

1. What are your views on the efficacy of taxes as a source of revenue mobilisation in a developing economy like India? Critically analyse.**Approach**

Candidates are expected to write about the basics on taxation, question expects to write about the how effective are taxes as source of revenue mobilisation. As question demands to critically evaluate candidates have to give alternate view arguments.

Introduction

Taxation is a term for when an authority, mostly a government, imposes an involuntary financial obligation on its citizens/ residents/corporations/companies etc. The taxation system in India is such that the taxes are levied by the Central Government and the State Governments. Some minor taxes are also levied by the local authorities such as the Municipality and the Local Governments.

Body

Taxation as revenue mobilisation:

- Revenue mobilisation is a process, which will identify the resources essential for the development, implementation and continuation of work for achieving the national mission.
- Taxation is an important instrument for fiscal policy which can be used for mobilising revenue for capital formation in the public sector.

Efficacy of the taxes as sources of revenue mobilisation:

- Collecting taxes and fees is a fundamental way for developing countries to generate public revenues that make it possible to finance investments in human capital, infrastructure, and the provision of services for citizens and businesses.
- Imposition of progressive income tax not only mops up relatively greater amount of resources with proper revenue distribution it tend to reduce inequalities of income.
- Revenue generated from taxes have a key role to play in making growth sustainable especially in the context of the COVID-19 crisis, and through such efforts as “greening” tax systems and fighting tax evasion and avoidance.
- Due to revenue generated from revenue there can be economic development in developing countries it raises the incomes of the people, this augments the economic surplus.
- By imposition of taxes on income and profits and higher rates of taxes such as excise duties and sales tax on luxury goods for which income elasticity of demand is higher, the marginal saving rate can be made higher than the average saving rate. This will cause a continuous increase in the saving rate of the economy. Which can further generate more revenues.

Taxation and tax policies inefficiency in generating and mobilisation of revenue:

- The parallel economy existing in India of unaccounted incomes and expenditures (black money) stands untaxed. There is limitations on tax administration to mobilise revenue.
- The policy of retrospective taxation has acted as an “irritant” and adversely affected the inflow of foreign capital to India it directly affected the tax based revenues.
- There have been many taxation laws of the Central and many State Governments which increases complexities and litigation and reduces predictability, fairness and automation creates uncompetitive environment for rich revenue generating companies.
- Lack of effective control over compliance that needs to be undertaken and confidence that the required data will be available to complete compliance.
- Inconsistency in information used in various tax filings for diverse tax laws in multiple jurisdictions.
- Multiple governments levy so many taxes on businesses that “taxes” is the highest budget items on the ledger sheets of most businesses. Businesses have to raise prices to get money to pay these taxes.
- Out of the population of 125 crore, the current tax base is 5.3 crores. The current initiative is expected to double the tax base to 10 crores by bridging the trust deficit and approaching the taxpayers with ‘soft and sober’ behaviour.

Way Forward:

- Cashless economy should be way forward as majority tax evasion occurs in cash transactions. With digitisation Less cash utility will turn the people towards tax compliance.
- The TARC under the chairmanship of Dr. Parthasarathi Shome, has recommended extensive use of information and communication technology in administration and governance of tax.
- India has already rolled out Anti-tax avoidance regulations i.e. the GAAR from assessment year 2018-19. However, there is a need to bring more transparency for avoiding issues related to retrospective taxation.
- There is a need for simplification of taxation laws in India. In this context there is a need to implement recommendations of the Financial Sector Legislative Reforms Commission.

Conclusion

Thus, taxation creates both favourable and unfavourable effects on various parameters. But importance of taxes can be witnessed in the plethora of ways in which their regulation affects the ebb and flow of revenue generation. Proper regulation of the tax system and the efficient collection of payments will provide governments with adequate funds to invest in improving the overall quality and standard of life of people.

2. What are the underlying principles of inclusive growth? Why is it important?

Discuss.

Approach-

A Simple straightforward question where candidates need to write about definition of Inclusive growth , then What are underlying principles of Inclusive growth and why it is important

Introduction-

Inclusive growth is economic growth that is distributed fairly across society and creates opportunities for all. It means economic growth that creates employment opportunities and helps in reducing poverty. It perfectly facilitates the stability and development of the global economy.

Body-

Five Principles of Inclusive Growth

- Creating a shared, binding mission—
- Showing a commitment to inclusive growth as the shared purpose or endeavour, with a common narrative about the vision for change, how it can be achieved and the roles that business, civil society, central and local government can play in this. Citizens of places with a binding mission for inclusive growth know that there are opportunities for them to make a contribution to their local economy and community, and that this will be valued — because their place matters, and is heading somewhere.
- Measuring the human experience of growth, not just its rate —
- Measuring what we value and want to achieve from inclusive growth. Is it easy and affordable for everyone to travel to work and to key public services? Do working age people have access to quality jobs, where they are paid fairly and have opportunities to learn and progress? Is there a difference in the healthy life expectancy between certain groups in my community? Do people believe in their own future and their ability to succeed? Any or all of these measures should enable a shift in the quality of growth, rather than a narrow measure of its quantity.
- See growth as a social system, not just a machine —
- Getting underneath the skin of the problem inclusive growth is designed to solve, including what is having an impact, where and why, and where services or spending are having perverse effects on inclusive growth outcomes. At a place level, this will involve data analysis, public engagement, democratic processes and deliberations with employers, investors, public service professionals and civic institutions like local universities.
- Be an agile investor at scale —

- Making sure there is strategic, integrated finance for social and physical infrastructure, to maximise the value of public, private and third sector investment. This might require a shift of spending towards preventative, rather than reactive spending, as well as scope for more flexible, smaller-scale funding to pump prime public innovation and social enterprise.
- Entrepreneurial, whole-place leadership —
- Bringing together, at a place level, business, civil society and political leaders, formally and informally, to drive system-change. This will involve mobilising the full force of local resources to build on existing assets and opportunities, as well as developing new innovative and investable propositions for change. Places that have strong entrepreneurial leadership will be able to corral public and wider civic energy, building local legitimacy.

For a long time, the traditional pattern of development has significantly promoted economic growth and globalization. On the other hand, it has also faced many challenges. The most important issues that we are facing today are income inequality and the wealth gap, as well as severe environmental pollution and waste of resources. In all cases, there is likely to be misallocation of resources caused by unbalanced, extensive economic growth. The latest development model known as “inclusive growth” is a practical solution to these problems. The goal of such growth is to strike a balance between economic and sustainable development. In other words, instead of only focusing on the economic outcomes as in traditional models, inclusive growth focuses more on equity.

Conclusion-

As per OECD (Organisation for Economic Co-operation and Development), inclusive growth is economic growth that is distributed fairly across society and creates opportunities for .It means having access to essential services in health and education by the poor. It includes providing equality of opportunity, empowering people through education and skill development. It also encompasses a growth process that is environment friendly growth, aims for good governance and helps in creation of a gender sensitive society.

3. Gender equity is an uncompromisable value for inclusive and sustainable Economic development. Do you agree? Substantiate your views.**Approach-**

In this question candidates needs to write about importance of Gender equity and how it is an uncompromisable value for inclusive and sustainable Economic development. Write your opinion about it an substantiate your points

Introduction-

Gender equity, also known as sexual equality or equality of the sexes, is the state of equal ease of access to resources and opportunities regardless of gender, including economic participation and decision-making; and the state of valuing different behaviors, aspirations and needs equally, regardless of gender.

Body-

Beyond complex gendered norms, some of the economic vulnerability imposed on women also comes from policy and political decisions that have persistently deprived them of compensation in the form of equal pay, paid maternity leave, universal health, unemployment and care benefits.

THE KEY CHALLENGES FACED BY WOMEN;

- **Role of Cultural Institutions:** Cultural institutions in India, particularly those of patrilineality (inheritance through male descendants) and patrilocality (married couples living with or near the husband's parents), play a central role in perpetuating gender inequality.
- **Assumed Role of Women:** It is believed in the Indian Society the primary responsibility of taking care of the family and bringing up the child is still on the women. Many women due to family pressures have to retreat from the workforce.
- **Sexual and reproductive rights are critical in their own right.** Shortfalls in these multiply other forms of discrimination, depriving women of education and decent work, for example. Yet only 52 per cent of women married or in a union freely make their own decisions about sexual relations, contraceptive use and health care.
- **Disproportionate earnings:** As of today, women earn \$0.81 for every \$1 a man makes, resulting in far lower take-home income and associated financial security. In India too, the fight for equal wages continues. The Labour Bureau in India has found that in rural areas in the agricultural sector, the daily wage for men is ₹264.05 and ₹205.32 for women. In non-agricultural sects, the average daily wage rate for men is ₹271.17, while for women it is ₹205.90.
- While more women have entered political positions in recent years, including through the use of special quotas, they still hold a mere 23.7 per cent of

parliamentary seats, far short of parity. The situation is not much better in the private sector, where women globally occupy less than a third of senior and middle management positions.

- Lack of community and support: The old adage “It’s lonely at the top” can certainly be true for the women who do make it to senior roles within their organizations.
- Representation of Women: Women continue to remain underrepresented at every level, starting from entry level jobs to C-suite roles. What’s interesting to see is that the number of women and men leaving their companies is almost the same. Therefore, attrition can’t be blamed for this inequality and misogyny.
- Unemployment Penalty: During child rearing years, the unemployment penalty for women is longer. What this means is that when women take longer leaves, they have a much harder time to get rehired
- Increased risk of workplace harassment: Women are far more likely to experience sexual harassment in the workplace, whether they are in a position of power or not.

MEASURES THAT SHOULD BE TAKEN TO MAKE MORE EQUITABLE WHICH WILL LEAD TO INCLUSIVE AND SUSTAINABLE ECONOMIC DEVELOPMENT:

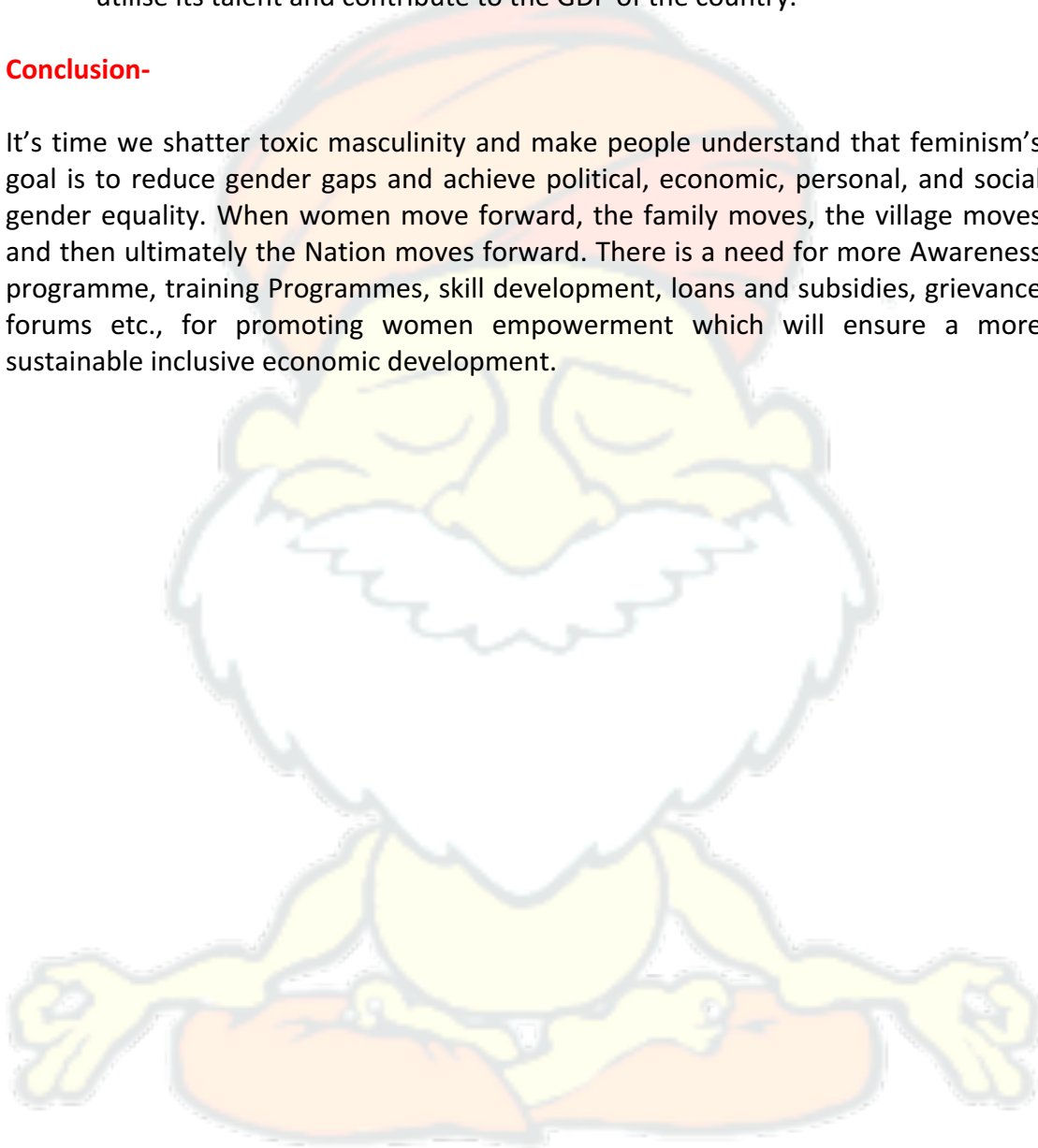
- Dismantle the glass ceiling: Lack of female representation in senior, high-paying positions only seeks to reinforce the gender pay gap. As such, this must be addressed head-on within each organization.
- Remove barriers for flexible working: Lack of flexibility, or stigma, related to varied working hours can be a barrier to progression for many female workers, as women tend to take on more active parenting duties.
- Women make up about half the global population; representing a huge pool of talent, resources, and potential innovation. Hiring, training and investing in women makes good business sense, as well as being morally imperative.
- Encouraging Women Entrepreneurship: Women shall not only be the seekers but also the creators of job opportunities. Entrepreneurship among women could transform India’s economy and society by creating jobs, fuelling innovation, and furthering investment in health and education.
- Bringing Women in Leadership Role: Subdued gender participation emanates from social-economic issues, which can be treated by bringing behavioural change. This can be changed if more women are given leadership positions. Thus, there is a need to ensure equal representation– from company boards to parliaments, from higher education to public institutions -- through special measures and quotas.
- Changing the Mindset: Girls, just like male children, should be asked their dreams, aims, aspirations in family as well as schools. The idea that ‘their dreams and career are as important as that of a male’ must be instilled in the minds of girls right from the beginning. The society also needs to recognise the role and importance of women in the development of the country. Families must have conversations with women about their choice of work.
- Recognizing Invisible Work: There is a need to invest significantly in the care economy and social protection, and redefine Gross Domestic Product to

make work in the home visible and counted. The concept of Temporary Basic Income introduced by UNDP can prove as a headstart to other similar initiatives.

- Maintaining the Education v/s Employment Ratio: It needs to be assured that the women education which is being subsidised very heavily is actually put to use for the country. The remaining share of the women, which is educated and skilled but not participating in the labour force, should also be able to utilise its talent and contribute to the GDP of the country.

Conclusion-

It's time we shatter toxic masculinity and make people understand that feminism's goal is to reduce gender gaps and achieve political, economic, personal, and social gender equality. When women move forward, the family moves, the village moves and then ultimately the Nation moves forward. There is a need for more Awareness programme, training Programmes, skill development, loans and subsidies, grievance forums etc., for promoting women empowerment which will ensure a more sustainable inclusive economic development.



4. How effective is the instrument of divestment for fiscal consolidation? Critically examine.**Approach:**

Candidate has to critically examine the level of effectiveness of the instrument of divestment for fiscal consolidation.

Introduction

Divestment is the process of selling subsidiary assets, investments, or divisions of a company in order to maximize the value of the parent company. It can also be defined as the action of an organization (or government) selling or liquidating an asset or subsidiary. In most contexts, it typically refers to the sale from the government, partly or fully, of a government-owned enterprise.

Instrument Of Divestment as Good Option for Fiscal Consolidation:

- A company or a government organization will typically divest an asset either as a strategic move for the company or for raising resources to meet general/specific needs.
- It will reduce the burden on the government by helping the government to invest in profit-making PSU's.
- The divestment process or privatisation would bring in better corporate governance, exposure to competitive corporate responsibility, improvement in the work environment, etc.
- The market participation in the capital of PSUs through stock exchanges would enable the market to discover the latent worth of PSUs.
- The loss-making PSUs can be successfully revived by asking the strategic partner to infuse fresh capital and exercising excellent management control over sick PSUs.
- Thus, Instrument of Divestment is Good Option for Fiscal Consolidation as its used to reduce the financial burden on the government, improve public finances, to introduce, competition and market discipline, or depoliticize non-essential services etc

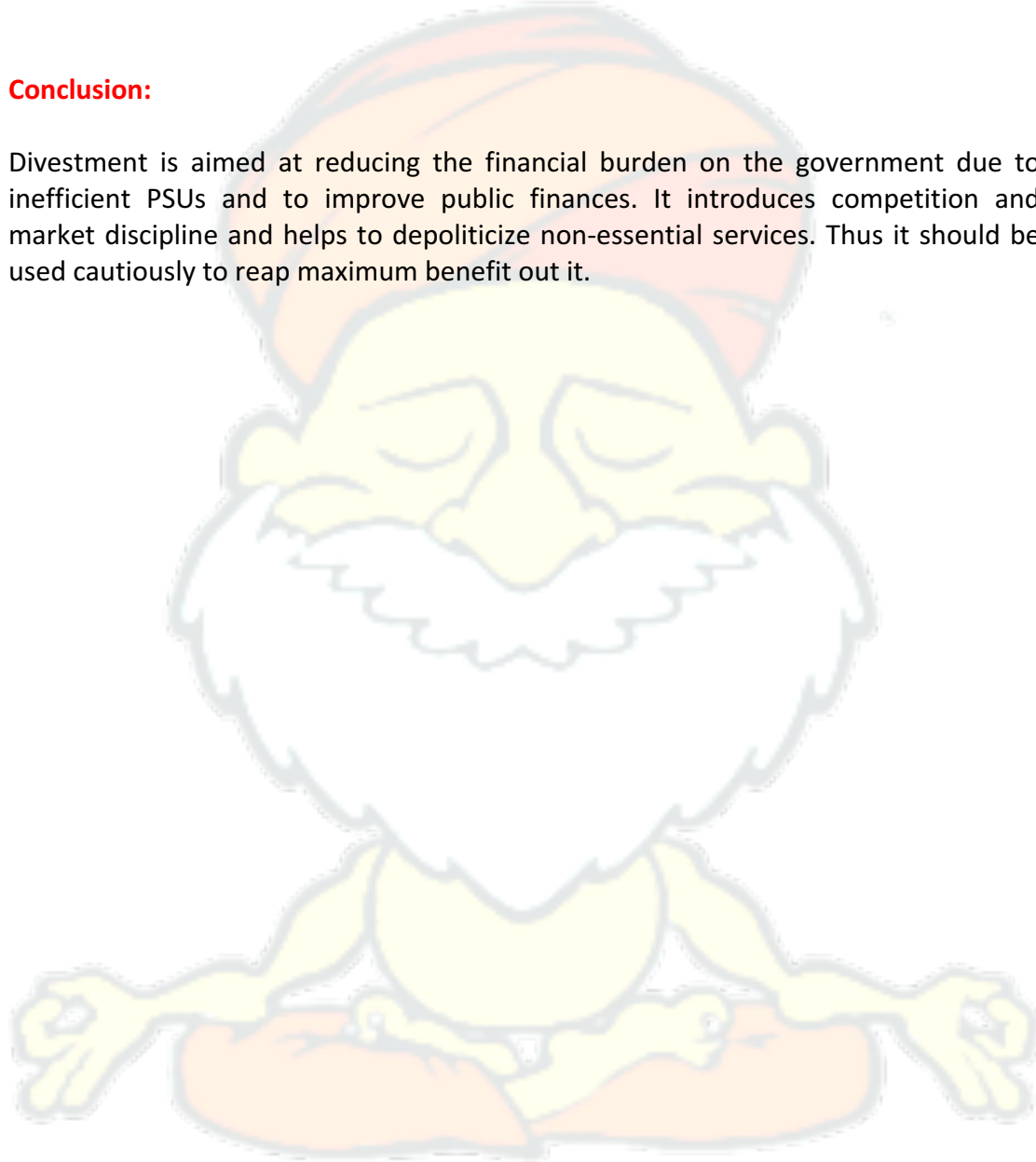
Issues in using instrument of divestment for fiscal consolidation:

- Selling of profit-making and dividend-paying PSU would result in loss of a regular source of income to the government.
- There would be chances of 'asset stripping' by the strategic partner. Most of the PSUs have valuable assets in the shape of plants and machinery, land and buildings, etc.
- The government's policy or disinvestment includes the disposal of both profit-making, as well potentially viable PSUs.

- Strategic and National Security Concerns: Strategic Disinvestment of Oil PSUs is seen by some experts as a threat to National Security since Oil is a strategic natural resource and possible ownership in the foreign hand is not consistent with our strategic goals.
- Raising funds from disinvestment to bridge the fiscal deficit is an unhealthy and short-term practice. It is said that it is the equivalent of selling 'family silver to meet short-term monetary requirements.

Conclusion:

Divestment is aimed at reducing the financial burden on the government due to inefficient PSUs and to improve public finances. It introduces competition and market discipline and helps to depoliticize non-essential services. Thus it should be used cautiously to reap maximum benefit out it.



5. What are the long-term consequences of a burgeoning unemployed population? What long term measures would you suggest to address the challenges associated with increasing unemployment? Discuss.

Approach

Candidate has to Explain the long-term consequences of a burgeoning unemployed population. The candidate also has to discuss long term measures to address the challenges associated with increasing unemployment.

Introduction:

Being out of work for six months or more is associated with lower well-being among the long term unemployed, their families, and their communities. Each week out of work means more lost income. Although there is considerable research documenting the association between long-term unemployment and poor socioeconomic outcomes, it is not clear what drives those associations.

The long-term consequences of a burgeoning unemployed population

- Long-term unemployment can plausibly affect individuals, families, and communities in direct ways.
- When individuals are out of work, their skills may erode through lack of use.
- That erosion or “depreciation of human capital” increases as time passes, meaning that the potential wages the unemployed can earn on finding a new job and even the chances of finding a new job decrease the longer they are out of work.
- The long-term unemployed also tend to earn less once they find new jobs.
- They tend to be in poorer health and have children with worse academic performance than similar workers who avoided unemployment.
- Communities with a higher share of long-term unemployed workers also tend to have higher rates of crime and violence.
- Those who become long-term unemployed may have issues that contribute to their unemployment status and also to their poor future outcomes.
- Similarly, being out of work may reduce a worker’s “social capital”—the network of business contacts that make finding new and good jobs easier.
- Social capital may decrease with longer unemployment duration because social circles defined by work contact can decay when work contact ceases, or because being out of work is increasingly stigmatizing the longer a person cannot find new employment.
- That erosion of social capital means that the longer a worker is unemployed, the less likely he or she is to find a new job. In addition, the stress of being out of work can influence an individual’s physical and mental health, family dynamics, and the well-being of his or her children.

- Involuntary job loss is a stressful event, creating a variety of problems immediately, and long periods of unemployment can compound those problems. Long-term unemployment can also influence outcomes indirectly.
- Last, to a certain extent, health, family, and child outcomes are influenced by the loss of income associated with long-term unemployment, and isolating the income effects from the direct effects on long-term unemployment can be difficult.

Long Term Measures to Address the Challenges Associated with Increasing Unemployment:

- Reducing long-term unemployment and helping affected individuals, families, and communities deal with its fallout are important topics for policymakers at the federal, state, and local levels. The long-term measures include:
- Strong economic growth would be the most effective remedy for reducing today's elevated levels of long-term unemployment.
- The most direct way to address the skills of the unemployed is through workforce development programs helping those who are already long-term unemployed.
- Another important consideration in training for the long-term unemployed is that the skills they are learning reflect the needs of employers in their regions. By its very nature, sectoral training approaches need to be grounded at the local level; a one-size-fits-all federal approach may not be effective.
- A key step in keeping the problem of long-term unemployment from growing is to help vulnerable workers stay in jobs and the recently unemployed find new ones quickly.
- Finally, aid to states, cities, and neighbourhoods with high concentrations of the long-term unemployed could help those communities address some of the challenges faced by the long-term unemployed and their families.
- For example, widespread, enduring unemployment may erode a community's tax base and imperil such basic services as schools, sanitation, and public safety. Aid could help maintain those basic services, benefiting the long-term unemployed who live in those communities.

Conclusion:

The extensive evidence on far-reaching negative consequences of job loss is clear: Loss of a job can lead to losses of income in the short run, permanently lower wages, and result in worse mental and physical health and higher mortality rates. Further, parental job loss hampers children's educational progress and lowers their future earnings. The need to distinguish among competing explanations for the observed patterns is pressing, because different policy responses would be called for depending on which of the potential explanations is the dominant one. We also need to explore whether other long-run negative impacts of job loss and unemployment duration are due to those same factors, or to loss of income or social position.

6. Under what scenarios, a fiscal deficit can be considered healthy for the economy? Why? Explain with the help of suitable examples.

Approach

Candidates are expected to write about the fiscal deficit first. Then explain whether fiscal deficit can be considered healthy for economy what are the scenarios and why it is so considered explain it with suitable examples.

Introduction

The government describes fiscal deficit of India as “the excess of total disbursements from the Consolidated Fund of India, excluding repayment of the debt, over total receipts into the Fund (excluding the debt receipts) during a financial year”. GoI has pegged the fiscal deficit for 2021-22 at 6.8% of the GDP and aims to bring it back below the 4.5% mark by 2025-26.

Body

A government that abides by the FRBM rules enjoys greater credibility among the rating agencies and market participants both national and international. As the years have rolled by, fiscal deficit has become a key factor to watch out for in every Budget presentation. It is considered the most important marker of a government’s financial health.

Fiscal deficit healthy of economy:

- Creation of productive assets: A high fiscal deficit can also be good for the economy if the money spent goes into the creation of productive assets like highways, roads, ports and airports that boost economic growth and result in job creation.
- Expenditures designed to remove infrastructure and regulatory bottlenecks would spur the economy. Routing these expenditures through a competitive private sector would be even better as they would be helpful in realising efficiency gains.
- For example, to improve legal infrastructure, for instance, a good place to invest, with low risk of triggering interest rate rises, is in expanding the judiciary. Indian courts are notoriously backlogged and inefficient, slowing the timely settlement of contracts. A bold public investment in the judiciary would unclog regulatory and contractual bottlenecks, and unleash private investment, domestic and foreign.
- Employment generation: Millions of people have lost job and India’s job crises was already acute. Therefore, to support this segment financially it is necessary to grant them benefits under MGNREGA and other initiatives to sustain healthier livelihood.
- Clearly, if an economy is saddled with high unemployment and idle capacity (in factories), an increase in fiscal deficit need not necessarily lead to a rise in

prices. In such a situation increase in public spending (via a rise in fiscal deficit) will actually help revive the economy.

- Health for sustainable economy: The health sector which has been at receiving end of the pandemic needs huge investment to ward off any future wave of corona virus and also to cater to long term effects of covid. Therefore, government have increased investment in oxygen plants, testing facilities and ICU infrastructure which will have long term impact and will be useful to minimise such crisis and lockdowns.
- For example, the vaccination policy and vaccination of overall population is necessary for bringing economy back on track. Indian government has already kept aside 35000 crores in budget and will possibly require equal amount for vaccination of all.
- Social sector spending: Social sector schemes may be short term burden, however in a long run it is an asset for an economy.
- For Example: A govt is providing scholarship or internship for graduates. After Completion of graduate, He/ She will create new employments, pay tax, remittance and many more. It is not universal truth that social sector schemes will be an asset.
- Demand creation: Factories which had cut back on production and had unutilised capacity, will now increase their output. These then lead to increase in production and employment. In short, under such a situation, enlarged public spending financed through a fiscal deficit will help raise production without any impact on prices. Money in the hands of those who did not have enough money to buy goods and services, their consumption will go up.
- Also, the competitive populism, in the nature of farm loan waivers and other financial support schemes have impact on fiscal policy of Centre and states. Where many schemes are unable to create appropriate assets.
- In the present COVID-19 pandemic induced slowdown, governments have to consider paradox of thrift and spend more. However, all measures should be well targeted to optimise the outcome. There is need to maintain balance between expansionary austerity and fiscal slippage.

Conclusion

India's FRBM act which has set predetermined targets is also flexible as per the needs of the economy. In crises situation it has an escape clause which have been used in 2008 subprime crises and also in 2020 corona pandemic. The hopes of successful inflation targeting and signs of noticeable economic recovery across sectors can materialise to invigorate the animal spirits.

7. What are the tools available with the government to address the trade deficit of India vis a vis its trading partners? Discuss. Do you think such measures are sustainable in the long run? Critically examine.

Approach-

In this question candidates need to write about what is trade deficit ,and to tackle this which tools are available with governments .Give your opinion about is these tools are sustainable in long run to tackle trade deficit ?

Introduction-

Trade deficit is an economic measure of a negative balance of trade in which imports exceed the export .India holds the largest trade deficit with China in bilateral trade .It impacts India in a very negative way in many ways .it depletes the available forex reserve and thus affects the import stabilisation measure .There are many initiatives government can take to address the issue like anti dumping duty ,diversification of market etc.

Body-

In today's rapidly industrialising world where the performances of various constituent nations are viewed from the prism of their performances in different key economic metrics, It is no wonder that a developing country like India posseses a huge trade deficit with it's neighbour ie china .

India needs to take corrective actions to bridge this deficit:

- Imposing of anti dumping duties on cheap Chinese exports.
- Imposition of countervailing duty.
- Control Gold import by promoting Gold Schemes, Inflation Index Bonds etc
- Improving its manufacturing capabilities by bringing in much needed labour reforms, GST etc..
- Ensuring quality of products.
- Supporting Manufacturing Industry : India needs to support its Industries by giving Tax breaks and making policies in its favor, providing cheaper Loans etc.
- Simplification of entry and exit norms for businesses.
- More investment on infrastructural projects, export zones.
- Establishing industrial corridors such as DMIC.
- Manufacturering orientation towards catering to domestic demands first, so that some imports could be stopped.
- Give Tax incentives for various Export items without violating WTO standards so as to boost our Export.
- Build SEZ in newly developed Smart City (which will be built in Smart City Project) so that new Entrepreneurs can take the advantage of Exports.

Negative Impact of such measures in long run-

- Trade barriers make it more costly, or more difficult, for domestic businesses and consumers to buy goods from abroad, reducing trade flows.
- These barriers often take the form of tariffs, which for a given exchange rate increase the price of imported goods relative to those that are domestically produced
- .Non-tariff measures including import quotas or changes to regulatory standards can also create barriers to trade. A rise in the cost of imported goods due to tariffs will lower real incomes and in turn weigh on domestic demand growth.
- Some domestic production which uses imports as inputs might also be constrained if trade barriers cause supply-chain disruption.
- In long run ,Lower trade can reduce productivity growth as businesses are less exposed to global competition and new ideas, less able to exploit comparative advantages by specialising, and less able to benefit from economies of scale. Historically, there has been a strong relationship between trade openness and output via productivity.

Positive Impact of such measures

- Countries that are not directly exposed to an increase in trade barriers might nonetheless feel some effect from their imposition elsewhere. Some might benefit from positive 'trade diversion' effects if they produce close substitutes for products supplied by those countries that become subject to tariffs
- A protectionist trade policy allows the government of a country to promote domestic producers, and thereby boost the domestic production of goods and services. .
- Protectionist policies also allow the government to protect developing domestic industries from established foreign competitors

Conclusion-

Although consistent trade deficits can negatively impact the domestic nation through lost jobs, deflation, and government finances. so they take some protectionist measures in short term. But in long term bilateral and friendly approach from countries keeping in mind the sustainable development of everyone involved, and visualising long term future effects is the way to strengthen the trade balance between countries.

8. How do subsidies strain the public exchequer? How do subsidies create inefficiencies in the economy? Analyse.**Approach-**

A simple straightforward question here candidates need to write about what are subsidies, how do they strain exchequer and how subsidies eventually create inefficiency in the economy.

Introduction-

Subsidies are one of the quintessential attributes of any welfare state. In this context, latest economic survey rightly points out that despite spending as high as 3.77 lakh crore rupees annually on subsidies there is no 'transformational impact' on standard of living of masses. While subsidies have helped some poor people to do firefighting in life, main allegation on a subsidy economy is that, through subsidies, money meant for poorest is appropriated by richer sections of the society due to mistargeting and leakages.

Body-

A subsidy or government incentive is a form of financial aid or support extended to an economic sector . generally with the aim of promoting economic and social policy. Although commonly extended from the government, Subsidies come in various forms including: direct (cash grants, interest-free loans) and indirect (tax breaks, insurance, low-interest loans, accelerated depreciation, rent rebates.

Subsidies as a economic burden-

- Subsidies like offering free power not only led to extra burden on public exchequer, it has also been undemocratic mean in an attempt to gain public support. Subsidies like this not only shake up the power sector and shatters the hopes of a shift to market-driven policies but also act as political gimmick for political parties.
- Subsidy encourage inefficiency by relying more in the subsidy money that offered by the government
- People still receive the subsidy that offered by the government even though they gain not much profits through it.
- Subsidy put extra burden on state's purse and generally lead to fiscal deficit.
- Subsidy act as a tool of diversion from real issues, and suppress the real issues in the name of freebies.
- Subsidy will eventually raise commercial and industrial costs, causing the final products to lose their competitiveness in the international market.
- Subsidies are seen as benefits to help poor and trouble family farmers. Instead, they harm them by excluding them from most subsidies, financing

the consolidation of family farms, and increasing land values to levels that prevent young people from entering farming.

- Subsidy sometimes is difficult to decide on who may receive a subsidy and the government has poor information about the service and how much to subsidize.

Subsidies distort economic markets

- Policymakers justify energy subsidies by arguing that they are needed to fix alleged imperfections in the marketplace. The imperfections, however, are typically short-term issues that the marketplace will address—if allowed.
- Policymakers often rush to address short-term concerns with government interventions, including subsidies, which end up distorting economic activity and generating failures of their own.
- The problem is compounded by the reality that policymakers usually have political and parochial interests in mind when creating and sustaining subsidy programs. When government intervenes,

Unseen Losses of Unsubsidized Competitors

- By aiding particular businesses and industries, subsidies put other businesses and industries at a disadvantage.
- This market distortion generates losses to the economy that are not easily seen and thus generally aren't considered by policymakers. For example, energy companies that don't receive a government subsidy are disadvantaged when they compete against companies that do receive government backing.
- A company or entrepreneur with a superior product or technology might never reach the market because they didn't have access to government handouts.
- The result is a diversion of resources from businesses preferred by the market to those preferred by policymakers, which leads to losses for the overall economy.

The cost of policy makers picking winners and losers

- When the government starts choosing industries and technologies to subsidize, it often makes bad decisions at taxpayer expense, because policymakers possess no special knowledge that allows them to allocate capital more efficiently than markets. Businesses and venture capital firms make many mistakes as well, but they bear the consequences of those mistakes. When the government picks losers, the costs are involuntarily borne by taxpayers.

Conclusion-

Although subsidies are important and act as immediate relief but it is more a sort of short-term measure and sometime a political gimmick. Subsidy generally do not reach the poor and needy and is exploited by rich and corrupt. A more sustainable solution is needed in place of subsidies that act as a long-term solution. When the government subsidizes businesses, it weakens profit-and-loss signals in the economy and undermines market-based entrepreneurship

9. What are the merits of export driven growth strategy for a developing economy like India? Examine.**Approach:**

Candidate has to examine or explain in deep the merits of export driven growth strategy for a developing economy like India

Introduction

India's GDP growth of over 6 per cent after 1991 was associated with real export growth of about 11 per cent. Pre-1991, a 3.5 per cent growth rate was associated with export growth of about 4.5 per cent. There is no known model of domestic demand/consumption-led growth, anywhere or at any time, that has delivered quick, sustained, and high (say 6 plus) rates of economic growth for developing countries. But even leaving aside the desirability of exports over domestic demand led growth, how feasible is the latter today?

The Merits of Export Driven Growth Strategy for a Developing Economy Like India

- Foreign demand will always be bigger than domestic demand for any country.
- If domestic producers are competitive internationally, they will be competitive domestically and domestic consumers and firms will also benefit.
- India's market is too small to sustain any kind of serious import substitution strategy or even as a way of offering investors the domestic market as bait and incentivising them to export.
- Small size of the market makes it difficult to offer investors the domestic market as bait and incentivising them to export.
- Resisting the misleading allure of the domestic market, India should zealously boost export performance and deploy all means to achieve that.
- India is vastly under-exporting relative to its labour force.
- Because China's wages are rising as it has become richer, it has vacated about \$140 billion in exports in unskilled-labour intensive sectors.
- Pursuing rapid export growth in manufacturing and services should be an obsession with self-evident justification.
- Abandoning export orientation will amount to killing the goose that lays the golden eggs and indeed killing the only goose laying the eggs.
- India's big, unexploited opportunities are in unskilled labour exports.
- Post-COVID, the move of investors away from China will probably accelerate to hedge against supply chain disruptions.

Conclusion:

India's financial system was badly impaired even heading into the COVID crisis and will come out more seriously damaged. Given the limited progress in fixing the financial system, prospects for investment remain weak. In short, in India's current

circumstances, India does not have the luxury of abandoning export orientation because the alternatives are so limited.



10. What is your assessment of the current statutory provisions for enforcing fiscal discipline in the Government? Discuss.**Approach**

Candidate has to discuss or debate on the assessment of the current statutory provisions for enforcing fiscal discipline in the Government and support his point with evidence or reasons.

Introduction:

Fiscal discipline should be maintained while the government is in pursuit of higher economic growth. In India, the committee for Fiscal Responsibility Legislation was constituted on January 17, 2000, to oversee the current fiscal system and recommend a draft legislation on the fiscal responsibility of the government. It was announced in the 2000–01 budget that the government intended to introduce an institutional mechanism to the Fiscal Responsibility Act to restore fiscal discipline.

Assessment of the current statutory provisions for enforcing fiscal discipline in the government:

- Fiscal discipline is defined as the ability of a government to sustain smooth monetary operation and long-standing fiscal condition. It is a benchmark for tax devolution. It was used since 11th Finance Commission to provide an incentive to states handling their finances deliberately.
- The index of fiscal discipline is accepted by comparing progress in the ratio of revenue receipts of a state to its total revenue expenditure comparative to the corresponding average across all states. It twigs into:
 - Multi-year outlook on budgeting
 - Mechanisms to sustain fiscal wellbeing and steadiness over business cycles
- As the years have rolled by, fiscal deficit has become a key factor to watch out for in every Budget presentation. It is considered the most important marker of a government's financial health.
- A government that abides by the FRBM rules enjoys greater credibility among the rating agencies and market participants – both national and international.
- The FRBM Act is based on the preamble to provide responsibility to the central government to ensure inter-generational equity in fiscal management along with long-term macroeconomic stability, by achieving sufficient revenue surplus, thereby eliminating fiscal deficit.
- Fiscal discipline will be achieved by limiting government borrowings, debts, deficits, and curtailing higher public expenditure.
- The objective of this FRBM Act is to impose fiscal discipline on the government.

- It means fiscal policy should be conducted in a disciplined manner or a responsible manner i.e., government deficits or borrowings should be kept within reasonable limits and the government should plan its expenditure in accordance with its revenues so that the borrowing should be within limits.
- The popular understanding of the FRBM Act is that it is meant to “compress” or restrict government expenditure. But that is a flawed understanding.
- The truth is that FRBM Act is not an expenditure compressing mechanism, rather an expenditure switching one.
- In other words, the FRBM Act – by limiting the total fiscal deficit (to 3% of nominal GDP) and asking for revenue deficit to be eliminated altogether – is helping the governments to switch their expenditure from revenue to capital.
- This also means that – again, contrary to popular understanding – adhering to the FRBM Act should not reduce India’s GDP, rather increase it.
- When you cut on revenue deficit – that is, reduce your borrowings for funding revenue expenditure – and instead borrow to only spend on building capital, you increase the overall GDP by 2.5 times the amount of money borrowed. So, adhering to FRBM Act is a win-win.

Conclusion:

The challenge with Indian policy makers is that economic growth in India does not correspond to the increase in developmental expenditure; in spite of an increase in developmental expenditure, Indian growth has not risen to the level of other less developed countries. Repeated occurrences of economic stagnation have created serious doubts about the rationality underlying the budgetary allocation of resources. Thus, it is advisable for Indian policy makers to look into rational budgetary allocation of resources, towards development-oriented expenditure, in order to achieve higher economic growth. Thus, in order to maintain fiscal discipline, non-developmental expenditure should be curtailed.

11. What do you understand by the cooperative model of agriculture? Discuss its current state, potential and challenges in India.**Approach**

Candidates are expected to write about the cooperatives. Then explain how cooperative model works in agriculture sector. As question demands discuss current scenario of cooperative model in India and highlight the potential and challenges.

Introduction

According to the International Labour Organisation (ILO), a cooperative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.

Agriculture and Allied Sectors cooperative model:

- Planning, promoting and financing programmes for production, processing, marketing, storage, export and Import of agricultural produce: and minor forest produce through co-operatives, besides income generating stream of activities such as poultry, dairy, fishery semi-culture, handloom etc.
- Loans and grants are advanced to State Governments for financing primary and secondary level co-operative societies and direct to the national level and other societies.
- National Cooperative Development Corporation (NCDC), National Agricultural Cooperative Marketing Federation of India (NAFED), Indian Farmers Fertilisers Cooperative Limited (IFFCO), AMUL and Co-operative Rural Development Trust (CORDET).

Function of cooperative model in agriculture:

- To organise, promote and develop marketing processing and storage of agricultural, horticultural and forest produce.
- To distribution of agricultural machinery, implements and other inputs, undertake inter-state, import and export trade, wholesale or retail as the case may be.
- To act and assist for technical advice in agricultural production for the promotion and the working of its members and co-operative marketing, processing and supply societies in India.

Current state and Potential of cooperative model of agriculture:

- The cooperative sector has a potential to turn India into a USD 5-trillion economy, as per Minister Amit Shah. Also that the cooperative model is behind the success of Amul, and it will also help uplift agriculture and its allied sectors and make them atmanirbhar.

- The principles and values provide a unique character to a cooperative organization which is not found in a private enterprise. They not only help a cooperative to sustain its business, but also create social harmony in the society by bringing people together irrespective of caste, creed or any other distinction.
- Cooperatives are socio-economic organizations which have community service as the essential ethos, and are not merely driven by profit motive. They are primarily meant to help the poor sections of the society.
- Co-operative farming can solve all the problems of small and uneconomic holdings. While purchasing agricultural inputs like seeds, fertilisers etc. the society can purchase in bulk quantity and thus it costs less.
- At grass-root level, the impact of cooperative sector has a big role in bridging the urban-rural divide and creating opportunities for income generation.
- Big machineries like tractors, harvesting machines can now be purchased by the society and the agricultural operations can now be managed in a more scientific basis. Agricultural implements will be fully utilized and there will be no under-employed farmers as they will be gainfully employed in the cooperative farms.

In the recent years, after globalization of economy the cooperative movement has been facing many problems. Challenges of agricultural cooperatives:

- Mechanisation of agriculture through co-operative farming will squeeze the scope of employment and is likely to make workers redundant in the rural areas.
- Co-operative farming failed to make a frontal attack on the prevailing inequality in the economic structure as the traditional status distinction of land owners, landless labourers and sharecroppers are still being maintained.
- On the other hand, the ruralites/rural elites perceive the cooperative societies and banks as government lending agencies. They are interested only in deriving benefits from them instead of contributing anything in return.
- The cooperatives have resource constraints as their owned funds hardly make a sizeable portfolio of the working capital. With weak owned fund base, the borrowings of the cooperatives from the central financing agency are considerably conditioned. This has stood in the way of adequately meeting the credit requirements of the existing as well as new members.
- By and large the Primary Agricultural Cooperative Societies are disbursing credit only and have not yet emerged as true multipurpose institutions, undertaking diversified functions besides credit.

Conclusion

This is very relevant in the current times when the cooperatives need to professionalize their functioning through effective training. India with a rich cooperative culture and a vibrant cooperative movement can march ahead only if we have a professional model which can provide a new direction to the growth of the cooperative movement. To achieve this objective, the cooperative leadership today must have vision, dedication and commitment and transparency. This internalization of the noble ideals of the cooperative movement will be the real tribute to Gandhi.

12. Differentiate between agricultural productivity and efficiency. Do you think the current agricultural policies address the productivity aspect more than the efficiency? Critically analyse.

Approach

In this question candidate need to write about definitions of agricultural productivity and agricultural efficiency, what is difference between them and in second part give your opinion about is agricultural productivity given more emphasis than agricultural efficiency

Introduction

India has been in a continuous tryst with its farming infra, practices and associated communities since independence. With the sector still contributing around 15-20% to the national GDP of the country over few decades, and its diverse cum changing needs across its regions. The terms Agricultural efficiency and productivity are simultaneously used in agriculture terminologies which are misleading. Agricultural efficiency represents a broader concept which is composed of productive efficiency and economic efficiency.

Body

Agricultural productivity-

- Agricultural productivity means yield per hectare, it can be increased through increasing cropping intensity, more inputs such as fertilizers, pesticides etc
- Agricultural productivity is measured as the ratio of agricultural outputs to inputs. While individual products are usually measured by weight, which is known as crop yield, varying products make measuring overall agricultural output difficult. Therefore, agricultural productivity is usually measured as the market value of the final output.
- This productivity can be compared to many different types of inputs such as labour or land. Such comparisons are called partial measures of productivity.
- Agricultural productivity may also be measured by what is termed total factor productivity (TFP). This method of calculating agricultural productivity compares an index of agricultural inputs to an index of outputs. This measure of agricultural productivity was established to remedy the shortcomings of the partial measures of productivity; notably that it is often hard to identify the factors cause them to change.

Changes in TFP are usually attributed to technological improvements-

- Agricultural productivity is an important component of food security.
- Increasing agricultural productivity through sustainable practices can be an important way to decrease the amount of land needed for farming and slow environmental degradation and climate change through processes like deforestation.

Agricultural efficiency

While on the other hand efficient agriculture is input/output. It is about how efficient are inputs, includes environmental degradation, excessive fertilizers costs which get wasted due to non-scientific application.

- Agricultural efficiency has three components viz.; technical efficiency refers to the proper choice of production functions among all those actively in use by farms. Allocative efficiency refers to the proper choice of input combinations.
- Production efficiency represents the productivity of different input factors except management Hence production efficiency is measured in terms of productivity per unit of area or per unit of labour, or per unit of capital or per unit of other input factors except management.
- Thus, agricultural productivity may be put synonymous to production efficiency which is merely a part of agricultural efficiency. The part cannot be equal to the whole. Hence the agricultural productivity cannot be equal to the agricultural efficiency. The concepts of agricultural efficiency is wider than that of agricultural productivity.
- Agricultural policies tend to focus more on fostering productivity through technological change than through better use of the existing technology
- However, rebalancing the focus of agricultural policies towards improving efficiency is necessary in the context of limited availability of natural resources, such as land and water, and given the necessity to limit the environmental footprint of agricultural production.
- Equivalent physical productivity gains and perhaps even larger economic gains may be expected from better use of existing technology than from shifting to new technology.
- The latter may increase productivity in the short term, but possibly at the expense of higher production and environmental costs. For example, before advising farmers to adopt chemical fertilizers (technological change), traditional fertilization methods involving organic fertilizers and rotations or mixture of crops (technical efficiency) may be promoted as a way to increase physical productivity and improve food security and economic profitability.

Conclusion

With the changing cropping pattern owing to new diversity of crops, the older methods mentioned becomes obsolete and there is a huge demand for innovative techniques including the myriad factors which are influencing the agricultural efficacy and productivity. The technological factors influencing the input must also be carefully included. With the increasing demand for scientific agricultural patterns, the proper analysis of efficacy and production is expected to play a dominant role.

13. With the help of suitable examples, discuss the key applications of GIS technology in agriculture.

Approach

A simple straightforward question where candidates need to write about Geographic information system technology in agriculture also give suitable examples for substantiate your points

Introduction

Agriculture is the basic culture of India. Half of the country today depends on agriculture. The GIS in agriculture is not a new phenomenon anymore. The future growth in agriculture must come from new technologies which are not only cost effective but also in conformity with natural climatic regime of the country'

Body

The agricultural sector is the mainstay of the rural Indian economy around which socio-economic privileges and deprivations revolve, and any change in its structure is likely to have a corresponding impact on the existing pattern of social equality.

- No strategy of economic reform can succeed without sustained and broadbased agricultural development, which is critical for raising living standards, alleviating poverty, assuring food security, generating a buoyant market for expansion of industry and services and making a substantial contribution to the national economic growth.
- The future growth in agriculture must come from new technologies which are not only cost-effective but also in conformity with natural climatic regime of the country; technologies relevant to rain-fed areas specifically.
- Continued genetic improvements for better seeds and yields; data improvements for better research, better results, and sustainable planning; bridging the gap between knowledge and practice; and judicious land use resource surveys, efficient management practices and sustainable use of natural resources.
- Sustainable agricultural production depends on the judicious use of natural resources (soil, water, livestock, plant genetic, fisheries, forest, climate, rainfall, and topography) in an acceptable technology management under the prevailing socio-economic infrastructure. Technology plays an important role in the rapid economic growth and social transformation in developing countries.

Agricultural mapping-

Technological innovations and geospatial technology help in creating a dynamic and competitive agriculture which is protective of the environment and capable of providing excellent nutrition to the people. While natural inputs in farming cannot be controlled, they can be better understood and managed with GIS applications. GIS can substantially help in effective crop yield estimates, soil amendment analyses

and erosion identification and remediation. More accurate and reliable crop estimates help reduce uncertainty.

- A central issue in agricultural development is the necessity to increase productivity, employment, and income of poor segments of the agricultural population, and by applying GIS in agriculture, this situation can be addressed. GIS tools and online web resources are helping farmers to conduct crop forecasting and manage their agriculture production by utilizing multispectral imagery collected by satellites. The ability of GIS to analyze and visualize agricultural environments and workflows has proven to be very beneficial to those involved in the farming industry. GIS has the capability to analyze soil data and determine which crops should be planted where and how to maintain soil nutrition so that the plants are best benefitted.
- GIS in agriculture helps farmers to achieve increased production and reduced costs by enabling better management of land resources. The risk of marginalization and vulnerability of small and marginal farmers, who constitute about 85% of farmers globally, also gets reduced.
- Agricultural Geographic Information Systems using Geomatics Technology enable the farmers to map and project current and future fluctuations in precipitation, temperature, crop output etc.

Smart farming

- Sensors in fields, on tractors and on satellites high above farms are constantly collecting data. Advanced technologies are able to turn this data into information that farmers and land managers can use to make more informed and timely decisions. This, in turn, boosts productivity and reduces environmental impacts.
- Farming is getting smarter with the availability of advanced technologies like precision equipment, the Internet of Things (IoT), sensors and actuators, geopositioning systems, Big Data, Unmanned Aerial Vehicles, robotics etc.

Conclusion

GIS in agriculture that is gaining wide popularity due to the plethora of benefits it offers is that of precision agriculture. It enables farmers to collect timely geospatial information on soil-plant requirements and prescribe and apply site-specific treatments to increase agricultural production and protect the environment.

14. Examine the distortionary effects of minimum support price (MSP) on the agrarian economy. If MSPs are distortionary, then why can't the government abolish them? Explain.

Approach:

Candidate has to explain in depth the distortionary effects of minimum support price (MSP) on the agrarian economy. The candidate also has to explain why can't the government abolish them despite MSPs being distortionary.

Introduction

The minimum support price mechanism is in place from 1966-67 in the wake of Green Revolution. Minimum Support Price is the price at which government purchases crops from the farmers. Though the mechanism has saved the farmers from the depleting profits, it has resulted in market distortion and increasing farmer inequality.

Distortionary effect on agrarian economy:

- Almost, 2/3rd of the cereals is procured by the government through MSP leaving only 1/3rd to open market. As a result, a farmer who chooses the MSP route cannot take advantage of beneficial market prices and has to depend solely on the MSP. It prevents earning of profit by the producer.
- The government policy of MSP and PDS is challenged in the WTO as distortion to free trade.
- The procurement policy of FCI in the MSP mechanism has disadvantages like no auto liquidation, adverse countercyclical policy etc., results in inflation of food grains due to hoarding which in turn impact free economic prices.
- The government being the only player has little involvement from the private sector in MSP regime and hence a free and fair open competition is missing.
- MSP will set a cap on agriculture price and often it is seen that the prices stay below MSP which otherwise would have increased or decreased based on market forces.
- The present setup will affect the farmers directly selling their produce or the agents/mandis selling in to the open market.
- The announcement of MSP will often lead to surplus production which will distort the control of production by market forces. E.g., For example, price incentives given for pulses led to over-production price-collapse.
- MSP is successful mainly in irrigated areas with large production farms and therefore the rainfed areas with crop likes millets etc., doesn't benefit much from MSP and hence inequality is created.
- In most states, prices in mandis (wholesale markets) remain below MSP (minimum support price) for most of the season. These are causing the whole MSP policy to leave farmers dissatisfied and in distress.
- MSP favours big farmers due to high quantity of production.

- Without decentralized method of crop collection under MSP, small and marginal farmers are mostly not able to use the mechanism. It results in unequal distribution of profits and benefits.

Why Can't the Government Abolish Them Despite MSPs Being Distortionary?

- After the introduction of MSP, the farm cropped area increased by 10 % with a decade. The average yield due to investment by farmers by additional income because of MSP increased on an average 80% within decades. Apart from this, MSP benefitted farmers by
 - MSP acts like a buffer to protect the farmer in case the price of the commodity produced by the farmer falls below the market price due to bumper crop which causes a glut in the market.
 - It prevents distress sale by the farmer in case of a bumper crop and market demand is low to recover the cost of production. Further, it can also counter the agricultural distress brought on by natural hazards in the country.
 - Introduction of new crops like pulses in the MSP will encourage the farmers to grow nutritional crops. It will help in changing the cropping pattern which was long due.
 - A higher Minimum support price regime will also help in achieving the Government's target of doubling farmer's income by 2022.
 - Higher profits for the farmer will also help them to invest in necessary infrastructure and equipment.
 - Due to lack of sufficient penetration of agricultural insurance schemes farming has become a risky profession exposed to weather and price fluctuations.
 - The minimum support price to some extent will protect the farmer by guaranteeing a minimum floor price so that they can plan in advance for the next season.

Conclusion

NITI Aayog estimates an increase of up to 8% due to the hike in MSP in the latest budget. Thus, MSP with not an iota of doubt helps farmer. However, the reforms needed in procurement mechanism, FCI institutional overhaul with limited buffer stocks, connectivity, decentralized collection as well as diversifying the crop portfolio will help in realizing the objective of MSP.

15. How do farm subsidies hurt the framers in the long run? Explain. Do you think cash transfers are always a better alternative than subsidies? Critically examine.

Approach

Candidate has to discuss or debate on the assessment of the current statutory provisions for enforcing fiscal discipline in the Government and support his point with evidence or reasons.

Introduction:

Fiscal discipline should be maintained while the government is in pursuit of higher economic growth. In India, the committee for Fiscal Responsibility Legislation was constituted on January 17, 2000, to oversee the current fiscal system and recommend a draft legislation on the fiscal responsibility of the government. It was announced in the 2000–01 budget that the government intended to introduce an institutional mechanism to the Fiscal Responsibility Act to restore fiscal discipline.

Farm Subsidies Hurt the Framers in The Long Run

- On our finite planet, where natural resources are increasingly hard to come by, it's important for producers to focus on doing more with less.
- Farm subsidies tend to reduce incentives for producers to boost efficiency and shift their focus from crops to farming subsidies. As a result, many end up doing less with more.
- For example, India subsidises the cost of energy to pump water for agriculture, which encourages producers to pump more water than they need. This has made Indian producers among the world's least efficient water users. Given that food and water are in short supply, a more effective way to run the system would be to support those who produce more food with less water.
- Farm subsidies may also lead producers to overuse fertilisers or pesticides, which can result in soil degradation, groundwater depletion and other negative environmental impacts.
- In addition, these subsidies and price supports can also distort global commodity markets, affecting the global economy, and affect national security, food security and poverty.
- Unless handled carefully, farm subsidies could undermine efforts to promote efficiency and more sustainable agriculture. And that, in turn, could make many people reluctant to invest in sustainability at all.

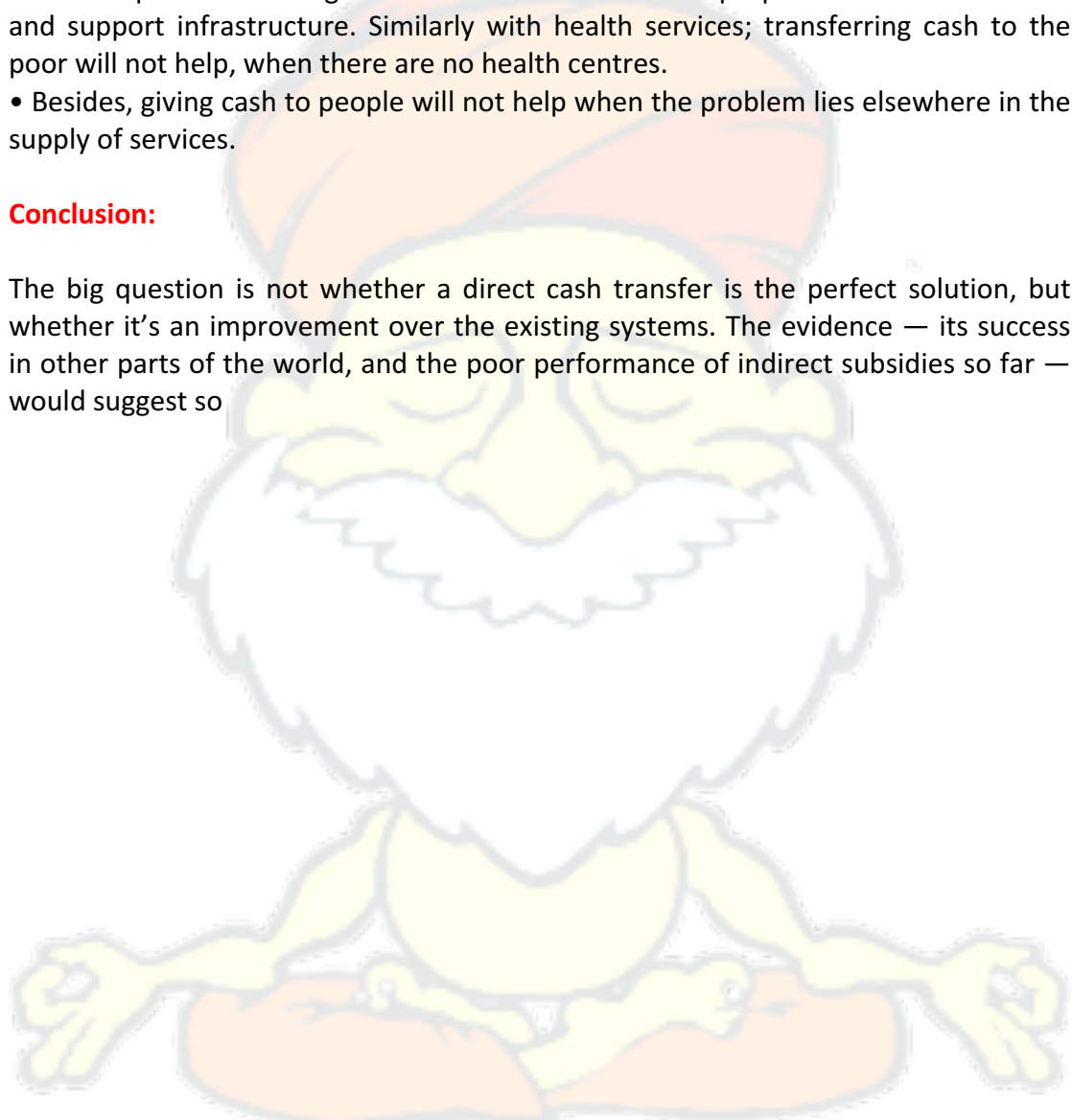
Are cash transfers always a better alternative than subsidies: Critical Examination

- The idea of directly giving money to the poor is becoming popular among the development thinkers and policy makers.
- Another advantage of cash subsidies is that it will free up the distribution system and allow the people who receive the subsidy to choose where they buy their goods from

- A cash transfer to a farmer - who actually needs a production subsidy — without any traceability, may end up as a consumption subsidy, spent on purchasing unknown goods and services rather than spending only on inputs for farm production.
- Cash transfers have become popular among the policy makers in India. Yet, it would be a folly to think of it as a magic bullet to cure poverty, or even that it would have the same results as it had in Brazil.
- A UNESCO survey found that while cash transfers increased school enrolments, it had no impact on learning itself when the school lacked proper instruction materials and support infrastructure. Similarly with health services; transferring cash to the poor will not help, when there are no health centres.
- Besides, giving cash to people will not help when the problem lies elsewhere in the supply of services.

Conclusion:

The big question is not whether a direct cash transfer is the perfect solution, but whether it's an improvement over the existing systems. The evidence — its success in other parts of the world, and the poor performance of indirect subsidies so far — would suggest so



16. The public distribution system (PDS) is the bedrock of food security in India. Do you agree? What are the key challenges faced by the PDS that impede the realisation of a food secure populace? Examine.

Approach

Candidates are expected to write about what is PDS and how it's a bedrock of food security in India. As question demands candidates need to write about the challenges faced by PDS system.

Introduction

Public distribution system is a government-sponsored chain of shops entrusted with the work of distributing basic food and non-food commodities to the needy sections of the society at very cheap prices. Wheat, rice, kerosene, sugar, etc. are a few major commodities distributed by the public distribution system.

Body

PDS ensures food security:

- It helps in ensuring Food and Nutritional Security of the nation.
- It has helped in stabilising food prices and making food available to the poor at affordable prices.
- It maintains the buffer stock of food grains in the warehouse so that the flow of food remain active even during the period of less agricultural food production.
- It has helped in redistribution of grains by supplying food from surplus regions of the country to deficient regions.
- The system of minimum support price and procurement has contributed to the increase in food grain production.

Challenges faced by PDS system:

- Wrong classification of economic status: Studies have shown that targeting mechanisms such as TPDS are prone to large inclusion and exclusion errors. This implies that entitled beneficiaries are not getting food grains while those that are ineligible are getting undue benefits. An expert group was set up in 2009 to advise the Ministry of Rural Development on the methodology for conducting the BPL census.
- Exclusion: It estimated that about 61% of the eligible population was excluded from the BPL list while 25% of non-poor households were included in the BPL list. Below Table categorizes states according to varying levels of errors of exclusion (of BPL families).
- Ghost Cards: Another indicator of inaccurate classification of beneficiaries is the existence of ghost cards in several states. "Ghost cards" are cards made in the name of non-existent people. The existence of ghost cards indicates that grains are diverted from deserving households into the open market.

- Missing Households Error: Assam, Bihar, Himachal Pradesh, Punjab and West Bengal have exhibited high Missing Households Error. Since no cards have been issued to these households, Missing Households Error implies welfare loss to the extent the BPL households have been left out of purview of TPDS.
- Rising Food Subsidy: The cost of handling food grains (MSP and other costs) has increased due to rising costs of production and increasing costs for handling and distributing food grains.¹⁴ The cost of producing rice and wheat has gone up primarily due to sharply rising input costs such as labour and energy costs, including fertilisers.
- Issues with storage: A performance audit by the CAG has revealed a serious shortfall in the government's storage capacity. Given the increasing procurement and incidents of rotting food grains, the lack of adequate covered storage is bound to be a cause for concern.

Reforms initiated:

- Recently, the Supreme Court directed all states and Union Territories (UT) to implement the One Nation, One Ration Card (ONORC) system by 31st July 2021. Introducing ONORC aims at reforming the PDS, which faces challenges like inefficiency and leakages.
- Technology-based reforms of TPDS implemented by states: Wadhwa Committee, appointed by the Supreme court, found that certain states had implemented computerisation and other technology-based reforms to TPDS. Technology-based reforms helped plug leakages of food grains during TPDS.
- Role of Aadhar: Integrating Aadhar with TPDS will help in better identification of beneficiaries and address the problem of inclusion and exclusion errors.
- States such as Chhattisgarh and Madhya Pradesh have implemented IT measures to streamline TPDS, through the digitisation of ration cards, the use of GPS tracking of delivery, and the use of SMS based monitoring by citizens.

Conclusion

Public distribution system is an essential method to provide food grains to the needy and also ensure fair remuneration to farmers. Thus, the technological advancement are necessary to weed out bogus beneficiaries and avoid economic losses to the state and also reach out to all the intended beneficiaries. But this focus on technology should not lead to eligible beneficiaries being neglected due to lack of digital and technological literacy. Therefore government needs to educate and impart empathy in all stakeholders dealing with the public distribution system.

17. What do you understand by buffer stocks? What are the current policies related to buffer stocks? Examine.

Approach-

A simple straightforward question where candidates need to write about buffer stocks in first part and in second part write about current policies relate to buffer stock .

Introduction-

Buffer stocks refer to a pool of certain commodities like Rice, Wheat, etc which are maintained to provide food security and tackle unforeseen emergencies like drought, famine, wars, etc .Maintaining a buffer stock is an important constituent of the Government's food policy, These are procured by government of India through food corporation of India.

Body-

- Buffer stock refers to a reserve of a commodity that is used to offset price fluctuations and unforeseen emergencies. It is generally maintained for essential commodities and necessities like food grains, pulses etc.
- The concept of buffer stock was first introduced during the 4th Five Year Plan (1969-74).
- Buffer stock of food grains in the Central Pool is maintained by the Government of India (GOI) / Central Government for meeting the prescribed minimum buffer stock norms for food security.
- Monthly release of food grains for supply through Targeted Public Distribution System (TPDS) and Other Welfare Schemes (OWS), meeting emergency situations arising out of unexpected crop failure, natural disasters, etc., and Price stabilisation or market intervention to augment supply so as to help moderate the open market prices.
- The Cabinet Committee on Economic Affairs fixes the minimum buffer norms on quarterly basis: i.e. as on 1st April, 1st July, 1st October and 1st January of every financial year.
- Government has engaged National Agricultural Cooperative Marketing Federation of India Limited (NAFED), Small Farmers Agri-business Consortium (SFAC) and Food Corporation of India (FCI) to procure pulses for buffer stock.
- In addition to buffer norms, Government of India has prescribed a strategic reserve of 30 lakh tonnes of wheat w.e.f. 01.07.2008 and 20 lakh tonnes of rice w.e.f. 01.01.2009.
- At present, GoI prefers to use the term – Food grain stocking norms – which refers to the level of stock in the Central Pool that is sufficient to meet the operational requirement of food grains and exigencies at any point of time. Earlier this concept was termed as Buffer Norms and Strategic Reserve.

- Presently, stocking norms fixed by Government of India on 22.01.2015 comprise of:
- Operational stocks: for meeting monthly distributional requirement under TPDS and OWS.
- Food security stocks/reserves: for meeting shortfall in procurement.
- While four months requirement of food grains for issue under TPDS and OWS are earmarked as operational stocks, the surplus over that is treated as buffer stock and physically both buffer and operational stocks are merged into one and are not distinguishable.
- According to the present practice, the GOI treats the food stock over and above the minimum norms as Excess stock and liquidates them from time to time through exports, open market sales or additional allocations to states.
- The buffer stock figures are normally reviewed after every five years.

Current Buffer Stock Policy of Government:

- The current buffer norms were reviewed in January 2015. According to the new norms, the central pool should have 41.1 million tonnes of rice and wheat on July 1 and 30.7 million tonnes on October 1 every year.
- These limits were 32 million tonnes and 21 million tonnes earlier. The stocking norms for the quarters beginning January'1 and April'1 have been revised only slightly.
- Main drivers for increased buffer stocks were increased off take from the targeted public distribution system and also enactment of National Food Security Act.
- It was observed that Food Corporation of India buys almost one third of the total rice and wheat produced in the country at minimum support prices. It does imply that denying to any farmer who wants to sell his produce at MSP. But then it also needs to maintain an excessive, incontrollable and monetarily troublesome food inventory.
- Previously, once the buffer norms were met, cabinet approval was needed to sell any part of it in the open market. But in January 2015, it is revised. The current policy is that Food Ministry is authorized to dispose the surplus stock into open market without seeking cabinet approval. This was a major policy decision and it was needed to resolve the problem of burdensome inventories at Food Corporation of India and misrepresentation created in market.

Conclusion-

Buffer stock system is a government scheme that is used for the purpose of stabilizing prices in a volatile market in which stocks are bought and stored during good harvests in order to disallow prices from falling below the price level. These stocks help in uniform distribution of food materials in different parts of the country.

18. What is mixed farming? Discuss its potential as a measure of enhancing farmers' income in India.

Approach-

A simple straightforward question where candidates first need write about definition of mixed farming. And in second part discuss the potential of mixed farming for enhancement of farmer's income in India .

Introduction-

The cultivation of crops alongside the rearing of animals for meat or eggs or milk defines mixed farming. For example, a mixed farm may grow cereal crops such as wheat or rye and also keep cattle, sheep, pigs or poultry. Mixed farming will provide more return as the by-products like manure, biofuel, fodder, animal products will be utilised. This will help farmers to enhance their incomes .

Body-

The main characteristics of the mixed farming are that farms produce both crops and livestock and the two enterprises are interwoven and integrated

- Optimum diversity may be obtained by integrating both crops and livestock in the same farming operation.
- Mixed crop along with livestock operations have several advantages
- Growing crops only on more level land and pastures or forages on steeper slopes will reduce soil erosion.
- Pasture and leguminous forage crops in rotation enhance soil quality and reduce erosion; livestock manure, in turn, contributes to soil fertility.
- Livestock can buffer the negative impacts of low rainfall periods by consuming crop residue which in "plant only" systems would have been considered crop failure.
- Feeding and marketing are flexible in animal production systems. This can help cushion farmers against price fluctuations and, make more efficient use of farm labour

Advantages of Mixed farming:

- Farmers can keep their fields under continuous production.
- It enhances the productivity of the farmland.
- It increases the per capita profitability.
- Both farming's complement each other.
- It enhances the productivity of the farmer also.
- In the example of mixed cropping of animal husbandry and crop farming, the crops and animals components can complement and support each other. For example, the crop farming gives feed to the animals, and in turn, the animals

can supply fertilizers to the crop. So this reduces the need and cost of fertilization and animals feed.

How mixed farming will increase farmers income ;

- Income diversification of farmers. In case of droughts, animals act as social security , farmers can earn income from dairy production etc
- Provides organic manure, fodder (in case of agro forestry), as well as other animal products like skin hides etc.
- Maintains health of soil and land ecosystem.
- These techniques thus help farmers adapt to drought conditions, and are essential for their economic, social and ecological benefits in rain fed areas.
- Mixed farming can reduce the need of chemical fertilizers if one of the crops is a leguminous crop and can economically safeguard the farmer.
- Crops in mixed farming differ in water need, one may be a drought resistant and other may be water intensive. Damage to the overall yield is minimized in case of drought.
- Mixed cropping makes farmland supple and nurtured for another crop due to the nitrogen fixation and some crops may act as bio fertilizers.
- Different crops are produced in same harvesting season is another advantage.
- Mixed farming benefits the farmer throughout the year as the farming produce is used in animal rearing and animals in turn are used in the farm.
- Buffaloes and certain varieties of milch animals are drought resistant giving respite to farmers in case of droughts.
- Mixed farming keeps farmers engaged in work throughout the year.
- Mixed farming also includes pisciculture ,pig rearing ,apiculture etc that means income can be generated from diverse sources. All these sources are not affected in case drought occurs giving farmer a sigh of relief.
- Both the techniques of the mixed farming and mixed cropping are friends to a farmer incase weather and other factors turns foe. But these techniques need an to an overhaul. Schemes like Soil Health Card, Neem coated urea etc can be of utmost importance as far these techniques are concerned.

Conclusion –

The low level of farmers' income and year to year fluctuations in it are a major source of agrarian distress.To secure the future of agriculture and to improve the livelihood of half of India's population many initiatives needs to be taken like mixed farming ,integrated farming to improve the welfare of farmers and raise agricultural income.

19. Examine the role played by livestock in the rural economy. What measures have been announced by the government to promote the livestock economy? Discuss.

Approach:

Candidate has to explain the role played by livestock in the rural economy. The candidate also has to explain the measures that have been announced by the government to promote the livestock economy.

Introduction

Livestock plays an important role in Indian economy. About 20.5 million people depend upon livestock for their livelihood. Livestock contributed 16% to the income of small farm households as against an average of 14% for all rural households. Livestock provides livelihood to two-third of rural community. It also provides employment to about 8.8 % of the population in India. India has vast livestock resources. Livestock sector contributes 4.11% GDP and 25.6% of total Agriculture GDP.

The Role Played by Livestock in The Rural Economy

- The livestock plays an important role in the rural economy. The farmers in India maintain mixed farming system i.e., a combination of crop and livestock where the output of one enterprise becomes the input of another enterprise thereby realize the resource efficiency. The livestock serve the farmers in different ways.
- Livestock is a source of subsidiary income for many families in India especially the resource poor who maintain few heads of animals.
- Cows and buffaloes if in milk will provide regular income to the livestock farmers through sale of milk.
- Animals like sheep and goat serve as sources of income during emergencies to meet exigencies like marriages, treatment of sick persons, children education, repair of houses etc. and also serve as moving banks and assets which provide economic security to the owners.
- agriculture being seasonal in nature could provide employment for a maximum of 180 days in a year. The landless and less land people depend upon livestock for utilizing their labour during lean agricultural season.
- The livestock products such as milk, meat and eggs are an important source of animal protein to the members of the livestock owners. The per capita availability of milk is around 375 g / day; eggs is 74 / annum during 2017-18.
- The bullocks are the back bone of Indian agriculture. The farmers especially the marginal and small depend upon bullocks for ploughing, carting and transport of both inputs and outputs.

- In rural areas dung is used for several purposes which include fuel (dung cakes), fertilizer (farm yard manure), and plastering material (poor man's cement).

Measures Announced by The Government to promote the Livestock Economy

- Policymakers in India are finally acknowledging a structural shift in the agriculture sector they have been noticing for a decade.
- Livestock now controls a quarter of the agriculture gross domestic product (GDP).
- The livestock sector in India is performing well in the manner of production, value addition, and export of dairy, fishery, wool, poultry, and other products.
- Prime Minister, Mr. Narendra Modi launched National Animal Disease Control Programme (NADCP), expected to eradicate foot and mouth disease (FMD) and brucellosis in livestock.
- The government launched the PM Matsya Sampada Yojana, e-Gopala App and several initiatives in fisheries production, dairy, animal husbandry and agriculture. Under this scheme, an investment of US\$ 2.7 billion will be made in the next 4-5 years in 21 states.
- The Government announced the launch of an animal husbandry infrastructure development fund of US\$ 2.13 billion.

Conclusion:

As we know from the experience of Operation flood that if steps are taken in the right direction, then desired outcome can be achieved. Hence, we can say that Indian livestock sector can compete with the global livestock sector as it has tremendous potential for its growth and development provided the lacunas are addressed.

20. Do you think India should embrace genetically modified crops like many western countries? Why or why not? Substantiate your views.

Approach

Candidate has to discuss or debate on the assessment of the current statutory provisions for enforcing fiscal discipline in the Government and support his point with evidence or reasons.

Introduction:

A GM or transgenic crop is a plant that has a novel combination of genetic material obtained through the use of modern biotechnology. It is a technology that involves inserting DNA into the genome of an organism. To produce a GM plant, new DNA is transferred into plant cells. Usually, the cells are then grown in tissue culture where they develop into plants. The seeds produced by these plants will inherit the new DNA.

India should embrace genetically modified crops like many western countries:

India should be ready to embrace genetically modified crops as our resources like water and land are limited with rapidly increasing population due to the following reasons:

- GMOs crops using BT toxin are 100% safe for consumption to the humans, they only kill insects
- Since the first widespread commercialisation of GM crops produced 18 years ago there has been no evidence of ill effects linked to the consumption of any approved GM crops
- It is estimated that the application of 450,000 tons of insecticide has been avoided due to the use of BT toxin genes in crops
- More nutritious food.
- Tastier food.
- Disease- and drought-resistant plants that require fewer environmental resources (such as water and fertilizer)
- Less use of pesticides.
- Increased supply of food with reduced cost and longer shelf life.
- Faster growing plants and animals.
- Crop biotechnology has contributed to significantly reducing the release of greenhouse gas emissions from agricultural practices.
- This results from less fuel use and additional soil carbon storage from reduced tillage with GM crops.

- The introduction of Bt cotton has been both highly successful and controversial. Cotton yield more than doubled in the first decade since its introduction in 2002.
- At the same time, it was also shadowed by controversy, with a tangle of pricing and intellectual property rights (IPR) issues followed by government price interventions and litigation.

Concerns Associated:

But there is a need to be cautious and few things do need to be taken care of. The concerns include:

- The technology of genetic engineering is an evolving one and there is much, especially on its impact on human health and environment that is yet to be understood properly.
- The scientific community itself seems uncertain about this. While there are many in this community who feel that the benefits outweigh the risks, others point to the irreversibility of this technology and uncontrollability of the Genetically Modified Organisms (GMO) once introduced in the ecosystem.

Conclusion:

Many important crops like rice, brinjal, and mustard, among others, originated here, and introducing genetically modified versions of these crops could be a major threat to the vast number of domestic and wild varieties of these crops. In fact, globally, there is a clear view that GM crops must not be introduced in centres of origin and diversity. India also has mega biodiversity hotspots like the Eastern Himalayas and the Western Ghats which are rich in biodiversity yet ecologically very sensitive. Hence it will only be prudent for us to be careful before we jump on to the bandwagon of any technology.

21. Our attitude towards life determines life's attitude towards us. Elucidate.**Approach**

Candidates are expected to elucidate or highlight by giving examples how Our attitude towards life determines life's attitude towards us.

Introduction

“Your living is determined not so much by what life brings to you as by the attitude you bring to life; not so much by what happens to you as by the way your mind looks at what happens.” In life, how high we fly and how far we will go is determined by the attitudes we take. Attitudes do make a difference.

Our attitude towards life determines life's attitude towards us

- Attitude is everything when it comes to achieving a goal, and tackling a setback or problem.
- When you're able to have a positive mindset, you'll be able to break free of your limitations that are holding you back.
- A positive attitude also goes a long way in ensuring you come out victorious from whatever limitations that were holding you back before. It transforms not just your mental state, but your physical and emotional well being. It is the key to lasting total transformation.
- Everything is not always going to turn out the way we want it to turn out. That's not how life is and anyone who think everything is going to work out the way we want it to work out is wrong.
- Our attitude sets the tone for every action and behaviour that follows after, and that will determine how long it takes for us to break free from our current circumstance.
- Life is full of up and downs, ins and out, and one should just ride the wave of life and stay positive along the way. It's amazing how awesome life can be if one keeps the right attitude.
- Correct attitudes make you powerful in coping with other people to ensure that it is possible to be effective as a leader.
- Among the very first qualities men and women notice when they meet you is what you attitude is towards whatever you're responsible for.
- If your attitudes are negative, then you might want to undergo an attitude tune-up.
- Salesmen using the ideal attitude beat their sales quotas; students using the proper attitudes make A's. Suitable attitudes pave the way to a truly happy married life.
- We determine our own reality. People with a positive attitude experience a positive life and handle their lives better. The way we think about things is

the way our reality really is. That can be an issue if we are not a happy and things aren't going in the right direction.

- One should believe that he can do it and that change can occur. We have been given a wonderful opportunity, all we have to do is start to make the shifts gain the momentum and change.

Conclusion

It's our attitude towards life that determines life's attitude towards us. Our external world is a mirror of your internal world. Our habitual attitudes shape the course of our life and the lives of those around us. We have to consciously, boldly and deliberately take hold of our thoughts and feelings and redirect them toward prosperity and success.



22. Adopting the right attitude can convert a negative stress into a positive one. Do you agree? Explain with the help of suitable examples.

Approach-

A simple straightforward question where candidates have to explain his views on if adopting the right attitude can convert a negative stress into a positive one. Also, the candidate has to support his view with examples.

Introduction

When we're stuck in a mess, often the first thoughts that run through our head are negative, thus our outlook likely becomes pessimistic. But, if we can transform those thoughts into more positive ones, then we're on your way to talking yourself out of that rut, which allows us to move forward. Hence, I believe that adopting the right attitude can convert a negative stress into a positive one.

Adopting the right attitude can convert a negative stress into a positive one: suitable examples

- Researchers studying the effects of positive thinking and optimism on health have also found that positive thinking may provide increased life span, better cardiovascular health and reduced risk of death from cardiovascular disease, and even greater resistance to the common cold!
- It's unclear why people who engage in positive thinking experience these health benefits, but one theory is that having a positive outlook enables you to cope better with stressful situations, which reduces the harmful health effects of stress on your body.
- It's also thought that positive and optimistic people tend to live healthier lifestyles — they get more physical activity, follow a healthier diet, and don't smoke or drink alcohol in excess.
- Attitude is everything when it comes to achieving a goal, and tackling a setback or problem.
- When we're able to have a positive mindset, we will be able to break free of our limitations that are holding us back.
- It is proven scientifically that a body produces a large number of hormones that reduce stress and anxiety when breaking a routine with a relaxing exercise.
- So, when we think we are not feeling very well, or after doing a lot of work make some breaks happen, breath some fresh air, walk around, eat something, and try not to think about the much of work we have is heavy and change our attitude.
- A positive attitude also goes a long way in ensuring we come out victorious from whatever limitations that were holding us back before. It transforms not just our mental state, but our physical and emotional wellbeing.

Conclusion

Your attitude sets the tone for every action and behaviour that follows after, and that will determine how long it takes for you to break free from your current circumstance. The key is to surround yourself with positive influences that can help turn those negative thoughts into positive, more productive actions. We'll not only feel better about the situation, but in the long run, positive thinking can lower our levels of distress and depression and give us better coping skills during hardships also.



23. Do you think attitude is equally important as ability for success? Substantiate your views.

Approach-

A simple straightforward question where candidates need to explain definition of attitude and role played by attitude in achieving success. Give your opinion about it and substantiate your points with examples.

Introduction-

Attitudes are views, beliefs, or evaluations of people about something (the attitude object). The attitude object can be a person, place, thing, ideology, or an event. Attitudes can be positive or negative. It plays an important role in achieving success in whatever endeavour one takes.

Body-

Attitude is always about "Something". It's a state of mind- your positive/negative feeling towards a person, object, event, idea, and environment. It determines how people will arrive at a correct judgement.

Positive attitude

Optimism, Tolerant, Persistent, Modest Humble, Cooperative, Cheerful, Jealous.

Negative attitude-

Pessimism, Content, Cynical, Inferiority superiority, Intolerant, Rigid.

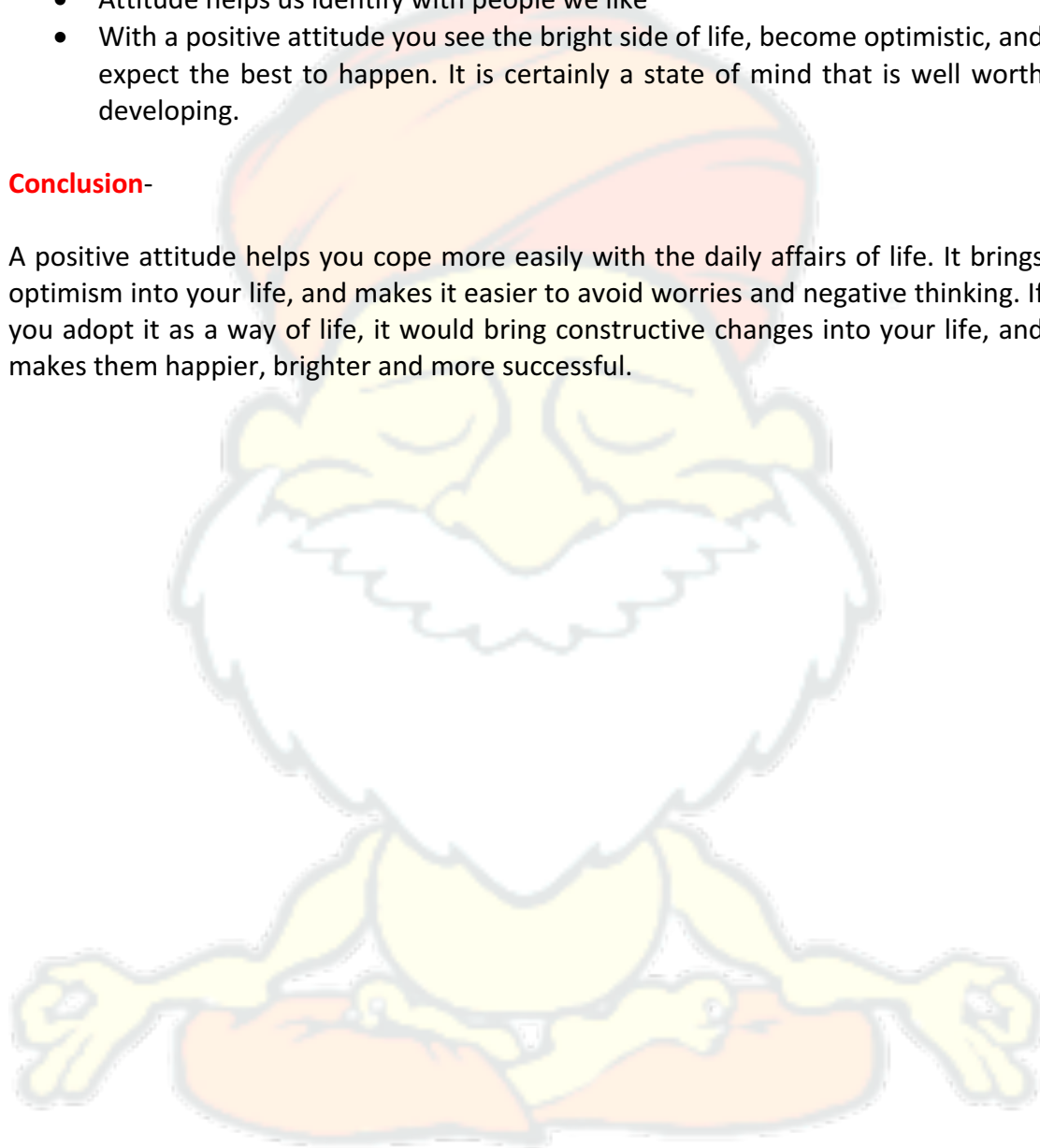
Attitude: Salient Features

- Attitudes are directed towards an object, event, person or organization and give specific reaction to them.
- Attitude affects group behaviour e.g. Jury service, racial prejudice, work environment, voting pattern and more
- They can be explicit – formed by recent events
- They can be implicit- derived from past memories and traumatic experiences.
- They protect us from acknowledging harsh realities of life and thereby help coping up with emotional conflict.
- They're situational.
- Some thinkers say Attitude is permanent, forms habit and becomes predictable

- Some thinkers say Attitude is tentative- a person will form attitude from his past experience but if new situation comes he'll evaluate and change attitude. Thus, Attitudes are spontaneous reaction to environment.
- Persuasion can change attitude of a person. If a trustworthy, expert, likable person says, "rich people's love for fur-clothes has led to extinction of xyz Species". Then next time you see a rich lady, you'll feel repulsed. Attitudes help us approach beneficial things and avoid harmful things.
- Attitude helps us identify with people we like
- With a positive attitude you see the bright side of life, become optimistic, and expect the best to happen. It is certainly a state of mind that is well worth developing.

Conclusion-

A positive attitude helps you cope more easily with the daily affairs of life. It brings optimism into your life, and makes it easier to avoid worries and negative thinking. If you adopt it as a way of life, it would bring constructive changes into your life, and makes them happier, brighter and more successful.



24. Is it easy to change the public attitude? Why or why not? Can a nation grow without a populace with the right attitude? Discuss.

Approach-

In this question candidates need to write about public attitude, Can it be change and if not why it can't. Write points about is nation can grow without populace with right attitude. Give examples to substantiate your points.

Introduction-

Attitude is what an individual or a group think or feel about something which decides one's behaviour towards a situation/an individual. Social influence refers to the way in which individuals change their behaviour to meet the demands of a social environment. The social interaction influences the attitude of an individual/group and thus a major determinant of the behaviour.

Body-

Social Influence transforming the attitude of a group:

People actually form opinions on issue, as well as what sorts of opinions they form, depends partly on their immediate situations, partly on more-general social-environmental factors, and partly on their pre-existing knowledge, attitudes, and values.

- A group, social influence shapes/transforms its attitude. E.g. the apathy or the approval shown by the society on Mob lynching is a main reason for them to have an attitude of 'Chalta hai' and hence perpetuating it.
- The more aware citizens with increasing literacy and general knowledge is changing the attitude of government departments including police who are changing their ways of working to be more accommodative. E.g. citizen vigilance apps, proactive participation and discipline of Ralegan siddhi village has influencing the attitude of district administration seeing them as partners in development etc.
- In the same way, social disapproval of Khap panchayats in several villages of Haryana has led to the Khap panchayats changing their attitude towards dealing with problems be it be on love marriage or property conflicts or untouchability etc.

Herbert Kelman has identified 3 ways of social influencing transforming attitude:

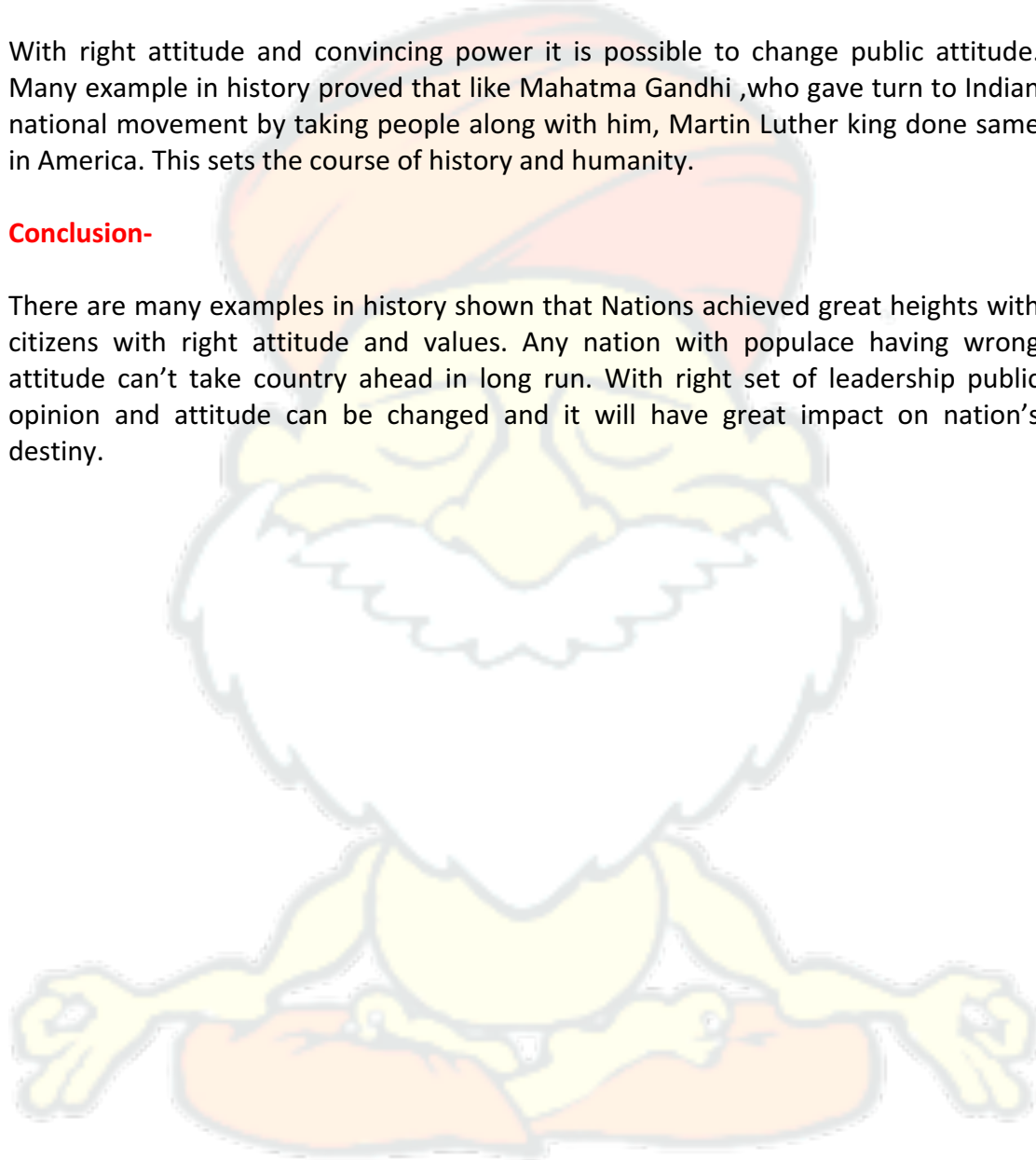
- Compliance: Influence being temporary only to comply with the norms or rule with or without actually believing in it. E.g. following traffic rules etc.,

- Identification: when an individual/group is influenced by an event or a personality and try to conform oneself/itself to that ideology. E.g. A political party with communist ideology etc.
- Internalization: It occurs when an individual or a group not only align their attitude as per the social influence but also believe in it as it matched their value system. E.g. Anna Hazare following Mahatma Gandhi and his ideas, Ashrams following ideas of certain Gurus (E.g. Basaveshwara) etc.,

With right attitude and convincing power it is possible to change public attitude. Many example in history proved that like Mahatma Gandhi ,who gave turn to Indian national movement by taking people along with him, Martin Luther king done same in America. This sets the course of history and humanity.

Conclusion-

There are many examples in history shown that Nations achieved great heights with citizens with right attitude and values. Any nation with populace having wrong attitude can't take country ahead in long run. With right set of leadership public opinion and attitude can be changed and it will have great impact on nation's destiny.



25. Civilization is a method of living, an attitude of equal respect for all men. What do you understand by this statement? Explain.

Approach

Candidates are expected to write about civilisation, and then analyse the statement link civilisation with the method style of living and attitude of respecting all. Explain the relevance of the statement.

Introduction

A civilization is a complex human society, usually made up of different cities, with certain characteristics of cultural and technological development. In many parts of the world, early civilizations formed when people began coming together in urban settlements.

Body

- Consider India under the caste system or America in the slave era. Yes, both were powerful and influential civilizations in their time, but were they civil towards even their own.
- It is important to point out that equal respect doesn't guarantee equal results. One could treat a worthy sailor and a pirate with equal respect, but get different results, right. And just because you respect someone else, doesn't mean they will respect you.
- The essence of Indian civilisation lies in harbouring diverse and distinct identities, ethnicities, languages, religions and culinary preferences. History stands witness to the fact that the civilisation that have struggled to hold differences were shattered in such an attempt.
- Hence it is important to at least offer respect to all, even though they may not exactly deserve it, and most especially if they don't return it.
- By showing the same respect for all, I try to show that I hold no one above me, and no one below me. To me, they are all equals. It is up to them to prove themselves otherwise. And trust me, some try. Most are successful, but few in the direction they though they were trying to prove.

Civilisations a method of living and respect for all makes think:

- Beyond work, how do you treat a waiter or waitress at a restaurant. Are you mean, demanding, or gruff. Do you treat them as equals, or do you treat them as if they were beneath you, as if they were a servant or a lackey.
- What about in the grocery store. How do you treat a cashier when you're in a hurry, and they're moving a little slow (or having to get a manager to help, or change the paper in the printer). Are your actions those of an equal or a master who is displeased with a servant.

Conclusion

The light of ancient Indian civilisation life is yet glowing. Many invasions occurred, many rulers changed, many laws were passed but even today, the traditional institutions, religion, epics, literature, philosophy, traditions, etc. are alive. Despite inherent difference Indian society celebrates unity in diversity which reflects in modern India's founding principles and constitutional ideals.



26. What are the key objectives of India's current Foreign Trade Policy (FTP)? What Are the areas of concern that the next trade policy should focus on? Why? Discuss.

Approach-

In this question candidates need to explain what are key objectives of India's current foreign trade policy .What are areas of concern that in next trade policy India should focus on. Discuss in detail.

Introduction-

India is known as one of the most important and emerging player in the global economy. Its foreign trade policies and government reforms have made it a significant destination for foreign investments around the world. Also, technological and infrastructural developments being carried out all over the country enable efficient trade and economic practices. For the successful economic development of a country, a vigorous foreign trade policy is of great importance.

Body-

Trade enables economic growth and national development. The main aim is not the mere earning of foreign exchange, but encouraging greater economic activity. The foreign trade policy of India is based on the following major objectives as follows:

Objectives of the Foreign Trade Policy in India

- To enable substantial growth in exports from India and import to India to boost the economy.
- To at least double the percentage share of global merchandise trade conducted within the next five years.
- To improve the balance of payment and trade.
- To act as an effective instrument of economic growth by creating employment opportunities for the citizens; the larger the expansion of trade activities, the more the workforce required.
- To provide for sustainable growth by giving access to essential raw materials for production and other components, consumables, and capital goods required for increasing production and providing efficient services.
- To raise the technological capacity for production and cost-effectiveness of industry and services, thereby improving their competitive strength in comparison to other countries, and to encourage the accomplishment of internationally accepted standards of quality.
- To provide buyers or clients with high-quality goods and services at globally competitive rates and quality. 'Canalization'- an important feature of Foreign Trade Policy under which specific class of goods can be imported only by designated agencies.

- Creation of opportunities by engaging in good and ethical practices.
- Accelerating the economy from low-level economic activities to high-level economic activities by making it a globally oriented and vibrant economy
- To derive maximum benefits from expanding the global market and seizing the best opportunities available.

India's Apprehensions in New Trade Regime

- India's lost opportunities: India lost out to China mainly due to absence of reforms and missing out on the manufacturing stage, hopping directly to the service sector for its growth and employment.
- This (over) reliance of India on service sector proved costly as it impacted its capacity building in manufacturing and absorbed only the skilled and educated labour, leaving behind a vast population.
- This also impacted India's prowess in global exports and trade, especially in perspective of 'America First' policy and protectionism of the US.
- RCEP anxiety: In the run-up to the RCEP negotiations, India hardly saw any benefits from joining the RCEP.
- The experience of India's FTAs with Asian countries has shown that the Indian industry has not experienced the anticipated gains as it did not undertake the reforms needed to improve competitiveness.
- By that implication, joining the RCEP would pose a problem. But it would then compel India to undertake requisite reforms and become competitive.
- Losing to China: The real loss in this period, however, has been through the growing trade with China.
- All that is imported was being made and can be made in India.
- Impact of Free Trade: Globally, there is stagnant demand in the West, excess, competitive manufacturing capacity in China and huge growing demand in India.

Way Forward

- India needs to take a hard look at its choices. Creating global competitiveness and doing all that it takes to do so, including abandoning conventional ways of thinking, cannot be delayed.
- Smarter, creative policies for developing and nurturing the nation's industrial and technological capacities need to be crafted.

Conclusion-

Foreign trade policy enables a nation to import certain products at the time of a natural calamity and therefore manage scarcity when demand is high by providing better quality and quantity of goods. It also assists in raising the standard of living and making commodities available at a lower cost. Therefore, the Foreign Trade Policy in India is a complete policy to enhance the position of India in the international market and create benefits for all.

27. What are the key areas of improvement in India's current industrial policy? Framework to make India a key participant in global supply chains? Elaborate.**Approach**

In this question candidate need to write about what is India's current industrial policy and key area of improvement in that. In second part of question write about what is framework to make India a key participant in global supply chains.

Introduction

An industrial policy (IP) or industrial strategy of a country is its official strategic effort to encourage the development and growth of all or part of the economy, often focused on all or part of the manufacturing sector. The government takes measures "aimed at improving the competitiveness and capabilities of domestic firms and promoting structural transformation's country's infrastructure (including transportation, telecommunications and energy industry) is a major enabler of the wider economy and so often has a key role in IP.

Body

India can play a significant role in reshaping supply chains and could contribute more than \$500 billion annually to the global economy by 2030, according to a report put out recently by global consulting firm Kearney, together with the World Economic Forum (WEF).

Features of New Industrial Policy-

- De-reservation of Public sector: Sectors that were earlier exclusively reserved for public sector were reduced. However, pre-eminent place of public sector in 5 core areas like arms and ammunition, atomic energy, mineral oils, rail transport and mining was continued.
- Presently, only two sectors- Atomic Energy and Railway operations- are reserved exclusively for the public sector.
- De-licensing: Abolition of Industrial Licensing for all projects except for a short list of industries.
- There are only 4 industries at present related to security, strategic and environmental concerns, where an industrial license is currently required-
- Electronic aerospace and defence equipment
- Specified hazardous chemicals
- Industrial explosives
- Cigars and cigarettes of tobacco and manufactured tobacco substitutes
- Disinvestment of Public Sector:
- Government stakes in Public Sector Enterprises were reduced to enhance their efficiency and competitiveness.
- Liberalisation of Foreign Investment: This was the first Industrial policy in which foreign companies were allowed to have majority stake in India. In 47

high priority industries, upto 51% FDI was allowed. For export trading houses, FDI up to 74% was allowed.

- Today, there are numerous sectors in the economy where government allows 100% FDI.
- Foreign Technology Agreement: Automatic approvals for technology related agreements.
- MRTP Act was amended to remove the threshold limits of assets in respect of MRTP companies and dominant undertakings. MRTP Act was replaced by the Competition Act 2002.

Areas of improvement in Industrial Policies in India-

- Stagnation of Manufacturing Sector: Industrial policies in India have failed to push manufacturing sector whose contribution to GDP is stagnated at about 16% since 1991.
- Distortions in industrial pattern owing to selective inflow of investments: In the current phase of investment following liberalisation, while substantial investments have been flowing into a few industries, there is concern over the slow pace of investments in many basic and strategic industries such as engineering, power, machine tools, etc.
- Displacement of labour: Restructuring and modernisation of industries as a sequel to the new industrial policy led to displacement of labour.
- Absence of incentives for raising efficiency: Focussing attention on internal liberalisation without adequate emphasis on trade policy reforms resulted in 'consumption-led growth' rather than 'investment' or 'export-led growth'.
- Vaguely defined industrial location policy: The New Industrial Policy, while emphasised the detrimental effects of damage to the environment, failed to define a proper industrial location policy, which could ensure a pollution free development of industrial climate.

Way Forward-

- When analysed by sector, the Indian manufacturing ecosystem's competitiveness could be viewed in four distinct clusters: sectors where our manufacturing ecosystem is already globally competitive, and well geared up to rise to the occasion, such as pharma, specialty chemicals, agrochemicals, gems & jewellery; sectors where the PLI (production-linked incentive) schemes are now creating an advantageous position for Indian manufacturers, such as mobile phones, electronics, technical textiles.

Conclusion-

There is a need for a new Industrial Policy to boost the manufacturing sector in the country. Government in December 2018 also felt the need to introduce a new Industrial Policy that would be a road map for all business enterprises in the country.

28. What are the impediments to the growth of a robust solar industry in India? What measures would you suggest to overcome those? Discuss.

Approach

Candidates are expected to write about current solar capacity and aims. Then simply write about impediments of solar industry. Also highlight the required measures to improve.

Introduction:

India's current installed solar power capacity, according to Central electricity authority, is 26025.97 MW which is 34% of total renewable energy sources. India's Intended Nationally Determined Contributions (INDC's) commitment include 100 GW of solar power out of 175 GW renewable energy by 2022.

Body

Impediments:

- Chinese dependency: We are heavily dependent on China for PV cells, modules, and other associated products. The low-priced Chinese imports do not let Indian manufacturing to flourish. The dumping of low-cost equipment is a threat to the profitability of local manufacturers.
- Skill manpower: Though the skilling of the workforce is included in the policy support measure for the solar sector, the skilling requirement for the sector is very high and India is not keeping up the pace.
- COVID 19: The ongoing solar projects have been halted and the developers are concerned about the cost escalations due to domestic lockdowns and production cuts in China.
- Solar irradiance: The variable power flow due to the fluctuation of solar irradiance and temperature are some of the parameters that affect the capability of industry.
- Cost of production and equipments: The initial installation costs are very high as of now so they are not affordable to a large section of the population. The battery requirements, inverter, wiring, and installation takes up a large amount of cost.
- Land availability: Per capita land availability is a scarce resource in India. Dedication of land area for exclusive installation of solar cells have to compete with other necessities that require land. It is a space-intensive method of energy production. The more energy production you require, the more space you will need.
- Maintenance: Maintenance Solar panels require considerable maintenance as they are fragile and can be easily damaged. So, extra expenses are incurred as additional insurance costs.

- Financial instability : Several discoms, the ultimate buyers of power, are in a poor financial condition. Hence, payment delays and rising receivables can upset both financial plans as well as cash flow management.
- Education: PV systems present a new and unfamiliar technology; few people understand value and feasibility. This lack of information slows market and technological growth.
- Silicon panel industry losing: A big bulk of the new investments in green energy went into silicon panels, which were powered by the sun. However, the slow pace of development in the last few years is now bringing the industry on the verge of a shutdown.

Government initiatives:

- National Solar Mission addressing India's energy security challenge.
- National institute of solar energy is created as autonomous institution under MoNRE is apex body for R&D.
- Establishment of solar parks and ultra major solar power project and enhancing grid connectivity infrastructure.
- Suryamitra programme to prepare qualified workforce.
- Renewable purchase obligation for large energy consumer customers.
- Sustainable rooftop implementation of Solar transfiguration of India (SRISTI) scheme to promote rooftop solar power projects in india.

Measures to improve:

- India needs a Solar Waste Management and Manufacturing Standards Policy.
- 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.
- Faster adoption of Innovative technologies- aesthetic photovoltaic window and roof tiles for buildings.
- Come up with integrated policies fully supported by states where industry gets help to set up facilities and avail low cost financing.
- India needs to show leadership at global level to advance the manufacture and absorption of solar photovoltaic infrastructure in low- and middle-income countries so that there is integrated solar grid and solve problems of night power and seasonal issues.
- India should also be able to invest in intellectual property.

Conclusion

Solar energy due to its abundance has an enormous potential for use and wide scale applications. Considering this potential and applicability, India has put forward step in the right direction, which will surely help to realise the concept of “One Sun One World One Grid” to harness abundant solar power on global scale.



29. What is the TRIMs agreement? Critically evaluate India's stand on TRIMs.**Approach**

Candidates are expected to first explain the TRIMs agreement then Critically evaluate India's stand on TRIMs.

Introduction:

The close relationship between restrictions on entities engaged in trade and GATT obligations relating to trade in goods has also been recognized in previous GATT panel and WTO panel and Appellate Body reports, where measures that did not directly regulate goods, or the importation of goods, have nonetheless been found to contravene GATT obligations.

TRIMS:

- Under the Agreement on Trade-Related Investment Measures of the World Trade Organization (WTO), commonly known as the TRIMs Agreement, WTO members have agreed not to apply certain investment measures related to trade in goods that restrict or distort trade.
- The TRIMs Agreement calls for introducing national treatment of foreign investment and removal of quantities restrictions.
- It identifies five investment measures which are inconsistent with the General Agreement on Trade and Tariff (GATT) on according national treatment and on general elimination of quantitative restrictions.
- These are measure which are imposed on the foreign investors the obligation to use local inputs, to produce for export as a condition to obtain imported goods as inputs, to balance foreign exchange outgo on importing inputs with foreign exchange earnings through export and not to export more than a specified proportion of the local production.
- It prohibits certain measures that violate the national treatment and quantitative restrictions requirements of the General Agreement on Tariffs and Trade (GATT).

India's stand on TRIMs

- India has made several foreign investment liberalisation measures since the launch of the New Industrial Policy in 1991. Regulations for both FDI and FPI were simplified and now foreign investment is allowed in almost all sectors.
- As per the provisions of Article. 5.1 of the TRIMs Agreement India had notified three trade related investment measures as inconsistent with the provisions of the Agreement.
- The TRIMs Agreement has been found by the developing countries to be standing in the way of sustained industrialization of developing countries,

without exposing them to balance of payment shocks, by reducing substantially the policy space available to these countries.

- As per the TRIMs Agreement, members are required to notify the WTO Council for Trade in Goods of their existing TRIMs that are inconsistent with the agreement.
- Few exemptions to developing countries are also provided under TRIMs.
- The objective of TRIMs is to ensure fair treatment of investment in all member countries.
- India has made several foreign investment liberalisation measures since the launch of the New Industrial Policy in 1991. Regulations for both FDI and FPI were simplified and now foreign investment is allowed in almost all sectors.

Conclusion:

Developed countries, have been arguing for a further expansion in the list of prohibited TRIM. But India should be careful while giving its nod to the expansion of TRIMs because it may make Indian manufacture more vulnerable against the cheap products of developed countries. India needs to upscale its diplomatic capability. There needs to be larger combined effort in bringing on the common platform of developing nations in all continents. U.S. has been already doing it for several years and that's partly why it remains most assertive and subtle power in any negotiation.

30. How prudent and viable is the policy of self-sufficiency in a globalised world? Critically examine.**Approach**

Candidates should critically examine how prudent and viable is the policy of self-sufficiency in a globalised world.

Introduction

The meaning of the term 'Atmanirbhar Bharat' is self-reliant India and it will be fulfilling the dream of making the 21st century India's, the way forward is through ensuring that the country becomes self-reliant. But how prudent and viable is the policy of self-sufficiency in a globalised world is yet to be seen.

How prudent and viable is the policy of self-sufficiency in a globalised world: Critically examination

- A considerable degree of international specialisation is necessary in a rational world in all cases where it is dictated by wide differences of climate, natural resources, native aptitudes, level of culture and density of population.
- But over an increasingly wide range of industrial products, and perhaps of agricultural products also, I have become doubtful whether the economic loss of national self-sufficiency is great enough to outweigh the other advantages of gradually bringing the product and the consumer within the ambit of the same national, economic, and financial organisation.
- Most modern processes of mass production can be performed in most countries and climates with almost equal efficiency.
- Moreover, with greater wealth, both primary and manufactured products play a smaller relative part in the national economy compared with houses, personal services, and local amenities, which are not equally available for international exchange; with the result that a moderate increase in the real cost of primary and manufactured products consequent on greater national self-sufficiency may cease to be of serious consequence when weighed in the balance against advantages of a different kind.
- National self-sufficiency, in short, though it costs something, may be becoming a luxury we can afford, if we happen to want it.
- Are there sufficient good reasons why we may happen to want it? Let me try to indicate the reasons which I think I see.
- The decadent international but individualistic capitalism, in the hands of which we found ourselves, is not a success. It is not intelligent, it is not beautiful, it is not just, it is not virtuous – and it doesn't deliver the goods. In short, we dislike it, and we are beginning to despise it. But when we wonder what to put in its place, we are extremely perplexed.

Conclusion:

Thus, the policy of an increased national self-sufficiency is to be considered, not as an ideal in itself, but as directed to the creation of an environment in which other ideals can be safely and conveniently pursued. The definition of self-reliance has changed in a globalized world and it is different from being self-centred. India's fundamental thinking and tradition of "Vasudhaiva Kutumbakam" provides a ray of hope to the world. This should be seen in the context of Human-Centric Globalization versus Economy Centralized Globalization.



31. How do concerns regarding the environment intersect the energy policy in India? Critically examine.**Approach-**

A simple straightforward question where candidates need to write about energy policy of India and how does concerns regarding environment intersect energy policy of India.

Introduction-

The energy policy of India is largely defined by the country's expanding energy deficit and increased focus on developing alternative sources of energy, particularly nuclear, solar and wind energy. Indian government's on-going energy sector policies aim "to provide access to affordable, reliable, sustainable and modern energy", in that pursuit several domestic goals and the global development agenda is lined up however the concerns regarding environment often intersect energy policy of India.

Body-

Energy is the crucial currency of the modern era. An indubitable requirement of a growing economy like India, energy is the lifeblood of manufacturing, transport, construction, communication, and mobility. However conflict between environment and energy is there from long time.

- This post-industrial revolution demand for fossil fuels has strained our planet's ecological health. The damage caused by burning the vast quantities of carbon-based fuels needed to run our development engines and modern economies is well known now.
- We are looking at increasing atmospheric temperatures, melting glaciers, rising sea levels, changing rainfall patterns, failing agriculture, drought, floods, and rampaging rivers. Not to mention the health detriments, deteriorating quality of life, and economic costs of pollution from fossil-fuels. Also, fossil fuels are in increasingly short supply.
- Compounding the problem is the fact that in many nations including India, energy sources like coal and minerals such as iron, manganese, and aluminium lie under some of the last wilderness areas.
- Areas that are vital watersheds, carbon sinks, and home to many endangered plants and animals. So, how we decide to plan our resource needs and extract energy from finite sources will be crucial determinants of India's social, economic, and environmental sustainability.
- The rising demand for power associated with simultaneous growth of urban centres and modernising rural areas is placing a huge burden on our coal-based energy sector.
- While current power plants are creaking under the strain, alternative sources like hydropower or wind seem to have limited scope for large-scale power generation in a country where land is tightly contested.
- Some "renewable" energy modes also come with attendant environmental and social costs if poorly planned, as has already been witnessed with

windmills and small-hydel plants in the Western Ghats. Further, inefficient transmission systems cause massive losses of scarce power.

What can be done -

- In decentralised models urban, semi-urban, and rural centres can be designed to have their own grids based on a variety of local power sources.
- Shorter powerlines can help cut transmission losses. Simultaneously, buildings can be made more energy efficient by changing energy consumption through efficient usage, and integrating solar power generation into building architecture can make rural and urban homes self-sufficient.
- To further cut fossil fuel use, smarter cities should be built to have work-residential complexes that reduce daily travel.
- Improving public transport will encourage a majority of city dwellers to use this travel option, helping decongest roads and decrease pollution. Importantly, developing such cutting-edge infrastructure across the country can provide vast opportunities for governments and businesses to tap into the emerging 'green economy' sector.
- Current infrastructure is locked into centralised power generation and distribution of fossil-fuel energy. Decentralised models are not in our national psyche, and for a vast majority of the rural populace the idea of 'development' is inextricably linked to a connection with the few big power grids.
- Outreach and education is going to be a crucial component of changing energy models. In the meantime, our old systems of coal and petroleum extraction and use will have to be systematically overhauled to allow for newer distribution models.
- While saving wilderness and wild species is usually our primary motivation for thinking and talking about larger questions of sustainability, ecologists and conservationists are only one amongst a wider cast of actors that can make this happen
- Engineers, land-use planners, developmental economists, social scientists, architects, and agriculture scientists have to gather at the table, recognize the ripple impacts of decisions taken within their narrow domains and try to find cross-disciplinary solutions to the knotty issues of sustainability.
- A good plan for energy-efficiency can solve many other associated problems that come with economic growth—such as wildlife and environmental concerns. Collective knowledge can help plan a sustainable future for India.

Conclusion-

India is the world's third largest energy consumer and according to International Energy Agency, India's energy demand growth outpaced global demand growth in 2018. In this light, it is high time for the government to formulate a comprehensive energy policy with a view to balancing socio-economic growth with environmental protection.

32. How does the government award tenders for infrastructure development? How is transparency ensured? Elaborate.

Approach-

A simple straightforward question where candidates need to write about criteria's and patterns on which government allocates tenders for infrastructure development. Also explain how transparency is ensured during allocation of tenders.

Introduction-

Infrastructure development is considered the key to the life of the common man. It is also a crucial factor in the economic development of the nation. Therefore, infrastructure development has been the priority of the Government and it has taken numerous initiatives towards better infrastructure creation.

Body-

Infrastructure development in India faces many constraints ranging from allocation of land to selection of investors. Recent surge on Swiss model of development is a reformative step in this regard.

- The Swiss Challenge method is a method of awarding government contracts, wherein any private developer without being asked to, submits a detailed bid for a particular project. The govt then makes the specifics of the bid public and invites other interested bidders (third parties) to submit competitive counter proposals. The original bidder can then better these proposals to finally win the contract, failing which it is awarded to the best counter propose

The Swiss challenge offers a few advantages:

- Brings innovation and creativity as winning contract is contingent on innovation of proposal.
- Reduces cost for the Govt(similar reasoning as above
- Can be awarded for both ppp projects and otherwise.
- Reduces red tapism and time taken as only competitive bids are evaluated.
- May help revive PPP(specially in India.

However, the Swiss challenge is not without its disadvantages:

- It isn't very successful globally.
- absence of complementary legal framework(specially in India)
- Risk of litigation(Specially in bigger projects
- Issue of information symmetry and potential advantage to original bidder first right to refusal
- Issue of transparency in procurement procedure.
- Regulatory and judiciary framework need to improve in India for any model like Swiss model.
- Swill model need to taste in small projects before implementing and experimenting on large projects

- Vijay kelkar committee which was constituted especially for PPP has rejected Swiss model which has created some apprehensions like it delays the developmental plan, lack of interest, completely online process, quality can be compromised and chances of cartelisation.

PPP model-

- PPPs offer the public sector potential cost, quality and scale advantages in achieving infrastructure service targets. However, PPPs are different to the traditional public sector route and these differences require adaptation of approach and capabilities in the public sector. There are also some new costs associated with PPPs.
- In general, in a well-designed and supported PPP the advantages will outweigh the disadvantages.

Advantages of PPP-

- Access to private sector finance
- Efficiency advantages from using private sector skills and from transferring risk to the private sector
- Potentially increased transparency
- Enlargement of focus from only creating an asset to delivery of a service, including maintenance of the infrastructure asset during its operating lifetime
- This broadened focus creates incentives to reduce the full life-cycle costs (i.e, construction costs and operating costs. All of these provide strong reasons in favour of using PPPs in India and elsewhere.
- India has a very large infrastructure need and an associated funding gap. PPPs can help both to meet the need and to fill the funding gap. PPP projects often involve the private sector arranging and providing finance.

Measures for maintaining transparency

- Digitalising information and fostering the release of data in open and machine-readable formats to facilitate data accessibility, usefulness and re-use.
- The tendering phase is when suppliers decide to respond to public needs by submitting an offer, when bids are evaluated and contractors selected based on their technical and cost proposal.
- The criteria for selection need to be clear and transparent; the decision needs to be unbiased and the officials in charge should not have any conflict of interest arising from the bidding and contracting process.
- Ensuring that the winning bidder is the most qualified, for instance by inviting civil society to monitor that the process is carried out transparently and with integrity.
- Applying clearly pre-defined criteria in public tenders and comparatively assessing proposals both on financial and technical merits.
- Providing debriefing by the government to aggrieved bidders to provide a better understanding of how the decision was reached and thereby increasing understanding of the integrity of the process.

Conclusion

India, termed as bright spot of the gloomy world economy, surely needs investment on large scale to sustain and achieve its growth potential. With govt having limited strength to carry out the investment on its own, it is necessary to search for an effective and efficient PPP model. However, without a strong legal and regulatory framework the method fosters crony capitalism and is also conducive to discretionary favours being shown to a private party by the government. Hence transparency needed while awarding tenders.



33. Do you think railway fares should be increased to cover the operating expenses? If yes, what would be its implications on welfare? Explain.

Approach

Candidates are expected to write about railway fares in India. Explain whether there should be hike in railway fares to cover operating expenses and if there is hike then what will be implications on welfare need to be explained.

Introduction:

Indian Railways' ills are as multifarious as they are well-known bureaucratic, obese structure with a misconceived perception of public-service-obligation, warped investment priorities, capacity crunch on arterial routes, strained terminals, irrational fare & freight structures and high Operating ratio (OR) around 96-98%.

Body

Why increase in railway fare is idea:

- Indian Railways run about 12900 passenger trains per day and the railways is losing around more than 40% of what they spend on passenger trains.
- The cost of service is almost double of what is being charged from the passengers.
- Freight business is already very expensive in India as compared to other countries in the world. Therefore, further increase in this area is not feasible.
- Despite its contribution to the overall economy, under-investment in the sector has crippled operations and hampered capacity augmentation.
- The Indian Railways has kept the passenger fares at lower value while it has increased the freight charges to compensate for this loss. Hence, the cross-subsidization of low passenger fares by artificially high freight rates has led to shift in favour of road transport, for both freight as well as short distance passenger traffic.

Benefits of railways fare hike:

- Increase in fare will also help in accommodating the latest technology in railways coaches, safety and travelling experience. Thereby, it may help Indian Railways to become a world-class network.
- It may lead to better accountability and monitoring, which can keep a check on rising accidents in railways.
- Fare price increase can generate better innovation can lead to the infusion of modern technology and capacity building of Indian railways which will reduce operating cost.
- Fare hike may solve these issues, as the move would foster competition and hence lead to overall betterment in the quality of services.

- New fares will generate revenue will help in introduction of new trains, provision of halts and establishment of new projects decision will be taken on commercial consideration rather than political one.

Implication of fare hike on welfare:

- Cheap: Railways provide the cheapest and most convenient mode of passenger transport both for long-distance and suburban traffic. Increase in price will impact poor.
- Lesser Inclusive: Hike in fares can render the railways out of reach for lower-income groups.
- Limit the Coverage: An advantage of Indian Railways being government-owned is that it provides nation-wide connectivity irrespective of revenue or profit as service motive.
- Division: Railways are also helpful in removing isolation between cities and countryside (rural areas) and have played a significant role in disseminating innovations and new ideas. Fare price will impact the migration in the economy negative impact on connectivity and further increase the rural-urban divide.
- Impact on the Hinterlands: Indian Railways is the backbone of India, it provides low fare transportation to agricultural and industrial trade.
- Goods transport: As the Indian Railways plays a vital role in the transportation of goods in the country, it provides a low cost of transportation of many final and intermediate goods. Increase in fare will have an inflationary effect and thereby affect the common people.

Conclusion

India needs to have a rail network that is not only efficient, reliable and safe, but is also cost-effective and accessible with public service motive. It can play a significant role in the growth and development of Indian economy, apart from promoting national integration. Hence, in this regard, there is a need to undertake the modernisation of Indian railways and ensure that it is able to cater to the demands of \$ 5 trillion economy in future.

34. Ports can be a real driver of trade led prosperity in India. Do you agree? Substantiate your views.

Approach

Candidates are expected to give their views on whether or not Ports can be a real driver of trade led prosperity in India. Give examples in support of your views.

Introduction:

India being a 7th largest country in the world having 7516.6 km coastline forming biggest peninsula in world with 13 major sea ports and other regional ports, all which facilitate major part of international trade. According to ministry of shipping 95% of the India's trading by volume and 70% by value is done via ports.

Can Ports Be a Real Driver of Trade Led Prosperity in India

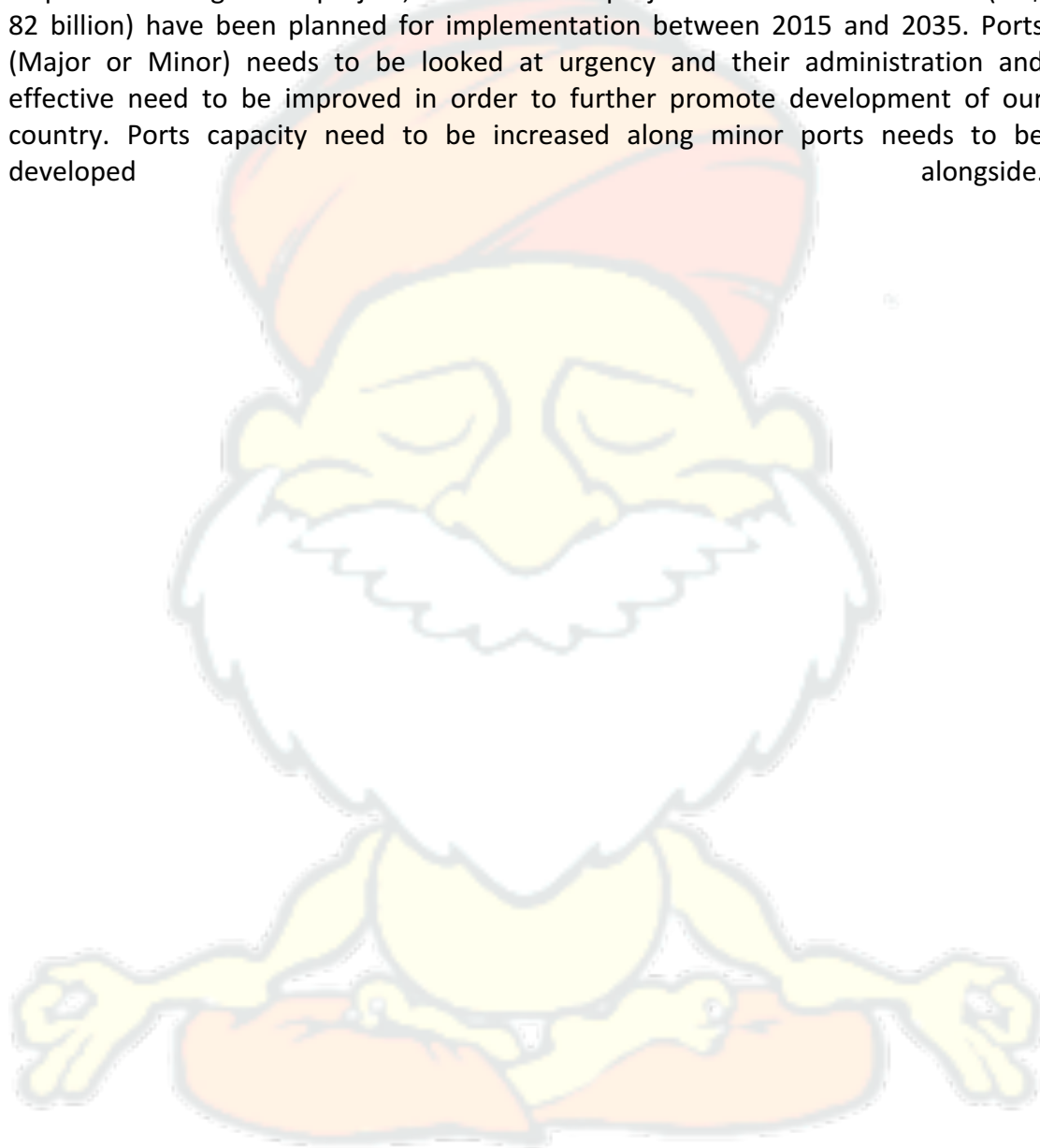
- India has 12 major, and 205 notified minor and intermediate ports.
- Among major ports, six of them are on the eastern coast and the rest are on the western coast.
- They are under the jurisdiction of the federal government.
- The non-major ports come under the jurisdiction of respective state governments' maritime boards.
- India's strategic location by the world's busiest maritime route in the Indian Ocean underscores the importance of its shipping industry, which facilitates 95 percent of India's international trade by volume.
- The development of its maritime sector is a top priority for the country for which India is seeking investments to the tune of US\$81 billion.
- It not only promotes External trade but also domestic trade.
- It generates employment opportunities both skilled and unskilled.
- It promotes development around port and thus improve quality of life of people in nearby area.
- Are growth engine of economy promoting trade e.g., Make in India could help.
- It provides greater market to our domestic industry
- Increasing investment and cargo traffic point towards a healthy outlook for the Indian ports sector.
- Providers of services such as operation and maintenance (O&M), pilotage and harbouring and marine assets such as barges and dredgers are benefiting from these investments.
- The capacity addition at ports is expected to grow at a CAGR of 5-6% till 2022, thereby adding 275-325 MT of capacity.
- Domestic waterways have found to be a cost-effective and environmentally sustainable mode of freight transportation. The government aims to operationalise 23 waterways by 2030.

Challenges

There are few challenges like high logistics cost, tiresome and tedious Paperwork and administrative requirements, port's capacity limits, etc

Conclusion:

As part of the Sagarmala project, more than 574 projects worth Rs. 6 lakh crore (US\$ 82 billion) have been planned for implementation between 2015 and 2035. Ports (Major or Minor) needs to be looked at urgency and their administration and effective need to be improved in order to further promote development of our country. Ports capacity need to be increased along minor ports needs to be developed alongside.



35. What are the sources of infrastructure financing? How do they vary from one sector to another? Explain with the help of suitable examples.

Approach

Candidates should first explain infrastructural financing and then mention the sources of infrastructure financing. Then candidate should explain How do they vary from one sector to another with the help of suitable examples.

Introduction

The formal definitions of infrastructure financing are not very clear. Generally, in most countries around the world, the government issues a list of industries that are to be given infrastructure status. The financing of projects or companies involved in these sectors is called infrastructure financing.

Sources of infrastructure financing

Funding of this magnitude cannot be provided by anyone's source alone. This is the reason that infrastructure needs to be funded by several sources having deep pockets. Some of the most common sources of infrastructure finance have been listed below:

Public Finance: Government funding is one of the biggest sources of funding for infrastructure finance. Tax dollars collected all over the world are spent in huge numbers on creating infrastructure.

Supra National Financial Institutions: Supranational bodies such as World Bank, International Monetary Fund, Asian Development Bank, etc. are also important sources of finance for infrastructure projects. However, such organizations tend to only fund projects which are financially viable. As a result, urban projects like metro rails, bridges, flyovers, etc. tend to get funded by these institutions.

Private Finance: Governments all over the world are desperately seeking the intervention of private money to help fill the funding gap being faced for infrastructure projects. As a result, many private mutual funds have been set up for this purpose.

Public-Private Partnership: The public-private partnership model is also widely used in infrastructure funding.

How do they vary from one sector to another?

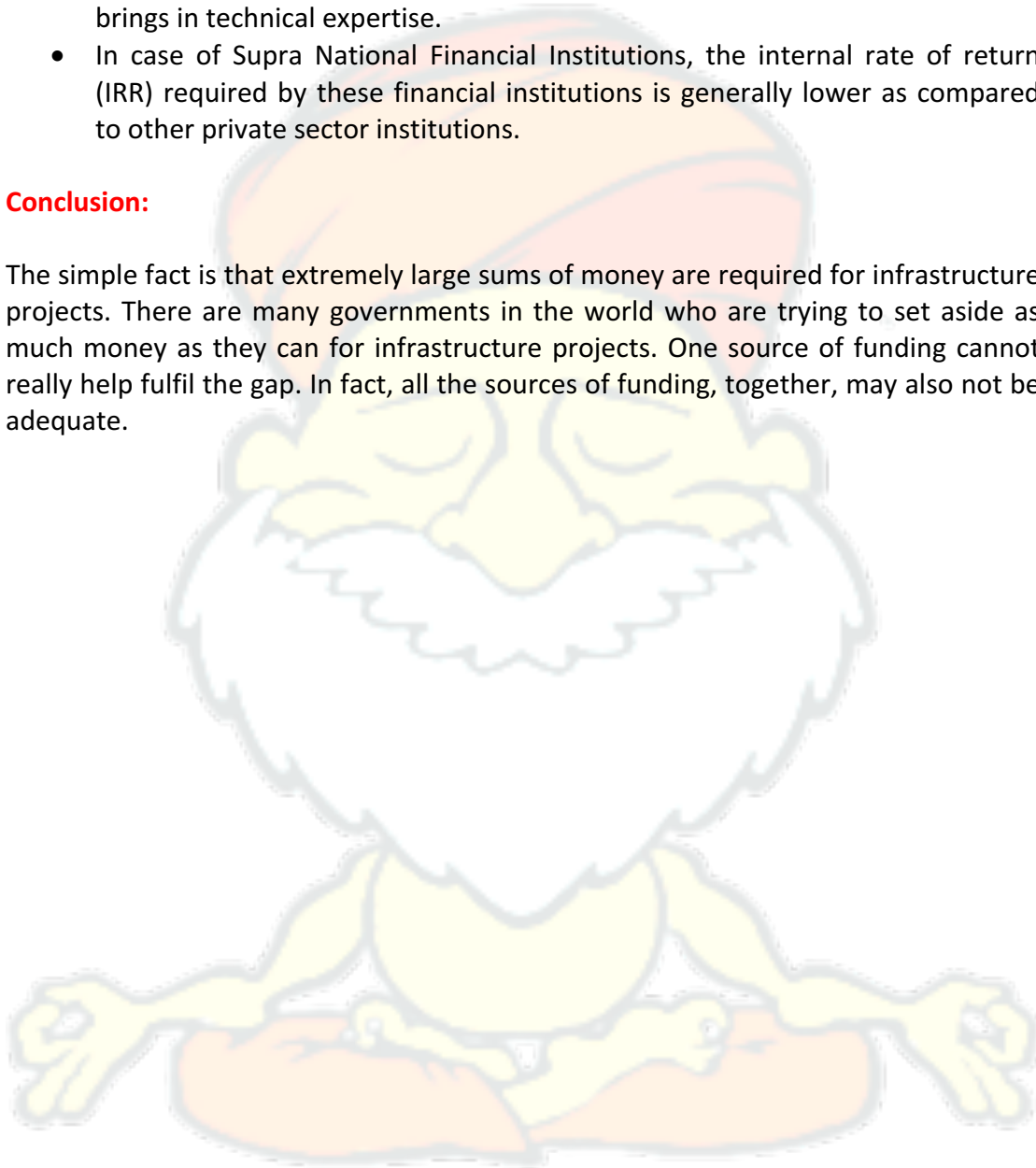
- In case of private sources of finance, Governments try to make these investments more attractive by providing tax breaks to individuals who invest their money in such projects. A wide variety of financial instruments (both debt as well as equity) are being used to help channelize the savings of the

general public towards infrastructure projects. Attempts are also being made to woo institutional investors such as insurance companies and pension funds to increase the amount of funding available.

- In case of public private partnership, this model works differently than public funding. Here, instead of the government using its money for the initial outlay, the private sector does so. The idea is to create a partnership, where the government brings in land and other resources, wherein the private party brings in technical expertise.
- In case of Supra National Financial Institutions, the internal rate of return (IRR) required by these financial institutions is generally lower as compared to other private sector institutions.

Conclusion:

The simple fact is that extremely large sums of money are required for infrastructure projects. There are many governments in the world who are trying to set aside as much money as they can for infrastructure projects. One source of funding cannot really help fulfil the gap. In fact, all the sources of funding, together, may also not be adequate.



36. What is the Omicron variant of COVID-19? How is it different from the other strains? Discuss.**Approach**

A simple straightforward question where candidate need to write about newly detected omicron virus in South Africa. Write down the difference between omicron and other strains of virus.

Introduction

WHO on 26 November designated the variant B.1.1.529 a variant of concern, named Omicron, on the advice of WHO's Technical Advisory Group on Virus Evolution (TAG-VE). This decision was based on the evidence presented to the TAG-VE that Omicron has several mutations that may have an impact on how it behaves, for example, on how easily it spreads or the severity of illness it causes.

Body

Researchers in South Africa and around the world are conducting studies to better understand many aspects of Omicron and will continue to share the findings of these studies as they become available

- Transmissibility: It is not yet clear whether Omicron is more transmissible (e.g., more easily spread from person to person) compared to other variants, including Delta.
- The number of people testing positive has risen in areas of South Africa affected by this variant, but epidemiologic studies are underway to understand if it is because of Omicron or other factors.
- Severity of disease: It is not yet clear whether infection with Omicron causes more severe disease compared to infections with other variants, including Delta.
- Preliminary data suggests that there are increasing rates of hospitalization in South Africa, but this may be due to increasing overall numbers of people becoming infected, rather than a result of specific infection with Omicron.
- There is currently no information to suggest that symptoms associated with Omicron are different from those from other variants. Initial reported infections were among university student's younger individuals who tend to have more mild disease but understanding the level of severity of the Omicron variant will take days to several weeks.
- All variants of COVID-19, including the Delta variant that is dominant worldwide, can cause severe disease or death, in particular for the most vulnerable people, and thus prevention is always key.
- Effectiveness of prior SARS-CoV-2 infection-Preliminary evidence suggests there may be an increased risk of reinfection with Omicron (ie, people who have previously had COVID-19 could become reinfected more easily with Omicron), as compared to other variants of concern, but information is

limited. More information on this will become available in the coming days and weeks.

- Effectiveness of vaccines: WHO is working with technical partners to understand the potential impact of this variant on our existing countermeasures, including vaccines. Vaccines remain critical to reducing severe disease and death, including against the dominant circulating variant, Delta. Current vaccines remain effective against severe disease and death.
- Effectiveness of current tests: The widely used PCR tests continue to detect infection, including infection with Omicron, as we have seen with other variants as well. Studies are ongoing to determine whether there is any impact on other types of tests, including rapid antigen detection tests.
- Effectiveness of current treatments: Corticosteroids and IL6 Receptor Blockers will still be effective for managing patients with severe COVID-19. Other treatments will be assessed to see if they are still as effective given the changes to parts of the virus in the Omicron variant.

How Omicron compares with other variants.

- The WHO has said the global risk of the Omicron variant is “very high”
- Currently, the Delta variant, first documented in India in October 2020, is the most dominant strain, accounting for more than 99 percent of global sequenced cases.
- Preliminary evidence suggests there may be an “increased risk of reinfection with Omicron as compared with other variants of concern, but information is limited”, it said.
- South African epidemiologist Salim Abdool Karim said on Monday that not enough data had been collected to determine the clinical implications of Omicron compared with previous variants, and that reinfections were likely but that vaccinated people had less probability of developing serious symptoms.
- Experts say that more information will be available in the coming days and weeks as the virus spreads more widely and researchers study how Omicron’s mutations work together.

Conclusion-

With the Omicron variant now detected in several regions of the world, putting in place travel bans that target Africa attacks global solidarity. COVID-19 constantly exploits our divisions. We will only get the better of the virus if we work together for solutions.

37. What is Paxlovid? How does it function? Explain.**Approach -**

A simple straightforward question where candidates need to define what is Paxlovid. and also explain how does it function.

Introduction-

Pfizer Inc has announced that it is seeking Emergency Use Authorization (EUA) of its investigational oral antiviral tablet PAXLOVID which will be able to treat Covid-19 in the early stages of the deadly virus. It will be used for mild to moderate treatment of patients suffering from Corona virus and will help decrease the risk of hospitalization or death.

Body

- Pfizer Inc. said its Covid-19 pill reduced hospitalizations and deaths in high-risk patients by 89%, a result that has the potential to upend how the disease caused by the coronavirus is treated and alter the course of the pandemic.
- The drugmaker said in a statement on Friday that it was no longer taking new patients in a clinical trial of the treatment “due to the overwhelming efficacy”
- The results mean there are now two promising candidates for treating Covid-19 patients early in the course of the disease. Last month, Merck & Co. and partner Ridgeback Biotherapeutics LP submitted their experimental pill to regulators after a study showed it slashed the risk of getting seriously ill or dying by half in patients with mild-to-moderate Covid-19.
- The results mean there are now two promising candidates for treating Covid-19 patients early in the course of the disease. Last month, Merck & Co. and partner Ridgeback Biotherapeutics LP submitted their experimental pill to regulators after a study showed it slashed the risk of getting seriously ill or dying by half in patients with mild-to-moderate Covid-19.
- A pill that could be taken at home at the first sign of symptoms is a crucial tool for taming the Covid-19 crisis globally, so long as it’s widely available.
- Current treatment options for Covid aren’t ideal. Monoclonal antibodies from companies like Regeneron Pharmaceuticals Inc. and Eli Lilly & Co. reduce hospitalizations, but the infusions are hard to manufacture and must be given in a medical office, adding to the strain on health systems.
- Other medications like Gilead Sciences Inc.’s remdesivir are used to treat much sicker people who are already in the hospital. Low-cost steroid dexamethasone, while very effective, is usually only given to gravely ill patients.

- Pfizer is exploring if the drug could be used as a prophylactic medicine for people who live with someone who has come down with Covid-19, meaning a person would take the drug to avoid contracting the virus.

How does it function-

- By inhibiting the main protease, PF-07321332 prevents the virus from cleaving long protein chains into the parts it needs to reproduce itself. Thus, PF-07321332 is the first orally administered coronavirus-specific investigational protease inhibitor to be evaluated in phase 3 clinical studies.
- Protease inhibitors bind to a viral enzyme (protease), preventing the virus from replicating in the cell. Protease inhibitors have effectively treated other viral pathogens such as HIV and hepatitis C virus alone and other antivirals.
- There is no orally administered therapy currently approved for the post-exposure or pre-emptive treatment of COVID-19, says Pfizer. Therefore, Pfizer is also investigating an intravenously administered investigational protease inhibitor, PF-07304814, which is currently in Phase 1b multi-dose trial in hospitalized clinical trial participants with COVID-19.
- Co-administration with a low dose of ritonavir helps slow the metabolism, or breakdown of (PF-07321332), to remain active in the body for more extended periods at higher concentrations to help combat the virus.
- PAXLOVID (PF-07321332) inhibits viral replication at a stage known as proteolysis, which occurs before viral RNA replication. It is an analog of GC373, where the aldehyde covalent cysteine acceptor replaced a nitrile. In this combination, ritonavir serves to slow down the metabolism of PF-07321332 by cytochrome enzymes to maintain higher circulating concentrations of the primary drug. In preclinical studies, PF-07321332 did not demonstrate evidence of mutagenic DNA interactions.
- The pill was internally developed by Pfizer researchers in the U.S. and U.K. During the early pandemic shutdowns, the scientists agreed to come back to their labs in an urgent effort to develop anti-Covid pills.
- The Pfizer drug works to block a crucial enzyme that the Covid-19 virus needs to replicate. It is taken twice a day for five days and used in combination with a second medicine called ritonavir that helps the Pfizer compound stay in the bloodstream longer.

Conclusion-

A new drug being developed by Pfizer offers the possibility of nearly putting an end to deaths from COVID-19. When given within five days of the onset of symptoms, the antiviral therapy, called Paxlovid, prevented almost 90% of deaths from COVID-19 compared with a placebo, a Pfizer study found.

38. How does facial recognition work? What are its potential applications in governance? Discuss.**Approach**

Candidates are expected to write about facial recognition technology and how it works. Then simply write its potential application in governance.

Introduction:

Facial recognition is a biometric technology that uses distinctive features on the face to identify and distinguish an individual. From the first cameras that could recognise faces in the mid-1960s up to now, facial recognition has evolved in many ways from looking at 3D contours of a face to recognising skin patterns. With machine learning, the technology has become capable of sorting out types of faces.

Body

Potential applications:

- Automated facial recognition system being implemented by the National Crime Records Bureau (NCRB), is a component of Crime and Criminal Tracking Network and Systems (CCTNS). It is a way of recognising a human face through technology. AFRS works by maintaining a large database with photos and videos of peoples' faces.
- In the Automated Facial Recognition System (AFRS), the large database (containing photos and videos of peoples' faces) is used to match and identify the person. Image of an unidentified person, taken from CCTV footage, is compared to the existing database using Artificial Intelligence technology, for pattern-finding and matching.
- For instance, the NCRB's Crime and Criminal Tracking Network & Systems (CCTNS) managing crime data for police, uses automated facial recognition to identify criminals, missing people, and unidentified dead bodies, as well as for "crime prevention".
- The project is aimed at being compatible with other biometrics such as iris and fingerprints. The integration of fingerprint database, face recognition software and iris scans will massively boost the police department's crime investigation capabilities.
- Force Multiplier: In India, where there are just 144 constables per 1 lakh citizens, this can act as a force multiplier. It neither requires too much manpower nor regular upgradation. Hence, this technology coupled with the present manpower in place can act as a game-changer.
- Recently, the Ministry of Civil Aviation's "DigiYatra" has started facial recognition for airport entry on trial basis in the Hyderabad airport. DigiYatra intends to offer air passengers a "seamless, hassle-free and paperless journey experience."

- Telangana’s election commission piloted a facial recognition app in its civic elections on January 22, and claimed that it could address the issue of voter impersonation.
- It is increasingly being used for everything from unlocking of mobile phones to validating the identity, from auto-tagging of digital photos to finding missing persons, and from targeted advertising to law enforcement.

Concerns:

- Government although plans to address the question of privacy through the legal framework like data privacy regime, but keeping in mind the objectives it aims to achieve with the use of such technology, it comes into conflict with one another.
- As the data collected may be used in the court of law during the course of a criminal trial, the reliability and the admissibility of the data along with standards and procedure followed would be taken into consideration. Hence, the authenticity of the data is crucial.
- Facial recognition software is based on pre-trained models. Therefore, if certain types of faces (such as female, children, ethnic minorities) are under-represented in training datasets, then this bias will negatively impact its performance. With the element of error and bias, facial recognition can result in profiling of some overrepresented groups (such as Dalits and minorities) in the criminal justice system.
- Further, as anonymity is key to functioning of a liberal democracy, unregulated use of facial recognition technology will dis-incentivize independent journalism or the right to assemble peaceably without arms, or any other form of civic society activism.

Conclusion

There is a need to subject all government surveillance and government use of private surveillance technologies to the rule of law. Parliament should also make a “data protection” statute that regulates the sale and transfer in commerce of behavioural information about individuals that does not meet technical standards of safety and appropriateness of acquisition. It is only then that a democracy can safely begin to adopt technologies that, unregulated as they presently are, can corrode and destroy the very fabric of human freedom.

39. How does molecular construction technology work? What can be its potential applications? Examine.

Approach

Candidates are expected to first explain the molecular construction technology and then explain its working. Then candidate has to examine its potential applications.

Introduction:

Molecular construction is a process in which particles are assembled into molecules and the molecules are then assembled into complex objects. The pioneers of molecular construction technology are the Paragans, who have refined the technology to the degree that they can spawn starfleets and cans of sploosh.

Working of the molecular construction technology

- Molecular construction uses an extremely complicated array of fields to align particles into molecules and molecules into complex objects.
- Many different fields are used.
- Subatomic particles can be built into atoms with electric and magnetic fields, small molecules can be pieced together with the aid of gravitational fields.
- Advanced molecular constructors can create an imprint of an object in the mass field and particles will simply 'fall' into place.
- Very small quantum particles can be forced into structures via quantum interference.
- Different starting materials can be used in molecular constructors. Basic models may build simple structures from pre-assembled molecules, some may use individual atoms.
- Advanced constructors can build objects from subatomic or even quantum particles. Paragan molecular constructors usually use omnitrons as the starting material.
- The most advanced molecular constructors can build objects from energy. This certainly saves space on fuel, but lots of energy is required.
- There are few means of energy generation that can supply the power required.

Potential applications of the molecular construction technology

- Some potential applications of this technology include power storage and sequence-specific polymer construction.
- Polyrotaxane threads can be bound together to create a mesh, which may lead to scratch resistant or self-healing materials.
- These molecular pumps can work in suspension, but there may be advantages to mounting them onto a surface.

- Other includes Vending machines, generators, ammo replenishers, mass drive cannons, etc.

Conclusion:

The construction industry is constantly changing and improving. New methods, materials, and technologies help builders and contractors do their jobs quicker, faster, and safer while simultaneously benefitting the consumer experience. The Molecular construction is often argued to be the very pinnacle of modern galactic technology.



40. What is bionic technology? Explain. What are its current applications? Discuss.**Approach**

Candidates should explain the bionic technology. And then discuss its current applications.

Introduction

Bionics or biologically inspired engineering is the application of biological methods and systems found in nature to the study and design of engineering systems and modern technology. Bionic technology, or simply bionics, is one of the newest branches of science and a wonderful amalgam of electronics, robotics, and human psychology.

Current Applications of Bionic Technology

- The meaning of the word 'bionic' is a fictional character having artificial body parts and capable of doing things that no average human being can do.
- Bionic technology does not stop at making well-fitting prostheses.
- In medicine, bionics means the replacement or enhancement of organs or other body parts by mechanical versions. Bionic implants differ from mere prostheses by mimicking the original function very closely, or even surpassing it.
- The term 'bio' in the word bionic has not been prefixed for nothing.
- The fundamental agenda of bionic technology is to ensure that artificial limbs such as eyes, legs or arms carry out their functions like the normal limbs.
- In short, even if the limb fitted in the place of the missing one happens to be a non-living thing, it must be sufficiently 'live' to carry out its functions according to the desire of the wearer.
- The last decade of the 20th century was spent by the researchers in establishing the required fine-tuning.
- It is only now, in the first and the second decade of the 21st century, that the experts in these diverse fields have started tasting success up to some extent and have opened up the novel field of bionic technology.
- In 2015, Surgeons in Manchester performed the first bionic eye implant in a patient with the most common cause of sight loss in the developed world.
- Ray Flynn, 80, had dry age-related macular degeneration which has led to the total loss of his central vision.
- Now he is using a retinal implant which converts video images from a miniature video camera worn on his glasses. He can now make out the direction of white lines on a computer screen using the retinal implant all thanks to bionic technology.

Conclusion:

The research on giving a complete bionic form to many human limbs is on a fast track. In other words, the research on the making of a bionic human is in full swing, albeit the bionic revolution is yet to achieve full bloom.



41. What are the potential applications of drones for welfare purposes? Discuss. What are the concerns related to the possible misuse of the drone technology? Examine.

Approach

A simple straightforward question where candidates need to write about what is drone technology and what are its applications. In second part write about what are concerns related to the possible misuse of drone technology

Introduction

Drones are the unmanned Aerial vehicle comes in variety of shape and size .It offer low-cost, safe and quick aerial surveys for data collection. This is useful for industries such as power, mining, oil and gas exploration, railways and highways, agriculture. It Increases work efficiency and productivity, decreases workload and production costs, improving accuracy, refining service and customer relations,

Body

With exciting and wide range of applications drones are likely to have following advantages:

- Drones offer low-cost, safe and quick aerial surveys for data collection. This is useful for industries such as power, mining, realty, oil and gas exploration, railways and highways.
- Benefit E-commerce companies in delivery of products.
- Agriculture: Drones capable of better survey and mapping can be employed in fields, precision farming- like application of fertilizers.
- Security and monitoring: Drones could complement or replace static security cameras. Security drones might also replace or supplement foot and vehicle patrols at large commercial facilities like factories, office parks, and power plants.
- Film and photography – from recording documentary footage to capturing aerial views of breaking news stories, they're being used much more frequently by businesses and the media now.
- Can play role in urban issues like reducing traffic, air pollution.
- River Dam Monitoring ,to check storage capacity , and water level
- To know flood Situation and weather conditions
- Storm tracking and forecasting hurricanes, cyclones.
- Drug and child Trafficking in Border area ,
- Gathering information or supplying essentials for disaster management
- Improve Safety in military
- Express shipping and delivery
- Geographic mapping of inaccessible terrain and locations

- Drones Require Less Effort : catching videos , & pics

Concerns regarding misuse of drone technology-

Though there lots of usefulness also some sort of problems are coming from developed countries, those who are already using Drone.

- Increased Risk of Armed Attacks: Operation of drones without any adequate legal backing can pose several security threats.
- Incidents of arms being dropped by drones are also there such as the recent Jammu drone attacks.
- They can be put to destructive use, to slam into critical targets, destroy infrastructure and so on.
- Large-scale use of drones could give rise to concerns relating to privacy and security that policymakers may need to address.
- Vulnerable to Wild Animal Attacks.
- Security & Hacking Problem.
- Paramilitary Not Exempted from the Rules: As per the new draft, the rules and regulations are not applicable to the army, navy or the Airforce.
- However, it still includes paramilitary forces. BSF is suffering a lot of issues due to the drones coming across the lines.
- Cheaper Cost Enables a Larger Population to Procure Drones: Drones are relatively cheaper in comparison to conventional weapons and yet can achieve far more destructive results which is the primary reason for increased number of drone attacks.
- Delivery of Mass Destruction Weapons: What makes combat drones most dangerous is the threat of them being used to deliver weapons of mass destruction
- Procurement of combat drones by non-state actors poses serious threats.

Way forward:

- Strict Drone policy Implementation so that no one should get harm from that regulates private individual drone companies.
- Fix penalties for wild fires and privacy violations.
- Restrictions for certain areas for private Drones

Conclusion-

The drone technology in India has immense significance and potential. The security concerns should be dealt with judiciously and not just be allowed to restrict us from adopting the technology. However, security concerns must not be compromised.

In years to come, drone technology is expected to be the most cost effective choice and the most utilised system in the civilian as well as militarian domain.

42. What are biofilms ? What are its potential applications? Discuss.**Approach**

A simple straightforward question where candidates first need to explain what are biofilms . And in second part discuss what are the potential applications of biofilms .

Introduction

Biofilms are a collective of one or more types of microorganisms that can grow on many different surfaces. Microorganisms that form biofilms include bacteria, fungi and protists. Biofilms, however, also offer beneficial roles in a variety of fields including applications in plant protection, bioremediation, wastewater treatment, and corrosion inhibition amongst others.

Body

- A biofilm comprises any syntrophic consortium of microorganisms in which cells stick to each other and often also to a surface. These adherent cells become embedded within a slimy extracellular matrix that is composed of extracellular polymeric substances (EPSs).
- The cells within the biofilm produce the EPS components, which are typically a polymeric conglomeration of extracellular polysaccharides, proteins, lipids and DNA. Because they have three-dimensional structure and represent a community lifestyle for microorganisms, they have been metaphorically described as "cities for microbes".
- Biofilms may form on living or non-living surfaces and can be prevalent in natural, industrial, and hospital settings.
- The microbial cells growing in a biofilm are physiologically distinct from planktonic cells of the same organism, which, by contrast, are single cells that may float or swim in a liquid medium.
- Biofilms can form on the teeth of most animals as dental plaque, where they may cause tooth decay and gum disease.
- Microbes form a biofilm in response to a number of different factors, which may include cellular recognition of specific or non-specific attachment sites on a surface, nutritional cues, or in some cases, by exposure of planktonic cells to sub-inhibitory concentrations of antibiotics. A cell that switches to the biofilm mode of growth undergoes a phenotypic shift in behavior in which large suites of genes are differentially regulated.
- A biofilm may also be considered a hydrogel, which is a complex polymer that contains many times its dry weight in water. Biofilms are not just bacterial slime layers but biological systems; the bacteria organize themselves into a coordinated functional community.
- Biofilms can attach to a surface such as a tooth or rock, and may include a single species or a diverse group of microorganisms. Subpopulations of cells within the biofilm differentiate to perform various activities for motility,

matrix production, and sporulation, supporting the overall success of the biofilm.

- The biofilm bacteria can share nutrients and are sheltered from harmful factors in the environment, such as desiccation, antibiotics, and a host body's immune system. A biofilm usually begins to form when a free-swimming bacterium attaches to a surface.

Potential applications of biofilm-

In medicine-

- It is suggested that around two-thirds of bacterial infections in humans involve biofilms. Infections associated with the biofilm growth usually are challenging to eradicate. This is mostly due to the fact that mature biofilms display antimicrobial tolerance, and immune response evasions.
- Biofilms often form on the inert surfaces of implanted devices such as catheters, prosthetic cardiac valves and intrauterine devices. Some of the most difficult infections to treat are those associated with the use of medical devices.

For constructive purposes-

- Biofilms can also be harnessed for constructive purposes. For example, many sewage treatment plants include a secondary treatment stage in which waste water passes over biofilms grown on filters, which extract and digest organic compounds. In such biofilms, bacteria are mainly responsible for removal of organic matter (BOD), while protozoa and rotifers are mainly responsible for removal of suspended solids (SS), including pathogens and other microorganisms.
- Slow sand filters rely on biofilm development in the same way to filter surface water from lake, spring or river sources for drinking purposes. What we regard as clean water is effectively a waste material to these microcellular organisms. Biofilms can help eliminate petroleum oil from contaminated oceans or marine systems.

In food industry-

- Biofilms have become problematic in several food industries due to the ability to form on plants and during industrial processes.

In aquaculture-

- In shellfish and algal aquaculture, biofouling microbial species tend to block nets and cages and ultimately outcompete the farmed species for space and food.[124] Bacterial biofilms start the colonization process by creating microenvironments that are more favorable for biofouling species.

Biofilm cultivation devices -

- There is a wide variety of biofilm cultivation devices to mimic natural or industrial environments. Although it is important to consider that the particular experimental platform for biofilm research determines what kind of biofilm is cultivated and the data that can be extracted.

Conclusion-

The characteristic of biofilm formation is that microorganisms within biofilms are often much tougher and more resistant to environmental stress compared to

individual microorganisms. This phenomenon of enhanced resistance can be beneficial in industrial chemical production where microorganisms within biofilms may tolerate higher chemical concentration and act as robust biorefineries for various products. These microbes have also been used in bioremediation to remove contaminants from freshwater and wastewater. More novel uses of biofilms include generating electricity using microbial fuel cells.



43. What are the concerns related to deepfake technology? How can it be a security threat? Illustrate.

Approach

Candidates are expected to write about what is deep fake technology. Also what will be its security impact and threat illustrates with incidents.

Introduction:

The word deepfake combines the terms “deep learning” and “fake,” and is a form of artificial intelligence. In simplistic terms, deepfakes are falsified videos made by means of deep learning. Deep learning is “a subset of AI,” and refers to arrangements of algorithms that can learn and make intelligent decisions on their own. This technology can be used to make people believe something is real when it is not.

Body

Concerns:

- **Undermining Democracy:** A deepfake can also aid in altering the democratic discourse and undermine trust in institutions and impair diplomacy. False information about institutions, public policy, and politicians powered by a deepfake can be exploited to spin the story and manipulate belief.
- **Disrupting Electioneering:** A high-quality deepfake can inject compelling false information that can cast a shadow of illegitimacy over the voting process and election results. Leaders can also use them to increase populism and consolidate power. Deepfakes can become a very effective tool to sow the seeds of polarisation, amplifying division in society, and suppressing dissent.
- **Liar’s dividend:** An undesirable truth is dismissed as deepfake or fake news. It can also help public figures hide their immoral acts in the veil of deepfakes and fake news, calling their actual harmful actions false.
- **Social Harm:** Deepfakes can cause short- and long-term social harm and accelerate the already declining trust in news media. Such an erosion can contribute to a culture of factual relativism.
- **Damage to Personal Reputation:** Deepfake can depict a person indulging in antisocial behaviours and saying vile things. These can have severe implications on their reputation, sabotaging their professional and personal life.

Security threats:

- **Anti state sentiment:** Nation-state actors with geopolitical aspirations, ideological believers, violent extremists, and economically motivated enterprises can manipulate media narratives using deepfakes. It can be used

by insurgent groups and terrorist organisations, to represent their adversaries as making inflammatory speeches or engaging in provocative actions to stir up anti-state sentiments among people.

- Extortion: Further, Deepfakes can be deployed to extract money, confidential information, or exact favours from individuals.
- Creation of Echo Chambers in Social Media: Falsity is profitable, and goes viral more than the truth on social platforms. Combined with distrust, the existing biases and political disagreement can help create echo chambers and filter bubbles, creating discord in society.
- New Front of Warfare: A deepfake could act as a powerful tool by a nation-state to undermine public safety and create uncertainty and chaos in the target country.
- Targeting Women: The malicious use of a deepfake can be seen in pornography, inflicting emotional, reputational, and in some cases, violence towards the individual.
- For example; with the use of AI, the face of a person in an original video can be replaced with the face of another person (Morphing). Now the modified face will mimic the head movements, vocal patterns, and facial expressions of the original one.

What should be the solution for dealing with Deepfakes?

- Regulation & Collaboration with Civil Society: Meaningful regulations with a collaborative discussion with the technology industry, civil society, and policymakers can facilitate disincentivising the creation and distribution of malicious deepfakes.
- Detect and amplify: We also need easy-to-use and accessible technology solutions to detect deepfakes, authenticate media, and amplify authoritative sources.
- New Technologies: There is also need easy-to-use and accessible technology solutions to detect deepfakes, authenticate media, and amplify authoritative sources.
- Enhancing Media Literacy: Media literacy for consumers and journalists is the most effective tool to combat disinformation and deep fakes. Improving media literacy is a precursor to addressing the challenges presented by deepfakes.

Conclusion

The best way to deal with this menace is AI-backed technological tools to detect and prevent deep fakes. These tools must be invented by the countries in cooperation as soon as possible. If steps are not taken immediately, these technologies are even capable of invoking wars among countries, in this information age.

44. What do you understand by string theory? What fundamental questions does it try to answer? Explain.

Approach

Candidates are expected to first explain the string theory and then explain What fundamental questions does it try to answer.

Introduction:

String theory provides a theoretical framework in which all particles, from photons to quarks, are one-dimensional strings as opposed to zero-dimensional points. If a version of string theory were found that held up in all contexts, it would serve as a single mathematical model for describing the nature of the universe—a “theory of everything” that would replace the Standard Model of physics, which does not explain gravity.

What fundamental questions does it try to answer?

As a so-called "Theory of Everything" candidate, string theory aims to address various theoretical conundrums; the most fundamental of which is how gravity works for tiny objects like electrons and photons. Other questions that it answers include:

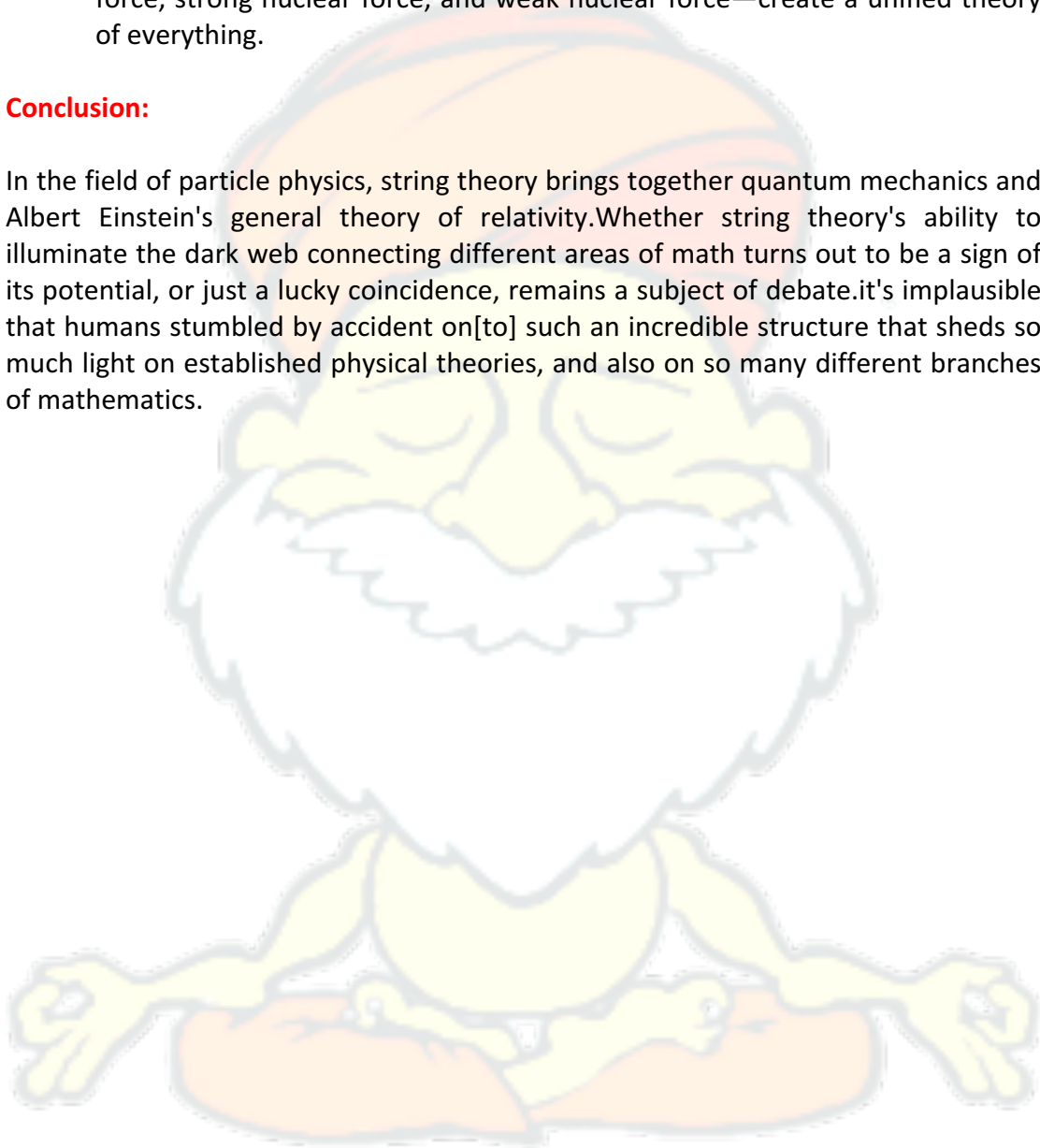
- Strings are one-dimensional filaments that come in two forms: open strings and closed strings. An open string has ends that don't connect, while a closed string forms a closed loop. Branes (derived from the word "membrane") are sheet-like objects that strings can attach to at either end. Branes are capable of moving through spacetime according to the rules of quantum mechanics.
- Physicists accept that our universe contains three spatial dimensions, but string theorists argue for a model that describes extra dimensions of space. In string theory, at least six additional dimensions go undetected because they are tightly compactified into a complex folded shape called a Calabi-Yau manifold.
- String theory is a theory of quantum gravity because it attempts to merge quantum physics with the theory of general relativity. Quantum physics studies the smallest objects in the universe—like atoms and subatomic particles—while general relativity typically focuses on larger-scale objects in the universe.
- Also known as superstring theory, supersymmetry describes the relationship between two types of particles, bosons, and fermions. In supersymmetry string theory, a boson (or force particle) always has a counterpart fermion (or matter particle), and vice versa.
- The concept of supersymmetry is still theoretical, as scientists have not yet seen any of these particles. Some physicists speculate that this is because it would take incredibly high energy levels to generate bosons and fermions.

These particles may have existed in the early universe before the big bang but then were broken down into the lower-energy particles seen today.

- The Large Hadron Collider (the world's highest-energy particle collider) may at some point generate enough energy to support this theory—though as of yet, it has not turned up evidence of supersymmetry.
- String theorists believe they can use interacting strings to explain how the four fundamental forces of nature—the force of gravity, electromagnetic force, strong nuclear force, and weak nuclear force—create a unified theory of everything.

Conclusion:

In the field of particle physics, string theory brings together quantum mechanics and Albert Einstein's general theory of relativity. Whether string theory's ability to illuminate the dark web connecting different areas of math turns out to be a sign of its potential, or just a lucky coincidence, remains a subject of debate. It's implausible that humans stumbled by accident on [to] such an incredible structure that sheds so much light on established physical theories, and also on so many different branches of mathematics.



45. What is CRISPR-Cas9? Why was it in news recently? Discuss.**Approach**

Candidates should explain the CRISPR-Cas9 and Why was it in news recently.

Introduction

Genome editing is a method that lets scientists change the DNA of many organisms, including plants, bacteria, and animals. CRISPR-Cas9 is a genome editing tool that is creating a buzz in the science world. It is faster, cheaper and more accurate than previous techniques of editing DNA and has a wide range of potential applications.

Understanding the CRISPR-Cas9

- CRISPR-Cas9 is a unique technology that enables geneticists and medical researchers to edit parts of the genome by removing, adding or altering sections of the DNA sequence.
- It is currently the simplest, most versatile and precise method of genetic manipulation and is therefore causing a buzz in the science world.

How does it work?

- The CRISPR-Cas9 system consists of two key molecules that introduce a change (mutation) into the DNA.
- These are: an enzyme called Cas9.
- This acts as a pair of 'molecular scissors' that can cut the two strands of DNA at a specific location in the genome so that bits of DNA can then be added or removed. a piece of RNA called guide RNA (gRNA).
- This consists of a small piece of pre-designed RNA sequence (about 20 bases long) located within a longer RNA scaffold.
- The scaffold part binds to DNA and the pre-designed sequence 'guides' Cas9 to the right part of the genome.
- This makes sure that the Cas9 enzyme cuts at the right point in the genome.
- The guide RNA is designed to find and bind to a specific sequence in the DNA.

Why was it in news recently?

The CRISPR was in news recently or the following reasons:

- Bioengineers have repurposed a 'non-working' CRISPR system to make a smaller version of the genome engineering tool. Its diminutive size should make it easier to deliver into human cells, tissues and the body for gene therapy.

- "CRISPR can be as simple as a cutter, or more advanced as a regulator, an editor, a labeller or imager. Many applications are emerging from this exciting field
- The many different CRISPR systems in use or being clinically tested for gene therapy of diseases in the eye, liver and brain, however, remain limited in their scope because they all suffer from the same flaw: they're too large and, therefore, too hard to deliver into cells, tissues or living organisms.
- Until a major step forward for CRISPR: An efficient, multi-purpose, *mini* CRISPR system. Whereas the commonly used CRISPR systems -- with names like Cas9 and Cas12a denoting various versions of CRISPR-associated (Cas) proteins -- are made of about 1000 to 1500 amino acids, their "CasMINI" has 529.
- The researchers confirmed in experiments that CasMINI could delete, activate and edit genetic code just like its beefier counterparts. Its smaller size means it should be easier to deliver into human cells and the human body, making it a potential tool for treating diverse ailments, including eye disease, organ degeneration and genetic diseases generally.
- In addition to protein engineering, the researchers also engineered the RNA that guides the Cas protein to its target DNA. Modifications to both components were crucial to making the CasMINI system work in human cells. They tested CasMINI's ability to delete and edit genes in lab-based human cells, including genes related to HIV infection, anti-tumour immune response and anaemia. It worked on almost every gene they tested, with robust responses in several.
- The researchers have already begun assembling collaborations with other scientists to pursue gene therapies. They are also interested in how they could contribute to advances in RNA technologies -- like what has been used to develop the mRNA COVID-19 vaccines -- where size can also be a limiting factor.
- Apart from the above research, Scientists have discovered a new route to produce complex antibiotics exploiting gene editing to re-programme pathways to future medicines urgently required to combat antimicrobial resistance, treat neglected diseases and prevent future pandemics. The research describes how CRISPR-cas9 gene editing can be used to create new nonribosomal peptide synthetase (NRPS) enzymes that deliver clinically important antibiotics.

Conclusion:

It is likely to be many years before CRISPR-Cas9 is used routinely in humans. Much research is still focusing on its use in animal models or isolated human cells, with the aim to eventually use the technology to routinely treat diseases in humans.