the question:

The answer must provide for a detailed discussion on the two type of the budget namely – outcome budget and performance budget, provide for a comparison and contrast the two.

Directive word:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer

Introduction:

write a few introductory lines about the significance of a Budget.

Body:

Answers must discuss the following aspects :

- **What is an Outcome Budget?** – It is a progress card on what various Ministries and Departments have done with the outlays in the previous annual budget. It measures the development



outcomes of all government programs and whether the money has been spent for the purpose it was sanctioned including the outcome of the fund usage.

- It is a means to develop a linkage between the money spent by a government and the results which follow.
- An interesting feature of outcome based budgeting is that the outcomes of programmes are measured not just in terms of Rupees but also in terms of physical units like Kilowatt of energy produced or tonnes of steel produced. Also outcomes are expressed in terms of qualitative targets and achievements to make the technique more comprehensive.
- Then move on to discuss the procedure for outcome-based budgeting.
- **Then explain what is a performance budget?** – A performance budget is a budget that reflects the input of resources and the output of services for each unit of the government. This type of budget is commonly used by government bodies to show the link between taxpayer funds and the outcome of services provided by federal, state, or local governments.
- Provide for merits and demerits of the two.

Conclusion –

Conclude by reasserting their significance.

Introduction:

- Outcome based budgeting is a **practice of suggesting and listing of estimated outcomes of each programmes or schemes designed.**
- Outcomes are the end products and results of various Government initiatives and interventions, including those involving partnership with the State Governments, Public Sector Undertakings, autonomous bodies and the community. Outcome Budget was first introduced in India by the UPA in 2005-06 by stating that “the people of the country are concerned with outcomes, not outlays”.

Body:

Advantages of Outcome Budget:

- Public administration in India has been plagued by a lack of focus on results and outcomes that matter most to citizens.
- Annual planning and monitoring revolves largely around the allocation of the government’s budget to its departments and programmes and periodically checking if the money is being spent and activities completed.
- But such an approach, however, completely misses the difference between doing the job, and doing it well.
- An outcome-based approach shifts the perspective to the short and long-term outcomes of governance.
- For example rather than asking did they build enough toilets or did they open schools and hospitals, the questions will be like whether the toilets built are clean and functional and did open defecation reduce.
- An outcome budget seeks to enshrine this approach within governments by linking budgetary outlays to specific outputs (tangible services or infrastructure provided) and outcomes (short or long-term benefits to the people).
- It arms citizens with data to hold governments accountable, and in turn empowers the governments to better orient the bureaucracy towards results.
- The Centre has since 2005-06 continued to release annual Outcome Budget reports with incremental changes and without any reference to the previous year’s performance.

Disadvantages:

- It is resource intensive. It takes a lot more time and effort to closely review and justify every budget element rather than modify an existing budget and review only new elements.
- Difficulty in matching expenditure with results & performance
- Focusing on process and input utilization, resulted in wasteful expenditure
- Lack of trained staff and those trained are transferred to unrelated jobs

Performance budget:

- **A performance budget** is a budget that reflects the input of resources and the output of services for each unit of an organization. This type of budget is commonly used by government bodies to show the link between taxpayer funds and the outcome of services provided by federal, state, or local governments.

Advantages:

- An increase in accountability of the local authorities to the taxpayers, communication to the public about priorities, and quantifying particular goals.
- Taxpayers want to know where and how their money is being spent and to what end.



- Performance-based budgeting helps in bringing the transparency in the budget preparation. The performance budget helps in taking better financial decisions for the allocation of resources.

Disadvantages:

- A potential for disagreement on where spending priorities should lie, in the case of a government with multiple agencies
- Lack of unified cost standards across multiple agencies
- The potential for a department to manipulate data in order to reach a target, which could lead to a need to spend funds on an independent party to verify results
- A lack of flexibility once the inputs/outputs have been set

Conclusion:

- In India, most of the Central Government Ministries are following outcome budgeting. Delhi Government has presented two outcome budgets till now. The document acts as a progress report of government projects and aims to ensure 'greater transparency' in governance.

TOPIC: Effects of liberalization on the economy, changes in industrial policy and their effects on industrial growth.

Q) Write a note on 4th Industrial Revolution. Discuss in detail the possible impact of it on Indian economy. (250 words)

Reference

[Economictimes](https://economictimes.indiatimes.com/industry/tech/ai/ml/4th-industrial-revolution-what-it-is-how-it-will-change-the-world/articleshow/72414417.cms)

Why this question:

The article provides for a detailed analysis on the coming of 4th Industrial Revolution.

Key demand of the question:

Analyse in detail what is 4th Industrial Revolution and what are its impact on Indian economy.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines explain what you understand by 4th Industrial Revolution.

Body:

In brief discuss –

- What is 4th Industrial Revolution (4th IR)? – characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.
- There are three reasons why today's transformations represent not merely a prolongation of the Third Industrial Revolution but rather the arrival of a Fourth and distinct one: velocity, scope, and systems impact.
- Discuss its Impact on Indian economy – both negative and positive.
- Positive Impacts:
 - Demographic dividend and Employment generation, Strong Banking sector, Global Leader in Industrial revolution, Investments and exports, Agriculture and Health etc.
- Negative Impacts: Loss of jobs, Competitiveness, Dumping, Loss to MSMEs, Economic inequality, Environmental Externalities etc.

Conclusion:

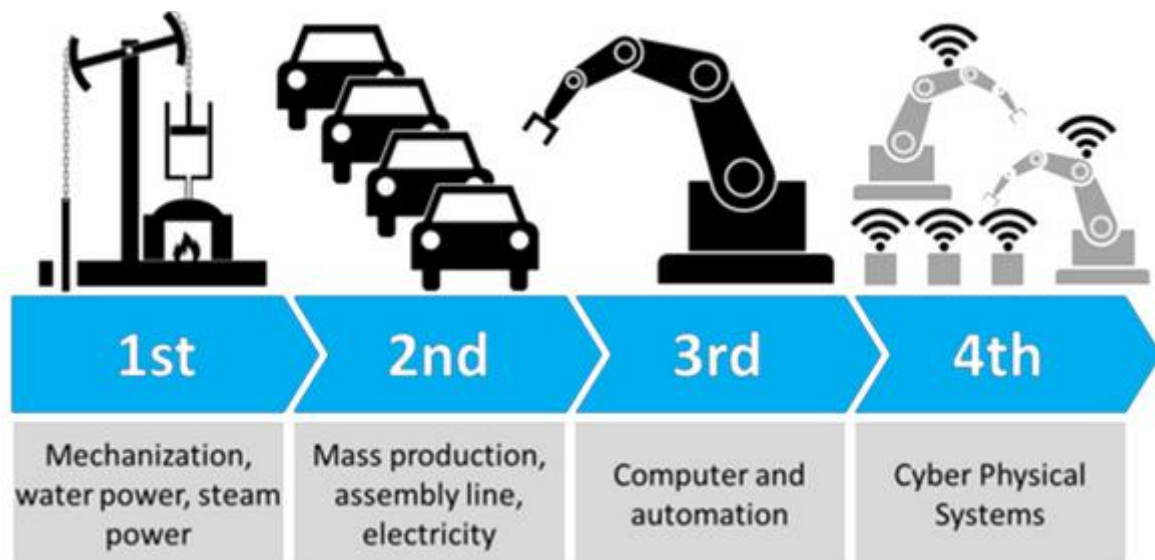
Conclude with what needs to be done, suggest way forward.

Introduction:

- The **Fourth Industrial Revolution (IR 4.0)** is a term that describes present technological age. It is the fourth industrial era since the inception of the initial Industrial Revolution of the 18th century.
- The key elements of the fourth revolution are the fusion of technologies ranging from the physical, digital to biological spheres. Prime Minister gave an institutional shape to the expression by launching the **Centre for Fourth Industrial Revolution in India**.



Body:



As described by the founder and executive chairman of World Economic Forum, Klaus Schwab, “the fourth industrial revolution is a technological revolution that will fundamentally alter the way we live, work and relate to one another”.

Characteristics of IR 4.0:

- It is characterized by a fusion of technologies that is blurring the lines between the physical, digital, and biological spheres.
- It brings together digital technology and the physical world to create a new range of products and services.
- The possibilities of billions of people connected by mobile devices, with unprecedented processing power, storage capacity, and access to knowledge, are unlimited.
- And these possibilities will be multiplied by emerging technology breakthroughs in fields such as artificial intelligence, robotics, the Internet of Things, autonomous vehicles, 3-D printing, nanotechnology, biotechnology, materials science, energy storage, and quantum computing.
- The revolution is evolving at an exponential rather than a linear pace and it is disrupting almost every industry in every country.

Possible Impact of IR4.0 on Indian Economy:

- For India, the Fourth Industrial Revolution brings tremendous opportunities to leapfrog many stages of development, hastening its journey towards becoming a developed economy.
- It can play a major role in alleviating poverty.
- Better and low-cost health care can be achieved through the implementation of AI-driven diagnostics, personalized treatment, early identification of potential pandemics, and imaging diagnostics, among others.
- Enhancing farmer’s income by providing them with the latest technologies, improvement in crop yield through real-time advisory, advanced detection of pest attacks, and prediction of crop prices to inform sowing practices.
- It will strengthen infrastructure and improve connectivity to the very last village.
- Artificial intelligence can be used to empower and enable specially-abled people.
- It will improve ease of living and ease of doing business using smart technologies.
- Recently, India has announced her drone policy, which will play an important role in security, traffic and mapping.
- Increased automation means more efficient products and processes, faster growth
- It gives a boost for small scale industries as production gets automatic and cheap
- India provides a potentially huge market access.
- There is the very appealing demographic dividend with Indian youth representing approximately 20% of the global workforce by 2020. With more than 50 per cent of its population is under the age of 27, India can play a pivotal role in shaping the global fourth Industrial revolution in a responsible, scalable and inclusive manner.
- There is a rising middle class
- India is expected to become the fifth largest consumer market in two decades. Within this context, any form of consumption, entrepreneurship, startup or industry, can be viewed as a scaling opportunity.
- India also has a robust start-up scene, which reportedly has more firms than anywhere else in the world except for the US and the United Kingdom (UK).



- With one of the youngest labour forces in the world, a sizeable technical aptitude, the second largest number of internet users on mobile devices and the second largest English speaking population, India is well positioned to enhance its global leadership in a post fourth industrial revolution era.

Challenges posed by IR 4.0:

- Stiff competition from other countries, high unemployment levels and high incidences of poverty etc.
- Revolution is likely to increase inequality in India as the spread of machines increases markets and disrupts labour markets.
- Inequality represents the greatest societal concern associated with the Fourth Industrial Revolution.
- The largest beneficiaries of innovation tend to be the providers of intellectual and physical capital the innovators, shareholders, and investors which explains the rising gap in wealth between those dependent on capital versus labour.
- As automation substitutes for labour across the entire economy, the net displacement of workers by machines might exacerbate the gap between returns to capital and returns to labour.
- With this revolution, it is also possible that in the future, talent, more than capital, will represent the critical factor of production. This will give rise to a job market increasingly segregated into low-skill/low-pay and high-skill/high-pay segments, which in turn will lead to an increase in social tensions.
- The Fourth Industrial Revolution will change not only what we do but also who we are. It will affect our identity and all the issues associated with it: our sense of privacy, our notions of ownership, our consumption patterns, the time we devote to work and leisure, and how we develop our careers, cultivate our skills, meet people, and nurture relationships.

Way forward:

- Governments, businesses and civil society organisations should put together an ecosystem for massive upskilling of the workforce.
- India needs to prepare itself for a period of information and digital abundance, adapt itself to the scorching pace of innovation and learn to collaborate on scale, quickly transform the idea into a breakthrough innovation, shift from a system of time-bound education to a mode of continuous learning and create more employment opportunities than what new and disruptive technologies take away.
- There is a need for good quality education to make India's youth a productive asset.
- Access to finance commensurate with maturity of the business model and beginning stage of the start-up lifecycle is extremely important to scale innovations.
- Corporates will have a key role in championing this on-going movement, leveraging the ART Model – Alliances, Relationships enabled through Technology.

Conclusion:

- Industrial Revolution that first began in Great Britain and later in United States (after end of Civil War) has helped nations in developing faster and easier means of mass production. It has transformed lives of people in many ways over about 250 years.
- India is also catching up with focussing on Industrial Revolution 4.0. Development of new technologies in this era can help the nations in many ways if these technologies are used effectively for the welfare of mankind.

Q) Amidst the expected future global financial and economic crisis, Military spending around the world still continues to boom. Discuss the factors driving such a boom, how would continued spending be justified in such an era ? (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The article brings to us the findings of the report Stockholm International Peace Research Institute (SIPRI) that finds that the Total world military expenditure rose to \$1,822 billion in 2018, representing an increase of 2.6% from 2017. Thus it is important from exam point of view to analyse the impact of these findings.

Key demand of the question:

The answer must provide for a detailed analysis of the findings and the impact it has on world countries and peace.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.



Structure of the answer

Introduction:

write a few introductory lines highlight the facts of the report.

Body:

Answers must discuss the following aspects:

- Comment upon the findings of the report, discuss its relevance.
- World military spending in 2018 represented 2.1% of global gross domestic product (GDP) or \$239 per person. In 2018 the USA and China accounted for half of the world's military spending.
- Analyse what is the trend like – discuss how the spending boom is driven, above all, by the contest between America and China for primacy in Asia.
- Discuss the combination of factors that explain the increased military spending:
- Foreign policy objectives
- Real or perceived threats
- Armed conflict and policies to contribute to multilateral peacekeeping operations
- Availability of economic resources – refers to rapidly developing nations like China and India that have seen their economies boom in recent years. In addition, high and rising world market prices for minerals and fossil fuels (at least until recently) have also enabled some nations to spend more on their militaries.
- Conclude with significance of the report and what needs to be done?

Conclusion –

Conclude with way forward.

Introduction:

- According to new data from the SIPRI, total world military expenditure rose to \$1.8 trillion in 2018, representing an increase of 2.6 % from 2017. The five biggest spenders in 2018 were the United States, China, Saudi Arabia, India and France, which together accounted for 60% of global military spending. World military spending in 2018 represented 2.1% of global gross domestic product (GDP) or \$239 per person.

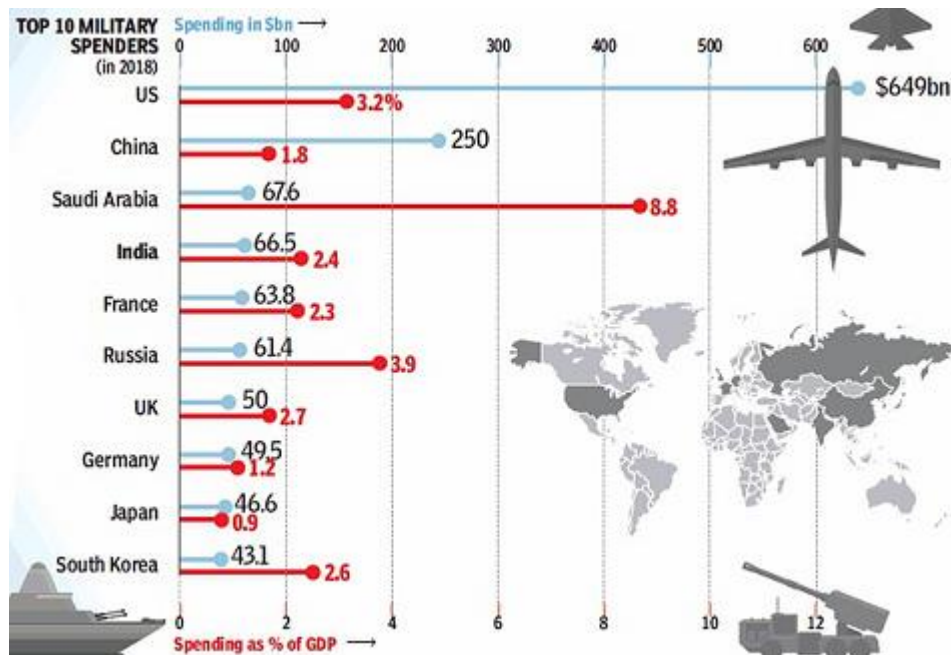
Body:

The factors driving such a boom:

- **Physical and psychological security threats:** These threats are more than just ordinary especially in case of India, a country located in a dangerous neighbourhood and facing both internal and external threats. Example: The West's "alarm" over emerging Chinese and Russian systems
- **Comprehensive national security:** It helps a nation attain its aspirations, and robust security is a subset of that. Military security involves the development of such capability to deter potential adversaries from undertaking inimical activities that may result in forms of adventurism or even proxy interference in a nation's affairs.
- **Potential Military Capability:** A country's defence spending represents the most direct way of measuring its potential military capability. In terms of gauging relative military strength, the size of defence budgets can be compared between countries over a set period of time.
- **Geography:** It is also a factor. Countries in Northern Europe aside from Britain, France and Germany can afford to invest less in their militaries knowing that blocs and alliances such as the EU and NATO will ensure their collective security. That's less true in Saudi Arabia, some say, which faces extremist threats from nearby wars in Syria, Iraq and Afghanistan, and Iranian-backed enemies like Hezbollah in Lebanon and the Houthis in Yemen.

Challenges posed by such extravagant spending:

- The increase would have to be on the capital side of the defence budget.
- Salaries, pensions and other operating expenses have full fund allocation with little scope to absorb extra funds.
- Raising the defence capital expenditure would leave the government with very little money for infrastructure and asset creation.
- As most defence equipment is procured from foreign countries, an increased capital budget would increase the defence import bill, and add to the current account deficit.
- This will require either an increase in the current tax rates, or a widening of the tax base.
- Both are difficult to achieve in the short term.
- It will thus not be feasible to substantially augment government's non-borrowing revenues



Way forward for India:

- The lack of a national security strategy, a national strategic culture and a transformational approach towards its military capability prevent it from obtaining optimum benefit from its defence expenditure.
- Decisions must be timely and procedures for acquisition are fast-tracked. Also, financial support should be sufficient with systems which do not call for a lapse of financial resources, once allotted.
- Management of expenditure also needs a complete revamp. Amid the focus on prevention of potential corruption, limited leakages could still be acceptable if timeliness of delivery is achieved even as more efficient procedures are implemented.
- Optimise the existing defence allocations, rather than seek a quantum jump in funds

Conclusion:

- A country's high expenditures on its military doesn't ensure a perceived high quality of life. The debate regarding how a government should balance military spending and domestic services dates back at least a century. The real issue is what is an "adequate" amount of military spending, given that every extra dollar spent above the necessary level is a clear loss for the economy as a whole. In a democracy, that issue is debated by publicly elected officials and changes year to year.

Q) What are Masala bonds? How do they work? Discuss the rationale behind them along with the pros and cons associated. (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The state of Kerala became the first Indian state to tap into the market for masala bonds on Friday. Thus, it is important for us from exam point of view to ascertain into the concept of Masala Bonds.

Key demand of the question:

The answer must discuss in detail the concept of Masala bonds, pros and cons associated with their utility.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines by stating the background of the question.

Body:

Answers must discuss the following aspects :

- What do you understand by Masala Bonds? – “Masala Bonds” are the 10 year off-shore rupee bonds issued by International Finance Corporation (IFC), a member of the World Bank group, in the international capital market in 2014, to raise funds for supporting private sector infrastructure



development initiatives in India. Masala bonds are listed in London Stock Exchange. The term Masala bonds now extends to any rupee denominated bonds issued to overseas buyers even though RBI has not resorted to the use of this name in their guidelines.

- Discuss their rationale – like any other off-shore bonds, are intended for those foreign investors who want to take exposure to Indian assets, yet constrained from doing it directly in the Indian market or prefer to do so from their offshore locations.
- Pros and cons associated – Offshore bonds have its own set of advantages and disadvantages for both the issuer and the investor as well as for the economy. Competition from offshore markets may induce improvements in domestic bonds markets such as strengthening of domestic market infrastructure, improving investor protection and removing tax distortions that hinder domestic market development etc. Against these benefits come the risks associated with financial openness and sudden shifts in capital flows, and the risk that offshore markets may draw liquidity away from the domestic market.

Conclusion –

Conclude by reasserting their importance in raising capital.

Introduction:

- Masala Bonds are rupee-denominated bonds i.e the funds would be raised from overseas market in Indian rupees.
- The term was used by the International Finance Corporation (IFC) to evoke the culture and cuisine of India. The first Masala bond was issued by the World Bank-backed IFC in November 2014. Recently, Kerala (Kerala Infrastructure Investment Fund Board) became the first Indian state to tap into the market for masala bonds to raise development funds.

Body:

Working:

- Any corporate, body corporate and Indian bank is eligible to issue Rupee denominated bonds overseas.
- For example, if an Indian financial entity issues Rs 1000 rupee denominated bond overseas, the buyer in overseas can buy the bond, paying equivalent amount of dollar/sterling.
- If the exchange rate was 1\$ = Rs 50, the bond buyer will pay \$20 (or Rs 1000) to buy the rupee denominated bond.
- Suppose the interest rate is 10%. Here, the Indian entity has to pay Rs 100 annually and this can be paid (in dollars etc.) at the prevailing exchange rate at the payment time.
- Now if the exchange rate depreciates to 1\$ = Rs 75, the bond buyer's interest revenue of Rs 100 equals just around \$1.3. He actually incurs losses in terms of dollars (might have got \$2 if the exchange rate was the same or in the case of dollar denominated bonds).
- Here, if the rupee' value has changed, the risk should be borne by the foreign investor. At the end of the time period, the issuer will give Rs 1000 and this can be converted into dollar at the prevailing exchange rate at that time

Rationale:

- Like any other off-shore bonds, are intended for those foreign investors who want to take exposure to Indian assets, yet constrained from doing it directly in the Indian market or prefer to do so from their offshore locations.

Pros:

- They help to internationalize the Indian Rupee and deepen Indian Financial system by expansion of Indian bond markets.
- They diversify the funding resources of Indian companies.
- They may help to bring down the cost of borrowing and cost of capital.
- Allowing Masala Bonds is considered to be a small step towards full convertibility of Rupee.
- Such bonds would support towards stability of rupee.
- By issuing bonds in rupees, an Indian entity is protected against the risk of currency fluctuation, typically associated with borrowing in foreign currency

Cons:

- RBI mandates that the money raised through such bonds cannot be used for real estate activities other than for development of integrated township or affordable housing projects.
- It also can't be used for investing in capital markets, purchase of land and on-lending to other entities for such activities as stated above.

**Conclusion:**

- India needs almost \$2 trillion for setting up world class infrastructure according to Economic Survey. The rupee-denominated bonds help in raising funds for the capital of infrastructure projects, green-field projects, brown-field projects.

Topic– Inclusive growth and issues arising from it.

Q) Discuss the concept of ‘Gender budgeting’ and analyse its significance in the Indian context. (250 words)

Reference**Why this question:**

The question is intended to evaluate the concept of Gender budgeting.

Key demand of the question:

The answer must discuss the importance of Gender Budgeting in the Indian economy, one must narrate in detail the significance of it.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments

Structure of the answer:**Introduction:**

In a few introductory lines appreciate the concept of Gender- Budgeting.

Body:

- Explain – Gender Budgeting initiatives aim to integrate gender concerns into fiscal policies and administration to address disparities.
- India formally adopted gender budgeting in 2005 and since then it is listing out ‘Women specific schemes’ and ‘Pro women schemes’ in budget.
- Explain what are the challenges involved in Gender – Budgeting? –
- Women must be given adequate representation and opportunity to voice their concerns in pre-budget consultation.
- Center should encourage states to include gender budgeting in their respective budgets, it is imperative because states get 42% tax devolution.
- According to census 2011 sex ratio is 940 women per 1000 men and women literacy rate is 64%
- Women constitute only 15% highest wage earner in India.
- Global Gender Gap report ranked India 87 in terms of inequality in economy, education, health and political representation.
- Discuss how Gender budgeting plays a significant role in addressing these inequalities and empowering women to achieve equality with men in all spheres of life.

Conclusion:

Conclude with importance of Gender budgeting and how Along with gender budgeting better implementation and planning are needed to ensure that these policies percolate right down to the last woman in the most remote parts of the country.

Introduction:

- Gender budgeting (GB) is a **practice that accounts budgetary measures to support gender commitments**. It is not just an accounting exercise but an ongoing process of keeping a gender perspective in policy/ programme formulation, its implementation and review.
- GB entails dissection of the Government budgets to establish its gender differential impacts and to ensure that gender commitments are translated in to budgetary commitments.

Body:

- Since 2005-06, the Expenditure Division of the Ministry of Finance has been issuing a note on Gender Budgeting as a part of the Budget Circular every year. This GB Statement comprises two parts- Part A and Part B.
- Part A** reflects **Women Specific Schemes**, i.e. those which have 100% allocation for women.
- Part B** reflects **Pro Women Schemes**, i.e. those where at least 30% of the allocation is for women.



Significance in the Indian context:

- **Global Gender Gap report 2018** ranked India 108 in terms of inequality in economy, education, health and political representation.
- The rationale for gender budgeting arises from recognition of the fact that national budgets impact men and women differently through the pattern of resource allocation.
- Women, constitute 48% of India's population, but they lag behind men on many social indicators like health, education, economic opportunities, etc.
- All measures across the globe taken towards development, poverty alleviation and improvement of social indicators like health, education and gender equality are worthless unless policies are implemented specifically for women and girls.
- Women face disparities in access to and control over services and resources.
- Bulk of the public expenditure and policy concerns are in "gender neutral sectors".

Challenges involved in Gender – Budgeting:

- First, there is **limited availability of disaggregated gender-specific data sets** for all schemes and programmes under various ministries. In the absence of this data, it is difficult to study the impact of budgetary allocations on gender equality.
- Second, the **budgeting exercise is linked to schemes instead of outcomes**. For example, in the Budget for 2015-16 there are funds allocated for infrastructure maintenance under the ministry of health and family welfare. However, there is very little data available on the impact these funds made in reducing female mortality rates.
- Third, there is an **immediate need to conduct an assessment of gender-specific parameters and set goals accordingly**. For example, it is important to understand time-bound goals for parameters such as female school enrolment, gender-based violence, health, labour force participation.
- Fourth, **authority should be created for gender auditing, to conduct an annual impact assessment of budgetary allocations for all schemes**, thus bringing accountability to the process.

Way forward:

- There is also a critical need for capacity building across government, corporates, public sector undertakings, NGOs and all involved agencies.
- While steps have been taken to mainstream the gender budgeting process at central and state government level, there is a definite need to deepen this process.
- A national-level reporting platform should be created under the ministry of statistics and programme implementation, which will collect the disaggregated data by sex for understanding the impact and outcome of the gender budgeting initiative.
- The Central Statistics Office should also be engaged for better data collection and analysis techniques.
- Shared responsibility between the central and state governments would accelerate this process.
- There needs to be shift from mere "reporting" of gender allocations to "purposive planning" with wider participation of women.
- The adoption of the GB should be accompanied by multifaceted and interrelated improvements to budgets in general and the gender sensitivity of budgets.

Conclusion:

- Gender Budgeting is a powerful tool for achieving gender mainstreaming so as to ensure that benefits of development reach women as much as men. The way Government budgets allocate resources, has the potential to transform these gender inequalities.

Q) Culture of 'bending rules' in India has repeatedly challenged the U.S. drug agency, in such a circumstance discuss the issues facing the Pharma industry in this direction ? Suggest measures to overcome the same. (250 words)

Livemint

Why this question:

Very recently Several Indian pharmaceutical companies have been accused of collusion to raise generic drug prices in the US. After facing American scrutiny over quality issues, India's pharmaceutical industry has again landed in the crosshairs of US regulatory action. Thus we have to analyse in detail issues surround

**Key demand of the question:**

The answer must discuss in detail the problems facing the pharmaceutical industry in India and the approaches to ensure long term viability.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer**Introduction:**

write a few introductory lines highlighting the issue.

Body:

Answers must discuss the following aspects :

- The answer must examine the Pharmaceutical (Pharma) industry and the changes that have occurred particularly over the last few years as a result of the overall economic downturn, the rising cost of healthcare and the costs associated with the development and sales of pharmaceuticals.
- Explain how the response of big Pharma to this has been the recent spate of partnerships, mergers and acquisitions, consolidation, diversification, licensing agreements and downsizing in both human and capital resources.
- Discuss the Culture of ‘bending rules’ in India and in what way it challenges U.S. drug agency.
- Suggest suitable measures to overcome the issues facing the industry.

Conclusion –

Conclude with way forward.

Introduction:

- India is the largest provider of generic drugs globally with the Indian generics accounting for 20% of global exports in terms of volume.
- In developing countries, India is rendering yeoman service by providing access to lifesaving medicines at affordable prices.
- Recently, several Indian pharmaceutical companies are accused of collusion to raise generic drug prices in the US. If guilty, punish them. But the fairness of the trial will be under watch

Body:**Issue background:**

- Forty-four US states have together sued 20 drugmakers, seven of them Indian, for the alleged fixing of generic drug prices at levels higher than what the market would set.
- Israel's Teva Pharmaceutical Industries, the world's largest producer of generic formulations, allegedly underpins a shadowy cartel designed to exert monopolistic power in the US.
- Fifteen individuals have also been named in the lawsuit filed in a court in Connecticut.
- The complaint alleges that senior executives of the offending companies often met at trade events, conferences, dinners and even golf outings, and kept in touch via phone and email to raise prices and carve up the market among themselves.
- According to the charges, collusion peaked between July 2013 and January 2015, a period when prices of more than 100 generics went up sharply, some by over 1,000%. These allegations are serious and, if proven, could deal a severe blow to Indian drug exporters that count the US as a major market for off-patent drugs.

Issues facing the Pharma industry:

- Because of fewer costs associated with generic medicines, multiple applications for generic drugs are often approved to market a single product; this creates competition in the marketplace globally, typically resulting in lower prices. Pharma sector in India is also facing steep headwinds on account of this.
- There is a lack of proper assessment of the performance of the pharmaceutical industry and its efficiency and productivity and due to this many plants have not survived.
- Unregulated online pharmacies or e-pharmacies emerging in India have been a major concern for authorized setups.



- There has been a significant drop in the flow of prescriptions as the Indian pharmaceutical industry has been witnessing a decline in the overall quality of its medical representatives (MRs). This is mainly on account of lack of training and support by the industry.
- In countries such as Russia, one requires to be a medical graduate to be a pharma sales representative. In the European Union, one needs to pass stringent examinations to become an MR. Once they qualify, they need to renew their certification every three years. But in India, even non-graduates are performing as MRs without proper guidance.

IPR related issues posed a serious threat to our industry, some of them are:

- Granting Compulsory Licences (LCs), although allowed by TRIPS agreement of WTO, western countries are blaming India for disrespecting patents transgressing India's judicial use.
- Emergence of new agreements like TPP, TTIP, RCEP seriously affect our industry without rational dealing on public health.
- Emergence of Voluntary Licence (VL) in agreements place restrictions on reaching the global markets.

Measures needed:

- India's strong innovation capabilities aided partnerships would help in overcoming these problems.
- The introduction of pharmaceutical product patents and the mandatory implementation of good manufacturing practices is the need of the hour.
- It is necessary for the Indian pharmaceutical industry to become globally competitive through world-class manufacturing capabilities, with improved quality and a higher efficiency of production, and there is a need to stress on the up-gradation of R&D capabilities.
- Training and development of human resources for the pharmaceutical industry and drug research and development should be done accordingly;
- There is also a need to promote public-private partnership for the development of the pharmaceuticals industry; promote environmentally sustainable development of the pharmaceutical industry; and enable the availability, accessibility, and affordability of drugs.
- Improvement in industrial practices to provide better training and support services for employees to perform their job functions.

Conclusion:

- The affordability of healthcare is an issue of concern even in India, and people here would welcome some clarity on the principles of fair pricing vis-à-vis medical products. It is important that the accused companies are given a good hearing. The Government of India has taken up a number of initiatives to create an ecosystem that fosters manufacturing in pharma industries.

Topic: Major crops cropping patterns in various parts of the country, different types of irrigation and irrigation systems storage, transport and marketing of agricultural produce and issues and related constraints; e-technology in the aid of farmers

Q) "Shift to Horticulture is a Way of Doubling Farmers' Income in India". Discuss along with the achievements of Mission for Integrated Development of Horticulture (MIDH) in this direction. (250 words)

The hindu

Why this question:

The question is intended to evaluate the potential of Horticulture as a standalone sector in India and how it can help double farmer's income and its role in proving to be a source of livelihood in Indian agriculture.

Key demand of the question:

The answer must discuss the importance of horticulture to India in doubling farmer's income along with the achievements of Mission for Integrated Development of Horticulture (MIDH).

Directive word:

Examine – When asked to 'Examine', we have to look into the topic (content words) in detail, inspect it, investigate it and establish the key facts and issues related to the topic in question. While doing so we should explain why these facts and issues are important and their implications.



Structure of the answer:

Introduction:

In a few introductory lines provide for current scenario of horticulture in India, provide for statistics – The Indian agricultural land covers area of 140 million hectares out of which, 17% of area is dedicated to horticultural crops that contributes to 30% of total agricultural GDP.

Body:

- The Horticulture is diversified to cover 6 subsectors namely vegetables, fruit crops, spices, ornamentals, plantation crops and mushrooms.
- Discuss how has the horticulture section performed lately in quantitative and qualitative terms? Also, frame the statistics comparing it with the overall agriculture sector.
- How can we increase our produce quality and quantity?
- Discuss the achievements of Mission for Integrated Development of Horticulture (MIDH).

Conclusion:

Conclude with potential of horticulture in India and need to harvest it.

Introduction:

- Within the agriculture sector, the horticulture sector is widely recognised as the most rapidly growing sector. It has been rightly called as the **silent revolution** because of its varied achievements.
- The Indian agricultural land covers area of 140 million hectares out of which, 17% of area is dedicated to horticultural crops that contributes to 30% of total agricultural GDP.

Body:

- **Mission for Integrated Development of Horticulture (MIDH)** is a Centrally Sponsored Scheme for the holistic growth of the horticulture sector covering fruits, vegetables, root & tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, cocoa and bamboo.
- It subsumed six ongoing schemes of the Department of Agriculture and cooperation on horticulture development. Out of these six schemes three are centrally sponsored schemes: National Horticultural Mission; Horticulture Mission for North east and Himalayas; National Bamboo Mission and the three Central sector schemes: National Horticulture Board; Coconut Development Board; Central Institute of Horticulture, Nagaland

Achievements of MIDH (Cumulative Achievement (2005-06 to 2017-18)) are:

- **Area Expansion:** An additional area of 36.13 lakh ha. of identified horticulture crops has been covered.
- **Nurseries:** 4554 nurseries have been established for production of quality planting material. **Rejuvenation:** An area of 6.57 lakh ha. of old and senile orchards has been rejuvenated.
- **Organic Farming:** An area of 2.71 lakh ha. been covered under organic practices
- **Integrated Pests/Nutrient Management:** An area of 17.14 lakh ha. has been covered under IPM/INM
- **Integrated Pests/Nutrient Management Infrastructures:** 536 units of IPM infrastructures have been set up.
- **Protected Cultivation:** An area of 31 lakh ha. has been covered under Protected Cultivation.
- **Water Resources:** 95887 water harvesting structures have been created.
- **Beekeeping:** 31 lakh bee colonies with hives have been distributed.
- **Horticulture Mechanization:** 94 lakh horticulture mechanization equipments have been distributed.
- **Post Harvest Management Infrastructures:** 78776 post harvest units have been established.
- **Market Infrastructures:** 4144 market infrastructures have been set up.
- **Centre of Excellence:** 25 Center of Excellence have been established.
- **Training of Farmers:** under HRD, 21.71 lakh farmers have been trained under various horticulture activities.

Horticulture can help doubling farmer's income by implementing the following:

- Revisiting zones for different crops keeping into account the changing climate particularly in the hills.
- Ensuring availability of quality seed including hybrid of vegetables, flowers and planting material of fruit trees for better quality and produce.
- Diversification of Horticultural crops along with other activities like bee keeping mushroom cultivation, backyard poultry, sericulture, fish culture etc.,
- Post harvest management of horticultural crops through grading, packaging, and on farm primary processing for value addition and product development.
- Introduction of potential new varieties, and replacing the old and low productive varieties. Rejuvenation of old and unproductive orchards.
- Tree architecture management through training and pruning for enhanced quality and production of crops.



- Promotion of organic farming practices in vegetables and fruits production and suitable marketing must be done for the organic produce.
- Popularisation of local / indigenous or underutilised horticultural crops and promoting cultivation of flowers and medicinal plants.
- Promoting intercropping with vegetables, flowers, medicinal and aromatic plants and short duration fruit crops.
- Adopting drip irrigation cum fertigation system of irrigation for more crop per drop. Weather forecasting advisory body to be popularised for strategic planning of cultural practices for minimising losses.
- Promotion of contract farming and buy back arrangement for encouraging farmers to adopt horti based farming.
- Promotion of horti tourism in states like J&K, HP, Uttarakhand, and North eastern states.

Ministry of Agriculture & Farmer's Welfare, Government of India

Mission for Integrated Development of Horticulture

Production of quality planning material

- Nurseries, Tissue culture labs, seed infrastructure, hybrid seeds import of planning materials
- Area expansion i.e. Establishment of new orchards gardens for fruits, flowers, and hybrid vegetables
- Creation of market linked cold-chain logistics and PHM facilities.
- Rejuvenation of unproductive, old, and senile orchards
- Creation of water resources structures and watershed management.
- Protected cultivation i.e. poly-house, green-house, shade-nets, etc for growing off-season high value vegetables and flowers.

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Conclusion:

- Over the years, horticulture has emerged as one of the potential agricultural enterprise in accelerating the growth of the economy. Its role in the country's nutritional security, poverty alleviation and employment generation programmes is becoming increasingly important. On account of significant production increases in horticultural crops across the country, a Golden revolution is in the offing and India has emerged as a leading player in the global scenario.



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PREPARATION



Q) Despite farm productivity rising in the country, severe distress in the Agriculture sector is still a cause of concern. How grave is the situation ? Discuss with respect to small and marginal farmers. (250 words)

The hindu

Why this question:

The article highlights the need for interventions that are required on demand and supply side to alleviate farm distress in the country.

In the current times of elections and their manifesto aiming at votes in the name of loan waivers, the author brings out causes and consequences facing the farm sector in the country.

Demand of the question:

This question seeks to examine

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction

Start with brief introduction – quote some facts to highlight the situation of farm distress in the country.

Body

Discuss the following points in detail:

- What are the factors causing farm distress in the country?
- Public investment in the sector as a percentage of GDP is also stagnant.
- Declining size of land holdings.
- prices are much lower than the MSP [minimum support price] in the market.
- long-term problems such as low capital formation in agriculture persist. Etc.
- Present a case of small and marginal farmers, why is their case different? – take hints from the article and provide for suitable points.
- What needs to be done? – suggest measures to overcome the distress.

Conclusion

Conclude with what needs to be done – suggest holistic approach required to address the problem.

Introduction:

- Farm incomes have been squeezed by slower output growth, higher costs and increased vulnerability to a changing climate.
- Economists said that the GDP deflator for agriculture is negative for the first time in many years. The NSSO Situation Assessment Survey of Agricultural Households (2013) shows that 52% of farming households are indebted, with rates as high as 89-92% in some States.

And there are a slew of new problems resulting directly from government policies. The recent marches to New Delhi, Mumbai by thousands of farmers are any indication, the farm sector has already sent up emergency flares.

Body:

Factors causing farm distress in the country:

- **High Input costs:**
 - Land degradation has become a major challenge and cost of farming is constantly rising with usage of fertilizer, pesticides, expensive seed varieties, machinery, labour cost, rise in fuel prices, vagaries of monsoon. This further complicates the livelihood of farmers
 - In India, farmers are poor due to low productivity (yield per hectare) of all major crops.
 - Growth in rural lending has decreased and indeed most of the rural lending is indirect rather than direct.
- **Farmers income remained low:**
 - India had record food production in 2017-18, but farmers' income remained low and stagnant.
 - According to Ashok Dalwai committee, farmer's income remained about 15-40% of consumer's price.
 - Studies conducted by the International Food Policy Research Institute and World Bank have confirmed this.



- **Government Policies:**
 - India has excessively dependent on MSP to drive crop planning by farmers. MSP is restricted only to few crops.
 - In good harvest years, neither are MSP increased to ensure a floor price that covers costs and offers a remunerative return, nor is enough procured to ensure that even the MSP offered serves as a floor for market prices.
 - The government continues to use old draconian measures, including stocking restrictions and bans on exports and futures trading, to even small increase in food prices. Such steps may bring temporary relief to consumers, but end up hurting farmers.
 - Fiscal conservatism has adversely affected public investment in irrigation, drainage and flood control.
 - Liberalised imports of agricultural commodities including foodgrains and cotton have dampened domestic prices
- **Middlemen troubles:**
 - As pointed out by Ramesh Chand, in Punjab, there are as many as 22,000 commission agents and innumerable middlemen in each market.
 - According to Ashok Gulati, former chairman of the Commission for Agricultural Costs and Prices, commission agents in Delhi charge exorbitant fees ranging from 6 per cent to 15 per cent.
- **Rigid Market Structure:**
 - Prevalence of APMC markers, trader cartels due to which low price for agri produce is offered specially due to bumper crop production.
- **Poor Infrastructure and Logistics:**
 - Lack of diffusion of adequate storage facilities lead to wastage. For instance farmers dump truckloads of vegetables on road.
 - Food Parks projects concentrated near to cities and poor maintenance leads to spoilage of the crops.
 - Cold storage units exist in less than one-tenth of the markets and grading facilities in less than one-third; electronic weigh-bridges are available only in a few markets.
- **Aggressive cultivation led to plunging in demand:**
 - Once prices have increased farmers cultivated the crop aggressively leading to plunging of prices.
 - Two years ago, garlic fetched an average Rs 60 per kg rate in Rajasthan's Kota mandi. Enthused by it, farmers in the Hadoti region planted more area, only to see prices halve last May.
 - Similar was the case for other vegetables. Example: Tomato, Toor Dal etc.
- **Pro-Consumer bias:**
 - In most years, for the majority of agri-products, the policymakers used restrictive export policies to keep domestic prices low. This showed the pro-consumer bias in the policy complex.
- **Information Asymmetry:**
 - A bumper crop can pull down prices in wholesale markets. Price spikes after a poor crop are inevitably dealt with through cheap imports in a bid to protect consumers. The opposite is done less frequently. This is due to lack of information.
 - The bountiful rains of 2016 resulted in record farm output. Prices crashed. Farmers are reported to have not been able to even recover the cost for some crops.
 - The prospects of a good monsoon pushed up rural wages. The reality of rock bottom prices then destroyed profit margins.

Measures needed:

- **Credit, finance and Insurance:**
 - A functional institutional credit system which is accessible and accountable to all cultivators.
 - This covers not only land-owning farmers but also sharecroppers, tenants, adivasi and women farmers, and animal-rearers.
 - Credit products for agriculture need to be tailor-made based on cropping and rain cycle, specific to a particular region. The regional offices of commercial banks should contribute in this exercise. Registration of all cultivators and providing Kisan credit cards.
 - The period of crop loan should be extendable to four years, given that, on average, every second or third year the spatial distribution of rain pattern is erratic in India.
 - Strengthen agricultural insurance, reforming agricultural marketing and introduction of model contract farming act



- **Input Costs:**
 - It is more important to make agriculture sustainable by reducing input costs of seeds, fertilizers and other inputs.
- **Remunerative Prices:**
 - Extending reach of minimum support price which has been dedicated to few crops and in a narrow geographical area is important.
 - Set up of Futures and Trade markets, tie up of farmer and private companies for procurement should be looked into as alternative methods against distress sale.
- **Agro- Produce Marketing and Processing:**
 - The agro-processing industry and warehousing needs to expand so that agricultural produce can be stored when prices plunge.
 - Promoting viable farmer collectives to act as a “collective voice of marginal and small farmers”.
 - Legislations on the basis of NITI Aayog’s new model law — Agricultural Produce and Livestock Marketing (Promotion and Facilitating) Act (APLM) should be enacted in all states.
- **Technology:**
 - Use of technology to aid farmers like drip and sprinkler irrigation.
 - Precision agriculture, GM Crops should be encouraged drought prone areas.
 - Space technology and Mobiles should act as “Eyes and Ears” of the farmers to assist in farming.
- **Distress Management:**
 - Establish farmers’ distress and disaster relief commissions at the national and State levels, based on the model of Kerala Farmers’ Debt Relief Commission.

Conclusion:

- Farmers’ distress is due to low prices and low productivity. **Limited procurement, measures to improve low productivity, and consolidation of land holdings to gain the benefits of size, can help in reducing agrarian distress.**
- The challenge before government is to deliver on the institutional solutions backed by a long term policy demanded by farmers as against temporary solutions of loan waivers

Q) What is the basic idea behind initiating the e Choupal ? Discuss how it has proved to be an aggregator of Agricultural Services. (250 words)

[The hindu](#)

Why this question:

YC Deveshwar, the man who transformed ITC into a multi-business conglomerate, passed away recently. The e Choupal is a flagship program of the ITC -aimed at linking directly with farmers via the Internet for procurement of products by entering the FMCG space in rural areas.

Key demand of the question:

The answer is straightforward, one must discuss in detail the flagship ITC program of e Choupal and significance of it in proving to be an aggregator of Agri services to the country.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines, highlight the key aspects of e Choupal.

Body:

Answers must discuss the following aspects :

- What is e-Choupal? – the two-decade old initiative from ITC aimed to web-enable farmers to overcome challenges related to information access and procurement.
- Discuss the salient features of the project.
- Explain how it catalyzed the protection of farmers from the abuse of the agents? Acted as an agglomerate of agricultural services?
- The focus of the answer must be on the welfare aspect that the project brought in for the Farmers.
- Provide for way forward.



Conclusion –

Conclude by reasserting significance of such initiatives of private companies in policy making of the country.

Introduction:

- e-Choupal is an initiative of **ITC Limited**, a conglomerate in India, to link directly with rural farmers via the Internet for procurement of agricultural and aquaculture products like soybeans, wheat, coffee, and prawns.
- e-Choupal tackles the challenges posed by Indian agriculture, characterized by fragmented farms, weak infrastructure and the involvement of intermediaries. The programme installs computers with Internet access in rural areas of India to offer farmers up-to-date marketing and agricultural information.

Body:

The ITC chose to operate the platform on the following **three business principles**:

- (i) Free information and knowledge which ensures wider participation by the farmers.
- (ii) Freedom of choice in transactions (farmers after accessing information at the e-Choupal, are free to transact their own way.)
- (iii) Transaction based income, stream for the Sanchalak by tying his revenue stream to the transaction (on a commission basis.)

Implications of e-Choupal:

- ITC Limited has provided computers and Internet access in rural areas across several agricultural regions of the country, where the farmers can directly negotiate the sale of their produce with ITC Limited.
- Online access enables farmers to obtain information on mandi prices, and good farming practices, and to place orders for agricultural inputs like seeds and fertilizers. This helps farmers improve the quality of their products, and helps in obtaining a better price.
- ITC Limited kiosk with Internet access is run by a **sanchalak** — a trained farmer. The computer is housed in the sanchalak's house and is linked to the Internet via phone lines or by a VSAT connection.
- Each installation serves an average of 600 farmers in the surrounding ten villages within about a 5 km radius. The sanchalak bears some operating cost but in return earns a service fee for the e-transactions done through his e-Choupal.
- The warehouse hub is managed by the same traditional middle-men, now called **samyojaks**, but with no exploitative power due to the reorganisation. These middlemen make up for the lack of infrastructure and fulfill critical jobs like cash disbursement, quantity aggregation and transportation.
- Driven by **increasing smart phone penetration** in the country coupled with declining data costs, the FMCG and hospitality conglomerate plans to launch a mobile version of the programme by middle of 2019.
- Since the introduction of e-Choupal services, farmers have seen a **rise in their income levels** because of a rise in yields, improvement in quality of output, and a fall in transaction costs. Even small farmers have gained from the initiative.
- Farmers can get **real-time information** despite their physical distance from the mandis. The system saves procurement costs for ITC Limited.
- The farmers do not pay for the information and knowledge they get from e-Choupals; the principle is to inform, empower and compete. e-market place for **spot transactions and support services to futures exchange**.
- There are **6,100 e-Choupals in operation in 35,000 villages in 10 states** (Madhya Pradesh, Haryana, Uttarakhand, Uttar Pradesh, Rajasthan, Karnataka, Kerala, Maharashtra, Andhra Pradesh and Tamil Nadu), affecting around 4 million farmers. In Uttar Pradesh, the pilot project has reached out to nearly 2, 00,000 farmers.
- As part of the e-Choupal initiative forward, ITC has also launched a program — '**baareh mahine hariyali**' — focused on helping farmers multiply their incomes by maximising farm utilisation over 12 months of the year. The programme has been implemented in four districts of Uttar Pradesh including Allahabad, Chandauli, and Ghazipur and Bihar's Munger district.

Conclusion:

- E-Choupal, the two-decade old initiative from ITC aimed to web-enable farmers to overcome challenges related to information access and procurement, is set for a major makeover this year. The new model, called **e-Choupal 4.0**, will be rolled out in the next couple of months



Q) Looking at agriculture from the social safety net lens is perhaps the reason behind agriculture not being treated as an income generator, and this itself has most of the time contributed to farm distress. Critically analyse the statement with respect to various competitive support offers made through different income security schemes for the farmers. (250 words)

Epw

Why this question:

The article discusses in detail how the discourse on Indian agriculture has been dominated by farm distress leading to politics of competitive support offers.

Key demand of the question:

The answer must debate about the interrelationship that is witnessed between the farm distress and the social security aspects provided through various schemes and policies.

Directive word:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

In a few introductory lines explain the context of the question.

Body:

- Highlight the current scenario of agrarian distress looming the Indian scenario.
- Discuss how often the political discourse on agriculture has focused on support to farmers, notwithstanding that what has most failed the Indian agriculture is markets for outputs.
- Explain the flaws associated with the schemes that aim to provide social security net, as to why they lead to farm distress eventually.
- Discuss that Social protection programmes often aim to address the underlying market failures that may have contributed to the persistent state of poverty but however they end up leading to farm distress.
- Discuss what needs to be done? – change in policy directions, focus shift to markets etc.

Conclusion:

Conclude with what should be the way forward.

Introduction:

- The discourse on Indian agriculture has been dominated by farm distress leading to politics of competitive support offers.
- Several schemes have been pitched, such as the Pradhan Mantri Kisan Samman Nidhi, the Nyuntam Aay Yojana (NYAY), the Rythu Bandhu scheme of Telangana or the Krushak Assistance for Livelihood and Income Augmentation (KALIA) of Odisha.
- The unifying principle of these schemes is income or livelihood support for the farmers or poor households.

Body:

Cash transfer support schemes:

- Bhavantar Bhugtan Yojana in Madhya Pradesh was sought to provide relief to farmers by providing the differential between MSPs and market prices.
- The Rythu Bandhu scheme of the Telangana government provides ₹4,000 per acre for every season to all the farmers of the state. Similar initiatives have also been framed in Jharkhand and Odisha.
- In December 2018, Odisha launched the Krushak Assistance for Livelihood and Income augmentation (KALIA).
- Unlike RBS, KALIA is more complicated in design and implementation. It commits to give Rs 5,000 per SMF, twice a year, that is Rs 10,000 a year. It has already made payments to 1.2 million SMFs in January 2019.
- Recently the 2019 budget announced a scheme, Pradhan Mantri Kisan Samman Nidhi, under which vulnerable landholding farmer families, having cultivable land up to 2 hectares, will be provided direct income support of ₹6,000 a year.



Pros of support schemes:

- **Past experiences:**
 - Success of cash transfers for cooking gas, food and the rural jobs scheme also seem to have convinced the government on adopting the mechanism for agriculture.
- **Poverty reduction:**
 - Cash transfer programmes have become an important tool of social protection and poverty reduction
 - It has immediate impact on reducing hunger and rural poverty.
 - They can help households to overcome credit constraints and manage risk.
- **Better use:**
 - This can increase productive investment, increase access to markets and stimulate local economies.
 - Income support can be used to make a repayment or at least activate a bank account which can then receive a loan.
 - It can increase investment in agricultural inputs, including farm implements and livestock
- **Rural development:**
 - It can serve as an important complement to a broader rural development agenda, including a pro-poor growth strategy focusing on agriculture.

Negatives of support schemes:

- According to National Bank for Agriculture and Rural Development's All India Rural Financial Inclusion Survey (Nafis) small and marginal farmers earned Rs 79,802-1,19,878 in 2015-16.
- This means that the Rs 6,000 annual direct income transfer under PM-KISAN would be only about 5-8% of their existing income levels.
- This may not be much, particularly when compared with other direct income transfer (DIT) schemes rolled out in Telangana and Odisha.
- A Direct income transfer to landless labourers covered under KALIA's livelihood component is missing under PM-KISAN.
- Cash transfers are not greatly superior in terms of leakages compared to other schemes of in-kind transfer such as the public distribution system (PDS). Uncertainties in receiving uniform and periodic cash payment would reduce the validity of the scheme as income. Targeting errors are also likely.
- The real issue with the approach of a targeted cash transfer scheme is that it envisions the role of the state to only providing cash income to the poor. This kind of approach seeks to absolve the state of its responsibility in providing basic services such as health, education, nutrition and livelihood.
- Does not eradicate poverty:
 - It may address certain aspects of inequality by ensuring a basic income, they will not eradicate poverty. Poverty is measured as deficits in income or consumption, but the underlying causes of these shortages are linked to human capabilities and access to resources.
- Cash transfer scheme such as PMKSN cannot be substituted for subsidies and other institutional support systems such as the National Food Security Act-powered public distribution system. In fact, such cash transfer schemes could be counterproductive and may lead to more distress.
- Cash transfers do not solve the following problems which are the reasons for the current agrarian crisis
 - The Agrarian crisis is not just of low incomes in agriculture. The genesis of the current crisis lies in the faulty and ad hoc export-import policy, lack of infrastructure and cartelisation and collusion in agricultural markets, which have prevented farmers from realizing the market prices for agricultural produce.
 - Cash transfers do nothing to resolve any of these, nor are they any guarantee of protection against unforeseen events, whether natural or policy induced.
 - Cash transfer is neither a substitute for the structural reforms needed in agriculture, nor does it adequately compensate the farmer for the risks and uncertainty of crop cultivation.
- Regressive:
 - Except for the KALIA scheme, which offers some relief to the sharecroppers and landless labourers most other schemes are regressive with amount of transfer proportional to the land owned.
- Identifying beneficiaries is tough:
 - In sugarcane and cotton, much of the ground-level work is organised and in the hands of cooperatives, where the person who has the operational holding of land is well identified. But in crops where the ownership holding is different from the operational holding, it might be



- In the absence of proper tenancy records, it will also benefit the absentee landlords.
- It is no substitute for the lack of investment in agriculture, which has declined at 2.3% per annum in real terms
- By taking away precious fiscal resources, it makes the farmer more vulnerable to both market as well as non-market induced risks.
- Fiscal constraints to states:
 - The income transfer scheme will further erode the fiscal capacity of states.

Way forward:

- Policy focus should be rather on investment — in **efficient water management and irrigation, plant breeding and genetics, crop husbandry, market linkages and in breaking the middleman's hold over the farm-to-consumer value chain, replacing it with farmer-led enterprises, whether cooperatives or producer companies, that allow farmers to capture a share of the value added to their produce along its journey to the factory or home.**
- For a long-term solution, the government should first implement existing schemes, like it should give assured procurement and marketing of all commodities having MSP.
- The Swaminathan Committee in 2004 had recommended farmers be allowed to fix the price for their produce on their own (cost of production plus 50% as profit), keeping local factors in mind.
- Greater focus is required on enhancing farmer loan repayment capacity via smooth supply and value chains, and better price realisations.

Q) Write a short note on seafood industry of India. Explain the need for sustainable aquaculture to counter setbacks it is facing and increase the production. (250 words)

Economictimes

Why this question:

The article provides for a brief account of shrimp production in the country and the challenges that the seafood industry is witnessing.

Key demand of the question:

Answer must discuss the significance of seafood industry; the challenges and future it has for the country. Suggest what should be the way forward by focusing on the need for sustainable aquaculture.

Directive word:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In a few introductory lines highlight the facts related to seafood industry of India.

Body:

- In brief discuss the following aspects:
- In 2017-18, India's seafood exports have seen a growth of 13.7% in quantity and 10.1% in value. Research expects that in 2019 India's seafood exports will grow at 17-18%, clearly showing a demand for Indian products.
- his industry contributes 6.3% to the total global fish production and has 14.5 million people engaged in various fisheries-related activities.
- Explain the significance of the industry in terms of – livelihood, essential commercial enterprise in terms of exports etc.
- Discuss what are the challenges?
- Role and need of sustainable aquaculture.

Conclusion:

Conclude with way forward.

Introduction:

- India is blessed with a coastline of over 8,118 kms, 2.02 million sq. km of EEZ, 0.5 million sq. km. Continental shelf estimated to have exploitable resources to the tune of 4.41 million tons of which about 3.40 million tons are presently exploited.
- India's seafood industry has become one of the leading suppliers of quality seafood to all the major markets of the world. India has world class seafood processing plants that follow quality control regimes compliant to stringent international regulatory requirements.

**Body:****Potential:**

- The estimated potential brackish water area suitable for shrimp farming is about 1.2 million hectare of which around 14% is utilized for farming, producing about 5 lakh tons of shrimp and scampi which is going to the export basket.
- Shrimps account for around 70% of the total seafood export from the country valued at Rs 45,000 crore.
- In 2017-18, India's seafood exports have seen a growth of 13.7% in quantity and 10.1% in value. Research expects that in 2019 India's seafood exports will grow at 17-18%, clearly showing a demand for Indian products..
- Seafood exports from India during the year 2014 – 2015 reached to an all time high of US\$ 5.5 Billion. 106 countries in the world taste Indian seafood, SE Asia, EU, USA, Japan, China and Middle East being the major markets.
- India is the second largest aquaculture producer in the world, largest exporter of shrimp to USA, the 2nd largest exporter of shrimps to Europe and the 4th largest exporter of shrimps to Japan.
- MPEDA envisage an ambitious target of US\$ 10 Billion for the year 2020.
- This industry contributes 6.3% to the total global fish production and has 14.5 million people engaged in various fisheries-related activities.

Current challenges faced:

- Shrimp production in the country, after showing a consistent growth in the last decade, is likely to drop by 10 to 15% this year as low prices and fear of spread of diseases among shrimps have forced aquaculture farmers to cut production in the farms.
- The stocking in the farms in south Andhra Pradesh is down by half while in north and central parts of the state, the situation is better with 80% of the farms well stocked.
- The aquaculture farmers lost money last year when white spot and EHP diseases reduced the shrimp output. This year, the fear of diseases has led many to stock less in farms.
- Little improvement in global shrimp prices and lack of funding support to farmers are the other reasons for the reluctance of farmers to go for full output.
- With increasing adoption of **product quality standards**, especially with respect to health and safety, the occurrences of Indian shrimp shipments failing to meet these standards are becoming common.

Other challenges faced:

- Since 1990s, three issues dominated Indian export scene: decline in overall catches, particularly shrimp; fluctuations in international markets depressing prices and profitability; and over-capitalisation of the production and marketing activities increasing risk.
- The emphasis on production is not supplemented by developing adequate infrastructure facilities to support them; the availability and quality of infrastructure remains insufficient.
- The contribution of fish from the seas has lowered now and the share is rising from inland farming.
- Water pollution; unscientific management of aquaculture and contamination of indigenous germplasm resources.
- Poor yield optimization, problems in harvest and post-harvest operations, landing and berthing facilities for fishing vessels and issues in welfare of fishermen.

Way forward:

- The need of the hour is technology upgradation fund for sustainable aquaculture development
- The recent creation of separate department for fisheries and a 2% interest subvention on loans to farmers by the Centre will go a long way in accelerating this
- The group recently launched sustainable, traceable, quality certified aquaculture hub model at Tuticorin. This must be expanding this to larger areas by transferring technology developed by us to farmers covering the entire gamut of value chain, right from broodstock availability.
- An approach that is increasingly being used around the globe is the use of sustainability standards and certifications such as MSC (Marine Stewardship Council) or ASC (Aquaculture Stewardship Council) as a way to assure buyers of the safety, quality and environmental responsibility of their products.

Conclusion:

- Indian Aquaculture is highly promising and has grown over six and half fold in the last two decades with freshwater aquaculture contributing over 95% of the total aquaculture production.
- All the 3 sub sectors viz. Inland, Aquaculture and Marine fisheries have a lot of scope for improvement. The recent step of creating FAIDF is a praised step to boost the fisheries sector to the desired level.



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PREPARATION

Topic: Infrastructure: Energy, Ports, Roads, Airports, Railways etc., Investment Models.

Q) The Indian Power sector has undergone a paradigm change, India jumped to 24th rank in 2018 on World Bank's Ease of Getting Electricity in the world as against 111th rank in 2014, Analyse this quantum leap and suggest what should be the way forward for India to ensure power for all in coming future. (250 words)

Power for All – A Dream Coming True, Yojana Feb 2019 issue: Infrastructure

Why this question:

Over the years there has been a transformational change in the Power Sector. Regulatory frame work is being reformed with a new Tariff Policy and amendments to the Electricity Act. In sum, the Indian Power sector has undergone a paradigm change. Thus it is important for us to evaluate the power for all scenario of India.



Key demand of the question:

The answer must provide for a detailed analysis of the transformative changes that Indian power sector has witnessed recently. Our country jumped to 24th rank in 2018 on World Bank's Ease of Getting Electricity in the world as against 111th rank in 2014. This is a quantum leap. One has to justify the developments and bring out the shift in policy making that has led to such a transformative change. Also suggest what should be the way ahead to ensure power for all.

Directive word:

Analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary.

Structure of the answer

Introduction:

write a few introductory lines – quote relevant facts justifying changing scenario of Indian power sector.

Body:

Answers must discuss the following aspects :

- Access to reliable and affordable energy increases the ease of living and generates employment. It powers the development of the country.
- Discuss the recent initiatives taken by the government in this direction, marked shift in policy making from traditional methods to modern technologies.
- Achievements – More than one lakh megawatts of new generation capacity has been added.
- Energy deficit has been brought down from 4.2 per cent to almost zero.
- India has become an exporter of electricity exporting electricity to Nepal and Bangladesh.
- One lakh circuit kilometres to the inter-state transmission capacity-connecting the entire nation to one grid.
- Now, for the first time we have One nation- One Grid –the entire network operating on one frequency. Power can be transferred seamlessly from one corner of the country to another.
- A major landmark to universal access to electricity was crossed when our country achieved 100% village electrification.
- What should be the way forward?
- Significance of power for all .

Conclusion –

Conclude with need for sustainable energy in future.

Introduction:

- Electricity is the key element in modern day life. Right from powering industrial units and running irrigation pumps to charging your mobile phones electricity does it all. Access to reliable and affordable energy increases the ease of living and generates employment.
- It is a prerequisite to digital connectivity in rural India, thereby opening new vistas for the people hitherto unconnected to the outer world. India's power sector is one of the key sectors which form the foundation of the growth of the country.

Body:

The recent initiatives taken by the government in this direction:

- Government of India launched “**Pradhan Mantri Sahaj Bijli Har Ghar Yojana**” (Saubhagya) in Sept. 2017 to achieve the goal of universal household electrification in the country by 31st March 2019.
- The scheme envisages providing last mile connectivity and electricity connections to all remaining households in rural as well as urban areas.
- In order to encourage Renewable Generation, Ministry of Power extended the waiver of ISTS Transmission charges and losses for Solar and Wind based Projects upto March 2022.
- In order to achieve the Renewable target of 1,75,000 MW of Renewable capacity by 2022, MOP issued Long Term Growth trajectory Renewable Purchase Obligation (RPO) for Solar as well as Non-Solar till the year 2022.
- With the aim of promoting renewable generation and reduction of emission, MOP issued a scheme on Flexibility in generation and scheduling of Thermal Power Stations to reduce emissions.
- MoP has issued a direction to the CERC under section 107 of the Electricity Act, 2003 on 30th May, 2018 for implementation of new Environmental Norms for Thermal Power Plants suggested by MOEF&CC.



- In order to reduce the overall cost of generation as well as cost of power to consumer (Company level merit order operation), MOP issued a scheme on Flexibility in generation and scheduling of Thermal Power Stations to reduce cost of power to consumers.
- In our endeavour for revival of the stressed assets, a Pilot Scheme was introduced by MOP in April 2018 to facilitate procurement of aggregated power of 2500 MW for 3 (three) years (covered under medium term) from the generating companies having coal based Power Plants which are already commissioned without having a power purchase agreement for the quantum of power the Bidder is willing to bid.
- Major reform initiatives are being taken by Ministry of Power which includes addressing various issues being faced by electricity sector through draft amendments proposed in Electricity Act 2003 and Tariff Policy, 2016.

Despite the fact that India has surplus energy, it is facing huge problems which serve as an obstacle for supplying electricity to all needy people. The troubles of power companies can be traced to structural issues such as the

- **Absence of meaningful price reforms**
- **Unreliable fuel supply** – Shortage of fuel for power plants has become very critical in recent months. Many of the coal mines sold off in auction, mandated by the Supreme Court verdict, are simply not operational.
- The unsustainable finances of public sector power distribution companies.
- Grid reliability challenges are more severe in dispersed rural areas than in cities.
- To install electrical connections to about 30 million homes that are still off the grid is a big challenge.
- Electricity supply is controlled and maintained by India's state governments, and, these government-owned distribution companies "remain the weakest link" in the power sector value chain.

Way forward: We need innovative solutions to address the electricity access challenges posed by rural India:

- The federal government must push the state-run distribution companies to carry out robust ground surveys and organize frequent camps to achieve the target so that not one household is left out from electrification.
- Considerable improvement in the operational efficiency of distributors through extensive and intensive change management and capacity-building programmes as well as strengthening of the electricity sub-stations and sub-transmission network are required.
- Decentralized renewable energy solutions such as mini-grids and rooftop solar, where the grid can't reach or reliably serve, and operating together is the most sustainable last-mile solution to reach consumers and achieve universal access to energy.
- Supply of coal will have to be increased by Coal India by following a strategy pursued during 2014-15 and 2015-16, when coal production saw an unprecedented increase
- Power-generating companies should not be saddled with the burden of cross-subsidising the renewable sector. This can be borne by the society (through taxation) and not by the entities that are already in trouble.
- Village-level entrepreneurs could be contracted to operate and maintain the local distribution while generating bills and collecting revenues from the customers.
- Banking on community relationships, these entrepreneurs could improve compliance on payments as well as curb stealing of power.
- Recruiting and training local youth could help address maintenance issues. This will also help in creating more skilled jobs and entrepreneurs in rural areas.
- Pre-paid and smart metering systems are other ways to encourage payments. Such solutions need to be piloted and tested.

Q) Discuss the objectives of Ujjwal DISCOM Assurance Yojana (UDAY), How far has UDAY been able to address the stagnation/decline in the electricity generation capacity of State power utilities ? (250 words)

[The hindu](#)

Why this question:

The article highlights the recent report made by Crisil that suggested State-owned power generation firms have to become commercially viable. Aggregate external debt of State-owned electricity distribution companies (discoms) is set to increase to pre-Ujjwal Discom Assurance Yojana (UDAY) levels of ₹2.6 lakh crore by the end of this fiscal, according to Crisil's analysis of discoms in 15 States, which account for 85% of the aggregate losses.

Key demand of the question:



Analyse in detail the role played by UDAY – its features and objectives, what are the current issues in the State power utilities, how is UDAY addressing it etc.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines highlight the observations made by Crisil.

Body:

In brief discuss –

- Discuss the Scheme Objectives:
- The scheme was launched for operational and financial turnaround of State-owned Power Distribution Companies (DISCOMs).
- It aims to reduce the interest burden, reduce the cost of power, reduce power losses in Distribution sector, and improve operational efficiency of DISCOMs.
- Strategy of UDAY? – four initiatives (i) Improving operational efficiencies of DISCOMs; (ii) Reduction of cost of power; (iii) Reduction in interest cost of DISCOMs; (iv) Enforcing financial discipline on DISCOMs through alignment with State finances.
- What is the current scenario?
- Discuss the efforts of the government in this direction.

Conclusion:

Conclude with what needs to be done, suggest way forward.

Introduction:

- Ujwal DISCOM Assurance Yojana (UDAY) is a financial restructuring and efficiency enhancing program, aims to reduce the debt burden of the state owned electricity distribution companies (DISCOMs) started in 2015.
- Though the main component of UDAY is debt management, other measures like raising operational efficiency are also proposed to permanently settle the debt scenario of DISCOMs.

Body:

Objectives of UDAY:

- Improving operational efficiencies of DISCOMs;
- Reduction of cost of power;
- Reduction in interest cost of DISCOMs;
- Enforcing financial discipline on DISCOMs through alignment with State finances.

Features:

- Scheme aims at financial turnaround and revival of Power Distribution companies (DISCOMs) and ensures a sustainable permanent solution
- It allows power DISCOMs in selected states to convert their debt into state bonds as well as roll out number of measures to improve efficiency at power plants
- It improves operational efficiencies of DISCOMs, Reduce of cost of power, Reduce interest cost of DISCOMs, Enforce financial discipline on DISCOMs.
- Improve operational efficiency by swapping of coal linkages, monitoring technical and commercial (AT&C) losses, smart metering and feeder separation in states
- The operational efficiency includes compulsory smart metering, upgradation of transformers and meters to reduce electricity lost during transmission and distribution (or theft).

Appraisal of UDAY:

Positives:

- It took off well, with a large number of states joining the scheme. Several states took over the debt of their utilities, improving their liquidity situation. Anecdotal evidence also suggests an improvement in the power supply situation.
- Government's UDAY scheme has helped debt-laden discoms of 24 states to reduce losses to Rs 369 billion in 2016-17 from Rs 515.9 billion in the previous financial year.
- The participating states have achieved an improvement of one per cent in Aggregate Technical & Commercial (AT&C or distribution) losses and Rs 0.17 a Unit in the gap between Average Cost of Supply and Average Revenue realised in 2016-17

**Challenges persist:**

- Four years on, the results of UDAY remain unclear and questionable. Many tasks are running behind schedule like smart meter installations.
- AT&C losses remain high, with some states indicating losses of over 40 per cent, a far cry from the 15 per cent target.
- The gap between average cost of supply (ACS) and the average revenue realised (ARR) continues to be high in most states.
- Much of the NPA (non-performing asset) or bad loan resolution in the power sector is beyond UDA
- Over and above the prevailing maladies in the distribution system rising share of renewable energy (RE) is increasing the average cost of supply, as it is displacing consumption of low-cost coal.
- The bonds issued are essentially held by the same entities that had lent funds to the State electricity boards (SEBs).
- The interest received is lower by at least 4-6 per cent; this means that there is a loss of income. Intuitively, it can be seen that every ₹1 lakh crore of UDAY bonds issued involves a loss of up to ₹6,000 crore for banks and FIs that have lent money to them.
- There is no guarantee that there will not be future losses as there is no retribution if the State electricity boards choose not to reform. In fact, this has been kept out of the purview of the scheme.
- By also mandating that State governments have to progressively take over the losses of their SEBs, the Centre has put the onus on the States to deal with the problem.

Way forward:

- Discom business needs to be fundamentally restructured.
- Governance needs to be improved with greater resilience to political influence.
- Robust mechanisms need to be put in place to ensure tariff rationalisation and follow-through on subsequent increases.
- Market-friendly electricity reforms need to be introduced and enforced. This includes expanding the role of short-term markets, as well as strict enforcement of PPAs to assure investors and developers of the legal sanctity of contracts signed with discoms.
- Streamlining the open access process, with the fair application of additional surcharges will boost the demand for renewable energy from the commercial and industrial sectors.
- Discoms will have to be pushed harder to invest in technical solutions and infrastructure upgrade such as feeder separation, installing smart meters and undertaking detailed data collection and analysis.
- Strict Actions to curb Electricity theft and other actions those lead to Losses to DISCOMs.
- Integrating UDAY scheme with Make in India and Startup India to ensure overall Development.
- Integrating UDAY with KUSUM to increase amount of electricity to DISCOMS.

Q) Elaborate upon the key features of Faster Adoption and Manufacturing of Hybrid and Electric Vehicles (FAME-II) scheme, what is the potential it carries for India in the renewable energy sector? (250 words)

[Livemint](#)

Why this question:

The article discusses in detail in the coming of FAME-II, its impact on the energy sector of the country. The Inter-Ministerial Steering Committee of the National Mission for Transformative Mobility has recently decided to incorporate localization conditions to avail benefits under the FAME-II Scheme. Thus it is necessary for us to evaluate the scheme from exam point of view.

Key demand of the question:

The question expects

Directive word:

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction:**

Begin with brief on the significance of the scheme.

Body:

- Discussion should include the following aspects –



- salient features of FAME II scheme –
- aims to boost electric mobility and increase the number of electric vehicles in commercial fleets.
- Target: The outlay of ₹10,000 crore has been made for three years till 2022 for FAME 2 scheme.
- The government will offer the incentives for electric buses, three-wheelers and four-wheelers to be used for commercial purposes.
- Plug-in hybrid vehicles and those with a sizeable lithium-ion battery and electric motor will also be included in the scheme and fiscal support offered depending on the size of the battery.
- Discuss its potential – how FAME II scheme will help improve charging infrastructure.
- What are the issues and associated concerns?
- Discuss what can be done to overcome the concerns associated.

Conclusion:

Conclude with way forward.

Introduction:

- FAME India is a part of the **National Electric Mobility Mission Plan**. To promote manufacturing of electric and hybrid vehicle technology and to ensure sustainable growth of the same, Department of Heavy Industry is implementing FAME-India Scheme Phase – I [Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India] from 1st April 2015 till 31st March 2019.
- FAME-II proposes to give a push to electric vehicles (EVs) in public transport and seeks to encourage adoption of EVs by way of market creation and demand aggregation.

Body:

'Faster Adoption and Manufacturing of Electric Vehicles in India Phase II (FAME India Phase II)' scheme:

- The scheme with total outlay of Rs 10000 Crores over the period of three years (2019-20 to 2021-22) will be implemented with effect from 1st April 2019.
- This scheme is the expanded version of the present scheme titled 'FAME India1' which was launched on 1st April 2015, with total outlay of Rs. 895 crores.

Key Features:

- Emphasis on electrification of the public transportation that includes shared transport.
- In 3-Wheel (W) and 4-Wheel (W) segment incentives will be applicable mainly to vehicles used for public transport or registered for commercial purposes.
- In the 2-Wheel (W) segment, the focus will be on the private vehicles.
- To encourage advance technologies, the benefits of incentives, will be extended to only those vehicles which are fitted with advance battery like a Lithium Ion battery and other new technology batteries.
- The scheme proposes for establishment of charging infrastructure, whereby about 2700 charging stations will be established in metros, other million plus cities, smart cities and cities of Hilly states across the country so that there will be availability of at least one charging station in a grid of 3 km x 3 km.
- Establishment of Charging stations are also proposed on major highways connecting major city clusters.
- On such highways, charging stations will be established on both sides of the road at an interval of about 25 km each.

Potential of FAME-II scheme:

Automobile Sector:

- 100% FDI by automatic route is permitted in the automobile sector.
- Further, the sector is deregulated, both private sector and public sector are free to carry out investment in the automobile sector, including for manufacturing of Electric Vehicles and E-Buses.

Charging Infrastructure:

- The centre will invest in setting up charging stations, with the active participation of public sector units and private players.
- It has also been proposed to provide one slow-charging unit for every electric bus and one fast-charging station for 10 electric buses.
- Projects for charging infrastructure will include those needed to extend electrification for running vehicles such as pantograph charging and flash charging.
- FAME 2 will also encourage interlinking of renewable energy sources with charging infrastructure.

Challenges involved:

- **Coordination among various stakeholders:**
 - EVs, unlike ICE vehicles, involve several actors at the national, State and city levels, respectively



- Multiple ministries such as Road Transport and Highways, Housing and Urban Affairs, Heavy Industries, Power, New and Renewable Energy, External Affairs as well as national institutes such as NITI Aayog should work together.
- State and city-level players need to be involved so as to address several technical and infrastructural needs.
- **EV battery production:**
 - India does not produce lithium-ion (Li-ion) batteries currently, and companies making battery packs are dependent exclusively on imports from China.
 - This is a cost-saving strategy as setting up a cell manufacturing unit in India would be expensive.
 - But, accelerating EV use in India should be linked to the “Make in India” goal and domestic battery production.
- **Charging infrastructure:**
 - Charging infrastructure for electric vehicles in India has not been fully developed yet.
- **Jobs and the economic impact:**
 - India is one of the largest producers of motor vehicles and the sector is estimated to provide direct and indirect employment to 3 crore people. And it is estimated to grow further.
 - EVs have the potential to disrupt the mobility ecosystem, and, if implemented well, could have a positive impact on the economy as well as the urban environment.

Way forward:

- India needs auto industry’s active participation to ease electric mobility transition.
- The auto and battery industries could collaborate to enhance customer awareness, promote domestic manufacturing, promote new business models, conduct R&D for EVs and components, consider new business models to promote EVs.
- Government should focus on a phased manufacturing plan to promote EVs, provide fiscal and non-fiscal incentives for phased manufacturing of EVs and batteries.
- Different government departments can consider a bouquet of potential policies, such as congestion pricing, ZEV credits, low emission/exclusion zones, parking policies, etc. to drive adoption of EVs
- Both Central and State Governments should support clean energy research in general. That way, the government does its part in steering the policy ship

Conclusion:

- Environment-friendly EVs will reduce air pollution and thus contribute to the fight against climate change. As per **NITI Aayog’s report** EVs will help in cutting down as much as 1 Gigatonne (GT) of carbon emissions by 2030.
- The government should have a role. Instead of trying to pick winners, the government should focus on building an enabling business environment that supports research and innovation.

Q) What have been the major reasons for the development of solar energy in India despite its high potential ? Discuss the achievements so far and challenges in harnessing it. What should be the way forward. (250 words)

Why this question:

The question is about analyzing why is scope of producing solar energy so high in India with potential being one factor there are other factors too that push the development of Solar energy.

Key demand of the question:

Answer must discuss the causative factors of developing solar energy in India in detail.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines state some facts/statistics related to solar energy production in India.

Body:

In brief discuss the following factors:

- Why is scope of producing solar energy so high in India? – India has tremendous scope of generating solar energy. The geographical location of the country stands to its benefit for



generating solar energy. The reason being India is a tropical country and it receives solar radiation almost throughout the year, which amounts to 3,000 hours of sunshine.

- Quote reasons apart from these above major factors – power requirements, dependency, export etc.
- Discuss the achievements so far.
- Issues and concerns associated
- What needs to be done?

Conclusion:

Conclude with significance of solar power to India.

Introduction:

- National Solar Mission envisages establishing **India as a global leader in solar energy**. The Mission has set the ambitious target of **deploying 100GW of grid connected solar power by 2022**. (40 GW Rooftop and 60 GW through Large and Medium Scale Grid Connected Solar Power Projects). The country's solar installed capacity reached **25.21 GW as of 31 December 2018**

Body:

The major reasons for the development of solar energy in India:

- **Energy Security:**
 - As Indian population continues to grow and the limited amount of fossil fuels begins to diminish, it may not be possible to provide the amount of energy demanded by the world by only using fossil fuels to convert energy.
 - India's current energy use is unsustainable.
 - India has been dependent to a large extent on energy imports to meet its national energy requirements.
 - It is estimated that at current rates of production, oil will run out in 53 years, natural gas in 54, and coal in 110.
- **Economic Constraints:**
 - India imports almost 80% of her oil needs, generates 60% of her electricity from coal-based thermal power plants. However, these being fossil fuels, they are dwindling at quick rates.
 - The **geo-political scenario** is volatile leading to energy insecurity of India
 - It not only results in huge government subsidies, but also substantial health and environmental hazards.
- **Social Needs:**
 - Nearly 300 million people in rural India lack access to grid-connected power, promoting use of archaic sources of energy such as kerosene, diesel, wood-fired chulhas, etc.
 - Mostly energy demands are fulfilled by subsidised kerosene, leading to loss for exchequer.
- **Environmental Concerns:**
 - India lying in tropical belt has an advantage of receiving peak solar radiation for 300 days, amounting 2300-3,000 hours of sunshine equivalent to above 5,000 trillion kWh.
 - Debate of global warming and climate change is compelling the world to move from fossil based energy towards clean and green energy.
 - With its pollution free nature, virtually inexhaustible supply and global distribution, solar energy is very attractive energy resource.
 - India's Intended Nationally Determined Contributions (INDC's) commitments include 100 GW of solar power out of 175 GW renewable energy by 2022.

Achievements:

- National Solar Mission envisages establishing **India as a global leader in solar energy**.
- The Mission has set the ambitious target of **deploying 100GW of grid connected solar power by 2022**. (40 GW Rooftop and 60 GW through Large and Medium Scale Grid Connected Solar Power Projects).
- The country's solar installed capacity reached **21 GW as of 31 December 2018**.
- India along with Paris, on the sidelines of UNFCCC's CoP 21 at Paris (2015) decided to set up **International Solar Alliance**.
- The ISA's major objectives include global deployment of over 1,000GW of solar generation capacity and mobilisation of investment of over US\$ 1000 billion into solar energy by 2030.

Challenges:

- India's solar story is largely built over imported products.



- India's domestic content requirement clause is facing legal challenge at WTO.
- India is facing challenge to balance Prioritising domestic goals and WTO commitments.
- The dumping of products is leading to profit erosion of local manufacturers.
- Indian domestic manufacturers aren't technically and economically strong to compete with Chinese companies.
- China's strong manufacturing base is giving stiff challenge to domestic manufacturer.
- Land availability in India for solar plant is less due to high population density.
- India's solar waste is estimated to be around 1.8 million by 2050 also needs to be tackled.

Way Forward:

- Strong financial measures are required to finance the solar projects, innovative steps like green bonds, institutional loans and clean energy fund can play a crucial role.
- Promotion of research and development in renewable energy sector, especially in storage technology.
- Proper mechanism should be provided to tackle China's dumping of solar equipments.
- Framework to avoid unnecessary delays in policy decision making and implementation.
- India needs a Solar Waste Management and Manufacturing Standards Policy.

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Topic: Science and Technology- developments and their applications and effects in everyday life

Q) What do you understand by Autonomous Vehicles ? Discuss the Ethical concerns involved in their launch. (250 words)

Indianexpress

why this question:

The article is in the backdrop of recent move by the Tesla that declared to offer fully autonomous vehicles by the second quarter of next year. The article tries to capture why the world is not yet ready for autonomous vehicles.

Key demand of the question:

The answer must provide for a detailed narration of what we understand by autonomous vehicles, what are the associated benefits and concerns, ethical issues involved and why the world is not yet ready to embrace the technology change.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines about the move made by Tesla.

Body:

Answers must discuss the following aspects :

- What do you understand by Autonomous Vehicles? – A driverless car, also called autonomous car or self-driving car, is a vehicle which can sense its surrounding environment and can navigate without human input. It combines multiple sensors and techniques to perceive their surroundings like radar, laser light, GPS, odometer, computer vision, etc. The advanced control systems interpret the sensory information for identifying the obstacles, relevant signage and navigation paths.
- What are the issues involved in self-driving vehicles? – snow and weather; When it's heavy enough to cover the pavement, snow blocks the view of lane lines that vehicle cameras use to find their way, Pavement lines and curbs, Dealing with human drivers, Consumer acceptance etc.
- Quote the Uber incident of March 2018 and elaborate on the ethical issues and concerns involved such as – responsibility of the accident, can machines make ethical decisions?, law aspects, life and death etc.

Conclusion –

Conclude with what needs to be done?

Introduction:

- Self-driving vehicles are cars or trucks in which human drivers are never required to take control to safely operate the vehicle. Also known as autonomous or “driverless” cars, they combine sensors and software to control, navigate, and drive the vehicle.
- They use technologies like **radar, Lidar, sonar, GPS, odometry and inertial measurement units**. Advanced control systems interpret sensory information to identify appropriate navigation paths, as well as obstacles and relevant signage. Long distance trucks are seen as being in the forefront of adopting and implementing the technology.

Body:

The Ethical concerns involved with Autonomous vehicles are:

- **Decision making:**
 - Google, Tesla and other major companies aim to make driverless cars a reality, which they suggest could reduce accidents caused by human error.
 - However, fatal accidents that such autonomous vehicles have already experienced — such as the deadly collision in May 2018 of a self-driving Uber car with a pedestrian — suggest they will not only need to navigate roads, but potentially also the dilemmas posed by accidents with unavoidable deaths.
 - For example, should a driverless car hit a pregnant woman or swerve into a wall and kill its four passengers?



- **Accountability:**
 - In the case of any crash, it would arise issue of accountability whether car owner would be accountable or the manufacturer of that vehicle
- **Law vs Ethics:**
 - Autonomous cars are made to follow traffic rules strictly. But sometime traffic rules have to be compromised.
 - For example when a critical patient have to be taken to hospital. Some traffic rules like speed restrictions, breaking traffic signal in less traffic have to be broken to save the life.
- **Displaying human values:**
 - When the vehicle finds an injured person or an old lady, will it stop to help them and display the qualities of compassion and empathy?
 - will it stop by an accident and act as a good samaritan if need arises
 - Whether robots can amicably adapt to the human environment where interaction between the passenger and driver would be minimum may arise issue of developing companionship, cooperation, bonding which use to be with the human being.
- **Impacts on Environment:**
 - This will promote vehicle usage at a time when the objective is to reduce vehicles to reduce green house gas emissions
- **Livelihood of drivers:**
 - Job loss to drivers without compensatory skill development and job creation.
 - It is believed that in coming future automation will kill 69% of the job

Conclusion:

- The autonomous vehicles have been pegged to revolutionize the driving experience of passenger and have utility over vice like in case of safety of passenger. Any use of this emerging technology must be carefully used keeping in mind its ethical concerns in mind.

Q) Discuss the Impact of the Internet on our Daily Life, what are its Pros and Cons ? Elaborate. (250 words)

[Livemint](#)

Why this question:

The question is straightforward and is about analyzing the pros and cons of Internet.

Key demand of the question:

The answer must discuss the impact of use of internet on human beings.

Directive word:

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Begin with brief on what is internet.

Body:

- Discuss – How does the Internet affect people's lives? – Internet impact on society is now making economic, social, and political changes around the globe.
- What are the side effects of Internet? – Emotional Symptoms of Online Addiction; Feelings of guilt, Anxiety, Depression, Dishonesty, Euphoric feelings when in front of the computer, Unable to keep schedules, No sense of time, Isolation Etc.
- Discuss who all it affects and how?
- What needs to be done to utilize it in the best possible way without much of disadvantage.

Conclusion:

Conclude with a way forward.

Introduction:

- Internet as part of the history is the most important invention around the world which connects people through phones, satellites and cables.



- People all over the world have access to it as it is everyday usage, and internet becomes globally real and in demand. The maximum effect of the internet is actually on the daily life of the individuals because indeed there is no aspect of life which is not influenced by the internet and its uses.

Body:

Impact of Internet:

Pros:

- Information technologies have wrought fundamental change throughout society, driving it forward from the industrial age to the networked era. In our world, **global information networks are vital infrastructure**.
- The Internet has changed business, education, government, healthcare, and even the ways in which we interact with our loved ones—it has become one of **the key drivers of social evolution**.
- Online, the conventional constraints of space and time disappear and there is a dizzyingly wide range of communicative possibilities. The impact of social media applications has triggered discussion of the **“new communication democracy.”**
- The **right utilization of Internet power is challenging for governments across the world**. Government expenses are reduced due to providing data and information for people on the government websites. People are taking advantages of Government policies and websites. Any government information and service are easily accessible for the citizens. Using tools such as Right to Information, we can have online access to important government documents.
- The Internet is one of the key factors **driving today’s economy**. Even in a tough macroeconomic framework, the Internet can foster growth, coupled with enhanced productivity and competitiveness.
- The Internet has clearly **impacted all levels of education** by providing unbounded possibilities for learning. I believe the future of education is a networked future. People can use the Internet to create and share knowledge and develop new ways of teaching and learning that captivate and stimulate students’ imagination at any time, anywhere, using any device.
- The most interesting aspect of the internet influencing our daily lives is the factor of **entertainment**. Entertainment no longer demands your money or expense, today you can just log on the internet in your free time and get involved talking to people of similar interests, or watch movies or play games, its all there in the internet.
- The development of information and communication technologies and the wide-ranging effects of globalization are changing what we are, and the meaning of cultural identity. The concepts of space, time, and distance are losing their conventional meanings. **Cultural globalization** is here, and a global movement of cultural processes and initiatives is underway.
- The Internet revolution is not just technological; it also **operates at a personal level**, and throughout the structure of society. The Internet makes it possible for an unlimited number of people to communicate with one another freely and easily, in an unrestricted way.

Cons:

- A key issue surrounding Internet use is **privacy**. Internet users are becoming more sensitive to the insight that privacy is a must-have in our lives. It’s very tough even for the government of various countries to protect user’s privacy.
- The biggest challenge for the society to do mobile banking and cashless transactions. Because the **data is compromised** by such companies and there is no guarantee that you’re safe or not.
- Much of the time, people started to use social media with no real idea of the dangers, and have wised up only through trial and error—sheer accident, snafus, and mistakes. Lately, inappropriate use of social media seems to hit the headlines every day
- Internet has given rise to **cyber crime** of which mostly teenagers and youngsters become the victim. We all hear in our day to day life about these cases for eg. Leaking someone’s private clips or pictures on internet just for the sake of jealousy or taking revenge or for hacking.
- The Internet is **creating robotic societies**. A society with hybrid skills doing like, comments but doesn’t have feelings and own impact on his/her social shares.
- The Internet is also helping the polarization of the society by dividing the unity of people by **producing communalism and casteism material on the internet**. Producers of communalism and casteism in the society never develop the society.
- If technology can replace a task, we will rely on it rather than exercise our mental faculties. So, the tech giants will give birth to a “reliance economy”.

**Conclusion:**

- Today almost all the things are connected and working through the Internet. There should be no doubt that Internet is becoming the engine of every new invention.
- No matter how bad society is influenced by the internet, but education of people can play a role in right usage of Internet. The role is not defined by algorithms, it is defined by our parents, teachers and after self-analysis.

Q) Breaking down the boundaries guarding our privacy ? Debate the benefits these technologies offer with respect to the data breaches they make. (250 words)

Livemint

Why this question:

The article captures the debate of pros and cons that Internet of things bring to us. It analyses the issue of data privacy and surveillance of the IoT. One has to weigh the pros and cons for the same.

Key demand of the question:

The answer must argue in detail for and against the Internet of things, one has to analyse the positives and negatives of the IoT.

Structure of the answer:

Introduction:

Briefly explain the concept of Internet of Things and how Internet of things has been a buzzword in today's fast-paced world. Internet of things is a core technology in today's era.

Body:

Body of the answer should discuss the following aspects:

- Start by explaining what are the benefit of Internet of things?
- Discuss the three of the main concerns that accompany the Internet of Things are the breach of privacy, over-reliance on technology, and the loss of jobs.
- Aspect of Privacy and security – In today's tech-driven world, each and every device that an individual uses is connected via the internet. This increases the risk of any leakage of data that might be important. This is a major drawback of sharing information, as confidential information might not be safe & could be hacked by third parties easily.
- Present points on how it proves to provide an unpermitted data surveillance breaching boundaries of privacy.
- Conclude as to what can be the way ahead.

Conclusion:

Conclude with measures to prevent such data breach and what can be the way forward with it.

Introduction:

- Internet of things is an integrated system in which devices are connected in a network of information in such a way that they can communicate with each other without any human intervention. It creates an intelligent system of systems which can manage multiple activities of human concern like traffic control, health management, optimal use of electricity and inventory management etc.

Body:

Benefits offered by IoT technologies:

- **Unprecedented connectivity:** IoT data and insights from connected applications and devices empower organizations with the ability to deliver innovative new products and services faster than their competitors.
- **Increased efficiency:** IoT networks of smart and intelligent devices provide real-time data to arm employees with the information they need to optimize their day-to-day efficiency and productivity.
- **Cost savings:** IoT devices provide accurate data collection and automated workflows to help organizations reduce their operating costs and minimize errors.
- **Time savings:** Connected smart devices can help organizations enhance the performance of systems and processes to save time.

However, the challenges posed by IoT are critical:

- More than 7 billion devices will need to be made secure by their manufacturers before 2020.
- The need to secure every connected device by 2020 is "critical".
- IoT botnets, created using a network of out-of-date devices took large websites and services offline in 2016.
- Everything that's connected to the internet can be hacked, IoT products are no exception to this unwritten rule. (Remember the car hacking scene in the 'Fate of the Furious' movie).



- If every product becomes connected then there's the potential for unbridled observation of users. This will create a lot of privacy issues.
- In today's tech-driven world, each and every device that an individual uses is connected via the internet. This increases the risk of any leakage of data that might be important. This is a major drawback of sharing information, as confidential information might not be safe & could be hacked by third parties easily.
- IoT devices collect and share personal data in real-time, thus raising concerns on protecting personal information and privacy.
- There is growing concern about the potential for increased government surveillance and a resulting encroachment of civil rights to suppress dissent or marginalise communities.
- Additionally, the annual cost of cybercrime is over \$1 trillion.
- Since the IOT is capable of processing the tremendous amount of real-time data, it is possible for hackers and miscreants from accessing and manipulating those data.
- Also, several regulations across the world indicate that IoT companies need to collect user consent prior to collecting the said data.
- However, there is a debate around how best to communicate and receive consent for personal data collected.
- In the future, intelligence services might use the internet of things for identification, surveillance, monitoring, location tracking, and targeting for recruitment, or to gain access to networks or user credentials.

Conclusion:

- Policy-makers, regulators, device manufacturers, supporting industries and service providers will all have to join hands in creating a safer space online.
- We need to upgrade our laws to appropriately account for the impact that IoT will have on our lives.
- The Justice Srikrishna Committee had recommended some provisions for personal data protection including a consumer's right to information, consent, and right to request companies to erase their data if preferred.
- However, it leaned heavily towards greater regulations and did not specify how to protect consumer data from unnecessary government surveillance.
- Despite these challenges, India must drive full speed ahead towards IoT technology for the greater good of our citizens.
- With effective global alliances and Indian stakeholder alignment, we can work to create more secure devices and help our citizens.

Q) With RISAT-2B, India has resumed its course back on radar imaging space fleet, discuss its significance elucidating upon its application across the domains. (250 words)

[Economictimes](https://economictimes.india.com/news/technology/space/isro-launches-risat-2b-satellite-to-enhance-surveillance-capabilities/articleshow/65444447.cms)

Why this question:

In a pre-dawn launch on Wednesday, Indian space agency ISRO scripted history by successfully launching earth observation satellite RISAT-2B that would enhance the country's surveillance capabilities among others.

Key demand of the question:

The answer must discuss in detail significant features of RISAT- 2B and importance it brings to India in terms of radar imaging space fleet. One must list out in detail the application aspects of such a mission.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines on RISAT – 2B.

Body:

Answers must discuss the following aspects :

- The salient features of the satellite launch – RISAT -2B
- What are its capabilities?
- Why is the mission important to India?
- What are the applications it brings – in the fields of – agriculture; crop estimation, forestry, soil, land use, geology and during floods and cyclone.



- Its significance to security forces and disaster relief agencies etc.

Conclusion –

Conclude with significance of such a mission to India.

Introduction:

- RISAT-2B, the country's newest microwave Earth observation satellite, rode to its orbit 557 km above the ground. Dubbed as a '**spy**' satellite, RISAT-2B (Radar Imaging Satellite-2B) will replace its predecessor RISAT-2 which has been actively used by India to monitor activities in terror camps across the border in Pakistan to thwart infiltration bids by terrorists.

Body:

Significance of RISAT-2B:

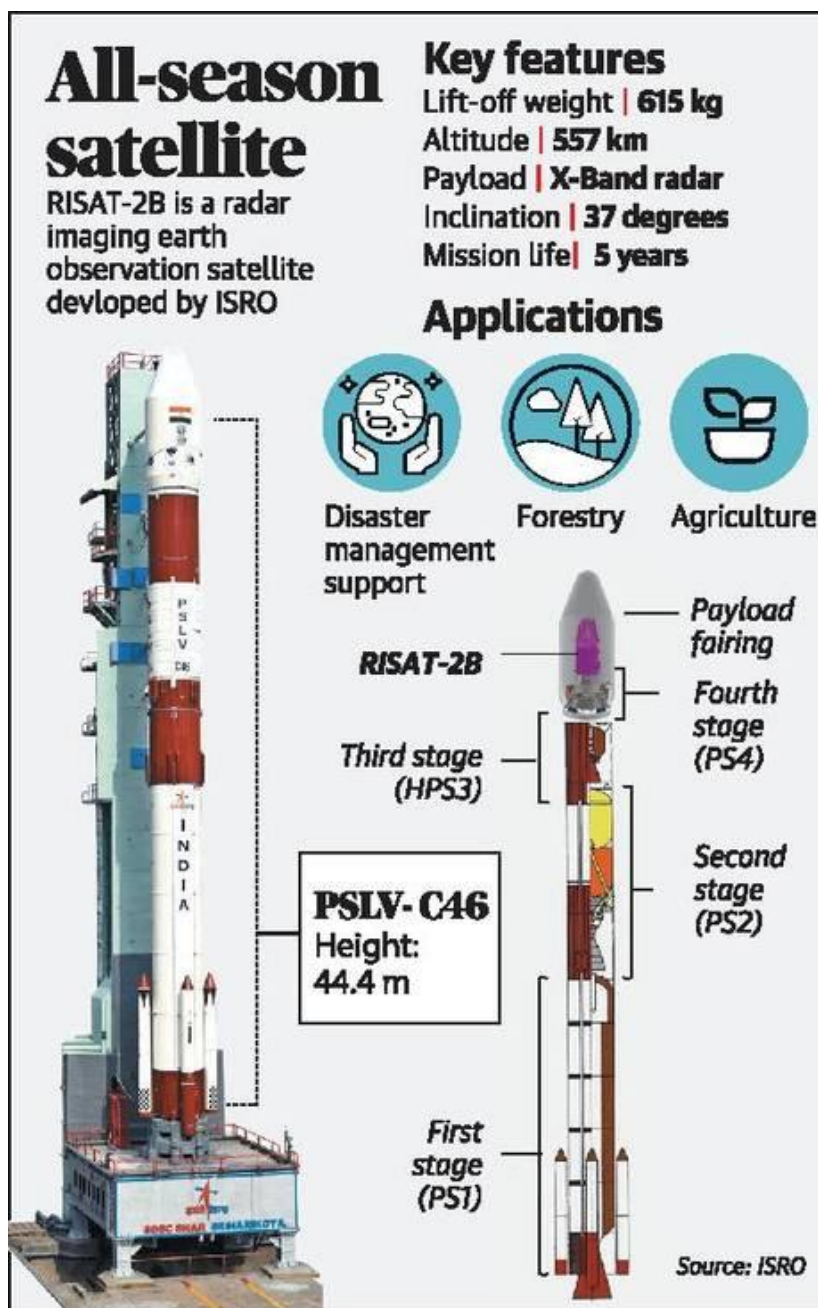
- RISAT-2B adds to India's capability to observe the earth in all weathers and all conditions.
- Regular remote-sensing or optical imaging satellites work like a light-dependent camera that cannot perceive hidden or surreptitious objects in cloudy or dark conditions.
- Satellites that are equipped with an active sensor, the synthetic aperture radar (SAR), can sense or 'observe' Earth in a special way from space day and night, rain or cloud.
- A radar imaging satellite is complex to assemble. Interpreting its images is equally complex.
- It will mark the resumption of a vital ring of Indian all-seeing radar imaging satellites after seven years.
- It will add to the reconnaissance capability from about 500 km in space. A constellation of such space-based radars means a comprehensive vigil over the country.
- It will enhance India's monitoring capabilities for civil and military purposes.

Applications of RISAT-2B:

- Radar imaging is important for surveillance applications, as it does not require sunlight or clear skies to be able to observe its target.
- Providing data for national security agencies.
- crop monitoring during the monsoon season
- forestry mapping for forest fires and deforestation
- flood mapping as part of the national disaster management programme

Conclusion:

- The satellite will enhance India's capability in crop monitoring during the monsoon season, forestry mapping for forest fires and deforestation, and flood mapping as part of the national disaster management programme.
- The biggest advantage is that ground imageries can be collected during rains and despite dust, clouds or darkness and during all seasons, thus ensuring continuous and reliable data.





Q) “The fear of AI and autonomous machines as a threat to humanity is misguided.” Critically analyse the statement with respect to the Indian Scenario. (250 words)

Livemint

Why this question:

The article captures effects of digitization on Jobs, it critically analyses whether Artificial intelligence and autonomous machines create or take away Jobs of humans.

Key demand of the question:

The answer must debate about the consequences of AI and machines on current Jobs and employment scenario.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

In a few introductory lines quote some relevant facts to highlight the mixed effect of AI and machines on jobs and employments as of now.

Body:

- First discuss how artificial intelligence (AI) and robotics are being seen to replace human beings in all kinds of jobs.
- Discuss the past Industrial revolutions; how they only improved the Jobs and never failed employment scenario in terms of mass jobs, better technology etc.
- The more likely scenario is humans and robots working in harmony. AI expands the potential of humans. Humans will learn value-added tasks, while self-learning robots pick up new skills on their own.
- Digitalization will transform work with people having higher qualification and competence profiles but won't replace it: people will always be indispensable. Digitalization will create more jobs than it takes away.
- Have a section discussing Indian scenario – what needs to be done?
- Conclude with way forward.

Conclusion:

Conclude with importance of a balance between the two.

Introduction:

- AI and autonomous machines threaten 69 per cent of the jobs in India, while 77 per cent in China, according to a World Bank research which has said that technology could fundamentally disrupt the pattern of traditional economic path in developing countries.
- The fear of AI and autonomous machines as a threat to humanity is misguided. The more likely scenario is humans and robots working in harmony. AI expands the potential of humans.

Body:

The increasing threatening to jobs by artificial intelligence (AI) and robotics:

- Various automation technologies are in the process of overhauling the mass employment-generating but low skilled blue-collar labour markets. They could also threaten skilled white-collar workers.
- For instance, JP Morgan Chase and Co. developed a programme called COIN, a learning machine that interprets legal agreements in just a few seconds, a task that consumed 3, 60,000 work hours for lawyers and loan officers annually.
- Similarly, an American medical school tested IBM's AI technology Watson to analyse 1,000 cancer diagnoses. In 99% of the cases, Watson was able to recommend treatment plans that matched the suggestions of well-renowned oncologists.
- As the world gets more competitive, as manufacturing gets more competitive, it will use more automation, robotics, technology.
- New technologies like AI and Robotics improve the functional efficiency drastically than manual methods. Thus large industries will increasingly shift towards the automation in the quest of higher productivity.
- Information technology (IT), IT-enabled services (ITeS) and security services, followed by banking, will be the first sectors to feel the heat, wherein manual transactions and processing jobs will become obsolete.



- Huge numbers of services jobs in these sectors will be made redundant as a few lines of code will be able to perform the same tasks efficiently and effectively, according to PeopleStrong (HR solution firm).
- Increasing Automation also reduces the proportion of creation of new jobs. This could hurt India in longer run.

However, the fear is not true:

- Impact of Automation will be felt where the jobs cost the highest in the next 10-15 years. If India grows at 8% a year, with a labour productivity increase of 1.5% a year, jobs should grow at a rate of 6.5% a year. With automation, jobs may grow within a band of 4-5% a year for the next 10 years.
- Accenture said AI has the potential to increase India's annual growth rate of gross value added (GVA) by 1.3 percentage points, lifting the country's income by 15 percent by 2035.
- The cost of initial automation and robotics is high. In a country where wages are much lower than such costs, impact will be felt at a slower pace and much less than elsewhere.
- Further increasing Automation may not affect Indian agriculture due to factors like land fragmentation and dominance of small and marginal farmers.
- Creating AI portal will help the nation to create more jobs as Artificial Intelligence, Machine learning, Robotics and the integration of Machine learning with Biological sciences where the graduates can play an important role in the future.
- The establishment of the National Centre of AI as a hub along with centres of excellence and identification of Nine priority areas is a step in the right direction.
- The digital infrastructure in the digital economy of 2030 can be built upon successes achieved in recent years in digitisation of government processes and private transactions

Potential areas for AI applications in India:

- It can complement Digital India Mission by helping in the big data analysis which is not possible without using AI.
- Targeted delivery of services, schemes, and subsidy can be further fine-tuned.
- Smart border surveillance and monitoring to enhance security infrastructure.
- Weather forecasting models may become proactive and therefore preplanning for any future mishaps such as floods, droughts and therefore addressing the farming crisis, farmer's suicide, crop losses etc.
- By analyzing big data of road safety data and NCRB (National Crime Record Bureau) data for crimes, new policies can be formulated.
- Disaster management can be faster and more accessible with the help of robots and intelligent machines.
- In the counterinsurgency and patrolling operations, we often hear the loss of CRPF jawans which can be minimized by using the robotic army and lesser human personnel.
- AI can be used to automate government processes, therefore, minimizing human interactions and maximizing transparency and accountability.
- It can be applied to study ancient literature upon medicines and therefore help in modernizing the health care with the juxtaposition of modern machines and ancient techniques.
- In the remotest areas where the last leg of governance is almost broken, AI can do the job. For Example: in the tribal areas and the hilly areas of the northeast.

Way forward

- Ensure interpretability of AI systems:
 - Decisions made by an AI agent should be possible to understand, especially if they have implications for public safety or result in discriminatory practices.
- Empower users:
 - The public's ability to understand AI-enabled services, and how they work, is key to ensuring trust in the technology.
- Responsible deployment:
 - The capacity of an AI agent to act autonomously, and to adapt its behaviour over time without human direction, calls for significant safety checks before deployment and ongoing monitoring.
- Ensure accountability:
 - Legal certainty and accountability has to be ensured when human agency is replaced by the decisions of AI agents.
- Consider social and economic impacts:
 - Stakeholders should shape an environment where AI provides socioeconomic opportunities for all.



- Open Governance:
 - The ability of various stakeholders, whether in civil society, government, private sector, academia or the technical community to inform and participate in the governance of AI is crucial for its safe deployment.

Q) Discuss the major objectives of Mission Gaganyaan – India's maiden human spaceflight programme. (250 words)

[Timesofindia](https://timesofindia.com)

Why this question:

The Indian Air Force (IAF) has signed a Memorandum of Understanding (MoU) with Indian Space Research Organisation (ISRO) for astronaut selection and training for ambitious Gaganyaan Programme, scheduled for 2022.

Key demands of the question:

The answer is straightforward and must discuss the mission in detail – objectives, significance and way forward.

Directive:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

One can start by bringing out the highlights of the mission.

Body:

Answer to the question the straightforward, In brief discuss the detailed objectives of Gaganyaan Mission, Gaganyaan Mission is India's maiden human spaceflight programme, scheduled for 2022.

Conclusion:

Conclude with significance of the mission and state its importance.

Introduction:

- Mission Gaganyaan is India's first Human Space Flight Programme to be launched by Indian Space Research Organisation (ISRO) by 2022. The programme will make India the fourth nation in the world to launch a Human Spaceflight Mission. So far, only the USA, Russia and China have launched human spaceflight missions.

Body:

Objectives of the Mission:

- Enhancement of science and technology levels in the country
- A national project involving several institutes, academia and industry
- Improvement of industrial growth
- Inspiring youth
- Development of technology for social benefits
- Improving international collaboration

Relevance of a Manned Space Mission for India:

- **Boost to industries:** The Indian industry will find large opportunities through participation in the highly demanding Space missions. Gaganyaan Mission is expected will source nearly 60% of its equipment from the Indian private sector.
- **Employment:** According to the ISRO chief, the Gaganyaan mission would create 15,000 new employment opportunities, 13,000 of them in private industry and the space organisation would need an additional manpower of 900.
- **Technological development:** Human Space flights are frontier field in the science and technology. The challenges the Human Space Flights provide to India, and the benefits accruing from taking up those missions will be very high and will lead to further thrust for technological developments in India
- **Spurs research and development:** It will boost good research and technology development. With a large number of researchers with proper equipment involved, HSF will thrust significant research in areas such as materials processing, astro-biology, resources mining, planetary chemistry, planetary orbital calculus and many other areas



- **Motivation:** Human space flight will provide that inspiration to the youth and also the national public mainstream. It would inspire young generation into notable achievements and enable them to play their legitimate role in challenging future activities
- **Prestige:** India will be the fourth country to launch human space mission. The Gaganyaan will not only bring about prestige to the nation but also establish India's role as a key player in the space industry

Way forward:

- It is important to ensure engagements at political level to obtain long term commitment for India's human space flight missions
- Financial implications of a long-term human space-flight programme development should be assessed and the returns and benefits should be clearly articulated
- It is important to overcome the technological challenges to ensure a safe, successful manned space mission. International collaboration in this domain can help India ensure a robust technology for its HSF programme.
- Selection of Indians for astronauts will be an important step. Procedures and specifications for astronauts and a rigorous selection process is suggested.

Topic: Awareness in the fields of IT, Space, Computers, robotics, nanotechnology, biotechnology and issues relating to intellectual property rights.

Q) "Space start-ups are the new sunrise industry". Comment. (250 words)

The hindu

Why this question:

The question is in the backdrop of the coming of NewSpace India Ltd. (NSIL) as a commercial entity of Department of space along with the existing Antrix – the commercial arm of Indian department of space.

Demand of the question:

This question seeks to examine the coming of space start ups as the new sunrise sector. In the last few years India has witnessed a boom and more than a dozen space focused startups have emerged. In such a scenario the coming of commercial arms makes a difference. One has to suggest and highlight the importance of such entities.

Directive word:

Comment– here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction

Start with brief introduction of the space industry in India.

Body

Discuss the following points in detail:

- Background – In February 2019, the Union Cabinet had cleared a new business arm for Department of Space (DoS). On March 6, 2019, the DoS registered NewSpace India Ltd. (NSIL) as its commercial entity.
- NSIL is the second commercial entity of the Department of Space (DoS) after Antrix Corporation Limited, which was set up in 1992 to market the products and services of the Indian Space Research Organization (ISRO).
- What is the mandate of NSIL ? how will it effect space industry ?
- Significance of Space startups in Indian scenario.

Conclusion

Conclude with way ahead.

Introduction:

- The Indian space program was established with a very different goal in mind. Unlike its western counterparts where the space industry began and evolved due to military expenditure during the Cold War, the Indian space program mainly focused on achieving self-reliance that would help solve the problems of the nation.
- The Indian space program dates back to 1969, when the Indian Space Research Organization (ISRO) was established. Since then, the Indian space program has come a long way. In 2018, the 100th satellite launched helping India establish itself as one of the fast-rising space nations around the world. Still, India's share of the global \$400 billion space market is less than 0.01%. The private space sector has recently started to take shape in India with some of these companies influencing the global space industry.

**Body:**

- The Department of Space (DoS) in India has registered its second commercial entity, **NewSpace India Ltd. (NSIL), in Bengaluru**. DoS already has a commercial venture, **Antrix Corporation Limited**, which was set up in September 1992 to market the products and services of the Indian Space Research Organisation (ISRO).

Mandate of NSIL:

- Newspace India will market space-based products in the country and abroad.
- It aims to commercially exploit the research and development work of the space agency.
- This includes the small satellite programme, the small satellite launch vehicle (SSLV) programme and the polar satellite launch vehicle (PSLV) and lithium-ion cells etc.
- The entity will be a link between ISRO and the industry and help transfer its technologies to private firms for a fee.
- Newspace India will play a different role since Antrix is solely involved in commercial launches of foreign satellites

Significance of Space startups in Indian scenario:

- There are over a thousand space startups all around the world. India's share of these startups remains less than 1%.
- Indian Space Research Organization (ISRO) is increasingly looking for collaboration with the private sector to increase the number of satellites, explore more research-related opportunity areas and to overcome manpower and budgetary constraints.
- ISRO plans to double the number of satellites launched in the next two years and this would necessitate active involvement and participation of the private sector.
- The current manpower of ISRO is less to meet the increasing demands of satellite launches and the heightened expectations that will arise, and hence the involvement of the emerging private sector becomes crucial.
- In the past two decades, through a combination of technology, policy, and will, governments of more than a dozen countries have successfully transferred many space operations to the private sector and it has yielded good results.
- Collaboration with private players is vital for capacity building, cost reduction and getting an extra mile cutting-edge advantage.
- Since ISRO is making a lot of satellites, and a large chunk of its manpower is involved in manufacturing and launch vehicles, so active involvement of the private sector would also mean that ISRO can devote more time to core research.
- With the introduction of the **new Space Activities Bill**, the Indian government has also opened up opportunities for the private sector and made it much easier for them to sustain and thrive.
- The principal propellant of growth in the private space sector would be the medium and small industries because the big industries focus mainly on system integration.
- With initiatives such as Make in India, Digital India, and Startup India, the government has been able to push the startup sector. What is now needed is to frame a program exclusively for space startups that will benefit the space entrepreneurs and help them make an impact in the space industry.

Potential advantages of rising Space industry:

- Adding an edge to India's foreign policy as our space capabilities can be a part of our initiatives to foster new relationships,
- Avoiding the outflow of tax-payer's money to foreign hands from where we procure turnkey products and services,
- Creating more opportunities for foreign direct investments (FDI), as well as new jobs for highly-skilled labour market,
- Empowering India's defence system by equipping it with space technology, and allowing armed forces to procure defence products and services indigenously, and
- Reversing the brain-drain from India.

Conclusion:

- To thrive in this throttling competition and be head-and-shoulders above others in the same segment, innovative research has to be fostered and dynamic players have to be brought onboard. This is not possible without engagement, collaboration, partnership and devolving some of the roles to the private industry



Extra Information: Indian space SME industry is valued at just \$48 million but is expected to expand at a quick pace. Some of the **space-related Indian startups** that are already making a mark in the market are:

- A small satellite developer **Dhruva Space** joined hands with a German company called the Berlin Space Technologies last year to establish India's first factory to manufacture satellites for non-telecom commercial applications such as disaster management, vehicle and flight tracking, predictive analytics and imaging. It aims to manufacture 10 to 12 satellites every year.
- **Team Indus**, an aerospace startup, won \$1 million prize in the Google Lunar XPrize competition in the 'Landing Milestone' category. It was the only Indian team to compete in the competition where different teams had to land a robot on the moon by December 2016.
- **Antara Space** signed a satellite procurement agreement with the UK's Dauria Aerospace in July 2014 to develop two small geostationary communication satellites for broadcasters.
- **Earth2Orbit** is India's first private space startup that offers earth observation products and launch facilitation services to different companies.
- With the launch of ExseedSAT 1, **Exseed Space** has become the first Indian privately-funded startup to successfully send a satellite into space.

Q) What are space debris? How are they a threat to space operations? Discuss the concerns associated with Mission Shakti with respect to space debris. How far do you think the concerns are just? Comment. (250 words)

Reference

Why this question:

The article discusses in detail the significance of mission shakti to India. The question thus is to analyse the concerns of space debris and the issues surrounding and questioning the utility of space mission shakti.

Key demand of the question:

Answer must provide for an analysis of Mission Shakti, its effects on space debris and weigh the merits and demerits of the mission.

Directive word:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:

Introduction:

In a few introductory lines highlight the context of the question.

Body:

- In brief discuss what you understand by Space debris? – Initially, the term space debris referred to the natural debris found in the solar system: asteroids, comets, and meteoroids. However, with the 1979 beginning of the NASA Orbital Debris Program, the term also refers to the debris from the mass of defunct, artificially created objects in space, especially Earth orbit.
- Discuss why are they harmful?
- Salient features of mission shakti.
- What is the debate of space debris and mission shakti?
- How are space debris a threat to human life?
- What needs to be done?

Conclusion:

Conclude with way forward.

Introduction:

- India recently announced that it had carried out a successful anti-satellite missile test (ASAT), Mission Shakti. ASAT is the technological capability to hit and destroy satellites in space through missiles launched from the ground.

Body:

Space Debris:

- Space debris is a term for the mass of defunct, artificially created objects in space, most notably in Earth orbit, such as old satellites and spent rocket stages.
- It includes the fragments from their disintegration, erosion and collisions.
- Sources of space debris are dead spacecrafts, lost equipment, boosters, weapons etc.



- Space debris has become a pressing issue, with objects in orbit flying out of control, posing a risk to satellites and to astronauts.
- The drive to keep space debris at bay is growing as more satellites are launched.
- According to the European Space Agency, there were an estimated 7,50,000 objects of size one cm or above in space.

Threats posed by Space Debris:

- Space junk is a threat to active satellites, unmanned spacecrafts and spaceships.
- International space station: Although the ISS uses Whipple shielding to protect itself from minor debris, portions (notably its solar panels) cannot be protected easily.
- There is also the risk, known as the Kessler Syndrome or Kessler Effect, where one piece of debris breaks off and hits another so that it becomes a cascade, which could end up polluting an entire orbit for satellites.
- Earth: Although most debris burns up in the atmosphere, larger objects can reach the ground intact. According to NASA, an average of one catalogued piece of debris has fallen back to Earth each day for the past 50 years

Concerns associated with Mission Shakti with respect to space debris:

- Mission Shakti's technology is aimed at destroying, if necessary, satellites owned by enemy countries.
- A satellite that is destroyed by a missile disintegrates into small pieces, and adds to the space debris.
- g. China carried out its first anti-satellite missile test in 2007, destroying its Fengyun-1C weather satellite. This created more than 2,300 large pieces of space debris, and an estimated 1.5 lakh pieces of objects that were larger than 1 cm in size.
- Each of them could render a satellite useless on collision, and the debris damaged a functional Russian satellite.
- But more than that, destroying space infrastructure like satellites is also taboo in the international community, at least till now.
- Almost every country agrees that space must not be used for wars and has spoken against weaponisation of space.

However, Mission Shakti is justified as:

- With large number of crucial applications being satellite-based, satellites are extremely critical infrastructure of any country these days.
- Some of them include navigation systems, communication networks, banking systems, weather forecasting, disaster management, and military applications.
- Destroying a satellite would render these applications useless.
- It can thus cripple enemy infrastructure without causing any threat to human lives.
- None of the international treaty or agreements technically prohibits the kind of test that India presently carried.
- By government statement, the Indian test was done in the lower atmosphere to ensure that there was no space debris.
- So whatever debris that is generated will decay and fall back on to the earth within weeks.

Way forward:

- The issues constraining the process of tackling space debris are financing and international cooperation.
- The question of who pays for these 'garbage collection' missions is also a tricky one.
- All these issues need resolution but countries need to act immediately to avoid any huge catastrophe due to inaction.
- Recently, a space mission named **Remove Debris** was launched to demonstrate various space debris removal technologies.
- Methods like **Net capture, Harpoon Capture, Vision-based navigation, De-orbiting process** can be used.
- **Self De-Orbiting Mechanism**, which can allow satellite to automatically go out of Earth's orbit, after it is of no use.
- **Supersonic Laser**, which can be use by placing it on Earth only, but it, will burn the space trash. These lasers have been put up in Australia.
- **Space Magnet**, which can attract small pieces of debris and throw it out from Earth's orbit.
- **Space Bombs**, which can burn the space junk, without harming any other satellites.



Q) Discuss the diverse applications of Biotechnology in India and analyse its growth potential with reference to initiatives taken by the government in this direction. (250 words)

Reference

Why this question:

The question is to assess the Biotechnology sector in India, its potential growth and initiatives taken by the government in this direction.

Key demand of the question:

The answer is straightforward and it must narrate upon the biotechnology sector of the country, its potential and significance.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines on what you understand by Biotechnology.

Body:

Answers must discuss the following aspects :

- Quote some facts of Biotechnology sector in India – Indian biotechnology sector has crossed the \$ 3 billion milestones and is growing at the rate of more than 30% over the last few years.
- Potential – India could even achieve the target of attaining \$20 billion by 2020.
- Discuss the notable trends of the sector in India.
- Explain the benefits of the sector in terms of everyday application in fields of science, Industry, agriculture, animal husbandry, human health etc.
- Conclude with pros and cons and how the pros should outweigh the cons of the technology.

Conclusion –

Conclude with significance of the Industry on economic and social fronts.

Introduction:

- Fifteen years after it rose and went limp, the biotech sector, globally, as well as in India has seen a bull run of sorts. In January this year, some 10 healthcare companies went public on the NASDAQ. Meanwhile, India has become the world's 12th biggest biotechnology economy having the second highest number of USFDA-approved plants. Biotechnology will help developing countries accomplish things that they could never do.

Body:

Indian Biotechnology Scenario:

- In India, the world's 12th biggest biotechnology economy and having the second highest number of US Food and Drugs Administration (USFDA) – approved plants, the industry is not only excited at the revival in the US but also about its domestic prospects.
- The Indian bioeconomy grew to \$4.3 billion at the end of the 2013 financial year, up from \$530 million in 2003, according to BioSpectrum, a widely-read trade publication in India.
- Though concentrated in Hyderabad and Bengaluru, there are units sprouting across the country; currently some 350 companies are in operation.
- The bio-pharmaceutical sector, which includes vaccines, medical devices and stem cells, is the main driver of India's biotechnology growth, generating close to 63 per cent of the industry's total revenue in 2013.

Biotechnology has the following relevance in India:

- **Applications of Biotechnology in Medicine**
 - Biotechnology techniques are used in medicine for diagnosis and treating different diseases. It gives opportunities for the people to protect themselves from dangerous diseases.
 - The field of Biotechnology, genetic engineering has introduced techniques like **gene therapy, recombinant DNA technology and polymerase chain reaction** which use genes and DNA molecules to diagnose diseases and insert new and healthy genes in the body which replace the damaged cells
 - Genetic modification in mosquitoes can solve the problems of epidemic diseases such as dengue and malaria
 - Artificial insemination is the artificial introduction of semen into the reproductive tract of a female animal. It is used extensively in breeding animals, such as sheep and cattle



- Medical researchers believe that stem cell therapy has the potential to dramatically change the treatment of human disease. A number of adult stem cell therapies already exist, particularly bone marrow transplants that are used to treat leukaemia.
- Stem cell transplantation was first used in the treatment of blood disorders and it was a breakthrough. Conventionally known as bone marrow transplantation, the stem cells responsible for production of the blood cells reside in the bone marrow
- **Applications of Biotechnology in Agriculture**
 - Biotechnology has played major role in agriculture by altering genes, studying and cloning various crops in order to provide better quality products of foods ultimately improving our lives.
 - Hybrid Seeds, Artificial Seeds, Photosynthesis improver, Stress resistant crops and plants, Bio-fertilisers, Bio-pesticides are some of the potential applications.
 - Potential advantages that biotechnology can confer across a wide range of agricultural applications are in areas such as livestock management, storage of agricultural products and sustaining current crop yields, while reducing the use of fertilizers, herbicides and pesticides.
 - Biotechnology offers a very promising alternative to synthetic foods and an improvement on conventional plant-breeding technologies. Combined with other advanced agricultural technologies, it offers an exciting and environmentally responsible way to meet consumer demand for sustainable agriculture.
- **Animal husbandry:**
 - The application of biotechnology in this area, in increasing production efficiency through manipulation and control of physiological systems and improving the health and well-being of animals, assumes great significance.
 - Embryo transplantation, used with cattle, goats, pigs, and sheep, aims to increase the number of offspring from a quality female.
 - Cloning embryos to artificially produce genetic duplicates of an animal has also become possible.
 - Direct manipulation and alteration of an animal's genetic material— genetic engineering—has the potential to produce even more drastic changes in animal breeding. It is believed that genetically altered pigs may one day be able to provide compatible organs for emergency transplantation (xenotransplantation) into humans.
- **Application of Biotechnology in Food Processing**
 - Biotechnology has a major application in the food sector.
 - Bread, cheese, wine, beer, yogurt, and vinegar are all made by culturing microorganisms and are really the oldest products of biotechnology.
 - It helps in improving the edibility, texture, and storage of the food; in preventing the attack of the food, mainly dairy, by the virus like bacteriophage.
 - Biotechnologists are also developing tests that will allow the detection of food-contaminating microorganisms and the toxins they produce, which may be present only in minute quantities.
 - Biotechnology also has applications in the detection of mutagens (substances that cause genetic mutations) in individual food products.
 - GM crops which have been approved for use in food items in select countries include corn, maize, soya, tomato, potato and papaya.
 - Latest innovations in biotechnology that fortify major staples with micro nutrients like vitamin A, zinc and iron can be game changers for hunger problem in India.
- **Environment:**
 - Biotechnology can be used to tackle environmental issues like deforestation and air pollution
 - Biotechnology can help in finding out the level of Particulate Matter 2.5 in the air,
 - Biotechnology is already providing a clean and renewable alternative to traditional fossil fuels, the burning of which contributes to global warming.
 - The benefit of environmental biotechnology helps us to avoid the use of hazardous pollutants and wastes that affect the natural resources and the environment.
 - Biosensors, which combine a biological component (such as an enzyme) with various electronic components to trigger a circuit when a particular type of chemical is detected. Biosensors are capable of detecting extremely low levels of proteins, hormones, pollutants, gases, and other molecules.



Government initiatives to boost the sector:

- The Ministry of Science and Technology, Government of India and RIKEN, Japan's largest research organisation have signed memorandums of understanding (MoU) to launch joint research programs in the fields of biology, life sciences and material sciences.
- UK Trade and Investment (UKTI) and the Association of Biotech Led Enterprises (ABLE) have signed a MoU to encourage and develop collaborative opportunities between Indian life sciences organisations and the UK.
- The Drugs Controller General of India has approved Biocon Ltd to market its biosimilar 'Trastuzumab' developed jointly with the US drug-maker Mylan, for treating breast cancer. "This is a major milestone for both partners as it is the world's first biosimilar trastuzumab to be accorded regulatory approval," said Ms Kiran Mazumdar Shaw, Chairperson and Managing Director, Biocon.
- The Government of India plans to set up National Institute of Biotic Stress Management for addressing plant protection issues will be established at Raipur, Chhattisgarh.

Conclusion:

- Every new drug discovery or drug approval not only draws cheers from millions of victims of debilitating diseases but also adds value to biotechnology companies. In a complex play of scientific progress and market forces, the biotechnology industry is recording growth that can rival the information technology industry boom of the 1990s. India with its young workforce and a potential market for the end-products can look out for a bright future in the biotechnology sector.

Q) Evaluate the contributions of Nano technology to the health Industry. (250 words)

Reference

Why this question:

The article highlights a research at Indian Institute of Technology-Mandi about a multifunctional gold nanostructure that has been developed and can be used in cancer imaging and therapy.

Key demand of the question:

The answer must discuss in detail the benefit that Nano technology has brought with it for the health industry.

Directive word:

Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer

Introduction:

write a few introductory lines on role of technology in Health Industry.

Body:

Answers to the question is straightforward, one has to suggest the benefits brought in by the Nano technology, use suitable examples to justify and conclude with significant breakthrough that the technology has got for the healthcare industry.

Conclusion –

Conclude with significance.

Introduction:

- Nanotechnology is the science of materials at the molecular or subatomic level. It involves manipulation of particles smaller than 100 nanometres (one nanometre is one-billionth of a metre) and the technology involves developing materials or devices within that size — invisible to the human eye and often many hundred times thinner than the width of human hair. The physics and chemistry of materials are radically different when reduced to the nanoscale; they have different strengths, conductivity and reactivity, and exploiting this could revolutionise medicine.

Body:

The contributions of Nanotechnology to the health Industry:

- **Diagnostics and screening:**
 - There is an urgent need in the developing world for better disease diagnosis, and nanotechnology offers a multitude of options for detecting disease.
 - Example: Fluorescent quantum dots could improve malaria diagnosis by targeting the blood cell's inner membrane.



- Similarly, carbon nanotubes, and other nanoparticles such as nanowires, have been used as biosensors to detect diseases such as HIV and cancer. Cancer biosensors can be made, for instance, by attaching nucleic acid probes to the ends of nanowires.
- **Drug delivery:**
 - Nanotechnology could also revolutionise drug delivery by overcoming challenges such as how to sustain the release of drugs in the body and improving bioavailability — the amount of active ingredient per dose.
 - Some drugs can now be delivered through ‘nanovehicles’.
 - For example liposomes, which can deliver the drug payload by fusing with cell membranes, have been used to encapsulate HIV drugs such as stavudine and zidovudine in vehicles ranging from 120 to 200 nanometres in size.
 - Nanocapsules are pods that encapsulate drugs, which ensures the drugs are released more slowly and steadily in the body
- **Health monitoring:**
 - Nanotubes and nanoparticles can be used as glucose, carbon dioxide and cholesterol sensors and for in-situ monitoring of homeostasis, the process by which the body maintains metabolic equilibrium.
 - In developing nations, the use of nanotechnology is also being explored in the fight against infectious diseases such as HIV and TB.
 - Nanoparticles could also be the basis for delivering an aerosol TB vaccine.
 - Needle-free, and therefore not requiring trained personnel to administer it, the vaccine is stable at room temperatures — important in rural areas that lack a reliable cold chain.
- **Vaccines:**
 - Nanotechnology could herald a new era in immunisation by providing alternatives to injectable vaccines for diseases that affect the poor.
 - Injectable vaccines need to be administered by healthcare professionals, who may be scarce in developing countries, particularly in rural areas.
 - Vaccines also need reliable refrigeration along the delivery chain. Scientists are working on an aerosol TB vaccine.
 - They are also investigating a nanotechnology-based skin patch against West Nile Virus and Chikungunya virus.
- **Tissue growth and regenerative medicine:**
 - Researches in tissue regenerative medicine aims in developing implants or scaffolds capable for delivering drugs, growth factors, hormones for tissue repair.
 - They provide sustained delivery of bioactive molecules to support survival, infiltration and proliferation of cells for tissue engineering.
 - The expected outcome of such treatment modality is to have complete tissue replacement and functional recovery.

Conclusion:

- Nanotechnology offers the ability to build large numbers of products that are incredibly powerful. Nanomedicines and nanodevices are in their early stages of development. The development processes are heavily intertwined with biotechnology and information technology, making its scope very wide. Nanotechnology based products are capable of overcoming the limitations of traditional methods. But, the major challenges are yet to prevail over its toxicity, environmental hazards, production cost and accessibility to the un-reachable at far-off areas.

Q) What do you understand by cloud computing ? List down the Advantages and limitations of Cloud Computing. (250 words)

Reference

why this question:

The question is based on the concept of cloud computing and its application on daily life.

Key demand of the question:

Answer is straightforward and is about discussing the concept of cloud computing, one must discuss in detail What Is Cloud Computing? What are the benefits and applications of it.



Structure of the answer:

Introduction:

In a few introductory lines highlight the context of the question.

Body:

- In brief discuss what is cloud computing? – Cloud computing is the delivery of different services through the Internet. These resources include tools and applications like data storage, servers, databases, networking, and software.
- Cloud computing is named as such because the information being accessed is found remotely in the cloud or a virtual space. Companies that provide cloud services enable users to store files and applications on remote servers and then access all the data via the Internet. This means the user is not required to be in a specific place to gain access to it, allowing the user to work remotely.
- Discuss types of cloud computing.
- Give out – what are the key takeaways of cloud computing, merits and disadvantages if any.

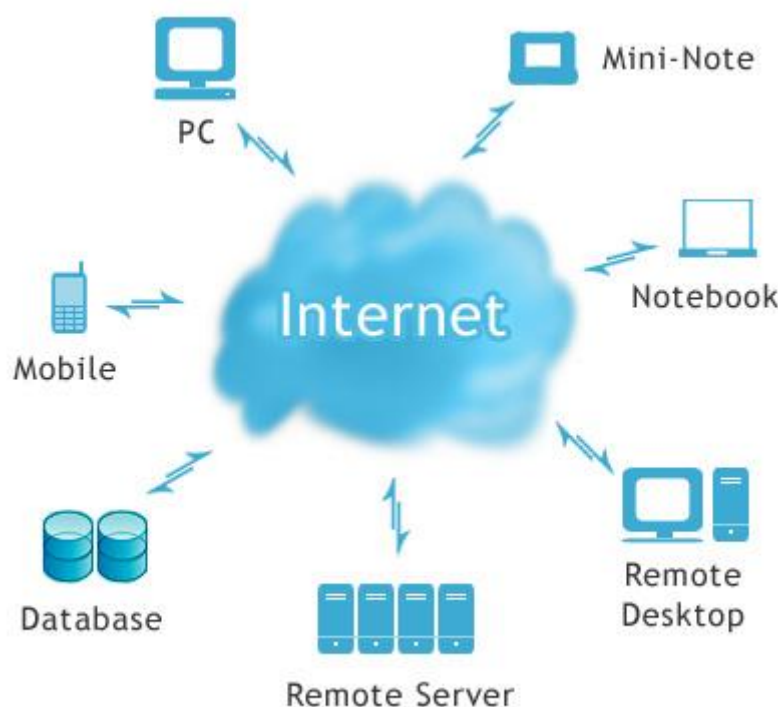
Conclusion:

Conclude with way forward.

Introduction:

- Cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet (“the cloud”) to offer faster innovation, flexible resources, and economies of scale.

Body:



In general, there are three cloud computing characteristics that are common among all cloud-computing vendors:

- The back-end of the application (especially hardware) is completely managed by a cloud vendor.
- A user only pays for services used (memory, processing time and bandwidth, etc.).
- Services are scalable

It is common to categorize cloud computing services as infrastructure as a service (IaaS), platform as a service (PaaS) or software as a service (SaaS)

Advantages:

- **Seamless Connectivity:** Cloud-based software offers companies from all sectors a number of benefits, including the ability to use software from any device either via a native app or a browser. As a result, users can carry their files and settings over to other devices in a completely seamless manner.
- **Higher Accessibility:** Cloud computing is far more than just accessing files on multiple devices. Thanks to cloud computing services, users can check their email on any computer and even store files using services such as Dropbox and Google Drive.



- **Improved Disaster Recovery:** Cloud computing services also make it possible for users to back up their music, files, and photos, ensuring those files are immediately available in the event of a hard drive crash.
- **Cost-Saving:** It also offers big businesses huge cost-saving potential. Before the cloud became a viable alternative, companies were required to purchase, construct, and maintain costly information management technology and infrastructure.
- Companies can swap costly server centers and IT departments for fast Internet connections, where employees interact with the cloud online to complete their tasks.
- The cloud structure allows individuals to save storage space on their desktops or laptops.
- **Increased Collaboration and flexibility:** It also lets users upgrade software more quickly because software companies can offer their products via the web rather than through more traditional, tangible methods involving discs or flash drives.
- For example, Adobe customers can access applications in its Creative Suite through an Internet-based subscription. This allows users to download new versions and fixes to their programs easily.
- **Environmentally friendly:** Cloud computing reduces a company's carbon footprint by minimizing energy consumption and carbon emissions by more than 30%. For small businesses, the decreased energy usage can reach up to 90% = A huge money saver.

Limitations:

- With all of the speed, efficiencies, and innovations that come with cloud computing, there are naturally risks.
- **Security** has always been a big concern with the cloud especially when it comes to sensitive medical records and financial information.
- While regulations force cloud computing services to shore up their security and compliance measures, it remains an ongoing issue. Encryption protects vital information, but if that encryption key is lost, the data disappears.
- Servers maintained by cloud computing companies may fall victim to natural disasters, internal bugs, and power outages, too.
- The geographical reach of cloud computing cuts both ways: A blackout in California could paralyze users in New York, and a firm in Texas could lose its data if something causes its Maine-based provider to crash.
- As with any technology, there is a learning curve for both employees and managers. But with many individuals accessing and manipulating information through single portal, inadvertent mistakes can transfer across an entire system.
- **Maintenance costs:** While the upfront or capital cost for the cloud-based server is very low compared to traditional hosting, the cloud server requires the same amount to be paid each month to maintain both servers as well as data.
- **Internet connectivity:** For cloud-based services, consistent internet connection is important because if any one of the cloud-based service providers loses connectivity, then the company will be out of business until that internet connection returns.
- A common argument from critics is that cloud computing cannot succeed because it means that organizations must **lose control of their data**, such as an email provider that stores data in multiple locations around the world. A large regulated company, like a bank, might be required to store data in the United States.

Conclusion:

- Cloud computing proponents point to it being a new paradigm in software development, where smaller organizations have access to processing power, storage and business processes that were once only available to large enterprises. It has immense potential in the field of E-governance, Telecom, Banking, Manufacturing and other sectors.

Q) What do you understand by Biotherapeutic medicines ? Elaborate on the need for guidelines to regulate the accessibility and affordability of this new class of medicines. (250 words)

The hindu

Why this question:

The article discusses in detail upon the need for revision of guidelines for Biotherapeutic medicines.

Key demand of the question:

The answer must discuss in detail what are Biotherapeutic medicines, why is there a need to revise the guidelines for the same and what needs to be done.

**Directive word:**

Elaborate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction:**

In a few introductory lines explain what are Biotherapeutic medicines.

Body:

- Biotherapeutic medicines, also known as biologics, are produced through biological processes and differ from the older generation small-molecule medicines that are derived through chemical synthesis.
- What are the issues surrounding it? – pricing, manufacturing, access, affordability, regulations etc.
- Discuss what needs to be done?
- Explain the Indian industry scenario.

Conclusion:

Conclude with what should be the way forward.

Introduction:

- Biotherapeutic Medicines (also known as biologics) are medicines whose active ingredients are or are derived from proteins (such as growth hormone, insulin, antibodies) and other substances produced by living organisms (such as cells, viruses and bacteria).
- They are larger and more complex than chemically-synthesized medicines and their characteristics and properties are typically dependent on the manufacturing process itself. Biotherapeutic medicines are an integral and valuable part of modern medicine for the treatment and prevention of serious illnesses and diseases.

Body:**Importance of Biotherapeutic medicines:**

- **Lives touched:**
 - Biotherapeutic medicines benefit more than 350 million patients worldwide, treating widespread diseases such as cancer and diabetes, as well as rare illnesses.
 - Being similar in structure to molecules naturally-produced in the human body, biotherapeutic medicines have great therapeutic impact in many disease areas and can additionally serve to diagnose other diseases
- **Tangible benefits:**
 - Many patients are leading healthier lives as a result of biotherapeutic medicines, often without realizing the source of these products.
- **Biotherapeutic medicines & cancer:**
 - Major strides in fighting cancer successfully go hand in hand with improved diagnostics, treatments and prevention methods. Biotherapeutic medicines play a role in the discovery and development of
 - Today, biomarkers help in predicting the risk of cancer, diagnosing it, and indicating a potential effective course of treatment.
- **Biotherapeutic medicines & autoimmune diseases:**
 - If left untreated autoimmune diseases such as Crohn's disease and rheumatoid arthritis can lead to early mortality.
 - Biotherapeutic medicines have proved successful and have had a highly positive impact in the treatment of these diseases.

The need for guidelines to regulate the accessibility and affordability of this new class of medicines:

- Both accessibility and affordability of this new class of medicines in developing countries is abysmally poor, owing largely to their high prices.
- Although a lot of research and development efforts are focused on innovative biotherapeutic products, the high cost and restricted market availability has limited their use.
- Similar biotherapeutic products (SBPs) are "similar" but not identical versions of their innovative biotherapeutic medicine of reference. SBPs are the analogous version of generic medicines in biotherapeutics.
- Whereas producing generic versions of off-patent chemically-synthesized medicines is relatively easy, producing an SBP is far more complicated due to the complex molecular structure and the unique manufacturing process required for biotherapeutic medicines.



- SBPs require distinct regulatory standards than those applied to generic medicines.
- SBP standards require thorough analytical characterization and quality studies as well as abbreviated pre-clinical and clinical development programs to show high similarity to the reference innovative biopharmaceutical medicine in terms of quality, safety and efficacy.
- Civil Society groups claim that even though a Resolution of the World Health Assembly in 2014 mandates the Director General to convene the WHO expert committee on biological standardization to update the 2009 guidelines, till date, the secretariat has neither updated the SBP guidelines nor has the WHO given any scientific reasons for the decision.
- The secrecy of the scientific reasons for insisting on comparative clinical trials for the approval of SBP.
- Lack of public consultations to review the scientific evidence with respect to the need for comparative clinical trials, among other things.

Conclusion:

- As the patents of some biopharmaceuticals have expired, more biosimilars or SBPs are being produced. Like generic medicines, biosimilars could help to increase access to treatment in lower-resourced countries and provide a solution to escalating health costs in high-income countries. Thus, there is a need to update the guidelines.

Q) What is gene editing, should it be allowed ? Give your opinion while you weigh the associated pros and cons. (250 words)

Why this question:

The question is to evaluate the pros and cons of the concept of gene editing.

Demand of the question:

The answer must explain the concept of gene editing and evaluate the ethical angle involved, one must assess the merits and demerits of the same.

Structure of the answer:

The answer to the question must have the following parts:

- Gene editing or genome editing, involves the insertion, deletion, or replacement of DNA (deoxyribonucleic acid) in a gene.
- Discuss the pros and cons; pros – use in cure of cancer, genetic diseases, drug research, Agriculture- pest resilient crops etc.
- What are the disadvantages associated? – ethical aspect, scope to be used in bio weapons, unknown diseases etc.
- Then move on to discuss whether it should be allowed? Opine that should be encouraged to enhance the advancements in field of science and improve the standard of living of people etc.

Conclusion:

Conclude with what should be the way ahead.

Introduction:

- Gene Editing is a type of genetic engineering in which DNA is inserted, deleted, modified or replaced in the genome of a living organism. Unlike early genetic engineering techniques that randomly insert genetic material into a host genome, genome editing targets the insertions to site specific locations.
- **CRISPRs** (clustered regularly interspaced short palindromic repeats) are sections of DNA, while **CAS-9** (CRISPR-associated protein 9) is an enzyme. Often described as “a pair of molecular scissors,” CRISPR is widely considered the most precise, most cost-effective and quickest way to edit genes.

Body:

Pros:

- Most uses of genome editing have been in scientific research –for example to investigate models of human disease.
- Genome editing has the potential to alter any DNA sequence, whether in a bacterium, plant, animal or human being.
- It is a powerful tool that can reshape the way society deals many issues of healthcare, food scarcity and the environment.
- Crops and livestock (e.g. increasing yield, introducing resistance to disease and pests, tolerance of different environmental conditions).
- Industrial biotechnology (e.g. developing ‘third generation’ biofuels and producing chemicals, materials and pharmaceuticals).



- Biomedicine (e.g. pharmaceutical development, xenotransplantation, gene and cell-based therapies, control of insect-borne diseases).
- Reproduction (e.g. preventing the inheritance of a disease trait).
- Engineering mosquitoes to control malaria and dengue.
- It can help fight against blood-related disorders such as haemophilia, sickle cell anaemia, and Beta-Thalassemia.
- All such applications together can drive India's economic growth over the next decade to new heights.

Cons:

- Study by Stanford University, U.S., found that the CRISPR-Cas9 system introduces unexpected off-target (outside of the intended editing sites) effects in mice. The fear that the CRISPR system is being prematurely rushed for clinical use lingers. Three recent reports have exacerbated this fear even further.
- Studies highlighted that CRISPR-Cas9-edited cells might trigger cancer.
- **P53 protein:**
 - CRISPR-Cas9 system induced activation of a protein called P53. This P53 protein acts like a gatekeeper or guardian in the cells to keep them healthy and prevents them (the cells) from turning cancerous. In many cancers, cells lose their ability to repair deleterious genetic changes due to an impaired P53 function.
 - In cells where editing is adequate, the cell's P53 protein may be dysfunctional. Therefore, a functional pP53 protein is good for the cells to be healthy but makes the Cas9-mediated editing process less effective.
- The impending danger of **mosaicism**, in which some cells inherit the target mutation, while others don't.
- Scientists are far from understanding **how exactly individual genes influence phenotypes**, or the visible traits of people.
- **Every gene likely influences multiple traits**, depending on the **environment it interacts**. This makes it hard to predict the ultimate outcome of an embryo-editing exercise without decades of follow-up.
- Every gene **influences trade-offs**, which scientists barely understand today. **Example:** while protecting against HIV, a deactivated CCR5 gene can also make people more susceptible to West-Nile Fever.
- Editing human embryos to repair disease-causing genes is **far more controversial**.
- **Issue of Designer babies:** The eyes of the mother, the hair of the father, the complexion from the maternal side and a cute little dimple from the paternal is what makes the kid loved by one and all. Designing the babies to look like celebrities might get the kids to thank you later in life but might **loosen the bond** that is supposed to be the significant part of the relationship.
- There are prospects of irreversible harms to the health of future children and generations, to concerns about opening the door to **new forms of social inequality, discrimination, and conflict**.
- Such living experiments are **done in secret**, outside of any formal institution, and apparently without any independent scrutiny or review by the scientific fraternity.
- Bioethicists fear abuse of gene editing, not just by misguided governments hoping to create a '**superior**' race.

The debate about gene editing has been going on for a long time now. Gene editing should be encouraged to enhance the advancements in field of science and improve the standard of living of people E.g.: CRISPR technology is targeting to treat the rare disease caused by mutation of one gene. At the same time a common guidelines need to be developed by international community's which set the guidelines of what risks are acceptable and what are not.

Way Forward:

- India's current regulatory architecture for approving novel treatments is ambiguous and assigns overlapping functions to different governmental bodies. This framework needs to be **restructured to optimize trial approval time while addressing safety requirements**.
- A **two-step model** wherein the **government works with industry and research groups to accelerate clinical research is recommended**. This model consists of a national apex committee working in collaboration with existing institutional ethics committees and independent accreditation agencies.
- It is envisaged that, India will emerge as a significant contributor to the world bioinformatics market and position itself as a global hub for bioinformatics.
- Indian bioinformatics sector has numerous strengths and competitive advantages to make bioinformatics sector a sunrise industry of India.



- With the improvements in the IPR regime, increasing support from the government and continuing efforts of the private sector companies, it is very much likely that India could repeat its IT success story in bioinformatics too.
- Much research on animal models and isolated human cells should be conducted before any full-scale routine application in humans.

Q) Evaluate the provisions of the Intellectual Property Rights (IPR) Policy in India. What are the challenges being faced by it? Suggest measures needed to ensure transparency and enhance protection of the same. (250 words)

The hindubusinessline

Why this question:

The article highlights the urgent need to address Intellectual Property (IP) concerns. Over the past year, India took steps to address intellectual property challenges and promote IP protection and enforcement. However, many of the actions have not yet translated into concrete benefits for innovators and creators, and long-standing deficiencies persist. India remains one of the world's most challenging major economies with respect to protection and enforcement of IP.

Key demand of the question:

The answer must discuss in detail the salient features of the current IPR policy of India and what are the challenges it faces and what measures are required to take it further.

Directive word:

Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer

Introduction:

write a few introductory lines on the importance of a robust IPR policy.

Body:

- Answer should have the following dimensions covered:
- Discuss what is an IPR policy? What are the salient features of India's IPR regime?
- Explain the specific issues associated, Why India is lagging behind?
- What needs to be done?
- Way forward.

Conclusion –

Conclude with significance and what should be the way forward.

Introduction:

- Intellectual Property Rights (IPRs) are legal rights, which result from intellectual invention, innovation and discovery in the industrial, scientific, literary and artistic fields. These rights entitle an individual or group to the moral and economic rights of creators in their creation.
- The National IPR Policy (2016) is a vision document that aims to create and exploit synergies between all forms of intellectual property (IP), concerned statutes and agencies. It sets in place an institutional mechanism for implementation, monitoring and review. It aims to incorporate and adapt global best practices to the Indian scenario.

Body:

Seven objectives of IPR Policy:

- IPR Awareness: To create public awareness about the economic, social and cultural benefits of IPRs among all sections of society.
- Generation of IPRs: To stimulate the generation of IPRs.
- Legal and Legislative Framework: To have strong and effective IPR laws, which balance the interests of rights owners with larger public interest.
- Administration and Management: To modernize and strengthen service-oriented IPR administration.
- Commercialization of IPRs: Get value for IPRs through commercialization.
- Enforcement and Adjudication: To strengthen the enforcement and adjudicatory mechanisms for combating IPR infringements.
- Human Capital Development: To strengthen and expand human resources, institutions and capacities for teaching, training, research and skill building in IPRs.



Important highlights of National Intellectual Property Rights (IPR) Policy

- The Policy aims to push IPRs as a **marketable financial asset**, promote innovation and entrepreneurship, while protecting public interest.
- In order to have strong and effective IPR laws, steps would be taken — including review of existing IP laws — to update and improve them or to remove anomalies and inconsistencies.
- The policy is **entirely compliant with the WTO's agreement on TRIPS**.
- **Special thrust on awareness generation and effective enforcement of IPRs**, besides encouragement of IP commercialisation through various incentives.
- India will engage constructively in the negotiation of international treaties and agreements in consultation with stakeholders.
- The government will examine accession to some multilateral treaties which are in India's interest, and become a signatory to those treaties which India has de facto implemented to enable it to participate in their decision making process, the policy said.
- It suggests making the department of industrial policy and promotion (DIPP) the nodal agency for all IPR issues. Copyrights related issues will also come under DIPP's ambit from that of the Human Resource Development (HRD) Ministry.
- Films, music, industrial drawings will be all covered by copyright.
- The Policy also seeks to **facilitate domestic IPR filings**, for the entire value chain from IPR generation to commercialization. It aims to promote research and development through tax benefits.

Issues with the current policy:

- Policy is aimed at a **gold rush towards IPR**. A blind rush towards IP could be a **deterrent to innovation itself by restricting knowledge flow**.
- Policy recommends scientist and professors to convert all their discoveries into IP which in turn has the potential to curb the free flow of knowledge.
- IPR policy is driven by the **agenda of IP maximalism**, where IP owners' rights will be maximised at the cost of public interest. This (policy) will influence courts and judges who might consider rights of patentees above that on common man in certain cases.
- Connection between patenting and application of patented knowledge is yet to be established. Hence, patenting and not applying the new invention could deter progress.
- Policy recommends **criminalization of unauthorised copying of movies** — which is just a civil wrong.
- Not understanding the modes of creativity and sharing in "**shadow economy**", the policy leans towards **superimposition of formal IP framework**.
- While IP could accelerate innovation in certain technologies it in turn impedes in others. Policy recommends scientist and professors to convert all their discoveries.
- According to USTR, Patent applicants face costly and time-consuming patent opposition hurdles, long timelines for receiving patents, and excessive reporting requirements.

Measures needed:

- Fostering an environment where innovation flourishes and a knowledge economy is built, is the key idea. Hence, the policy should have a balance.
- It should encourage patenting and at the same time ensure that patentability of a product/process does not deter further innovation and progress.
- Intellectual Property must not be about patents on paper but dearth of application in reality.
- The organisations such as CSIR and others must be encouraged to work upon socially useful applications of their patents.
- Support for innovation has to be accompanied with instruments that guard local companies against the misuse of market power, coercive bargaining and aggressive acquisition strategies.
- India needs to spread awareness on IPR in public and for its traditional industries to enable fair monetisation of IP Rights.
- It needs to safeguard its patents, copyrights and traditional knowledge by ensuring easy IPR rules.

Q) Explain the role played by robotics and its application to the agriculture sector of the country. What are its future prospects ? How far can Indian agriculture foresee mechanization of agriculture for its growth ? (250 words)

[Reference](#)

**Why this question:**

The article discusses in detail the application and role played by the robotics in the upbringing of Agri sector in India. The paper discusses in detail scope of robotics and mechanization it brings to Agriculture in India.

Key demand of the question:

Answer must discuss the role of robotics and prospect of it in Indian agriculture and mechanization and automation of the same.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:**Introduction:**

In a few introductory lines highlight the context of the question.

Body:

In brief discuss the following aspects:

- Current scenario of agriculture in India in comparison with other countries that have developed agriculture systems like US, Iran etc.
- Discuss how robotics can be applied to agrarian systems? What benefits it has and can bring?
- Explain the specific case of India.
- Discuss the scope and benefits in detail.
- Explain the challenges involved.

Conclusion:

Conclude with way forward.

Introduction:

- Robotics is the branch of technology that deals with the design, construction, operation, structural depositions, manufacture and application of robots.
- Today Robotics is the rapidly growing field and it is continue in research, design, and build new robots that serve various practical purposes. As it has taken drive in various fields is there any possibility that robot can be introduced in the farming.

Body:

The most popular applications of Robots in agriculture appear to fall into four major categories:

- **Crop and Soil Monitoring:** Companies are leveraging sensors and various IoT-based technologies to monitor crop and soil health.
- **Predictive Agricultural Analytics:** Various AI and machine learning tools are being used to predict the optimal time to sow seeds, get alerts on risks from pest attacks, and more.
- **Supply Chain Efficiencies:** Companies are using real-time data analytics on data-streams coming from multiple sources to build an efficient and smart supply chain.
- **Agricultural Robots:** Companies are developing and programming autonomous robots to handle essential agricultural tasks such as harvesting crops at a higher volume and faster pace than human labourers.

Some examples of Agricultural Robots:

- **Green seeker sensor:** This smart machine reads a plant's needs and then applies precisely the amount of fertilizer of herbicides needed. Green Seeker is a machine which uses the sensors to let the plant tell us that what it needs.
- **Robot drone tractors:** A new generation of robot drones is revolutionizing the way we farm, with manufacturing of different robots, e. announcing the first ever robot drone tractor becomes part of the agricultural mainstream. Robot will decide where to plant, when to harvest and how to choose the best route for crisscrossing the farmland.
- **Flying Robots To Spread Fertilizer:** A flying robot monitors the growing condition of the crops over farmlands in Ili, a Kazak autonomous prefecture in Northwest China's Xinjiang Uygur autonomous With camera equipment and an automatic fertilizing system in the front, the robot can fly autonomously and apply fertilizer independently.



- **Fruit Picking Robots:** The research is still in full progress, especially as the robots need to be carefully designed so that they do not bruise the fruit while picking. One solution is the use of suction grippers, used on automated fruit picking machines manufactured, for example, by
- **Robot Cattle Grazing and Automatic Milking:** Is the milking of dairy animals, especially of dairy cattle, without human labour. Automatic milking systems (AMS), also called voluntary milking systems (VMS), were developed in the late 20th century. They are commercially available since the early 1990s.

Scope of farm robots in India:

- Our farm equipment companies and researchers have developed a lot of small and heavy farm equipment for traditional farming needs but some kind of robotic and pneumatic mechanism are required in precision
- If the robots are being used for weed control, that will help to reduce the herbicides usage and the produces will turn into an organic, the same way robots can be used for transplanting the seedlings to avoid intensive
- A few impressive innovative technologies by rural inventors e. electric motors can be operated remotely by cell phones, it's very helpful to farmers in summer time since the power supply is irregular.
- Advanced intelligent machines in farming, Sensors or readers and hand held PDAs are going to be great helpful in computation and accuracy in
- There are lot of hurdles taken in the agriculture sector in all countries but specially in
- Farmers are decreasing in India. Many are leaving the farming profession by telling some repeated common sentences that it is no longer profitable and none want to get losses and it is becoming risky day by day.
- The disadvantages make the youngsters also disinterested in that.

Conclusion:

- Robotics will definitely bring the agriculture revolution. Although the road ahead is not very smooth. We have to calculate the feasibility, sustainability and efficiency meeting the world's food needs.
- However, it would be interesting to see how the farmers, agri-businessmen and the consumers will utilize the power of Robotics and digital-mechanization to shape the future of this industry.

Q) What do you understand by blockchain technology? Evaluate its prospects and challenges. (250 words)

[The hindubusinessline](https://www.insightsactivelearn.com/online/india-exam/2019/secure-synopsis/blockchain-technology/)

Why this question:

Blockchain technology has been in news for quite a time now. The technology is not only revolutionary but also foundational in the sense other systems/ applications can be built on it.

Key demand of the question:

The answer must discuss

Directive word:

Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer

Introduction:

write a few introductory lines on the importance of a such remarkable technologies.

Body:

- Answer should have the following dimensions covered:
- Discuss the concept of blockchain Technology -The blockchain is an incorruptible digital ledger of economic transactions that can be programmed to record not just financial transactions but virtually everything of value.
- Enlist the possible applications of blockchain Technology in economic, societal and political spheres.
- Discuss the associated challenges, and how one can overcome it and bring its prospects to use.

Conclusion –

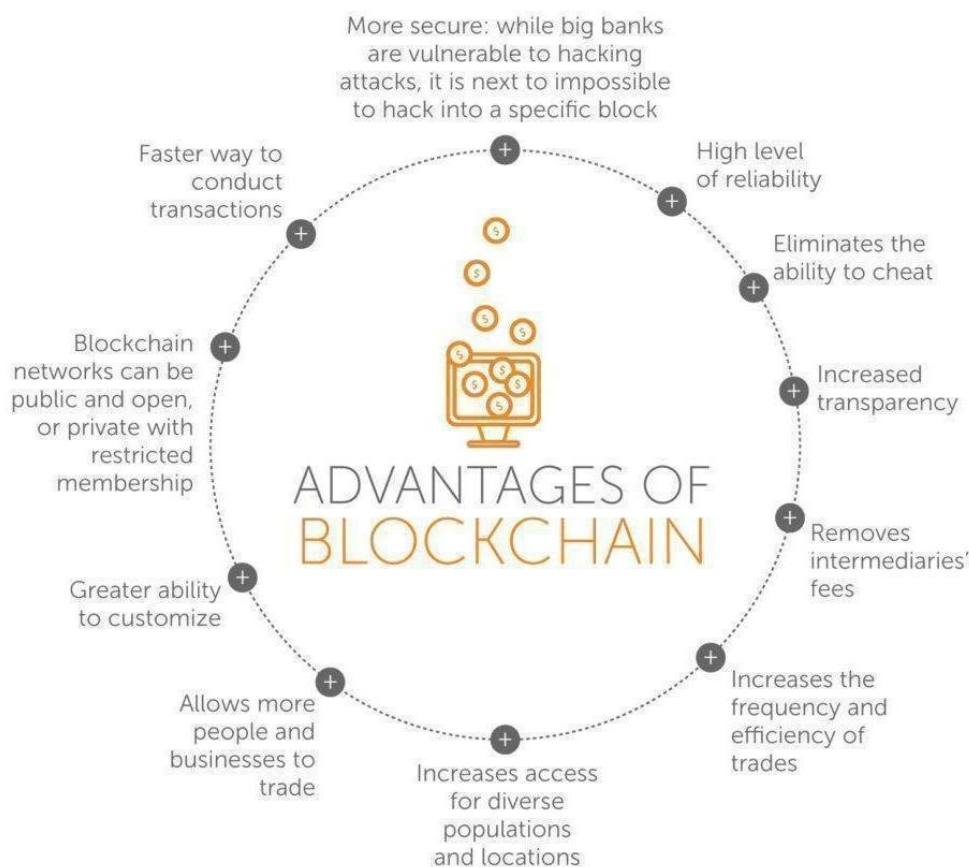
Conclude with significance and what should be the way forward.



Introduction:

- Blockchains are a new data structure that is secure, cryptography-based, and distributed across a network. The technology supports cryptocurrencies such as Bitcoin, and the transfer of any data or digital asset. Anything recorded on them cannot be deleted, and is instantly uploaded to all users on that blockchain. Blockchain is being researched across the banking and financial services industries.

Body:



Prospects:

- Bitcoin is just one of the applications for the technology, whose use is being tested across industries.
- Healthcare, banking, education, agriculture, electricity distribution and land records are sectors that could benefit.
- Blockchain-powered smart contracts, where every piece of information is recorded can enhance ease of doing business.
- It will augment the credibility, accuracy and efficiency of a contract while reducing the risk of frauds, substantially.
- Blockchain could play a crucial part in health insurance claims management by reducing the risk of insurance claim frauds.
- The technology can also be used to prevent the sale of spurious drugs in the country by tracking every step of the supply chain network.
- Artificial Intelligence and Internet of Things (IoT) can gain immensely from blockchain applications.
- In an IoT world, thousands of devices would need to rapidly and seamlessly transact with each other in real time.
- The adoption of blockchain by India's banks could help avert frauds such as the one at Punjab National Bank as the technology updates information across all users simultaneously.
- It could be used to further strengthen our national institutions, including the judiciary and the Election Commission.
- Critical citizen information like land records, census data, birth and death records, business licenses, criminal records, intellectual property registry, electoral rolls could all be maintained as blockchain-powered, tamper-proof public ledgers.

**Challenges:**

- Blockchain technology is expensive to initially put it in place.
- The massive usage of energy for the functioning of blockchain.
- Safeguarding the privacy of individuals and companies as blockchains are usually open ledgers for everyone to see.
- Knowledge of the benefits of distributed ledger technology is still limited.
- If automated risk management, smart contracts, and similar tools are deployed across a network, cascades of rapid and hard-to-control obligations and liquidity flows could propagate across a network.
- This interdependence will likely call for creative organizational thinking to address the need for governance and strong risk management

Way Forward:

- Blockchain, with all its possibilities, needs a serious look at its vulnerabilities and commerciality.
- Before introducing blockchain into the public sector data-handling system, we need a robust and informative data repository.
- Linking **IndiaChain** with Aadhar, thus creating a secure personal identity for all Indians.
- Proper regulations for the use of blockchain technology in the country.
- Identifying and resolving key issues and challenges in implementing this technology, the prime amongst those being data privacy.
- India should effectively channel its technical human capital surplus to position itself as one of the pioneers during this upcoming wave of innovation.

Topic: Conservation, environmental pollution and degradation, environmental impact assessment.

Q) Climate change is not anymore only an environmental problem, but a unique one with multi-scalar characteristic, from the global to the local. Comment, also discuss challenges in tackling the problem of climate change across the world. (250 words)

The hindu

Why this question:

The article explains in detail the issue of climate change facing the world and how it is not anymore just about being an environmental problem but much more than that, it highlights the multi-dimensional aspects of climate change and critically analyses the associate problems in tackling it.

Key demand of the question:

The answer must discuss the alarming need to address the climate change differently from the usual methods of commitments as they are not doing there bit anymore to address the impact of climate change effectively.

Directive word:

Comment— here we have to express our knowledge and understanding of the issue and form an overall opinion thereupon.

Structure of the answer:**Introduction:**

In a few introductory lines explain how climate change is a multi-faceted problem today.

Body:

- Explain – why climate change is an immediate issue that needs address and action today?
- Explain the issue with facts and figures – Global warming above pre-industrial levels has touched about 1 degree Celsius etc.
- What are the challenges in addressing climate change ?
- complex linkages among emissions, concentrations, climate changes, and impacts.
- Lack of certainty about the details of future climate change.
- significant time lags in human response systems.
- Risks, judgments about risk, and adaptation needs are highly variable across different contexts.
- Suggest what needs to be done?
- Discuss Indian context and what should India's move be to tackle climate change at individual level as well as in collaboration with world countries.

Conclusion:

Conclude with urgency of the need to tackle climate change.



Introduction:

- Climate change is a complex problem. It is inextricably linked with society, economics, politics, and people's way of life. More than 190 countries signed the Paris Agreement in 2016, committing to change how they create and use energy in order to lower impacts of carbon and other greenhouse gases on the planet.
- All over the world, people and organizations are taking action to both lower carbon footprints and find innovative ways to adapt to the effects of climate change.

Body:

Climate change is an immediate issue to be tackled:

- Global warming above pre-industrial levels has touched about 1 degree Celsius.
- The IPCC 1.5 report basically says, at the current rates at which we are producing greenhouse gases, we are looking at a couple of decades really before what we have available is exhausted.
- At one level, for many people climate change has become an existential problem, a problem that risks undermining the conditions for productive life and therefore a problem that does not override but certainly permeates all kinds of other issues.
- For many others, climate change is a distant problem that is overwhelmed by more immediate issues.
- The rapid change of climate change is likely to exceed the ability of many species to migrate or adjust. Experts predict that one-fourth of Earth's species will be headed for extinction by 2050 if the warming trend continues at its current rate.
- Sea levels have risen between four and eight inches in the past 100 years. Current projections suggest that sea levels could continue to rise between 4 inches and 36 inches over the next 100 years.
- As temperatures rise globally, droughts will become more frequent and more severe, with potentially devastating consequences for agriculture, water supply and human health. This phenomenon has already been observed in some parts of Asia and Africa, where droughts have become longer and more intense.
- Hot temperatures and dry conditions also increase the likelihood of forest fires.

Challenges in addressing climate change:

- **Regional Inequality:**
 - The principle of Common but differentiated responsibilities was proposed to tackle climate change by addressing the regional inequality.
 - However, the indifferent behaviour by the developed countries has led to partial success of many global initiatives. Eg. Kyoto Protocol.
- **Developed Countries not taking responsibility:**
 - Historical emissions and pollution caused due to industrial revolution is not accepted by the industrialized nations.
 - Developed nations are unwilling to accept the responsibility and are moving away from global agreements. Eg. USA rejecting the Paris deal.
- **Finance:**
 - Huge amount of funds are required for adaptation and mitigation measures to be adopted.
 - For eg: electric mobility, certainly is a green measure, but is actually expensive, in immediate terms, in terms of cost per vehicle kilometre.
 - The cost of shifting into renewable energy is also a fiscal challenge to most countries.
- **Technology:**
 - Many adaptation and mitigation measures need sophisticated technologies and Research and Development which is an impediment to many developing and small island nations.
 - Commercialization of technology in form of Patents, evergreening has made it unaffordable.
- **Increasing use of fossil fuels.**
- **Complex linkages among emissions, concentrations, climate changes, and impacts.**
- **Lack of certainty about the details of future climate change.**
- **Significant time lags in human response systems.**
- **Risks, judgments about risk, and adaptation needs are highly variable across different contexts.**

Way Forward

- Wealthy nations like the U.S., and those of the EU argued that emissions from developing countries are consistently rising and they need to commit to more serious emission cuts. A consensus needs to be developed at the earliest.
- The immediate up scaling of ambition in the second Commitment period of Kyoto Protocol and its early ratification by all Kyoto Protocol parties would be a step in the right direction.



- Concerning mitigation, distinction enshrined in the Convention between Annex I (Developed) and non-Annex I (developing) Parties must be maintained in accordance with the principles of Equity, CBDR and other provisions of the UN Conventions.
- The 'developing versus developed country' schism needs to be diluted at the earliest and Developed Countries should avoid watering down the CBDR principle envisaged in earlier agreements.
- Investment in R&D is needed to spur innovations in sustainable climate-friendly and climate-proof productivity, and the private sector can help on this.

Q) "India's conservation policies and legislation in environmental domain over the years reveal a dichotomy of intent and action". Critically analyse. (250 words)

The hindu

Why this question:

The article provides for a detailed analysis India's conservation policies and legislation in environmental domain. It highlights that India is stridently moving away from community-involved conservation models.

Key demand of the question:

One needs to analyse India's conservation policies and legislation in environmental domain with major focus on the recent shift in its approach that has moved away from community-involved conservation models.

Directive word:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

In a few introductory lines explain the background of the question.

Body:

In brief discuss –

Discuss the recent legislations that highlights the alarming issue concerning India's environmental policy like the eviction of more than a million forest-dwelling people from their homes.

- Discuss the policies and initiatives of the government in this direction.
- Discuss why there is Expropriation in the name of conservation?
- Explain the Indian Forest Act, Forest Rights Act; lacunae with the proposed amendments etc.
- Take cues from the article and suggest your opinion and provide for a balanced judgement.

Conclusion:

Conclude with what needs to be done, suggest way forward.

Introduction:

- The Supreme Court has asked the governments of 17 states to evict an estimated one million tribal and other households living in forests after their claims of the right to live in forests were rejected under the **Forest Rights Act**. As a consequence, more than one million tribals could be displaced, mainly in central India.
- Although this order was subsequently stayed, though temporarily, it provides valuable insights into India's conservation objectives and approaches. Given the country's size and biodiversity-richness, a decision of this nature has consequences for global natural heritage.

Body:

India's conservation laws and policies:

- From the 1980s, there were a number of policies that mirrored the global shift towards inclusive conservation, such as the **1988 National Forest Policy, the 1992 National Conservation Strategy, the National Environment Policy of 2006 and the 2007 Biosphere Reserves Guidelines**.
- India's conservation legislation is separated into those that protect forests and its produce, and those that target wildlife conservation.
- Both the **Indian Forest Act, 1927** and the Wildlife Protection Act, 1972 create different types and grades of protected areas, and contain provisions to restrict or outlaw local use of natural resources and landscapes.
- India has been a vocal member of above conventions. But at home, things operate rather differently, despite there were a number of policies that mirrored the global shift towards inclusive conservation.



- The **Forest Rights Act, 2006** went beyond sanctioning local usage, to conferring rights to local communities over forest land and produce.
- The Ministry of Tribal Affairs was mandated with operationalising the Act, while conservation remained under the domain of the Ministry of Environment, Forest and Climate Change.
- However, given a hostile bureaucratic environment, the legislation faltered, except in certain pockets.
- The **Third National Wildlife Action Plan**, introduced in 2017, is categorically of the view that locals hinder conservation.
- Where communities are to be involved, it distinctly avoids the attribution of rights and instead frames usage within a bureaucracy-controlled format.

Dichotomy of intent and action:

- In the year 1990, Joint Forest Management Guidelines (JFM) created community institutions for co-management, in collaboration with the forest bureaucracy.
- Although it initially registered some success stories in certain parts of the country, JFM committees are widely critiqued as being bureaucracy-heavy, with little real devolution of powers to local communities.
- In March 2019, a comprehensive overhaul of the Indian Forest Act was proposed.
- This amendment introduces provisions for extinguishing rights granted under the Forest Rights Act.
- Further, it grants the forest bureaucracy unprecedented powers to enter and search the premises of forest-dwellers on suspicion, arrest without warrant and use firearms to meet conservation goals.
- State authority that is usually reserved to tackle terrorism, insurgency and organised crime is now to be deployed to safeguard biodiversity.
- An amendment to the Wildlife Protection Act is reportedly in the offing. India's conservation policies in recent years leave no doubt as to the model of conservation the country is intent on pursuing.

Way forward:

- Most community-based natural resource management programmes may have only limited success at achieving both conservation and human development goals.
- But the concept appears to be the best opportunity for countries like India to achieve these two outcomes of conservation and human development goals.
- The most important part of the approach is that user rights are transferred from central government to local communities.
- The model is being increasingly promoted as a conservation tool and has become the dominant approach in natural resource conservation worldwide.
- It can help the country retain its place as one of the most famous and profitable wildlife tourism destinations in the world. And it can also contribute to other economic sectors and alleviate rural poverty.

Conclusion:

- **Involving communities living in and around natural resource-rich areas in the management and use of these resources** is an effective tool of conservation that has been recognised across the world.
- This was affirmed by the **1980 World Conservation Strategy of the International Union for Conservation of Nature (IUCN)**, and the **Earth Summit's 1992 Statement of Forest Principles** and the **Convention on Biological Diversity**. India needs to **value the community-involved conservation models** like other successful countries.

Q) Do you agree that the benefits of biodiversity far exceed the costs of current levels of biodiversity protection ? Explain the impacts of biodiversity on economic activities of a country. (250 words)

The hindu

Why this question:

The article discusses in detail the economic costs associated with the biodiversity. It highlights the findings of the global assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) which states that human beings have so rapaciously exploited nature, and that species belonging to a quarter of all studied animal and plant groups on earth are gravely threatened.

Key demand of the question:

The question expects one to analyse the need for Biodiversity assessments that must be factored into all economic activity.

Directive word:



Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Begin with significance of conservation of biodiversity for sustenance of economy.

Body:

Discussion should include the following aspects –

- Highlight the nature and scale of benefits that we, as a society, derive from biodiversity.
- Discuss that it is important that public goods, including those supplied by nature, are reflected in decision making. It is also important to ensure that the benefits of policies which protect biodiversity are at least commensurate with the costs of such policies.
- Explain why benefits of biodiversity far exceed the costs of current levels of biodiversity protection.
- Elaborate how a high level of biodiversity also ensures that we are
- supplied with the 'ecosystem services' that are essential to the sustainability of our standard of living and to our survival.
- Re assert on significance of the biodiversity conservation to economic aspects.

Conclusion:

Conclude with a way ahead.

Introduction:

- The overwhelming message from **the global assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)** is that human beings have so rapaciously exploited nature, and that species belonging to a quarter of all studied animal and plant groups on earth are gravely threatened.
- Biodiversity not only encompasses the ecological processes as we can see them, but also holds the key to the evolutionary processes that sustain life and the cultural relationships that nurture the spirit.

Body:

Benefits of Biodiversity conservation:

- Nature provides ecosystem services which are vital for food production, for clean air and water, provision of fuel for millions, absorption of carbon in the atmosphere, and climate moderation.
- Conservation of biological diversity leads to conservation of essential ecological diversity to preserve the continuity of food chains.
- The genetic diversity of plants and animals is preserved.
- It ensures the sustainable utilisation of life support systems on earth.
- It provides a vast knowledge of potential use to the scientific community.
- A reservoir of wild animals and plants is preserved, thus enabling them to be introduced, if need be, in the surrounding areas.
- Biological diversity provides immediate benefits to the society such as recreation and tourism.
- Biodiversity conservation serves as an insurance policy for the future.

However, the modern day economy does not often include the above benefits in productivity estimates. The result of such skewed policies, as the IPBES estimates, is that the global rate of species extinction is at least tens to hundreds of times higher today than the average rate over the past 10 million years, and it is accelerating alarmingly.

Threats to Biodiversity:

- Ecological economists have for years pointed to the extreme harm that humanity as a whole is courting by modifying terrestrial, marine and freshwater ecosystems to suit immediate needs, such as rising agricultural and food output and extracting materials that aid ever-increasing consumption.
- Expanding agriculture by cutting down forests has raised food volumes, and mining feeds many industries, but these have severely affected other functions such as water availability, pollination, maintenance of wild variants of domesticated plants and climate regulation.



- Losses from pollution are usually not factored into claims of economic progress made by countries, but as the IPBES assessment points out, marine plastic pollution has increased tenfold since 1980, affecting at least 267 species, including 86% of marine turtles, 44% of seabirds and 43% of marine mammals.

Impacts of biodiversity on economic activities of a country:

- Agriculture, forestry and fisheries products, stable natural hydrological cycles, fertile soils, a balanced climate and numerous other vital ecosystem services depend upon the conservation of biological diversity.
- Food production relies on biodiversity for a variety of food plants, pollination, pest control, nutrient provision, genetic diversity, and disease prevention and control. Both medicinal plants and manufactured pharmaceuticals rely on biodiversity.
- Decreased biodiversity can lead to increased transmission of diseases to humans and increased healthcare costs.
- The outdoor tourism industry relies on biodiversity to create and maintain that which tourists come to see, as does the multi-billion dollar fishing and hunting industry.
- Amidst continuing loss of natural habitat and biodiversity, it is necessary to examine the benefit:cost ratio of investments in habitat conservation.
- Evidence has been accumulating that shows habitat conservation generates more economic benefits than does habitat conversion

Way forward:

- About 9% of 6,190 domesticated breeds of mammals used for food and agriculture had gone extinct by 2016, and another 1,000 may disappear permanently.
- Viewed against a shrinking base of wild varieties of farmed plants and animals, all countries have cause for alarm.
- They are rapidly emptying their genetic resource kit.
- Reversing course is a dire necessity to stave off disaster.
- This can be done by incorporating biodiversity impacts into all economic activity, recognising that irreparably breaking the web of life will impoverish and endanger people everywhere.

Q) “To ensure that development does not degrade lives, it is imperative to mainstream biodiversity and ecosystem concerns in policy-making”. Critically analyse. (250 words)

Economictimes

Why this question:

A new report from UN’s Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, the most comprehensive assessment of the global ecosystems to date, has provided as an indictment of how humans have treated the Earth. The report highlights the alarming situation of ecosystem degradation.

Key demand of the question:

The answer is straightforward, one must discuss in detail the significance of mainstreaming biodiversity and ecosystem concerns in policy-making.

Directive word:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer

Introduction:

write a few introductory lines, highlight the findings of the report.

Body:

Answers must discuss the following aspects :

- Provide for a narration on the present conditions of ecosystem.
- Explain why the situation is grim?
- What are the Main causes of the deterioration of the natural ecosystem? – land-use change, overfishing, pollution, climate change and population growth etc.
- Explain the need for radical transformation of the systems of consumption and production to those that are resource efficient and generate less waste through the life cycle.



- Suggest upon recent steps taken by the government in this direction.
- Provide for way forward.

Conclusion –

Conclude by reasserting their significance of policy making that is centric to biodiversity and ecosystem conservation.

Introduction:

- The first-ever **Global Assessment Report on Biodiversity and Ecosystem Services** by **Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)** has been released. The Report is termed as the first-ever such comprehensive report. It took three years for a group of 145 expert authors from 50 countries to prepare this report based on more than 15,000 scientific and government documents. It primarily looked or analysed the impact of economic development on nature and ecosystems.

Body:

Findings of the report:

- The report identified a range of risks, from the disappearance of insects vital for pollinating food crops, to the destruction of coral reefs that support fish populations that sustain coastal communities, or the loss of medicinal plants.
- It found that the average abundance of native species in most major land-based habitats has fallen by at least 20%, mostly since 1900.
- The threatened list includes more than 40% of amphibian species, almost 33% of reef-forming corals, and more than a third of all marine mammals.
- The picture was less clear for insect species, but a tentative estimate suggests 10% are at risk of extinction.
- Productivity in 23 per cent of global land has reduced due to land degradation.
- Up to \$577 billion in annual global crops are at risk from pollinator loss and 100-300 million people are at increased risk of floods and hurricanes because of loss of coastal habitats and protection.

Causes:

- This loss is a direct result of human activity and constitutes a direct threat to human well-being in all regions of the world.
- Human-induced loss in ecosystems: Three-quarters of the land-based environment and about two-thirds of the marine environment have been significantly altered by human actions, says the assessment.
- Nearly 75 per cent of all freshwater resources are now used for crop and livestock rearing activities.
- Changes in land and sea use
- direct exploitation of organisms
- pollution
- invasive alien species
- Climate change caused by burning the coal, oil and gas produced by the fossil fuel industry is exacerbating the losses, the report found.

Way forward:

- The report says there is still an opportunity for human beings to live in harmony with nature.
- But there has to be a change in the way how natural resources are governed, and things are produced and consumed.
- This is inevitable in terms of economies, livelihoods, food security, health and quality of life worldwide.
- By transformative change, that is a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values.
- The findings will also add to pressure for countries to agree bold action to protect wildlife at a major conference on biodiversity due to take place in China towards the end of next year.
- Compartmentalisation must give way to an integrated and synchronised approach. India and the world have the knowledge and regulatory framework required for the transformation.

Q) Plastic pollution is a pressing environmental concern that requires our collective action. Discuss this statement in the background of Basel Convention on the control of hazardous wastes which recently was amended to include plastic waste. (250 words)

[The hindu](#)

**Why this question:**

Recently Around 180 governments agreed on a new UN accord to regulate the export of plastic waste. Thus, it is important for us to evaluate the pressing concern that plastic pollution poses on the environment today.

Key demand of the question:

Analyse in detail how Plastic pollution is a pressing environmental concern that requires our collective action. The growing levels of plastic waste are becoming unmanageable, every year, more than eight million tons end up in the oceans. Thus, we have to analyse the causes and consequences of the same.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In a few introductory lines highlight some facts to justify the current menace of plastic pollution.

Body:

In brief discuss –

- Start by stating some facts /reports to justify the current conditions of plastic pollution.
- Highlight the agreement that was reached recently that took the form of an amendment to the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and their Disposal, to include plastic waste and improve the regulation of its trade.
- Identify the Dangers of the Plastic Era – discuss the causes and consequences.
- Highlight the need for collective action.

Conclusion:

Conclude by reasserting the need to curb and control the menace of plastic pollution and the threat it poses on the environment.

Introduction:

- The **Basel Convention on the Control of Transboundary Movements of Hazardous Wastes** and their Disposal was created to protect people and the environment from the negative effects of the inappropriate management of hazardous wastes worldwide. Around 180 governments recently agreed on a **new UN accord to regulate the export of plastic waste**, some eight million tonnes of which ends up in the oceans each year.

Body:Key highlights of the accord:

- The accord members agreed to make global trade in plastic waste more transparent and better regulated and to ensure that its management is safer for human health and the environment.
- The **legally binding framework** which amends the Basel Convention.
- The accord affects products used in a broad array of industries, such as healthcare, technology, aerospace, fashion and food, and beverages.
- The accord is a crucial first step towards stopping the use of developing countries as a dumping ground for the world's plastic waste, especially those coming from rich nations.
- Accordingly, countries will have to figure out their own ways of adhering to the accord.
- Countries that did not sign the deal like the United States could be affected by the accord when they ship plastic waste to countries that are on board with the deal.
- The agreement is likely to lead to customs agents being on the lookout for electronic waste or other types of potentially hazardous waste more than before.

Dangers posed by Plastic pollution:

- The recycling efforts are failing to keep pace with production.
- Current standard water treatment systems do not filter out all of the microplastics.
- It is creating an environmental crisis comparable to climate change.
- Cattle and other animals unknowingly consume some of this plastic material which is not digested, end up with painful death. This will have an impact for the farmers and on the Indian economy.
- Pollutants also upset primary food production in waterbodies by preventing the entry of sunlight into water.
- Plastic pollution in beaches also impact tourism.
- The ban on plastic carry bags below 40 microns in many states has not yielded the desired results

**Way forward:**

- ULBs could take cue from cities like Bangalore where dry waste collection centres have not only been established but also have a self-sustainable business model.
- Municipalities must develop waste collection plans, coupled with outreach activities, to sensitise citizens on waste segregation.
- It is imperative to develop a phase-wise implementation of the EPR programme with yearly targets and a system of nationwide offsets and credit to ensure effective implementation of the rules.
- International examples:
 - The success of imposing a plastic bag fee has also been established in cities like Chicago and Washington, showing that such interventions could be effective in shaping behaviour change.
 - The European Union is mulling new laws to ban some everyday single-use plastic products including straws, cutlery and plates citing plastic litter in oceans as the concern prompting the action.
- Encouraging plogging:
 - Picking up litter while jogging or strolling was kick-started on a small scale in a small part of Stockholm about an year ago, it has spread across the globe and India can adopt this as well.
- Countries such as the U.S., Canada and the Netherlands have already put in place regulations to stop the use of microbeads in personal-care products. The sooner India adopts such regulations, the better
- Recycling has to ensure that wastes are converted into products of the same quality, if not better, compared to the original product.
- Stop using single use plastic:
 - The Government of the state of Maharashtra has announced an ambitious ban of plastic bags, water bottles and other disposable plastic items in the state after the state civic bodies started facing serious problems on garbage disposing and its management.
 - Fine for violating the ban will be Rs 5,000 for the first offence, Rs 10,000 for the second and Rs 25,000 for the third offence or a three-month jail term or both.
- With a worldwide crisis due to plastic waste, India has to involve all the stakeholders take the responsibility of ensuring minimisation, reuse and recycling of plastic to the maximum.
- Sensitise people to stop littering and segregate their waste. Nowadays the most popular eco-conscious effort is participating in beach cleanups.
- Sanitary napkins made from biodegradable material, menstrual cups should be promoted.

Q) CSIR-Centre for Cellular and Molecular Biology recently sequenced Asiatic lion genome. Discuss in what way such projects can be significant turning points in the conservation efforts of such endangered animals ? (250 words)

The hindu

Why this question:

For the first time, the entire genome of Asiatic lion has been sequenced by scientists from CSIR-Centre for Cellular and Molecular Biology, Hyderabad.

The objective was to understand the species at DNA level and study if there were any specific problems with regard to adaptability to environment or behaviour vis-à-vis other big cats.

Key demand of the question:

Analyse in detail the project and Significance of the project and how it can prove to be a significant turning points in the conservation efforts of such endangered animals.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In a few introductory lines highlight some facts depicting the status of Asiatic Lion in India.

Body:

In brief discuss –

- Start by discussing the details of the project – What is genome sequencing? About Asiatic lion and CCMB.



- Highlight the significance of such a project – How it would help researchers to better understand the evolution of Asiatic lions and also make possible comparative analysis with other big cats.
- It would enable scientists to develop specific markers to study population genetics (the differences at the gene level within a population) and get newer insights into its population status and subsequent management.
- It will enable better disease and population management of the endangered big cat by identifying characteristics which are specific to Asiatic lions etc.

Conclusion:

Conclude by reasserting the significance of such projects in the conservation efforts.

Introduction:

- A genome is an organism's complete set of DNA, including all of its genes. Genomics is an interdisciplinary field of science focusing on the structure, function, evolution, mapping, and editing of genomes.
- Genomics also involves the sequencing and analysis of genomes through uses of high throughput DNA sequencing. For the first time, the entire genome of Asiatic lion has been sequenced by scientists from **CSIR-Centre for Cellular and Molecular Biology, Hyderabad**.

Body:

- The objective is to **understand the species at DNA level and study if there are any specific problems with regard to adaptability to environment or behaviour vis-à-vis other big cats.**

Importance of Genome Sequencing:

- Sequencing the genome is an important step towards understanding it.
- The genome sequence will represent a valuable shortcut, helping scientists find genes much more easily and quickly. A genome sequence does contain some clues about where genes are, even though scientists are just learning to interpret these clues.
- Scientists also hope that being able to study the entire genome sequence will help them understand how the genome as a whole works—how genes work together to direct the growth, development and maintenance of an entire organism.
- Finally, genes account for less than 25 percent of the DNA in the genome, and so knowing the entire genome sequence will help scientists study the parts of the genome outside the genes.
- This includes the regulatory regions that control how genes are turned on and off, as well as long stretches of “nonsense” or “junk” DNA—so called because significance of it hasn't been established.

Need and significance:

- This firsthand information would help researchers to better understand the evolution of Asiatic lions and also make possible comparative analysis with other big cats.
- The population of the endangered Asiatic lion is very low — only 523 animals are present in the Gir forests.
- The genome sequencing would enable scientists to develop specific markers to study population genetics (the differences at the gene level within a population) and get newer insights into its population status and subsequent management.
- The study will enable better disease and population management of the endangered big cat by identifying characteristics which are specific to Asiatic lions. E.g.: 21 lions reportedly died between September and October in Gir forest of Gujarat due to Canine distemper virus, Such incidents can be avoided.
- Comparative genomics between African and Asiatic lions could be undertaken once the complete genome of the African lion is sequenced.
- Comparative analysis with other felids and mammalian genomes unravelled the evolutionary history of the Asiatic lion and its position among other felids.
- The study noted that the evaluation of genetic diversity placed the Asiatic lion in the lowest bracket of genomic diversity index highlighting the gravity of its conservation status.

Conclusion:

- With the complete genome of royal Bengal tiger, African Cheetah and Jaguar available, comparative studies of all these big cats would be possible. Such researches will help in adopting a multi-pronged approach towards conservation efforts.



Q) List down the objectives of India Cooling Action Plan. Explain how it is a bold response to addressing India's future cooling needs while neutralizing its impacts. (250 words)

[Indianexpress](https://www.indianexpress.com)

Why this question:

The author in the article discusses in detail how new plan for cooling technologies is in sync with environmental challenges in India. India is one of the first countries in the world to develop a comprehensive Cooling Action plan which has a long-term vision to address the cooling requirement across sectors and lists out actions which can help reduce the cooling demand. Thus, it is important for us to evaluate its significance.

Key demand of the question:

Analyse in detail the objectives of India Cooling Action Plan and explain how it is a bold step taken by India in this direction.

Directive word:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In a few introductory lines highlight the significance of the ICAP.

Body:

- In brief discuss that – India is the first country in world to develop such a document (ICAP), which addresses cooling requirement across sectors and lists out actions which can help reduce the cooling demand. The overarching goal is to provide sustainable cooling and thermal comfort for all while securing environmental and socio-economic benefits for the society.
- Broad objectives of the India Cooling Action Plan include:
- Assessment of cooling requirements across sectors in next 20 years and the associated refrigerant demand and energy use.
- Map the technologies available to cater the cooling requirement including passive interventions, refrigerant-based technologies and alternative technologies such as not-in-kind technologies.
- Suggest interventions in each sector to provide for sustainable cooling and thermal comfort for all.
- Focus on skilling of RAC service technicians.
- Develop an R&D innovation ecosystem for indigenous development of alternative technologies.
- Explain the benefits India can reap from it

Conclusion:

Conclude with way forward.

Introduction:

- India is the first country in world to develop India Cooling Action Plan which addresses cooling requirement across sectors and lists out actions which can help reduce the cooling demand.
- The overarching goal is to provide sustainable cooling and thermal comfort for all while securing environmental and socio-economic benefits for the society.

Body:

The India Cooling Action seeks to

- reduce cooling demand across sectors by 20% to 25% by 2037-38,
- reduce refrigerant demand by 25% to 30% by 2037-38,
- Reduce cooling energy requirements by 25% to 40% by 2037-38,
- recognize “cooling and related areas” as a thrust area of research under national S&T Programme,
- Training and certification of 100,000 servicing sector technicians by 2022-23, synergizing with Skill India Mission. These actions will have significant climate benefits.

The broad objectives of the India Cooling Action Plan include:

- Assessment of cooling requirements across sectors in next 20 years and the associated refrigerant demand and energy use.
- Map the technologies available to cater the cooling requirement including passive interventions, refrigerant-based technologies and alternative technologies such as not-in-kind technologies.



- Suggest interventions in each sector to provide for sustainable cooling and thermal comfort for all.
- Focus on skilling of RAC service technicians.
- Develop an R&D innovation ecosystem for indigenous development of alternative technologies.

Environmental and Socio-Economic benefits:

- Thermal comfort for all – provision for cooling for Economically Weaker Section (EWS) and Low Income Group (LIG) housing
- Sustainable cooling – low GHG emissions related to cooling
- Doubling Farmers Income – better cold chain infrastructure – better value of produce to farmers, less wastage of produce
- Skilled workforce for better livelihoods and environmental protection
- Make in India – domestic manufacturing of air-conditioning and related cooling equipment.
- Robust R&D on alternative cooling technologies – to provide a push to innovation in the cooling sector.

Conclusion:

- ICAP addresses cooling requirement across sectors and lists out actions which can help reduce cooling demand. Its thrust is to look for synergies in actions for securing both environmental and socio-economic benefits.
- At its core, ICAP is about improving the quality of life and productivity of the people of India, and achieving many of the Sustainable Development Goals (SDGs) — thus accelerating the country's growth trajectory.

Q) Do you think growth of electric vehicles can be seen as an opportunity to create more livable cities ? Account for pros and cons of electric vehicles in justifying sustainable mobility the heartbeat of more livable cities in India. (250 words)

Hindustantimes

Why this question:

The article explains how Growth in EVs in India is not just a question of pushing one technology over another, it analyses in detail the relationship of mobility vehicles and sustainable and livable cities.

Key demand of the question:

The answer must discuss in detail the pros and cons associated with growth of electric vehicles in India and their contribution towards sustainable and livable cities.

Directive word:

Account for – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer

Introduction:

write a few introductory lines on electric mobility of vehicles.

Body:

Answers must discuss the following aspects :

- What do you understand by sustainable mobility? Role of electric vehicles in achieving the same.
- How can we achieve sustainable mobility to make India's cities more livable? – Explain how as India builds technology-filled "smart" cities, policymakers have an important opportunity to use sustainable mobility strategies to design cities around people, not cars.
- Comment on Urban mobility in India.
- Discuss in detail role played by electric vehicles, have a discussion on government's efforts in this direction like FAME II etc.

Conclusion –

Conclude that there is a need for models that marry efficiency and speed, cost, mobility and employment. At the core, initiatives must address the need to move people rather than traffic.

Introduction:

- Electric vehicles (EVs) are automobiles that run on electricity only. They are propelled by one or more electric motors powered by rechargeable battery packs.
- Electric vehicles are cleaner than petroleum-fuelled vehicles and are seen as a promising solution to global warming.

**Body:**

Electric vehicles and sustainable mobility:

- In India, the automobile industry is one of the key sectors driving economic growth.
- It is anticipated that the 2020s will be the decade of the electric car and a step forward towards a clean environment for the next generation.
- Electric vehicles are cleaner than petroleum-fuelled vehicles and are seen as a promising solution to global warming.
- Adoption of electric and shared vehicles could help country save \$60 billion in diesel and petrol along with cutting down as much as 1 gigatonne (GT) of carbon emissions by 2030. • It will help in achieving the target of "Paris climate agreement".
- Electric vehicles operating cost per kilometre driven is lower and it contributes to cutting city pollution.
- According to a research, 90 per cent of India's car owners would willingly switch to electric cars, with proper infrastructural support.
- The government aims for 30 per cent electric mobility by 2030

Pros of Electric Vehicles:

- **No Fuel Required**
 - Electric cars are entirely charged by the electricity, meaning there is no need to buy any fuel ever again.
 - Though electricity isn't free, an electric car is far cheaper to run.
- **No Emissions**
 - Electric cars are 100 percent eco-friendly as they run on electrically powered engines
 - It does not emit toxic gases or smoke in the environment as it runs on clean energy source
 - Reducing the carbon footprint and positively affecting the economy
- **Reduced Noise Pollution**
 - Electric cars put curb on noise pollution as they are much quieter
 - Electric motors are capable of providing smooth drive with higher acceleration over longer distances
- **Cost Effective**
 - with more technological advancements, both cost and maintenance have gone down making it cost effective
- **Low Maintenance**
 - Electric cars run on electrically powered engines and hence there is no need to lubricate the engines
 - Therefore, the maintenance cost of these cars has come down.

Cons of Electric Vehicles:

- **Short Driving Range and Speed**
 - Most of these cars have range about 50-100 miles and need to be recharged again.
- **Battery Recharge Issues**
 - Lack of attention on building charging infrastructure.
 - An electric car takes about 4-6 hours to get fully charged. Therefore there is a need for dedicated power stations as the time taken to recharge them is quite long.
- **Silence as Disadvantage**
 - Silence can be a bit disadvantage as people like to hear noise if they are coming from behind them
 - An electric car is however silent and can lead to accidents in some cases.
- **Limited seating capacity**
 - They are not meant for entire family and a third person can make journey for other two passengers bit uncomfortable.
- **Not Suitable for Cities Facing Shortage of Power**
 - Cities already facing acute power shortage are not suitable for electric cars.
 - The consumption of more power would hamper their daily power needs.
- **High cost**
 - The primary reason for the current high prices of EVs is the expensive battery

Way forward:

- For EVs to contribute effectively, we need commensurate efforts in developing an entire ecosystem.
- Need to shift the focus from subsidizing vehicles to subsidizing batteries because batteries make up 50% of EV costs.



- Increasing focus on incentivizing electric two-wheelers because two-wheelers account for 76% of the vehicles in the country and consume most of the fuel.
- A wide network of charging stations is imminent for attracting investment.
- Work places in tech parks, Public bus depots, and Multiplexes are the potential places where charging points could be installed. In Bangalore, some malls have charging points in parking
- Corporates could invest in charging stations as Corporate Social Responsibility compliances.
- Addressing technical concerns like AC versus DC charging stations, handling of peak demand, grid stability etc.
- Private investment in battery manufacturing plants and developing low cost production technology is needed.
- India is highly dependent on thermal sources, which account for about 65% of current capacity. As EV adoption increases, so should the contribution of renewables.
- Need for a policy roadmap on electric vehicles so that investments can be planned.
- Acquiring lithium fields in Bolivia, Australia, and Chile could become as important as buying oil fields as India needs raw material to make batteries for electric vehicles.
- Providing waiver of road tax and registration fees, GST refunds and free parking spaces for EVs.

Q) What are microplastics ? Discuss the concerns posed by it. What should be the desired plan of action to overcome the threats posed by the same ? (250 words)

Reference

Why this question:

The article discusses in detail A recently conducted study of microplastics in three coastal cities in the country that has found that the population size has a direct impact on the abundance and nature of microplastics on their seashore. It has also been found that fibrous microplastic is more prevalent than granular microplastics on Indian shores.

Key demand of the question:

Answer is straightforward and is about discussing the concept of microplastics and the issues associated with it along with suggestions of what needs to be done to overcome the menace.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines highlight the context of the question.

Body:

- In brief discuss what you understand by microplastics? – Microplastics are tiny particles which are present in many sources, including carry bags and pet bottles. These tiny particles easily pass through water filtration systems and end up in the water bodies, posing a potential threat to aquatic life. Microbeads, a kind of microplastic, are used as exfoliates in some cleansers and toothpastes. Even though banned in US and Canada, microbeads are still used in India.
- How harmful is it? – Microplastics can migrate through the intestinal wall and travel to lymph nodes and other bodily organs, shows the Orb report. Microplastics have also been shown to absorb toxic chemicals linked to cancer and other illnesses, and then release them when consumed by fish and mammals. So if plastic fibers are in your water, experts say they're surely in your food.
- What are the concerns? – It holds the potential for both bioaccumulation and biomagnification.
- What needs to be done?
- Regulations on use of plastics in general and microplastics in particular should be put in place by the government.
- Alternatives should be found to tackle with rising consumerism and the increasing use of plastic in everyday life.
- Invention of new, more readily degradable bio-based materials for the plastics could be a way.
- The entire flow chain from manufacturer to the user to the waste collector and the recycling authority should be made aware of the risks.

Conclusion:

Conclude with way forward.

**Introduction:**

- Microplastics are small plastic particles in the environment that are generally smaller than 1mm down to the micrometer range. Microplastics can be formed by fragmentation of large plastic waste material.
- Microfibres from washing of textiles, microbeads used in cosmetics and even paint from land run-offs can dump microplastics in the ocean. According to a 2017 International Union for Conservation of Nature (IUCN) report, microplastics are estimated to constitute up to 30% of marine litter polluting the oceans.

Body:**Concerns posed by Microplastics:**

- Microplastics escape the filtration and treatment processes for waste water and end up in sites of nature.
- This is resulting in significant global impacts on wildlife from marine environment pollution.
- Microplastics are killing the fish before they reach reproductive age, stunted growth and altering the behaviour in some fishes.
- Microplastics are found in the viscera of dead sea birds, reptiles like turtles, whales etc.
- World's coastal countries currently do not have the concerned recycling policies nor the technical capabilities, and so large quantities of plastic are not recycled and enter landfill.
- The durable properties of plastics make them persistent and slow to degrade in the environment entering the food chains.
- It holds the potential for both bioaccumulation and biomagnification.
- Once the microplastics enter foodchain, they carry synthetic chemical compounds such as PCBs and PAHs, which are carcinogenic.
- Unlike POPs (Persistent Organic Pollutants) or chlorofluorocarbons (CFCs), Plastic pollution has received little attention in terms of international agreements.
- **Microplastics make up 94 percent** of an estimated 1.8 trillion pieces of plastic in the patch. But that only amounts to eight percent of the total tonnage

Measures needed:

- Local actions are required for mitigating plastic pollution, using mechanisms such as bans on plastic bags, maximum daily limits for emissions into watersheds, and incentives for fishing gear retrieval.
- Microbeads in cosmetics, daily use items must be banned globally.
- Countries should come together to establish measurable reduction targets for plastic waste. A meaningful international agreement—one with clearly defined waste reduction targets is the need of the hour.
- Effective policies must take into account all stages of the lifecycle of plastic—connecting producers to users and ultimately to waste managers.
- Nonprofits like 5 Gyres are now pushing an agenda toward public awareness, corporate responsibility and the idea of a circular economy — an economy that focuses on keeping waste to a minimum while maximizing materials' use.
- Fossil fuel subsidies incentivise the plastic market. Hence, Countries should end fossil fuel subsidies. Annually, 4–8% of oil is used to produce raw plastic.
- India has a major problem dealing with plastics, particularly single-use shopping bags that reach dumping sites, rivers and wetlands along with other waste.
- The most efficient way to deal with the pollution is to control the production and distribution of plastics.
- Banning single-use bags and making consumers pay a significant amount for the more durable ones is a feasible solution.
- Enforcing segregation of waste will retrieve materials and greatly reduce the burden on the environment.
- Waste separation can be achieved in partnership with the community, and presents a major employment opportunity.
- Eco-friendly substitutes (cloth/paper/jute bags, leaves/areca leaf plates, paper straws) should be developed. For this, scientific and financial support (soft loans and subsidies) is required.

Conclusion:

- Marine plastic pollution is a “planetary crisis,” and we should hope for a “Paris-style” global treaty aimed at tackling it. We cannot transform our world into a ‘plastic planet’. What is needed is collective public effort to stop plastic pollution and safeguard our ecosystem/biodiversity.



Q) According to a new study released by the World Resources Institute (WRI), India's forest cover stands at 21% against global standard of 33.3%. Critically analyse the alarming situation of India's declining forest cover. What needs to be done ? (250 words)

[Indiatimes](#)

Why this question:

The question is to debate the current alarming conditions of forest cover in India.

Demand of the question:

The answer must explain the current conditions of the forest cover, reasons that have lead to the decline and suggestions as to what should be the way forward to tackle the alarming issue.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

The answer to the question must have the following parts:

- Quote the report and facts of it – World Resources Institute (WRI), India's forest cover stands at 21% against global standard of 33.3%.
- Discuss what are the reasons causing the decline in the forest cover?
- What are its consequences?
- What needs to be done to overcome the alarming issue?

Conclusion:

Conclude with what should be the way ahead.

Introduction:

- Forests are among the first casualties as human populations explode. It is estimated that between 1950 and 1980, around 50 lakh hectares of forestland was diverted for non-forestry activities and India is unable to reach the national goal of 33 per cent.
- Yet forestlands continue to be diverted for non-forestry purposes in an ad hoc manner. In the light of the contemporary challenges like climate change, human-wildlife conflict, intensifying water crisis, increasing air and water pollution and deteriorating environment, urgent action is required to conserve and grow the forest cover.

Body:

- The Global Forest Watch (GFW) released by World Resources Institute (WRI) reveals that India has lost over 1.6 million hectare of tree cover between 2001 and 2018, about four times the geographical area of Goa.

Findings of the report:

- In India, five north-eastern states — Nagaland, Tripura, Meghalaya, Mizoram and Manipur — were responsible for over 50% of all tree cover loss in the same period.
- The main reason for loss of tree cover in the north-eastern states is diversion of forest land and climate change.
- The loss of tree cover contributed to 172 MT of carbon emissions in India during this period.
- The analysis reveals the total tree cover which used to be 12% of the country's geographical area in 2000 reduced to 8.9% in 2010.

Challenges leading to alarming situation of declining forest cover:

- There have been instances of private players displacing tribal communities from the forests and cutting down forests for industries.
- The ecosystem services performed by plantations that have a lot of trees grown for commercial purposes cannot be equated with those of an undisturbed assemblage of plants, trees and animals.
- A flawed definition of "forest cover" allows the government to claim growth in total forest cover despite large-scale deforestation.
- India's forest cover could actually be masking massive deforestation as the areas that have turned green are not necessarily natural forests, but plantations
- Environmental economists have come to regard the calculation of national accounts of wealth and development as weak, because governments do not add the benefits of functions such as flood control and climate moderation to the value of forests.



- Rotational felling of trees by forest departments, diversion of forest lands for developmental activities, submergence of forest cover, agriculture expansion, biotic pressures and natural disasters as other reasons for the decrease in the forest cover.
- There have been instances of violation of forest right act, even the CAMPA act, land acquisition rules and regulations.
- The latest draft forest policy overlooks the ecological and social implications of carbon and production forestry and the need for decentralised democracy.

Measures needed:

- India must review the programmes that it has been pursuing to revive forests, and move away from monoculture plantations that are favoured by even forest development corporations in many States.
- Scientific reforms to bring true nature back are needed.
- The latest assessment categorises more than 300,000 sq km of area as open forests with a tree canopy of 10-40%. These lands provide the opportunity to bring back diverse, indigenous trees.
- Such a measure, combined with a policy against allowing open cast mining, can bring about a renaissance.
- Dedicated efforts will be required to protect the precious forests of the Northeast.
- The forest policy must be prepared by involving the stakeholders viz. people along with the state.
- Community-led initiatives have successfully regenerated forests by adopting sustainable- use practices, regeneration through traditional knowledge of forests and species, guarding and penalizing poachers, among others. These must be promoted.
- Innovative solutions like Tree Ambulance in Tamil Nadu must be emulated across the country.
- Identify and reduce the dependency. For instance fuel wood via LPG connections and promoting fast growing timbers in forest fringes, Grazing via stall feeding or rotational grazing, controlling commercial exploitation of forests, adopt zero-tolerance to fires setting targets to reduce fires by 50%, 25% to 10% etc.
- Increase surveillance and setup legal cell in forest department to follow-up on court cases

Conclusion:

- India's diverse forests support the livelihoods of 250 million people, providing them firewood, fodder, bamboo, beedi leaves and many other products. The timber currently benefits the state treasury. There is a need of revamping India's forest policy.

Q) "India's climate adaptation needs are high but also diverse given the bio-geographic and climate variations." Discuss. (250 words)

Reference

Why this question:

The article discusses in detail the case of Climate change knowledge management in India.

Key demand of the question:

The answer must evaluate how India's climate adaptation needs are high but also diverse, given the bio-geographic and climate variations.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines explain what you understand by the question; climate change knowledge, its application in India.

Body:

Body of the answer to capture the following dimensions:

- What is Knowledge management? – Knowledge management is an important component in technical assistance programmes on climate change, which aims to capture good practices for feeding into development policies and programmes and support capacity building.
- What is the Indian case? – the bio-geographic and climate variations from the coasts to the Himalayan mountain ranges, and average annual rainfall pattern varying from 300 to 3,000 millimeter (mm). Explain that There is a deficiency of knowledge products on climate change impacts, vulnerability assessment and cost-effective adaptation and resilience planning.



- Highlight what are the policies in this direction? – National Mission on Strategic Knowledge on Climate Change, what are the mission objectives etc.
- Discuss what needs to be done?

Conclusion:

Conclude with what should be the way forward.

Introduction:

- India has a diverse bio-geographic and climate variations from the coasts to the Himalayan mountain ranges, and average annual rainfall pattern varying from 300 to 3,000 millimetre (mm). The policy of one size fits all cannot be adopted to tackle the climate change effects.

Body:

- Knowledge management is an important component in technical assistance programmes on climate change, which aims to capture good practices for feeding into development policies and programmes and support capacity building.

Current Scenario of Indian Knowledge management:

- There is a deficiency of knowledge products on climate change impacts, vulnerability assessment and cost effective adaptation and resilience planning.
- The PRECIS (Providing REgional Climates for Impact Studies) climate model, published in 2006 and revised in 2012, is still at a very coarse resolution, and the authors from the Indian Institute of Science acknowledge the limitations of climate models on assessing extreme climate projections that are important for adaptation planning.
- The Coordinated Regional Downscaling Experiment (CORDEX) — recently established by the World Climate Research Program (WCRP) and Indian Institute for Tropical Meteorology, with the aim of developing an international coordinated framework to generate improved regional climate change projections world-wide — is yet to publish usable climate change projections for developing adaptation plans in India.
- In absence of information on climate change impacts and vulnerability assessment, State Action Plan on Climate Change (SAPCC) has come up with weak adaptation strategies and unrealistic cost estimates.
- The Climate and Development Knowledge Network (CDKN) has only about 33 knowledge products by itself and 14 by its partner organisation on the theme of adaptation and resilience for India.
- There is also very less documentary evidence on ecosystem-based approaches and traditional knowledge on climate adaptation.

Policies in this direction:

- **The National Mission on Strategic Knowledge on Climate Change (NMSKCC)** was made as one of the eight national missions in the right spirit.
- The mission's objective was to develop knowledge on climate change that can cater to climate action plans.
- It has helped set up knowledge management cells in almost all states to support the research and training activities for implementation of SAPCC.

Some objectives of the NMSKCC are:

- Supporting research work on creating regional climate models to assess impacts on different ecological zones in the country.
- Encouraging research and establishing research networks on impacts of climate change on key sectors (agriculture, health, biodiversity, oceans and coastal systems etc.).
- Create institutional network for knowledge exchange and develop institutional and capacity and human resource development.
- Provide inputs to other national missions.

Challenges of NMSKCC:

- There is no scope for participation of private sector in research and collaborations and partnerships for interdisciplinary research and international cooperation on science and technology.
- Many of the state knowledge management cells are yet to add on repositories on research publications, accessible knowledge products in forms of policy brief, reports and videos.

Way forward:

- Knowledge management on climate adaptation is very essential.
- There is a need to refine the current models on impact assessments.
- Successful pilot projects on adaptation must be promoted, documented and peer reviewed and such knowledge products must be disseminated in widest possible knowledge forums.



- Scientists must also consider making their work on adaptation and resilience accessible and translate to easily understandable knowledge products like blogs and policy briefs.
- Workshops and meetings for knowledge sharing and presentation of best practices must be encouraged.
- South-South and North-South cooperation with developing and developed countries particularly on climate change impact assessments, including using integrated assessment models to assess economic impacts of climate change and evaluating cost benefit analysis of different adaptation options, is essential.
- Exposure visits to countries that have demonstrated projects on climate change adaptation such as Bangladesh would help in knowledge exchange and peer learnings.

Topic: Disaster and disaster management.

Q) Discuss the Significance, composition and key functions of National Crisis Management Committee (NCMC). (250 words)

[Reference](#)

[Reference](#)

Why this question:

Recently the National Crisis Management Committee (NCMC) under the chairmanship of Sh. P. K. Sinha, Cabinet Secretary, met again to take stock of the preparatory measures arising out of the Cyclonic Storm 'Fani'. Thus it is important for us to know the working of NCMC and its importance.

Key demand of the question:

The answer must provide for a detailed explanation about the role played NCMC in handling crisis circumstances like that of cyclone Fani to effectively mitigate such situations.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer

Introduction:

write a few introductory lines about the importance of such committees.

Body:

Answers must discuss the following aspects :

- About NCMC- At the national level, Cabinet Committee on Security (CCS) and National Crisis Management Committee (NCMC) are the key committees involved in the top-level decision-making with respect to Disaster Management (DM). It deals with major crisis which have serious or national ramifications.
- Its composition – Cabinet Secretary (Chairperson). Secretaries of Ministries / Departments and agencies with specific Disaster management responsibilities.
- Its key functions – Oversee the Command, Control and Coordination of the disaster response. Give direction to the Crisis Management Group (CMG) as deemed necessary.

Conclusion –

Conclude with significance of such organs in handling crisis situations.

Introduction:

- A National Crisis Management Committee is a temporary committee set up by the Government of India in the wake of a natural calamity for effective coordination and implementation of relief measures and operations.
- It is headed by Cabinet Secretary. Recently the National Crisis Management Committee (NCMC) under the chairmanship of Sh. P. K. Sinha, Cabinet Secretary, met again to take stock of the preparatory measures arising out of the Cyclonic Storm 'Fani'.

Body:

Significance:

- It is the **country's apex body to handle emergency situations**.
- At the national level, Cabinet Committee on Security (CCS) and National Crisis Management Committee (NCMC) are the key committees involved in the top-level decision-making with respect to Disaster Management (DM).
- It deals with major crisis which have serious or national ramifications.

**Composition:**

A National Crisis Management Committee (NCMC) has been constituted in the Cabinet Secretariat. The composition of the Committee is as under:-

- Cabinet Secretary- Chairman
- Secretary to Prime Minister Member
- Secretary (MHA) Member
- Secretary (MCD) Member
- Director (IB) Member
- Secretary (R&AW) Member
- Secretary (Agri & Coopn.) Co-opted Member
- An officer of Cabinet Secretariat. Convenor

Key functions:

- NCMC reviews the preparedness with the States and concerned Departments of Government of India to deal with the situation arising out of the natural calamities.
- It directs mobilisation of additional resources to all agencies who are engaged in rescue and relief operations
- It looks after the effective implementation of relief measures in the wake of a natural calamity
- NCMC will give such directions to the Crisis Management Group of the Home Ministry as deemed necessary.
- The Secretary (A&C) will be responsible for ensuring that all developments are brought to the notice of the NCMC promptly.

Conclusion:

- Thus, the NCMC plays a vital role in disaster management by overseeing the Command, Control and Coordination of the disaster response.

Q) Underline the development perspective to disaster management with focus on disaster management in coastal regions. (250 words)

Reference**Why this question:**

The question is in the backdrop of recent cyclone Fani that has hit coastal regions of coastal Odisha. Thus it is important for us to evaluate the significance of Disaster management in such regions.

Key demand of the question:

The answer is intended to evaluate the development perspective of Coastal area and the planning and management of the same with a focus on disaster management and the protective role of coastal ecosystem.

Structure of the answer:**Introduction:**

In a few introductory lines narrate the onset of cyclone Fani/ disasters that have been witnessed by coastal regions of India.

Body:

- Explain – The recovery process post such disasters in the coastal regions continue to generate awareness of the need for an integrated approach to decision-making in coastal regions that balances the need to accommodate seemingly conflicting objectives such as ecosystem management, housing and economic development.
- Discuss that analysis of communities that have experienced disasters reveal that too often in the rush to return to “normal,” rebuilding occurs in such a way as to recreate, and often increase exposure to repeat hazards, while not taking into consideration lessons learned from the event such as the protective role of forests and dense vegetation buffers. Such rapid rebuilding tends not to be based on plans developed before the event that identified safety set-back distances, creation of buffer zones and optimal land uses.
- Discuss the Regional Vulnerabilities in Indian scenario with special emphasis on coastal regions
- What are the current institutional arrangements available? What needs to be done to make them better and make them work more effectively? .
- Discuss what should be done to overcome such situations.

Conclusion:

Conclude with need for managing Disasters with focused approach.



Introduction:

- Cyclone Fani is only the second severe cyclone in the last 118 years to form in the Bay of Bengal (BOB) in the month of April and cross over to the Indian mainland, according to data from the India Meteorological Department (IMD).
- April cyclones are rare and the track and severity of Fani makes it even rarer. In recent times, cyclones have either had unusual timing, like Cyclone Pabuk in January, or they have intensified rapidly before making landfall, like Cyclone Ockhi in 2017 and Cyclone Titli last year.

Body:

India's key vulnerabilities:

- Coastal states, particularly in the eastern coast and Gujarat on the west coast are vulnerable to cyclones.
- 4 crore hectare land mass is vulnerable to floods.
- 68% of the net sown area is vulnerable to drought.
- 55% of total area is in Seismic zones –III to V and vulnerable to earthquakes.
- Sub-Himalayan region and western Ghats are vulnerable to landslides.

Disasters lead to enormous economic losses that are both immediate as well as long term in nature and demand additional revenues. Also, as an immediate fall-out, disasters reduce revenues from the affected region due to lower levels of economic activity leading to loss of direct and indirect taxes. In addition, unplanned budgetary allocation to disaster recovery can hamper development interventions and lead to unmet developmental targets.

With the kind of economic losses and developmental setbacks that the country has been suffering year after year, the development process needs to be sensitive towards disaster prevention and mitigation aspects. There is thus need to look at disasters from a development perspective as well.

Current institutional measures to tackle such incidences:

- The **National Cyclone Risk Mitigation Project (NCRMP)**, to be implemented with financial assistance from the World Bank, is envisaged to have four major components:
 - Component A: Improvement of early warning dissemination system by strengthening the Last Mile Connectivity (LMC) of cyclone warnings and advisories.
 - Component B: Cyclone risk mitigation investments.
 - Component C: Technical assistance for hazard risk management and capacity-building.
 - Component D: Project management and institutional support.
- These components are highly interdependent and have to be implemented in a coherent manner.
- In 2016, **National Disaster Management Plan** was unveiled to tackle disaster. It provides a framework to deal with prevention, mitigation, response and recovery during a disaster.
- The **NDMA** had come up with its **National Guidelines of Management of Cyclones in 2008**. The basic premise of these guidelines is that the mitigation has to be multi-sectoral.
- Developing Integrated Coastal Zone Management (ICZM) frameworks for addressing the sustainability and optimal utilisation of coastal resources as also cyclone impact minimisation plans.
- Ensuring cyclone resistant design standards are incorporated in the rural/ urban housing schemes in coastal areas
- Implementing coastal flood zoning, flood plain development and flood inundation management and regulatory plans.
- Coastal bio-shields spread, preservation and restoration/ regeneration plans.
- There is a need for private sector participation in designing and implementing policies, plans, and standards.
- Need of Disaster Management program to be inclusive including women, civil society, and academia.

Way forward:

- For addressing natural calamities such as floods and drought, there already exist a number of plan schemes under which a lot is being done and can be done.
- State Governments need to make full use of the existing plan schemes and give priority to implementation of such schemes that will help in overcoming the conditions created by the calamity.
- Reconstruction efforts must involve rebuilding in a better way. Climate proofing in Kerala calls for structures to be built with wind- and water-resistant materials.
- People need to relocate out of harm's way. During the 2015 floods, Chennai illustrated the price of unrestricted urban development.



- Early warning is vital. Because of investments in these systems, Cyclone Phailin (2013) claimed less than 40 lives in Odisha. In Kerala, there was no timely forecast from national weather services. The State needs a reliable flood forecasting capability.
- There needs to be tougher implementation of logging and mining regulations in fragile ecologies. Deforestation worsened the effects of Kerala's floods and mudslides, as the report of the Western Ghats ecology expert panel 2011 had warned.
- Non-structural measures for flood forecasting provide early warning in flood prone areas have proved to be successful for flood management. High-tech warning systems on the ground will not be useful until the authorities, key stakeholders and communities are trained to act upon the information obtained from these facilities.
- Different stakeholders need to come together for mapping risks, vulnerabilities, and resources, engage in regular preparedness actions like drills and capacity building, develop and update emergency plans, check the availability of resources at the local level and act upon early warning intimations.

Conclusion:

- India should prepare to mitigate and deflect the destruction caused by Cyclones. We need to employ technology, strict following of command structure and most importantly the participation and cooperation of local communities in the affected area.

Q) Discuss the importance of 'Climate resilience' in the eventualities of disasters. Explain how building climate-resilient structures aid to minimise long-term cost of reconstruction in the disaster hit regions. (250 words)

Reference

Why this question:

The article discusses in detail the commendable emergency response to cyclone Fani that saved lives in Odisha, and how now the state must build climate-resilient structures to minimize long-term cost of reconstruction.

Key demand of the question:

The question expects us to elaborate on the concept of climate resilience and one must state the significance of the same in the event of the onset of Disasters like that of cyclone Fani.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

Begin with what you understand by climate resilience.

Body:

Discussion should include the following aspects –

- What do you understand by Climate resilience? -Climate resilience can be generally defined as the capacity for a socio-ecological system to:
 1. absorb stresses and maintain function in the face of external stresses imposed upon it by climate change and
 2. adapt, reorganize, and evolve into more desirable configurations that improve the sustainability of the system, leaving it better prepared for future climate change impacts.
- What is climate resilient infrastructure? -Climate Resilient Infrastructure. Infrastructure by its very nature, and often by design, is vulnerable to the impacts associated with climate change. 'Climate resilient' infrastructure can safeguard and strengthen developing countries' economic growth from current and future climate impacts.
- Explain the significance of having climate resilient infrastructure.
- Discuss how it addresses vulnerability.
- Discuss the case study of cyclone Fani to justify the answer better.

Conclusion:

Conclude with a reassertion that climatic resilience is of utmost importance.

**Introduction:**

- Climate resilience can be defined as the capacity for a socio-ecological system to absorb stresses and maintain function in the face of external stresses imposed upon it by climate change and adapt, reorganize, and evolve into more desirable configurations that improve the sustainability of the system, leaving it better prepared for future climate change impacts.

Body:**Importance of Climate resilience:**

- As greenhouse gas emissions continue to rise, climate change will continue to accelerate.
- Climate change poses a serious threat to efforts to reduce global poverty. According to the United Nations International Panel on Climate Change, the changing climate will have widespread effects on human life and ecosystems. It brings heat waves, flooding, droughts, intense tropical cyclones, rising sea levels, and damages biodiversity.
- Recently study in Nature regarding Climate Change identifies India as the country with the most expected damage from rising levels of carbon dioxide.
- Climate resilience is often associated with acute events – like heavy downpours, hurricanes, or wildfires – that will become more frequent or intense as the climate changes.
- The UN Sustainable Goals Report, 2018 notes that climate change is among the key factors in rising hunger and human displacement. The World Health Organisation estimates that climate change will cause an additional 250,000 deaths per year between 2030 and 2050, due to malnutrition, malaria, diarrhoea and heat stress.
- The World Bank projects that climate change could cost India 2.8% of its GDP, and diminish living standards for nearly half the country's population, in the next 30-odd years.

Climate resilient infrastructure:

- Infrastructure by its very nature, and often by design, is vulnerable to the impacts associated with climate 'Climate resilient 'infrastructure can safeguard and strengthen developing countries' economic growth from current and future climate impacts.
- Climate resilient infrastructure is important in the light of extreme weather events , global warming leading to sea level rise, adequate disaster preparedness, prevention of economic losses, minimal disruption to society.

Climate resilient infrastructure and cost reductions:

- During intense storm surge vulnerable regions are susceptible to instantaneous damage to infrastructure. These regions need quick adoption of design standards to withstand storms, and adapt to high wind speed, heavy rain and flooding to reduce damage.
- Indian Road Congress guidelines, which govern road design, are being revised for adoption of climate resilient guidelines for roads and drainage. This is considering resilient design standards and material for road infrastructure.
- Road-building will have to be aligned with improved drainage system. Street design, mobility alignment, and public transport will have to reflect special needs during climatic stress.
- Design guidelines will also have to improve and augment drainage capacity and link it with water recharge and storage.
- Flood risk assessment and flood plain management must also be mandatory. Assessment of vulnerability can govern development along shore line and vulnerable areas to enhance protection and hedge risk.
- Case-Studies:** Hong Kong has overhauled its drainage infrastructure. It has innovatively implemented Happy Valley Underground Stormwater Storage Scheme, constructing beneath several sports fields.
- Copenhagen is using the method of "fight flooding with flooding" by lowering its parks and raising sidewalks connected to parks. During extreme downpours, the parks will turn into temporary reservoirs and storage for recharge while the streets will channelise water towards the city's harbour.

Way forward:

- It is critical to invest in climate-smart infrastructure like water management, transport, and energy because they provide critical social and economic services not only to the city but also to regions beyond that. These need to be done now because changing them requires a significant amount of lead time to design and implement
- There is a need to build the principles of climate resilience into coastal infrastructure development. This would mean incorporating them into already-existing urban infrastructure. For future infrastructure development, climate resilience will need to be built in right from the planning stage.



- Location-specific information within the larger picture of how climate change is affecting or will affect the Indian coast can help planners and administrators to build in climate resilience.
- At present there is no window for financing climate resilient infrastructure, according to the TERI study. One avenue could have been the National Mission on Sustainable Habitat, one of the eight missions initiated under the National Action Plan on Climate Change.
- Both short- and long-term, detailed design features and interventions that would need expert engineering solutions are critical to planning for new infrastructure or retrofitting/climate proofing of existing ones.
- Planning for climate resilience would need to start from the time of locating the infrastructure facilities. For instance, infrastructure for solid waste management, especially landfills, have to be located keeping in mind the projected sea level rise.
- Similarly, planning for climate resilience would mean ensuring water supply channels have back-ups for extreme weather events.

Q) Do you think It's time for the govt to consider Catastrophe bonds, insurance-linked securities with increasing frequency of natural calamities? Discuss in the light of recent disasters that stuck India. (250 words)

Reference

Why this question:

The question is intended to evaluate the need for disaster management in terms of the policies directed and aimed at insuring the regions prone and often affected by disasters like that of Odisha which was recently effected by cyclone Fani causing devastation of the State in terms of loss of life, economy, biodiversity etc.

Key demand of the question:

The answer must discuss the importance of insurance with respect to effective disaster management.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines appreciate the need for Insurance aspect in disaster management.

Body:

- Explain what are Catastrophe bonds? – A typical CAT or cat bonds has a maturity of three years during which the period should be a tightly defined disaster. CAT is like junk bonds in terms of riskiness and hence the high yield expected.
- Discuss in what way insurance-linked securities with increasing frequency of natural calamities can help and provide better management aspects post disaster to restore life and economy of a region to its normalcy.
- Suggest solutions and lessons from countries across the world using such principles in Disaster management.

Conclusion:

Conclude with way forward.

Introduction:

- A catastrophe bond (Cat bond) is a **high-yield debt instrument** designed to raise money for companies in the insurance industry in the event of a devastating natural disaster. A CAT bond allows the issuer to receive funding from the bond only if specific conditions occur such as an earthquake or floods.
- CAT bonds have **short maturities not exceeding three to five years**. The primary investors in these securities are hedge funds, pension funds, and other institutional investors.

Body:

Need for Insurance aspect in disaster management:

- The economic cost of disasters averages \$250 billion to \$300 billion annually, according to the 2015 **United Nations Global Assessment Report on Disaster Risk Reduction**.
- Considering that only about 30% of the damage from natural disasters are insured, such losses can impose severe financial burden on governments.



- In developing countries, governments may have to divert state funds, including those earmarked for development projects, to disaster relief and rebuilding efforts.
- The catastrophe bonds, a debt instrument allows governments to tap the capital market and raise money from investors willing to bet against the likelihood of a disaster occurring in a particular place during a particular time period.

It is high time that such instruments are introduced in India so that relief and reconstruction work in areas affected by natural disasters goes on unimpeded and are not stalled for only want of capital. Rebuilding from floods will only become more costly for taxpayers in the years ahead. Many analysts expect large, unpredictable storms to become more frequent as seas get warmer.

Features of Catastrophe Bond:

- CAT bonds have short maturities not exceeding three to five years.
- The primary investors in these securities are hedge funds, pension funds, and other institutional investors.
- Catastrophe bonds are used by property and casualty insurers as well as reinsurance companies to transfer risk to investors.
- These bonds provide insurance and reinsurance companies with another method to defer risk associated with underwriting policies.
- In return, institutional investors receive a higher interest rate than most fixed-income securities over the life of the bond, which could have a maturity of up to five years.
- CAT bonds are only paid to the insurance company if a triggering event happens.

Advantages and Disadvantages:

The upside

- Cat bonds can be an effective tool to address the risk of loss and damage from climate change because it allows vulnerable countries to raise capital that can be disbursed quickly in the event of a catastrophe.
- This is because cat bonds can be structured to allow payouts as soon as pre-defined trigger events occur.
- Cat bonds can also provide multi-year coverage to the issuing governments.

The downside

- There are challenges for the more widespread use of cat bonds because of their high transaction costs, long structuring period that can take months, and strict terms and conditions compared with traditional risk financing, such as insurance.
- In addition, cat bonds do not always meet countries' needs, as governments may prefer longer term protection, while investors tend to prefer shorter term bonds.
- Another obstacle is that cat bonds are usually available only to institutional investors, limiting their market reach.

Way forward:

- There is no reason why governments themselves cannot issue CAT.
- For example, Odisha is prone to periodic cyclone with the recent Fani cyclone wrecking havoc on properties though, thanks to high preparedness, loss of human lives was minimal.
- Odisha government itself can take the initiative and issue Odisha and cyclone-specific CAT.
- A longer duration bond would be beneficial to it i.e., instead of a three-year bond if it issues a five-year bond, the chances of cyclone hitting coastal Odisha is higher and hence the success of the exercise (loss mitigation) greater.

Q) Numerous types of damages are necessary to be measured for undertaking effective damage assessment during disasters. Discuss. (250 words)

Reference

Why this question:

The question is to evaluate the concept of damage control in disaster management.

Key demand of the question:

Analyse in detail the need for damage control in effectively mitigating disasters and managing the disasters effectively.

**Directive word:**

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In a few introductory lines highlight the recent cyclone Fani that struck the East coast necessitating us to analyse the need for disaster control and damage control.

Body:

In brief discuss –

- The example of Odisha's successful disaster management policy is a template that other vulnerable Indian states as well as other parts of the world should closely follow.
- What are the pathways to effectively control and manage disasters? – discuss the need of understanding the types of damages- Infrastructure; Electricity and telecommunications, need for restoring damaged highways and district roads, health system etc.
- Use the Odisha cyclone as a case study to best explain the answer.
- Highlight the learnings, discuss what should be the way forward.

Conclusion:

Conclude by reasserting that understanding disasters is of prime importance to resolve and fix them..

Introduction:

- The eastern coast of India has had to bear the brunt of nature's fury yet again. Cyclone Fani hit Odisha recently, and though its menace as a storm was downgraded from "extremely severe" to "very severe" a few hours after it made landfall, it has left a trail of destruction that should make us revisit what we mean by "preparedness".

Body:

- Cyclones are among the most dangerous and most destructive natural disasters that can occur. They have been responsible for about 1.9 million deaths worldwide over the last two centuries, and it is estimated that 10,000 people are killed each year by these storms. Cyclones tend to do the most damage in coastal areas, where they have been known to alter the landscape and remove forest canopy. 13 coastal states and Union Territories in the country are affected by Tropical Cyclones (TCs).

Cyclones bring devastations and damages of various types:

- Life:
 - Cyclones often cause loss of life, heavy damages in built environments, and have negative effects on shipping,
 - The death toll due to cyclone Fani rose to 64 with 21 fresh deaths confirmed, nine days after the 'extremely severe' cyclonic storm devastated coastal Odisha.
- Property:
 - The strong winds of cyclones can cause damage over an area of 25 km in smaller systems and up to 500 km in larger systems. Winds have been known to destroy smaller buildings and knock out power for thousands of people.
- Infrastructure, Electricity and telecommunications:
 - Infrastructure facilities like ports, airports are at the highest risk of damage. The casualties include that of the electricity and telecom infrastructure too rendering the places devoid of communication.
- Fisheries and tourism:
 - Statistics show that the global average annual losses from cyclones and storm surges are estimated at US\$ 80 billion.
- Temperature:
 - Tropical cyclones can quickly change the environment of the affected areas. They can bring warmer air into hot places. This makes the atmosphere feel very sticky and muggy and rises the temperature dramatically. This can cause heat strokes and other heat related illness to children and the elderly after the storm which is not good.
- Storm surge:
 - Potentially disastrous surges occur in coastal areas with low-lying terrain that enables inundation. The storm surge is typically the most damaging effect of cyclones, historically resulting in 90 percent of tropical cyclone deaths.



- When combined with strong winds, storm surges can produce massive waves that can cause inland flooding and destruction.

Measures to be taken:

- Effective coordination between the governments at the Center and state to take up the rescue and relief work immediately.
- There is a need of harmonizing the national and local level disaster resilient bylaws, land use zoning, resource planning, early warning system establishments and technical competence.
- Restoration of the basic necessities like electricity, water supply and telecom facilities at the earliest.
- **Assessment of houses damaged:** as most of the affected are left homeless, they will be vulnerable to all kinds of dangers. An effective assessment of the damage can help the government to plan its efforts better.
- **Construction of disaster resilient houses** in cyclone prone areas must be mandated to avoid the recurrent expenditures and provide a safe shelter to the people.
- The government should take commonalities from success stories and institutionalize it. For example, Built Back Better Program of Gujarat government after 2001 earthquake.
- Disaster Risk Reduction should be an important aspect of global poverty reduction initiatives.
- Moving from a risk blind approach to a risk-informed decision when it comes to investments.
- There should be a Disaster Risk Audit for the future developmental project for both public and private entities.
- Disaster Risk Reduction program should be more **people-centric**.
- There is a need for **private sector participation** in designing and implementing policies, plans, and standards.
- Need of Disaster Management program to be inclusive including women, civil society, and academia.
- State governments should increase their engagements in scientific research institution for a better formulation of policies.

Conclusion:

- Natural disaster comes without warning. India should prepare to mitigate and deflect the destruction caused by Cyclones. India needs to employ disaster resilient technology, strict following of command structure and most importantly the participation and cooperation of local communities in the affected area.

Q) Evaluate the role of Women in disaster management. Justify your answer with suitable examples. (250 words)

The hindu

Why this question:

The article discusses in detail how women can play a role centric to managing disasters. Recently a project named 'swayamsiddha' in Odisha's Ganjam district was initiated wherein women will be trained in evacuation, rescue, restoration and rehabilitation during natural calamities, especially cyclones.

Key demand of the question:

Discussion should be about vital role that women can play in managing disasters.

Directive word:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In a few introductory lines highlight how Multi-stakeholder engagement is a fundamental element to managing disasters.

Body:

Many international strategies and frameworks have identified women as one of the key stakeholders in any disaster management efforts due to many reasons. Women play a significant role in disaster response and recovery stages specifically at household level. However, their roles in organizational decision making, particularly in disaster risk governance, is limited due to uncovered reasons. This has created equity and equality issues among one of the most affected communities from hazards.

The answer must attempt to explore and emphasize the role of women in disaster risk governance, risk governance efforts and overall disaster management and to uncover the barriers that limit their role in disaster risk governance.

Use examples from the article – Kerala floods, Odisha cyclone etc. to justify your answer.



Conclusion:

Conclude with what should be the way forward.

Introduction:

- India is one of the most vulnerable countries to natural disasters. The country has faced a number of natural disasters in the last decade which have claimed hundreds thousands of precious lives and heavy economic losses. It has been observed that more than half of the victims in the past disasters were women.
- Women are seen in their traditional role of home-makers, but their ability to take on managerial roles in disaster risk management cannot be underestimated.

Body:

Factors determining the role of women in Disaster management:

- **Patriarchal culture:** Many researchers have identified patriarchal culture as a major barrier that prevent or limit the role of women as decision makers or leaders. Some societies accept that wives and daughters as subordinate to husbands and
- **Religious believes:** Religious believes influence the role of women in public engagement and decision For example, Protestantism promotes and accepts women as religious leaders compared with Catholicism and Orthodox Christianity which limit their involvement
- **Structure of the family:** Studies found that size of the family and its composition similarly affect the decision making power of women in households specifically in developing countries
- **Household work load:** Traditional societies expect the role of women to engage only in family work related to child baring, caring and kitchen works
- **Level of education:** Level of education is an individual characteristic. According to Hora, lack of adequate level of education among women in Ethiopia was one of the major factor that prevent women participating in leadership and decision making role
- **Policies and legislations:** There was a target of 30% women representation in leadership positions endorsed by the United Nations Economic and Social Council in 1990 and reaffirmed in the Beijing Platform for Action in However, the reality is far more behind from its expected level.
- **Household income:** Poor socio-economic status affects lower level of engagement of women in decision making at house hold level
- **Political environment:** Women in political positions are important not because of its strategic importance, but for the benefits and its impact

Role played by women in disaster management:

- Although women's social, economic and political position in society makes them more vulnerable to natural hazards, they are not helpless victims.
- Women are important agents for change and need to be further strengthened as such.
- Recognizing and mobilizing their skills and capacities as social force and channelling it to enhance efforts to protect their safety and that of their communities and dependents is a major task in any disaster reduction strategy.
- Indian women are the backbone of the rural subsistence economy. Their respective role in family which is of productive nature to a large extent makes the family and society sustainable but it is not acknowledged by and large.
- Women's work in agriculture is often seen as an extension of their domestic responsibilities, rather than a separate economic activity. In rural areas which are more vulnerable to natural hazards since rural population depend more on the natural resource base for all aspects of life. Securing food, water and fuel are key community concerns, which are predominantly taken care of by women.
- There are many examples of women's informal community involvement in disaster reduction, but women are still largely excluded from formal planning and decision-making and need to be empowered to do so
- This is essential to ensure effective disaster reduction policies. If some decision-making is shifted Emergency relief and aid processes particularly disadvantage women who must organize food provision, shelter, and child and family care according to chaotic aid-delivery systems and entitlement procedures that rarely take their work or opinions into account.
- Although women commonly organize themselves to distribute supplies, establish shelter, and pool labour and resources to create community support services to meet basic family needs in the emergency period, their efforts are often invisible or go unacknowledged.



Challenges faced:

- Indian women face a number of hurdles in applying and qualifying for aid after a disaster this primarily because of illiteracy or limited literacy, limited access to information on how to apply and navigate the bureaucracy in addition to the eligibility requirements.
- In majority of instances it has been found that relief and rehabilitation schemes favour men over women, where priority has been given to property owners, tenants of record, bank-account holders, and perceived heads of
- Women's economic condition becomes critical because in large number of cases employment assistance concentrates on workers in the formal economy and business aid is awarded to formal enterprises.
- Post disaster aid and investments generally undermine women's collective capacity to surmount day-to-day problems adversely affecting the economic base of women.
- There is no consideration for women's productive and reproductive activities as far as conventional disaster response in India is concerned, It is not at all reflect how important housing and informally held resources and assets are to women's
- They have to face loss of workspace, tools, equipment, inventory, supplies and markets or even domestic violence

Way forward:

- To identify the barriers that prevent their role in decision making, governance and any Disaster management efforts.
- Based on the literature review, following barriers are identified socio-cultural factors, socio-economic factors, individual characteristics and legal and institutional factors.
- Gender issues must be urgently and effectively integrated into disaster research, planning, and organizational practice.

Conclusion:

- It has been noticed that women's groups that participate in emergency relief, resettlement, and reconstruction efforts following a natural disaster acquire significant knowledge and expertise that can greatly benefit communities that subsequently experience similar crises.
- When mechanisms are established for promoting the transfer of this knowledge from community to community, poor women are enabled to come out of their homes and form groups to assess their situation, organize, and participate in the range of decisions and programs.
- When disasters strike, the opportunities to decrease women's marginalization arise early on, when norms of social control and male-dominated family structures are temporarily disrupted and weakened by the chaos that ensues.
- If affected women can meet and benefit from the experiences of other women who have managed to deal successfully with disaster-related issues, much valuable time can be saved and mistakes avoided.

Case Study:

- *In Maharashtra and Gujarat states of India a number of non governmental organizations involved who encouraged local women to participate in relief and recovery operations after earthquake occurrence.*
- *They made various groups to build the skills and capacities required to train the members for post disaster recovery to long-term development.*
- *The remarkable work by an Ngo called **Swayam Shikshan Prayog** (translated as "learning from one's own and others' experiences") which had more than 15 years experience of working for women and poor communities in rural India proved the capability of women in handling disasters.*
- *In 1993 Latur Maharashtra earthquake, they contributed in repairing and strengthening of damaged houses. In 2001 Bhuj, Gujarat earthquake the grassroots women's groups from Maharashtra travelled to this neighbouring state to share experiences and pledge long-term assistance.*



Q) What is Global Facility for Disaster Reduction and Recovery ? Discuss its objectives. Also explain the role played by India. (250 words)

Reference

Why this question:

Recently India has been unanimously chosen as co-chair of the Consultative Group (CG) of Global Facility for Disaster Reduction and Recovery (GFDRR) for the fiscal year 2020.

Key demand of the question:

The answer must discuss in detail is Global Facility for Disaster Reduction and Recovery and its objectives along with the significant role played by India in this direction.

Directive word:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer

Introduction:

write a few introductory lines about is Global Facility for Disaster Reduction and Recovery.

Body:

Answers must discuss the following aspects :

- What is it? It is a grant-funding mechanism, managed by the World Bank, that supports disaster risk management projects worldwide.
- Objectives: GFDRR is a global partnership that helps developing countries better understand and reduce their vulnerability to natural hazards and climate change.
- Present status: It is presently working on the ground with over 400 local, national, regional, and international partners and provides knowledge, funding, and technical assistance.
- Explain the role India has to play with respect to it.

Conclusion –

Conclude with way forward.

Introduction:

- Global Facility for Disaster Reduction and Recovery (GFDRR) is a global partnership that helps developing countries better understand and reduce their vulnerability to natural hazards and climate change.
- It is a grant-funding mechanism, managed by the World Bank, that supports disaster risk management projects worldwide. India has been unanimously chosen as co-chair of the Consultative Group (CG) of Global Facility for Disaster Reduction and Recovery (GFDRR) for the fiscal year 2020.

Body:

- GFDRR contributes to the **implementation of the Sendai Framework for Disaster Risk Reduction** by helping countries to integrate disaster risk management and climate change adaptation into development strategies and investment programs and recover from disasters quickly and effectively. India became a member of CG of GFDRR in 2015.
- Role of GFDRR: It provides technical assistance, capacity building, and analytical work to help vulnerable nations improve resilience and reduce risk.

Objectives:

- To mainstream disaster reduction and climate change adaptation (CCA) in country development strategies, and
- To foster and strengthen global and regional cooperation among various stakeholders under the International Strategy for Disaster Reduction (ISDR) system.
- To help developing countries better understand and reduce their vulnerability to natural hazards and climate change.

Role played by India:

- The Consultative Group (CG) is GFDRR's primary decision-making and advisory body.
- This is the first time that India has been provided with the opportunity of co-chairing the CG meeting of GFDRR.
- The opportunity will give India a chance to work with the member countries and organizations of GFDRR with a focused contribution towards advancing the disaster risk reduction agenda during the course of the year.
- India's objective is to pursue a focused agenda and develop synergies with ongoing work streams of GFDRR. Disaster Resilient Infrastructure (DRI) will be a central theme of engagement with the GFDRR partners and stakeholders.

**Conclusion:**

- India is prone to many natural disasters which has huge socio-economic impacts. The opportunity to do such a role gives India to build her capacity to reduce vulnerability to natural hazards and climate change better.
- India can set an example by understanding disaster risk, strengthening disaster risk governance to manage disaster risk, investing in disaster risk reduction for resilience and building back better in recovery, rehabilitation and reconstruction.

Q) “There have been numerous fire accidents this year causing significant loss of life and property. While the government and other regulatory bodies have prescribed norms and fire safety measures, implementation and vigilance continue to be grave concern.” Critically analyse. (250 words)

The hindu

Why this question:

At least 20 students were killed, either due to suffocation or falling off the windows in an attempt to escape fire in a coaching centre blaze, in Surat yesterday. Such a disturbing incident necessitates us to take a look at the fire safety aspects of the country and the lacunae therein.

Demand of the question:

The answer must discuss the issues involved and causes for such recurrent fatal fire incidents and the need for overhaul of measures and norms in place to overcome such disasters.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When ‘critically’ is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

The answer to the question must have the following parts:

- Quote the recent incidences that were witnessed.
- Discuss how such fatal fire incidents necessitates a relook at the current rule, regulations and norms that are almost defunct in practice and corrective measures for the same.
- Discuss who all are vulnerable to it, stakeholders involved.
- What needs to be done to overcome the alarming issue?
- Discuss the institutional mechanisms, health and disaster management aspect of both life and property.

Conclusion:

Conclude with what should be the way ahead.

Introduction:

- In India, although there are many rules and regulations, codes and standards related to fire safety, these are seldom followed. Laxity in fire safety measures caused major fires in many buildings.
- A recent fire incident at a coaching centre in Surat resulted in the death of 22 students. Such a disturbing incident necessitates us to take a look at the fire safety aspects of the country and the lacunae therein.

Body:**Fire Accidents in India:**

- According to National crime records bureau figures 17,700 Indians died and 48 people every day due to fire accidents in 2015.
- Of those who died, 62% were women.
- Maharashtra and Gujarat, the two most highly urbanised states, account for about 30% of the country’s fire accident deaths.
- According to India Risk Surveys 2018, outbreak of fire poses risks to business continuity and operations and ranks India at 3rd position in fire incidents, especially in Northern and Western regions of India.

Lacunae in Fire Safety in India:

- Violation of safety norms and lack of standardisation and regulation is a major cause of fire accidents, as large scale construction of false roofs in commercial buildings and multiplexes is against the national building construction code.



- High rise buildings are more prone to fire accidents as they lack an adequate in-built fire protection system that makes salvaging operations difficult.
- Poorly stored goods, even though they are not flammable, helps to spread fire and hinder fire fighters gain access to the seat of the fire or reduce the effectiveness of sprinkler systems.
- Unclear provisions of fire safety audit in terms of scope, objective, methodology and periodicity of a fire safety audit.
- Lack of adequate resources, preparedness and poor fire services fail to ensure fire safety cover to the population.
- Lack of awareness about the safety arrangements before purchasing or hiring a flat in an apartment or before starting an institution.
- Faulty Wiring: PUF (polyurethane foam) used for plastic insulation carries a high risk of accidental fire as most of the times it is exposed to electrical wiring which on becoming heated due to overloading or short circuit catches fire immediately.

Measures needed:

- Modernisation of Fire safety equipment: the government should provide financial support and assistance in augmenting and modernising the fire departments
- Proper designing of electrical fittings and regular maintenance of wiring (at least once in a year).
- Building awareness among citizens about fire prevention and protection measures by organising fire fighting workshop once in six months in localities/Mohallas/schools with the involvement of local councillors/elected representatives.
- Fire service departments should audit critical fire prone installations (like high rise buildings, multiplexes in congested areas) periodically (once in six months) and take appropriate actions against erring establishments.
- Proper demarcation of entry and exit points in crowded buildings, installation of fire fighting equipment and their regular maintenance, periodic renewal of No-objection certificates by building owners in order to ensure fire preparedness.

Way forward:

- Fire service is a state subject and has been included as municipal function in the XII schedule of the Constitution. The municipal corporations and local bodies are responsible for providing fire services in many states.
- All State governments should require mandatory compliance with such safety features for any institution handling patients or giving care.
- Certification of facilities through third-party audit should be made compulsory to eliminate conflicts of interest involving official agencies.
- The institutions should also be insured for the highest levels of public liability.
- At a broader level, governments must shed their indifference and work to make all spaces safe.
- In private, public or commercial buildings, official agencies tend to favour tokenism rather than high standards for the safety of occupants and visitors.
- They are ever-willing to “regularise” deviations in construction over time. It is time to fix responsibility for deadly accidents on a single official agency.

TOPIC: Linkages between development and spread of extremism; Role of external state and non-state actors in creating challenges to internal security.

Q) What do you understand by online extremism ? Discuss the relevance of ‘Christchurch call to action’ recently seen in news to combat the same. (250 words)

Reference

Why this question:

India recently joined the global initiative to combat extremism online

The initiative ‘Christchurch call to action’ has been named after the New Zealand city where 51 people were killed in an attack on mosques.

Key demand of the question:

The answer must first address the concept of online extremism and then discuss broadly the genesis, objectives and significance of ‘Christchurch call to action’.

**Directive word:**

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:**Introduction:**

In a few introductory lines discuss the relevance of the question. State recent terror attacks that took form of online extremism.

Body:

- Define online extremism – Online Extremism can be defined as advocating support of groups or causes that in any distribution of opinion would lie on one of the “tails”.
- The primary goal is to create online social network of unaffiliated sympathizers, propagandists, fighters and recruiters to create a thriving online extremist community (OEC).
- Then move on to discuss the genesis and objectives of the ‘Christchurch call to action’ – the initiative outlines collective, voluntary commitments from governments and online service providers intended to address the issue of terrorist and violent extremist content online and to prevent the abuse of the internet.
- The Christchurch attack highlighted the urgent need for action and enhanced cooperation among the wide range of actors with influence over this issue, including governments, civil society, and online service providers, such as social media companies, to eliminate terrorist and violent extremist content online.

Conclusion:

Conclude with what should be the way forward.

Introduction:

- Online Extremism can be defined as advocating support of groups or causes that in any distribution of opinion would lie on one of the “tails”. The primary goal is to create online social network of unaffiliated sympathizers, propagandists, fighters and recruiters to create a thriving online extremist community (OEC).
- India has joined a major global initiative to combat terrorism and extremism online and secure the internet. The initiative, ‘**Christchurch call to action**’, has been named after the New Zealand city where 51 people were killed in an attack on mosques.

Body:**Genesis of ‘Christchurch call to action’:**

- The Christchurch attack highlighted the urgent need for action and enhanced cooperation among the wide range of actors with influence over this issue, including governments, civil society, and online service providers, such as social media companies, to eliminate terrorist and violent extremist content online.
- The gathering in Paris has been organized by France and New Zealand. Amazon, Facebook, Google, Microsoft and Twitter also signed on to the document, pledging to work more closely with one another and governments to make sure that their sites do not become conduits for terrorism.

Highlights of Declaration:

- The initiative outlines collective, voluntary commitments from governments and online service providers intended to address the issue of terrorist and violent extremist content online and to prevent the abuse of the internet.
- All action on this issue must be consistent with principles of a free, open and secure internet, without compromising human rights and fundamental freedoms, including freedom of expression.
- It also recognises the internet’s ability to act as a force for good, including by promoting innovation, economic development and fostering inclusive societies.
- It encourages media outlets to apply ethical standards when depicting terrorist events online.
- Avoid amplifying terrorist and violent extremist content, with responsible coverage of terrorism and violent extremism.
- It was also decided to implement immediate and effective measures to mitigate the specific risk that terrorist and violent extremist content is disseminated through live-streaming, including identification of content for real-time review.



The documents draw in the online service providers to commit to:

- Take transparent, specific measures seeking to prevent the upload of terrorist and violent extremist content and to prevent its dissemination on social media and similar content-sharing services.
- Provide greater transparency in the setting of community standards or terms of service, including by:
- Outlining and publishing the consequences of sharing terrorist and violent extremist content;
- Describing policies and putting in place procedures for detecting and removing terrorist and violent extremist content.

Conclusion:

- The reach of internet and social media has had both positives and negatives. The Christchurch call looks into dealing with making internet more user friendly and eliminate the violent extremism from proliferating by global cooperation.

Q) What is the central ideology of Maoist insurgents in India ? Critically analyse also suggest solutions to address the issues associated. (250 words)

Reference

Why this question:

The question is in the backdrop of recent attacks witnessed in Arunachal Pradesh where Tirong Aboh, the sitting MLA from Khonsa West assembly constituency, along with 10 others have been killed in an ambush by unidentified gunmen in Tirap District

Demand of the question:

The answer must explain how the decades-old insurgency is a major internal threat facing the world's largest democracy and one must narrate in detail the central ideology of such Insurgency.

Directive:

Critically analyze – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

Known in India as the Naxalites or Naxals, the Maoists are considered to be left-wing extremists who broke away from mainstream communism on ideological issues like the decision by the main parties to join the electoral process.

Body:

Body of the answer should capture:

- What is their central idea ?
- When was the movement formed?
- Who do the Naxalites represent?
- What attracts the population to the movement?
- Who is their target?
- What steps has the government taken so far to fight the Naxalites?
- What measures are required still to curb the menace of Maoism.
- Discuss some specific case studies – North East region to justify better.

Conclusion:

Conclude with what should be the way ahead.

Introduction:

- The Naxalite–Maoist insurgency is an ongoing conflict between Maoist groups known as Naxalites or Naxals and the Indian government. Maoism is a form of communism developed by Mao Tse Tung. It is a doctrine to capture State power through a combination of armed insurgency, mass mobilization and strategic alliances. Since its inception at Telangana in the 1930s, the insurgent movement has become one of the major threats to the democratic structure of the Indian nation.
- Recently, Tirong Aboh, the sitting MLA from Khonsa West assembly constituency, along with 10 others were killed in an ambush by unidentified Maoist gunmen in Tirap District.

**Body:**

The central theme of Maoist ideology:

- The central theme of Maoist ideology is the use of violence and armed insurrection as a means to capture State power.
- 'Bearing of arms is non-negotiable' as per the Maoist insurgency doctrine.
- The Maoist ideology glorifies violence and the 'Peoples Liberation Guerrilla Army' (PLGA) cadres are trained specifically in the worst forms of violence to evoke terror among the population under their domination.
- However, they also use the subterfuge of mobilizing people over issues of purported inadequacies of the existing system, so that they can be indoctrinated to take recourse to violence as the only means of redressal.
- The Maoists also use propaganda and disinformation against State institutions as other components of their insurgency doctrine.

Spread:

- The States of Chhattisgarh, Jharkhand, Orissa and Bihar are considered severely affected. The States of West Bengal, Maharashtra and Andhra Pradesh are considered partially affected. The States of UP and MP are considered slightly affected. Together, the affected area is called 'Red Corridor'.
- Strategy: The Maoists wish to keep the population in their strongholds cut-off from the mainstream milieu. The schools are attacked because education promotes a spirit of enquiry among the local population and also equips children with skills for alternative sources of livelihood. These developments are looked upon by the Maoists as potential threats to their very existence and their outdated ideology. The Maoists also destroy infrastructure like roads and telecom network to keep populations isolated from mainstream India.

Government's current measures:

- After identifying the Naxalites as the most serious threat to the Indian state, the central government has set up a special 10,000-strong Combat Battalion for Resolute Action (Cobra) to fight them.
- The government of India's **National Policy and Action Plan**, with its emphasis on security and development, is making an impact. Under this plan, as many as 307 fortified police stations were constructed in Naxal-hit areas in last three years.
- Besides, 1,391 km roads were constructed in some of the most difficult areas under the road requirement plan phase-I. Additional roads were approved for construction in nine Naxal-hit areas as well
- The reduction in Naxalite activity is mainly attributable to Operation Green Hunt, which was launched in 2009 and is undertaken jointly by the security forces of the central and state governments to eliminate Naxalites.
- Operation 'SAMADHAN' stands for Smart leadership, Aggressive strategy, Motivation and training, Actionable intelligence, Dashboard Based KPIs (key performance indicators) and KRAs (key result areas), Harnessing technology, Action plan for each theatre, and No access to financing.
- The MHA has suggested the use of trackers for weapons, and bio-metrics in smart guns.
- Unique Identification number (UID) for Gelatine sticks and explosives.
- At least one UAV or Mini UAV for each of the Central Armed Police Forces (CAPF) battalions deployed in the Maoist hotbed.
- More helicopter support for operations. Helicopters to be used to rush in supplies and reinforcement. Increased number of flying hours.
- Joint Task Forces for operations along inter-State boundaries to be set up. Better inter-state coordination and intelligence sharing.
- 400 fortified police stations to be set up in Naxal belt.
- Resumption of Left Wing Extremism (LWE) – specific schemes such as SRE, SIS, IAP/ACA, CIAT schools.
- Prevention of Money Laundering Act (PMLA) to be reviewed to ensure effective choking of fund flow to LWE groups.
- Fast tracking building infrastructure, with a focus on solar lights, mobile towers with 3G connectivity, and road-rail connectivity.
- Indian Army or specialized forces – such as Greyhounds – to train forces to take on Naxals.
- Forces should be more proactive and aggressive in owning operations, rather than being reactive.
- Apart from the construction of roads, mobile towers, setting up of banks, post offices, Kendriya Vidyalayas, etc, the most significant achievement has been in poverty reduction. A recent study published in a Brookings blog says that by 2022, less than 3 per cent of Indians will be poor and that extreme poverty could be eliminated altogether by 2030.



- Choking the financial funding of Naxals forms the foundation of the new strategy. Evidence shows that demonetisation curbed naxal funding
- The security-related expenditure (SRE) scheme, special infrastructure scheme (SIS), integrated action plan (IAP) and a few other schemes will be extended for a few more years if the finance ministry's approval is received.

Approach which India can follow in future:

- One of such promising avenues can be bringing the rebels to the negotiation table by creating a holistic process of disarming the rebels, integrating them into society, and ensuring that the socio-economic conditions are improved.
- International experience: The Colombia peace deal can provide a skeleton for developing such an approach. The Colombia peace process was signed between the Colombian government and the Revolutionary Armed Forces of Colombia-People's Army (FARC-EP), which ended the approximately five-decade-old civil war
- Comprehensive rural reforms would be a positive step toward addressing the socioeconomic issues behind Naxalism.
- Comprehensive rural reform for India would include land access and use reform such as proper implementation of Schedule 5 and 9, a special rural land legal system to resolve land conflicts between government officials and tribals, and improving laws for equitable access to forest produce
- There is a need to empower local governments giving adequate powers to Gram Sabha and building confidence in the people of government's developmental agenda

Conclusion:

- It is imperative that government instead of being reactionary goes after them proactively. But it has herculean challenge of doing it in democratic way. It is obvious that there is and should be two pronged approach to counter it, one at ideological level and other at physical level. In former case, good governance by government and delivering good results in fields of Education, Health and overall standard of living will be instrumental.

Topic: Security challenges and their management in border areas.

Q) Evaluate the major shortcomings in India's national security architecture. Suggest measures to overcome these shortcomings with respect to the key recommendations made by D.S. Hooda's document. (250 words)

The hindu

Why this question:

The article highlights the urgent need for a blueprint for national security strategy for India.

Key demand of the question:

The answer must discuss in detail the major shortcoming of National security in India. What measures can be taken to address these issues highlighting the need for a road map designing the national security agenda.

Directive word:

Evaluate – When you are asked to evaluate, you have to pass a sound judgement about the truth of the given statement in the question or the topic based on evidences. You have to appraise the worth of the statement in question. There is scope for forming a personal opinion here.

Structure of the answer

Introduction:

write a few introductory lines on the importance of national security.

Body:

Answer should have the following dimensions covered:

- Discuss the need for formulating a national security strategy for India.
- What are the major shortcomings in India's national security architecture that must be addressed?
- key national security institutions and revamp their functioning.
- Role of National Security Adviser with respect to accountability and legal formality.
- Significant features of Hooda document.
- Way forward.

Conclusion –

Conclude with significance and what should be the way forward.



MISSING THE BIG PICTURE

India is struggling with the lack of a roadmap, planning expertise and major defence reform

1) National Security Strategy (NSS)

Status: Yet to be completed, though the government is believed to be working on a draft NSS

2) Chief of Defence Staff

Status: Not appointed despite recommendation by a GoM in 2001 and the Shekatkar committee in 2016

3) Integrating the armed forces into

theatre commands

Status: Shekatkar committee recommended creating three integrated commands to replace the existing 17 separate commands. Yet to be implemented

4) Defence planning to harmonise budgets, spending, priorities

Status: A defence planning committee was set up under NSA

Ajit Doval on April 18. A permanent body, it includes defence and foreign secretaries, three service chiefs

5) Reducing wastage, redeployment of personnel

Status: The government is redeploying 57,000 personnel as per the Shekatkar Committee directive. To be completed by December 2019

Introduction:

- A National Security Strategy or Policy (NSS or NSP) is a key framework for a country to meet the basic needs and security concerns of citizens, and address external and internal threats to the country. It is pertinent to ask, even today, whether India thinks about strategic affairs in a systematic, consistent and coherent manner or whether its national security runs on ad hoc arrangements and 'raw wisdom'. Human security involves basing the understanding of security on the needs of citizens, not just those of the government/State.

Body:

The **major shortcomings** in India's national security architecture are:

- The National Security Council (NSC) set up in 1998 almost never meets, primarily because it is an advisory body, with the Cabinet Committee on Security being the executive body.
- If the NSC is to be made more useful, the government's allocation of business rules should be amended to give more powers to the NSC and its subordinate organisations, such as the Strategic Policy Group.
- Even though the National Security Adviser (NSA) plays a vital role in national security, he has no legal powers as per the government's allocation of business rules.
- The C. Pant Task Force in the late 1990s had recommended the creation of an NSA with the rank of a Cabinet Minister.
- Over the years, the NSA's powers have increased, even though he is not accountable to Parliament. The institution of the NSA today requires more accountability and legal formality.
- India spends close to \$50 billion annually on defence and yet there are serious concerns about the level of our defence preparedness. India might be ill-equipped to fight the wars of the modern age
- There is a little conversation between the armed forces and the political class, and even lesser conversation among the various arms of the forces
- One of the most serious lacunas in our defence management is the absence of jointness in the Indian armed forces.



- Our doctrines, command structures, force deployments and defence acquisition continue as though each arm is going to fight a future war on its own.

Key recommendations made by D.S. Hooda to overcome these shortcomings:

- Hooda's National security strategy document defines security in an out-of-the box and inclusive manner. The document summarises the reforms under 5 heads:
 - Assuming our rightful place in global affairs.
 - achieving a secure neighbourhood
 - peaceful resolution of internal conflicts
 - protecting our people
 - strengthening our capabilities
- On the issue of military jointmanship, it recommends that "the three services should undertake a comprehensive review of their current and future force structures to transform the army, navy and air force into an integrated warfighting force."
- It argues that it would take "a cultural change in the way the DRDO is currently operating" to improve domestic defence production.
- On the Kashmir question too, the document seems to differ with the incumbent government's muscular policy, and General Hooda's words should be a wakeup call for everyone: Killing terrorists is an integral part of military operations to ensure that the state does not descend into chaos.
- While discussing emerging national security threats, the document differs with the present government's decision to set up a Defence Cyber Agency instead of a Cyber Command as was originally recommended.

Conclusion:

- Serious efforts are required for countering radicalisation. There is a need to initiate structured programmes that bring together civil society members, family groups, educationists, religious teachers and even surrendered terrorists in an effort to roll back radicalisation.
- There is an urgent need for thinking about national security and strategy more systematically, consistently and comprehensively.

Topic: Challenges to internal security through communication networks, role of media and social networking sites in internal security challenges, basics of cyber security; money-laundering and its prevention.

Q) Cyber-frauds have grown in terms of sophistication and reach in the recent times with increasing influence of social media. Critically analyse. (250 words)

Livemint

Why this question:

The article brings us highlights of a report- Current State of Cybercrime – 2019" white paper, released by RSA Security, that states cyber criminals are increasingly relying on social media platforms to sell stolen identities, credit card numbers and other ill-gotten gains. Fraud from mobile apps rose 680% between 2015 and 2018.

Key demand of the question:

Analyse in detail the issues around cyber security, the root causes of Cyber fraud and what needs to be done to handle the menace.

Directive word:

Critically analyse – When asked to analyze, you have to examine methodically the structure or nature of the topic by separating it into component parts and present them as a whole in a summary. When 'critically' is suffixed or prefixed to a directive, one needs to look at the good and bad of the topic and give a fair judgement.

Structure of the answer:

Introduction:

In a few introductory lines discuss the highlights of the report.

Body:

- First explain what you understand by cyber frauds – cyber fraud is any crime that is committed with the use of a computer or to computer data. This can look like many things, such as: Identity theft. Stolen bank account numbers.



- Due to the incredibly rapid advances in technology and electronic communications, a steadily increasing proportion of total fraud is being perpetrated with the use of computers, the Internet, and sophisticated software and programming techniques.
- Discuss the impact, reach and expanse – not only are individuals victimized by cyber fraud, but companies suffer from the costly effects of cyber fraud within their networks.
- Explain while some of the detection and prevention methods for managing these cyber risks will be technological, a human element in the fight against cyber fraud will always be central to the war on such crimes.
- explain with the aid of recent examples.

Conclusion:

Conclude with what needs to be done, suggest way forward.

Introduction:

- The “Current State of Cybercrime – 2019” white paper, released by RSA Security says that cyber criminals are increasingly relying on social media platforms to sell stolen identities, credit card numbers and other ill-gotten gains. Fraud from mobile apps rose 680% between 2015 and 2018, says the study.

Body:

- Cyberfraud refers to any type of deliberate deception for unfair or unlawful gain that occurs online. The most common form is online credit card theft. Other common forms of monetary cyberfraud include non-delivery of paid products purchased through online auctions and non-delivery of merchandise or software bought online. Cyberfraud also refers to hacking, phishing, cyber-stalking, data break-ins, identity theft and cyber-bullying, all of which are seriously damaging.

Reasons for increasing cyber-frauds:

- Hardware Cyber Security Concerns: Most equipment and technology for setting up Cyber Security infrastructure in India are currently procured from global sources. These systems are vulnerable to cyber threats just like any other connected system.
- Skill gaps: Globally, India ranks second in terms of the number of Internet users after China (Internet World Stats, 2017). However, India has a negligible base of cyber security specialists, when compared to internet user base.
- Internet of Things as a weak link: Often internet connected devices lack basic security features, or they aren't properly configured and rely upon default passwords that can give attackers easy access. This in turn is giving rise to botnets, which can be used for volumetric attacks.
- Digital Data Threat: Growing online transactions have generated bigger incentives for cybercriminals. Besides, establishments looking to mine data (customer information, results of product surveys, and generic market information), they also create treasured intellectual property that is in itself an attractive target.
- Lack of robust Legal and law enforcement mechanisms: India's approach to cyber security has so far been ad hoc and unsystematic. Despite a number of agencies, policies and initiatives, their implementation have been far from satisfactory.
- Lack of Coordination between stakeholders: Due to the existence of too many agencies with overlapping functions in the field of cyber security, coordination between these agencies is poor
- Lack of awareness: There is a lack of awareness about cyber security threats and preventive measures at both organizational level as well as individual level.

CYBERATTACKS IN INDIA OF LATE

July 2016

UNION BANK OF INDIA HEIST

Through a phishing email sent to an employee, hackers accessed the credentials to execute a fund transfer, swindling Union Bank of India of \$171 million. Prompt action helped the bank recover almost the entire money

May 2017

WANNACRY RANSOMWARE

The global ransomware attack took its toll in India with several thousand computers getting locked down by ransom-seeking hackers. The attack also impacted systems belonging to the Andhra Pradesh police and state utilities of West Bengal

May 2017

DATA THEFT AT ZOMATO

The food tech company discovered that data, including names, email IDs and hashed passwords, of 17 million users was stolen by an 'ethical' hacker—who demanded the company must acknowledge its security vulnerabilities—and put up for sale on the Dark Web

June 2017

PETYA RANSOMWARE

The ransomware attack made its impact felt across the world, including India, where container handling functions at a terminal operated by the Danish firm AP Moller-Maersk at Mumbai's Jawaharlal Nehru Port Trust got affected



Importance of cyber security in India:

- Cyber security is an important arena of internet when the country is moving forward towards a cashless society and digitization.
- Till 2013, India did not even have a cyber security policy in place. It is of paramount concern to take cyber security seriously in India with most of the transactions going online and cashless.
- Security becomes a challenge as now privacy is a fundamental right as per SC verdict and the rise in cybercrimes can lead to violation of private space and liberty of expression.
- Cyber security becomes a vital law of cyber law today. There is need of new tools; capacity building must be done in various departments and a mechanism in place to address these challenges.
- The Indian government has embarked on a programme to turn the country into a digital economy. It has unveiled a series of initiatives—from introducing Aadhaar, MyGov, Government e-Market, DigiLocker, Bharat Net, Startup India, Skill India and Smart Cities to propel India towards technological competence and transformation.

Way forward:

- **Technology:**
 - It is important to define minimum security features for the hardware and software to be deployed in the government ecosystem
 - There is an urgent need to build capabilities and capacity for application, equipment and infrastructure testing through the deployment life cycle to detect any vulnerability and backdoors in the product/technology.
 - Security Operations Centre should be developed for the government organizations with capabilities to detect, respond and recover from any breaches and attacks
- **Human resource:** Immediate attention has to be given to human resource development which would increase the number of experts who can effectively manage the cyber security of the country
- **R&D:** Investments should be made on R&D to develop more innovative technologies to address increasing cyber security threats
- **Policy and Governance:** It is important to bring a robust policy and effectively implement the same. Further, duties and responsibilities should be defined clearly for smooth functioning and better coordination among departments and stakeholders
- **Strengthening Private Partnership:** It is important to strengthen the public- private partnership on cyber security.

Conclusion:

- Most of the Indian banking industry and financial institutions have embraced IT to its full optimization. Reports suggest that cyber-attacks are understandably directed toward economic and financial institutions. With innovative, technology led programmes such as AADHAAR, MyGov, GeM, Digital Locker the new India is the land of technological prowess and transformation. Government and the private sector jointly have to give cyber security some priority in their security and risk management plan.
- Cyber awareness must be spread and there should be multi-stakeholder approach- technological inputs, legal inputs, strengthening law enforcements, systems and then dealing with transborder crime involves lot of international cooperation.

Q) What is cyber-crime ? What types of cyber security threats are being witnessed by the world today ? Explain India's attempts to tackle these issues. (250 words)

Reference

Why this question:

The paper covers in detail the concept of Cyber security, its types and the steps India is taking in this direction.

Key demand of the question:

Answer must discuss the concept of cyber-crime, issues posed by it and the efforts by India to tackle such issues.

Directive:

Explain – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.



Structure of the answer:

Introduction:

In a few introductory lines highlight what you understand by cyber-crime.

Body:

In brief discuss the following aspects:

- What do you mean cyber-crime?
- three major categories of cyber-crimes? – Crimes Against People, Crimes Against government, crime against property.
- How is cybercrime committed?
- What are cyber laws in India?
- Discuss significance of policies and laws in this direction like the IT Act etc.

Conclusion:

Conclude with way forward.

Introduction:

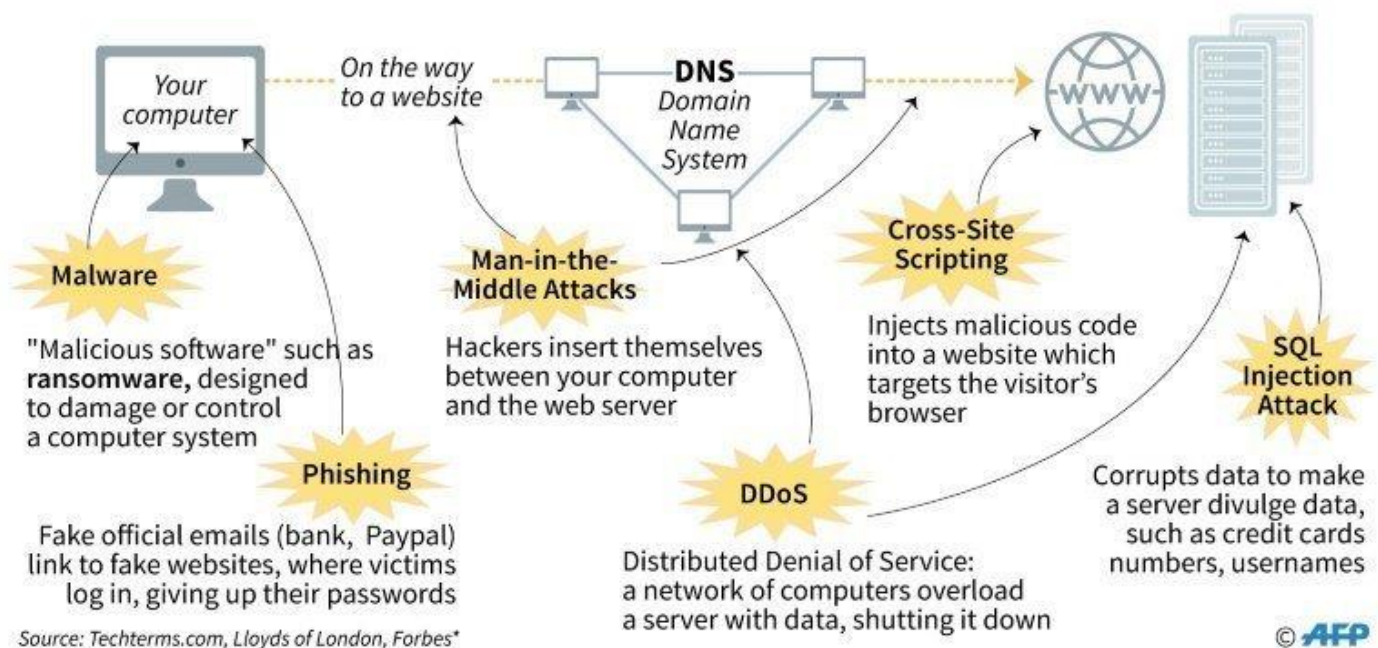
- Cybercrime is a criminal action that encompasses mobile phones, laptop, network, and computer. It is a threat to country's external and internal security and monetary status.
- Crimes committed against publics with an illicit intention to cause physical or psychological harm, or loss to the victim directly or indirectly, by means of contemporary telecommunication networks such as social media network, the Internet and mobile phones.

Body:

- **Types of cyber security threats:** **Cyber Security** is protecting cyber space including critical information infrastructure from attack, damage, misuse and economic espionage.

The different types of cyber attacks

Cyber crime worldwide cost \$400 billion in 2015 and is forecast to reach \$2 trillion in 2019*



India's attempts to tackle these issues:

Information Technology Act, 2000

- The act regulates use of computers, computer systems, computer networks and also data and information in electronic format.
- The act lists down among other things, following as offences:
- Tampering with computer source documents.
- Hacking with computer system
- Act of cyber terrorism i.e. accessing a protected system with the intention of threatening the unity, integrity, sovereignty or security of country.
- Cheating using computer resource etc.



Strategies under National Cyber Policy, 2013

- Creating a secure cyber ecosystem.
- Creating mechanisms for security threats and responses to the same through national systems and processes.
- National Computer Emergency Response Team (CERT-in) functions as the nodal agency for coordination of all cyber security efforts, emergency responses, and crisis management.
- Securing e-governance by implementing global best practices, and wider use of Public Key Infrastructure.
- Protection and resilience of critical information infrastructure with the National Critical Information Infrastructure Protection Centre (NCIIPC) operating as the nodal agency.
- NCIIPC has been created under Information Technology Act, 2000 to secure India's critical information infrastructure. It is based in New Delhi.
- Promoting cutting edge research and development of cyber security technology.
- Human Resource Development through education and training programs to build capacity.

Cyber Surakshit Bharat Initiative: It was launched in 2018 with an aim to spread awareness about cybercrime and building capacity for safety measures for Chief Information Security Officers (CISOs) and frontline IT staff across all government departments.

National Cyber security Coordination Centre (NCCC): In 2017, the NCCC was developed. Its mandate is to scan internet traffic and communication metadata (which are little snippets of information hidden inside each communication) coming into the country to detect real-time cyber threats.

Cyber Swachhta Kendra: In 2017, this platform was introduced for internet users to clean their computers and devices by wiping out viruses and malware.

Training of 1.14 Lakh persons through 52 institutions under the Information Security Education and Awareness Project (ISEA) – a project to raise awareness and to provide research, education and training in the field of Information Security.

International cooperation: Looking forward to becoming a secure cyber ecosystem, India has joined hands with several developed countries like the United States, Singapore, Japan, etc. These agreements will help India to challenge even more sophisticated cyber threats.

Way forward:

- Real-time intelligence is required for preventing and containing cyber attacks.
- Periodical 'Backup of Data' is a solution to ransomware.
- Using Artificial Intelligence (AI) for predicting and accurately identifying attacks.
- Using the knowledge gained from actual attacks that have already taken place in building effective and pragmatic defence.
- Increased awareness about cyber threats for which digital literacy is required first.
- India needs to secure its computing environment and IoT with current tools, patches, updates and best known methods in a timely manner.
- The need of the hour for Indian government is to develop core skills in cyber security, data integrity and data security fields while also setting stringent cyber security standards to protect banks and financial institutions.

Topic: Role of external state and non-state actors in creating challenges to internal security. Linkages of organized crime with terrorism.

Q) Do you agree that Asia, not West Asia is turning into a host to multiple “terrorist safe havens,” owing to the rise of mass radical movements and years of complacency on the part of policymakers. Elucidate with recent examples. (250 words)

Livemint

Why this question:

The article provides for a detailed analysis of how the recent gruesome Sri Lankan bombings are a reminder that Asia—not West Asia—is the region most afflicted by terrorist violence. Home to the vast majority of the world's Muslims, it is also host to multiple “terrorist safe havens,” owing to the rise of grassroots radical movements and years of complacency on the part of policymakers.



Key demand of the question:

Analyse in detail the causes of rise in terrorist safe havens in Asia apart from regular incidences of West Asia. One has to bring out recent examples and justify along with suggesting measures of what needs to be done.

Directive word:

Elucidate – Clarify the topic by giving a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

Provide for the context of recent bombings in Sri-Lanka.

Body:

Discuss the following aspects in the answer body –

- What are the causes for this shift of terrorist havens from west Asia to other parts of Asia? – rise of grassroots radical movements, lack of effective policies, failures etc.
- Quote examples – massacre by a white supremacist at two mosques in Christchurch, New Zealand, 2008 Mumbai attacks, the recent Pulwama attack etc.
- Discuss what needs to be done to resolve the situation and bring it back in control?
- Discuss the policies and initiatives needed by the governments in this direction, need for collaborative efforts etc.

Conclusion:

Conclude with what needs to be done, suggest way forward.

Introduction:

- The murder of more than 250 churchgoers, tourists, and other civilians in Sri Lanka on Easter Sunday should serve as a reminder that Asia is now the world's leading site of Islamist extremism.
- Radical Islamic groups, some affiliated with larger extremist networks, have been quietly gaining influence in an arc of countries extending from the Maldivian to the Philippine archipelagos, and the threat they pose can no longer be ignored.

Body:

The causes for this shift of terrorist havens from west Asia to other parts of Asia:

- **Poor Socio-Economic conditions:**
 - High incidences of poverty, rising inequality, lack of opportunities for the educated youth has made the people soft targets to radicalization and extremist ideologies.
 - The rising radicalism among the people has also added to the vulnerability.
- **Communalism:**
 - The Imperialist sown seeds of Communalism are still strong and the differences between the majoritarians and minorities are manifested in violence. Terror easily finds a space in such turmoils.
 - Official discrimination against Muslims has contributed to Islamists' growing influence, particularly in Myanmar's Rakhine state, Thailand's four southernmost provinces, and the southern Philippine island of Mindanao.
- **Complacency on the part of policymakers:**
 - Asia and in particular South Asia is one of the least integrated regions of the world exposing the rifts which the terrorists can easily cash in on.
 - The rugged terrains, disconnect between the countries due to political differences have led to poor check on security arrangements.
- **State Sponsored Terrorism:**
 - Increased sponsoring of the terror outfits by Pakistan, China and Bangladesh to promote their political agenda has become a serious challenge.
- **Links with the West Asia:**
 - Wahhabism, the austere, rigid version of Islam bankrolled by Saudi Arabia and other Gulf sheikhdoms, remains the driving force behind Islamist terrorism today.
 - Its offspring include not just Al Qaeda and IS, but also the Taliban in Afghanistan, Lashkar-e-Taiba in Pakistan, Boko Haram in Nigeria, and al-Shabaab in Somalia. All of these groups are driven by a nihilistic rage born of hostility toward non-Sunnis and a rejection of modernity.



- The battle-hardened fighters of ISIS from Iraq and Syria with the operational training to stage savage attacks are now returning home. Returnees are present in many other Asian countries as well, from the Philippines and Indonesia to the Maldives and Uzbekistan.

Measures needed:

- Socio-economic factors leading to poverty and alienation must be targeted with national and local level policies.
- Defunct organizations like SAARC should be revived to build the inter-regional co-operation, which would help in regional growth.
- The regional groupings should improve their strategy to fight against terrorism like the RATS of SCO.
- Intelligence sharing with exchange of critical information about terror and extremists should be made part of bilateral agreements and be shared actively.
- Religious leaders and returnees from terror camps should be used to preach and sensitize youth with radical thoughts.
- Monitoring of Social media, curbing of fake news and rumours should also be a part of the strategy to fight terror.

Conclusion:

- As the late Singaporean leader Lee Kuan Yew said, preventing terrorist attacks requires that we eliminate the “queen bees” (the preachers of hatred and violence) who are inspiring the “worker bees” (suicide bombers) to become martyrs.
- The global war on terror, launched by the United States after the attacks of 11 September 2001 is losing steam. Unless it is invigorated and prosecuted to the end, many more innocent lives will be lost.

Q) The recent attacks in Sri Lanka underline the many shortcomings in the concept of a global War on Terror. Elucidate. (250 words)

The hindu

Why this question:

The article highlights how the recent brutal attacks on Easter Sunday in Sri Lanka, for which the Islamic State (IS) claimed responsibility, have reignited discussion on the global ‘War on Terror’.

Key demand of the question:

The answer must evaluate the global efforts for war on terror. The question aims to bring out the shortcoming of such an effort that is leading to continued incidences of such terror attacks across the globe.

Directive word:

Elucidate – Give a detailed account as to how and why it occurred, or what is the particular context. You must be defining key terms where ever appropriate, and substantiate with relevant associated facts.

Structure of the answer:

Introduction:

In a few introductory lines narrate the background – highlight the recent incidence of terror attack in Sri Lanka.

Body:

The answer must elucidate upon what is Global War on Terrorism?

What are its shortcomings? Why is it failing to address the issue of terrorism? – discuss the issue of religious terrorism, use the case study of recent terror attack that Sri Lanka witnessed. Discuss how global efforts have failed to address the issue. Suggest what needs to be done to overcome the issue and address the menace of global terrorism.

Conclusion:

Conclude with what should be the way forward.

Introduction:

- The brutal attacks on Easter Sunday in Sri Lanka, for which the Islamic State (IS) claimed responsibility, have reignited discussion on the global ‘War on Terror’. The increase in attacks and deaths across more countries has meant that the impact of terrorism is becoming more widespread, even as deaths from terrorism are decreasing. As the intensity of terrorism has increased over the last two decades, its impact has also spread to more countries around the world.

**Body:****Global War on Terrorism:**

- The War on Terror first began on a global scale after the 9/11 terrorist attack in 2001.
- The first global mission for War on Terror was Operation. Enduring Freedom by 60 countries led by US to replace Taliban government in Afghanistan and defeat Al-Qaida.
- However, it appears that this first global mission has produced limited positive results. US now intends to withdraw from Afghan & is in talks with Taliban to ensure its representation in Afghan government even though Taliban still continues terrorist attacks in Afghan.
- Therefore, the objective of Operation. Enduring Freedom to replace Taliban & to end Talibani terrorism has failed.
- The second War on Terror was when 46 nations led by US formed the 'Coalition of the Willing' in 2003 to defeat Saddam Hussein in Iraq.
- However, it led to the destabilization of Iraq & formation of global terrorist State- ISIS, which is now undertaking terrorist attacks on global scale such as in Sri Lanka. Therefore, the second War on Terror ended by increasing global terrorism.
- The Next War on Terror was conducted in Libya & Syria after the Arab Spring in 2011.
- Libya did not have strong linkages with spread of terrorism but a Coalition of Western countries led by France undertook regime change in Libya & it became destabilized, which now has become a safe haven for Al-Qaeda. Similarly, destabilized Syria became a safe haven for ISIS & other terrorist groups.
- Therefore, the next War on Terror in Libya & Syria led to formation of terrorist groups & safe havens which did not exist earlier.

Shortcomings of the effort:

- There was no change in the five countries most impacted by terrorism, which include Iraq, Afghanistan, Nigeria, Syria and Pakistan. All of these countries have been ranked in the worst five every year since 2013.
- Conflict continued to be the primary driver of terrorist activity for the countries most impacted by terrorism in 2017.
- In 2017, terrorist attacks in conflict countries averaged 2.4 deaths, compared to 0.84 deaths in non-conflict countries. Terrorist attacks are more lethal on average in countries with a greater intensity of conflict. In 2017, countries in a state of war averaged 2.97 deaths per attack, compared to 1.36 in countries involved in a minor armed conflict.
- There are numerous possible reasons for this difference. Countries in conflict have a greater availability of more military-grade small arms and bomb-making capabilities.
- Countries that are not in conflict tend to be more economically-developed and spend more on intelligence gathering, policing and counterterrorism.
- The War on Terror built by world leaders is a "fight for Islam" is equally false. According to the Global Terrorism Database, of the 81 terror attacks in which more than 100 were killed (high casualty) since 2001, more than 70 were carried out in Islamic or Muslim-majority countries.

Conclusion:

- The world community must address contradictions in the War on Terror. For 20 years, the world has failed to agree on a common definition of terrorism at the United Nations. Unless the world is truly united on the issue and resolves such contradictions, the global War on Terror will only be as strong as its weakest link.
- The success or failure of each of these approaches must be studied before deciding their applicability elsewhere. A **comprehensive and multidimensional strategy** for the "War on Terror" must involve an integrated view of these strategic military and economic domains, among others.

Topic: Role of media and social networking sites

Q) Discuss the effects of social media on Democracy. How does it play a key role to be an enabler of transparency and democracy? (250 words)

Reference**Why this question:**

The article discusses in detail how social media influence democracy.

Key demand of the question:

The answer must debate that there are several positives that social media brings to the table, including affordable access to information, voicing voter concerns, and adding another communication channel



between voters and politicians. But social media has just as many pitfalls — some that are already being addressed, others that both social media companies and governments continue to examine. Thus, for users of social platforms, it is becoming increasingly important to be aware of these pitfalls.

Directive word:

Discuss – This is an all-encompassing directive – you have to debate on paper by going through the details of the issues concerned by examining each one of them. You have to give reasons for both for and against arguments.

Structure of the answer:

Introduction:

In a few introductory lines explain the role of social media in general.

Body:

- Highlight why social media is important to a democracy?
- How does media strengthen democracy?
- What is the relationship between media and democracy in general? Discuss the specific case of social media.
- What are the issues associated?
- Explain how can one handle these issues, explain what needs to be done.

Conclusion:

Conclude with what should be the way forward.

Introduction:

- Democracy provides opportunities to enhance the role of people in collective decision-making so that it is inclusive, equitable, transparent, accountable and justiciable. In this respect, social media has had a significant contribution towards making democracy even stronger than before.
- It started with the electronic media becoming its fourth pillar in 2000s and culminated with the growing role of internet in the form of social media. After legislature, executive, Judiciary, Media and Common Man, the sixth pillar of the democracy is touted to be 'Social Media'. All these pillars have the capacity to change the status-quo and undone wrongdoing.

Body:

- The social media is a recent additive. It works on a virtual space almost without any constraint. The main platforms are Facebook, whatsapp and Twitter. The capacity of online activism through these platform is immense.
- Social media has drastically changed the landscape in democratic polity in following ways:

Public's outreach to Government:

- Greater mass involvement in decision-making, providing input to policies, sharing of ideas and innovative governance methods
- Faster complaint registration and grievance redressal;
- Time and resource management with online execution of most formalities
- In Iceland, for example, when someone moves to a new neighbourhood, the first thing they often do is join their community's Facebook group. They tag their representatives in posts and push for the issues they want taken to Parliament. Conversations like these are quietly reinvigorating local governance around the world.

Government's outreach to the public:

- Timely delivery of services: For eg, twitter has been a tool for the passenger of railways to redress their specific grievances.
- Spreading awareness on its policies and schemes using facebook and twitter. Most political leaders, in government or opposition employ social media to interact with people.
- Gauging public mood and response on its recent initiatives so as to modify it accordingly. It thus provides a platform to address the elitism that has crept in politics due to dislink with the public.

Public's outreach to public:

- Act as vanguard of democracy: It is a tool of mobilisation so that protests against unfair policy decisions of govt or against any undemocratic and unconstitutional move can be held. Anna Hazare agitation was one such instance.
- It allows to maintain a critical environment that questions on the doings and undoings. Hence it enriches public discourse.



Social media media's impact on democracy is that it amplifies human intent — both good and bad. At its best, it allows us to express ourselves and take action. At its worst, it allows people to spread misinformation and corrode democracy.

Pros:

- The hashtag activism empowers people to speak up injustice without fear. Some recent examples are #not in my name, #MeToo.
- Social media provide solidarity and sense of companionship to those unable to reach government or raise their voice.
- It has long been observed that when people discuss the news, they're more likely to be involved in their community, whether by volunteering or reaching out to elected officials. There is growing evidence that this is also true for social media — especially among young people.
- Social media platforms are driving people not just to learn about issues but to take action. For e.g.: During the 2016 US election alone, the voter registration efforts on Facebook led more than 2 million people to register to vote.

Cons:

- Online abuse, hate speech and harassment is perpetuating with anonymity. Policing the content at a global scale is an open research problem since it is hard for machines to understand the cultural nuances of political intimidation.
- The unbridled exercise of power on online platform is out of government regulation.
- It has become a medium to influence youth by the terror outfits
- The spreading of fake news which hampers peace and tranquillity of a nation is rapid and complete.
- One of the most common criticisms of social media is that it creates echo chambers where people only see viewpoints they agree with — further driving us apart.
- While foreign meddling, misinformation, echo chambers and hate speech get the headlines, it is also worrisome that how social media can distort policymakers' perception of public opinion.
- The 2016 US presidential election brought to the fore the risks of foreign meddling, "fake news" and political polarization. The effect of social media on politics has never been so crucial to examine.
- If politicians mistake the views of a few with the views of many, that can make for bad public policy. Vulnerable populations could end up ignored, and fringe groups could appear mainstream.

Conclusion:

- In short, social media is a potent tool, and may be a revolutionary one, to further strengthen the ethos and principles of democracy in novel ways. The use of social media for political activities influences peoples' political efficacy, political knowledge, and political participation.
- Social media must be submitted to the same rules that are established for other media such as clear accountability and transparency. This would probably require new international laws. Moreover, the big companies should continue looking for ways to prevent the abuse of their media.