Solved Paper 2023
General Studies

Paper III

There are twenty questions. All Questions are Compulsory.

*Questions **1-10** are 10 marks each and **150 words.***

*Questions **11-20** are 15 marks each and **250 words.***

1. Faster economic growth requires increased share of the manufacturing sector in GDP, particularly of MSMEs. Comment on the present policies of the Government in this regard. *(Answer in 150 words)*

Ans. The MSME (Micros, Small and Medium Enterprises) sector's contribution to GDP has been at a stagnant 15%, though they contribute 40% of exports, employ 100 million people and account for 45% of manufacturing output.

The present government policies to give a fillip to MSMEs are:

RAMP (Raising and Accelerating MSME Performance), with an outlay of Rs.6000 crores will be rolled out in 2023-24 to provide financial and technical support for quality, technology, and market access.

Under Section 115BA, MSMEs are eligible for reduced tax rate of 25% instead of 30%.

The latest classification of MSMEs is based on business turnover, not plant and machinery investments. The distinction between manufacturing-based and service-based MSMEs is gone.

Credit Guarantee Trust Fund for Micro and Small Enterprises (CGTMSE) offers credit support without collaterals. MSME Samadhaan addresss the issue of delayed payments and MSME Sambandh gives due share in government procurement.

Made in India programme promotes manufacturing and attracts foreign investing.

Example: Recent restrictions on laptop imports to promote laptop manufacturing in India.

(170 words)

2. What is the status of digitalization in the Indian economy? Examine the problems faced in this regard and suggest improvements. *(Answer in 150 words)*

Ans. Nearly two-thirds of Indian population uses the internet. Mobile broadband subscribers reached 765 million by 2021 and Generation z spends 8 hours per day, online. India is one of largest digital markets, with 560 million subscribers, next to China.

The e-commerce market may reach 350 billion by 2030 and India would be a big online shopper, with rural mobiles.

Contribution to Gross Value Added (GAV) increased from 5.4% in 2014 to 8.5%. The digitally dependent economy contributed 22 % of India's GDP in 2019.

Digital India programme was launched in 2015. It is easier to pay taxes, get licences and certificates, using digital platform. The e-market place (GeM) has streamlined procurement.

Problems

Only 40 per cent of population has internet subscription showing the digital divide.

Weak Internet connectivity and network speeds are bottlenecks.

Suggestions

Increased broadband service and 5G rollout need investment, which must be provided.

Incubators, accelerators and funding programmes for fintech and startups must take up more digital space. **(160 words)**

3 How does e-Technology help farmers in production and marketing of agricultural produce? Explain it. *(Answer in 150 words)*

Ans. E-technology makes the farmer produce what he wants and sell where he wants. In the crucial area of production, Precision Farming can be done with GPS-guided tractors and drones which plant seeds and apply fertilizers, reducing input costs. Access to real-time weather data through mobile apps is possible. Weather Forecasting by IMD (Indian Meteorological Department) through digital platforms counters adverse conditions.

Satellite imagery through IoT devices and remote sensing technology enable farmers identify pest infestations early.

The Kisan Suvidha app provides information on crop advisories and market prices.

Farm-to-fork platforms like Ninjacart connect farmers directly with retailers and consumers, reducing intermediaries

In marketing of agricultural produce, farmers can sell their produce on e-commerce platforms like BigBasket and Grofers listing commodities.

Start-ups like AgroStar connect farmers with cold storage providers and transportation services.

The Agmarknet portal offers daily price information on commodities.

The eNAM (National Agriculture Market) platform facilitates online trading of agricultural commodities across India, while APEDA's assists in exports. **(160 words)**

4. State the objectives and measures of land reforms in India. Discuss how land ceiling policy on landholding can be considered as an effective reform under economic criteria. *(Answer in 150 words)*

Ans. Post-independence, over 20 million tenants were given ownership rights due to land reforms, and nearly 5 million hectares of land were redistributed.

The main objective of land reforms was to eliminate layers of intermediaries (like zamindars, jagirdars, etc.) and bring direct relationship between state and cultivator. for example, the zamindari system was abolished in West Bengal in 1950s.

Security to tenants and rights to actual tiller was another objective. Scattered landholdings were merged for agricultural productivity; for example, Operation Barga in West Bengal. Another aim was to modernize land records; for example, Bhoomi Project in Karnataka.

Among other measures, several states passed acts to abolish zamindari and other intermediary systems, like the Uttar Pradesh Zamindari Abolition and Land Reforms Act, 1950. States adopted laws to protect tenant farmers. For example, the Telangana passed the Andhra Pradesh (Telangana Area) Tenancy and Agricultural Lands Act. The Digital India Land Records Modernization Programme (DILRMP) was undertaken to upgrade land records.

The Land Ceiling Act of 1976 set limits on land ownership, and land was redistributed from large landholders to landless. Ownership of land provided security and increased access to credit. Cooperative farming societies, like in Gujarat, came up. **(185 words)**

5. Introduce the concept of Artificial Intelligence (AI). How does AI help clinical diagnosis? Do you perceive any threat to privacy of the individual in the use of AI in healthcare? *(Answer in 150 words)*

Ans. The term 'Artificial Intelligence (AI)' invented by John McCarthy in 1956, refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem-solving and decision making.

How AI Helps Clinical Diagnosis

AI algorithms can analyze medical images (e.g., X-rays, MRIs, CT scans) to detect abnormalities, tumors, and fractures. For example, Google's DeepMind detects eye diseases like diabetic retinopathy from retinal scans.

AI can identify subtle patterns in patient data, like early detection of diseases like diabetes.

AI-powered wearable devices and apps enable continuous health monitoring. Example: Apple Watch's ECG feature can detect irregular heart rhythms

AI can forecast disease outbreaks, to allocate resources effectively, for example it has forecast COVID-19 case surges

Privacy Threats in AI use in Healthcare

Data breaches may occur as large-scale storage and analysis of medical data may invite intrusion. For example, in 2019, in Quest Diagnostics, millions of patient records were compromised.

AI can re-identify individuals from supposedly anonymous health data, compromising privacy.

Wearable health devices may be used for non-medical surveillance purposes. **(168 words)**

6. Discuss several ways in which microorganisms can help in meeting the current fuel shortage. *(Answer in 150 words)*

Ans. Bacteria can actually produce petroleum. Sounds strange, but it's true. The use of microorganisms to produce alternative fuels is a revolutionary step.

There are several ways in which microorganisms are being used to produce fuel:

Microbial methanogenesis is process by which residual hydrocarbons in depleted oil wells and coal in pits can be turned into methane recovering a lot of fuel.

Microbial fuel cells (MFCs) can convert chemical energy into electrical energy as bacteria can oxidize organic/inorganic matter, generating electricity.

Biomethanation changes organic matter under anaerobic conditions to biogas.

Third generation biofuels like microalgae can create butanol.

The advantage of bioprocessing process is that it can remove sulfur, nitrogen and ash, making for quality petroleum, which is less expensive.

Biomass can lead to hydrogen gas, which is clean.

The government has brought in Gobardhan scheme, Ji-Van scheme 20% ethanol blending and National Biofuel Policy 2019 to promote fuel generation using microorganisms. **(150 words)**

7. Dam failures are always catastrophic, especially on the downstream side, resulting in a colossal loss of life and property. Analyze the various causes of dam failures. Give two examples of large dam failures. *(Answer in 150 words)*

Ans. The first dam failure was recorded in 1917 when the Tigra Dam in Madhya Pradesh collapsed due to overtopping.

Of the total large dams, 293 dams are more than 100 years old and 1,041 dams are more than 50 years old.

Causes

The Koyna dam failure (1967) took place because a natural disaster, an earthquake shook the structure.

The Karam dam in Madhya Pradesh collapsed in 2022, because of flaws in structure and design.

The Pulichintala project in Andhra Pradesh failed in 2021 as ageing structure took toll.

Weak or unstable soils foundation, overtopping where water rises above crest of dam) or inadequate release during high flow can also create dam disasters.

The Machhu dam failure in Morbi district, Gujarat, which occurred in 1979, took place as excessive rainfall and sudden release of water caused flooding, claiming 2000 lives.

The Annamayya reservoir failure, (2021) in Andhra Pradesh, resulted in the death of at least 20 people. **(159 words)**

8. What is oil pollution? What are its impacts on the marine ecosystem? In what way is oil pollution particularly harmful for a country like India? *(Answer in 150 words)*

Ans. Oil pollution refers to the release of petroleum-based substances, arising from tanker accidents, oil drilling and industrial discharge into aquatic ecosystems like oceans, seas, rivers, and coastal areas.

Toxic oil can poison and kill marine organisms like fish, seabirds, and sea turtles due to ingestion. The Gulf of Mexico's dead zone is partially attributed to oil pollution.

Disruption of food chain affects primary producers (phytoplankton) which can impact zooplankton, eaten by marine species.

Oil coats smother mangroves, salt marshes, and coral reefs. Fishing and tourism face severe economic crunch. Example, the deepwater horizon oil spill in Gulf of Mexico.

India has a long coastline and busy shipping lanes, increasing the risk of oil spills from maritime transport accidents. Example, the 2010 collision between two ships off the Mumbai coast resulted in an oil spill that affected marine life and fishing communities.

Oil-affected beaches in Goa and Kerala have seen a decline in tourist arrivals.

The heavy traffic in Arabian Sea poses a threat to India's western coastline. **(167 words)**

9. Winning of Hearts and Minds' in terrorism-affected areas is an essential step in restoring the trust of the population. Discuss the measures adopted by the Government in this respect as part of the conflict resolution in Jammu and Kashmir. *(Answer in 150 words)*

Ans. Winning of Hearts and Minds (WHAM) is a process to bring peace in Kashmir, so that insurgency is beaten back. Though complex, many steps have been taken in right direction.

The abrogation of Article 370 on 2019 was a step to undo the historical wrong, as Kashmir got legally merged with the Indian Union.

Kashmir also moved towards elections, after delimitation, pushing back complaints of political alienation.

Project Sadhbhavana was undertaken by the Indian army to make the youth realize dreams and shed continuous militancy.

Project Himayat is a step for capacity building and employment of youth. Project Umeed is for empowerment of women.

Connecting places, the Jawahar Tunnel and Chenab Bridge have reduced travel time.

Institutions like AIIMS, IIT and IIM have been part of infrastructure planning.

The effect of WHAM can be seen in the fact that a Kashmiri footballer, Majid Khan left LeT after his mother's pleas and the Indian army pressed no charges against him. **(158 words)**

10. The use of unmanned aerial vehicles (UAVs) by our adversaries across the borders to ferry arms/ammunitions, drugs, etc., is a serious threat to the internal security. Comment on the measures being taken to tackle this threat. *(Answer in 150 words)*

Ans. Drones or Unmanned Aerial Vehicles (UAVs) are used by adversary state and non-state actors, increasingly, to threaten internal security of India. Drones were used to drop explosives on Jammu's Air Force Station and in Poonch area, weapons and cash were air-dropped for militants to carry out attack. They are also used to ferry arms and drugs across LOC and international borders. To counter drone threat, the government is taking several measures:

DRDO's Drone Detect, Deter and Destroy (D4S) is the first indigenous anti-drone system which protects critical assets. It was used on August 15. 2022 at Red Fort function.

The new Counter unmanned aircraft systems (C-UAS) technology goes for soft kill (blocking communication lines) and hard kills (bringing down drone). DURGA (Directionally Unrestricted Ray-Gun Array) is a 100KW lightweight system.

iCET – India –US is a collaboration to share technical expertise.

In Punjab's border areas, an anti-rogue drone SOP system is being followed.

Under international measures, MHA has established Anti Rogue Drone Technology Committee under DG, BSF which evaluates technology and certifies effectiveness. **(178 words)**

11. Most of the unemployment in India is structural in nature. Examine the methodology adopted to compute unemployment in the country and suggest improvements.

(Answer in 250 words)

Ans. It is said that when computerization in banks took place in early stages, many lacked the skill to operate computers. This is known as structural unemployment. It happens when individuals are left with no jobs because they lack skills valued by the labour market, either because demand has shifted from the skills possessed by them, or because they never learned new skills.

A mismatch between the skills and qualifications of the workforce and the available job opportunities occurs. The reasons can be changes in technology, shifts in industries, or changes in the geographical location For example, if a population in a high unemployment region is not willing to relocate to where jobs are abundant, high unemployment will continue.

Methodology to Compute Unemployment

Periodic Labour Force Survey (PLFS), conducted by the National Sample Survey Office (NSSO), provides quarterly data for urban areas and annual data for rural areas.

Held decennially, the Census provides data related to workforce participation and unemployment, although it is not as frequent or detailed as specialized surveys.

While not exhaustive, data from government employment exchanges provide insights into unemployment, especially urban unemployment.

There are certain drawbacks in these methodologies, like informal sector bias, subjectivity in reporting and ignoring discouraged workers.

Suggestions

There should be more frequent surveys of unemployment; giving up- to- date information.

For targeted policies, regional and sector surveys must be held

Digital surveys and mobile applications can be used to yield lot of information for rapidly solving the problem. **(250 words)**

12. Distinguish between 'care economy' and 'monetized economy'. How can care economy be brought into monetized economy through women empowerment?

(Answer in 250 words)

Ans. Care Economy includes invisible unpaid or underpaid activities such as taking care of children, elderly, household work etc. On the other hand, a monetised economy includes exchange of goods and services at market determined rates.

According to an ILO study, women in India spend 297 minutes a day on unpaid care work, which is more than 9 times that of men.

Difference

The Care Economy represents unpaid and informal caregiving work, like that done by women.

The Monetized Economy embodies the structured, formal economy where economic activities are quantified in monetary terms.

Care Economy combines both unpaid caregivers and some paid professionals like nurses.

Monetized Economy is dominated by formal employment sectors, offering monetary compensation.

Care Economy often goes unaccounted in GDP.

Monetized Economy directly contributes and is recorded in GDP.

How women empowerment can integrate Care Economy into Monetized Economy:

Skill development programs emphasizing healthcare, childcare, and elderly care can upgrade women's skills. The *Skill India initiative*, for instance, offers training in healthcare professions.

Encouraging women to commence businesses in daycare centers or healthcare services can be beneficial. India's *Nari Shakti* grants, for instance, promote women's entrepreneurship.

Income generation through SHGs or Self Help Groups, like the *Kudumbashree Programme* in Kerala, can stimulate income-generating activities.

Flexible work can aid women in harmonizing caregiving with formal employment. Example: Companies offering work-from-home opportunities

Equal pay and recognition for caregiving roles is essential, like Equal Remuneration Act in India.

Government-backed affordable childcare services, akin to Integrated Child Development Services (ICDS) can ease responsibilities.

Karnataka's *Koosina Mane* scheme envisages childcare for women enrolled under MGNREGA **(267 words)**

13. Explain the changes in cropping pattern in India in the context of changes in consumption pattern and marketing conditions. *(Answer in 250 words)*

Ans. Farmers are diversifying cop choices to align with the changing landscape of consumption and marketing in India.

Here are some examples of the shift in cropping patterns, owing to consumer preferences:

As people become more health-conscious, crops like quinoa and chia seeds are being cultivated in regions like Tamil Nadu and Himachal Pradesh.

The international food trend has paved the way for the cultivation of herbs and spices like basil and oregano in places like Kerala and Himachal Pradesh.

Diets like keto and paleo have popularized low-carb alternatives, driving the cultivation of crops like cauliflower in Punjab and Haryana .

As products are easily transported, cherry tomatoes grown in north are also now being planted in Telangana.

High disposable incomes means exotic varieties like avocados and kiwis are grown in Himachal Pradesh.

Marketing conditions are also changing crop patterns as seen in the below examples:

Export demand is reshaping India's agricultural landscape, as globalization is seen, with grapes from Maharashtra and bananas from Gujarat being shipped to European countries.

National retail chains like Reliance Fresh or Big Bazaar have procurement deals with farmers.

Farmers in Punjab and Haryana are switching to vegetables like bell peppers for steady income.

Brands like PepsiCo offer contracts to farmers for specific potato varieties used in chips, providing new market for farmers in West Bengal and Uttar Pradesh.

The ketchup industry near Pune established new tomato and chilli led cropping pattern in western Maharashtra.

Higher MSP and subsidies have led to production of rice, wheat and sugarcane in areas though water is not there. **(257 words)**

14. What are the direct and indirect subsidies provided to farm sector in India? Discuss the issues raised by the World Trade Organization (WTO) in relation to agricultural subsidies. *(Answer in 250 words)*

Ans. In India, farm subsidies are necessary to bolster small and marginal farmers' income, create food security, stabilize price and incentivize agricultural production.

Direct subsidies

Direct Benefit Transfers (DBT) like the PM-KISAN scheme provides financial support of Rs. 6,000 per year, reaching farmers' bank accounts.

Input subsidies, like on fertilizers, such as under the Nutrient Based Subsidy (NBS) scheme, make key inputs like Urea and DAP affordable. A 50 kg bag of urea costs Rs. 268 (approx.), only.

Credit Subsidies, like Kisan Credit Card (KCC) scheme offer loans at lower rates while Pradhan Mantri Fasal Bima Yojana (PMFBY) offers subsidized crop insurance.

Indirect Subsidies

Irrigation subsidies like Accelerated Irrigation Benefits Program (AIBP) can cover up to 60% of the total cost.

Power subsidies in states, like Punjab and Haryana, offer free or subsidized electricity for tube wells and irrigation pumps.

Transport subsidies , like *Rashtriya Krishi Vikas Yojana* (RKVY) aid transporting agricultural produce to markets., while Warehousing Development and Regulatory Authority (WDRA) subsidy enhances storage facilities.

Seed subsidy distributes certified cereal crop seeds at 50% cost and 60% for pulses, fodder and green manure crops.

Issues raised by WTO

According to WTO norms, subsidies in the Amber Box, like for fertilizers, should go. But, India feels they are critical for enhancing crop yields.

India's subsidies for agricultural exports, such as sugar, are criticised by Brazil and Australia.

MSP given to wheat and rice farmers is disliked as also FCI's buying large quantities of wheat and rice, for food security.

Direct income support, like Universal Basic Income for farmers, is the solution. **(261 words)**

15. The adoption of electric vehicles is rapidly growing worldwide. How do electric vehicles contribute to reducing carbon emissions and what are the key benefits they offer compared to traditional combustion engine vehicles? *(Answer in 250 words)*

Ans. The adoption of electric vehicles (EVs) is witnessing an exponential growth, with sales in India hitting record 965868 units in first 8 months of 2023, itself.

How electric vehicles reduce carbon emissions

Zero tailpipe emissions are produced in contrast to nitrogen oxides (NOx) and particulate matter.

Converting more than 77% of electrical energy from the grid to power at the wheels, in contrast, to internal combustion engines (ICE) which manages only 12-30%, the EVs doesn't waste fuel.

If charged via renewable resources, EVs can operate with nearly zero emissions.

A regenerative braking system captures kinetic energy during braking to recharge the battery, reducing energy waste.

Lightweight material like carbon fiber-reinforced polymer reduces car's weight, for energy efficiency. This can be noticed in BMW's i3 electric vehicle.

Vehicle-to-Grid (V2G) system, like in Nissan Leaf, allows feedback of energy into grid during high demand. As a result, additional fossil fuel demand gets cut.

Benefits

Total cost of ownership for an electric vehicle is significantly lower than for an ICE vehicle. With fewer moving parts and no need for oil changes, the long-term savings are substantial.

Electric cars are inherently safer because they don't carry combustible fuel nor do they have fuel tank.

FAME II scheme provides various tax benefits and subsidies for electric vehicles. For example, GST on electric vehicles has been reduced to 5% from 12%, now.

Electric vehicles meet stringent emission norms like Bharat Stage VI with a built-in advantage, while ICE vehicles require complex and expensive modifications. **(253 words)**

16. What is the main task of India's third moon mission which could not be achieved in its earlier mission? List the countries that have achieved this task. Introduce the subsystems in the spacecraft launched and explain the role of the Virtual Launch Control Centre' at the Vikram Sarabhai Space Centre which contributed to the successful launch from Sriharikota. *(Answer in 250 words)*

Ans. India has become the fourth country to successfully demonstrate soft moon landing and first country to land near the lunar South Pole.

Unlike the Chandrayaan-1, which was only an orbiter, and Chandrayaan-2, which failed in its soft-landing attempt due to a last-minute glitch, Chandrayaan-3 mission achieved a seamless soft landing.

Chandrayaan-1 discovered water molecules on the Moon but couldn't analyse samples, a limitation the third mission aims to overcome.

Chandrayaan-2 had an onboard rover named 'Pragyan' intended for study but it couldn't be utilized due to failed landing. But, now the rover has also landed.

Other countries that have achieved moon missions are USSR (Russia) with their LUNA mission, USA under the Apollo and Artemis mission and China with their Chang'e mission.

Subsystems

1. The orbiter, a spacecraft orbits the Moon and performs remote sensing operations, capturing images and data from lunar surface.
2. The lander takes scientific instruments and equipment to the lunar surface for in-situ studies. It consists of lander Vikram and rover Pragyan.
3. The rover is a mobile vehicle which conducts experiments and collects data.
4. Chandrayaan 3 has communication systems to relay data to mission control on Earth.
5. Navigation and Guidance Systems ensure control trajectory and landing.
6. Solar power is there to make the Rover functional for 1 lunar day (14 earth days).

The Virtual Launch Control Centre (VLCC) at Vikram Sarabhai Space CentreSC) is a state-of-the-art facility that employs artificial intelligence and machine learning to ensure the success of India's space missions.

Real-time telemetry keeps everything from propulsion to guidance smooth. In anomaly or unexpected conditions, the Virtual Centre provides crucial data for quick decisions. Sophisticated algorithms can trigger automated safety protocols. Machine Learning algorithms can predict potential issues and offer solutions. A virtual environment allows experts from various fields to contribute their expertise. **(297 words)**

17. Comment on the National Wetland Conservation Programme initiated by the Government of India and name a few India's wetlands of international importance included in the Ramsar Sites. *(Answer in 250 words)*

Ans. The National Wetland Conservation Programme (NWCP) has played a pivotal role in maintaining ecological balance by providing habitats for numerous species, supporting biodiversity, and regulating water regimes. .

Role

The program undertakes a systematic identification and classification survey of wetlands across India. For instance, Chilika Lake in Odisha was identified as a Ramsar site owing to its ecological importance.

The Central and state governments jointly fund conservation activities, like rejuvenation of Wular Lake in Jammu and Kashmri.

Fishermen around Pulicat Lake have been trained in sustainable fishing techniques.

Research grants are given for studies on wetland ecology, like the unique flora and fauna study of Keoladeo National Park

Biodiversity Conservation is done by saving diverse life forms like at Asan Conservation Reserve in Uttarakhand .

Technology like satellite imagery is used for monitoring wetlands. For example, the health of Vembanad Kol Wetland in Kerala is periodically assessed using remote sensing data.

However, the NWCP programme does not cover all wetlands of country. Rising temperatures and changing precipitation patterns have disrupted migratory bird routes in Chilika Lake. Overfishing in Loktak Lake is depleting fish stock. Bellandur lake in Karnataka has been reduced to a third of its original size due to unauthorized construction. Motorized boats in Dal Lake are threatening ecology.

Important Wetlands of International Importance (Ramsar Sites):

1. Chilika Lake, Odisha: Largest coastal lagoon in India.
2. Sundarbans: The world's largest mangrove forest
3. Keoladeo National Park, Rajasthan: a haven for birds, including Siberian cranes.
4. Kolleru Lake, Andhra Pradesh: rich diversity of avian fauna.
5. Loktak Lake, Manipur: famous for phumdis (floating islands) and Keibul Lamjao, the world's only floating national park**.** **(266 words)**

18. The Intergovernmental Panel on Climate Change (IPCC) has predicted a global sea level rise of about one metre by AD 2100. What would be its impact in India and the other countries in the Indian Ocean region? *(Answer in 250 words)*

Ans Shifting snowlines and shorelines are a big concern for India and other neighbouring countries. As per IPCC Sixth Assessment Report, global mean sea level can rise by about one metre by AD 2100.

Impact on India

Major cities like Mumbai and Chennai, which have extensive coastlines, are already experiencing increased coastal erosion. The Marina Beach may suffer as tourism and local ecology will take a hit.

The Sundarbans Delta and lowland rice system of Kerala etc; , crucial for rice cultivation and biodiversity, are at risk of becoming saline. This would affect the livelihood of thousands of farmers.

Low-lying areas in states like West Bengal and Kerala may witness large-scale human migration due to consistent flooding and loss of habitable land.

Sea levels rise and changes in water temperatures could result in shifts in marine ecosystems in Kerala and Goa.

Important infrastructural projects like Jawaharlal Nehru Port in Mumbai, which handles a significant portion of India's cargo, could face operational challenges.

Impact on countries in Indian Ocean region

The Maldives, already the lowest-lying country in the world, with an average elevation of about 1.5 metres above sea level could become uninhabitable or even completely disappear under the sea.

Much of Bangladesh's land area is less than 5 metres above sea level, and even a modest rise in level could displace millions of people.

In Sri Lanka, coastal cities like Galle, popular for historical landmarks and beaches, could lose out on tourism while Thailand's low-lying Phuket could suffer tsunamis. Indonesia's critical maritime trade routes, may face economic disruptions. **(256 words)**

19. What are the internal securities challenges being faced by India? Give out the role of Central Intelligence and Investigative Agencies tasked to counter such threats.
(Answer in 250 words)

Ans. The NIA registered more than 72 cases in 2022 that shows growing issue of internal security.

Internal Security Challenges

Terrorism: The 11/26 Mumbai attacks in 2008, orchestrated by the Pakistan-based group Lashkar-e-Taiba, resulted in 166 deaths and severe property damage. It brought forth the need for a fortified counter-terrorism strategy.

Naxalism: The Naxalite insurgency, most rampant in Chhattisgarh, Jharkhand, and Odisha, poses a significant challenge. In Dantewada, ambush (2010) killing of 76 CRPF personnel took place.

Cyber Crime: The WannaCry ransomware attack in 2017 was a global event but also affected multiple states in India.

Ethnic Tensions: Ethnic conflict in Assam, particularly between Bodos and Bengali-speaking Muslims, has resulted in periods of violence and mass displacement.

Border Issues: Infiltration across Line of Control in J&K and Indo-Bangladesh border are continuous concerns. The 2016 Uri attack, for example, was executed by militants

Role of Central Intelligence and Investigative Agencies:

1. Intelligence Bureau (IB) collects and analyzes intelligence related to internal security threats. It coordinates with state police and other agencies.

   Example: IB played a crucial role in uncovering 2001 Parliament attack plot.

2. Research and Analysis Wing (RAW) focuses on external intelligence but often collaborates with IB for counter-terrorism efforts.

   Example: RAW's tracks and neutralizes threats across the border.

3. National Investigation Agency (NIA) is specialized agency for investigating and prosecuting terrorism-related cases, both national and international.

   Example: NIA's investigation into the Pathankot airbase attack.

4. National Cyber Security Agency addresses cyber threats and vulnerabilities. It collaborates to protect critical digital infrastructure.

   Example: Assisting in the response to the 2020 power grid cyberattack.

CBI's role in the investigation of 1993 Bombay bombings and National Security Guard (NSG) deployment during 2008 Mumbai attacks is well-known. Besides, there is collaboration with international intelligence agencies like CIA and MI6 to gather information on global threats. **(300 words)**

20. Give out the major sources of terror funding in India and the efforts being made to curtail these sources. In the light of this, also discuss the aim and objective of the 'No Money for Terror (NMFT)' Conference recently held at New Delhi in November 2022. *(Answer in 250 words)*

Ans. To strangle the financial lifelines of terrorist organizations, terror funding must be uprooted.

Major Sources of Terror Funding

Hawala transactions are a favourite as they provide a quick and secretive method for transferring money. Hawala networks funded the 1993 Bombay bombings.

Revenue from drug trafficking is used by groups like Taliban. Golden Crescent processes opium into heroin, smuggling it into Punjab.

Operations by the NIA have uncovered that counterfeit notes printed in foreign countries are pumped into India to fund terrorist activities.

Extremist groups use ransomware attacks and identity theft, to generate funds. The Uri attack in 2016 also revealed illegal digital transactions.

Foreign Funding can substantially bolster extremist activities.. An example is the alleged involvement of Pakistan's ISI in the 26/11 Mumbai attacks.

Efforts to Curtail

India has enacted Unlawful Activities (Prevention) Act, 1967, the Prevention of Money Laundering Act, 2002, and the Foreign Contribution (Regulation) Act, 2010, empowering authorities to prosecute and confiscate assets of terror financiers. Institutions such as the Financial Intelligence Unit (FIU), the NIA and the ED monitor and act against terror funding.

Intelligence sharing mechanism with other countries through FATF, the SAARC Terrorist Offences Monitoring Desk (STOMD), the Regional Anti-Terrorism Structure (RATS) of SCO is there.

NGOs, trusts, companies etc; must get government registration and disclose fund sources and use.

The 'No Money for Terror (NMFT)' Conference, held its third meet , with 78 countries fostering global collaboration to combat terror finding. The FATF guidelines and European Union's 4th Anti-Money Laundering Directive were hailed. Training programs like U.S. Department of Treasury's counter-terrorism financing courses were proposed. Tech Against Terrorism initiative involving tech companies to fight online extremist content was lauded. **(279 words)**