

UPSC 2019

MODEL HINTS

General Studies
Paper - 3

MODEL HINTS

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UPSC MAINS 2019

GS PAPER - 3

Time Allowed: 3 hrs.

Max. Marks: 250

1. Enumerate the indirect taxes which have been subsumed in the goods and services tax (GST) in India. Also, comment on the revenue implications of the GST introduced in India since July 2017? (Answer in 150 words) (10)
2. Do you agree with the view that steady GDP growth and low inflation have left the Indian economy in good shape? Give reasons in support of your arguments? (Answer in 150 words) (10)
3. How far is Integrated Farming System (IFS) helpful in sustaining agricultural production? (Answer in 150 words) (10)
4. Elaborate the impact of National Watershed Project in increasing agricultural production from water-stressed areas. (Answer in 150 words) (10)
5. How was India benefitted from the contributions of Sir M. Visvesvaraya and Dr. M. S. Swaminathan in the fields of water engineering and agricultural science respectively? (Answer in 150 words) (10)
6. What is India's plan to have its own space station and how will it benefit our space programme? (Answer in 150 words) (10)
7. Coastal sand mining, whether legal or illegal, poses one of the biggest threats to our environment. Analyze the impact of sand mining along the Indians coasts, citing specific examples. (Answer in 150 words) (10)
8. Vulnerability is an essential element for defining disaster impacts and its threat to people. How and in what ways can vulnerability to disasters be characterized? Discuss different types of vulnerability with reference to disasters. (Answer in 150 words) (10)
9. The banning of 'Jammat-e-Islami' in Jammu and Kashmir brought into focus the role of over-ground workers (OGWs) in assisting terrorist organizations. Examine the role played by OGWs in assisting terrorist organizations in insurgency affected areas. Discuss measures to neutralize influence of OGWs. (Answer in 150 words) (10)
10. What is CyberDome Project? Explain how it can be useful in controlling internet crimes in India. (Answer in 150 words) (10)
11. It is argued that the strategy of inclusive growth is intended to meet the objectives of inclusiveness and sustainability together. Comment on this statement. (Answer in 250 words) (15)
12. The public expenditure management is a challenge to the Government of India in context of budget making during the post liberalization period. Clarify it. (Answer in 250 words) (15)
13. What are the reformative steps taken by the Government to make food grain distribution system more effective? (Answer in 250 words) (15)

14. Elaborate the policy taken by the Government of India to meet the challenges of the food processing sector. (Answer in 250 words) (15)
15. How is the Government of India protecting traditional knowledge of medicine from patenting by pharmaceutical companies? (Answer in 250 words) (15)
16. How can biotechnology help to improve the living standards of farmers? (Answer in 250 words) (15)
17. Define the concept of carrying capacity of an ecosystem as relevant to an environment. Explain how understanding this concept is vital while planning for sustainable development of a region. (Answer in 250 words) (15)
18. Disaster preparedness is the first step in any disaster management process. Explain how hazard zonation mapping will help disaster mitigation in the case of landslides. (Answer in 250 words) (15)
19. Indian Government has recently strengthened the anti-terrorism laws by amending the unlawful Activities (Prevention) Act (UAPA), 1967 and the NIA act. Analyze the changes in the context of prevailing security environment while discussing the scope and reasons for opposing the UAPA by human rights organizations. (Answer in 250 words) (15)
20. Cross-Border movement of insurgents is only one of the several security challenges facing the policing of the border in North-East India. Examine the various challenges currently emanating across the India-Myanmar border. Also, discuss the steps to counter the challenges. (Answer in 250 words) (15)



UPSC MAIN EXAMINATION

(GENERAL STUDIES PAPER - 3)

HINTS

1. *Enumerate the indirect taxes which have been subsumed in the goods and services tax (GST) in India. Also, comment on the revenue implications of the GST introduced in India since July 2017?*

Approach

1. *Give a brief introduction about GST. (60 words)*
2. *List down the indirect taxes subsumed in the goods and services tax. (40 words)*
3. *Conclude by commenting on the revenue implications of the GST introduced in India since July 2017. (50 words)*

Hints:

Introduction:

GST is an Indirect Tax which has replaced many Indirect Taxes in India. The Goods and Service Tax Act was passed in the Parliament on 29th March 2017. The Act came into effect on 1st July 2017; Goods & Services Tax Law in India is a **comprehensive, multi-stage, destination-based tax** that is levied on every **value addition**. Under the GST regime, the tax is levied at every point of sale. In the case of intra-state sales, Central GST and State GST are charged. Inter-state sales are chargeable to Integrated GST.

In the earlier indirect tax regime, there were many indirect taxes levied by both state and center. States mainly collected taxes in the form of Value Added Tax (VAT). Every state had a different set of rules and regulations. Interstate sale of goods was taxed by the Centre. CST (Central State Tax) was applicable in case of interstate sale of goods. Other than above there were many indirect taxes like entertainment tax, octroi and local tax that was levied by state and center.

The following is the list of indirect taxes in the pre-GST regime. CGST, SGST, and IGST has replaced all of these:

- Central Excise Duty
- Duties of Excise
- Additional Duties of Excise
- Cess
- State VAT
- Central Sales Tax
- Purchase Tax
- Luxury Tax
- Entertainment Tax

- Entry Tax
- Taxes on advertisements
- Taxes on lotteries, betting, and gambling

Conclusion: Revenue implication of GST.

Nearly two years have passed since, and there's a widespread perception that GST revenue growth has not lived up to expectations. Post implementation of GST, the Centre's revenue from goods and services (excluding Central excise on petroleum and tobacco) registered a decline of 10 per cent in 2017/18, compared to the revenue from the subsumed taxes in 2016/17. In 2018/19, the Union government had to revise its GST collection target by Rs 1 lakh crore - from Rs 7.43 lakh crore to Rs 6.43 lakh crore. The target for 2019/20 is Rs 6.63 lakh crore, just Rs 20,000 crore more than the last year's revised target.

2. Do you agree with the view that steady GDP growth and low inflation have left the Indian economy in good shape? Give reasons in support of your arguments?

Approach

1. Give brief introduction about the steady GDP growth, and the low inflation rate in context of its impact on the Indian economy. (60 words)
2. Discuss in support of your argument by highlighting the importance of macroeconomic stability, and inflation management. (60 words)
3. Conclusion. (30 words)

Hints:

India's GDP is estimated to have increased 7.2 per cent in 2017-18 and 7 per cent in 2018-19. Its performance has been quite stable in last 6-7 years after recovery from impact of global financial recession.

Similarly, the Indian economy has witnessed a gradual transition from a period of high and variable inflation to a more stable and low level of inflation in the past five years, according to the Economic Survey. The current phase of low inflation is also marked by a reduction in both urban and rural inflation.

Based on this the survey argued that amidst the gloomy landscape of unusual volatility in the international economic environment, India stands as a haven of stability and an outpost of opportunity. It also introduced a concept of Rational Investor Ratings Index.

RIRI combined two elements: (i) growth, which crucially determines rewards and returns; and (ii) macroeconomic stability (which proxies for risks).

The Macro-Economic Vulnerability index includes a country's fiscal deficit, current account deficit, and inflation.

Importance of Macroeconomic stability

Investors like macroeconomic stability. If the economy is not well-managed, financial markets react negatively, at times even disproportionately, making economic management a lot more difficult, which can lead to a full-blown crisis. In 2013, India was struggling with high inflation and high current account deficit. However, since then, fundamentals have improved a great deal and macroeconomic indicators now look less vulnerable. Inflation has come down, the current account deficit is under control, and the government has committed itself to a lower fiscal deficit target.

For economic activity to grow at a healthy pace, it is important that the economy is managed well. Differently put, for economic activity to prosper, among other things, it is important that inflation is low, government finances are handled well, imbalances are avoided on the external front, and the financial system is stable. Economic activity is likely to suffer if the economy is vulnerable to internal or external shocks. Therefore, it is important for policymakers to be watchful and take necessary steps, in time, to avoid extreme consequences.

Details of inflation management

Former RBI Governor Raghuram Rajan has pointed out, inflation robs the earnings of the poor and just about anyone with a fixed income. "Inflation is the silent killer because it eats into pensioners' principal, even while they are deluded by high nominal interest rates into thinking they are getting an adequate return".

On one hand, Inflation targeting has, in part, helped keep inflation in check. India formally adopted an inflation target in March 2015. This came after a committee headed by now governor Urjit Patel recommended that retail inflation be made the nominal anchor for monetary policy. After discussions between the government and the RBI, a flexible inflation target of 4 (+/- 2) percent was set.

3. *How far is Integrated Farming System (IFS) helpful in sustaining agricultural production?*

Approach

1. Give a brief introduction about IFS by highlighting its salient features. (50 words)
2. Discuss about the impact of IFS in sustaining agricultural production in context of its environmental benefits. (70 words)
3. Conclusion. (30 words)

Hints:

IFS is a farming practice meant for all-round development of agriculture with animal husbandry and other occupations related to core agricultural practices. Integrated Farming System (IFS) is an interdependent, interrelated often interlocking production systems based on few crops, animals and related subsidiary enterprises in such a way that maximize the utilization of nutrients of each system.

The IFS approach has multiple objectives of sustainability, food security, farmer security and poverty reduction. It involves use of outputs of one enterprise component as inputs for other related enterprises wherever feasible, for example, cattle dung mixed with crop residues and farm waste can be converted in to nutrient-rich vermi-compost.

The salient features of IFS include – innovation in farming for maximising production through optimal use of local resources, effective recycling of farm waste for productive purposes, community-led local systems for water conservation, organic farming, and developing a judicious mix of income-generating activities such as dairy, poultry, fishery, goat-rearing, vermicomposting and others.

Major environmental benefits include:

- **Recycling and utilization of other available resources in the farm:** There is effective recycling of waste material in farming system. It specifically refers to crop-combination or enterprise -mix in which the products and/or the by-products of one enterprise serve as the input for the production of other enterprise. Farming system includes agricultural crops, fruit trees, forest trees, forages, grasses and animals, which have potential to contribute to improve resource use and management.
- **Potentiality or Sustainability:** Organic supplementation through effective utilization of byproducts of linked component provides an opportunity to sustain the potentiality of production base for much longer periods.
- **Balanced Food:** The linked components of varied nature enable to produce different sources of nutrition.
- **Environmental Safety:** In IFS waste materials are effectively recycled by linking appropriate components, thus minimize environment pollution.
- **Saving Energy:** Organic wastes available in the system can be utilized to generate biogas. This alternative source thus reduces our dependence on fossil energy sources within short time.

- **Meeting Fodder crisis:** Every piece of farm area is effectively utilized. Plantation of perennial legume fodder trees on field borders fixes the atmospheric nitrogen. These practices will greatly relieve the problem of non – availability of quality fodder to the animal component linked.
- **Solving Fuel and Timber Crisis:** By linking agro- forestry appropriately, the production level of fuel and industrial wood can be enhanced without any effect on crop. This will also greatly reduce deforestation, thus preserving our natural ecosystem.
- **Increasing Input Efficiency:** Farming system provides good scope to use inputs in different component with greater efficiency and benefit cost ratio.

Conclusion:

The emergence of Integrated Farming Systems (IFS) has enabled us to develop a framework for an alternative development model to improve the feasibility of small sized farming operations in relation to larger ones.

4. *Elaborate the impact of National Watershed Project in increasing agricultural production from water-stressed areas.*

Approach

1. *Give a brief introduction about the objectives of the Neeranchal National Watershed Project Body. (30 words)*
2. *Elaborate on the impact of national Watershed Project in context of agricultural production from water-stressed areas. (80 words)*
3. *Conclusion. (40 words)*

Hints:

The project aims to fulfil the watershed component of the Pradhan Mantri Krishi Sinchai Yojana (PMKSY) to reduce surface runoff of rainwater, increase groundwater levels and better water availability in rainfed areas. This will contribute to higher agricultural production even in water-stressed areas.

Impact of National Watershed Project in increasing agricultural production in water-stressed areas.

- It was launched for achieving the major objectives of the Watershed Component of the Pradhan Mantri Krishi Sinchayi Yojana (PMKSY) and for ensuring access to irrigation to every farm (Har Khet Ko Pani) and efficient use of water (Per Drop More Crop)
- It will bring about institutional changes in watershed and rainfed agricultural management practices in India.
- It will help to build systems that ensure watershed programmes and rainfed irrigation management practices are better focused, and more coordinated, and have quantifiable results.
- It will devise strategies for the sustainability of improved watershed. management practices in programme areas, even after the withdrawal of project support.
- The watershed project will lead to reducing surface runoff of rainwater.
- It will increase recharge of ground water.
- It will result in better availability in rainfed areas resulting in incremental rainfed agriculture productivity.
- It will also translate into enhanced milk yields.
- It will increase cropping intensity in such areas through better convergence of related programmes in project areas.
- Watershed development projects are area development programme and all people living in the project area will be benefitted.

- **Case study:**

- Drought in India has had detrimental impact since many centuries and continues to be. Nearly 9 million farmers of Maharashtra were impacted by the drought in 2016.
- Drought situation arises due to inadequate and delayed rain as well as lack of arrangements to harvest rainwater.

Paani Foundation is an NGO working towards making Maharashtra drought-free with Satyamev Jayate water cup.

- Water Cup is a competition between different villages, village that does maximum work for watershed management and water conservation wins. Water cup has brought forth a revolution by motivating thousands of volunteers to make Maharashtra a drought free state.
- One such village facing drought situation is Ambale in Purandar taluka.

Conclusion

- However, despite these successes, a number of challenges remain for watershed development to achieve better outcomes, including enhanced participation of communities, building stronger capacities and systems to plan, implement, monitor and post-project sustainability of local institutions and assets. These challenges, if not resolved, can result in implementation delays, slow disbursements and benefits.

5. *How was India benefitted from the contributions of Sir M. Visvesvaraya and Dr. M. S. Swaminathan in the fields of water engineering and agricultural science respectively?*

Approach

1. *Give a brief introduction about how these scientists had helped India to achieve nationalist objective and helped in improving the socio-economic condition of India. (40 words)*
2. *Discuss about their contribution in the fields of water engineering and agricultural science. (70 words)*
3. *Conclusion. (40 words)*

Hints:

Sir Mokshagundam Visvesvaraya, a civil engineer and statesman. He made contributions to several technical projects in his career in Hyderabad, Mysore, Maharashtra and Orissa. The Great KRS Dam was his excellent work instrumental in converting the barren lands into fertile grounds for farming.

Swaminathan is an advocate of moving India to sustainable development, especially using environmentally sustainable agriculture, sustainable food security and the preservation of biodiversity, which he calls an “evergreen revolution.”

Following are the contributions of Sir M. Visvesvaraya in the fields of water engineering:

- He is best remembered for the instrumental role he played in the construction of the Krishna Raja Sagara Lake and dam in 1924. This dam not only became the main source of water for irrigation for the nearby areas, but was also the main source of drinking water for several cities.
- He had designed and patented a system of automatic weir water floodgates that were first installed in 1903 at Khadakvasla Reservoir near Pune. These gates were employed to raise flood supply level of storage in reservoir to the highest level likely to be attained without causing any damage to the dam.
- Based on the success of these gates, the same system was installed at the Tigra Dam and Krishna Raja Sagara (KRS) Dam in Mandya/Mysore, Karnataka.

- He was one of the Chief designing engineers for bringing up a system for flood protection in Hyderabad. He played a key role in developing a system to protect Vishakapatnam port from sea erosion.
- Visvesvaraya gave his valuable technical advice for the location of Mokama Bridge over Ganga in Bihar.

Following are the contributions of Dr. M. S. Swaminathan in the fields of agricultural science:

- Dr. Mankombu Sambasivan Swaminathan (M.S. Swaminathan) is a renowned Indian geneticist and administrator, who made a stellar contribution in the success of India's Green Revolution.
- He called was Norman Borlaug of India.
- The program and the program went a long way in making India self-sufficient in wheat and rice production.
- He introduced the Mexican semi dwarf wheat plants as well as modern farming methods in India.
- His research on potato genetics and was successful in standardizing procedures for transferring genes from a wide range of wild species of Solanum to the cultivated potato, Solanum tuberosum.
- He also suggested that Phenological changes in rice have resulted in the possibility of three harvests per year, in wheat the extended grain filling period was a result of phenological change.
- His contributions to the better understanding of genetic traits that define the growth and yield are impressive. Growth and yield- defining factors are pivotal for the attainment of potential yields.
- Farmer field schools promoted by Swaminathan in the early seventies have demonstrated that empowered farmers with good understanding of the ecological systems and with sufficient access to the means of control have resulted in the precision agriculture and best ecological means that characterize the evergreen revolution.
- He established the National Bureau of Plant, Animal, and Fish Genetic Resources of India.
- He did develop new and improved varieties of seeds, better farming methods, better soil and water management.
- He chaired National Commission for farmers laying out many recommendations to improve farming and the condition of farmers in India
- He is also a resourceful writer. He has written several research papers and books on Agricultural Science and Biodiversity like 'Building a National Food Security System, 1981', 'Sustainable Agriculture: Towards an Evergreen Revolution, 1996', etc.

Conclusion:

- Sir M. Visvesvaraya as an Engineer and an administrator, the kind of work which he has done will stand as an inspiration to many more generations to come.
- Swaminathan's contribution in the field of agricultural science is pro-poor, pro-environment, pro-women and children is a beacon for the development of agro-ecosystems that contribute to food and nutrition security, and empower farmers and their organizations.

6. What is India's plan to have its own space station and how will it benefit our space programme?

Approach

1. Give a brief introduction about space stations. (40 words)
2. India's Discuss about India's future plan of space station, need of it and its benefit to India. (70 words)

3. Conclude by summarizing the arguments made in the answer and write the way forward. (40 words)

Hints:

Space station is also called orbital station. It orbits around Earth. Basically, it is a large spacecraft or man-made station in space, a home where astronauts live and also receives several spacecrafts from the Earth. It is a kind of science lab, many countries worked together to build it and also, work together to use it. Recently ISRO chief said 'We are planning to have a separate space station. We will not be a part of ISS. Our space station is going to be very small'.

India's plan to have its own space station:

- ISRO Director Dr. K. Sivan said "We have to sustain the Gaganyaan programme. So, subsequently, as a long-term plan, we are planning to have the space station in India. We are going to join the international community in manned missions to moon, asteroids. We have a clear plan for the space programme".
- The Indian space station will be much smaller (mass of 20 tonnes) than the International Space Station and will be used for carrying out microgravity experiments (not for space tourism).
- Preliminary plan for the space station is to accommodate astronauts for up to 20 days in space, and the project will be an extension of the Gaganyaan mission.
- It will orbit Earth at an altitude of around 400km.
- ISRO (Indian Space Research Organisation) is working on space docking experiment (Spadex), a technology that is crucial for making the space station functional.
- India is planning to conduct small microgravity experiments in space.

Benefit of own space station programme

- Space station is essential for collecting meaningful scientific data, especially for biological experiments.
- Provide platforms for greater number and length of scientific studies than available on other space vehicles. (as Gaganyaan will take humans and experiments in microgravity for few days only).
- Each crew member stays aboard the station for weeks or months, but rarely more than a year.
- Space stations are used to study the effects of long-term space flight on the human body.
- ISRO needs this facility in the context of its various space missions like interplanetary mission to Venus will be launched in the next 2-3 years.

Conclusion:

Thus, the proposed India's space station will help to study atmospheric composition of the planet and would be a milestone for the country in its endeavor to advance space exploration.

7. Coastal sand mining, whether legal or illegal, poses one of the biggest threats to our environment. Analyze the impact of sand mining along the Indians coasts, citing specific examples.

Approach

1. Give a brief introduction about the impact of illegal sand mining. (30 words)
2. Discuss how it causes damage to our environment, by highlighting the examples of Kerala, Tamilnadu etc. (80 words)
3. Conclude by giving solutions to the issue of Coastal Sand mining. (40 words)

Hints:

The United Nations Environment Programme (UNEP) has released a report, Sand and Sustainability: Finding new solutions for environmental governance of global sand resources, that highlights a problem that the sand has been extracted at rates exceeding natural replenishment rates.

Coastal sand mining poses one of the biggest threats to our environment:

- While 85% to 90% of global sand demand is met from quarries, and sand and gravel pits, 10% to 15% extracted from rivers and seashores is a severe concern due the environmental and social impacts.
- Their extraction often results in river and coastal erosion and threats to freshwater and marine fisheries and aquatic ecosystems, instability of river banks leading to increased flooding, and lowering of groundwater levels.
- The UNEP report notes that China and India head the list of critical hotspots for sand extraction impacts in rivers, lakes and coastlines.
- As per the report, most large rivers of the world have lost between half and 95% of their natural sand and gravel delivery to ocean.
- The damming of rivers for hydro-electricity production or irrigation is reducing the amount of sediment flowing downstream.
- This broken replenishment system exacerbates pressures on beaches already threatened by sea level rise and intensity of storm-waves induced by climate change, as well as coastal developments.
- Depletion of sand in the streambed and along coastal areas causes the deepening of rivers and estuaries, and the enlargement of river mouths and coastal inlets.
- It may also lead to saline-water intrusion from the nearby sea. The effect of mining is compounded by the effect of sea level rise. Any volume of sand exported from streambeds and coastal areas is a loss to the system.
- It is also a threat to bridges, river banks and nearby structures.
- Sand mining also affects the adjoining groundwater system and the uses that local people make of the river.
- Their extraction often results in river and coastal erosion and threats to freshwater and marine fisheries and aquatic ecosystems, instability of river banks leading to increased flooding, and lowering of ground water levels.
- Disturbance of underwater and coastal sand causes turbidity in the water, which is harmful for organisms such as corals that need sunlight.
- The indiscriminate mining has also destroyed hills, eroded biodiversity spheres, denuded forests and degraded fertile soil thereby impacting the socioeconomic condition of local people.

Example:

1. Kerala

Sand mining in coastal Kerala is swallowing villages and displacing thousands

- A village named Panmana has turned in to a heap of sand and an abandoned temple stands, around which thousands of fishermen once lived.
- In Alappad panchayat, activists estimate that more than 6,000 fishermen families have vacated over the years due to beach erosion, drinking water scarcity and lack of fish availability.
- Most of the people have been forced to leave their houses, even without any compensation from the authorities or the mining companies.

- It also led to Loss of drinking water, fish stock depletion and erosion
- Uncontrolled sand mining led to Kerala floods.

2. Tamilnadu

- The indiscriminate mineral mining in six lease areas in the southern district of Tuticorin. These quarries are engaged in mining sand and major minerals such as ilmenite, rutile and garnet.
- It has been pointed out that the illegal sand mining has caused increasing sea erosion in the coastal districts. Fisher communities and organizations have been agitating against indiscriminate mining for long.

Conclusion

After banning mining of river sand and other minor minerals without the mandatory environment clearance, the National Green Tribunal (NGT) has banned beach sand mining from the sea coast of Tamil Nadu and Kerala is step in right direction.

Only strict implementation of laws, introduction of state-level policies, and encouragement of artificial sand usage in construction, can stop the irreversible scarring of India's rivers and beaches and protect its ecological health.

8. *Vulnerability is an essential element for defining disaster impacts and its threat to people. How and in what ways can vulnerability to disasters be characterized? Discuss different types of vulnerability with reference to disasters.*

Approach

1. Give a brief introduction about vulnerability, and its significance in defining disaster impacts and its threat to people. (40 words)
2. Discuss about the different types of vulnerability with reference to disasters, like social, economic etc. (70 words)
3. Conclude by giving solutions to reduce the Disaster management risk. (40 words)

Hints:

Vulnerability describes the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. There are many aspects of vulnerability, arising from various physical, social, economic, and environmental factors.

Examples may include:

- poor design and construction of buildings,
- inadequate protection of assets,
- lack of public information and awareness,
- limited official recognition of risks and preparedness measures, and
- disregard for wise environmental management.

Vulnerability varies significantly within a community and over time. This definition identifies vulnerability as a characteristic of the element of interest (community, system or asset) which is independent of its exposure.

Different types of vulnerability with reference to disasters:

There are 5 main types of vulnerability:

1. **Physical Vulnerability** may be determined by aspects such as population density levels, remoteness of a settlement, the site, design and materials used for critical infrastructure and for housing (UNISDR).

Example: Wooden homes are less likely to collapse in an earthquake, but are more vulnerable to fire.

2. **Social Vulnerability** refers to the inability of people, organizations and societies to withstand adverse impacts to hazards due to characteristics inherent in social interactions, institutions and systems of cultural values.

It is linked to the level of well-being of individuals, communities and society. It includes aspects related to levels of literacy and education, the existence of peace and security, access to basic human rights, systems of good governance, social equity, positive traditional values, customs and ideological beliefs and overall collective organizational systems (UNISDR).

In a disaster, women in general may be affected differently from men because of their social status, family responsibilities or reproductive role, but they are not necessarily vulnerable.

Example: When flooding occurs some citizens, such as children, elderly and differently-able, may be unable to protect themselves or evacuate if necessary.

3. **Economic Vulnerability.** The level of vulnerability is highly dependent upon the economic status of individuals, communities and nations the poor are usually more vulnerable to disasters because they lack the resources to build sturdy structures and put other engineering measures in place to protect themselves from being negatively impacted by disasters.

Example: Poorer families may live in squatter settlements because they cannot afford to live in safer (more expensive) areas.

4. **Environmental Vulnerability.** Natural resource depletion and resource degradation are key aspects of environmental vulnerability.

Example: Wetlands, such as the Caroni Swamp, are sensitive to increasing salinity from sea water, and pollution from stormwater runoff containing agricultural chemicals, eroded soils, etc.

5. **Attitudinal vulnerability**

A community which has negative attitude towards change and lacks initiative in life resultantly become more and more dependent on external support. They cannot act independently. They become victims of conflicts, hopelessness and pessimism which reduces their capacity of coping with a disaster.

Conclusion:

- Disaster management is a multi-disciplinary area which includes forecasting, warning, search and rescue, relief, reconstruction and rehabilitation. It is also a multi sectoral task as it involves administrators, scientists, planners, volunteers and communities. Critical need is the co-ordination of all the activities between them.
 - For developing countries like India disaster management is a major concern as it directly influences the economy, agriculture, food and sanitation, water, environment and health. Disasters also have social, economic and psychological dimensions.
 - Funds must be designed and planned on risk assessment and risk exposure assessment. So, Risk reduction and sustainable development must be seen in an integrated format.
9. ***The banning of 'Jammāt-e-Islāmī' in Jammu and Kashmir brought into focus the role of over-ground workers (OGWs) in assisting terrorist organizations. Examine the role played by OGWs in assisting terrorist organizations in insurgency affected areas. Discuss measures to neutralize influence of OGWs.***

Approach

1. Give a brief introduction about OGWs. (20 words)
2. Briefly discuss about why they are in news recently. (20 words)
3. Discuss about the role played by OGWs in assisting terrorist organisations. (40 words)
4. Suggest measures to neutralize the OGWs. (40 words)
5. Way forward. (30 words)

Hints:

The OGW networks are under the scanner following frequent attacks and targeted killing of policemen, especially in south Kashmir.

- The police believe that OGW networks help militants with specific information to choose their targets.
- Initially OGWs were primarily involved in logistics support and intelligence gathering.
- But now the distinction has blurred considerably with OGW also capable of carrying out small scale strikes while retaining the capability to mix rapidly with the population.
- OGWs have become a significant tool for strategic communication and recruitment by their handlers in J&K.
- OGWs constantly work towards the development of a negative sentiment in the minds of the so-called grey population or fence sitters in an insurgency.
- One of the OGWs, Jamaat-e-Islami' (J-K) is "intrinsically linked with United Jihad Council (based in Pakistan) which is the umbrella organization of all major terrorist outfits".

Measures to neutralize influence of OGWs.

- OGWS can be identified by intelligence agencies tracking cyberfunding and physical currency as funds for terror.
- Intelligence-based sting operations should be launched over a period of time for gathering proof of their damaging activities of recruiting, radicalising or merely pushing the youth into militancy.
- **Categorisation of OGWs**

To fight this most important tool of terrorism and proxy war it is important to categorise the OGWs so that separate response strategies can be made for each one of the categories. Although operating as larger network, the OGWs in Kashmir can be broadly categorised under the following heads:

- OGWs for Logistic Support (OGWLS) to Strike teams.
- OGWs managing Funding
- OGWs providing Ideological Support
- OGWs providing Radicalization Support.
- OGWs for Recruitment of Terrorists.
- OGWs generating negative Perceptions and Sentiment amongst the people.
- There is definitely a need to jointly map the OGWs, terrorists and anti-national elements through a multi-agency effort so that the intelligence picture generated is in sync with ground realities and not based on perceptions of various agencies.
- Due care should also be taken to ensure that police gets the credit for any operation launched based on joint intelligence as their empowerment, in the long run, will be beneficial.

- The PSA provides an ideal tool to book anti national elements and OOGWs to prevent them from disrupting peace and security.
- However, care should be taken to ensure that only hard core OGW are booked under this act. Random booking of youths under this act completely eliminates an individual's chance to come back to society and thus would be readily available to the terrorists for indoctrination.
- The time spent in jails should also be monitored so as to prevent them from interacting with hard core terrorists and fundamentalists.

Way forward:

The Perception and Psyche of the people is the key to the solution of the problem and highest standards of propriety and well thought out strategic communication for the different categories of the OGWs will separate the fish from the pond.

10. What is CyberDome Project? Explain how it can be useful in controlling internet crimes in India.

Approach

1. Give a brief introduction about the Cyber Dome project. (50 words)
2. Explain how it will be helpful in controlling internet crimes. (70 words)
3. Conclusion. (30 words)

Hints:

- Cyber dome Project is conceived by Technological Research and Development Centre of Kerala Police as a public-police participation model is aimed at combating emerging cyber threats through effective policing.
- Cyber dome is a Centre of Excellence for Kerala Police, to meet the long-term security challenges in the digital arena of the modern world, by bridging the gap between the latest changes and innovations in the cyber space and the skill set development of Kerala Police, in combating the emerging cyber threats.
- Cyber dome is conceived as a Cyber Centre of excellence in cyber security as well as technology augmentation for effective policing.
- It envisages as a high tech public-private partnership Centre of collaboration for different stakeholders in the domain of cyber security and handling of cybercrimes, in a proactive manner.
- It is envisaged as a collaboration Centre for both the public and private fraternity to converge and share information, as well as resources that will escalate the safety of our cyber space.

It can be useful in controlling internet crimes in India.

- One of the main objectives of the Cyberdome is to prevent cyber-crimes through the development of a cyber threat resilient ecosystem to defend against the growing threat of cyber-attacks by synergizing with other departments and nodal agencies of the State.
- Cyberdome makes a collective coordination among the Government departments and agencies, academia, research groups, non-profitable organizations, individual experts from the community, ethical hackers, private organizations, and other law enforcement agencies in the country, with an aim of providing a safe and secure cyber world for each and every citizen in the state.
- Cyber Intelligence: Cyber dome has a key role in providing insights for cyber intelligence by tracking and analysing the activities of the cyber world.
- Social media analytics, anti-piracy measures on the internet, virtual policing, monitoring of online sex rackets, preventing child pornography, and countering cyber terror activities are the key focus areas.

- Cyberdome is operating an online office of technical experts, ethical hackers, and competent cyber security professionals, who assist the police in the area of cyber security, cybercrime investigation and domain knowledge updating.
- Cyber security: Primary focus area of Cyber dome is cyber security as the protection of the departmental systems, networks and data in cyberspace.
- Cyber forensics have been developed to track the area of crime and develop knowledge about them.
- In March 2017, Cyberdome notched up a remarkable victory when it forewarned the Kerala government of a possible ransomware attack.
- Cyber dome is to provide continuous attention that is required to protect sensitive government and personal digital assets to safeguard national security.
- Ethical hackers working for Cyberdome had exposed a vital security vulnerability in the State's Integrated Financial Management System
- Cyberdome has developed cyber-surveillance tools to detect and convict those responsible for industrial espionage. The tools unearth moles that lie deep in critical information networks and siphon off data clandestinely.
- Cyberdome has used social engineering as the lynchpin of its policing strategy to snoop on radical groups that use the net for extremist activities.
- Law enforcers often use deception as a tool to insinuate themselves into such shadowy groups. They use fictitious online identities to manipulate suspects about divulging actionable information.
- Cyberdome has launched a covert cyber-surveillance and infiltration programme to crack down on child pornography.
- Images of children captured furtively on mobile phones are increasingly finding their way to porn websites, and Kerala is a significant contributor. The operation, code-named P-Hunt, resulted in the arrest of 22 persons in March.
- Various activities such as organizing workshops in cyber security for police officials, government departments, and for school and college students are also being planned to be undertaken under Cyber Dome.

Conclusion:

Thus, Cyber dome helps in building expertise in cyber security and transferring technologies, enforcing policies, offering services and building products to create a secure ecosystem for the technology tailored society.

11. It is argued that the strategy of inclusive growth is intended to meet the objectives of inclusiveness and sustainability together. Comment on this statement.

Approach

1. Give a brief introduction about the concept of inclusive growth. (70 words)
2. Discuss significance of inclusive growth in meeting the objective of both inclusiveness and sustainability together. (140 words)
3. Conclusion. (40 words)

Hints:

Growth is inclusive **when it narrows social inequalities in a country or a group of countries**. It's a way of comparing the growth of developed and emerging countries. It's the outcome of a model that not only calls for redistribution policies to reduce social inequalities in the near term, but also calls for the long-

term development of all types of personal talents and skills: inequality is reduced by participating in growth and creating economic value.

Sustainable economic growth requires inclusive growth. Maintaining this is sometimes difficult because economic growth may give rise to negative externalities, such as a rise in corruption, which is a major problem in developing countries. Nonetheless, an emphasis on inclusiveness—especially on equality of opportunity in terms of access to markets, resources, and an unbiased regulatory environment—is an essential ingredient of successful growth. The inclusive growth approach takes a longer-term perspective, as the focus is on productive employment as a means of increasing the incomes of poor and excluded groups and raising their standards of living.

Policies for inclusive growth are an important component of most government strategies for sustainable growth. For instance, a country that has grown rapidly over a decade, but has not seen substantial reduction in poverty rates may need to focus specifically on the inclusiveness of its growth strategy, i.e. on the equality of opportunity for individuals and firms.

In the short run, governments could use income distribution schemes to attenuate negative impacts on the poor of policies intended to jump start growth, but transfer schemes cannot be an answer in the long run and can be problematic also in the short run. In poor countries such schemes can impose significant burdens on already stretched budgets, and it is theoretically impossible to reduce poverty through redistribution in countries where average income falls below US\$ 700 per day. According to a recent OECD study, even in developed countries, redistribution schemes cannot be the only response to rising poverty rates in certain segments of the population.

Economic policies have to look at growth over a sufficiently long term to factor in demographic ageing and the rise in healthcare costs. Thanks to redistribution mechanisms, society has to help those in financial or educational need, e.g. by offering individual training to anyone who has lost their job. This may also include support for SMEs, young companies, startups, and funding R&D to stimulate innovation. Financial risk-taking has to be rewarded because it will encourage investment in businesses that will create value and keep talent in the country so it can thrive.

Conclusion:

Economic development requires sound foundations. Universal access to education and health services, access to financial services, new technologies and affordable bank loans, gender equality and more equal distribution of resources can all support economic development. A stable and predictable operating environment is a prerequisite for private sector investments. Good governance should be promoted and corruption tackled at all levels in both private and public sectors.

12. The public expenditure management is a challenge to the Government of India in context of budget making during the post liberalization period. Clarify it

Approach

1. Give an introduction about the major challenges and reforms regarding expenditure since 1990s. (100 words)
2. Discuss about the challenges in context of current issues. (90 words)
3. Conclusion. (60 words)

Hints:

Major challenges and reforms regarding expenditure since 1990

India is struggling with its expenditure management since the Economic crisis of 1991. The fiscal deficit of India had touched unmanageable level at 8.4 per cent of GDP in 1991 and it was panned to bring it down to 4.5 per cent by 1996. Indian government was able to contain the fiscal deficit to the stipulated level in 1996. But after this, once again there was a divergence between the receipts and expenditure and fiscal deficit continuously increased. The combined fiscal deficit of the Central and state governments increased beyond 10 per cent of GDP (Centre about 6-7 per cent and states about 2-3 percent).

Later, India decided to evolve a legally binding commitment on the part of government to contain the fiscal deficit at a tolerable level. In the year 2003 India passed an act called Fiscal Responsibility and Budget Management Act (FRBM Act), which was implemented since 2004. In the initial year the FRBM act successfully achieved the fiscal roadmap that stipulate reduction in the fiscal deficit and revenue deficit by 0.3 per cent of GDP and 0.5 per cent of GDP respectively to realize the goal of fiscal deficit to the tune of 3 per cent of GDP and revenue deficit to zero by 2008. But due to the stimulus package that India adopted in 2008 to ward off the adverse effects of the sub- prime crisis on the Indian economy, one again fiscal deficit goals as given in the fiscal roadmap were defied.

Later there was an amendment in 2011-12 in the FRBM act to include two new things- a concept of effective revenue deficit was adopted which was to be maintained at zero level while revenue deficit was stipulated to be contained at 2 per cent of GDP level whereas fiscal deficit goal was still kept at 3 per cent of the GDP level. The amendment also included an escape clause for such exigencies, which made it difficult to achieve the stipulated goals in the fiscal roadmap.

Current Issues:

Since, much of public expenditure is of committed nature such as interest payments for servicing past public debt, expenditure on defence, pensions and wages and salaries of government employees, there is very little room for compression of expenditure in the short run, the objective of accelerating growth and employment generation have to be achieved by raising revenue and improving the quality of expenditure.

A major bonus for India in coming years can be Demographic Dividend. Since 2018, India's working-age population (people between 15 and 64 years of age) has grown larger than the dependent population – children aged 14 or below as well as people above 65 years of age. This bulge in the working-age population is going to last till 2055, or 37 years from its beginning.

It is, however, important to note that this change in population structure alone cannot push growth. There are many other factors. In the late 20th century demographic dividend in Asia resulted in a seven-fold increase in the GDP of many countries. In Latin America the growth was only two-fold, Countries can only harness the economic potential of the youth bulge if they are able to provide good education and health to its people.

Government of India currently spends a little over 1.15% of GDP on health, whereas we need to push this number to 2.5 at least. The combined expenditure on education and health shall be 4-5 percent for government and 10% for country as a whole.

Conclusion:

The Indian economy is facing demand and supply side shocks due to GST, 2016 demonetization and a sluggish development in exports and Industrial sector which has reduced the growth forecast a little bit for the year 2019. Recently the government has implemented and OROP for defence personnel and the seventh pay commission for the government employees, which would have repercussions for the government expenditure. Also, government's announcement of recapitalization of banks in view of mammoth Non- Performing Assets as well proposal of increase in public sector investment in infrastructure, railways as well as rural development would also put pressure on government exchequer apart from various subsidies. The additional proceeds from Public Sector disinvestment is also uncertain.

13. What are the reformative steps taken by the Government to make food grain distribution system more effective?

Approach

1. Give an introduction about India's food grain distribution system. (70 words)
2. Discuss about the reforms taken by the government to make food grains distribution system more effective. (140 words)
3. Conclusion. (40 words)

Hints:

India's Public Distribution System (PDS) is the largest distribution network of its kind in the world. PDS was introduced around World War II as a war-time rationing measure. The Public Distribution System (PDS), till 1992, was a general entitlement scheme for all consumers without any specific target. The Revamped Public Distribution System (RPDS) was launched in June 1992.

Subsequently, in 1997, the government launched the Targeted Public Distribution System (TPDS), with a focus on the poor. TPDS aims to provide subsidized food and fuel to the poor through a network of ration shops. Food grains such as rice and wheat that are provided under TPDS are procured from farmers, allocated to states and delivered to the ration shop where the beneficiary buys his entitlement.

The center and states share the responsibilities of identifying the poor, procuring grains and delivering food grains to beneficiaries. In September 2013, Parliament enacted the National Food Security Act, 2013. The Act relies largely on the existing TPDS to deliver food grains as legal entitlements to poor households. This marks a shift by making the right to food a justiciable right

However, the High Level Committee, chaired by former food minister Shanta Kumar, in its recommendation to government last year had stated gradual introduction of cash transfers in PDS, starting with large cities with more than a million population; extending it to grain surplus states, and then giving option to deficit states to opt for cash or physical grain distribution. This will be much more cost-effective way to help the poor, without much distortion in the production basket, and in line with best international practices.

According to HLC's calculations, DBT could save the exchequer more than Rs 30,000 crore annually, and still giving better deal to consumers. "Cash transfers can be indexed with overall price level to protect the amount of real income transfers, given in the name of lady of the house, and routed through Prime Minister's Jan-DhanYojana

According to recent government estimate, DBT scheme for subsidies has resulted in significant savings across welfare schemes, including Rs 27,000 crore in PDS, LPG distribution and Mahatma Gandhi National Rural Employment Guarantee Act. To identify and weed-out duplicate/ineligible beneficiaries, and to enable rightful targeting of food subsidies, seeding of Aadhaar numbers of beneficiaries with their Ration Cards is being done by States and UTs. Presently, almost 85% of all ration cards have been seeded.

Other reforms:

- As part of the scheme, electronic Point of Sale (ePoS) devices are being installed at Fair Price Shops (FPSs) for distribution of food grains through authentication and electronic record-keeping of the sale transactions. Almost 60% outlets have been upgraded to ePoS.
- Intra state portability of ration cards: Facility enabling PDS beneficiaries to lift their entitled food grains from any fair price shop in the State has been started fully in Andhra Pradesh, Haryana, Maharashtra, Gujarat, etc.
- 'Integrated Management of PDS' (IM-PDS): A new Central Sector Scheme has been approved to be implemented during FY 2018-19 and FY 2019-20 for establishing Public Distribution System Network (PDSN) to implement national level portability, central data repository and central monitoring system of PDS operations.
- Launch of ePoS transactions portal: Annavitran Portal (www.annavitran.nic.in) has been implemented to display electronic transactions made through ePoS devices for distribution of subsidized food grains to beneficiaries. This portal also shows all India picture of Aadhaar authentication of beneficiaries besides allocated and distributed quantity of food grains up to district level.

14. Elaborate the policy taken by the Government of India to meet the challenges of the food processing sector.

Approach

1. Briefly discuss the importance of food processing sector for agriculture sector to increase its productivity. (70 words)
2. Discuss different initiatives taken by the government to aid food processing sector from processing to export. (140 words)
3. Conclude with the remark that India needs food security to attain sustainable development goals. (40 words)

Hints:

Introduction:

Almost more than 60% of the India's population is directly or indirectly dependent upon agriculture and allied activities, but contributes only for about 17% of the GDP. For a country like India which has a vast population to feed and maximum workforce is dependent on agriculture, it becomes imperative to increase productivity in this sector. Food Processing sector is one of the sectors which can increase the quality of the produce and increase its value. For it, government of India brought numerous initiatives.

Initiatives taken by government to develop food processing sector in India

Mega Food Parks: Under this scheme, government provides capital grants of 50% for all states and 75% to special status states. Since its inception, 42 mega parks were given in-principle approvals. However, only five projects have started operations, including the North East Mega Food Park in Assam. Hence it can't be called a proper success. Whereas, its predecessor Food park scheme was quite successful.

Pt. Deen Dayal Upadhyay Vigyan Gram Sankul Pariyojana: This scheme was launched specially for remote villages of Uttarakhand where transportation was difficult. The areas selected under these clusters will process and add value to milk, honey, horticulture and local crops, herbal tea, mushroom, forest produce, medicinal & aromatic plants and traditional craft and handloom. This project will also ensure, stringent product and process control interventions for energy and water conservation.

Including all processing sector under one scheme 'SAMPADA': Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters (SAMPADA) is an umbrella scheme for processing industries for administrative convenience. It aims to Integrate Cold Chain and Value Addition Infrastructure, Food Safety and Quality Assurance Infrastructure, etc. and also new schemes like Infrastructure for Agro-processing Clusters, Creation of Backward and Forward Linkages, Creation / Expansion of Food Processing & Preservation Capacities.

Agriculture Export Policy: It aims to double the agricultural produce by 2022 by a holistic approach to boost exports which includes development of forward and backward linkages and value addition through processing. It aims to boost investment in food processing sector.

APEDA: (Agriculture processing and export development authority): It assures quality of the processed agricultural produce to make it export oriented.

Subsidy by NABARD: In case of setting up of agriculture-based processing unit in rural areas such as flour mills, rice mills etc. government provides 30% subsidy of project cost through National Bank of Agricultural and Rural Development.

Conclusion:

Apart from it there is constant urge of government to develop milk processing units through Dairy Development and Infrastructure fund. These steps are necessary to achieve the government's aim of doubling the farmer's income and agricultural export by 2022. Apart from it, this will help India to achieve food security and sustainable development goals related to Zero Hunger and No poverty.

15. How is the Government of India protecting traditional knowledge of medicine from patenting by pharmaceutical companies?

Approach

1. *Briefly discuss the indigenous medication system and increase in bio-prospecting and biopiracy of traditional medication system by patenting. (70 words)*
2. *Discuss different cases related to patents of traditional herbs and knowledge by pharmaceutical companies. (130 words)*
3. *Discuss the initiatives taken by government and conclude with the need to check biopiracy. (50 words)*

Hints:

Introduction:

Indian system of medication a healthcare system is based on indigenous Ayurveda and Siddha system coupled with practice of yoga. Although, Unani system did not develop in India but has evolved in India with passage of time. These systems of medication have been evolving in India for thousands of years. Rapid bio-prospecting in modern era as led to unethical patenting of various drugs (Bio-Piracy) by large pharmaceutical companies. Out of total 5000 patents based on traditional system of medication around the world, 2000 patents were related to Indian traditional medication system. These included patenting Brahmi (*Bacopa monnieri*) as a memory enhancer and Aloe Vera for its use as a mouth ulcer treatment. Recent attempts by foreign pharmaceutical companies to patent them was foiled by government of India by fighting cases against them in different courts around the world and taking various domestic initiatives.

Different cases related to patents of traditional herbs and knowledge by pharmaceutical companies

- India foiled Colgate-Palmolive attempt to patent a mouthwash formula containing herb extracts, used in traditional medicines to cure oral diseases. The claim was contested by the Council of Scientific and Industrial Research's Traditional Knowledge Digital Library (CSIR-TKDL) before the European Union Patent office.
- India challenged patent granted two years ago to researchers in the United States on the use of powdered turmeric for wound healing. India's Council of Scientific and Industrial Research (CSIR), argued that turmeric had been used for centuries in India for wound healing.
- Similarly, India won a 10-year-long battle at the European Patent Office (EPO) against a patent granted on an anti-fungal product, derived from neem.

Initiatives taken by government to prevent use of its traditional knowledge base from patenting

- Indian government under Centre for Scientific and Industrial research (CSIR) has set up an online digital library with the name of Traditional Digital Knowledge library to prevent biopiracy and unethical patents. It contains 80,000 formulations in Ayurveda, 1,000,000 in Unani and 12,000 in Siddha.
- CSIR has fought many cases against bio-piracy and patenting in different countries of the world including USA, UK and Belgium.
- CSIR has shared digital data on traditional medication in patent offices of different countries of the world to check and recheck while granting patents. Similarly, Yoga postures which were patented were also challenged.
- Government has also planned to create people's Register of Biodiversity which will contain that traditional knowledge which has passed from generations to generations through oral tradition.

Conclusion:

Nagoya Protocol which advocates for the access and benefit sharing of traditional knowledge under Convention on Biodiversity (CBD) has been ratified by India but this protocol opposes unethical patenting and promotes sharing of traditional knowledge. Already a world's medical tourism hub, India must protect its data base of traditional knowledge in order to regain its lost ancient glory but at the same time let the global community to be benefitted from these knowledges and make the world disease free.

16. How can biotechnology help to improve the living standards of farmers?

Approach

1. Briefly discuss the development and regulation of agricultural biotechnology in India. (70 words)
2. Discuss benefits of biotechnology to Indian farmers which can improve their livelihood along with disadvantages of biotechnology in agriculture. (130 words)
3. Conclude with need to introduce biotechnology in Indian agriculture which has dual burden of feeding increasing population and shrinking farm size. (50 words)

Hints:

Introduction:

Agricultural biotechnology or agri-tech involves the use of scientific tools and techniques, including genetic engineering, molecular markers, molecular diagnostics, vaccines, and tissue culture, to modify living organisms used in agricultural fields. India has dedicated department named Biotechnology Industry Research Assistance Council (BIRAC) under the Ministry of Science and Technology which looks after different types of genetic modification which can be helpful in farming practices. Biotechnology can help Indian farmers to combat present global and regional problems such as global warming, erratic monsoon, and desertification etc. by different ways and thus increase their income.

Benefits of biotechnology to Indian farmers

- Most common problem which persists across India is of erratic monsoon. Biotechnology can be used to develop those varieties of crops which can withstand optimum rainfall.
- Biotechnology has been successfully used to combat weed menace, pest control and to control alien invasive species. This will help to reduce cost farming and use of chemical pesticides and insecticides. Indian farmers being traditionally dependent on intensive subsistence agriculture will be benefitted.
- Farming of water intensive crops such as sugarcane in drought prone regions such as Marathwada and Anantapur districts of Andhra Pradesh and paddy in Punjab often leads to water scarcity and soil salinity respectively. Development of genetically modified varieties of these crops will help to conserve water and check flood irrigation.
- India has largest population of cattle and livestock's in the world with limited pasture. Genetically modified variety of maize and soyabean kernels which contains high amount of protein are often in great demand for pasture although not allowed by government. Development in this field can help Indian farmers who practice mixed farming.
- Expansion of the Thar desert due to denudation of the Aravalli has impacted the ecology of the north-western parts of India such as western Uttar Pradesh and Haryana. Further, global warming coupled with low rainfall in regions separated by 100cm isohyet has opened door for dryland farming. Seeds which are resistant to impacts of global warming and drought can be developed by genetic engineering.
- Early ripening of crops due to global warming can also be solved through genetic engineering.
- Exotic and endemic domesticated animals which are on the verge of extinction can be reproduced by biotechnology with better traits than their ancestors. Murrah Buffalo cloning done in Hisar is a fine example.

However, there are some negative impacts of BT crops which has restricted its use for farmers

Negative impacts of Biotechnology

- Till now, most of the crops developed have been rejected by GEAC citing negative impacts on human health and ecosystem.

- Hybrid seeds developed by some major corporations such as Monsanto are of high cost and are to be purchased again and again because crops produced from them do not bear seeds.
- New pests arise after use of these crops such as pink ball worm which developed during cultivation of cotton crops. There was no pesticide to counter these worms. This caused a great loss of crops to farmers in Punjab.

Conclusion:

Indian agriculture sector has twin challenges of feeding its ever-increasing population on the one hand and practicing sustainable agriculture on shrinking farms on the other. Biotechnology is the only solution to grow more from less. Being home to more than 14.5 crore farmers and agricultural labourers of about 4.9 crore with their dependents makes a major chunk of India's population of more than 60% which depends directly or indirectly on agricultural and allied activities. It can help India to improve their living standards which will reflect in human development. It will also help India to ensure food security, decreasing hunger and malnutrition to fulfill its international obligation of achieving sustainable development goals and domestic commitment of doubling the farmer's income and agricultural export by 2022.

17. Define the concept of carrying capacity of an ecosystem as relevant to an environment. Explain how understanding this concept is vital while planning for sustainable development of a region.

Approach

1. Briefly discuss the key term 'Carrying Capacity of the Ecosystem' and discuss its importance for India. (60 words)
2. Discuss the carrying capacity of an ecosystem as an anchor for planning sustainable development of a region. (140 words)
3. Conclude with importance of planning in line with ecosystem's carrying capacity and its importance for India. (50 words)

Hints:

Introduction:

In ecological terms, the carrying capacity of an ecosystem is the size of the population that can be supported indefinitely upon the available resources and services of that ecosystem. India's rapid growth of population which is expected to surpass China by 2024 according to a report by United Nations Population division. Already, world's more than 17% of population thrives on 2.4% of the Indian mainland. There is a rising concern regarding ecosystem collapse in India hence it becomes vital to consider carrying capacity of an ecosystem while planning for sustainable development of a region.

Carrying capacity of an ecosystem as an anchor for planning sustainable development of a region

Living within the limits of an ecosystem depends on three factors:

- a) the amount of resources available in the ecosystem,
 - b) the size of the population, and
 - c) the amount of resources each individual is consuming.
- The first concept suggests that there should be optimum utilization of resources in an ecosystem which must be based on its per capita use. This can be used for micro-planning and as resources are fixed and limited, limitation on population growth rate can drive society to develop in a better way.
 - Size of population matters during planning as any resource can't resist its overutilization. Excessive and over use of natural and manmade resources reduces its life period. For example: In Indian mega cities such as Delhi, Mumbai and Chennai excessive use of ground water resources and

land resources have led to decline in water table. Recent water shortage in Chennai and floods in Mumbai are fine examples of it. Heavy traffic congestion and air pollution are also result of overpopulation which are exceeding carrying capacity of an ecosystem.

- Overconsumption of resources by individuals in a society also affects sustainable development of a region. Commercialization of residential colonies by opening small factories leads to depletion and pollution of ground water table. Air pollution caused by these units are beyond the self-sustaining criteria of the environment.
- Concentration of resources in India is a major problem. It has led to inequality and kept the Indian society away from inclusive development. Hence, planning must concentrate on limiting overconsumption by individuals in a society to check exceeding the carrying capacity of the ecosystem.

Conclusion:

While considering carrying capacity of an ecosystem as an anchor for sustainable development and planning, it must be taken care that resources are not concentrated in fewer hands. There must be equitable distribution of natural resources as well as manmade resources such as education, health care system and transportation without any discrimination. These steps will help India to fulfill its domestic commitments such as reduction of inequality, poverty and achieve its international obligations of attaining sustainable development goals by 2030.

18. Disaster preparedness is the first step in any disaster management process. Explain how hazard zonation mapping will help disaster mitigation in the case of landslides.

Approach

1. Briefly discuss Hazard zonation mapping and motive behind zonation mapping. (60 words)
2. Discuss landslide hazard zonation mapping and its use in disaster management process in India. (140 words)
3. Conclude with citing international framework for disaster risk reduction and need to include disaster management in development process and its relation with sustainable development goals. (50 words)

Hints:

Introduction:

“Prevention is better than cure” is the motto of disaster management strategists around the world. The first step i.e. disaster preparedness embodies half of the disaster management planning process. Better preparedness against disaster checks the excess loss of life and property and thus saves the revenues of the government to a greater extent. Hazard Zonation Mapping which is an efficient to check disaster loss to a greater extent by micromanagement of the different disaster-prone zones. It considers a particular disaster such as earthquake and map it according to its severity and impact in different areas.

Landslide hazard zonation mapping and its use in disaster management process.

- Landslide hazard zonation mapping at regional level of a large area provides a broad trend of landslide potential zones. A macro level landslide hazard zonation for a small area may provide a better insight into the landslide hazards.
- The hazard zonation map produced by using techniques such as Landslide Hazard Evaluation Factor rating scheme classifies the area into relative hazard classes in which the high hazard zones well correspond with high frequency of landslides.
- In general, it displays the spatial distribution of landslides in a region.
- Based on landslide zonation map different approach can be applied for different areas of vulnerability based on severity of landslide.

- This helps in better management of resources and reduces the cost of disaster preparedness. Further, landslides of different intensity require different approach. This can help planners to do cost effective and smart planning.
- The major landslide prone areas in India include the Western Ghats and Konkan Hills (Tamil Nadu, Kerala, Karnataka, Goa and Maharashtra), Eastern Ghats (Araku region in Andhra Pradesh), North-East Himalayas (Darjeeling and Sikkim) and North West Himalayas (Uttarakhand, Himachal Pradesh, Jammu and Kashmir).
- Micromanagement through landslide zonation will help to mitigate disaster related threats in a better way.

Conclusion:

It has ratified United Nations Convention for Disaster Risk Reduction which is the custodian of 'Sendai framework' which aims to reduce disaster risks, decrease losses and help in effective mitigation. It has seven targets and four priorities for action. Disaster risk reduction cuts across different aspects and sectors of development. There are 25 targets related to disaster risk reduction in 10 of the 17 sustainable development goals, firmly establishing the role of disaster risk reduction as a core development strategy. India must implement better strategies such as landslide zonation mapping to achieve these targets and leap forward for achieving them.

19. Indian Government has recently strengthened the anti-terrorism laws by amending the unlawful Activities (Prevention) Act (UAPA), 1967 and the NIA act. Analyze the changes in the context of prevailing security environment while discussing the scope and reasons for opposing the UAPA by human rights organizations.

Approach

1. Give a brief introduction about the amendments made to the Acts. (40 words)
2. Explain why it is been opposed by the Human rights organisations. (110 words)
3. Discuss the merits of the act. (60 words)
4. Conclusion. (40 words)

Hints:

Introduction:

The Unlawful Activities (Prevention) Amendment Bill, 2019 amends the Unlawful Activities (Prevention) Act, 1967. The Act provides special procedures to deal with terrorist activities.

The National Investigation Agency (Amendment) Bill, 2019 was introduced in Lok Sabha by amends the National Investigation Agency (NIA) Act, 2008.

The salient features of the UAPA amendment act are as follows:

- **Declaration of an organization as terrorist:** Under the Act, the central government may designate an organisation as a terrorist organisation if it: (i) commits or participates in acts of terrorism, (ii) prepares for terrorism, (iii) promotes terrorism, or (iv) is otherwise involved in terrorism.
- **Declaration of an individual as terrorist:** The Bill additionally empowers the government to designate individuals as terrorists on the same grounds.
- **Approval for seizure of property by NIA:** Under the Act, an investigating officer is required to obtain the prior approval of the Director General of Police to seize properties that may be connected with terrorism. The Bill adds that if the investigation is conducted by an officer of the National Investigation Agency (NIA), the approval of the Director General of NIA would be required for seizure of such property.

- **Investigation by NIA:** Under the Act, investigation of cases may be conducted by officers of the rank of Deputy Superintendent or Assistant Commissioner of Police or above. The Bill additionally empowers the officers of the NIA, of the rank of Inspector or above, to investigate cases.
- **Insertion to schedule of treaties:** The Act defines terrorist acts to include acts committed within the scope of any of the treaties listed in a schedule to the Act. The Schedule lists nine treaties, including the Convention for the Suppression of Terrorist Bombings (1997), and the Convention against Taking of Hostages (1979). The Bill adds another treaty to the list. This is the International Convention for Suppression of Acts of Nuclear Terrorism (2005).

The salient features of NIA amendment are as follows:

- The Act provides for a national-level agency to investigate and prosecute offences listed in a schedule (scheduled offences). Further, the Act allows for creation of Special Courts for the trial of scheduled offences.
- **Scheduled offences:** The schedule to the Act specifies a list of offences which are to be investigated and prosecuted by the NIA. These include offences under Acts such as the Atomic Energy Act, 1962, and the Unlawful Activities Prevention Act, 1967.
- The Bill seeks to allow the NIA to investigate the following offences, in addition: (i) human trafficking, (ii) offences related to counterfeit currency or bank notes, (iii) manufacture or sale of prohibited arms, (iv) cyber-terrorism, and (v) offences under the Explosive Substances Act, 1908.
- **Special Courts:** The Act allows the central government to constitute Special Courts for the trial of scheduled offences. The Bill amends this to state that the central government may designate Sessions Courts as Special Courts for the trial of scheduled offences.
- **Jurisdiction of the NIA:** The Act provides for the creation of the NIA to investigate and prosecute offences specified in the schedule. The officers of the NIA have the same powers as other police officers in relation to investigation of such offences, across India.

Reasons why human rights groups are opposing:

- The amendments infringed upon the fundamental right to reputation and dignity under Article 21 of the Constitution, without substantive and procedural due process.
- Notifying an individual as a terrorist without giving him an opportunity of being heard violates the individual's right to reputation and dignity, which is a facet of right to life and personal liberty under Article 21 of the Constitution
- A person who is designated a terrorist, even if he is de-notified subsequently, faces a lifelong stigma and this tarnishes his reputation for life.
- An official designation as a terrorist will be akin to 'civil death' for a person, with social boycott, job loss, and other lifelong disabilities.
- Section 35 of the amended Act did not mention when a person could be designated as a terrorist.
- Section 36: A person is never informed of the grounds of his notification, so the remedy of challenging his notification under section 36, as provided for in the Act is practically unusable.
- Designating a person as a terrorist on a mere belief of the government is arbitrary and excessive.
- A law declaring a person as a terrorist without even providing an efficacious remedy to challenge his notification can be abused and misused.
- Critics of the recent amendments contend that Sections 35 and 36 of the Unlawful Activities (Prevention) Amendment Act is unconstitutional and void as those violated the fundamental rights of individuals.

Merits of the Act:

- Law can be justified as the provision to name individuals as terrorists (till now only organisations were designated), based on the argument that when terror organisations are banned, those running it “open a new shop” and carry on their activities as before.
- Terrorism is a serious problem. USA, Pakistan, China, Israel, European Union, United Nations Security Council name individuals involved in terror activities, but India will have it now.
- Checks and balances provided. There are four conditions that can lead to an individual provided. There are four conditions that can lead to an individual being named a terrorist – committing or participating in a terror act, preparing for a terror act, promoting terrorism, and being involved in terrorist activities.

Conclusion:

There is a need to balance human rights, fundamental rights and national security. A strong law is required to deal with the terror threat. But at the same time, there should be due process of law whereby an innocent has rights to defend himself.

20. Cross-Border movement of insurgents is only one of the several security challenges facing the policing of the border in North-East India. Examine the various challenges currently emanating across the India-Myanmar border. Also, discuss the steps to counter the challenges.

Approach

1. Give the introduction by discussing the challenges involved alongside the India Myanmar Border. (100 words)
2. Discuss the measures needed to be taken to overcome the challenges. (110 words)
3. Conclusion. (40 words)

Hints:

The various challenges currently emanating from across the India-Myanmar border are the following:

- **Disputed areas:** The Tri-junction where India-Myanmar and China
- **Difficult terrain, resulting in lack of infrastructure:** As a result, the border area remains sparsely populated with depressed economic development. It also affects policing as they hamper the easy and rapid movement of the border guarding forces along the border.
- **Trafficking** of Drugs, humans, smuggling of gold, weapons, ammunitions, smuggling.
- **Golden Triangle-** Thailand, Myanmar, Laos-drugs are smuggled overland through the India-Myanmar border with the help of China and Arakanese insurgents.
- Nexus between terrorism and organised crime
- **Refugee influx through unsecure borders**
E.g.: Rohingya migrants' influx from Myanmar
- **Separatist movements and Terrorism**

National Socialist Council of Nagaland – Khaplang (NSCN-K) and Meitei insurgent groups enter Myanmar from Indian north-east, then they rest, recoup, train, plan and launch future offensives, and take shelter when pursued by the Indian security forces.

- **The free movement regime**

FMR has become a cause of concern for the security establishment as its provisions are exploited by the Indian insurgents to cross over to Myanmar unrestricted and establish safe havens.

Steps to counter the Challenges:

- Techniques of Effective border management as suggested by Madhav Godbole Task Force 2001.
- Joint military exercises between the two countries.
- Confidence building measures needed to be taken.
- Border fencing and erecting floodlights
- Creating effective border outposts
- Developing Infrastructure in the region
- Step-up infrastructure development, like roads through bilateral, multi-lateral mechanism e.g. India - Myanmar - Thailand (IMT) highway, Kaladan multi modal transport.
- Cooperation at Regional level through organisations like BIMSTEC
- Effective patrolling
- Building of integrated check posts
- Equipping the security forces with night vision goggles.
- Installation of CCTV and thermal imaging equipment.
- Increased people to people contact

Conclusion:

India and Myanmar should involve themselves in regular deliberation to increase mutual trust between them. Cooperation in other areas like economic, energy, science and technology, space, defence, education, cultural must be enhanced to establish a peaceful border.

