



# VISION IAS

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## GENERAL STUDIES (TEST CODE : 2213)

Name of Candidate	SIDDHARTH SHUKLA		
Medium Eng./Hindi	ENGLISH	Registration Number	6328 03
Center	MN	Date	03/08/2022

INDEX TABLE			INSTRUCTIONS
Q. No.	Maximum Marks	Marks Obtained	
1	10		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	10		2. There are <b>TWENTY</b> questions printed in <b>ENGLISH &amp; HINDI</b> इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
3	10		3. <b>All questions are compulsory.</b> सभी प्रश्न अनिवार्य हैं।
4	10		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	10		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 than 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	10		6. Word limit in questions, if specified, should be adhered to. प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
7	10		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।
8	10		
9	10		
10	10		
11	15		
12	15		
13	15		
14	15		
15	15		
16	15		
17	15		
18	15		
19	15		
20	15		
Total Marks Obtained:			
Remarks:			

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## 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. An effective approach to green budgeting is underpinned by strong strategic framework, tools for evidence generation and an enabling budgetary governance framework. Discuss. (150 words) 10

हरित बजट के लिए एक प्रभावी दृष्टिकोण को सुदृढ़ रणनीतिक ढांचे, साक्ष्य निर्माण हेतु उपकरण और एक सक्षम बजटीय शासन ढांचे द्वारा सुदृढ़ता प्रदान की जाती है। विवेचना कीजिए।

Green Budgeting is the budgetary process in which revenue generated through ecosystem is included and a ~~substantial~~ substantial part of expenditure goes toward environment.

### Need of strong strategic framework

- 1. A detailed strategy for green budgeting specifying
  - calculation of Green GDP
  - conversion of ecosystem services into monetary terms
  - Specifying targets for green expenditure
  - creating a market for trading green bonds etc. is required.

Tools for evidence generation

1. A Natural capital accounting framework like NCAVES of Ministry of Statistics in India is required.
2. Technological support system like satellites for mapping forestry and other green expenditure projects is required.
3. Research entities specialising in Environment Impact assessment, valuation of natural resources are needed.

Enabling budgetary governance framework

1. Calculating Green GDP like uttarakhand government.
2. Creation of sovereign green bonds and market in environmental products like carbon trading market.
2. Mandating Green Budgeting on lines of gender budgeting.  
Green Budgeting is essential to achieve the panchamrit target declared at Glasgow climate pact.

2. State the need for circular economy in India and the challenges associated with it. Also, discuss the measures that are required to build a circular economy in India. (150 words) 10

भारत में चक्रीय अर्थव्यवस्था की आवश्यकता और इससे जुड़ी चुनौतियों का उल्लेख कीजिए। साथ ही, भारत में एक चक्रीय अर्थव्यवस्था के निर्माण के लिए आवश्यक उपायों पर चर्चा कीजिए।

### NITI Aayog in New India

at 75 declared circular economy i.e. economy based on substantial reuse and recycling of resources, as essential for making India \$ 5 billion economy.

#### Need for circular economy

1. Resource efficiency → Economic Survey (2018-19) highlights low India lacks <sup>resources like</sup> lithium, cobalt etc and needs to use them efficiently.
2. Management of waste → A of now <sup>valuable</sup> only one fourth of valuable electronic waste is recycled.
3. Employment generation through recycling centres etc.

4. Reducing import dependence and  
so Current Account deficit.

### Challenges with circular economy

1. Lack of Recycling infrastructure such as waste collection centre, dismantling centres.
2. Technological deficit.
3. Informal nature of waste collectors  
e.g. Only 5% waste is recycled through formal sector.

### Measures required to build circular economy

1. National policy on circular economy
2. Implement Extended producer Responsibility in e-waste.
3. Capital subsidy to waste collection, waste dismantling and recycling centres.

The recent Plastic pact signed between CII and Waste India for circular economy in plastic should be emulated by all ~~set~~ sectors of economy.

3. The Major Port Authorities Act, 2021, seeks to grant greater autonomy and flexibility to the major ports and professionalise their governance. Discuss.

(150 words) 10

प्रमुख बंदरगाह प्राधिकरण अधिनियम, 2021, प्रमुख बंदरगाहों को अधिक स्वायत्तता और लचीलापन प्रदान करने तथा उनके शासन को पेशेवर बनाने का प्रयास करता है। विवेचना कीजिए।

### Major Port Authorities Act

2021 has changed the governance structure

of 13 major ports of India such as Kandla, Chennai etc.

Greater autonomy and flexibility

1. It adopts landlord port model

where services are provided by private sector and rent is collected by port authority.

2. Delegation of power of deciding tariffs to port authorities.

3. Inclusion of representatives of state government on port authorities.

4. Dispute Resolution through arbitration allowed.

5. Port authorities could enter into

public-private partnership easily

Professionalise governance of ports

1. Private sector would provide service.
2. Port authorities would impartially regulate ports.
3. financial autonomy to port authorities to hire experts.

Issues with Major Port authorities Act

1. Minimal Role of state government is against federal principle.
2. Private sector monopolies may emerge in port sector.

Overall the Major port Authority Bill paves way for reducing India's logistic : GDP ratio to 10% from current 14%.



4. Analyse the need for shifting from presumptive land titling to conclusive land titling system in India. Also, highlight the hurdles in its implementation. (150 words) 10

भारत में अनुमानित भूमि स्वामित्व से निर्णायक भूमि स्वामित्व प्रणाली में स्थानांतरण की आवश्यकता का विश्लेषण कीजिए। साथ ही, इसके क्रियान्वयन में आने वाली बाधाओं को रेखांकित कीजिए।

Conclusive land titling  
entails creation of land records  
that are certified and guaranteed  
by government.

Need for shift to conclusive land titling

1. Reduce land disputes which account for 66% of civil court cases.
2. Presumptive land titling promotes
  - frivolous litigation
  - adverse possession of land
3. Unlocks the potential of land by
  - Easier acquisition by government
  - formal lending and leasing of land
  - hassle free contract farming and cooperative farming.

4. Increases women's share in landholding which is currently only 14% of agricultural land.

### Hurdles in Implementation

1. Land comes under state list, states have not taken initiative.
2. extent of land disputes and delay in their settlement by civil courts.
3. corruption in Revenue bureaucracy at lower levels.
4. Absence of technological support in rural areas for, <sup>land</sup> record modernisation.
  - Mission mode implementation of National Land Record modernisation programme.
  - Emulate Bhoomi portal of Karnataka.

The recent SUAMITVA scheme should be made foundation of conclusive land and property titling.

5. What do you understand by methanol economy? Critically discuss its role in achieving India's energy security and economic prosperity. (150 words) 10
- मेथनॉल अर्थव्यवस्था से आप क्या समझते हैं? भारत की ऊर्जा सुरक्षा और आर्थिक समृद्धि प्राप्त करने में इसकी भूमिका की समालोचनात्मक विवेचना कीजिए।

Methanol economy is an economic system that integrates methanol and its products like Di-methyl ether (DME) as an important fuel source.

NITI Aayog has highlighted need of making India a methanol economy

Role in energy security

1. Reducing import of oil and gas which is around 80%.

— Methanol blended petrol led to energy security in Brazil.

2. India has substantial reserves of coal (2<sup>nd</sup> highest in world) which could be made into methanol

3 Methanol is also a cleaner fuel and more energy efficient.

### Role in economic prosperity

1. Methanol economy would reduce CAD (Current account deficit) and increase forex Reserves.
2. Industries like ammonia, steel etc would utilise methanol.
3. Methanol producing industry would provide employment.
4. India's coal sector would witness growth.
5. Transition to Electronic Vehicle technology would improve.
6. Cost of fuel would decrease.

India has put a target of Coal based methanol production. This should be achieved.

6. Discuss the role of geospatial technologies in developing effective approaches for disaster risk reduction and disaster management.

(150 words) 10

आपदा जोखिम न्यूनीकरण और आपदा प्रबंधन के लिए प्रभावी दृष्टिकोण विकसित करने में भू-स्थानिक प्रौद्योगिकियों की भूमिका की विवेचना कीजिए।

Geospatial technologies  
deal with analysis of data  
generated by objects having  
location on Earth's surface. E.g  
Earth Observation Satellite (EOS)

Role of developing effective approach  
in disaster Risk Reduction

1. Mapping vulnerabilities such as  
hazard zone for Earthquakes.
2. Designating high risk zones.
3. Designating areas suitable for  
prepositioning of resources like cyclone  
shelters.
4. Essential component of early  
warning system. E.g drones monitoring  
rising flood level.

5 Analysing security of infrastructure through LIDAR technology

Role in disaster management

1 Monitoring onset and spread of disasters like forest fires.

2 Aiding disaster response teams about location of people and rescue operations

3 Highlighting areas where Relief operations should be concentrated.

4 (Post disaster)

— survey of damage is done by geospatial technology.

— Planning suitable place for Resettlement.

India must enhance

private sector participation in Geospatial Energy to effectively fight disaster. Recently norms for ~~geo~~ geospatial sector were liberalised.

7. The focus of Environmental Impact Assessment (EIA) needs to shift from utilization and exploitation of natural resources to conservation of natural resources. Discuss. (150 words) 10

पर्यावरणीय प्रभाव आकलन (EIA) का मुख्य ध्यान प्राकृतिक संसाधनों के उपयोग और दोहन से हटाकर प्राकृतिक संसाधनों के संरक्षण पर केंद्रित होना चाहिए। विवेचना कीजिए।

## Environment Impact

Assessment is a planning tool to assess the socio-economic-environmental impact of development projects. It is done under EIA Rules, 2006 & under Environment Protection Act.

### Present focus of EIA

1. Aims is to get clearance for projects for utilisation of resources.
2. Local communities do not create EIA plan, and are only involved in public hearing.
3. Only natural resources to be exploited are assessed.

Shift toward conservation of natural resources

1) Involve conservation organisation and local communities in EIA formation.

2) Resource conservation plan to be created by EIA authorities.

3) EIA should adhere to

— precautionary principle for securing natural resource

— polluter pays principle.

4) ~~EIA~~ <sup>EIA</sup> should be created on

— positive contribution of ecosystems

— evaluation of natural capital asset of ecosystem.

Thus new ~~to~~ EIA Rules should be passed mandating participation of people at all levels of EIA process.



8. What do you understand by hybrid warfare? Discuss India's preparedness in this context. (150 words) 10

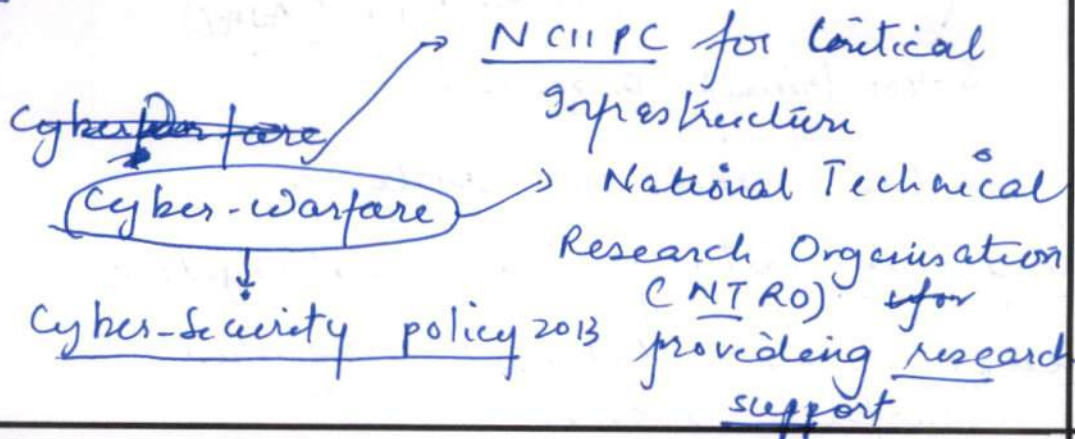
हाइब्रिड वारफेयर से आप क्या समझते हैं? इस संदर्भ में, भारत की तैयारियों की विवेचना कीजिए।

Hybrid warfare is a form of warfare that includes conventional methods of warfare with non convention methods like psychological warfare; cyber warfare; space warfare etc.

E.g. Russia-Ukraine warfare witnessed psychological warfare by Russia using nuclear threat against western nations.

India's preparedness in hybrid warfare

1:



→ CERT-In for emergency response-

## 2. Psychological warfare

- India has creating fact checking  
~~is~~ architecture in press information  
bureau

- for regulating civil society  
foreign contribution Regulation Act,  
2010 has been amended.

- Institutions like National Security  
Council Secretariat (NSCS) and  
Observer Research foundation debunk  
foreign psychological operations.

3

→ Defence Space Command  
Virtualised  
Space warfare - DRDO's Anti Satellite  
Technology (ASAT)  
S-400 triumph acquired.

India needs to create a  
National security policy highlighting  
offensive and defensive hybrid  
warfare policies.

9. Discuss the challenges associated with inclusion of women in armed forces, particularly in combat roles in India. How can these challenges be addressed? (150 words) 10

सशस्त्र बलों, विशेष रूप से भारत में युद्धक भूमिकाओं में महिलाओं को शामिल करने से संबंधित चुनौतियों पर चर्चा कीजिए। इन चुनौतियों का समाधान कैसे किया जा सकता है?

Recently the Supreme Court allowed women to become permanent commissioned officers in armed forces.

Challenges in including women in combat roles

1. Presence structure of army with almost 99% male participation in combat roles.
2. Possible instances of crime against women in army.
3. Possible discrimination against women combatants by male comrades.
4. Issues related with child birth like maternity leave and long

absence

- 5 Capture of women combatants by enemy forces followed by crimes against women.

### Addressing the Challenges

- 1 Enhancing women recruitment in combat roles to atleast 30% to create gender parity.
- 2 Sensitisation of male soldiers.
- 3 Raising some women only battalions.
- 4 Strong Rules against gender discrimination.
- 5 Creating awareness about need of women in armed forces.

The defence of India requires both of its wing man and women to fight together.

10. S. Chandrasekhar was one of the greatest scientists of the 20th century whose prolific contributions spanned across astrophysics, space and mathematics. Elaborate. (150 words) 10

एस. चंद्रशेखर 20वीं सदी के महानतम वैज्ञानिकों में से एक थे, जिनका खगोल भौतिकी (एस्ट्रोफिजिक्स), अंतरिक्ष और गणित के क्षेत्र में विपुल योगदान था। सविस्तार वर्णन कीजिए।

Subramainam Chandrasekhar

was a nobel laureate of Indian origin.

Contribution in astrophysics and space

1. Discovered the Chandrasekhar limit a point beyond which a supernovae explodes to become a Black hole.
2. His works on white dwarfs, Black hole entropy etc were landmark in their field.
3. In mathematics S. Chandrasekhar expanded knowledge in fourier analysis, Networked system etc.

Thero S Chandrashekar  
was a polyglot who immensely  
expanded contours of human  
knowledge.

11. State finances in India present a worrying picture, with debt sustainability being a major concern. Discuss in context of the recent RBI report on state finances. (250 words) 15

भारत में राज्य वित्त एक चिंताजनक स्थिति प्रस्तुत करता है, जिसमें ऋण संधारणीयता एक प्रमुख चिंता का विषय है। राज्य वित्त पर आर. वी. आई. की हालिया रिपोर्ट के संदर्भ में विवेचना कीजिए।

RBI annually releases the State of State finances Report to analyse the economic impact of state government fiscal measures.

Worrying picture of state finance

1. Gross fiscal deficit of state is 3.7% of GDP which is above desired level of 3%.

2. General government debt has increased to 31% of GDP whereas NK Singh committee suggest only 20% of GDP.

3. Market borrowings amount for more than 60% of borrowing of state.

4. Own Tax Revenue contributed only 45% of Revenue of states. Rest is in form of central grants or subsidies.

### Concern of debt sustainability

1. While fiscal deficit is rising state governments are :-
- reducing capital expenditure and increasing revenue expenditure
  - giving loan waivers to farmers
  - subsidizing unprofitable discoms in power sector
  - borrowing at market at higher rate of interest.
  - Neglecting property tax collection



which is only 0.5% of GDP.

Thus state ability to payback debt is compromised

• State government undertake  
Some positive aspects  $\frac{2}{3}$ rd of capital  
 expenditure in  
 India.

state employs 5 times more people  
 than union government.

Way forward

1. Create fiscal council to promote  
 fiscal sustainability in states  
 according to NK Singh.
2. Shift toward income support  
 from loan waivers by states.
3. Power sector reforms.

Union government should  
 continue Reform linked higher  
 borrowing limit (0.5% of GDP) for  
state government to improve their  
 finance.

12. The Indian experience provides several lessons of an inclusive digital economy model that enables formal digital governance structure at a low cost and with easier access. Discuss. (250 words) 15

भारतीय अनुभव एक समावेशी डिजिटल अर्थव्यवस्था मॉडल के कई सबक प्रदान करता है जो कम लागत पर और आसान पहुंच के साथ औपचारिक डिजिटल शासन संरचना को सक्षम बनाता है। विवेचना कीजिए।

An inclusive digital economy model digitises economy while simultaneously furthering digital inclusion and wider participation of people in digital economy.

Indian experience in digital economy

- 1) Innovations like Unified payment Interface (UPI), RTGS, NEFT.
- 2) Digital marketing firms like flipkart, shopsy etc.
- 3) Digitalisation of bank accounts through Aadhaar linkage are some examples.

## Lessons from Indian experience

1. Open sourcing of platforms like UPI leads to lower costs.

Eg Open Network for Digital Commerce (ONDC) could reduce costs in e-commerce.

2. Minimal government interference

— The NPCI provides only regulatory framework to UPI

3. Governance support to wider access to digital economy

— Opening Jan Dhan accounts

— Extending RuPay card payment scheme to poor strata of society.

4. Universalsing digital economy

— Extending digitalisation through

Bharatnet, PM-WANI.

— Improving digital literacy

through PMGDISHA.

5. Ensuring safety of economic

participants through measures like

two factor authentication etc.

This Indian model of digital economy is being followed

by institutions like Federal

Bank of United States.

13. Dairying is a viable livelihood option for a large section of the population. In this context, discuss the significance, challenges faced and associated government initiatives for the dairy sector in India. (250 words) 15

डेयरी व्यवसाय, आबादी के एक बड़े हिस्से के लिए आजीविका का एक व्यवहार्य विकल्प है। इस संदर्भ में, इसके महत्व, विद्यमान चुनौतियों और भारत में डेयरी क्षेत्र के लिए सरकार द्वारा की गयी पहलों की विवेचना कीजिए।

The dairy sector in India contributes one-fifth to agriculture GDP. India is the largest producer of milk in world.

Significance of dairy sector

1. Dairy along with livestock provides employment to 7 crore people.
2. Oxfam → women contributes 80% to dairy sector productivity.
3. Food processing industry based on milk under cooperatives like AMUL, PARAS etc. provide employment and income.
4. Export → dairy product contributes to agricultural exports.

5 Social Security net for poor farmers as dairy and livestock is consider bank on hooves.

### Challenges faced by Dairy Sector

- 1 Cheaper imports from New Zealand, Australia.
- 2 Declining productivity of indigenous breed.
- 3 Collection centres
  - Refriger vans are lacking
  - Cold storage are lacking
- 4 Broken value chains and absence of backward and forward linkage.
- 5 export issues
  - sanitary and phyto-sanitary issue
  - Technical barriers to trade.

### Government initiatives for dairy sector

- 1 National Dairy Development Board (NDDB).
- 2 Dairy Infrastructure Development fund (DIDF) for infrastructure.
- 3 Agriculture infrastructure fund worth ₹ 1,00,000 crore.
4. National livestock disease control programme  
 for livestock → artificial insemination of cows  
Rashtriya Gokul mission.
- 5 for milk processing industry  
 - PM formalisation of micro food enterprises.
- 6 for (Exports) → pulling out of RCEP  
 • Emphasis on quality certification.  
National Dairy mission  
 should be created to improve productivity, and competitiveness of dairy sector.

14. The imperative to increase farmers' income must shift to creating value chains and must not be reliant on the MSP regime and subsidy bias prevalent in the current Indian agricultural system. Examine.

(250 words) 15

किसानों की आय बढ़ाने की अनिवार्यता को मूल्य श्रृंखलाओं के सृजन से जोड़ा जाना चाहिए और इसे वर्तमान भारतीय कृषि प्रणाली में प्रचलित एम. एस. पी. व्यवस्था एवं पूर्वाग्रहयुक्त सब्सिडी पर कतई निर्भर नहीं होना चाहिए। परीक्षण कीजिए।

The Aphok Dalwai committee  
on doubling farmers income emphasized  
building a farm to fork value  
chain in agriculture.

### Problems in MSP Regime

1. Leads to monoculture of wheat and rice.
2. Helps only 5% of farmers according to Shanta Kumar committee
3. Leads to skewed cropping pattern like rice in Punjab.

### Subsidy bias in agriculture

1. fertiliser subsidy → leads to overuse of urea and environmental



problems.

2. power subsidy → leads to wastage of water and water pollution.

3. Subsidy through MSP leads to ~~to~~ decline in non compliance with World Trade Organisation.

Shift toward creating value chains

1. Improving input market

— New Seed Act leading to registration of seeds.

— allow genetically modified crops like Bt. Brinjal.

— Fertiliser manufacturing should be enhance. Integrated Plant

Nutrition Bill could reduce cost of fertiliser.

— Ineffective subsidies on fertiliser should be replaced with per hectare based income support.

## 2. Improve agricultural market

- MSP linked APMC should be reformed by reducing market fee.
- Contract farming, electronic trading through e-NAM etc would increase farmers income

3. Shift to value addition through farmers owned micro food processing industry, farmers producer Organisation would increase farmers income

4. Investment in Infrastructure like  
— Reefer vans, cold chain, modern storage etc. would help in agricultural exports.

Thus from the MSP linked subsidy regime India should shift to per hectare based income support regime.

15. What are the challenges in ensuring sustainable river management in urban areas? Highlight the remedial measures that can be taken for river management with a special focus on the recently launched River Cities Alliance. (250 words) 15

शहरी क्षेत्रों में संधारणीय नदी प्रबंधन को सुनिश्चित करने में कौन-सी चुनौतियाँ विद्यमान हैं? हाल ही में प्रारंभ रिवर सिटीज एलायंस पर विशेष ध्यान देते हुए नदी प्रबंधन के लिए किए जा सकने वाले उपचारात्मक उपायों को रेखांकित कीजिए।

### Sustainable River

Management entails freeing rivers from pollution and encroachments and maintaining the ecological flow of river.

#### Challenges in Sustainable River Management in Urban Areas

- 1) High pollution level. Eg Yamuna in Delhi.
- 2) Encroachment on River flood plain. Eg Ganga in Varanasi.
- 3) Encroachment on associated lakes and wetlands. Eg River Musi in Hyderabad.
- 4) Excessively drawing River water for urban water supply.

- 5) Dislocation of indigeneous communities associated with Rivers.
- 6) Absence of proper groundwater percolation due to concretisation of urban areas.

### River cities Alliance

- 1) Launched by Ministry of Jal Shakti. It aims to integrate river management related data and practices across cities like ~~Delhi~~ Delhi, Varanasi, Allahabad etc.

### Remedial measures for River management

- 1) Integrated River basin based management ~~also~~ across cities. Eg. linking all Ganga basin cities.
- 2) Emulating best practices like:-
  - Rain water harvesting
  - Creating water retention

architecture like palla lake in  
Delhi

— Implementing pollution related  
measures like closing polluting  
industries.

3) Monitoring ecological flow of  
river at all cities.

4) Monitoring amount of water  
withdrawn by cities to create  
Integrated <sup>River</sup> Water Management Plans,  
Water Budgets.

5) Involvement of local communities  
in urban river management and  
granting them rights over river.

These River Cities

Alliance would create a network  
of cities managing their shared  
river. This would lead to  
achievement of SDG-13 Sustainable  
Cities and communities.

16. Haphazard growth and poor management make the Indian cities the locus of disasters, both large and small. Comment. Also, discuss the current gaps in policies in addressing these challenges. (250 words) 15

अव्यवस्थित विकास तथा निम्न स्तरीय प्रबंधन ने बड़े और छोटे दोनों प्रकार के भारतीय शहरों को आपदाओं का केंद्र बना दिया है। टिप्पणी कीजिए। साथ ही, इन चुनौतियों का समाधान करने में नीतियों में विद्यमान वर्तमान अंतराल पर चर्चा कीजिए।

According to UNFPA, 50%

of Indian population would live in urban areas by 2050. This population is highly vulnerable to disasters.

Haphazard growth and poor management

— More than 50% of urban population is concentrated in five metropolis.

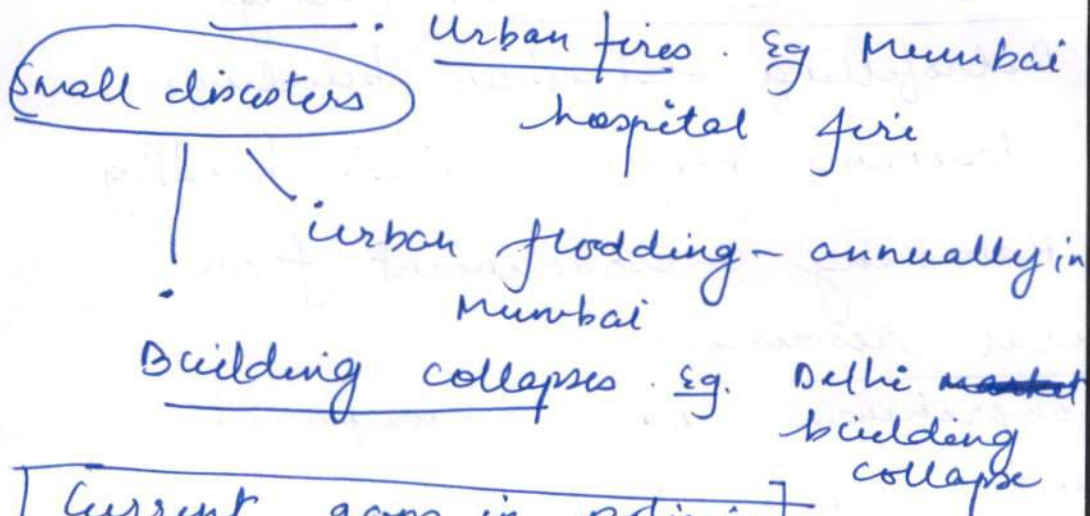
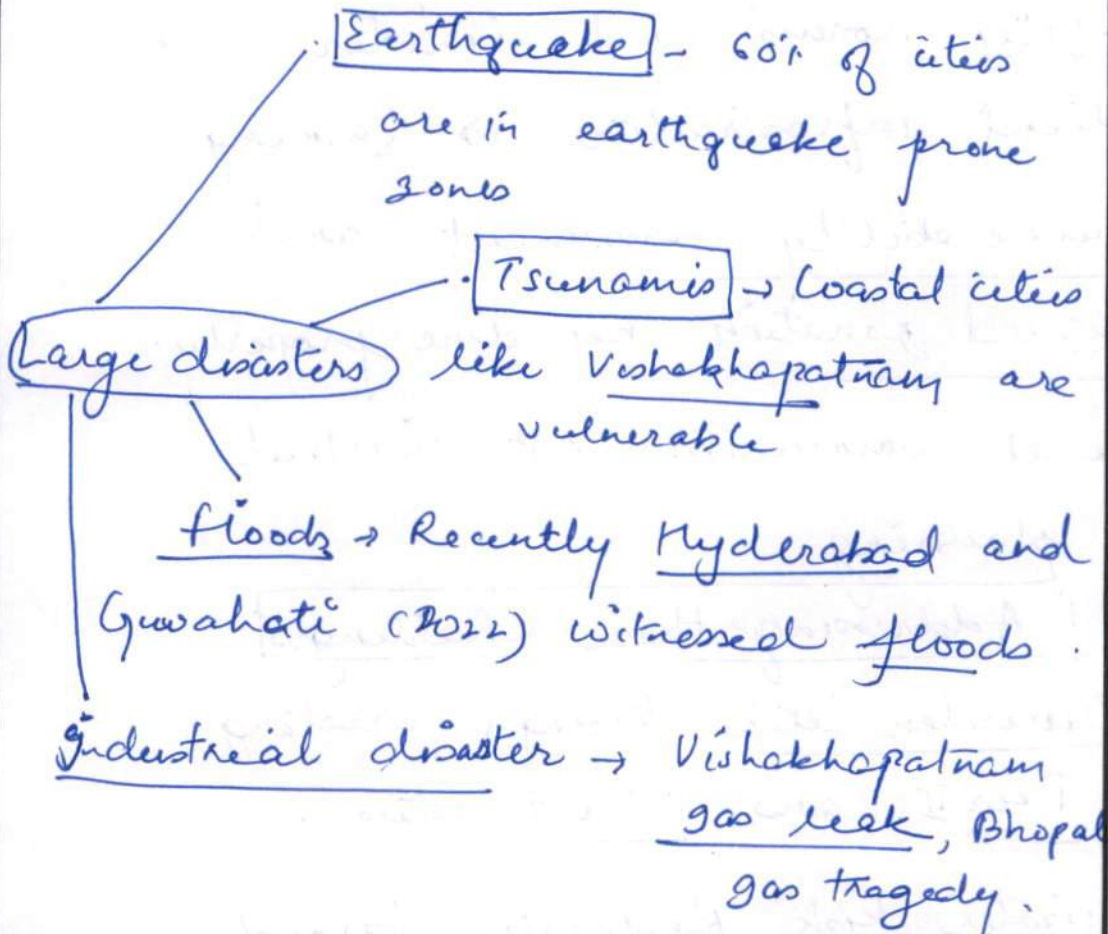
— Encroachment of natural resources like floodplains and wetlands by people.

— Cities have expanded to suburban areas without planning.

— Cities lack sound metropolitan planning committee or disaster

management bodies.

Cities become locus of disasters



Current gaps in policies

↳ Lack of dedicated city disaster

management plans.

2. Lack of compliance with the fire safety norms and disaster resilient infrastructure is lacking.

3. Vulnerability assessment and hazard zonation not done properly.

4. local communities not involved in planning.

### Addressing these Challenges

1. Deburden cities through creating Tier II and Tier III cities.

2. Disaster Risk Reduction through

- Retrofilling old urban buildings
- training people in disaster handling
- Removing encroachment from natural resources.

- Comprehensive disaster management plans.

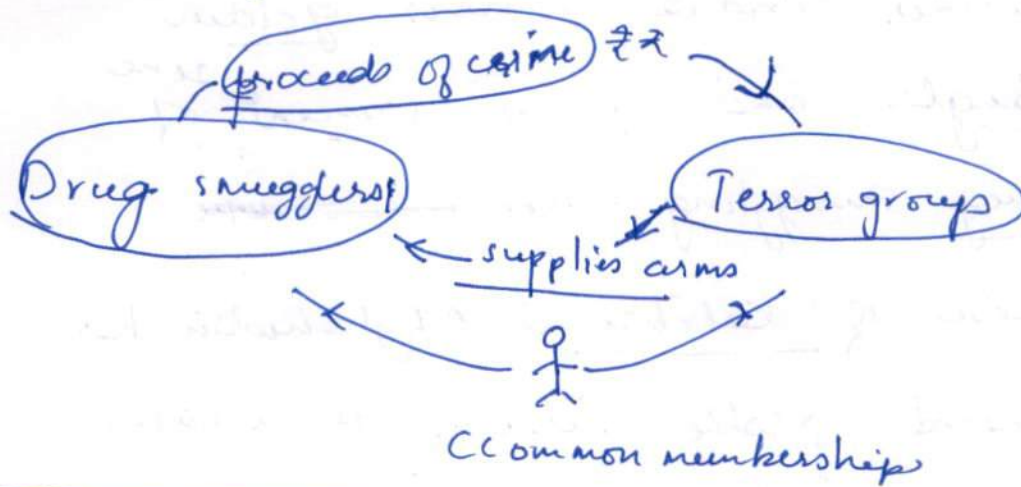
A National Urban Disaster Mitigating Authority (NUMA) must be created.



17. Discuss the extent of the problem of narco-terrorism in India. What measures have been taken by the government to counter and control this problem? (250 words) 15

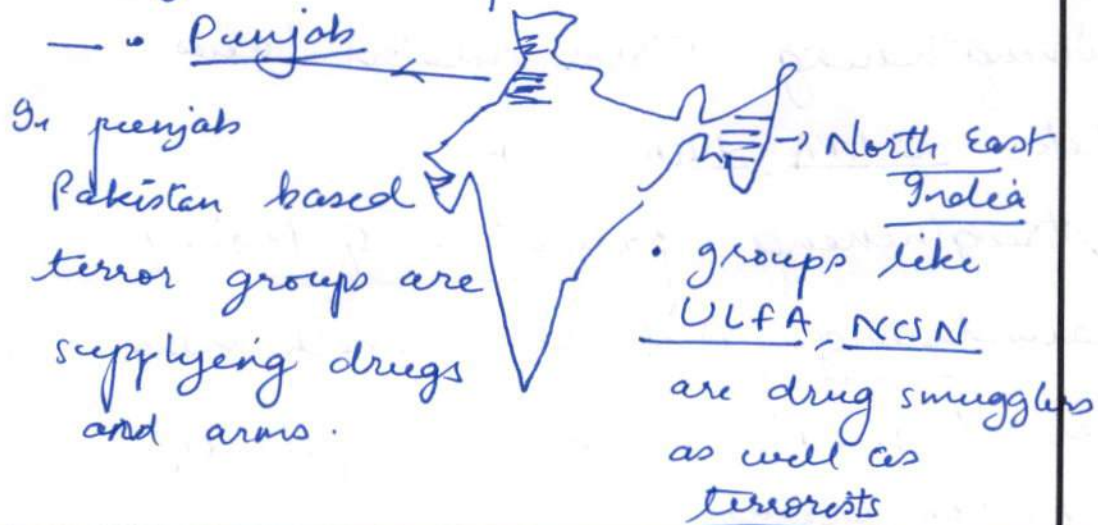
भारत में नार्को-आतंकवाद की समस्या के प्रसार पर चर्चा कीजिए। इस समस्या से निपटने और नियंत्रित करने के लिए सरकार द्वारा क्या उपाय किए गए हैं?

Narco terrorism is the close syndicate between narcotics smuggling and terror groups.



Extent of narco terrorism in India

1: High Intensity zone



- In other border areas like Gujarat, Rajasthan ~~etc.~~ is high intensity zone.
- 2. Significant drug haulage.  
Such as ₹ 30,000 crore drugs caught at Mundra port shows extent.
- 3. Further India is near golden triangle and golden crescent <sup>zone</sup> of drug smuggling. ~~hence is safe~~
- 4. Rise of Taliban in Afghanistan has increased problem. Taliban is a narco-terrorist organisation based on opium.

### Measures taken by government

- 1. Strengthening terror related laws like UAPA, NIA Act.
- 2. Strengthening prevention of Money laundering Act, 2002 which makes it difficult to use proceeds of narco crimes.

3. Border security forces and port authorities are seizing more contrabands

4. Steps for control of narcotics

- Narcotics and psychotropic substances Act, 1985
- Nasha Muket Bharat Abhiyaan
- National Action plan of Drug <sup>risk</sup> Reduction
- empowering Narcotics Control Bureau.

A National framework for designation and destruction of narco-terrorist groups is required.

18. The dark web can be an ideal platform for several criminal and terrorist activities. Discuss with examples. Also, suggest measures to tackle the misuse of dark web. (250 words) 15

डार्क वेब कई आपराधिक और आतंकवादी गतिविधियों के लिए एक आदर्श मंच हो सकता है। उदाहरण सहित चर्चा कीजिए। साथ ही, डार्क वेब के दुरुपयोग से निपटने के उपायों का सुझाव दीजिए।

Dark web is that part of web which cannot be accessed by ordinary search browsers like The Onion Ring (TOR).

Ideal platform for criminals and terrorists

- 1) Offers anonymity → eg. drug dealers anonymously sold drugs through TOR in USA.
- 2) Terror groups use dark web to
  - radicalise youth
  - creation of terror networks.
  - procuring arms and explosives through criminal groups.

- Laundering proceeds of crime
- 3. Criminals use dark web for
  - economic transactions
  - Cybercrimes like blackmailing,  
accessing and storing sensitive  
personal information.

Measures to tackle misuse of dark web

1. Train law enforcement agencies to access and analyse dark web.
2. Creating a pool of dark web specialists
3. International Cooperation through creating a mechanism to share information about dark web.
4. Generating awareness about

misuse of dark webs to stop  
cybercrime

5. Creating Dark web analytics  
cell (COWAC) under Ministry  
of Home affairs.

6. Dark web Crime Reporting  
portal to be opened for  
citizen.

7. Inclusion of dark web related  
knowledge in technical curriculum.

India should enact a  
new comprehensive National  
Cybersecurity Policy focussing on  
emerging issues like dark web.

19. What is catalysis? Highlight the characteristics of catalysts. Also, elaborate why catalytic reactions are important for human beings. (250 words) 15

उत्प्रेरण क्या है? उत्प्रेरकों की विशेषताओं पर प्रकाश डालिए। साथ ही, उदाहरण प्रस्तुत करते हुए समझाइए कि मानव के लिए उत्प्रेरकी अभिक्रियाएं क्यों महत्वपूर्ण हैं।

Catalysis is the process of significantly increasing the rate and speed of a chemical reaction. Eg Nickel as a catalyst increases rate of hydrogenation of vegetable oil.

### Characteristics of catalysts

- 1) They increase rate of reaction.
- 2) They themselves remain majorly unaffected. Sometimes catalysts are consumed during reaction.
- 3) They can be metals as well as non-metals.

4) They provide surfaces for chemical reaction.

Important catalytic reactions for human beings

1) Enzymes released by stomach, intestine etc catalyse the process of human digestion.

They are essential for breakdown of food and absorption of nutrition.

2) Catalytic reactions are essential for muscle contraction, fighting diseases.

3) Plant catalysts like molybdenum, zinc are essential for



food security in humans.

4) Industrial catalytic process  
like ~~the~~ Von-Haber process  
for production of ammonia is  
essential for economic development.

Hence catalysis plays  
a remarkable role in physical and  
economic development in humans.

20. Electric mobility offers solutions to the problems associated with climate change, growing fuel prices, and urban transportation issues. Discuss in the context of India. (250 words) 15

इलेक्ट्रिक मोबिलिटी जलवायु परिवर्तन, ईंधन की बढ़ती कीमतों और शहरी परिवहन के मुद्दों से जुड़ी समस्याओं का समाधान प्रदान करती है। भारत के संदर्भ में चर्चा कीजिए।

Electric mobility is the use of electricity fuelled or hybrid vehicles for transportation. NITI Aayog consider e-mobility essential for achieving Paris goals.

Electric mobility: solution to climate change

1. Reduces greenhouse gas emission as transport sector contributes 20% to to emission.
2. Decreases fuel consumption through greater efficiency.
3. Reduces air pollution as NO<sub>x</sub>, SO<sub>2</sub>, CO pollution decreases

Solution to growing fuel price

1. Import of oil and gas would decrease in India, improving Current Account Deficit.

2. As demand decreases price of oil and gas would come down.

3. Cheaper mode of transport would reduce overall inflation in economy.

Solution to urban transportation issue

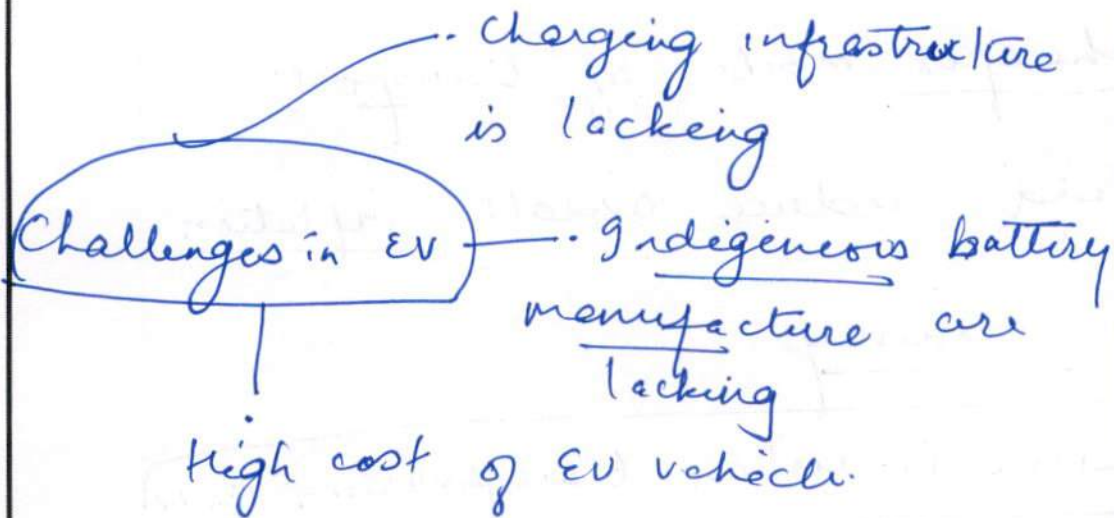
1. Non polluting public transport system. E.g. Delhi - EV Buses.

2. Improved pollution standards of Indian vehicles.

3. Restrictive schemes like Odd-Even in Delhi would not

be needed.

4. Reduced cost of vehicle  
and fuel would help  
poorer strata of society to own  
vehicles.



NITI Aayog should  
enhance allocation of funds under  
National transformative e-vehicle  
mobility project and FAME-II  
scheme.