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GENERAL STUDIES (TEST CODE : 1511)

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Medium Eng./Hindi	English	**Registration Number**	971773
Center	Online	**Date**	08-12-2021

INDEX TABLE

Q. No.	Maximum Marks	Marks Obtained
1	10	
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18	15	
19	15	
20	15	

Total Marks Obtained:

Remarks:

INSTRUCTIONS

1. Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
   उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न–पत्र कोड, विद्यार्थी क्रमांक आदि)।
2. There are **TWENTY** questions printed in **ENGLISH & HINDI**
   इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3. **All questions are compulsory.**
   सभी प्रश्न अनिवार्य हैं।
4. The number of marks carried by a question/part is indicated against it.
   प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
5. Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other that the authorized one.
   प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न–सह–उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
6. Word limit in questions, if specified, should be adhered to.
   प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7. Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
   उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

EVALUATION INDICATORS

1. **Contextual Competence**
2. **Content Competence**
3. **Language Competence**
4. **Introduction Competence**
5. **Structure - Presentation Competence**
6. **Conclusion Competence**

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

All the Best

① Despite a vast coastline and a number of waterways, why has India not been able to achieve its potential of waterways?

Ans. India has a vast coastline of 7500 km and 14500 km of navigable inland waterways. Yet share of waterways in total transport is only 6% (NITI Aayog)

Reasons

(a) Lack of proper infrastructure (eg. loading and unloading docks)

(b) Heavy siltation in rivers reduces depth of water

(c) Most of the ports in India lack adequate draught levels to handle heavy vessels

(d) River water sharing disputes among states

(e) Seasonal availability of water in peninsular rivers

(f) Huge capital investment needed to develop inland waterways.

Steps taken by government

(a) National Waterways Act – 111 national waterways declared

(b) Jal Marg Vikas project to develop infrastructure

(c) Sagarmala project
- Upgrading existing ports
- improving port-hinterland connectivity
- Port-led industrialisation.

Thus, shifting to waterways can decongest road & rail and is also more efficient, cost effective and eco friendly.

2) The move to establish a National Bank for Financing Infrastructure and Development to reverse the drag on India's growth potential will have its own challenges. Discuss.

Ans. Government has proposed to establish NaBFID as a developmental bank to finance infrastructure projects.

Need for NaBFID

(a) It can provide low cost, long term financing for infrastructure projects.

(b) Eases pressure on banks which have short-term liabilities and cannot lend long term

(c) NaBFID also has mandate to develop corporate bond market and act as forum to settle disputes in infrastructure projects.

(d) It can attract investments from sovereign wealth funds, pension funds, etc.

Challenges

(a) Past experience with development banks has been poor
- → politically motivated lending
  - → high NPAs
  - → undercapitalised

ICICI, IDFB were developmental banks later converted to commercial banks

(b) Ensuring profesionalism & autonomy

(c) Diversifying sources of funds instead of only depending on government.

(d) Difficulty of ensuring transparency & accountability.

Thus, NaBFID can help post COVID economic recovery but concerns need to be addressed.

(3) Highlighting the issues related to the current fertilizer subsidy regime in India, discuss the need for reforms in this context.

Ans. Fertilizer subsidy is the 2nd largest subsidy in India after food subsidy. The current subsidy regime is facing many issues.

Issues

(a) Growing burden of subsidy is widening fiscal deficit

(b) Imbalance in use of fertilizers due to high urea subsidies

Recommended ratio of N.P.K is 4:2:1

Actual ratio is 25:5:1

(c) Urea remains outside purview of NBS (Nutrient Based Subsidy) scheme

(d) Overdependence on imports

(e) High level of wastage

(f) Overuse of fertilizers is causing pollution of air, water, soil.

Reforms needed

(a) Bringing urea under NBS scheme

(b) Direct Benefit Transfer of fertilizer subsidy to farmers instead of fixing MRP

(c) Neem coated urea to ensure slow nutrient release into soil

(d) Soil Health card scheme to inform farmers about appropriate fertilizer use

(e) Subsidies for biofertilizers to encourage shift to organic farming.

Thus, there is need to rationalize fertilizer subsidy for prosperity of farmers & health of consumers.

(4) Identifying the need for climate resilient agriculture in India, discuss how it can be achieved.

Ans. Climate change is expected to adversely affect agriculture which is backbone of Indian economy. In this context, there is pressing need for climate resilient agriculture.

Benefits

(a) Protecting farmers from decline in yields due to climate change

(b) Ensuring food security of the country.

(c) Agriculture can be insulated from extreme weather events due to climate change

eg: droughts, floods, ~~pest~~ cyclones, etc.

(d) It can help to tackle pest attacks which are expected to increase due to climate change

eg: locust attack

(e) Addressing water stress & vagaries of monsoon as less than 40% of India's farmlands are irrigated.

Achieving climate resilient agriculture

(a) National Mission on Sustainable Agriculture

(b) Micro-irrigation for efficient water use

(c) Organic farming & Zero Budget Natural farming

(d) Shifting from crops like paddy to millets, pulses & oilseeds which require less water & are drought resistant

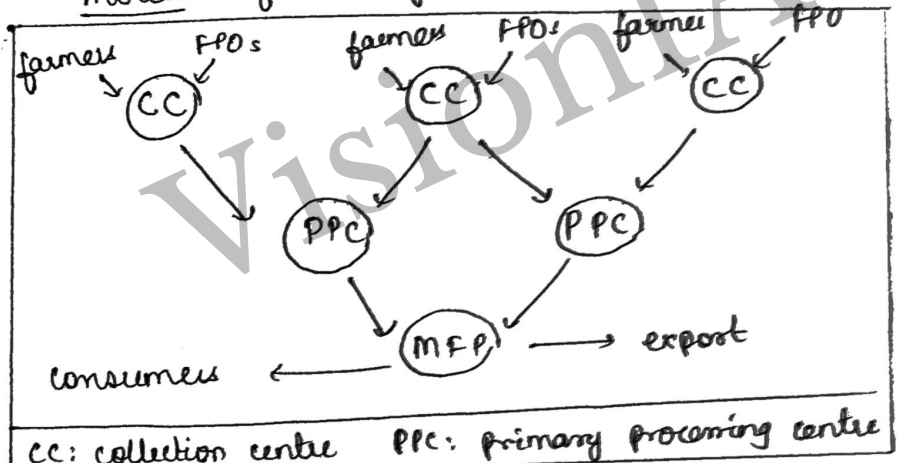
Thus, agricultural scientists, farmers & policymakers need to join hands to climate-proof our agriculture.

(5) Mega Food Parks (MFPs) were considered to be a gamechanger for the food processing sector in India but their progress remains stunted. Discuss.

Ans. Mega Food Parks were established under Kisan Sampada Yojana to give an impetus to food processing sector.

MFPs - a potential gamechanger

(a) They were based on hub-and-spoke model of supply chain.



(b) They provided various facilities under one roof such as processing, packaging, quality checks, marketing, etc

(c) They could achieve economies of scale

(d) Potential to increase farmers incomes, create jobs and reduce post harvest losses.

Reasons for stunted growth

(a) Fragmentation of agri market due to APMCs

(b) Essential Commodities Act - arbitrary imposition of stock limits

(c) Lack of awareness among farmers

(d) Shortage of skilled labour.

(e) Lack of professional management of MFPs

Thus, there is need to address lacunae in working of MFPs to benefit from "sunrise sector" of food processing.

(6) Give an account of the challenges associated with rapidly increasing biomedical waste in India. Also state key features of Biomedical Waste Management Rules 2018.

Ans. Biomedical waste refers to waste generated by hospitals, laboratories, veterinary clinics, health camps, etc.

Challenges of biomedical waste

(a) Surge in generation of biomedical waste due to COVID19

eg: disposable masks, PPE kits, RTPCR testing kits, etc.

(b) Lack of proper disposal creates health hazard

(c) Damage to environment and pollution of soil, water, etc.

(d) Lack of training & awareness of health workers

(e) Shortage of processing facilities.

Key features of Biomedical waste management rules

1. Colour coding of biomedical waste
   - Yellow → human & animal parts
   - Red → toxic waste
   - White → sharp objects like needles
   - blue → recyclable waste
2. Waste must be sterlized before sending to processing facility.
3. GPS tracking of biomedical waste
4. Incineration / deep burial for toxic waste
   Autoclaving & recycling other waste.
5. Penalties for improper disposal.

Thus, there is a need to implement these rules effectively and provide training to workers handling biomedical waste.

Q) What do you understand by impact based forecasting in disaster management? How can such forecasting strengthen disaster management preparedness?

Ans. Impact based forecasting is a method where predictions are made on social, economic and environmental impact of a disaster for better preparedness.

eg: **Normal forecasting** → cyclone expected to strike at specified time

Impact based forecasting → cyclone expected to strike at specified time and may cause damage to houses, power lines, roads, etc

How it strengthens disaster preparedness

(a) It combines data on hazard with data on population density, infrastructure, etc to give a more holistic structure.

Impact = Hazard x Vulnerability

(b) It enables officials to take precautionary measures

eg: evacuating public from high impact areas

(c) It helps people to understand the possible impact on their lives and plan accordingly.

eg: power disruption ⇒ buy emergency lamps.

Thus, impact based forecasting can help in reducing loss of life & damage to property, through awareness, alertness and preparedness.

(8) Low Earth Orbit is becoming increasingly crowded as countries race to launch satellites. Highlight issues and international efforts taken.

Ans. **Low Earth Orbit** is the preferred orbit for launching remote sensing satellites, space stations, navigation satellites, etc. This has led to LEO becoming crowded.

Issues faced

(a) Increase in crowding of LEO increases risk of collisions

(b) There is also increase in debris in LEO due to obsolete satellites

(c) Fears of triggering **Kessler syndrome** - debris causes cascading collisions which creates more debris.

(d) It increases cost of maintenance of space assets due to damage from

debris.

- **Efforts taken**

(a) Project NETRA of ISRO – to track debris which may pose threat to Indian space assets.

(b) Project "Remove Debris" of European Space Agency demonstrated technologies to remove debris
- harpoon capture
- net capture

(c) Outer space treaty ⇒ holding countries responsible for damage caused.

(d) Automatic deorbiting of satellites at end-of-life.

Thus, LEO is a "global commons" which must be used judiciously & equitably by all countries.

(a) Enumerating the existing measures to counter bio-terrorism in India, highlight the need for a bioterrorism law.

Ans. Bioterrorism can be defined as the intentional release of deadly pathogens or toxins to create wave of terror in society.

Existing measures to counter bioterrorism

(a) Integrated Disease Surveillance Programme for early detection

(b) Network of laboratories like National Institute of Virology, Pune which can do genome sequencing of new pathogens.

(c) All labs dealing with dangerous microorganisms are expected to follow safety precautions.

(d) India is signatory to Biological Weapons Convention

Need for bioterrorism law

(a) Lack of dedicated institutional mechanism to handle bioterrorism

(b) To bring about coordination between different agencies
- Ministry of Health
- Department of Biotech
- Home Ministry.

(c) Creating a rapid response team akin to NSG for bioterror attacks.

Thus, the recent COVID outbreak and concerns about "gain-of-function" research in China require India to formulate a new law to tackle bioterrorism.

(10) Discuss the potential of "Integrated Law Enforcement Centres" and "Smart Walls" to address border security challenges.

Ans. India has 15,000 km of land border which is located in difficult terrain with several hostile neighbours.

Border Security challenges
- Terrorist infiltration
- Drug trafficking
- Smuggling
- human trafficking
- Aggression by neighbours (eg. Galwan Valley)

Potential of "Integrated Law Enforcement Centres"

(a) Currently, border law enforcement duties are split among multiple agencies
- BSF/ ITBP/ Assam rifles
- army
- state police

(b) Integrated centre can increase coordination between agencies, reduce jurisdictional issues

(c) It can help to unearth nexus between terrorism and organised crime.

Potential of smart walls

(a) Smart walls use thermal sensors, IR cameras, satellite imagery, etc for 24x7 vigil along border

(b) They can quickly alert the forces in case of breach.

(c) Especially useful in Northeast which has dense jungles which make patrolling difficult.

However, deploying these requires political will, Centre-state cooperation and huge capital investment

(11) Farm loan waivers are neither adequate nor recommended for promoting sustained agricultural growth. Analyze.

Ans. Farm loan waivers are announced time and again as a populist measure, usually before elections. However, they only provide short term relief with a heavy long term cost.

Issues with farm loan waivers

(a) They only benefit farmers who have taken loans from institutional sources

(b) They benefit large and medium farmers more who constitute only 14% of all farmers.

(c) Disincentivise farmers who regularly pay interest on loans.

(d) Create huge fiscal burden for

government.

(e) More money spent on loan waivers leaves less money for creating agricultural infrastructure

(f) Adversely affects banking sector and increases NPAs.

(g) Economic Survey 2019-20 states that farm loans do not substantially improve farmers income in long run.

However, farm loan waivers have become necessary due to huge levels of farmer indebtedness and farmer suicides.

Alternatives

(a) Instead of loan waiver, income support can be provided

Eg: PM KISAN.

(b) Creating agriculture infrastructure to augment farmers income

eg: storage, transport, processing facilities, etc

(c) Providing interest subvention for farmers for timely repayment

(d) eNAM - better price discovery, more farmers income.

(e) Crop insurance - protects against indebtedness due to crop failure

Thus, we need to go beyond short term fixes like loan waivers and address the root cause of agrarian distress.

(12) A number of initiatives in recent years have focussed on the MSME sector. Why? Identify measures taken by government and further scope of action.

Ans. MSME sector refers to the micro, small and medium enterprises in the Indian economy. Government has taken many steps to support this sector.

Need for focus on MSMEs

(a) They contribute to 28% of GDP, 40% of exports and employ more than 100 million people as per **UK Sinha Committee**

(b) MSMEs can help to absorb surplus labour from agriculture.

(c) They promote inclusive growth and job creation.

(d) they can contribute to empowerment of women.

eg: Lizzat papad - women run MSMEs.

Measures taken by government

(a) New definition of MSMEs to help MSMEs grow in size

- investment limit raised
- new turnover criteria added
- distinction between manufacturing & services removed.

(b) Emergency Credit Line Guarantee scheme collateral free loans to support MSMEs affected by COVID

(c) MSME fund of funds for equity infusion

(d) TREDS scheme - to address delayed payments to MSMEs.

(e) CHAMPIONS portal - for handholding & support

(f) Separate ministry for MSME

(g) Global tenders disallowed for procurement below 200 crore to encourage MSMEs.

Further scope of action

(a) Upgrading MSME technology

(b) Skill development for MSME workers

(c) Improving quality of goods of MSMEs.

(d) Promoting MSME exports

Thus, MSMEs can help in speedy post COVID economic recovery and require ease of doing business & access to credit.

(13) Skilling the Indian population faces a 3E challenge - Education, Employment and Employability. Discuss. Suggest interventions.

Ans. India is currently experiencing a demographic shift with a large working age ~~popution~~ population. Upskilling them requires 3E - Education, Employment & Employment.

Challenge of 3E

(a) Education :-

- As per UNICEF report, nearly half of India's youth will not have necessary skills or education to be employable in 2030.
- COVID19 has further disrupted education, as only 36% had Internet access (India Internet Report 2019).

- While enrolment has increased, quality of education remains poor.

(b) Employment :-

- 47 lakh youth lost their jobs due to COVID19 (ILO)
- Hidden unemployment in agriculture as services-driven growth could not create enough jobs.

(c) Employability -

- Employability of graduates in India is poor
- Curriculum not aligned to industry needs

Interventions required

(a) National Education Policy 2020 recommends multidisciplinary

education and vocational training

(b) Internships can help to act as bridge between education & employment.

(c) Expanding access to online education
eg: DIKSHA portal, Bharat Net scheme

(d) Consultation with industry in framing curriculum

(e) Focussing on labour intensive industries to improve employment.

Thus, for India to reap benefits of demographic dividend, there is need to develop our human capital

(14) Despite its importance, agricultural marketing faces various institutional and infrastructural issues. Elaborate. Also enlist measures taken.

Ans. Agricultural marketing can be broadly defined as the various processes involved in transferring produce from farmer to end consumer.

Importance of agricultural marketing
- ensuring remunerative price for farmers
- affordability for consumers
- reducing wastage

Institutional issues

(a) APMC Acts of various states have caused fragmentation of market.

(b) Large number of intermediaries

(c) Lack of transparent price discovery leads to low prices for farmers but high price paid by consumer

(d) Multiple levies of mandi fees.

Infrastructural issues

(a) Lack of proper storage facilities lead to high wastage

(b) Poor transport links from farm to market

(c) Lack of procesing facilities

Measures taken

(a) KISAN Rail & KRISHI UDAN for transport of produce

(b) Negotiable Warehouse Receipts - enable farmers to take loan against warehouse receipt.

(c) Agri Infrastructure Fund has been set up

(d) [eNAM] - online network of Mandis

(e) Farm laws which aimed to create "One Nation, one Market" but had to be repealed due to farmers opposition.

(f) Model APMC Act of NITI Aayog.

Thus, there is a need to improve agricultural marketing in India to enhance farmers incomes as recommended by [Ashok Dalwai committee]

(15) Marine litter is not just an environmental issue but poses a socio-economic challenge as well. Discuss. Also enumerate initiatives taken.

Ans. Marine litter has emerged as a serious problem in recent years due to unsustainable tourism and poor management of waste in coastal areas.

Marine litter consists of
- plastics & microplastics
- broken fishing nets
- dismantled ships
- construction debris.

Environmental issue

(a) Marine litter is ingested by marine organisms and causes death.

(b) It leads to damage to coral reefs

(c) It disrupts breeding & migration patterns of marine life

eg. Olive Ridleys.

Socio-economic issue

(a) Waste enters human body through consumption of seafood (Biomagnification)

(b) Decline in fish yields affects coastal livelihoods

(c) Plastic waste also adversely impacts tourist experience

(d) Waste can get caught in propellors of boats & damage them.

Initiatives taken

(a) GloLitter project – global project to reduce, reuse & recycle marine waste.

(b) Suchitva Sagaram initiative of Kerala - encouraging fishermen

to bring back waste from oceans with cash incentives.

(c) **MARPOL convention** - to address marine pollution

(d) **Blue Flag beaches** - to encourage clean beaches and ecotourism.

Thus, there is need to create public awareness to address the growing problem of marine litter which poses a serious threat to ocean ecosystem.

(16) Assess India's vulnerability to flash floods and suggest measures for better resilience. Highlight significance of Flash Flood Guidance System operated by IMD.

Ans. Flash floods refers to floods which occur suddenly, leaving little to no time for preparedness measures.

India's vulnerability to flash floods

(a) India faces flash floods due to various factors

Natural

- cloudbursts
- glacial lake outburst flooding
- landslides

Anthropogenic

- climate change
- sudden release of water from dam
- dam breach
- unplanned urbanization

(b) Activities like improper land use,

encroachment of wetlands, deforestation, etc. have increased risk of flash floods.

Measures for better resilience

(a) Understanding risk :- Identifying areas prone to flash floods and preparing flood hazard atlas.

(b) Structural measures :-

- Building levees/ embankments along rivers
- Afforestation activities
- Repairing old & ageing dams to prevent breach
- Constructing shelters to seek refuge ~~to~~ during floods.

(c) Non structural measures :-

- Preventing encroachment of waterbodies which act as buffers.

- Training local volunteers to assist NDRF in search & rescue.
- Community based warning networks
- mock evacuation drills.

Significance of FFGS

(a) It can help to give early warnings on occurence of flash floods.

(b) It can act as a guide for rescue teams

(c) It can help to reduce loss of lives

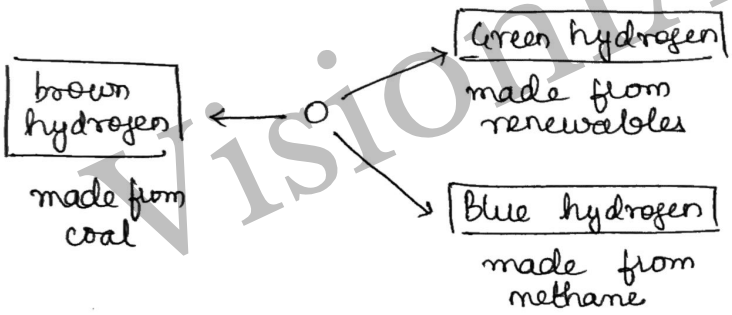
Thus, we need to shift from reactive to proactive approach to minimise losses due to flash floods.

(17) Hydrogen based energy production can play a key role in clean, secure and affordable energy. Identify potential and opportunities. What are the challenges?

Ans. Hydrogen energy is considered as "fuel of the future" as it is clean, green and efficient.

Potential & opportunities of hydrogen

(a) Hydrogen can be made from a wide variety of sources



(b) It does not emit harmful gases like SO_x, NO_x, CO_2, etc.

(c) It can help to meet India's target of net zero by 2070

(d) Hydrogen can act as store of energy. Excess renewable energy which is not used by grid can be diverted to make hydrogen.

(e) It can help to decarbonise hard-to-electrify sectors like long haulage shipping, heavy duty trucks, etc

(f) Shorter refuelling time of hydrogen vehicles compared to electric vehicles.

Challenges

(a) Cost - Hydrogen technology is in nascent stage & more expensive

(b) R&D - Lack of adequate R&D in India on hydrogen (less than 1% of GDP)

(c) Safety - Difficulty of safely handling hydrogen.

(d) Production :- Producing hydrogen itself may be energy intensive.

Way forward

National Hydrogen Energy Mission
- creating infrastructure.
- policy support
- R&D
- formulating standards & regulations.

Thus, hydrogen is simplest element of periodic table but most promising one for clean & green energy

(12) Despite the huge promise of satellite based Internet connectivity, it hasn't gained traction on a significant commercial ~~sca~~ scale. Discuss.

Ans- Satellite based internet has immense potential of providing internet access to rural & remote areas. However, it faces various challenges in implementation.

Advantages of satellite based internet

(a) Providing universal access to internet

(b) Easier to deploy on large scale compared to optical fibres

(c) Due to economies of scale, it can provide internet at low cost.

Reasons for not gaining traction

(a) Lack of private sector participation :-

→ In USA, private space companies like SpaceX, Blue Origin have been at forefront of space based internet.

→ However, in India, it is mainly ISRO (public sector) which is involved.

(b) Lack of adequate R&D on space based services.

(c) Uncertain regulatory climate have hampered investments in this sector.

(d) Growth of cheap mobile data by companies like Jio, Airtel, Idea, etc. have reduced interest in satellite based internet.

(e) Concerns about overcrowding of Low Earth Orbit due to satellites for

internet

(f) Satellite based internet may be hampered by bad weather, cloudy conditions, etc.

Way forward

(a) New space-based communication policy released by Department of Space

(b) Incentivising private participation can drive competition & innovation in satellite based internet.

Thus, India needs to catch up with other countries in realising potential of this promising technology.

(Q) India's attempts at strengthening its intelligence infrastructure have been reactive and incremental rather than holistic. Discuss. Provide concrete framework for transforming it.

Ans. Intelligence gathering has become sine qua non in today's world to defend the country from threats posed by State and non-State actors.

However, India's attempts at building intelligence capabilities have been reactive & piecemeal :-

(a) Establishing office of NSA after Kargil war

(b) Formation of NIA and NATGRID (intelligence sharing portal) was in response to 26/11 attacks

Issues with this approach

(a) India is lagging behind in preparing

to tackle new & emerging threats

eg: bioterrorism, hybrid warfare, cyberterrorism.

(b) Lack of coordination and overlap of functions of multiple agencies

(c) Reactive rather than proactive approach.

Need for holistic approach

(a) Holistic intelligence gathering

eg: cyber data + financial data + immigration data

(b) Clear jurisdiction of different agencies

(c) Need for periodic assessment of vulnerabilities and fixing them.

New framework for intelligence

(a) Leveraging power of technology

eg: Big Data, AI, facial recognition, etc.

(b) Continuous skill upgradation initiatives for intelligence personnel.

(c) Collaborating with friendly countries

eg: India gave Sri Lanka intelligence on Easter Sunday attacks.

Thus, there is need to develop a holistic intelligence architecture and NSA can act as catalyst to achieve this.

(20) In light of the prominent instances of drone attacks by both state and non-state actors, assess the challenges and capabilities of India in dealing with it.

Ans. Drones refers to unmanned aerial vehicles (UAVs) which can be remotely controlled. In recent years, there is increase in drone attacks.

- Recent drone attacks
  - assassination of Iranian general using drone by USA
  - Houthi drone attack on Saudi oil facilities
  - Drone attack on Jammu air base

Challenges

(a) Difficult to detect as drones fly below the radar.

(b) Remote control enables perpetrators

to avoid ~~being~~ being caught.

(c) Cross border smuggling of arms and ammunition using drones

(d) Drones have made carrying out attacks easy & low cost - "Minimum effort, Maximum damage"

Capabilities of India to deal with drones

(a) New UAV rules 2021 -

- Area around critical installations like army base, airport, nuclear plants must be declared "No fly zones"
- Registration of drones on "Digital Sky Portal"
- Pilot license needed to operate large sized drones.

(b) DRDO is developing indigenous drone defence systems.

(c) India can also purchase "Iron Dome" air defence system from Israel.

Drones have positive uses as well in delivering food, medicines, urban planning, surveying, etc. Hence, we must balance the security risk with legitimate use of drones.