



TLP 2023

Daily Answer Writing



Phase 1 (GS-3)
Compilations

1. Analyze the security challenges faced by India in its border areas, including cross border terrorism, illegal migration, and smuggling of weapons and drugs. Evaluate the measures taken by the government to enhance border security and manage these challenges.

Approach -

In this question candidates need to write about what are security challenges faced by India in its border areas including cross border terrorism, illegal migration and smuggling of weapons and drugs. In second part write about government initiatives to enhance border security.

Introduction

India's borders with its neighboring countries, particularly Pakistan and China, have long been the source of security challenges and tensions. Some of the key security challenges in the border areas of India are, Cross-border terrorism, Illegal migration, Smuggling of arms and drugs, Border disputes with China, Insurgency in Northeastern states etc. Govt has taken many initiatives to improve situation.

Body

India faces several security challenges in its border areas, including:

- Cross-border terrorism: India has been facing cross-border terrorism from Pakistan-based extremist groups for many years. These groups carry out attacks on Indian security forces and civilians, causing loss of life and property.
- Illegal immigration: India's borders are porous, and illegal immigration from neighboring countries is a major security challenge. This can lead to an increase in crime, terrorism, and the spread of communicable diseases.
- Drug trafficking: India's border areas are also prone to drug trafficking, which can cause harm to individuals and communities.
- Arms smuggling: The smuggling of illegal arms into India through its border areas is a major security challenge. This can fuel conflict and violence in the region.
- Human trafficking: India's borders are also used for human trafficking, particularly for the purposes of forced labor and sexual exploitation.
- Infiltration by insurgent groups: India's border areas are also prone to infiltration by insurgent groups, which can cause instability and violence in the region.
- Border disputes: India has long-standing border disputes with some of its neighbors, particularly with China and Pakistan. These disputes can escalate into conflict and pose a threat to national security.
- Environmental degradation: The degradation of the environment in border areas due to illegal activities such as deforestation, mining, and pollution, can lead to ecological imbalances and impact the security of the region.
- Territorial disputes: India also faces territorial disputes with its neighbors over areas such as the Siachen Glacier and the Kaladan River, which can escalate into conflict.

- Smuggling of counterfeit goods: The smuggling of counterfeit goods into India through its border areas is a major security challenge, as it can harm the country's economy and compromise the safety and health of consumers.
- Border disputes with China: India has a long-standing border dispute with China and there have been incidents of cross-border incursions and confrontations between the two countries' militaries in recent years.
- Insurgency in Northeastern states: India's Northeastern states have been the epicenter of insurgency for several decades. Some of these insurgent groups have taken shelter in neighboring countries and use the porous borders to carry out attacks inside India.

Measures taken by government to enhance border security in india-

- The Indian government has taken several measures to enhance border security in the country, including:
 - Border fencing: The government has been constructing physical barriers, such as fencing and walls, along the India-Pakistan and India-Bangladesh borders to prevent illegal activities and infiltration by extremists.
 - Border patrolling: The government has increased border patrolling by the Border Security Force (BSF) and other security agencies to monitor and prevent illegal activities along the borders.
 - Use of technology: The government has been using technology such as night vision devices, thermal imaging cameras, and unmanned aerial vehicles (UAVs) to enhance border security.
 - Cooperation with neighboring countries: The government has been strengthening its cooperation with neighboring countries, including Pakistan and Bangladesh, to tackle cross-border terrorism and other illegal activities.
 - Intelligence-based operations: The government has been conducting intelligence-based operations to gather information about the movement of terrorists and smugglers along the borders.
 - Strengthening coastal security: The government has been strengthening coastal security by increasing the presence of the Indian Coast Guard and the Indian Navy, and by installing radar and other surveillance systems along the coast.
 - Improving infrastructure: The government has been improving infrastructure in border areas, such as roads and bridges, to enhance mobility and accessibility for security forces.
 - Border management: The government has established a Border Management Division within the Ministry of Home Affairs to coordinate and improve the management of the country's borders.

Conclusion

To address these challenges, India has increased its military presence along the borders and improved its border infrastructure. The government has also launched initiatives to improve border management, enhance intelligence gathering and sharing, and increase cooperation with neighboring countries to tackle cross-border terrorism and other security challenges.

- 2. Discuss the linkages between organized crime and terrorism, including the funding of extremist groups by criminal networks, and the use of criminal activities to support terrorism.**

Approach

Candidates can start the answer with basic idea of organized crime and then how its nexus impact the Internal security of India with different criminal activities such as drug trafficking, human trafficking, smuggling, and extortion.

Introduction

There are linkages between organized crime and terrorism, particularly in terms of the funding of extremist groups by criminal networks, and the use of criminal activities to support terrorism. Criminal networks can provide significant financial resources to extremist groups through activities such as

Body

- In some cases, terrorist groups and criminal networks may even collaborate in these activities or merge to expand their operations.
- This funding from criminal networks can help to sustain and enhance the capabilities of extremist groups, enabling them to carry out attacks, recruit new members, and expand their operations.
- It also creates a challenge for law enforcement agencies, who must work to disrupt the flow of illicit funds and prevent these groups from accessing the resources they need to carry out their activities.
- Terrorist groups can also use criminal activities to support their operations, including money laundering, counterfeiting, and smuggling of goods and weapons.
- These criminal activities provide a source of funding and resources for terrorist operations and can help to increase their power and influence.
- The linkages between organized crime and terrorism pose a significant threat to global security and stability.

Indian Scenario:

- In India, the linkages between the two exist at national and transnational levels. At the national level, both terrorists and those involved in organized crime are within India. At the international level, collaboration exists between transnational syndicates and terrorists from inside and outside India.
- India's proximity to drug-producing regions like Golden Crescent in the West and Golden Triangle in the East has always been a cause of worry.
- In the Northeast, extortion is the fundamental basis for funding all forms of terrorism. In addition to this, kidnapping has been used extensively for spreading terror and raising funds. Human trafficking, drug trafficking, and gun-running are some of the other criminal activities that have been common in these areas.
- In J&K, counterfeit currency has been a major source of funding for terrorism.

- In the Maoist terror movements, extortion is yet again a common phenomenon. They have also indulged in robberies of banks to fund their movement. There have also been reports of cuts being enforced on drug-yielding crops in the region.
- The Indian Mujahideen have also resorted to crime to raise funds. This includes robberies, kidnappings, etc.
- Governments and law enforcement agencies around the world are working to disrupt these networks and cut off their sources of funding, in order to weaken their ability to carry out their criminal and terrorist activities.

Conclusion

Efforts to counter the linkages between organized crime and terrorism involve targeting the financial networks that support these groups, as well as working to prevent the recruitment of new members and disrupting the supply chains that enable their operations. This requires international cooperation and coordination among law enforcement agencies, intelligence services, and governments around the world.

3. **Discuss the challenges in balancing human rights and civil liberties with the need for internal security in India.**

Approach

Candidates can start the answer with giving basic idea about Indian situation with related to internal security and human rights, civil liberties. Then explain the multifaceted challenges in balancing both wrt to Indian diversity and complexity.

Introduction

India has a diverse population and a complex security environment, including insurgencies, terrorism, and communal violence. While ensuring internal security is essential to safeguard citizens, protect the territorial integrity of the country, and maintain public order, this cannot be done at the cost of human rights and civil liberties.

Body

The challenges in balancing human rights and civil liberties with the need for internal security in India are multifaceted and complex. Some of the key challenges include:

- **Misuse of security laws:** The government has been accused of misusing security laws to suppress political dissent, intimidate journalists, activists, and civil society organizations. This has resulted in arbitrary detention, torture, and extrajudicial killings, which have raised concerns about the impact of such measures on civil liberties and human rights.
- **Communal violence:** India has a history of communal violence, which often stems from tensions related to religious, ethnic, or linguistic differences. Balancing public safety and protecting the rights of individuals and

communities is a challenging task, particularly when government policies and actions favor one community over another.

- **Independence of the judiciary:** The independence of the judiciary is essential to ensuring that government actions are consistent with the rule of law and respect the rights of citizens. However, there have been concerns about the independence of the judiciary in India, particularly in cases related to internal security and communal violence.
- **Transparency and accountability:** The lack of transparency and accountability in government actions related to internal security and communal violence is a significant challenge. This can make it difficult for citizens to hold the government accountable for any abuses of power or violations of rights.
- **Weak institutions:** Weak institutions, including law enforcement agencies and the judiciary, can limit the government's ability to balance internal security and human rights. Strengthening institutions is essential to ensuring that government actions are consistent with the rule of law and respect the rights of citizens.
- **Major challenge is the misuse of anti-terrorism and security laws** by authorities to suppress political dissent, intimidate journalists, activists, and civil society organizations. There have been instances of extrajudicial killings, arbitrary detention, and torture in the name of internal security. This has raised concerns about the impact of such measures on civil liberties and human rights.
- **Another challenge is the persistence of communal violence**, which has a long history in India. Riots and inter-religious conflicts have led to a loss of lives, damage to property, and displacement of communities.
- **These incidents often stem from tensions related to religious, ethnic, or linguistic differences.** Addressing such violence requires a delicate balance between ensuring public safety and protecting the rights of individuals and communities.
- **The Indian government has taken measures to address these challenges**, such as enacting laws to protect the rights of marginalized communities, strengthening the independence of the judiciary, and investing in community policing.

Conclusion

However, there is still much work to be done to ensure that internal security measures are consistent with human rights and civil liberties. This requires strong institutions, transparency, and accountability mechanisms, and a commitment to upholding the rule of law.

4. Analyse the challenges posed to india's internal security by the use of communication networks including the internet and mobile phones by extremists and criminal groups. discuss the measures taken by government to monitor and prevent the spread of extremist propaganda and illegal activities online.

Approach -

In this question candidates need to write about challenges posed to india's internal security by use of communication networks by extremist groups, In second part write about measures taken by govt to prevent spreading extremist propaganda and illegal activities online .

Introduction

The internet has become a major tool for extremists and criminals to carry out their activities, posing significant challenges to India's internal security. Some of the key challenges include cybercrime, radicalization, fake news and misinformation, disrupting critical infrastructure. govt has taken various steps to tackle these illegal activities .

Body

Challenges to india's internal security through internet by use of extremist and criminal

- Cybercrime: Criminals are using the internet to carry out a range of activities, including identity theft, fraud, and cyberattacks. These activities can harm individuals and organizations and compromise sensitive information.
- Radicalization: Extremists are using the internet to spread their ideologies and recruit individuals into their organizations. This has led to an increase in radicalization and terrorism in India.
- Fake news and misinformation: The internet has made it easy for extremists and criminals to spread false information and disinformation, which can cause communal and political tensions and harm individuals and society.
- Data privacy: The widespread use of the internet has raised concerns about data privacy. With the increasing amount of personal information being shared online, there is a risk of this information being misused or stolen by extremists and criminals.
- Disruptions to critical infrastructure: Cyberattacks on critical infrastructure such as power grids and financial systems can cause widespread disruptions and pose a significant threat to national security.
- Encryption: The use of encryption by extremists and criminals can make it difficult for law enforcement agencies to monitor and prevent their activities.
- Overall, the internet has become a major tool for extremists and criminals to carry out their activities, posing significant challenges to India's internal security. It is important for the government and individuals to be aware of these challenges and take appropriate measures to address them."

- Challenges posed to India's internal security by use of communication networks like mobile and internet
- India's internal security is facing a number of challenges due to the widespread use of communication networks such as mobile phones and the internet. Some of the key challenges include:
- **Cybercrime:** The increasing use of the internet and mobile phones has led to a rise in cybercrime in India. This includes cyberattacks, identity theft, fraud, and other criminal activities that can compromise sensitive information and harm individuals and organizations.
- **Radicalization:** The internet and mobile phones have made it easier for extremist groups to spread their ideology and recruit individuals. This has resulted in an increase in radicalization and terrorism in India.
- **Fake news and misinformation:** The internet and mobile phones have made it easy to spread false information and disinformation, which can lead to communal and political tensions and cause harm to individuals and society.
- **Data privacy:** The widespread use of communication networks has also raised concerns about data privacy. With the increasing amount of personal information being shared online, there is a risk of this information being misused or stolen.
- **Disruptions to critical infrastructure:** Cyberattacks on critical infrastructure such as power grids and financial systems can cause widespread disruptions and pose a significant threat to national security.
- Overall, the increasing use of communication networks has created both opportunities and challenges for India's internal security. It is important for the government and individuals to be aware of these challenges and take appropriate measures to address them.

Measures taken by Indian govt to monitor and prevent spread of extremism

- The Indian government has taken several measures to monitor and prevent the spread of extremism in the country, including:
- **Monitoring of social media:** The government has been monitoring social media platforms such as Facebook, Twitter, and WhatsApp to identify and counter the spread of extremist ideologies and prevent the recruitment of individuals into terrorist groups.
- **Cybercrime units:** The government has established cybercrime units within law enforcement agencies to investigate and prosecute individuals involved in cybercrime, including cyber terrorism.
- **Prevention of Disruptive Activities (Prevention) Act:** The Prevention of Disruptive Activities (Prevention) Act empowers the government to take action against individuals and organizations involved in the spread of extremist ideologies and acts of terrorism.
- **Counter-Terrorism and Counter-Radicalization Measures:** The government has implemented various counter-terrorism and counter-radicalization measures, including de-radicalization programs and public awareness campaigns, to prevent individuals from becoming involved in extremist activities.
- **Cooperation with international organizations:** The government has been cooperating with international organizations such as Interpol and the United Nations to exchange information and best practices on preventing the spread of extremism and terrorism.

Conclusion

Overall, the Indian government is taking a comprehensive approach to monitor and prevent the spread of extremism in the country. However, it is a continuous process, and there is always room for improvement and the adoption of new measures as the threat evolves.

5. Discuss the role of media and social networking sites in spreading disinformation and destabilizing internal security in India. Analyze the measures taken by the government and other stakeholders to promote media literacy and prevent the spread of false information.

Approach

Candidates can start the answer with giving basic idea fake news disinformation how its impacting internal security. Analyse the steps taken by government to address the spread of false information.

Introduction

Fake news is not a new phenomenon which is linked to the rise of social media, on the contrary from the times of ancient Greece. It is important for the government, media organizations, and technology companies to take measures to prevent the spread of fake news and misinformation.

Body

The role of media and social networking sites in spreading disinformation and destabilizing internal security in India is a growing concern.

Some of the key ways in which they contribute to this issue are:

- Spread of Fake News: Social networking sites and traditional media outlets are often used to spread false or misleading information, known as "fake news." This fake news can be used to spread propaganda, sow division, and create panic, all of which can undermine internal security in India.
- Amplification of Misinformation: Social media algorithms are designed to amplify content that generates engagement, which means that misinformation can spread rapidly and widely on these platforms. This can lead to the spread of false information and harmful conspiracy theories, which can destabilize internal security.
- Polarization of Society: social media and traditional media can also contribute to the polarization of society, by amplifying voices that promote division and marginalizing alternative perspectives. This can lead to social unrest and contribute to internal security threats.
- Manipulation of Public Opinion: social media and media outlets can be manipulated by state and non-state actors to spread disinformation and manipulate public opinion. This can undermine the democratic process and lead to the destabilization of internal security.

There are several measures being taken by the government and other stakeholders to promote media literacy and prevent the spread of false information. Some of the key initiatives are:

- **Media and Digital Literacy Programs:** The government and various organizations are promoting media and digital literacy programs to educate citizens about responsible media consumption and how to identify false information. These programs aim to equip individuals with the skills and knowledge to critically evaluate information and protect themselves from disinformation.
- **Fact-Checking Efforts:** Fact-checking efforts have been established by various organizations and media outlets to verify the accuracy of information being spread on social media and other platforms. These efforts aim to identify and counter false information before it can spread and cause harm.
- **Tech-Enabled Solutions:** Technology companies and start-ups are developing innovative solutions to counter false information and promote media literacy. For example, social media platforms are using machine learning algorithms to identify and remove false information and are partnering with fact-checkers to promote accurate information.
- **Collaboration with Stakeholders:** The government and other organizations are collaborating with stakeholders, including technology companies, media organizations, and civil society groups, to promote media literacy and prevent the spread of false information. This collaboration is aimed at creating a multi-stakeholder approach to address the issue and promoting coordinated efforts to counter disinformation.
- **Regulatory Measures:** The government is also exploring regulatory measures to address the spread of false information and promote media literacy. For example, some countries have introduced laws to regulate the spread of false information on social media, and the government of India has introduced guidelines for social media platforms to regulate the spread of false information.

Conclusion

In conclusion, promoting media literacy and preventing the spread of false information require a multi-stakeholder approach that involves the government, media organizations, technology companies, and citizens. It is important to continue to develop and implement innovative solutions to address this issue and promote a well-informed and digitally literate society.

- 6. Evaluate the measures taken by the government to enhance digital security and prevent cybercrimes, including money laundering. Discuss the role of international cooperation and diplomacy in addressing these issues and promoting global cyber security.**

Approach

Candidates can start the answer with giving basic idea cyber security and its importance also as per demand of question evaluate measures taken by government and highlight the role of international cooperation in addressing it.

Introduction

Cyber Security is the practice of protecting networks, computers, data, and programs from unauthorized attacks that aim for exploitation. Cyber Security in India is becoming highly significant due to the increased reliance on the internet, wireless network, and computer system.

Body

The Government of India has taken several measures to enhance digital security and prevent cybercrimes, including money laundering, in recent years. Some of the key initiatives are:

- **Indian Computer Emergency Response Team (CERT-In):** The government has established CERT-In as the national nodal agency for handling cyber security threats and incidents.
- **Information Technology (Amendment) Act, 2008:** This act provides a legal framework for e-commerce and digital transactions in India and also lays down provisions for dealing with cybercrimes.
- **Cybercrime Investigation Cell:** The government has set up Cybercrime Investigation Cells in various states to investigate and prosecute cybercrimes.
- **National Cyber Security Policy:** The government has launched a National Cyber Security Policy to strengthen the country's cyber security framework and ensure the protection of critical information infrastructure.
- **Cyber Swachhta Kendra:** This is a botnet cleaning and malware analysis centre, which aims to tackle the spread of malicious software and strengthen the security of India's cyber space.
- **Awareness Programs:** The government is conducting various awareness programs and training sessions for citizens and organizations to educate them on the importance of cyber security and ways to prevent cybercrimes.
- **Data Protection Laws:** The government is in the process of developing a data protection law to safeguard the personal data of citizens and prevent its misuse.

International cooperation and diplomacy play a crucial role in addressing the issue of cyber security and promoting global cyber security. Some of the key ways in which they contribute are:

- **International Agreements:** International agreements between nations help to establish a common understanding and set of norms for cyber security. These agreements include the Budapest Convention on Cybercrime and the United Nations Group of Governmental Experts on Developments in the Field of Information and Telecommunications in the Context of International Security (UNGGE).
- **Information Sharing:** International cooperation and diplomacy facilitate the sharing of information and intelligence between countries on cyber security threats and incidents. This helps to improve the overall global response to cyber security threats and prevent cross-border cybercrimes.

- **Joint Investigations:** Joint investigations between countries help to identify and prosecute individuals and organizations involved in cybercrimes that cross national borders.
- **Capacity Building:** International cooperation and diplomacy also play an important role in capacity building and technical assistance, particularly for countries with limited resources to develop their own cyber security frameworks.
- **Global Norms:** International cooperation and diplomacy help to promote the development of global norms and best practices for cyber security, which can help to establish a common understanding and approach to cyber security among countries.

Conclusion

In conclusion, international cooperation and diplomacy are critical to address the issue of cyber security and promote global cyber security. They help to ensure that nations work together to tackle the common threat of cybercrime and improve the overall security of the global digital landscape.

- 7. Discuss the impact of unequal distribution of resources and opportunities on the spread of extremism in India, and evaluate the role of government policies and programmes in promoting inclusive development and reducing inequality.**

Approach -

A simple straightforward question where candidates need to write about impact of unequal distribution of resources on extremism in India, in second part write about govt initiatives to reduce inequality and promote inclusive development.

Introduction

The unequal distribution of resources can lead to social and economic inequalities, which can create a sense of frustration and disillusionment among certain groups. This can make them more susceptible to extremist ideologies that promise a solution to their grievances.

Body

Poverty and lack of opportunities can also drive individuals towards extremism as a means of survival. Therefore, unequal distribution of resources can contribute to the spread of extremism.

- The unequal distribution of resources can have a significant impact on the spread of extremism. This can happen in the following ways:
- **Economic Inequality:** Unequal distribution of resources leads to economic inequality and poverty, which can breed frustration and anger among certain

sections of society. This makes them vulnerable to extremist ideologies that promise to address their grievances.

- **Lack of Opportunities:** People living in poverty-stricken areas often lack access to education, healthcare, and employment opportunities. This can drive them towards extremism, as they see it as a means of survival.
- **Political Disenfranchisement:** In areas where resources are not distributed fairly, certain groups may feel excluded from political processes and decision-making. This can fuel a sense of injustice, leading to extremism.
- **Social Discontent:** Unequal distribution of resources can also lead to social tensions and divisions, with certain groups feeling excluded and marginalized. This can increase the appeal of extremist ideologies that promote a sense of belonging and unity.
- unequal distribution of resources can create the conditions that make people vulnerable to extremist ideologies and can contribute to the spread of extremism.

Role of govt policies in reducing inequality-

- Government policies play a crucial role in reducing inequality. The following are some of the ways in which government policies can help to reduce inequality,
- **Taxation:** The government can use tax policies to redistribute wealth and income, by levying higher taxes on the wealthy and using the revenue to support programs that benefit the poor and middle class.
- **Social Safety Nets:** Governments can implement social safety net programs, such as food assistance, unemployment benefits, and housing subsidies, to provide a basic level of support for those who are struggling to make ends meet.
- **Education and Job Training:** Investment in education and job training can help to reduce inequality by providing individuals with the skills and knowledge they need to compete for better-paying jobs.
- **Affordable Housing:** Governments can implement policies to increase the supply of affordable housing, such as zoning laws, tax incentives for developers, and subsidies for low-income renters.
- **Healthcare:** Providing access to quality healthcare can help to reduce inequality by ensuring that everyone has access to the medical care they need, regardless of their income level.
- government policies can play a significant role in reducing inequality by redistributing wealth and income, providing support to those in need, and investing in programs that help to level the playing field."Indian govt policies in promoting inclusive development
- The Indian government has implemented various policies to promote inclusive development in the country. Some of these policies include:
- **Pradhan Mantri Jan Dhan Yojana (PMJDY):** This scheme aims to provide financial inclusion to the unbanked population by offering them access to a range of financial services, such as savings and deposit accounts, remittances, credit, insurance, and pension.
- **Skill India Mission:** This initiative focuses on providing job-oriented training to the youth to enhance their employ-ability and increase their income levels.
- **Swachh Bharat Abhiyan:** This campaign aims to clean up the streets, roads and infrastructure of India's cities, towns, and rural areas, and to eliminate open defecation.

- Housing for All by 2022: This scheme aims to provide affordable housing to the economically weaker sections and low-income groups in urban and rural areas.
- Make in India: This initiative aims to promote India as a manufacturing hub and encourage companies to set up manufacturing units in the country, thereby creating job opportunities.
- Digital India: This program focuses on leveraging technology to transform the country into a digitally empowered society and knowledge economy.
- National Health Mission: This mission aims to provide universal access to affordable and quality health care services to all citizens, especially the poor and vulnerable sections of society.

Conclusion

The government plays a crucial role in reducing inequality by implementing policies and programs that address the root causes of inequality and provide support to marginalized communities. Some of the ways in which the government can reduce inequality are Progressive Taxation, Investment in Education, Social Safety Nets, Access to Healthcare, Affordable Housing, these measures can help to reduce inequality and promote inclusiveness .

8. **Analyse the role of external state and non-state actors in funding and supporting extremist groups in India, and the measures taken by the government to address this issue. Evaluate the effectiveness of international cooperation and diplomacy in addressing cross-border terrorism and maintaining regional stability.**

Approach

Candidates can start the answer with giving basic idea external state and non state actors affecting Indian security explain the measures and evaluate its effectiveness of international collaboration.

Introduction

External state and non-state actors play a significant role in funding and supporting extremist groups in India. These actors provide financial and logistical support to these groups to carry out their activities. This support is often motivated by religious, political, or ideological goals.

Body

- The role of external state and non-state actors in supporting extremist groups remains a major concern for India and the international community, and efforts are underway to counter this support and to disrupt the financial networks that fund these groups.
- State actors such as Pakistan have been accused of providing support to extremist groups operating in India, including funding, training, and arms. Non-

state actors, such as international terror organizations, have also been known to support extremist groups in India.

- It is also important to note that sometimes the funding for these groups can come from sources within India, such as organized crime syndicates, wealthy individuals, or charities that have been infiltrated by extremist groups.

In response to this threat, the Indian government has taken several measures to address the issue of funding and support for extremist groups. Some of these measures include:

- **Strengthening domestic laws and regulations:** The Indian government has strengthened its domestic laws and regulations to clamp down on illegal activities such as money laundering and terror financing.
- **Intelligence gathering and sharing:** The Indian intelligence agencies have been working to gather information on the sources of funding and support for extremist groups and sharing it with international partners.
- **Interdiction and disruption operations:** The Indian security forces have carried out operations aimed at disrupting the financial networks that fund extremist groups, including the confiscation of assets and the arrest of individuals involved in these activities.
- **Diplomatic pressure:** The Indian government has also been exerting diplomatic pressure on countries and organizations that provide support to extremist groups, calling for them to end their support.
- **Public awareness and education:** The Indian government has been working to raise public awareness about the issue of extremist groups and their sources of funding, with the aim of reducing support for these groups.

International cooperation and diplomacy have played an important role in addressing cross-border terrorism and maintaining regional stability.

However, the effectiveness of these efforts can vary greatly depending on the specific context and the actors involved:

- International cooperation and diplomacy have led to the development of global frameworks for combating terrorism, such as the United Nations Global Counter-Terrorism Strategy, FATF which provides a basis for countries to work together to address this threat.
- Additionally, multilateral and bilateral agreements between countries have enabled the sharing of intelligence, coordination of law enforcement activities, and the extradition of terrorists across borders.
- On the other hand, there are also challenges in international cooperation and diplomacy in addressing cross-border terrorism.
- For example, some countries may have different definitions of terrorism, which can make it difficult to reach a consensus on the appropriate response to specific threats.
- Additionally, there may be political, economic, or ideological differences between countries that hinder their ability to cooperate effectively in addressing cross-border terrorism.

Conclusion

Overall, while the Indian government has taken several measures to address the issue of funding and support for extremist groups, it remains a challenging and ongoing problem. It requires the continued cooperation of international partners, as well as sustained efforts by the Indian government and civil society, to counter the threat posed by these groups.

9. **Discuss the impact of the use of digital technologies by extremist groups in promoting their ideologies and disrupting internal security in India. Evaluate the measures taken by the government to monitor and prevent the spread of extremist propaganda online, and enhance digital security.**

Approach

Candidates can start the answer with giving basic idea of how extremist group uses the digital technologies and simply evaluate measures taken by government to tackle situations.

Introduction

Widespread availability of digital technologies, including social media platforms and encrypted communication tools, has enabled extremist groups to reach a wider audience and carry out their activities more effectively. The use of digital technologies by extremist groups has had a significant impact on their ability to promote their ideologies and disrupt internal security in India.

Body

- **Promotion of extremist ideologies:** Digital technologies have enabled extremist groups to disseminate their ideologies and propaganda to a wider audience, including vulnerable populations. This has allowed them to reach potential recruits and influence their beliefs and actions.
- **Coordination and planning of attacks:** The use of encrypted communication tools and social media platforms has made it easier for extremist groups to coordinate their activities, including the planning and execution of attacks.
- **Disrupting internal security:** The use of digital technologies by extremist groups has also had a disruptive impact on internal security in India. For example, the spread of false information and misinformation on social media has led to social unrest and violence in some cases.
- **Use of dark net and dark web:** the ability of extremist groups to communicate and coordinate their activities through encrypted channels has made it more difficult for law enforcement agencies to detect and prevent attacks.

In response to these challenges, the Indian government has taken several measures to address the use of digital technologies by extremist groups. Some of these measures include:

- **Strengthening domestic laws and regulations:** The Indian government has strengthened its domestic laws and regulations to regulate the use of digital technologies and clamp down on illegal activities such as the spread of hate speech and incitement to violence.
- **Countering online extremism:** The Indian government has also been working to counter online extremism by promoting counter-narratives and alternative viewpoints through social media and other digital platforms.
- **Enhancing cyber security:** The Indian government has been strengthening its cyber security capabilities to detect and prevent the use of digital technologies by extremist groups to carry out their activities.

Conclusion

While it has presented new challenges for the Indian government, efforts are underway to counter this threat and to ensure the safe and secure use of digital technologies for all citizens. A transparent and accountable approach to digital security, along with meaningful engagement with civil society and stakeholders, can help to ensure that the measures taken are effective and proportionate.

- 10. Analyse the impact of plastic waste on marine ecosystem , and the measures taken by the government and other stakeholders to reduce plastic pollution. Discuss the opportunities and challenges in promoting sustainable alternatives to single use plastics .**

Approach -

A simple straightforward question where candidates need to write about impact of plastic waste on marine ecosystem and govt measures to curb plastic pollution, in second part of answer write about sustainable alternatives for single use plastics.

Introduction

Plastic has become one of the most pressing environmental issues that we are facing today. India is generating about 3.5 million tonnes of plastic waste annually. Plastic waste generation impacts marine ecosystem badly hence there is urgent need for promoting sustainable alternatives for single use plastics.

Body

Impacts of Marine Plastic Waste-

- Plastic waste blocks our sewers, threatening marine life and generating health risks for residents in landfills or the natural environment.
- The financial costs of marine plastic pollution are significant as well.
- According to a forecast made in March 2020, the direct harm to the blue economy of the Association of Southeast Asian Nations will be USD 2.1 billion per year.
- Enormous social costs accompany these economic costs. Residents of coastal regions suffer from the harmful health impacts of plastic pollution and waste brought in by the tides.

- Boats may become entangled in abandoned or discarded fishing nets or their engines may become blocked with plastic debris.
- It can create problems for industries such as Shipping, fisheries and aquaculture and maritime tourism which affect livelihood of the coastal community.

Steps Taken So Far:

- **GloLitter Partnerships Project:** It is launched by the International Maritime Organization (IMO) and the Food and Agriculture Organization of the United Nations (FAO) and . initial funding from the Government of Norway.
- To prevent and reduce marine plastic litter from shipping and fisheries.
- It will also assist developing countries in reducing marine litter, including plastic litter, from within the maritime transport and fisheries sectors, and to decrease the use of plastics in these industries.
- Also assist in identifying opportunities to reuse and recycle plastics.
- 30 countries including India have joined this global initiative to tackle marine litter.
- World Environment Day, 2018 hosted in India, the world leaders vowed to “Beat Plastic Pollution” & eliminate its use completely.

Specific to India:

- Plastic Waste Management Rules, 2016 state that every local body has to be responsible for setting up infrastructure for segregation, collection, processing, and disposal of plastic waste.
- Plastic Waste Management (Amendment) Rules 2018 introduced the concept of Extended Producer Responsibility (EPR).
- Designing a product: Identifying plastic items that can be replaced with non-plastic, recyclable, or biodegradable materials is the first step.
- Countries must embrace circular and sustainable economic practices throughout the plastics value chain to accomplish this.
- Pricing: Plastics are inexpensive which provide fewer economic incentives to employ recycled plastics. Balancing price structure with environmental health should be a priority.
- Technologies and Innovation: Developing tools and technology to assist governments in measuring and monitoring plastic garbage in cities.
- India should start projects like the ‘Closing the loop’ project of the United Nations Economic and Social Commission for Asia and the Pacific which assists cities in developing more inventive policy solutions to tackle the problem.
- Promoting a plastic-free workplace: All single-use goods can be replaced with reusable items or more sustainable single-use alternatives.
- Producer responsibility: Extended responsibility can be applied in the retail (packaging) sector, where producers are responsible for collecting and recycling products that they launch into the market.
- Municipal and community actions: Beach and river clean-ups, public awareness campaigns and disposable plastic bag bans and levies.
- Multi-stakeholder collaboration: Government ministries at the national and local levels must collaborate in the development, implementation and oversight of policies related to plastic waste management.

- Recently, the researchers at the Indian Institute of Science, Bengaluru (IISc) have found a way to make a substitute for single-use plastic (SUP) that can, in principle, help mitigate the problem of accumulating plastic waste in the environment.

Key Points

- In the research, Non-edible Castor oil was used in this process of making the polymer which involves allowing them to react with the cellulose (from agriculture stubble) and DI-isocyanate compound.
- These polymers can be molded into sheets having properties suitable for making bags, cutlery or containers.
- The material so made is biodegradable, leak-proof and non-toxic.

Possible Advantages-

- Addressing the Problem of Single use Plastics (SUP): Given the surge in the usage of single use plastics and the challenge of managing the landfills choked with SUPs, such alternatives could bring paradigm shift especially in the packaging sector, the largest consumer of SUP.
- Tackling Agricultural Stubble Problem: Agricultural stubble burning is responsible for air pollution in several northern states in India.
- In Delhi, for example, the air quality index dips to indicate “severe” or “hazardous” level of pollution every winter, and this is due in part to the burning of agricultural stubble in the surrounding regions.
- Using agriculture stubble for replacement of single use plastics will not address the problem of air pollution, but will generate additional income opportunities for farmers also.
- Use in Healthcare Facilities: As the material is biodegradable and non-toxic, researchers are planning to use the material for healthcare applications also.

Conclusion

According to a report all the plastic waste produced in the world, 80% enters the environment. Accumulation of plastic waste is detrimental to the environment and when this waste finds its way into the sea, there can be major harm to aquatic ecosystems, Countries must embrace circular and sustainable economic practices throughout the plastics value chain to reduce plastic pollution.

- 11. Assess the impact of climate change on India's biodiversity, and discuss the measures taken by the government and other stakeholders to protect and conserve vulnerable species.**

Approach

Candidates can start the answer with giving basic idea of climate change in India and then simply highlight its impact on Indian biodiversity also elucidate about measures taken by different stakeholders.

Introduction

While the world is grappling with the challenges posed by climate change, developing economies like India are particularly vulnerable. Thus, climate risk as a material aspect is going to play a critical role in charting out national-level policies, business strategies and reorientation of finance in an emerging economy like India.

Body

Climate change is having a significant impact on India's biodiversity. Some of the ways in which climate change is affecting India's biodiversity include:

- **Habitat loss and degradation:** Rising temperatures, changing precipitation patterns, and sea-level rise are altering the habitats of many species, causing them to migrate or go extinct.
- **Changes in species distribution:** Some species are adapting to changing climatic conditions by moving to new areas, while others are unable to do so, leading to a decline in their populations.
- **Altered phenology:** Changes in temperature and precipitation patterns are leading to shifts in the timing of life cycle events such as flowering and migration, which can have cascading effects on ecosystems.
- **Increased frequency and intensity of extreme events:** Climate change is causing more frequent and intense heatwaves, droughts, floods, and storms, which can have a devastating impact on biodiversity, particularly for species that are already vulnerable due to habitat loss or degradation.
- **Ocean acidification:** The ocean absorbs large amounts of carbon dioxide from the atmosphere, leading to acidification, which is having a major impact on marine biodiversity, particularly for species that have shells, such as mollusks and some species of plankton.

The Indian government and other stakeholders are taking a number of measures to protect and conserve vulnerable species:

- **Legal protection:** India has enacted several laws to protect its wildlife, including the Wildlife Protection Act of 1972, which provides for the protection of wildlife species and their habitats.
- **Protected Areas:** The government has established a network of protected areas, such as national parks, wildlife sanctuaries, and biosphere reserves, to conserve threatened and endangered species and their habitats.
- **Species recovery programs:** The government and conservation organizations are implementing species recovery programs to protect and conserve threatened species, such as the Bengal tiger, Asian elephant, and one-horned rhinoceros.
- **Habitat restoration and management:** The government and conservation organizations are working to restore degraded habitats and implement sustainable land use practices to reduce the impacts of human activities on biodiversity.

- The impacts of climate change on India's biodiversity have far-reaching implications for the country's natural resources, as well as its human population, which relies on these resources for food, water, and livelihoods.
- Public awareness and education: The government and conservation organizations are conducting public awareness and education programs to increase understanding of the importance of biodiversity conservation and encourage the public to take actions to protect wildlife.
- International cooperation: India is working with other countries and international organizations to conserve biodiversity on a regional and global scale, through initiatives such as the Convention on Biological Diversity and the Global Tiger Initiative.
- Private sector engagement: The private sector is being engaged to promote sustainable practices and support biodiversity conservation, through initiatives such as Corporate Social Responsibility programs and partnerships with conservation organizations.

Conclusion

These measures are helping to protect and conserve vulnerable species in India, but much more needs to be done to ensure their long-term survival. Effective conservation requires sustained efforts from the government, conservation organizations, and the general public, as well as support from the international community.

- 12. Analyze the impact of infrastructure projects on the environment, and the role of Environmental Impact Assessment (EIA) in mitigating this impact. Discuss the challenges and opportunities in improving the EIA process to ensure sustainable development.**

Approach

Candidates can start the answer with giving basic idea of EIA, address the role of the EIA in mitigating impacts and also highlight challenges and opportunities.

Introduction

EIA is designed to identify the potential risks of a project (e.g., infrastructure development such as a dam) to environmental and human well-being and identify measures to eliminate and/or mitigate these risks. This can be done by replacing and/or modifying planned activities to reduce impacts.

Body

- Infrastructure projects can have significant impacts on the environment, such as deforestation, soil erosion, loss of biodiversity, and increased air and water pollution. EIA is a tool used to identify, predict, and evaluate the potential environmental impacts of a proposed project and to ensure that these impacts are taken into consideration when making decisions.

- The role of EIA is to provide decision-makers with an understanding of the environmental risks and benefits associated with a project and to identify measures to minimize or mitigate any adverse impacts.
- This includes identifying alternatives to the proposed project, considering the views of local communities and other stakeholders, and evaluating the long-term sustainability of the project.
- EIA is an important step in ensuring that infrastructure projects are developed in a sustainable manner, minimizing their impact on the environment and preserving the quality of life for local communities and future generations.
- When properly implemented, EIA can help to promote sustainable development and ensure that the costs and benefits of infrastructure projects are evaluated in a comprehensive and transparent manner.

Challenges:

- **Lack of Political Will:** The lack of political will and commitment to implementing EIA regulations can result in weak enforcement and ineffective implementation.
- **Limited Resources:** EIA is a resource-intensive process, and in many cases, there may be limited resources available to conduct a comprehensive assessment.
- **Limited Public Participation:** The public often lacks the resources and information necessary to participate effectively in the EIA process.
- **Limited Capacity:** Many countries lack the technical and institutional capacity to carry out EIA effectively, particularly in developing countries.

Opportunities:

- **Strengthening Regulations:** Improving regulations and guidelines for EIA can help to ensure that projects are subject to a rigorous and transparent assessment process.
- **Increasing Public Participation:** Encouraging greater public participation in the EIA process can help to build trust and ensure that the needs and concerns of local communities are taken into consideration.
- **Enhancing Capacity Building:** Providing training and support to practitioners and decision-makers can help to build the technical and institutional capacity necessary for effective EIA implementation.
- **Using Technology:** The use of technology, such as remote sensing and geographic information systems, can help to improve the accuracy and efficiency of EIA processes.

Conclusion

Improving the EIA process can help to ensure that infrastructure projects are developed in a sustainable manner and that the environmental impacts of these projects are effectively managed. By addressing these challenges and taking advantage of these opportunities, the EIA process can play a critical role in promoting sustainable development.

13. In the light of increasing global competition in the field of technology what measures should be taken to accelerate the indigenization of technology in India?

Approach -

A simple straightforward question where candidates need to write about what measures should be taken to accelerate the indigenization of technology in the light of increasing global competition .

Introduction

Indigenization is a term that is used in several ways depending on the perspective. It is the fact of making something more native; transformation of some service, idea to suit a local principles, especially through the use of more indigenous people in administration, employment.

Body

- In 2014, the 'Make in India' scheme was launched to improve India's manufacturing prowess and open more vacancies for employment. The core goal of this scheme was to support the indigenization of technologies be it electronics, ICT, defence, space, transport, etc.
- In today's world where there is a cut-throat competition between countries with respect to economy, military and infrastructure, technology place an important factor in improving the rate of growth. But what is even more vital is that the men behind the machines can comprehend the technology.

Importance of Indigenization of technology:

- Indigenization is crucial step for a developing economy to transform itself into a developed economy. Hence, it holds huge economic significance. With the increasing globalization, more and more men and material resources are being available for the foreign nations to utilize for their benefits through bilateral ties.
- This leads to underestimation of its own resources by the nation to develop itself. Using of own natural resources is cheaper and easy to harness.technological capability in the area of homeland security, the government is considering to establishing a centre for focused research on the latest electronic equipment, which can be indigenously manufactured.
- There is a need for development of products, especially for internal security issues.
- Presently, several equipment that cater to the needs of various security agencies are either not available simply in the country, or very costly to deploy.
- The force on the ground in Naxal-hit areas do not have communication tools. The only tool available is the satellite phone, which is very costly and cannot be used at a large scale. So, this centre can be commissioned by the government or the industry to build equipment catering to their exact need, at reasonable price.

Indigenization of technology in Indian context-

- Consolidation of Science and Technology capacities is regarded as a process establishing innovation networks interconnecting science, innovation and industrial activities.
- Therefore, policies and programme of nation for both Science and for Industry and the interrelationship between the two have been scanned.
- Nevertheless, an indigenously manufactured electronic equipment using imported components, would still be desirable not only from the perspective of price, but also the availability of low cost repair and maintenance over many years of operation.
- In the viewpoint of defence and military applications, the value of indigenization gets multiplied manifold in terms of the strategic reliability of ready and direct access to a local manufacturer and his support base.
- Furthermore, an indigenous manufacturer also has the ability to increase his product periodically using upgraded technology that could even be developed in-house.
- It is well documented in studies that indigenization of technology goes beyond just manufacturing the item based on drawings and materials supplied by a foreign manufacturer (OEM).
- Here, the local manufacturer is anticipated to understand the technology underlying the product or part, so as to be able to change, modify, improve or re-design the item as and when he likes.
- Most of the 'technology transfer' that happens in the Indian defence and aerospace sector, only relates to the manufacture of the item within the country and therefore concerns only the technology involved in manufacturing. The foreign manufacturers hardly provide any insight into the technology for design or modifications of the part.

Measures should be taken to accelerate indigenization of technology -

- It is presented that the Indian policies and programme have developed through five phases of development.
- To strengthen Science and Technology capacities, the phases have been categorized as;
- Phase I: Infrastructure building
- Phase II: Reorientation
- Phase III: Promotion of indigenous technologies
- Phase IV: Moving towards economic liberalization
- Phase V: Science and Technology in liberalized economy
- Policies and programme evolved in each of the phases have been scrutinized with illustrative examples.
- The growth of Science and Technology capacities for indigenization of technology have been evaluated to demonstrate the steady emergence of innovation networks. India's developments in the last decade are visualized as the success of service sector and increasing outsourcing industries.
- Indians were identified for being the global winners of IT-enabled services. It includes the airlines, healthcare, mobile phone, IT services etc. India is among world largest importers.

- It represents that India lacks in meeting demand of defence forces. Our indigenous efforts have shown results but there is a lot of cost escalation and breach of time-limit one after another. This is apparent from the facts:

Conclusion

Technological advancement is a must for economic growth of a nation. But what is even more important is indigenization of that technology so that it can be implemented with full effect in tackling issues and successfully overcoming them. indigenization is also viewed as precursor to innovation which leads to development of new technology in a much more inexpensive cost than imported technology.

14. How can India's computer technology sector be made more competitive on the global stage and what role should government policies play in this regard ? explain.

Approach

In this question candidates need to write about how can Indian computer technology sector be made more competitive and what should be govt role in promoting it.

Introduction

The 21st century is earmarked as Information Technology driven and India is at the Centre of global attraction and considered as a knowledge powerhouse. To make this sector more competitive proactive policies by govt is needed.

Body

- The IT industry covers IT services, IT-enabled services (ITES), e-commerce (online business), Software and Hardware products.
- IT based services are indispensable for any organization to increase productivity, ease of doing business, and grow efficiently and economically in this competitive world.
- Information Technology not only contributed to the economic growth of the country but it has also made governance more competent and approachable.
- It has made access to government services and information easier and inexpensive. Information technology has also made management and delivery of government services such as health services, Educational information, consumer rights and services etc. more meritorious with enhancing transparency.
- The IT industry is the backbone for our economy to prosper exponentially and to generate millions of jobs. Growth in the IT sector will push us to grow at par with China in every sector and will help in grabbing the global market. This will improve the socio-economic status of Indians.

How has the IT industry flourished in the last 50+ years?

- The exponential growth of the IT industry in India in the last two decades has changed the perception of the whole world about India's storehouse of knowledge and skills and powered economic growth.

- The swift advancement within the IT industry and liberalization policies such as reducing trade barriers and eliminating import duties on technology products by the Government of India are instrumental in the evolution of this industry. Also, various other government initiatives like setting up Software Technology Parks (STP), Export Oriented Units (EOU), Special Economic Zones (SEZ) and foreign direct investment (FDI) have helped this industry in attaining a leading position in the world IT industry.
- The IT sector has increased its contribution to India's GDP from 1.2% in 1998 to almost 10% in 2019.
- According to NASSCOM, the sector aggregated revenues of 180 billion dollars in 2019 with export revenue standing at 99 billion dollars and domestic revenue 48 US billion dollars, growing by over 13%. As of 2020, India's IT workforce accounts for 4.36 million employees. The United States accounts for two-third of India's IT services exports.
- In the present time, when the COVID-19 pandemic has grappled the whole world and economies have been hard hit. The Indian IT industry is still showing positive signs and has the ability to overcome this exceptional catastrophe.
- It has arisen as a global economic force and a major contributor to the Indian economy in particular and the world in general.
- Online retailing, cloud computing and e-commerce are all contributing to the speedy growth of the IT industry. The rate of growth in the IT sector for 2019-20 is approximately ten percent.
- The Indian IT industry has grown rapidly with an exponential growth rate after the economic reform of 1991-92. Indian IT companies have set up thousands of centres within India and around 80 countries across the world.
- The majority of global corporations are sourcing IT-ITES from the Indian IT industry, accounting for approximately 55 percent of the global service sourcing market (US\$ 200-250 billion) in 2019-20.
- The market size (especially export) of the IT industry has grown manifold from approx. 67 billion US dollars in 2008-09 to 191 billion US dollars in 2019-20. The revenue is further expected to grow in the coming years with an accelerating growth rate and expected to reach 350 billion US dollars by 2025. Programmes, Policies, and Initiatives related to ICT-

Digital India Initiative

- Digital India was an initiative taken by the Government of India for providing high-speed internet networks to rural areas.
- Digital India aims to provide the much-needed thrust to the nine pillars of growth areas. Each of these areas is a complex programme in itself and cuts across multiple Ministries and Departments. The nine pillars of Digital India are given below:
- Broadband Highways– This covers three sub components, namely Broadband for All – Rural, Broadband for All – Urban and National Information Infrastructure (NII).
- Universal Access to Mobile Connectivity- This initiative focuses on network penetration and filling the gaps in connectivity in the country.

- Public Internet Access Programme- The two sub components of Public Internet Access Programme are Common Services Centers (CSCs) and Post Offices as multi-service centers.
- e-Governance: Reforming Government through Technology- Government Process Re-engineering using IT to simplify and make the government processes more efficient is critical for transformation to make the delivery of government services more effective across various government domains and therefore needs to be implemented by all Ministries/ Departments.
- e-Kranti – Electronic Delivery of Services- To improve the delivery of public services and simplify the process of accessing them. In this regard, several e-governance initiatives have been undertaken by various State Governments and Central Ministries to usher in an era of e-Government. e-Governance in India has steadily evolved from the computerization of Government Departments to initiatives that encapsulate the finer points of Governance, such as citizen centricity, service orientation and transparency.
- Information for All- This pillar aims to ensure transparency and availability of reliable data generated by the line ministries for use, reuse and redistribution for the people of India.
- Electronics Manufacturing- This pillar focuses on promoting electronic manufacturing in the country.
- IT for Jobs- This pillar focuses on providing training to the youth in the skills required for availing employment opportunities in the IT/ITES sector.
- Early Harvest Programme- This pillar consists of a group of different short-term projects which have immediate effect on the Indian digital ecosystem like IT platform for mass messaging, crowd Sourcing of eGreetings, biometric attendance in the government offices, WI-FI in all universities etc.

Conclusion

In the last decade, India has emerged as an IT hub for the software companies of the world and Indian software companies have taken prominent positions in the global IT sector and became largest sourcing destination for the IT industry. More support from govt is needed as sectors share to GDP increasing and boosting development of country.

15. Given the strategic importance of space technology how can India's intellectual property rights regime be strengthened to better protect its innovations and investments in this fields ?

Approach

In this question candidates need to write about importance of space technology and how intellectual property regime be strengthen to protect its innovations and its investments .

Introduction

The issue of intellectual property rights was the biggest issue bothering the startup community in the space sector, which was opened up for private participation by the government two years ago. Clarity on intellectual property rights (IPR) is crucial for the success of the space sector, to protect innovations and investments in the field.

Body

Despite the fact that space technology is always one of the most advanced technical area, and outer space activities are, in fact, the fruit of intellectual creations, it is only in recent years that intellectual property protection outer space activities has raised wider attention.

- Despite the fact that space technology has long been one of the most advanced technical areas in the world, and outer space activities are, in fact, the fruit of intellectual creations, it is only in recent years that intellectual property issues have begun to be raised in connection with extraterrestrial activities.
- Some of the reasons for this are that space activities are increasingly shifting from being state-owned activities to becoming private and commercial activities. Further, an increasing number of space activities are operated under international cooperation schemes, which depend on a simple, uniform and reliable international legal framework.
- In India, the Indian Space Research Organization (ISRO) is the main entity working towards development in the field of outer space, governed by the Department of Science.
- The further India goes into space-related projects, the more essential it becomes to invest in intellectual property treaties, simultaneously permitting world community consideration.
- Giving private space organizations some intellectual property rights will ensure that there is fast-paced development in space-related activities as they are offered a good incentive to conduct research and extend innovation.
- The creation and incentivization of a framework are vital to increasing initiatives to explore space. The existing regime of IP in the world does not vary drastically, although the consequences of implantation of the same laws have proved it a meritless initiative. In space, a flawed system might entail worse consequences, usually with socio-economic losses.
- Thus, a separate system of intellectual property right enforcement must be created. Since IPR is highly territorial, it can be difficult to draft legislation that can cover all areas of space-related IPR without ambiguity.
- It has been well-established that all conflicts in law are dependent on the number of times similar issues arise, especially when the idea of distinct groups with different laws come into the picture. This entails that the jurisdiction of space IPR must be distinguishable from territorial IPR.
- Raw data carried by satellites have no inherent value as such. Copyright will subsist in the final, processed value-added data after compiling the information to form valuable information. The images sent by Remote Sensing Satellites are of relevance in weather forecasts, terrain mapping, groundwater level detection

and environmental monitoring. In the Indian scenario, if one refers to the Copyright Act, 1957, it will be difficult to establish the real author of raw data collected by a satellite. It does not have human intervention and thus cannot be copyrighted.

- When the question of patents arises, it is essential to understand that the entire technological procedure to collect raw data is patented as an invention. The technology used is unique and different in different remote sensing satellites.
- This does not prevent other problems associated with patents in outer space. When a patent infringement occurs in outer space, it cannot be dealt with national patent laws since they are applicable only within the territory of the State itself and not to the outer space.
- The past few decades have seen a monopoly of public sector jurisdiction regarding outer space activities. However, recent times have seen the emergence of numerous start-ups tackling space expeditions and several ambitious projects such as the manufacture of satellites, if the laws of the future adapt to permit them to do so.
- Having recently been allowed to use ISRO's infrastructure, private space companies have been taken into consideration through the establishment of the Indian National Space Promotion & Authorization Centre (IN-SPACE) by the Government. This organization will work in collaboration with New Space India Limited (NSIL), Government-owned.
- IN-SPACE will analyse and gauge the research and educational needs of these private companies and share infrastructure, acting as a network between private space ventures and ISRO. With this step in place, ISRO will be able to focus on other activities such as defence, missions and space exploration.
- India, having dabbled feet into the space environment recently, has its space intellectual property regulations at a nascent stage. However, it has been an active member of International Conventions such as The Outer Space Treaty of 1967, The Registration Convention of 1975, The Moon Treaty of 1979 and The Liability Convention of 1972, which comprise the treaties negotiated and drafted by the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS).
- The Paris Convention contains a section providing for the invalidity of intellectual property right infringement, which could potentially apply in relation with space-related intellectual property rights. Nevertheless, there has been no space-related legislation until this day.
- To promote the expansion of space activity, there is a dire necessity for a legal framework of national space regulations, and thus, the government is preparing to bring in the Space Activities Bill, which seeks to dismantle government domination and increase private venture investment with Government clearance. Section 25 of this proposed bill has content relevant to intellectual property laws in the course of space-related activity.
- Despite this, there is ambiguity regarding the ownership of property created; for instance, if Space X launches a satellite from India and collects new data proving a certain theory, will that information belong to India or Space X?
- The bill is occasionally ambiguous and fails to tackle important aspects like flags of convenience and orbital patents. Regardless, the bill is a good beginning to

push India to the forefront of space expeditions and related activities. It portrays the approval of the Indian Government in consonance with the protection of space intellectual property.

Conclusion

The responsibility of beginning a new space policy to regulate IPR in space falls on the Indian Parliament. The increasing pace of space technology in India requires regulations that are capable of keeping up with this rate of development in space activities. The possibilities of space exploration, mining, experimentation, tourism etc.

16. How can Indian pharmaceutical industry benefit from advancements in biotechnology and what specific steps can be taken to encourage innovation and investment in this field? Discuss.

Approach

In this question candidates need to write about how Indian Pharmaceutical industry is benefited from biotechnology, In second part write about which steps have been taken to encourage innovation in this field.

Introduction

Biotechnology plays a very vital role in Pharmaceutical Research and Development sector. In today's time, 15% of the bounce is elicited from the bio pharmaceutical industry. Many steps has been taken to improve innovation and investment in this field .

Body

Biotechnology is the science that merges with technology that is being used in the pharmaceutical industry and it is proven to be advantageous specifically in the manufacturing of genetic testing and vaccinations.

Importance of biotechnology in the field of Pharmaceutical Industry

- Pharmaceutical companies are highly working towards the production of medicines and lifesaving vaccines for the entire global community. And when the pharmaceutical industry uses the advances of biotechnology and its sophisticated techniques, the result is better and faster delivery of drugs. Biotechnology has contributed to the Pharma industry for the preparation of vaccines and medicines in an accurate manner.
- Biotechnology has helped the Pharma industry in the development of better processes, new products, and also has come up with new technologies to improve the existing methods. Thus, biotechnology when combined with the pharmaceutical industry can introduce a large number of jobs at the international level.some of the fields of the Pharmaceutical industry where biotechnology has played a vital role-

Vaccination:

- Today, when the world is fighting with the fear of Corona-virus and all our hopes stand united on the development of the COVID-19 vaccine. It can be well understood about how much the vaccination industry demands the expenditure of resources.
- The pharmaceutical industry strives to manufacture products that are beneficial in fighting various diseases. Some diseases can still not be cured by medication, therefore the concept of vaccination came into the picture. The most relevant indication is metabolic, oncology disorders of the musculoskeletal system, and for the near future, it can be anticipated that the relevancy of the bio-pharmaceutical sector will be a boom.

Genetic Testing:

- Genetic testing is a form of medical test that specifies the changes in chromosomes, proteins, or genes of an organism. The result of a genetic test can verify or rule out an expected genetic condition or help deduce a person's chance of developing or enacting on a genetic disorder. More than 1,000 genetic tests are presently in use, and further are being formulated.

Various methods can be obtained for genetic testing:

- Molecular genetic tests study solitary genes or short lengths of DNA to specify variations or modifications that steer to a genetic disorder.
- Chromosomal genetic tests help in the analysis of entire chromosomes or the long lengths of DNA to identify the occurrence of huge genetic changes such as an additional copy of a chromosome, that induces a genetic condition.

Biochemical genetic tests research

- Biochemical genetic tests research the proportion or activity level of proteins; abnormalities in either can imply changes to the DNA that result in a genetic syndrome.
- Genetic testing is instinctive. Because testing has advantages as well as restrictions and risks, the decision about whether to be tested is a subjective and difficult one. A geneticist can assist by giving information about the pros and cons of the test and examining the social and emotional factors of testing.

Need of the Innovation in Pharma Sector

- Changing perspective and increasing the use of technology were the need of the hour. But now it is essential that innovation is at the core of business, and there is a dire need to embrace it if India wants to continue to be of relevance in the global pharmaceutical space.
- India playing at scale in the innovation space will not just help the country but will create a source of sustainable revenues, bringing new solutions to unmet healthcare needs.
- In India, this would lead to reduction in disease burden (development of drugs for India-specific concerns like tuberculosis and leprosy does not get global attention), creation of new high-skilled jobs, and probably around USD 10 billion of additional exports from 2030.
- Countries like China have already leapfrogged ahead, skipping the generic medicine based development.

Way Forward

- Robust Regulation: An enabling regulatory structure with simplified processes, robust guidelines, predictability, increased capacity and strong governance.

- India needs a 60% reduction in the approval timeline to be competitive.
- Robust Funding Support with government aid for industry investment through policies/incentives, direct government investment, and significant private investment.
- India offers an attractive set of benefits — weighted R&D deduction, additional patent box benefits, and progressive policies to increase innovation funding which can attract more investment.
- Industry-Academia Linkages: Strong linkages between academia and industry with high quality academic talent and infrastructure, industry-oriented research, and strong governance.
- India needs world-class centers of excellence to attract global talent and support cutting-edge research.
- Hubs to Accelerate Collaboration: There is a need for several at-scale innovation hubs co-locating academia, public R&D centers, industry, start-ups and incubators.
- Invest in Other Modern Sectors: India should look up to and invest in biotechnology. India's biotechnology industry, comprising bio pharmaceuticals, bio-services, bio agriculture, bio-industry and bio-informatics is expected to grow at an average rate of around 30% a year and reach USD 100 billion by 2025.

Conclusion

The biotechnology and pharmaceutical sectors have showcased resilience and grit in the face of the pandemic, continuously evolving and innovating for better outcomes. The next story of the Indian pharmacy industry has to be one centred around biotechnology and innovation. If the right choices are made and if nurtured right then investment will come and India can grow to be leaders in the global pharmaceutical market.

17. What are the potential applications of nanotechnology in the field of healthcare in India and how can policies and infrastructure be developed to promote research and development in this area? Examine.

Approach

Start with basic intro on nanotechnology and then linking it with health sector write about application and also highlight relevant policies and infrastructure facilitated by government.

Introduction

Nanotechnology is the understanding and control of matter at the nanoscale, at dimensions between approximately 1 and 100 nanometers, where unique phenomena enable novel applications.

Body

- Nanomedicine applies nanotechnology in healthcare applications such as treatment and diagnostics of various diseases using nanoparticles in medical devices, as well as nanoelectronic biosensors and molecular nanotechnology.

Application of nanotechnology in health sector:

- Health monitoring: With increasing life style disease and diabetic patients in India nanotubes and nanoparticles can be used as glucose, carbon dioxide and cholesterol sensors and for in-situ monitoring of homeostasis, the process by which the body maintains metabolic equilibrium.
- Nanofibers: With high number of disable population in India nanofibers can be used in wound dressings and surgical textiles, as well as in implants, tissue engineering, and artificial organ components.
- Disease diagnosis: It can be done using quantum dots nanosized semiconductors that can be used as biosensors to find disease and which can be made to fluoresce.
- For example, nanotechnology-based tuberculosis diagnostic kit would cut both the cost and time required for most prevalent TB tests in India.
- Targeted Drug Delivery System: Researchers are working on a number of different therapeutics where a nanoparticle can encapsulate or otherwise help to deliver medication directly to cancer cells and minimize the risk of damage to healthy tissue.

Concerns of using nanotechnology:

- Lack of proper knowledge about the effect of nanoparticles on biochemical pathways and processes of the human body.
- Expensive processes and treatments make them less desirable.
- Toxicity: Scientists are primarily concerned about the toxicity, characterization, and exposure.

Policies and infrastructure to promote:

- Institute like IISC, IITs can work on Nanotech detectors for heart attack and nanochips to check plaque in arteries.
- National Centers for Nanofabrication and Nanoelectronics can be established.
- Much larger funding and efficient policies for capacity building in fields of basic research in nanotechnology, infrastructure development, human resources development, and global collaboration can be done.

Conclusion

Nanotechnology helps to overcome the limitations of conventional dosage forms. This technology promises to be used in disease treatment as well as diagnostics with high efficacy. Meanwhile there is a need to identify key gaps in knowledge and areas where further research may be targeted in order to efficiently exploit the technology.

18. How can India's manufacturing and industrial sector be modernized and automated through the incorporation of robotics and what are the key challenges that need to be addressed to achieve this? Analyse.

Approach

Candidates can start the answer by basic definition of robotics and its application, in later part try to explain how it can transform Indian manufacturing and Industrial space. In the end highlight few challenges.

Introduction

Nowadays Robots are now widely used in manufacturing, assembly, packaging, mining, mass production of consumer and industrial goods etc. Basically, Robotics is the branch of technology that deals with the design, construction, operation, structural depositions, manufacture, and application of robots.

Body

Modernizing and automating Indian manufacturing and Industrial sector:

- **Automobile:** Industrial Robots due to their speed accuracy, reliability & endurance are readily used in the manufacturing of cars. Tasks such as welding, spray painting welding, material handling & assembling can be performed better by an industrial robot than a human.
- **Electronics:** Pick & place robots are used in the mass production of the printed circuits boards (PCB's). They help in removing tiny electronics components from strips & trays & place them onto PCBs with great accuracy.
- Such robots can place several components per second far outperforming a human in terms of speed, accuracy & reliability.
- **Packaging Industry:** Extensively used for palletizing & packaging of manufactured goods. For example, taking drink cartoons from the end of the conveyer belt & placing them rapidly into boxes.
- **Mining:** Due to the hazardous nature of mining, in particular underground mining, the prevalence of autonomous, semi-autonomous, and teleoperated robots has greatly increased in recent times.

Challenges of Robotics in India:

- The cost of adopting Robotic technology is very high due to the cost of procuring imported hardware components as well as training personnel. As Robotics is a multidisciplinary field, acquiring and retaining quality talent is a big issue.
- There is a scarcity of good faculty to teach the subject: Barring a few regions in India, Robotics as a subject is not taught well to engineering students.
- Creating jobs is important for socio-economic reasons in India. The government's strategy to address the jobs issue has been to absorb a large labour force by promoting the manufacturing sector.

- However, with increasing automation and concerns of companies shifting their manufacturing base as economic consideration of cheap labour is done away, the government's strategy is at stake.

Conclusion

Robots are soon going to be a part and parcel of human life. In reality, the advancement in the field of robotics has both a good side and a bad side. Hence it is up to us humans to understand the safe limits of inventions and utilise robotic services in specific and judicious ways.

19. Discuss the recent developments in Artificial Intelligence and its impact on various sectors such as healthcare, finance, and transportation.

Approach

Start with basic intro on AI and then highlight recent technologically prominent developments and different measures. Also write down different impacts on various sectors.

Introduction

Artificial intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. Artificial Intelligence has the potential to provide sizeable incremental value to healthcare, finance and transportation sectors globally.

Body

Recent developments:

- The development of AlphaFold, an AI system that descended from AlphaGo, was originally a deep learning model trained to beat human beings at the board game Go.
- RAISE 2020 – 'Responsible AI for Social Empowerment 2020' was jointly organised by the NITI Aayog and the Ministry of Electronics and Information Technology (MeitY).
- Many countries have instituted dedicated public offices such as the Ministry of AI (UAE), and Office of AI and AI Council (U.K.) while China and Japan have allowed existing ministries to take up AI implementation in their sectoral areas.
- AI based face recognition opened a new window of opportunity to do predictive policing in India. With the help of AI, Delhi Hyderabad police predicted the pattern of crime, analyze lot of CCTV footage which are available across the city to identify suspects.
- The sheer velocity and magnitude of AI innovation have also led to impacts in fields such as commerce or digital healthcare.

Impact on Healthcare:

- AI plays an important role in the field of healthcare by addressing issues of high barriers particularly in rural areas that lack poor communication and a professional healthcare system.
- Some of the emerging application includes AI-driven diagnostics, personalized treatment, early identification of potential pandemics, and imaging diagnostics.
- Atomwise, a drug development company used AI to analyze if existing medicines could be redesigned to target the Ebola virus in 2016.

Transports, Logistics, and Smart Mobility:

- This domain mainly includes various autonomous and semi-autonomous features, for example, monitoring and maintaining a predictive engine along with driver-assist. Other applications of AI include improved traffic management, autonomous trucking, and delivery.
- Applications of AI is in the form of autonomous vehicles or self-driving vehicles were once a thing of pure science fiction but in recent years have been implemented with varying success it will impact number of employments in transport sector.
- For example, Tesla along with the likes of Uber, Waymo and Motional—has been working on automated vehicles for a number of years now, always staying one step ahead of the curve.

Impact on finance sector:

- AI is going to be future of financial sector as it brings the power of advanced data analytics to combat fraudulent transactions and improve compliance.
- AI is particularly helpful in corporate finance as it can better predict and assess loan risks. For companies looking to increase their value, AI technologies such as machine learning can help improve loan underwriting and reduce financial risk.
- Consumers are hungry for financial independence, and providing the ability to manage one's financial health is the driving force behind adoption of AI in personal finance.
- For example, AI based chatbot in banking different apps, a virtual assistant.

Conclusion

India may appear to be relatively well-positioned to take advantage of the disruption in the AI system through its advanced IT sector and large youth demographic potential to establish itself as the future hub for AI-related activities.

20. Evaluate the role of government in regulating and promoting the use of blockchain technology in various industries.

Approach

Candidates can start the answer by basic definition of block chain and simply write about the regulation and role of government in promoting block chain.

Introduction

A blockchain is a form of public ledger, which is a series (or chain) of blocks on which transaction details are recorded and stored on a public database after suitable authentication and verification by the designated network participants. A public ledger can be viewed but cannot be controlled by any single user.

Body

Government's role in promoting:

- MeitY has prepared a draft framework for the use of blockchain technology in government services and intends to use it in the areas of property record keeping, digital certificates, power distribution, health records as well as supply chain management.
- Land records: Land transactions and proof-of-ownership requests can burden government agencies with documentation and administrative work. By promoting blockchain, governments can permanently store asset transactions such as land, property, and vehicles on a public ledger.
- Legal contracts: Traditional legal-contract execution is costly to both governments and their citizens. Smart, self-executing contracts, enabled by blockchain, can remove the need for intermediaries and potentially improve contract creation and execution. These contracts will be publicly accessible and secure within the network.
- Cyber space: Government systems that provide social benefits, such as unemployment, can be misused and infiltrated by certain individuals and groups, such as cyberattackers. Blockchain can improve record management and provide protection, though issues of privacy must be thoroughly addressed.
- Patenting: Since blockchain can permanently time-stamp transactions at any time, companies or individuals can file patents without enduring the cumbersome submission process.

Regulation of blockchain technology:

- The current debate in India has, unfortunately, focused too heavily on trading and speculation, looking at cryptocurrencies as an investment tool, rather than understanding the potential of core blockchain technology and the basic role of cryptocurrencies as an incentive mechanism to secure decentralized transactions.
- At the present time, blockchain models are partially permitted or are public like Ethereum which is unregulated and relies on intrinsic standards.
- Prevailing cyber laws in India touch almost all aspects of transactions and activities involving the internet, www and cyber space (IT Act 2000 and amended in 2008, section 463 of IPC, and section 420). But in today's techno-savvy environment the world is becoming more and more digitally sophisticated and so are the crimes. India's cyber laws are lacking in this respect.

- There are sufficient global examples of countries that have taken nuanced and cautious steps in regulating the technology, and are focusing on stopping illegal activity without hurting innovation.

Conclusion

Currently, we are witnessing the next phase in a digital revolution led by technologies like blockchain. Channelizing India's human capital, expertise, and resources supported with the right policies will help India to make the most benefit of it.

21. Analyse the applications of drones in agriculture and its potential benefits to farmers and agriculture industry as whole?

Approach

In this question candidates need to write about applications of drones in agriculture and its potential benefits to farmer and agriculture industry

Introduction

World Economic Forum (WEF), in its latest report, stated that drones have the potential to be the indicator of technology-led transformation of Indian agriculture.

Body

The agricultural drone market is expected to grow from a \$1.2 billion (USD) industry in 2018 to \$4.8 billion in 2024.

Applications of drones in agriculture -

- Cost of application - As per WEF, drone usage could reduce the cost of application by 20% and mitigate health hazards of manual work.
- Precision agriculture - It is also useful in promoting precision agriculture, thereby optimizing input use.
- Productivity - Precision agriculture know-how and farm advisory services based on data sources can enable 15% increase in productivity.
- Evidence-based planning - Drones enable data collection and resource-efficient nutrient application which facilitates crop production forecast, and evidence-based planning.
- Emerging technologies - Drones can be an effective enabler for mainstreaming emerging technologies such as yield estimation or insurance.
- Aid in government initiatives - With drones, government initiatives like Per Drop More Crop will improve and water use inefficiency in irrigation will decline.
- Drones' data integrated with GIS and Google Earth satellite images will streamline schemes like PMFBY by aiding crop cutting experiments, crop-loss estimation, insurance determination and dispute resolution.
- Agri-research - With drones, agri-research will become highly customized and localized.

- Better pricing - Since drones can capture backward and forward linkages, food processing industries will procure from farmers at better prices.
- World Economic Forum (WEF), in its latest report, stated that drones have the potential to be the indicator of technology-led transformation of Indian agriculture.

What role do drones play in addressing the challenges?

- The term drone, sometimes referred to as unmanned aerial vehicles (UAVs) refers to any aerial vehicle that receives remote commands from a pilot or relies on software for autonomous flight.
- Many drones display features like cameras for collecting visual data and propellers for stabilizing their flight patterns.

What steps were taken by the government to promote the use of drones?

- The agriculture ministry had released standard operating procedures (SOPs) for using drones in pesticide and nutrient application.
- Agriculture Ministry provides grant upto Rs. 10 lakhs to agricultural institutes for purchase of drones.
- Union Finance Minister has announced in the Budget 2022-23 that the Centre will promote 'Kisan Drones' to help farmers assess crops, digitize land records, spray insecticides and nutrients.
- The government has notified the Drone Rules 2021 which is expected to make drone operations simpler for civilian drone operators.
- New Delhi has eased drone policies with mechanisms such as the Production Linked Incentive scheme and import bans paving the way for the domestic manufacturing sector.
- Garuda aerospace has set a goal of developing one lakh drones, which are being used for diverse purposes.
- Under the "SWAMITVA scheme", land records are being documented through drone technology. Also medicines, vaccines are being supplied to various parts of the country and it is also being used for sprinkling pesticides etc on crops.

What is the need of the hour?

- The need is to scale up drone use in the agriculture sector from the present 10,000 aerial vehicles.
- Civil-military engagement should be promoted to realize gains from cross-industry application of drones.
- Consultations may be held with experienced strategic partners like Israel where AI-enabled drones are used for mapping plots, assessing crop damage, and even plucking only ripe apples.

Conclusion

Promotion of drone in agriculture is a welcome step that can usher in development but it will require collaborative effort of all stake holders (manufacturers, Government agencies and Agriculture institutes) along with awareness and capacity building of farmers to achieve its true potential.

22. Examine the significance of highways and waterways for agricultural supply chains in India. Do you think India's current road infrastructure has been sufficiently tapped in this regard? Critically examine.

Approach

Start with basic intro on agriculture SCM, and highlight the significance of road transportation mainly and also try to give example of waterways for agriculture and as per demand examine the existing infrastructure.

Introduction

An agriculture supply chain system involves mode of transportation that are responsible for the distribution of vegetable/Fruits/Cereals/Pulses or animal-based products. Mostly flow of goods are done through road and rail transportation in India.

Body

Significance of highways and waterways for agricultural supply chains in India:

- For the distribution of agriculture items, road transport has crucial role to play as it is the chief means of transporting the agricultural goods from the farms to local markets and also to several urban locations.
- Rivers are a natural highway which does not require any cost of construction and maintenance carrying agriculture goods at large scale in Ganges and Brahmaputra rivers has huge potential.
- Both road and water route infrastructure support producers, agripreneurs and agricultural micro, small and medium enterprises (MSMEs) in their production value chain are central to the transition.
- Better transportation services generate improved agricultural income as well as fruitful employment. A planned network of roads helps to minimize the transport cost, boost the delivery of farming material and improves special agricultural production as well as distribution.
- With effective road and water route highways agricultural markets, APMC, warehouse, food processing units and cold storages can be integrated for the national agriculture market will be beneficial for e-NAM and e-commerce in both B2B and B2C markets.
- Hence, if the road services in the rural area are good, it will greatly impact the farmers' productivity, employment, income and also decreases the poverty. Therefore, need to build robust road infrastructure from existing one SCM of agriculture.

Current poor transportation and lack of multi-modal linkages leads to delay in procuring perishable items and thus leads to losses:

- National highways in India account for only 2% of the total road network but transport 40% of all cargo. Although waterways capacity is increasing, a lack of connectivity to these ports causes cost increases and delays in the transfer of goods.

- Most roads in the rural areas are Kutcha (bullock- cart roads) and become useless in the rainy season. Under these circumstances the farmers cannot carry their produce to the main market and are forced to sell it in the local market at low price.
- If transport services are not common, cheap quality or costly then agriculturalists will be at an inconvenience when they try to sell their crops. An expensive service will naturally lead to low farm gate prices (the net price the farmer receives from selling his produce).
- The seasonally blocked routes or sluggish and irregular transport services, together with unsatisfactory storage, can actually lead to high losses as specific items such as milk, fresh vegetables, tea, get worse quickly after a while.
- In case the agricultural products are moved through bumpy road network, then several other crops such as mangoes & bananas might also suffer losses from staining. This also shows up in reduced rates to the agriculturalist.

Conclusion

The supply chain in agriculture is affected by several issues owing to the infrastructure deficit. Government needs to build capacity with warehousing, cold storage, packaging, metalled or pucca road with efficient transport system to reduce distress of farmers.

23. Expanding India's current port infrastructure has immense strategic value. Do you agree? Substantiate.

Approach

Candidates can start the answer by writing on Indian ports and its importance for trade and security. In the main part of answer write about how port infrastructure can give India strategic value in IOR and greater global connectivity.

Introduction

Ports infrastructure is key to the development of any nation. India needs to modernize its ports with operational efficiency to achieve greater global engagement and for maritime security.

Body

Ports and shipping industry in India is critical to the country's Strategic value:

- Ensure the security of strategic installations: Port development will result in the development of India's coasts, which are home to a number of strategic installations such as naval bases, nuclear power plants, and satellite and missile launching ranges.
- Curtailing transnational organized crime at sea: India is vulnerable to narcotic drug trafficking because it is between the world's two main opium-producing regions, the Golden Crescent (Iran, Afghanistan, and Pakistan) to the west and

the Golden Triangle (Myanmar, Thailand, and Laos) to the east. Such illegal practices would be curtailed by port expansion and proper management of port resources, ensuring the safety of communication sea lanes (SLOC).

- Regional integration: South Asia is one of the least integrated regions in the world, and India's eastern seaboard can help recreate an integrated hub and spoke model for regional connectivity in the Bay of Bengal.
- Countering the influence of China: China has aggressively exacerbated India's pre-existing Sri Lanka-linked trans-shipment problem through its Belt and Road Initiative. China holds a 99-year lease on Sri Lanka's Hambantota port. As a result, port expansion and local trans-shipment facilities are critical strategic requirements for India.
- Net Security Provider in the IOR: Many western countries are hedging on India's ability to counter China in the IOR. India could hedge on their support to realize its ambition of Net Security Provider in the IOR by enhancing its coastal security and ensuring port modernizations and its connectivity with the hinterland.
- Environment: The Indian Ocean is warming three times faster than the Pacific Ocean. Overfishing, coastal degradation, and pollution are also harming the marine ecosystem. Hence, good design and sound environmental impact management of construction and operational activities of the port are critical.

Challenges faced by the Port infra in India:

- Infrastructure Bottleneck: Indian ports are plagued with the lack of capacity and low productivity. The high turnover time and freight costs make Indian ports less competitive.
- Logistics Bottleneck: The port productivity and efficiency also depend upon the quality and reliability of road and rail connectivity, and adequate storage and handling facilities.
- Technology Bottleneck: Major international ports are using advanced innovations and information technology to change the way goods are transported between port terminals.

Conclusion

Maritime security and port infrastructure will play a vital role in achieving a robust economic growth and strategic upper hand in the IOR. Thus, the Government has to support the development of world-class port infrastructure in India to make Indian ports globally competitive.

24. How do multilateral organizations like world bank and ADB finance developmental initiatives in developing countries ? Explain .

Approach -

In this question candidate need to write about how multilateral organizations like world bank and ADB finance developmental initiatives in developing countries .

Introduction

ADB and the World Bank operate within a broad, evolving, and increasingly complicated global aid architecture. Both organizations finance developmental initiatives in many developing countries.

Body

The World Bank is a global organization dedicated to providing funding, advice, and analysis to developing nations to help their economic advancement.

- ADB was established in 1966 “to foster economic growth and co-operation in the region of Asia and the Far East ... and to contribute to the acceleration of the process of economic development of the developing member countries in the region, collectively and individually.
- Its initial focus was on food and rural development projects but it quickly diversified its operations to include education, health, and infrastructure development.
- It was during this period that ADB made poverty reduction its key objective. Starting with 31 members in 1966, ADB now has 67 members, of which 48 are from Asia and the Pacific and 19 are from outside this region (ADB Annual Reports various issues).
- The World Bank was created in 1944 to extend finance for the reconstruction of Europe following the Second World War and subsequently to overcome obstacles facing developing countries trying to access international capital for development purposes.
- IBRD and IDA constitute the core of the World Bank Group and provide financial and technical assistance for development in low- and middle-income countries through a suite of loans and grants across the entire range of development
- challenges facing poor countries including health, education, infrastructure, agriculture, public administration, macroeconomic management, institutional development, governance, financial and private-sector development, environmental protection, and natural resource management (World Bank Annual Reports various issues).
- Both the World Bank and ADB are actively involved in every low- and middle-income country in Asia and the Pacific, except North Korea and Myanmar— although in Myanmar, the two institutions have begun to assess the economic situation and provide broad policy advice.
- There is a similar overlap in sectoral involvement. To make loans and equity investments for the economic and social development of its developing member countries.
- To provide for technical assistance for the preparation and implementation of development projects and advisory services.

How world bank disburse loans -

- The Bank borrows the money it lends. It has good credit because it has large, well-managed financial reserves. This means it can borrow money at low interest rates from capital markets all over the world to then lend money to developing countries on very favorable terms

- Bank loans work similarly to personal loans you get from online lenders: After you apply, the bank will review your credit score, history and income to determine how much money to loan you and what annual percentage rate you qualify for. Once you get the loan, you'll pay it back in monthly installments.
- The ADB and the World Bank both make the quickest disbursements, whether crisis-specific or not, primarily in the form of budget support. Relative disbursement rate, which tracks the relative rate at which a given commitment disburses, was highest for program and policy-based lending (PBL) instruments at ADB, and for Development Policy Loans (DPLs) at the World Bank.
- To respond to the request for assistance in coordinating developmental policies and plans in developing member countries.
- Notwithstanding their similar objectives and overlapping responsibilities, coordination between the World Bank and ADB in Asia is not a simple matter.
- A World Bank project currently under preparation will help the social registry evolve to reflect the changing circumstances of the poor, including a localized automated system for people to easily and frequently update their data and allow that data to flow into support programs. Mobile technology and big data analytics will assess needs and determine eligibility. The outcome will be a more dynamic registry that remains up to date and ready to respond to crises.

World banks recent projects in India -

- The development objective of Maharashtra Project on Climate Resilient Agriculture Project for India is to enhance climate-resilience and profitability of smallholder farming systems in selected districts of Maharashtra. This project has four components.
- The first component, Promoting Climate-resilient Agricultural Systems, aims to strengthen the adaptive capacity of smallholder farmers to adjust and modify their production systems to moderate potential future impacts from climate events.
- ADB is also setting up a policy research unit that will use evidence-based information to continue fine-tuning and improving social protection systems.
- A \$500 million loan will help improve mobility in Bengaluru city through a metro rail project, and a \$350 million loan will accelerate policy action to expand access to water, sanitation, and affordable housing.
- ADB also extended a \$251 million loan to strengthen flood-risk management in Chennai's urban areas. Other urban projects will support affordable housing in Tamil Nadu and improve urban services in Jharkhand, Tripura, and Uttarakhand.

Conclusion

As developing countries face tough economic times, the World Bank and ADB has supported uncountable initiatives to expand opportunity and provide much-needed services to the poor, such as improving education and health services, promoting the private sector, constructing infrastructure, and strengthening governance and institutions.

25. Do you think India needs to adopt a more liberal trade regime for its economy to prosper? Critically analyse.

Approach

Start with basic intro on liberal trade regime and then critically analyze with various alternative arguments on liberal trade regime.

Introduction

Liberal trade regime is the removal or reduction of restrictions or barriers on the free exchange of goods between nations. These barriers include tariffs, such as duties and surcharges, and nontariff barriers, such as licensing rules and quotas.

Body

Easing or eradication of restrictions for promoting free trade:

- Increased exports: A liberalized trade policy would allow Indian firms to access new markets and increase their exports, which would boost economic growth.
- Improved relations with trading partners: Adopting a liberalized trade policy can also help to improve relations with other countries, as it shows a commitment to open and fair-trade practices. This can be beneficial in terms of building partnerships and strengthening international cooperation.
- Increased foreign investment: A liberalized trade policy can also attract foreign investment, as it signals to foreign firms that India is open for business and willing to engage in international trade. This can help to create new jobs and drive economic growth.
- Improved competitiveness: Liberalized trade can help Indian firms become more competitive by exposing them to international competition. This can drive innovation and improve the quality of their products and services.
- Diversification of the economy: Liberalized trade can help to diversify the Indian economy, as it exposes the country to a wider range of goods and services. This can help to reduce the reliance on any one particular sector or industry, which can be beneficial in terms of economic stability.

Trade liberalization can negatively affect trade within a nation:

- Poor working conditions: Outsourcing of Indian workers from countries without adequate labour protections will result in poor working conditions. Workers can work for long hours with low wage rates.
- Threat from developed countries: Trade liberalization can affect the Indian economy of a developing nation due to stiff competition from other established nations. Stiff competition can affect local industry diversity.
- Crowd out of local business: Promoting free trade will force Indian small-scale farmers out of the market because they can't compete with subsidized agricultural products from well-developed nations.
- Reduce tax revenue: Trade liberalization will make India struggle in order to replace revenue lost through import tariffs and other fees.

- Destruct Indian native culture: Developments of a nation can led to the destruction of indigenous cultures. It may lead to the uprooting of local people due to the increased importation of foreign products.

Conclusion

India's trade regime should work in a phased manner to address export constraints, review the regulatory and operational framework to reduce the transit costs and create a low-cost operating environment through developed logistics and utility infrastructure for making Indian trade globally competitive.

26. In the last few years, the question of environmental sustainability has become increasingly important for industrial policy. Do you think the concerns for the environment should be viewed as an opportunity and not as a roadblock while designing the industrial policy? Why or why not? Substantiate with the help of suitable arguments.

Approach

Candidates can start the answer by writing on environment sustainability and then as per questions demand write both side of arguments.

Introduction

Environmental sustainability can be defined as the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs.

Body

Opportunity to build better industrial policy:

- Nature-Based Solution (NBS) industrial policy: Sustainable management and use of nature for tackling industrial challenges. NBS creates harmony between people and nature, enables ecological development and represents a holistic, people-centred response to climate change.
- Effective Waste Management: For the water-heavy industries of pharmaceuticals, paper, food and beverage, adopting best practices in minimising water consumption would progress them towards Zero Liquid Discharge (ZLD).
- Bio-treatment of industrial effluents such as chemicals, detergents and toxic sludge are also well within our capacities, but their compliance needs to be mandated to keep the rivers clean.
- Structural economic change with environment sustainability, green industrial policies, and investments in green industries in support of SDG 9 can operationalize the structural change necessary for economic recovery,

competitiveness, and new jobs (SDGs 1, 8, and 9), while respecting planetary boundaries.

- Carbon-based energy generation, with bad AQI to one powered by renewable energy in order to provide the means that are both economical and mitigate against climate change.
- Resource efficiency and reuse of secondary resources has enormous potential to save energy. Scarcity of resources and their measurement is at the centre of the Green Economy and resource efficiency can help solve this problem.

Limitations and challenges in transition to environment sustainability from tried-and-true traditional industrial policy:

- Increasing Densification-prompted activities causing a rapid loss and fragmentation of both public and private green space and sustainability are one of the major challenges influencing green industrial policy.
- Developing country like India often don't have the financial resources to plan and implement sustainable projects.
- Governments are unwilling to manage or incapable of managing the tension between ready profit and the long-term costs of shifting toward sustainable development, even when those long-term investments might pay off in the future.
- Fruits of the transition to environment sustainability may not be evenly distributed and will require a range of social and labour market policies that address adverse impacts, safeguard the vulnerable and deliver a just transition.

Conclusion

Sustainable industrial development offers plenty of economic benefits. The industry itself promotes jobs and income associated with reducing environmental impact. Improved environmental performance can also lead to increased labor productivity and product quality, contributing to a healthier economy and also require a perhaps unprecedented degree of global coordination.

27. What are the key factors deciding the export competitiveness of India's manufacturing sector ? where does India lack of this front ? Do critical assessment ?

Approach -

In this question candidates need to write about key factors which decides India's export competitiveness in manufacturing sector, in second part write about where India lack on this front .

Introduction

India has reached USD 418 billion dollars of manufacturing exports in the fiscal year 2022 (FY22) with rapid growth over the last 2 years. Despite having the fifth-largest

economy in the world, contributing to 3.1% of the GDP, India's export contribution to global trade is still only 1.6%.

Body

The factors are Value of exports is taken as a dependent variable while inflation rate, Exchange rate, FDI inflows and USAGDP and Indian GDP were taken as Explanatory variables.

- First, the decision to lower the corporate tax rate to 22% for all firms and 15% for new manufacturing firms, will encourage the domestic manufacturing sector.

Production linked incentive scheme-

- The introduction of the Production-Linked Incentive (PLI) schemes in several key sectors, for the first time, incentivise production, rather than inputs.
- These schemes will help domestic manufacturing achieve size and scale. As many as 29 Central labour laws were rationalized into four codes.

MSME's -

- The definitions of MSMEs have been raised upwards, allowing them to grow in size, whilst maintaining the benefits of MSMEs. All these steps should help in domestic industry achieve size and scale.

Domestic GDP-

- It is important to know whether exports will accelerate the domestic growth and employment. The empirical studies indicated that there existence positive relationship between Export and economic Growth of Country reveals the contribution of exports in the acceleration of GDP growth found that the liberalization of trade policies is helpful in sustaining economic growth and exports cause growth in India.

Real Effective Exchange Rate-

- Real exchange rate is commonly known as a measure of international competitiveness. It is also known as index of competitiveness of currency of any country and an inverse relationship between this index and competitiveness exists. Lower the value of this index in any country, higher the competitiveness of currency of that country will be. The studies indicated that the exchange rate has significant negative impact on real exports implying that higher exchange rate fluctuation tends to reduce real exports in India.

Inflation rate-

- Increases in domestic inflation lead to higher prices for exported goods and a decrease in exports as foreign consumers substitute in favour of lower priced alternatives produced within their own country or imported from elsewhere. It reveals from empirical estimates that high inflation rate and an abundance of natural resources tended to be associated with a low exports and slow growth

Foreign direct investment-

- FDI a potential non-debt creating source of finance and a bundle of assets, viz., capital, technology, market access (foreign), employment, skills, management techniques, and environment, which could solve the problems of low income growth, shortfall in savings, investments and exports and unemployment.
- The evidence from the FDI promotes the manufactured exports of recipient countries showed the spill over effect of FDI on export in Bangladesh the entry of

single Korean Multinational in apparel industry exports led to the establishment of a number of domestic export firms, creating the country's largest export industry.

USA GDP-

- The performance of export sector is highly depends on other countries economic activity. It evident from that the financial crisis of 2008 had a dampening effect on global demand and slowed down capital inflows which affected India's export sector.

What are the Challenges Related to Indian Export Growth?

- Rising Protectionism and deglobalization: Countries around the globe are moving towards protectionist trade policies due to disrupted global political order (Russia-Ukraine War) and westernization of supply chain, that is in way shrinking India's export capacities.
- Lack of Basic Infrastructure: India's maufacturing sector lacks sufficient manufacturing hubs, internet facilities and transportation are costly when compared to developed nations which is a huge deterrence to Industries.
- Uninterrupted power supply is another challenge.
- Lack of Innovation Due to Low Spending On R&D: Currently, India spends about 0.7% of GDP on research and development. This prevents the manufacturing sector from evolving, innovating and growing.
- Specialization versus Diversification: Indian exports are characterized by high diversification combined with low specialization, implying that India's exports are spread thin over many products and partners, resulting in lack of competitiveness compared to other countries.

Way Forward-

- Exploring Joint Development Programme: Amidst a wave of deglobalization and slowing growth, exports cannot be the sole engine of growth. India can also explore joint development programme with other countries in sectors like space, semiconductor, solar energy to improve India's medium-term growth prospects.
- Dedicated Export Corridors: The economic policy should also strive to promote export dynamism and product specialization alongside product diversification through Dedicated Export Corridors to offer the best of the best service across the globe and propel the Indian economy to the path of long term sustained economic growth.
- It is important for India to link Special Economic Zones with the MSME sector and incentive small businesses.
- Filling Up Infrastructural Gaps: A robust infrastructure network - warehouses, ports, testing labs, certification centers, etc. will help Indian exporters compete in the global market.
- It also needs to adopt modern trade practices that can be implemented through the digitization of export processes. This will save both time and cost.

Conclusion

India's manufacturing sector needs up-gradation and reforms for becoming globally competitive. Absence of effective, flexible and targeted policy support along with supportive measures like the development of infrastructure and education would

mean the stagnation of the sector. The government needs to address the core problems of manufacturing sector to grow.

28. Should the public conduct of MPs and MLAs be subject to parliamentary scrutiny? Why or why not? Substantiate your views.

Approach

Candidates can start the answer with giving short description on legislators conduct in public and then simply address whether there is requirement of any scrutiny also provide other side of arguments.

Introduction

In a bid to assert their superiority over the rest, some MPs or MLAs go overboard and do misconduct in public. Some even threaten voters with dire consequences if they are not voted to power. Therefore, to ensure civility in political speeches and expressions, parliamentary scrutiny seems necessary in some situation.

Body

Necessary of parliamentary scrutiny:

- The parliamentarian representing their constituencies in the Parliament/legislative body have time and again brought ill-repute to the institution with their incivility.
- Creating public nuisance, making unacceptable remarks and disrupting law and order are some of the major allegations they face. For example, communal sloganeering during pro CAA rallies in Delhi.
- Hate speeches are found tantamount to incitement of any offence, whether it's hated speech or treason, they are already punishable under Indian law if made outside the legislative house but parliamentary scrutiny will stand more effective.
- Parliamentary Committee while scrutinizing reports will be usually exhaustive and provide authentic information on matters related to misconduct of legislators.
- As parliamentary scrutiny through committee will be 'closed-door' and members will not be bounded by party whips, the parliamentary committee work on the ethos of debate and discussions.
- Nevertheless, free speech has to be distinguished from hate speech. Hate speech made by a legislator sometimes may not amount to offence, but some public check will have to be there even if it does not amount to an offence.

Parliamentary scrutiny will unfairly restrain legislators from making political speeches:

- The policing of public speeches will severely impact the ability of opposition voice to check the Executive and will thus be a detriment to accountability.
- Free speech of legislators protects the integrity of deliberations and is a shield against executive suppression of inconvenient voices.

- Freedom of expression is generally regarded as the foundation of a liberal democracy.
- Unfairly restraining legislators from making political speeches will strike a serious blow to democratic structure.
- Parliamentary Committees help by providing a forum where members can engage with domain experts and government officials during the course of their study. Scrutiny of legislators conduct in public should be left to state police.
- Reduced working hours of Parliament getting increased day by day due to frequent disruptions in the house in such situation role of committees in legislation process increases.

Conclusion

The credibility of legislatures is defined by the conduct and behavior of their members. Therefore, MPs and MLAs are expected to observe the highest standards of discipline and decorum, both inside and outside the Houses.

29. The disruption of parliamentary proceedings has a huge socio-political cost. how? Explain with the help of suitable examples.what measures would you suggest to enforce accountability for frequent disruptions ?

Approach-

In this question candidates need to write about how the disruption in parliamentary proceedings has huge socio-political cost.explain with help of some examples and and suggest some measures to enforce accountability .

Introduction

Disruption is replacing discussion as the foundation of our legislative functioning. In a representative democracy like ours, Parliament is supposed to be the voice of the people and people's disenchantment with the Parliamentary system would risk the relevance of this 75 year old institution of our society.

Body

A decline in the productivity of Parliament impairs its ability to effectively perform the duties that have been entrusted to it by the Constitution,

- Opposition protests and ruling party vindictiveness have resulted in the fall of parliamentary standards.
- Parliamentary discussion is a manifestation of a representative kind of democracy in operation, in the sense that representation of the people directly questions the government on matters of governance.
- Reduced working hours of Parliament: The Parliament working hours are getting reduced day by day due to frequent disruptions.
- Erosion of faith in Parliament and Fall of parliamentary standards.

Socio-economic cost of disruptions -

- Disruptions and ineffective functioning lead to a reduction in the trust of people in Parliament.
- Wastage of taxpayers' money-Parliament not functioning to its fullest potential is the blatant wastage of taxpayers' money.
- The disruptions have led to a loss of more than Rs 133 crore to the exchequer,
- With Parliament being disrupted routinely, Members of Parliament (MPs) are not able to ask ministers tough questions during question hour to assess the work that their ministries are doing.
- According to government's estimates, each minute of the Parliament costs Rs 2.5 lakh.
- With disruptions eating into the time available for Parliamentary business, adequate time is not available for debating legislation.
- As a result, Bills either get passed without effective debate or remain pending in Parliament.
- With Parliament meeting for a fewer number of days and with its productivity falling on account of disruptions, MPs are not able to raise matters of urgent public importance and bring it to the attention of the government.
- It is easy to identify political controversies which lead to Parliamentary disruption. However these political controversies are only the symptoms and not the cause of disruption.
- In every democracy there would be contentious issues and the strength of a democracy would be demonstrated by the quality of debate and deliberation on such issues.
- For debate and deliberation to happen, Parliamentary procedure would have to evolve to enable political parties on different sides of the issue to set the agenda for debate and discuss the issue in detail on the floor of the house.
- In any Parliamentary democracy, Parliament influences and is influenced by public opinion. It is an institution where ideas are discussed and political and ideological differences ironed out through debate and consensus building.
- If disruptions in Parliament continue then slowly but surely it would lead to people slowly disengaging with the institution of Parliament.

Measures to enforce accountability for frequent disruptions -

- Code of Conduct: To curb disorder in Parliament there is a need for strict enforcement of code of conduct for MPs and MLAs.
- These ideas are not new. For example, the Lok Sabha has had a simple code of conduct for its MPs since 1952. Newer forms of protest led to the updating of these rules in 1989.
- The Lok Sabha Speaker should suspend MPs not following such codes and obstructing the Houses' business.
- Increasing Number of Working Days: Recommended by the 2001 conference, there should be an increase in the working days of Parliament. It resolved that Parliament should meet for 110 days every year and state legislative assemblies for 90 days.
- This would also require Parliament to meet for more number of days in a year and sit for longer hours. This would ensure that even if the proceedings are disrupted there is still enough time for deliberations.

- In the United Kingdom, where Parliament meets over 100 days a year, opposition parties get 20 days on which they decide the agenda for discussion in Parliament. Canada also has a similar concept of opposition days.
- Democratic Participation: Not all disruptions in the Parliament are necessarily counter-productive. Thus, the government of the day needs to be more democratic and allow the opposition to put their ideas in free manner.
- Proposals in Individual Capacity:
- In 2019, Rajya Sabha Deputy Chairperson mooted an idea of evolving a 'Parliament Disruption Index' to monitor disruptions in Parliament and state legislature.
- In the Lok Sabha, some members proposed automatic suspension of members who cause disruption and rush to the Well of the House. But the proposals are still in a nascent stage.
- Productivity Meter: The overall productivity of the session also can be studied and disseminated to the public on a weekly basis.
- For this, a "Productivity Meter" could be created which would take into consideration the number of hours that were wasted on disruptions and adjournments, and monitor the productivity of the day-to-day working of both Houses of Parliament.

Way ahead-

- An attempt must be made by parliamentarians to tamp down on this hostility with the onus on doing so being more on the ruling party and its representatives.
- There are enough tools, mechanisms, structures and precedents in India's parliamentary history that can be relied upon by the current set of legislators to bring back useful deliberation.

Conclusion

Democracy is judged by the debate it encourages and sustains. More strengthening of the Parliament is the solution to prevent disruption of its proceedings. There should be a deepening of its role as the forum for deliberation on critical national issues.

30. What do you understand by zero hour ? what is its significance ? explain with help of suitable examples

Approach -

In this question candidates need to write about zero hour ,in second part of answer write about its significance and explain with the help of suitable examples .

Introduction

Zero Hour is the time when Members of Parliament (MP's) can raise Issues of Urgent Public Importance. For raising matters during the Zero Hour, MP's must give the notice before 10 am to the Speaker/ Chairman on the day of the sitting.

Body

Zero Hour' is not mentioned in the Rules of Procedure. Thus, it is an informal device available to MP's to raise matters without any notice 10 days in advance. This is because, generally, the matters are of public importance and such matters cannot wait for 10 days.

- While the dictionary meaning of 'Zero Hour' is "the critical moment" or "the moment of decision", in parliamentary parlance, it is the time gap between the end of Question Hour and the beginning of the regular business.
- The other rationale behind naming it so can be attributed to the fact that it starts at 12 noon.
- The emergence of Zero Hour can be traced to the early sixties, when many issues of great public importance and urgency began to be raised by members immediately after Question Hour, sometimes with prior permission of the Chairman or some other times without such permission.
- A practice started developing that as soon as the Chairman declared "Question Hour is over" a member would be on his feet to raise a matter which he considered or felt to be of utmost importance to be brought to the attention of the House, and through the House, to the Government, and which could not brook any delay nor could it await to be raised by following the normal and available procedures.
- The Zero-Hour proceedings started stealing the limelight in the media, thereby encouraging more and more members to take resort to this quick and handy device.
- Zero Hour is an Indian innovation in the field of parliamentary procedures and has been in existence since 1962.
- During the sixties, members of parliament used to raise many pressing issues of national and global import after Question Hour.
- On such an occasion, a member raised an issue about announcements of policy made by ministers outside the parliament when parliament was in session.
- This act caused an idea among other members who called for another provision for discussing important matters in the House.
- Rabi Ray, the ninth Speaker of the Lok Sabha introduced certain changes in the proceedings of the House to create more opportunities for the members to raise matters of urgent public importance.
- He proposed a mechanism to regulate the proceedings during the 'Zero Hour', raise matters in a more orderly manner and optimize the time of the House.
- For the Rajya Sabha, the day starts with the Zero Hour and not the Question Hour as it is for the Lok Sabha.

Example: Zero Hour

- Shri Ravneet Singh, MP of Ludhiana had raised a debate in the Lok Sabha related to the controversial Farm Laws in the Budget session of 2021.

Significance of zero hour -

- The zero hour is the brainchild of Indian parliamentary system it came into existence in 1962 as mentioned above the ministers are not liable to reply to the issues raised in the zero hour .
- These critical issues are raised to attract the attention of the nation and the government .the zero hour provides a forum for MPs to discuss topics that are not included in the days agenda or are yet to be considered in the house .
- The zero hour allows for impromptu debates on pressing issues and provides an opportunity for the government to be held accountable on matters of public interest .
- Zero Hour used as mechanism aimed at bolstering the democratic system of the country.
- It is essence of the functioning of the Indian Parliament and play a pivotal role in bringing the important national issues to the table, seeking accountability.
- Over the past 70 years, the MP's have successfully used the devices to question the government's functioning. In the past, it has exposed several irregularities related to the country's finances and brought important data into the public domain.

Conclusion

An important Parliamentary instrument, the Zero Hour, has held accountable the government on urgent public welfare issues since the 1960s. Despite the fact that the parliamentary session and sitting are frequently disrupted by Zero Hour, it has repeatedly highlighted and held the government accountable for crucial problems.

31. Do you think India's public distribution system meets the objectives of food security for the poorest? Critically examine. What are the key areas of improvement? Discuss.

Approach

Candidates can start the answer with highlighting concept of PDS its role in Indian food security programme and then write about its achieved objectives also write its shortfall and issues in the end with give few suggestions to improve.

Introduction

PDS evolved as a system of management of scarcity through distribution of foodgrains at affordable prices. Over the years, PDS has become an important part of Government's policy for management of food security in the country.

Body

PDS meeting objective of food security for poor:

- It has helped in stabilising food prices and making food available to the poor at affordable prices.
- Such as Landless labourers, marginal farmers, rural artisans /craftsmen, such as potters, tanners, blacksmiths, slum dwellers, destitute and persons earning their livelihood on daily basis in the informal sector in both rural and urban areas has benefited.
- NFSA its life cycle approach and rights-based and justiciable right framework, wherein special provisions for supplementary nutrition have been made for pregnant women and lactating mothers and children in the age group of 6 months to 14 years and subsidised foodgrains to 75 per cent of the rural poor and 50 per cent of the urban poor population.

Trailing in GHI Ranking:

- India ranks 101 on the Global Hunger Index 2021 based on indicators like undernourished population and children suffering wasting and stunting.

Issues associated with programme:

- Identification of beneficiaries and social exclusion: Studies have shown that targeting mechanisms such as TPDS are prone to large inclusion and exclusion errors.
- Lack of Efficient Management Framework: India lacks strict management framework for food security. Public Distribution System faces challenges like leakages and diversion of food-grains, inclusion/exclusion errors, fake and bogus ration cards, and weak grievance redressal and social audit mechanism.
- Nutritional Insecurity: The food basket comprises mostly foodgrains like rice and wheat, which provide calories to beneficiaries, but have not been able to address protein and micronutrient deficiencies, which are prevalent in India.
- Inconsistent quality: The majority of the respondents reported that the quality of ration is inconsistent— sometimes it is fine, sometimes it is awful. The complaints were mainly of bad quality of wheat. Most of the recipients were unsatisfied with the quality of wheat and rice.

Way forward

- Improving storage capacities: As it is understood that storage capacities need to be improved ensuring proper storage of procured food grains for PDS schemes.
- Vigilance Committee and social auditing: At the State, District, Block and Fair Price Shop (FPS) level to check corruption, leakages and nutritional quality.
- To eliminate exclusion errors: Experts like Abhijeet Banerjee and Raghuram Rajan have gone on record recommending a temporary ration card for a period of six months to everyone who is in need with minimal checks.
- Nutritional Security at Large: Adding to staple foods that are widely consumed, this is an excellent method to improve the health of a poor section of the population.

32. Are you in favour of India approving the use of genetically modified food on wide scale ? why or why not ?substantiate your views .

Approach -

In this question candidates need to write their opinion on usage of genetically modified food on wide scale .should we use it or not and further substantiate their views.

Introduction

In an unprecedented move, the Genetic Engineering Appraisal Committee (GEAC), which is a nodal authority to approve genetically modified (GM) crops in India, has cleared the way for commercial cultivation of GM mustard.

Body

Approval of GEAC for GM mustard is considered to be a watershed moment for Indian agriculture, because a GM food crop has been approved for commercial release for the first time, after the approval non-food Bt cotton in 2002.

- With this approval, the gene modification of more than 200 varieties of rice, wheat, maize, brinjal, castor and cotton, among other crops, will get a fillip.
- GM crops are needed and whether such crops benefit the farmers who are facing an income crisis from crop cultivation for more than two decades now.
- The anti-GM activists has been opposing the cultivation of GM crops over the years citing three important reasons:
- (a) that it is the country's biotechnology policy which is responsible for the ongoing agrarian crisis; (b) that this technology is bound to deprive the livelihood of the poor agricultural labourers who are mostly women and children; and (c) there is a possibility that this technology can damage human health and the environment.
- But the fact is The use of toxic pesticides and chemical fertilizers promoted through the Green Revolution technology has been accepted by all. But, when it comes to GM technology that aims to enhance the agricultural productivity with less cost and water, there is opposition.
- Can we ensure food security and higher income for farmers without promoting new technology in agriculture? Farmers in vast majority have accepted GM technology.
- The GEAC's approval for GM mustard is indeed an encouraging signal at a time when the value of import of edible oil has skyrocketed from ₹29,900 crore in 2010-11 to ₹68,200 crore in 2020-21. Mustard is one of the most important oilseed crops cultivated in India. Its area has increased from 2.88 million hectares (mha) in 1960-61 to 6.69 mha in 2020-21.
- States like Rajasthan, Madhya Pradesh, Haryana, Uttar Pradesh, West Bengal, Gujarat, Jharkhand and Assam are the major growers of the crop; they together account for 95 per cent of India's total area under mustard. But the data available from the price policy reports published by the CACP show that the productivity

and profitability of crop have not increased significantly between 2010-11 and 2019-20.

- While the average productivity computed for eight major States was hovering around 13-14 quintal/ha, the profitability of the crop computed (at 2004-05 prices) in relation to cost C2 declined from ₹7,715/ha to ₹4,148/ha during this period
- The increased cost of cultivation and stagnant productivity are not allowing farmers to harvest the expected profit from its cultivation. When GM mustard promises to increase productivity with less cost of cultivation, what is wrong in promoting it

Defaming evidence

- The anti-GM group often argues that the root cause for the agrarian crisis is due to the advent of biotechnology in agriculture. If this is so, Indian farmers should have rejected Bt cotton. Instead, the farmers brought the entire cotton area under Bt cotton within 10 years after its introduction.
- Rising labour costs, increased cost of cultivation and stagnant productivity of crops are some of the serious problems farmers are facing in recent years. We need technology that can save labour costs, reduce water consumption and increase the productivity of crops. GM technology reportedly provides these benefits to farmers.
- The evidence clearly shows how Bt cotton has entirely changed cotton crop cultivation in India. Since the introduction of Bt cotton in 2002, India's cotton area, production and yield increased tremendously.
- While the production increased from 8.62 million bales (one bale = 170 kg) to 35.38 million bales, the productivity of cotton increased from 191 kg/ha to 462 kg/ha during this period. Not only this, the increased coverage of Bt cotton reportedly saved about 40 per cent of the total chemical insecticides used for cotton.
- But the anti-GM lobby continues to claim that Bt cotton has caused crop failures and farm suicides in India. Going by the evidence of Bt cotton, there is no doubt that GM mustard will also change its production scenario by benefiting the small, marginal and resource-poor farmers who depend on this crop for their livelihood. If the price of GM seeds is unreasonable, let us question it sturdily so that the government can make appropriate interventions to control it.
- Given the trends in different countries, GM technology is going to dominate Indian agriculture in the near future. Presently, over 90 per cent of corn, cotton and soybean are cultivated using GM seed in the US. These crops can come to India by import, even if we don't adopt them.

Conclusion

India needs GM technology for its agriculture to improve the income of farmers and also to protect food security. However, the concerns related to the cost of seed, health of humans and cattle and environmental safety must be addressed without any compromise.

33. How would you define hunger. do you think India's performance on global hunger index is a true reflexion of status of hunger in India ? critically comment .

Approach -

A simple straightforward question where candidates need to write about hunger and does global hunger index is a true reflexion of status of hunger in India.

Introduction

India has ranked 107th out of 121 countries in the Global Hunger Index (GHI) 2022, report Jointly published by Concern Worldwide and Welthungerhilfe, it is down from the 101st position the previous year .

Body

hunger is defined as a condition in which a person does not have the physical or financial capability to eat sufficient food to meet basic nutritional needs for a sustained period. In common parlance, hunger refers to discomfort due to a lack of food.

Factors Responsible for Hunger and Malnutrition in India-

- **Poverty Backing Hunger:** Poor living conditions limit the availability of food for children, while overpopulation, coupled with limited food access, result in malnutrition in children, especially in rural India.
- **Faulty Public Distribution:** There has been a wide variation in the distribution of food in urban and rural areas, with grains being diverted to the open market in order to make a higher profit, and poor quality grains being sold in ration shops, and the irregular opening of these shops contributing to hunger and malnutrition.
- **Unidentified Hunger:** Due to the arbitrary nature of the criteria used to determine a household's Below Poverty Line status and the fact that these criteria vary from state to state, food consumption has declined significantly due to the inaccurate classification of above poverty line (APL) and below poverty line (BPL).
- Besides this, the poor quality of grains have further contributed to the problem.
- **Hidden Hunger:** India is experiencing a severe micronutrient deficiency (also known as hidden hunger). There are several causes of this problem, including poor diet, disease, and a failure to meet micronutrient needs during pregnancy and lactation.
- Lack of adequate knowledge amongst mothers regarding nutrition, breast-feeding and parenting is another area of concern.
- **Gender Inequality:** Due to patriarchal mindset, gender inequality places the girl child at a disadvantage compared to boys and causes them to suffer more since they are last to eat and considered less important.
- In contrast to boys, girls are deprived of mid-day meals due to a lack of access to school.

- Lack of Immunisation: Children are neglected when it comes to preventive care (specifically immunizations) due to lack of awareness and not given access to health care for diseases due to affordability issues.
- Lack of Audit for Nutritional Programmes: Although a number of programmes with improving nutrition as their main component are planned in the country, there is no specific nutritional audit mechanism at local governance level.

However, the GHI is not such a simplistic measure “it captures the multidimensional nature of hunger”.

There are 4 measures it used by GHI:

- Undernourishment: The share of the population whose caloric intake is insufficient. This makes up 1/3 of the GHI score.
- Child Stunting: The share of children under the age of 5 who have low height for their age, reflecting chronic undernutrition. This makes up 1/6 of the GHI score.
- Child Wasting: The share of children under the age of 5 who have low weight for their height, reflecting acute undernutrition. This makes up 1/6 of the GHI score.
- Child Mortality: The share of children who die before their 5th birthday, reflecting in part the fatal mix of inadequate nutrition and unhealthy environments. This makes up 1/3 of the GHI score.
- The overall score is placed on a 100-point scale and a lower score is better. A score between 20 and 34.9 is pegged in the “serious” category and this is where India finds itself with a total score of 29.1. (GHI 22).

Indian government criticism of GHI 2022

- The Indian government has questioned the methodology of GHI. There are two major sub-parts to the government’s contention:
- First, that the GHI uses “an erroneous measure of hunger”, that 3 out of the 4 variables used are related to children and cannot be representative of the entire population.
- Second, that the 4th indicator of GHI, the proportion of undernourished population is “based on an opinion poll conducted on a very small sample size of 3000”, which is not justified with a country like India representing one-fifth of the world’s population.

Way Forward-

- Viewing Nutrition Through Different Lenses: Better nutrition involves more than just food, it includes health, water, sanitation, gender perspectives, and social norms. Therefore, there is a need to look forward to comprehensive policy to fill the nutritional gap.
- If Swachh Bharat Abhiyan, Beti Bachao Beti Padhao and nutrition policies like Poshan Abhiyan are interlinked, India's nutritional situation will undergo holistic changes.
- Bringing Social Audit Mechanism: States and Union Territories should compulsorily carry out the social audit of the mid-day meal scheme in every district, with the help of local authorities and simultaneously work on nutritional awareness.
- Use of information technology to improve program monitoring can be thought of too.
- Re-orienting PDS: There is a need to be re-orient and an up-scale Public Distribution System to make it more transparent and reliable and ensure

availability, accessibility and affordability of nutritious food, also making a positive impact on the purchasing power of the lower socio-economic segment of the population

- Agriculture-Nutrition Corridor: Currently, India's nutritional hubs (villages) are the most deprived of adequate nutrition, there is a need to devise mechanisms to check "Nutritional security of villages" in line with agricultural-commerce.
- Recognising the importance of this link, the Ministry for Women and Child Development launched the Bharatiya Poshan Krishi Kosh in 2019

Conclusion

World is facing a serious setback in efforts to end hunger with conflict, the climate crisis, COVID-19 pandemic, compounded by the war in Ukraine are major drivers of hunger. The situation is expected to deteriorate further as global crises overlap. Possible solutions and the scale of investment required along with policy implementation.

34. Do you think India's public distribution system meets the objectives of food security for the poorest? Critically examine. What are the key areas of improvement? Discuss.

Approach

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Conclusion

India needs GM technology for its agriculture to improve the income of farmers and also to protect food security. However, the concerns related to the cost of seed, health of humans and cattle and environmental safety must be addressed without any compromise.

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India has ranked 107th out of 121 countries in the Global Hunger Index (GHI) 2022, report Jointly published by Concern Worldwide and Welthungerlife, it is down from the 101st position the previous year .

Body

hunger is defined as a condition in which a person does not have the physical or financial capability to eat sufficient food to meet basic nutritional needs for a sustained period. In common parlance, hunger refers to discomfort due to a lack of food.

Factors Responsible for Hunger and Malnutrition in India-

- **Poverty Backing Hunger:** Poor living conditions limit the availability of food for children, while overpopulation, coupled with limited food access, result in malnutrition in children, especially in rural India.
- **Faulty Public Distribution:** There has been a wide variation in the distribution of food in urban and rural areas, with grains being diverted to the open market in order to make a higher profit, and poor quality grains being sold in ration shops, and the irregular opening of these shops contributing to hunger and malnutrition.
- **Unidentified Hunger:** Due to the arbitrary nature of the criteria used to determine a household's Below Poverty Line status and the fact that these criteria vary from state to state, food consumption has declined significantly due to the inaccurate classification of above poverty line (APL) and below poverty line (BPL).
- Besides this, the poor quality of grains have further contributed to the problem.
- **Hidden Hunger:** India is experiencing a severe micronutrient deficiency (also known as hidden hunger). There are several causes of this problem, including poor diet, disease, and a failure to meet micronutrient needs during pregnancy and lactation.
- Lack of adequate knowledge amongst mothers regarding nutrition, breast-feeding and parenting is another area of concern.
- **Gender Inequality:** Due to patriarchal mindset, gender inequality places the girl child at a disadvantage compared to boys and causes them to suffer more since they are last to eat and considered less important.
- In contrast to boys, girls are deprived of mid-day meals due to a lack of access to school.
- **Lack of Immunisation:** Children are neglected when it comes to preventive care (specifically immunizations) due to lack of awareness and not given access to health care for diseases due to affordability issues.
- **Lack of Audit for Nutritional Programmes:** Although a number of programmes with improving nutrition as their main component are planned in the country, there is no specific nutritional audit mechanism at local governance level.

However, the GHI is not such a simplistic measure “it captures the multidimensional nature of hunger”.

There are 4 measures it used by GHI:

- **Undernourishment:** The share of the population whose caloric intake is insufficient. This makes up 1/3 of the GHI score.
- **Child Stunting:** The share of children under the age of 5 who have low height for their age, reflecting chronic undernutrition. This makes up 1/6 of the GHI score.
- **Child Wasting:** The share of children under the age of 5 who have low weight for their height, reflecting acute undernutrition. This makes up 1/6 of the GHI score.

- Child Mortality: The share of children who die before their 5th birthday, reflecting in part the fatal mix of inadequate nutrition and unhealthy environments. This makes up 1/3 of the GHI score.
- The overall score is placed on a 100-point scale and a lower score is better. A score between 20 and 34.9 is pegged in the “serious” category and this is where India finds itself with a total score of 29.1. (GHI 22).

Indian government criticism of GHI 2022

- The Indian government has questioned the methodology of GHI. There are two major sub-parts to the government’s contention:
- First, that the GHI uses “an erroneous measure of hunger”, that 3 out of the 4 variables used are related to children and cannot be representative of the entire population.
- Second, that the 4th indicator of GHI, the proportion of undernourished population is “based on an opinion poll conducted on a very small sample size of 3000”, which is not justified with a country like India representing one-fifth of the world’s population.

Way Forward-

- Viewing Nutrition Through Different Lenses: Better nutrition involves more than just food, it includes health, water, sanitation, gender perspectives, and social norms. Therefore, there is a need to look forward to comprehensive policy to fill the nutritional gap.
- If Swachh Bharat Abhiyan, Beti Bachao Beti Padhao and nutrition policies like Poshan Abhiyan are interlinked, India's nutritional situation will undergo holistic changes.
- Bringing Social Audit Mechanism: States and Union Territories should compulsorily carry out the social audit of the mid-day meal scheme in every district, with the help of local authorities and simultaneously work on nutritional awareness.
- Use of information technology to improve program monitoring can be thought of too.
- Re-orienting PDS: There is a need to be re-orient and an up-scale Public Distribution System to make it more transparent and reliable and ensure availability, accessibility and affordability of nutritious food, also making a positive impact on the purchasing power of the lower socio-economic segment of the population
- Agriculture-Nutrition Corridor: Currently, India’s nutritional hubs (villages) are the most deprived of adequate nutrition, there is a need to devise mechanisms to check “Nutritional security of villages” in line with agricultural-commerce.
- Recognising the importance of this link, the Ministry for Women and Child Development launched the Bharatiya Poshan Krishi Kosh in 2019

Conclusion

World is facing a serious setback in efforts to end hunger with conflict, the climate crisis, COVID-19 pandemic, compounded by the war in Ukraine are major drivers of hunger. The situation is expected to deteriorate further as global crises overlap. Possible solutions and the scale of investment required along with policy implementation.

37. The year 2023 has been designated as the International Year of Millets. The Indian government has also pushed for millets to be cultivated. Why? What are its benefits? Discuss.

Approach

Candidates can start the answer with highlighting governments efforts for promoting millets. Then simply write why its important to encourage millets and benefits in later part.

Introduction

India's proposal to observe an International Year of Millets in 2023 was approved by the Food and Agriculture Organisation (FAO) in 2018 and the United Nations General Assembly has declared the year 2023 as the International Year of Millets.

Body

About:

- Millet is a collective term referring to a number of small-seeded annual grasses that are cultivated as grain crops, primarily on marginal lands in dry areas in temperate, subtropical and tropical regions.
- Some of the common millets available in India are Ragi (Finger millet), Jowar (Sorghum), Sama (Little millet), Bajra (Pearl millet), and Variga (Proso millet).

Why millets are important:

- According to the Ministry of Agriculture & Farmers Welfare, in 2016 – 2017, the area under the cultivation of millet declined with 60% less coverage area (to 14.72 million hectares) due to change in consumption pattern, conversion of irrigated area for wheat and rice cultivation, unavailability of millets, low yield, dietary habits, less demand.
- This resulted in fall in the level of nutrients like vitamin-A, protein, iron and iodine in women and children leading to malnutrition.

Benefits of millets:

Nutritional Security:

- Millets are less expensive and nutritionally superior to wheat & rice owing to their high protein, fibre, vitamins and minerals like iron content.
- Millets are also rich in calcium and magnesium.
- Although Millets are rich in phytochemicals like tannins, phytosterols, polyphenols and antioxidants, they do contain some anti-nutritional factors which can be reduced by certain processing treatments.
- For example, Ragi is known to have the highest calcium content among all the food grains.
- Its high iron content can fight high prevalence of anaemia in Indian women of reproductive age and infants.

Climate Resilient:

- They are also harder and drought-resistant crops, which has to do with their short growing season (70-100 days, as against 120-150 days for paddy/wheat) and lower water requirement (350-500 mm versus 600-1,200 mm).

Economic Security:

- As low investment is needed for production of millets; these can prove to be a sustainable income source for farmers.

Can Tackle Health Issues:

- Millets can help tackle lifestyle problems and health challenges such as obesity, lowers the risk of hypertension, CVDs, T2DM, cancers and diabetes as they are gluten-free and have a low glycaemic index (a relative ranking of carbohydrates in foods according to how they affect blood glucose levels).

Conclusion

Accessibility to the poor, millets can play an essential role in providing nourishment to people across all income categories and supporting climate adaptation of rainfed farming systems. There's a need for developing a decentralized model of processing capabilities so that the growers stand to benefit at a community level and in the growing regions.

38. What are the some of the most sustainable irrigation methods ?what are the challenges to their wide scale adoption in India ? discuss .

Approach-

A simple straightforward question where candidates need to write about what are most sustainable irrigation methods prevalent in India and in second part write about what are challenges in their wide scale adoption in India.

Introduction

Sustainable irrigation refers to any activity or practice relating to irrigation such that it helps to satisfy the welfare and survival needs of the present without compromising the needs of future generations. It could be irrigation of agricultural areas, or landscapes.

Body

The amount of water utilized in irrigation varies significantly depending on several factors such as climatic conditions, type of crops grown, and the irrigation system used. In flood and furrow system much water is lost through percolation and evaporation.

- To curb excess water loss, we must employ more efficient systems such as drip, sprinkler, and micro spray types of irrigation.

Sprinkler Irrigation-

- In this type of irrigation, water is sprayed or sprinkled into the field. Pressurized water is channeled to the system via underground pipes.
- Sprinkler irrigation systems control water more efficiently hence regarded as an ideal than surface irrigation.

Drip irrigation-

- It is a system of irrigation that distributes water on crops at a low rate and pressure on calculated positions so that the water reaches the target shoot. From pipes, the water drips from small holes (emitters) to wet a desired part on the ground. Micro-irrigation is ideal for tree irrigation, shrubs, and vineyards.
- Drip irrigation is the most effective practice with water use efficiency of around 85-90 per cent.
- Another advantage is maintenance of optimum soil moisture conditions that help increase overall productivity and profitability. Across various studies, it has been found that the adoption of micro-irrigation systems helped boost the yield of fruit as well as vegetable crops.
- Another gain has been the adaptation of diverse cropping patterns.
- It is quite evident that importance of micro-irrigation to achieve sustainability in Indian agriculture cannot be neglected. But it's a long way ahead and requires extensive demonstrations, training and awareness programmes to bring Indian farming community abreast with micro-irrigation practices.
- To curb excess water loss, we must employ more efficient systems such as drip, sprinkler, and micro spray types of irrigation. Though expensive and tech-demanding, these systems use the least water resources adequately.

Challenges to wide scale adoption in India -

- Adoption of micro-irrigation has been slow among farmers in India in spite of concerted efforts.
- First, subsidies alone will not lead to greater adoption since decisions on adoption are shaped by household, farm level and institutional factors. Secondly, mere adoption of micro-irrigation will not result in water conservation because farmers are seen to expand the area under irrigation or shift to water-intensive crops.
- Irresponsibility by State Governments: In most Indian states (with Gujarat and Tamil Nadu being the major exceptions), the scheme is operational only for a few months in a year.
- Despite the availability of funds, scheme applications are processed only at the end of a financial year, done typically to achieve pre-set targets in what is famously known as the 'March rush'.
- As a result of this narrow window, only a handful of farmers can apply.
- Delays in the Reimbursement of Subsidies: Unlike other subsidies that are directly transferred to beneficiaries, those for installing drip irrigation systems are transferred to vendors only after due diligence.
- There is no fixed timeline for the inspection and testing of the installed system for transferring subsidies.
- Financial Difficulties: The farmers often face difficulty in getting necessary support from financial services.
- Availability of Power: The main input for an irrigation system is energy, and for large scale projects, only electricity is a viable source which, despite having respective welfare schemes in place, is still beyond the reach of every farmer.

Way Forward-

- Role of Administration: Setting a timeline for each stage, from an application by a farmer to the execution and payment disbursement and strengthening the government's monitoring mechanism by insisting on a periodic review of applications, approvals, work orders and actual installations.
- Deploying direct benefit transfers for subsidy sums for micro-irrigation to go straight into the bank accounts of farmers.
- Also, farmers should be made able to avail the benefits of such welfare schemes in accordance with their crop cycles or sowing patterns.
- Expanding the Scope of Micro-Irrigation: The capital cost required for the drip-irrigation method should be brought down substantially.

Conclusion

The future revolution in agriculture will come from precision farming. Micro-irrigation can, indeed, be the stepping stone for achieving the goal of making farming sustainable, profitable and productive.

39. With the help of suitable examples, discuss the role of GIS technology in improving farm productivity.

Approach -

In this question candidates need to write about role of GIS technology in improving farm productivity and give some examples of it.

Introduction

GIS in agriculture has been boosted by the general advancement of technology in the past few decades. It puts field data to work to maximize yields, reduce expenses, and mitigate damage from natural disasters..

Body

The use of GIS in agriculture is all about analyzing the land, visualizing field data on a map, and putting those data to work. Powered by GIS, precision farming enables informed decisions and actions through which farmers get the most out of each acre without damaging the environment.

Government Policies:

- Information technology can enable eGovernance for agriculture, making range of services available to farmers and various stakeholders of the sector. Say for example a web portal at district level for providing eServices to the farmers, a monitoring and tracking application for fund utilizations
- Speaking of tools, geospatial technology in agriculture relies on satellites, aircraft, drones, and sensors.
- These tools are used to make images and connect them with maps and non-visualized data. As a result, you get a map featuring crop position and health status, topography, soil type, fertilization, and similar information.

Crop yield prediction-

- Accurate yield prediction can help governments ensure food security and businesses forecast profits and plan budgets.
- The recent development of technology connecting satellites, sensing, big data, and AI can enable those predictions

Crop health monitoring-

- Checking crop health across multiple acres manually is the least efficient option. This is where remote sensing combined with GIS in farming comes to the rescue.
- Satellite images and input information can be paired to assess environmental conditions across the field, such as humidity, air temperature, surface conditions, and others. Based on GIS, precision farming can upgrade such an assessment and help you decide which crops require more attention.

Livestock monitoring-

- The simplest application of farm GIS software in animal husbandry is the tracking of movement of specific animals.
- This helps farmers find them on a farm and monitor their health, fertility, and nutrition. GIS services that allow you to do that comprise trackers installed on animals and a mobile device that receives and visualizes information from those trackers.
- We could reduce undesirable encounters by understanding those subtle specifics, which could be done by the combined use of AI and GIS in agriculture.

Insect and pest control-

- The invasion of harmful insects and pests, or infestation, does heavy damage to agriculture. A look from above can enable accurate, timely alarms to prevent that.
- Yet even high-resolution images might not provide visible early signs of infestation.

Irrigation control-

- Keeping an eye on vast fields to make sure that each crop gets enough water is a challenging task, but one easily tackled by geoinformatics in agriculture.
- Aircraft and satellites equipped with high-resolution cameras take images that allow AI algorithms to calculate the water stress in each crop and spot visual patterns behind water shortages.

Flooding, erosion, and drought control-

- Marrying GIS and agriculture can help prevent, assess, and mitigate the negative impact of destructive natural phenomena.
- To identify flood-susceptible areas, you can use flood inventory mapping techniques.
- Need to collect data such as past floods, field surveys, and satellite images. Use those data to create a dataset to train a neural network to spot and map flood risks, and you will create an ultimate disaster management tool.

Farming automation-

- Seeding machines, intelligent irrigation systems, driverless harvesters, and weed remover robots are the inevitable future.
- GIS in farming can provide precise maps, including all necessary information about the crops in the field. Maps like those are called task maps or application maps. Smart machines use them to tend to the field.

Market Forces-

- Information Technology and GIS both can be used to address this challenge by promoting the public-private partnership in agriculture sector through eGovernance. Government can leverage the value of policies through G2B (Government to Business) and B2C (Business to Citizen/Farmers/Stakeholders)
- example there can be a service on the eGov Portal for business to find right customers for their products & services for farming such as Seeds, Fertilizers; this can be facilitated by GIS in the backend. By using B2C services through the eGov portals businesses can run eCampaigns for the products.

Skills and Labour-

- eGovernance at grass root level can be used to run agricultural skills development and creating the pool of labour for particular farming needs. eGovernance can be powered by Information Technology and GIS. Public Private Partnership can be used to make the training programmes available to farmers and stakeholders. Provisioning of labour can be regulated by using eGovernance outlets.

Conclusion

A Geographic Information System (GIS) is a tool used to collect, store, distribute, analyse, and display information about a given geographic area. Agriculture has found this system to be useful in a variety of ways including boost the output of farmers and also cut costs and better manage their property as a result of these developments.

40. Inclusion can't be an afterthought of economic growth. Rather, inclusion is imperative for sustaining high levels of economic growth. Elucidate.

Approach

Candidates can start the answer with definition of inclusive growth and link it with economic growth. Need to mention issues with economic growth and trickledown economics and then how to avoid such narrow growth-based perspective with few recent examples.

Introduction

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 all.

Body

Issues with economic growth and trickledown economics:

- According to the Oxfam Report, in India, the top 1% holds 51.53% of the national wealth, while the remaining 99% make do with almost 48%.
- The theory of Trickle Down represents an unhealthy obsession with GDP and Growth as the most reliable measure of economic success. The theory believes in the saying 'One size fit all'.

- It presumes that large wealth creators will create wealth that will trickle down to the masses. Evidence shows that the approach of increasing the overall size of the pie by reducing taxes at the top and then “redistributing” the wealth has not delivered benefits to people.
- Wealth has accumulated at the top with regressive tax policies along with deregulation. Government expenditure on social reforms has been reduced.

Inclusion and economic growth must go hand in hand and one leads to another and both leads to a sustainable future:

- Inclusion of youth in countries economic journey by providing them with skills and employment will contribute greatly in the long-term economic growth and fruits of this dividend can be enjoyed by this generation and generations to come.
- Women account for 49.5 % of the population of the country and their inclusion in the workforce and economic activities will greatly contribute to the growth and sustainability of the economy.
- Countries like India should increase public and private investment in their citizens’ capabilities, which is the most important way they can durably lift their rate of productivity growth.
- Investing in social structures will not only boost growth (by fiscal stimulus) but will also create a healthy and capable generation to handle future work.
- People would feel more motivated and involved in the benefits of economic growth were allowed to flow into the pockets of lower strata of society.
- Recently with financial inclusion which is necessary for inclusive growth has led to the culture of saving, which initiated a virtuous cycle of economic development.
- China reached the levels of human development (health and education), which India is still striving to, 30 years ago when China’s economy was much smaller than India’s is now. Human development provided the foundation for China’s remarkable growth.
- Schemes like Transformation of Aspirational Districts, BharatNet, Pradhan Mantri Kaushal Vikas Yojana, Mission Antyodaya, National Rurban Mission etc. will help attain Inclusive growth.

Conclusion

Through innovative partnerships with an international organization, civil societies, and private companies, inclusive and equitable growth can be targeted. Meanwhile state governments and local governments should continue to focus on eradicating poverty and achieving sustainable development in order to improve the lives of India's people.

41. Examine the factors leading to regional disparity in per capita income in India ? what measures have been taken by government to bridge the regional gap .Discuss.

Approach -

In this question candidates need to write about the factors that leading to regional disparity in per capita income in India. In second part of answer write about what measures taken by government to bridge regional gap.

Introduction

Regional development disparity is a continuous developmental challenge for Indian policy makers. It is reflected by the indicators like per capita income, the proportion of population living below the poverty line, etc. However, government has taken various steps to bridge the gap.

Body

Within democratic polity, growth and prosperity must exhibit regional balance. Thus a democratic government striving to achieve such balance is axiomatic.

- Goa has the highest per capita income among 33 Indian states and union territories, followed by northeast state Sikkim. Capital Delhi, Chandigarh, and Haryana complete the top five list. Among the five richest economies of India, three are states, and two are union territories
- Among Top seven richest states/UTs, five have a population of less than two cr (20 million). And, one has a population below three crores.
- 6th ranked Karnataka has the highest figure among states population having more than three cr, followed by Kerala, Telangana, Gujarat, and Uttarakhand.
- All five South Indian states have higher gdp per capita than India's average. Bihar, Uttar Pradesh, Jharkhand, Manipur, and Assam are the top five poorest states.
- GSDP Per capita of Goa and Sikkim are above three times India's average. GSDP per capita of Bihar is three times lower than of India.
- In US Dollar, the GDP per capita of Goa is \$6,997 in 2019. Four states/UTs have GSDP per capita above \$5,000, and only Bihar has below \$1000.

Causes of Regional Disparity-

Historical Factors-

- The British government and industrialists developed only those regions of the country which possessed rich potential for prosperous manufacturing and trading activities. Thus port cities like Bombay, and strategically important areas like Calcutta and Madras received initial development.
- In the absence of proper land reform measures and proper industrial policy, the country could not attain economic growth to a satisfactory level.

Geographical Factors-

- The difficult terrain surrounded by flood prone areas, hilly terrain, rivers and dense forests leads to increase in the cost of administration, cost of developmental projects, besides making mobilization of resources particularly difficult.

Location Specific Advantages-

- Due to some locational advantages like availability of irrigation, raw materials, market, port facilities etc. some regions are getting special favour in respect of site selections of various developmental projects e.g. oil refineries are mostly located in close to sea.

Early Mover Advantage-

- New investment in the private sector has a general tendency to concentrate much on those regions having basic infrastructural facilities.

Failure of Planning Mechanism-

- Local needs; one size fits all approach, lack of adequate resources, poor implementation of plans, lack of planning capacity at state level reduced capacity of Planning Commission to ensure balanced development.

Restricted Success of Green Revolution-

- Green revolution improved the agricultural sector to a considerable extent through the adoption of new agricultural strategy of high yielding variety seeds, assured irrigation, provision of technical knowhow etc
- However, the benefit of green revolution were restricted to Punjab, Haryana and western Uttar Pradesh as this belt had advantage of irrigation facilities, were traditionally wheat growing states, with adequate policy support from State Governments which other areas lacked and couldn't reap benefits of Green Revolution.

Law and Order Problem-

- Extremist violence, law and order problem etc. have been obstructing the flow of investments into backward regions besides making flight of capital from backward states.

Government Interventions to Reduce Regional Disparities-

- Higher resource transfers from the Centre to the Backward States via, finance commission in the form of non-plan transfers.
- Since 1969 a Special Category status was introduced which was in operation till 13th Finance commission to provide greater percentage of grants to such states from Centre.
- The large weight given to "Income Distance" by 14th Finance commission is an important step towards plugging the gaps in per-capita income between states.
- Development Programme-Programmes of agriculture, community development programme, Drought Prone Areas Programme, irrigation and power, transport and communications and social services aimed at providing basic facilities and services to people in all the regions.
- Provision of Facilities in Areas which Lag Behind Industrially-River valley projects and multi-purpose projects e.g. Narmada Dam for dry parts of Gujarat and Madhya Pradesh, proposed Ken-Betwa inter river link project for Bundelkhand region etc.
- Programmes for the Expansion of Village and Small Industries-Village and small industries are spread all over the country and various forms of assistance provided by the Central and State Governments are made available in the areas according to programmes undertaken.
- Diffusion of industrial activity and infrastructure-Subsidies, exemptions and tax breaks given to industries for investing in backward regions. For instance North East Industrial and Investment Promotion Policy(NEIIP) for Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura; Special Package Scheme for Himachal Pradesh, Uttarakhand and J&K.

Conclusion

India's geographical diversity and different levels of development across regions mean that location specific targeted action would be required in less prosperous regions to ensure that a minimum acceptable level of prosperity.

42. The government is going to present the annual budget in a couple of months. what according to should be top three areas of focus in next years budget .why do you think so ? substantiate your views .

Approach -

In this question candidates need to write about which areas should be remain in focus in upcoming budget and why should these sectors remain in focus, substantiate their views.

Introduction

The Union Budget 2023-24 is being presented at a crucial juncture of geo-political uncertainties, high inflation and slowing world economic growth. At this juncture, calibrated steps to enhance domestic sources of growth would be crucial to maintain the steady economic growth trajectory,

Body

The external scenario is likely to continue to be unfavourable for some time. Hence, we must broad-base our domestic economy by creating new sectors of growth and driving employment generation to boost domestic demand, inclusion, and growth.

- With the Indian economy doing well in first three quarters of FY22, when compared to FY21, and the government's determination to carry this momentum to the next financial year, the expectations from the Union Budget FY23 remains reasonably high.
- Three broad areas which could cement this growth would be in terms of domestic growth, facilitating export infrastructure, access to healthcare, while also supporting geo-economic preparedness.

Widening PLI-

- Trade has been the driving force for the prosperity of most economies across the globe. A lot of hope is on the PLI scheme, which advocates incremental production-based incentive, and has the potential to take India's exports to a new high, while also diversifying the export basket.
- In this context the government can consider enhancing the exposure under PLI and have more upcoming industries identified. For example, industries like aerospace, warehouse robotics, waste management, including maintenance, repair, and overhaul (MRO), amongst others, could be brought under the ambit of PLI.
- Hopefully the Budget FY23 will widen the PLI scheme while considering upcoming potential industries, especially while targeting India's exports to reach \$1 trillion by 2025.

Healthcare infrastructure -

- While hopefully the upcoming Union Budget will provide rebates on medical insurance premiums, and further inducements for R&D spend to boost pharma companies, it is important to strengthen the healthcare infrastructure in tier 2 and tier 3 cities. This lack of infrastructure was tragically exposed during the Covid-19 second wave.
- According to the National Health Profile 2018 in the country, the number of district hospital stands at 1,003, government hospitals in rural areas at 19,810, railways 136, and employee state insurance company 151.
- If these hospitals are strengthened on a public-private mode by extending attractive incentives, including exploring a tax holiday, the population of the country will be healthier. In fact, even if 5 per cent of these 21,000 odd hospitals get the attention for time-bound upgradation, the pressure on tier-1 cities will be much reduced.

Strategic institutions-

- While supporting exports have a multiplier effect like creating jobs, boosting manufacturing, earning foreign exchange, in today's emerging scenario exports also play a critical role amidst the changing geo-economics.
- As India aspires to move into producing EVs, mobile phone, solar panels, aerospace, etc. it is also important to acknowledge that there are many inputs like lithium which go into these but are not available in abundance in the country. So India would be glaring at a new form of dependency on imports. This revives the need to secure certain assets overseas.
- In this context Budget FY23 could explore having a dedicated financial institution like Exim Bank which can cater to such overseas strategic needs with government backing, something akin to Chinese government banks and institutions. Beneficiaries of such a support could be Indian PSUs and quasi-sovereign institutions.
- It may be mentioned that US, at the onset of the pandemic in December 2019, operationalised a new, 'Development Finance Corporation (DFC)' to pursue its strategic interests.
- This initiative is considered as an effort towards its needs, specifically countering China's influence on global trade and business, and furthering the US foreign policy goals whilst supporting US direct investments abroad.

Way forward-

Gross tax collections in this fiscal have been robust so far at ₹16.1 lakh crore (+18% YoY & 58.4% of FY23 budget estimates till October 2022), The key expectation from the finance minister is to maintain the growth path while keeping fiscal deficit and inflation in check.

Conclusion

In this year government will reflect fiscal prudence and not resort to any big ticket radical announcements or reforms. It would continue the existing strategy of Infrastructure development, broad-based Capex and manufacturing-led growth as a sustainable way ahead for India.