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GENERAL STUDIES (TEST CODE : 1515)

Name of Candidate	GAMINI singla	
Medium Eng./Hindi	English	Registration Number
Center		Date 28th Dec, 2021.

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INSTRUCTIONS

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

Total Marks Obtained:

Remarks:

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, विभागों 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 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 मुख पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में दिए 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 किसी छोटा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

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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. Explain the meaning of off-budget borrowings and its role in helping the government raise funds for various expenditures. Also, comment on its desirability. (150 words) 10

बजट-बाहरी उधार (ऑफ-बजट बॉरोइंग्स) का अर्थ स्पष्ट कीजिए और विभिन्न व्ययों के लिए धन जुटाने में सरकार की सहायता करने में इसकी भूमिका का उल्लेख कीजिए। साथ ही, इसकी वांछनीयता पर टिप्पणी कीजिए।

off budget borrowings refer to sources of revenue, which are not mentioned in the annual financial statement.

eg borrowings by food corporation of India - a government agency

Role in helping Government

- Extra sources of funding
- Enhances the revenue for meeting public expenditure needs
- Government needs not to give any explanation
- No answerability to the parliament about utility → decreases burden on Government

Desirability of off budget borrowing

These borrowings have been condemned:

- 1) Lack of transparency - no disbursement of information to public
- 2) Violates the principle of accountability by hiding from Government
- 3) Non included while calculating fiscal deficit : wrong sense of accomplishment
- 4) A bubble of false numbers harmful for economy.

Recent steps by Government to include the off budget borrowings such as by food corporation are highly appreciable.

Government must abide by 15th finance commission recommendations to eliminate off budget borrowings in near future.

2. It is argued that genetically modified food crops are required to ensure food security of India. Examine in view of concerns regarding introduction of GM crops. (150 words) 10

यह तर्क दिया जाता है कि भारत की खाद्य सुरक्षा सुनिश्चित करने के लिए आनुवंशिक रूप से संशोधित खाद्य फसलों की आवश्यकता है। जी.एम. फसलों की शुरुआत से संबंधित चिंताओं के आलोक में परीक्षण कीजिए।

Genetically modified food crops are the crops whose genes are scientifically edited to produce desired properties.

In India, Genetic Engineering and Appraisal committee grants permission for such crops. eg GM cotton is allowed.

GM crops → food security

- 1) Increase in crop yield eg GM cotton.
- 2) Decreased vulnerability to pest attacks
- 3) Desired micronutrients can be availed eg Golden rice such in Vitamin A
↓
Decrease in malnutrition and deal with hidden hunger

4) Climate resilience of these crops

Issues and concerns

- 1) Lack of adequate research and impact assessment on ecology
- 2) Might lead to superweeds - which are resistant to all the pesticides
- 3) Costly crops → unaffordability by small and marginal farmers
- 4) Might harm the human body.
→ Effects on health yet not known
- 5) Ethical issues - as genetic modifications against natural growth
- 6) Illegal cultivation - eg GM Bt brinjal in Maharashtra
eg: Reports from France of GM rice in Indian exports.

India must heavily invest in research on GM crops, coordinate with other countries and permit the cultivation only after detailed studies.

3. India's price intervention policies to support its agricultural sector not only create a broken system but also complicate matters related to international trade rules. Critically discuss. (150 words) 10

अपने कृषि क्षेत्र का समर्थन करने के लिए भारत की मूल्य हस्तक्षेप नीतियां न केवल एक अप्रभावी व्यवस्था का निर्माण करती हैं बल्कि अंतर्राष्ट्रीय व्यापार नियमों से संबंधित मामलों को भी जटिल बनाती हैं। समालोचनात्मक विवेचना कीजिए।

India has subsidised the agriculture sector through various price intervention policies like Minimum support price, Essential commodities Act, 1955 etc.

Create a broken system

- 1) Disincentivizes the private investment in agriculture because storage above a limit not allowed
- 2) Prevents the functioning of demand-supply cycle
- 3) Inefficient schemes eg MSP-biased towards wheat and rice
 ↓
Land alienation
- 4) Unbalanced regional development
 → No proper procurement structure in North Eastern area

Complications regarding international trade rules

- 1) India's interventions → opposed by developed countries in WTO.
- 2) Against the "subsidies and countervailing" measures of WTO
- 3) India at subordinate position — when talks on agriculture subsidies are held
- 4) Erosion of confidence in discussions due to non compliances

India's stand

- 1) with high poverty → it is essential
- 2) Demands for permanent solutions to Bali Agreement and Agreement on Agriculture measures

India must collaborate with other developing nations to strengthen its position in WTO and meanwhile restructure internal systems to comply with norms

4. India has an opportunity to become a leading global food supplier provided it has an efficient supply chain and the right marketing strategies. (150 words) 10
Elucidate.

भारत के पास एक अग्रणी वैश्विक खाद्य आपूर्तिकर्ता बनने का अवसर है बशर्ते उसके पास एक कुशल आपूर्ति शृंखला और सही विपणन रणनीति हो। विशदीकरण कीजिए।

After green revolution in 1960s,
India has emerged as a

food sufficient nation. It is even
the largest exporter of rice in
the world.

Opportunity to become leading supplier

- * Large land area → fit for cultivation
- * Largest producer of millet
and one of the largest in cereals.
- * Availability of huge manpower
- * Adequate geo-physical, climatic conditions

Challenges

- a) In supply chain
- Lack of transportation
facilities
 - Lack of storage
infrastructure

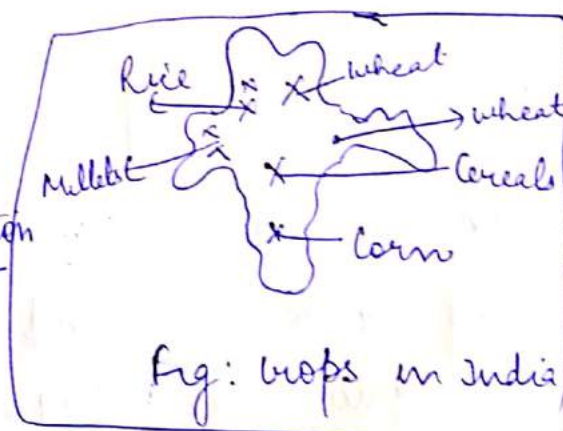
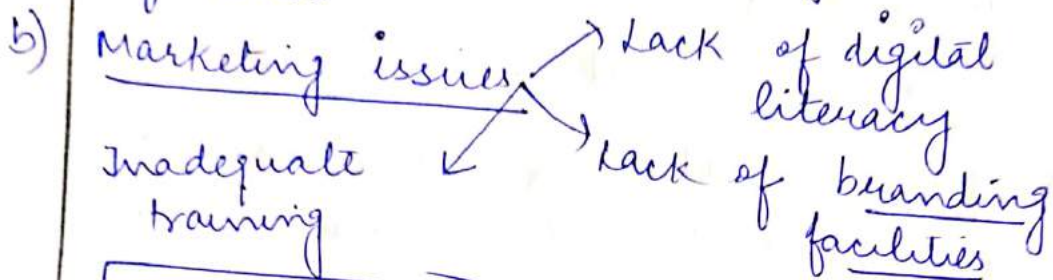


Fig: crops in India

- Lack of private sector investments in food processing structures
- Inadequate capital availability with farmers



Need of the hour

- Efficient supply chains
- Storage infra
eg cold storage, sorting, grading units
- Food processing initiatives like SAMPADA
- Transport facilities
eg road, rail connectivity
- Right marketing strategies
- Leverage e-commerce practices
- Right packaging for exports
- Skilling and training for exporters

Such initiatives can help in achieving goal of 100bn\$ exports as per the Agriculture Export Policy

5. Land banks are increasingly gaining prominence in India to encourage land-use efficiency and enable economic growth. In this context, discuss the benefits of a land bank and state the concerns associated with it.

(150 words) 10

भूमि उपयोग दक्षता को प्रोत्साहित करने और आर्थिक वृद्धि को सक्षम बनाने के लिए भूमि बैंक भारत में तेजी से प्रमुखता प्राप्त कर रही हैं। इस संदर्भ में, भूमि बैंक के लाभों तथा इसमें संबंधित चिंताओं का उल्लेख कीजिए।

Land banks refer to the banks, where lands can be bought and sold easily.

Benefits of land bank

- Helpful in solving land acquisition issues
- Updation of land records will become easy
- Easier monitoring against benami land transactions
- Facilitating role of technology

These are novel ideas in the current economic structure.

Concerns associated with it

- Limited to certain areas only
- Lack of awareness among rural landholders
- forceful signing on land acquisition

way forward

- Research on impact assessments
- Leverage technology
eg PM-SWAMITVA programming
using GIS system
- Enhance its awareness among rural areas.

Land Banks can help in
increasing ease of doing business
in India

6. Desertification has been described as one of the greatest environmental challenges of our time and climate change is making it worse. Discuss.
(150 words) 10

मरुस्थलीकरण को वर्तमान समय की सबसे बड़ी पर्यावरणीय चुनौतियों में से एक के रूप में वर्णित किया गया है तथा जलवायु परिवर्तन इसे और बदतर बना रहा है। चर्चा कीजिए।

Desertification refers to the increased aridity and degradation of soil, and expansion of desert areas
eg: Enhanced desertification in Aravallis, India

Greatest challenges of our time

- Rendering land unfit for cultivation
- Loss of habitat of biodiversity
- Prone to soil erosion
eg Expansion of Sahara desert southwards
- Land degradation → Land becoming a source of climate change
as per IPCC - Land and Land uses report on ↑

Climate change making it worse

- 1) Enhanced global temperature
→ loss of soil moisture



2) Land-prone to natural disasters like flood, draughts

3) Indiscriminate deforestation

In India, as per Land Desertification and Degradation Atlas, 97 million hectares of land i.e. 29.7% of area undergoing desertification.

Steps that must be taken

- 1) Shelter belts to stop the expansions eg African green wall
- 2) Afforestation activities
- 3) Land desertification mapping - using satellites to get a right picture
- 4) Inter-country collaboration through UN convention to combat Desertification

The countries must strive to achieve the targets of Bonn challenge and Land Degradation Neutrality by 2030 to mitigate the effects of climate change.

7. In the context of intellectual property rights, discuss the advantages and disadvantages of releasing projects under an 'Open Source' license.
(150 words) 10

बौद्धिक संपदा अधिकारों के संदर्भ में, 'ओपन सोर्स' लाइसेंस के तहत परियोजनाओं को जारी करने के लाभ और हानियों पर चर्चा कीजिए।

Intellectual property rights refer to the rights over the creation of one's minds and innovations emanating from them.

Open source licenses are the license through which one can access a diversity of patented informations. India is working towards - "One Nation, One licence" to access global articles

Advantages of releasing projects under it

- Widen the reach of projects
- Increase accessibility to youth
- Help in overall literacy and supple effect on further innovations
- In coherence with the principle of

Scientific social responsibility

Disadvantages

- Reduction in profits of innovators
- Misuse of articles and information to create destructive products
- Reduce incentives for innovations and patents
- Might lead to reduction in the filing of patents
- Discourage enthusiastic startups, professors as their remunerations will be curtailed

Open source license can lead to much needed decentralization of availability of good, state of the art projects information. The interests of creators and public must be balanced.

8. "Indian space sector has been dominated by a single umbrella of government and government institutions." In light of the statement, discuss the significance of Indian Space Association in providing an impetus to space technology in India. (150 words) 10

"भारतीय अंतरिक्ष क्षेत्र पर सरकार की एकमात्र संस्था का प्रभुत्व रहा है।" इस कथन के आलोक में, भारत में अंतरिक्ष प्रौद्योगिकी को प्रोत्साहन प्रदान करने में भारतीय अंतरिक्ष संघ के महत्व की विवेचना कीजिए।

Since the inception of Indian space Research Organisation in 1969, it has dominated the space ~~bed~~ missions.

Significance of Indian Space Association

- Give a boost to private sector participation in space sector
- Enhance collaboration of ISRO and public private sector;
- Facilitate the transfer of technology from ISRO
- Private sector can help via
 - a) Creating spare parts for ISRO missions
 - b) Small satellites launches

c) Space Tourism sector, as US's private companies led by Elon Musk are contributing

→ Overarching regulator to balance the availability of funds, technology to public and private sector

Impetus to space technology

- Encouraging research and expenditure by private sector
- Make Indian space sector competitive
- Generation of jobs in space sector
- Scientific mindset and spirit of inquiry → as per fundamental duties under Article 51-A

Government must also hastily pass the Space Activities Bill, to settle issues of insurance against failures and give statutory backing.

9. Man and machine both have an important role in national security and making urban areas secure. In this context, discuss how technology is a major stakeholder in addressing the internal security challenges of India. (150 words) 10

राष्ट्रीय सुरक्षा और शहरी क्षेत्रों को सुरक्षित बनाने में मानव और मशीन दोनों की महत्वपूर्ण भूमिका है। इस संदर्भ में, चर्चा कीजिए कि प्रौद्योगिकी किस प्रकार भारत की आंतरिक सुरक्षा चुनौतियों में निपटने में एक प्रमुख हितधारक है।

Technology via assisting mankind
can play a very important
role, especially with emergence of
Fourth Industrial Revolution

Technology as a major stakeholder

- 1) Use of Drones in difficult terrains
eg: in dealing with Naxalism,
- 2) Use of geographic information
systems, satellites to track down
locations of insurgents, blasts, IEDs
- 3) Intelligence : Technology can help in
a robust intelligence and
surveillance system

eg smart borders to control insurgency
in north east.

- 4) use of navigation systems, to access the geographically inaccessible areas
- 5) Artificial intelligence
 - To predict the large scale attacks
 - facial recognition technologies
- 6) Robotic missiles, weapons in front area
 - to avoid loss of lives of police officials as in recent Sukma attacks

Challenges

- 1) Lack of connectivity and internet connections in hilly areas
- 2) costly and time consuming
- 3) Lack of skilled man force
- 4) Ethical issues - on burden of responsibility of any errors
 - Lack of human touch and consideration of emotions while decision making

N. Chandrasekhar committee

Recommendations of on use of technology by armed forces can be used implemented.

10. National Security Guard (NSG) has emerged as a formidable force equipped to handle various manifestations of terrorism. Discuss the mandate and achievements of this force. (150 words) 10

राष्ट्रीय सुरक्षा गार्ड (NSG) एक पराक्रमी बल के रूप में उभरा है जो आतंकवाद के विभिन्न रूपों से निपटने के लिए सुसज्जित है। इस बल के अधिदेश और उपलब्धियों की विवेचना कीजिए।

National security guard is a specialised force, formed in 1984 post Indira Gandhi's assassination.

Mandate of this force

→ Deal with acts terrorism activities

First to respond in case of terror attacks

Trained in anti terror warfare

eg Mumbai Attacks, 2008

→ Deal with internal security threats

* Crowd control

* Riots control → dispersal of protestors

→ Security to dignitaries

eg deployment in sensitive locations

- Disaster management exercises
 - Rescue operations
 - Relief operations by commandoes

Achievements

- Role during Mumbai attacks 2008
highly appreciated
- Kedarnath floods, rescue of victims
- Anti CAA riots in Delhi and North East

Challenges

Lack of equipments

New types of warfarers
Not well trained eg cyber threats.

Vacancies and insufficient number.

Government must strive to make NSGs suitable for the changing kind of threats

11. What do you understand by asset monetisation? Why is it needed in India? In this context, discuss the issues that need to be addressed for the National Monetisation Pipeline to succeed. (250 words) 15

परिमपति मुदीकरण से आप क्या समझते हैं? भारत में इसकी आवश्यकता क्यों है? इस संदर्भ में, उन मुद्दों पर चर्चा कीजिए जिन्हें राष्ट्रीय मुदीकरण पाइपलाइन के सफल होने के लिए समाधान करने की आवश्यकता है।

Asset Monetisation refers to the conversion of tangible assets into monetary form, via conversion to cash through asset sale or lease.

eg. leasing of unused Government buildings, to get monthly rents.

Need for it in India

* Many unutilised assets
→ depreciation cost to be borne
bared by Government

* Expanding fiscal deficit due to covid-19 led economic slowdown

→ Need of new sources of revenue

* Twin problems

lack of infrastructure
and
problems of
land
acquisition

wastage or
non utilisation of
existing assets
eg closed government
school buildings
can be used
for gram sabha
meetings

* Need to monitor the records
of the assets

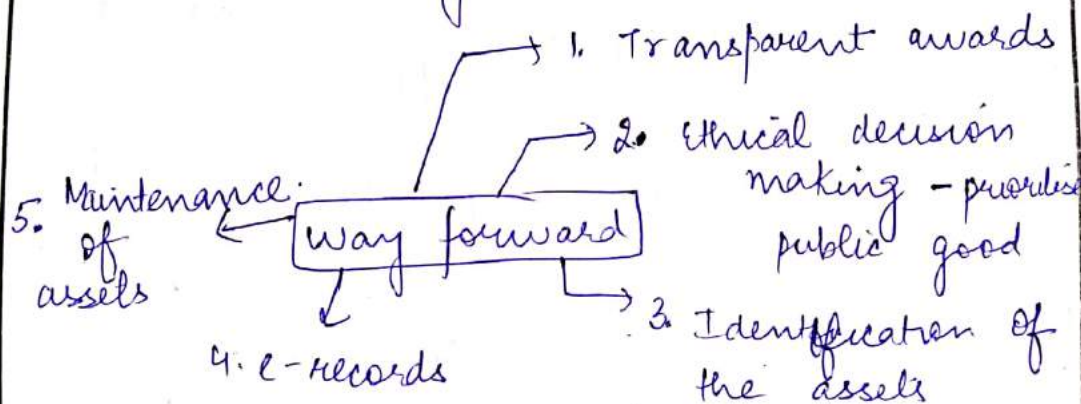
Issues in context of National Monetisation Pipeline

The pipeline

- To monetise the brownfield assets
- Make the assets remunerative
- ~~Make~~ Facilitate proper usage of the assets
- Enhance the revenue of Government

Issues

- * Lack of proper records on ownership of assets
- * Settle at an appropriate cost after auctions
- * Nepotism and favouritism while awarding assets
- * Time-consuming process
- * Bureaucratic hurdles → red tapism while clearing



If implemented and executed properly, National Monetisation pipeline can give an fillip to public expenditure and facilitate counter-cyclic fiscal policy - as Economic survey 2020-21 asks

12. What is social stock exchange (SSE)? Discuss the need for setting up of SSEs and key challenges in their effective implementation. (250 words) 15

सोशल स्टॉक एक्चेंज (SSE) क्या है? SSEs की स्थापना की आवश्यकता और उनके प्रभावी कार्यान्वयन में विद्यमान प्रमुख चुनौतियों पर चर्चा कीजिए।

Social stock exchange refers to a specialised exchange, facilitating the trading of securities of companies, engaged in social services. Services like women empowerment, elderly care, child care, non-profit organisations

eg. Ideaforge company using technology to minimise social differences

Need for setting up of SSEs

Jayati Sinivas committee has pointed out towards the huge potential in the sector. Needs are

* To make easy funds available to such sectors

* To encourage startups and social service enterprises

- * Keep a check on unfair trading practices by such services
- * Platform for making public aware of the social enterprises
- * Innovative funding ideas
eg. social bonds
- * Encourage the habit of thrift and inclusion of small investors in financial sector

Key challenges in effective implementation

- * Novel India Idea :- Till now no such exchange occurs
- * Lack of appropriate experience in this field
- * Costly to establish a new exchange → cost the exchequer immensely

- * Listing of companies on exchange requires a lot of information disbursement → huge cost and burden on company disincorporates
- * Returns on investments are lesser as compared to other enterprises listed on Bombay / National stock exchange.

Disincorporates profit oriented investors

Way forward

- * Learn from global experiences and ~~to~~ collaborate with countries like USA, Japan
- * Ease of doing business through electricity supply, interest subventions to promote social sector

Government must implement Injeet Sainivas committee recommendations timely, to give a boost to the sector

13. In the context of India, highlight the importance of agriculture extension. What are the challenges faced in provisioning of agriculture extension services? How does the National Mission on Agricultural Extension & Technology (NMAET) address these issues? (250 words) 15

भारत के संदर्भ में, कृषि विस्तार के महत्व पर प्रकाश डालिए। कृषि विस्तार सेवाओं के प्रावधान में सामना की जाने वाली चुनौतियां कौन-सी हैं? कृषि विस्तार और प्रौद्योगिकी पर राष्ट्रीय मिशन (NMAET) इन मुद्दों का कैसे समाधान करता है?

Agriculture extension refers to the disbursal of right information knowledge about right farming practices and technology availability to farmers

eg - lab to land programme

Bio-tech KISAN scheme to encourage scientist-farmer collaboration

Challenges faced in provisioning of agriculture extension services

- 1) Illiteracy among farmers, leads to mistrust ~~and~~
- 2) less conducive to innovations, ~~also~~ holding on to age-old practices → dogmatism and lack of

- 3) rationalisation
Language barriers : lack of services
and explanations in native language
eg in tribal areas
- 4) Digital divide
↳ ^{Many} farmers don't have access to
internet / smartphones
≈ 36% internet penetration - as per
Indian Mobile Association
↳ only 4% rural households have
computers - NSSO - Household consumption
survey
- 5) Lack of Capital availability to avail
services
↳ costly and unaffordable technologies
- 6) Lack of expenditure on research
and development [≈ 0.65% of GDP only
- Economic Survey 2020-21]
- 7) Lack of subsidised input availability
and not easily available
eg rotavators, harrow seeders not easily
available even if farmers know about them

National Mission on Aquaculture Extension and Technology

Part of the overall - Parampragat Kushi
Vikas Yojna

Addresses the issues by:

- 1) Encouraging the research on sustainable farming practices
eg - draught resistant paddy variety - Pokkali
- 2) Subsidised technology to farmers
eg soil health card scheme, smartphones
- 3) Institutional arrangement to make aware
eg Kushi Vigyan Kendras to share information
- 4) Innovative schemes like
[Livestock forewarning app - for diseases
[Kisan suvidha portal

Digital literacy through PM
Skill Kaushal Vikas Yojna is a
must. Aquaculture extension services
will play a huge role in
"Doubling of farmers income by 2022"

14. Clearly delineate the employment problem that India currently faces. Also, explain the fundamental reasons behind existence of this problem. (250 words) 15

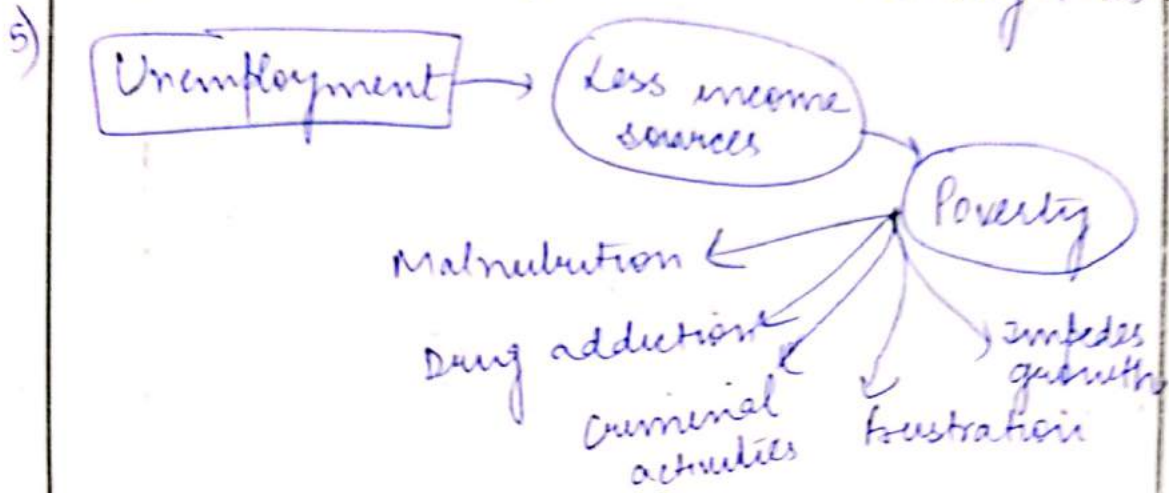
भारत वर्तमान समय में जिस 'रोजगार समस्या' का सामना कर रहा है, उसे स्पष्ट रूप में निरूपित कीजिए। साथ ही, इस समस्या के अस्तित्व के मूल कारणों की व्याख्या कीजिए।

India currently faces is passing through demographic dividend stage as per UN Fund for population activities 62.5% of Indian population is within 15-59 years of age. But, huge unemployment as per PLFS survey 2019-20 is a hurdle in proper utilisation.

Employment problem that India faces

- 1) Lack of employment opportunities in rural areas → migration
- 2) under-employment and disguised employment - eg in farming sector
- 3) Demand-supply gap in skilling
eg: As per India Skills Report, 2020 only 45.9% of graduates are employable.

- 4) Lack of female labour force participation eg. $\approx 20\%$ as per IFS survey 19-20



Fundamental reasons behind existence

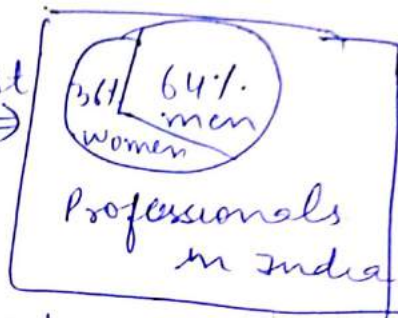
- 1) Huge population and less resources
→ India only 2.4% of global area but 16% of world's population
- 2) Lack of good quality education
eg. ASER survey - 2nd and 5th class
Students lack basic reading and mathematical skills
- 3) Lack of public expenditure on health ($\approx 1\%$ of GDP $\Rightarrow$ rather than goal of 2.5% National Health policy)
Unproductive and inefficient workforce

4) Shift from agriculture to services sector - India skipped the large scale manufacturing stage - which is job creating sector
versus services → more capital intensive

5) Gender inequality

→ As per India Skills Report
→ Patriarchal notions

Glass ceiling → Pink collarisation → Lack of opportunities



Need of the hour

1) Right skilling through vocational training
eg Kaushal Vikas yojna

2) Huge public expenditure on job creating sectors eg textiles, gems, jewellery, infrastructure

3) Implementation of schemes like MGNREGA

4) Urban employment guarantee schemes

Adequate employment opportunities are essential to achieve the goal of 5 trillion \$ economy by 2025.

15. Although steps have been taken for integrating the dispersed logistics activities of maritime trade much more needs to be done to make India a maritime powerhouse. Discuss. (250 words) 15

हालांकि समुद्री व्यापार की बिखंडित लॉजिस्टिक गतिविधियों को एकीकृत करने के लिए विभिन्न कदम उठाए गए हैं, फिर भी भारत को एक समुद्री पावरहाउस बनाने के लिए और भी बहुत कुछ किए जाने की आवश्यकता है। चर्चा कीजिए।

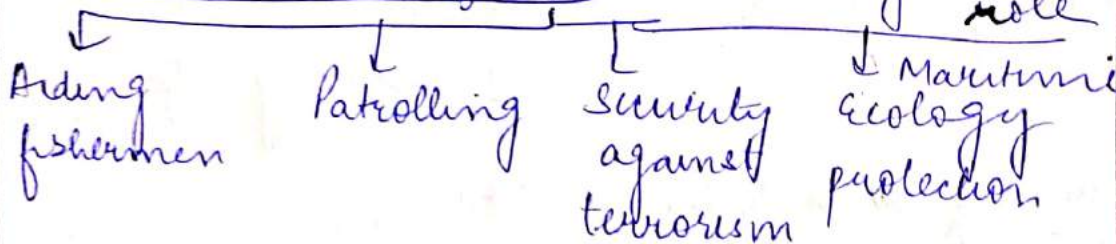
India has a huge coastline of 7517 km, thus a huge potential to become a maritime powerhouse. India's central location within Indo-Pacific presents huge opportunities.

Steps for integrating dispersed logistics

- 1) National Maritime Information Fusion Centre - Gurgaon

→ To integrate all information through coastal radar chains, ship sensors, white shipping agreements.

- 2) Specialised agencies like Indian Coast Guard with integrated role



- 3) Sagarmala initiative - for connectivity through port developments, road, rails in coastal areas
- 4) continuing talks over Maritime Triservice command.
- 5) Vision SAGAR - security and growth for All in the Region → enhanced co-operation with maritime neighbours

More needs to be done

- 1) Vulnerability to trafficking eg human and drugs trafficking through seas
- 2) India lacks state of art shipping vessels and ports
- 3) Inadequate sea lines of communication
- 4) Security threats
 - Assertive role of China - string of pearls
 - ↓
 - piracy in Indian Ocean
 - Maritime terrorism

5) Prone to maritime disasters
eg increased frequency of cyclones
like recent FANI wreaked havoc
→ coastal flooding due to sea level
rise

6) Inadequate capacity to utilise huge
base of maritime resources
of natural gas, oil, metallic nodules

Way forward

- 1) Increased skills and capacity building
to in disaster management
- 2) Leverage technology like satellites
to strengthen security arrangements
- 3) Completion of targets under Sagarmala
timely
- 4) Enhance nuclear submarine capacity for
deterrence
- 5) Increase expenditure on research and
development in maritime exploration.

India must leverage the Quad
grouping to emerge as a leader
in the maritime sector.

16. Accounting for natural capital and ecosystem services is crucial to understand the link between the economy and environment. Discuss with specific references to India's initiatives in this regard. (250 words) 15

अर्थव्यवस्था और पर्यावरण के मध्य संबंध को समझने के लिए प्राकृतिक पूंजी और पारिस्थितिकी तंत्र सेवाओं के लिए लेखांकन महत्वपूर्ण है। इस संबंध में भारत द्वारा की गयी पहलों के विशिष्ट संदर्भ के साथ चर्चा कीजिए।

Natural capital and ecosystem services refer to the quantification in monetary terms of the natural resources like forests, rivers, wetlands and services like good quality air, soil for farming.

India's initiatives in this regard

Recently, India made public the results of 'National accounting survey on natural capital and ecosystem services'; i.e.

- India adopted the global standards laid out by UNEP
- Analysis of monetary value of such services

Link between economy and environment

Environmental services provide a huge boost to economy - ~~is~~

- 1) Raw materials availability - eg wood, pulp for paper, furs for processing
- 2) Energy sources
eg solar, wind energy; coal to generate electricity
- 3) Provisioning services by forests → food availability
- 4) Regulation services to regulate climate
→ formation of rainfall through transpiration
↓
Irrigation to crops
→ Soil formation → base for all agricultural activities
- 5) Habitat for biodiversity
→ eg Rajasthan deserts habitat for Great Indian Bustard;
Terai-are for Indian rhino

Benefits of accounting of services

- 1) Generates awareness about it's benefits
 - 2) Deterrence towards unsustainable practices
eg extensive deforestation leading to land degradation
 - 3) Psychological change → mindset change towards ecology
 - 4) Better utilisation of natural capital
 - 5) Boost to the protection activities
3. Urban forest eg Pune wape → 1. Green India Mission
4. National solar mission → Other initiatives of India → 2. Eight National Missions on Climate Change
5. SATAT for biofuel

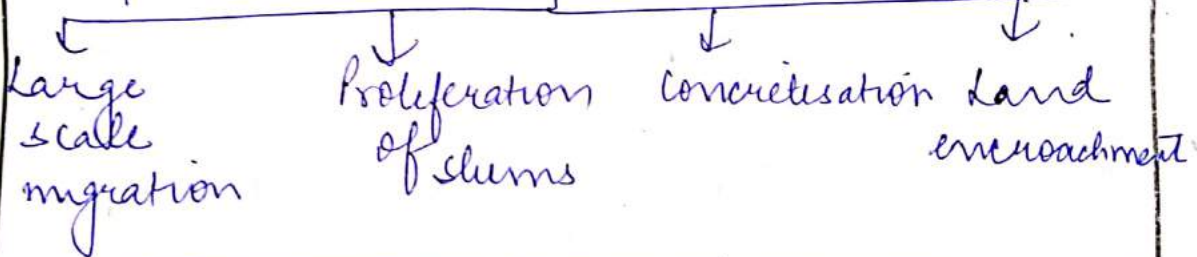
Understanding the importance of natural capital and ecosystem services is essential to value them and achieve sustainable development goals by 2030.

17. Rapid and unplanned urbanisation accompanied by population growth have increased both the risk and impact of natural disasters. Discuss the statement along with adequate measures to address the relevant concerns in India. (250 words) 15

जनसंख्या वृद्धि के साथ-साथ तीव्र और अनियोजित शहरीकरण ने प्राकृतिक आपदाओं के जोखिम और प्रभाव दोनों को बढ़ा दिया है। भारत में विद्यमान प्रासंगिक चिंताओं के निवारण हेतु यथाचित उपायों के साथ इस कथन की व्याख्या कीजिए।

As per 2011 census, 30% of Indians reside in urban area, with number likely to increase to 40% by 2040 - as per world population prospects report

Rapid and unplanned urbanisation



Increased risk of natural disasters

- 1) Clearing land for buildings
 - Urban heat island effect
 - indoor pollution
 - prone to Earthquakes, in seismically vulnerable areas
- 2) Encroaching land from wetlands and inadequate drainage systems

→ Enhanced risk of water logging and floods
eg Chennai and Hyderabad floods

- 3) Rapid concretisation → lack of natural aquifers
- 4) Urbanisation in hilly areas eg railways through hills → prone to landslides
eg western ghats
- 5) Slums - hot bed of bacteria, virus
↓
risk of epidemics like malaria, dengue, Kala-azar

Increased impact of natural disaster

- 1) High population density → easy spread
eg covid-19 claimed large no. of lives
- 2) Compact places → unavailability for escaping facilities
- 3) Lightning related deaths increasing
- 4) Uneasy to rehabilitate large population post disasters like cyclones, Tsunamis

Adequate measures to address concerns

1. Planned urbanisation eg via AMRUT mission
 - ↓ Proper drainage system
 - ↓ Green spaces
 - ↓ Environment Impact Assessment
 - ↓ Shelter belts
2. Leverage technology - eg smart city mission
 - ↙ To construct climate resilient houses
 - ↘ Global Housing Technology Challenge
3. Early warning systems eg INFLows for floods
4. Increased awareness among public and strengthen urban local bodies to take timely actions
5. Sponge cities construction - as in China

It is essential to safeguard lives and livelihoods threatened by natural disasters. India must strive to achieve SDG goal 6 - Clean energy and sanitation and Goal 11 on sustainable cities

18. [National Hydrogen Mission] can be a game changer for India's rising energy demands. Comment. (250 words) 15

भारत की बढ़ती ऊर्जा मांगों के लिए राष्ट्रीय हाइड्रोजन मिशन एक गेम चेंजर हो सकता है। टिप्पणी कीजिए।

In the recent budget of 2020, Government planned to launch a National Hydrogen mission to give a boost to clean energy.

Rising energy demands

As per International Energy Agency, India's energy demand will double by 2030 due to

- Rising population
- Enhanced urbanisation
- Developmental goals

Need electricity supply

↓
Cooling
→ fans, aircons etc.

Infrastructure needs, need energy

→ Hydropower etc.

Transportation and connectivity

⇓
Need for energy to run vehicle

National Hydrogen Mission - game changerBenefits of Hydrogen:

- 1) Clean source of energy - minimise the release of pollutants on burning
- 2) Affordable - less costly as compared to coal, petrol etc.
- 3) Easy availability of the gas sources
- 4) Good results when implemented in Delhi
- 5) Alternative source of energy amidst threats of depleting coal sources.

Government initiative will

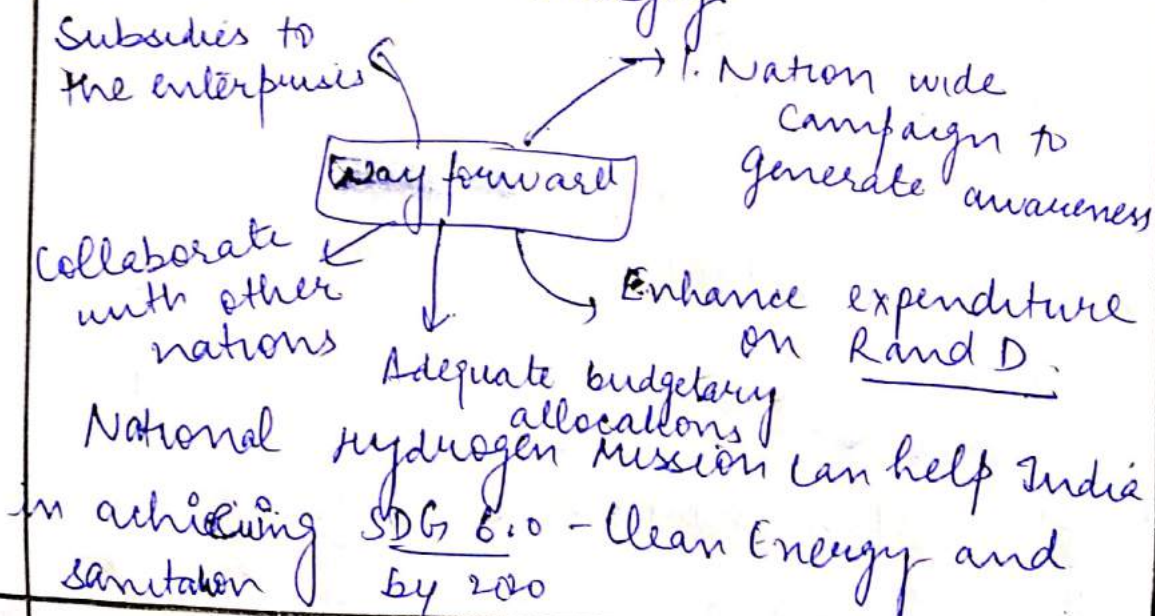
- To provide funds for infrastructure
- To give a boost to sector overall
- Enhance employment opportunities
↓
job creation
- Reduced dependency on imports of oil thus lessening India's huge

trade deficit.

- Steps towards "Atmanirbhar Bharat" by being self reliant in meeting energy demands.

Challenges

- Lack of skilled manpower in India
- Hydrogen is an inflammable gas
- Lack of technology availability
eg H₂O conversion to Hydrogen
- 60% of energy demands still met by coal → difficult to generate a large scale shift towards renewable energy



19. Despite geo-strategic instability of its region and a keen awareness of the cyber threat it faces, India has made only 'modest progress' in developing its policy and doctrine for cyberspace security. Critically examine.

(250 words) 15

अपने क्षेत्र की भू-रणनीतिक अस्थिरता और इसके समक्ष विद्यमान साइबर खतरों के संयोज में व्यापक जागरूकता के बावजूद, भारत ने साइबरसम सुरक्षा के लिए अपनी नीति और सिद्धान्त विकसित करने में केवल 'साधारण प्रगति' की है। समालोचनात्मक परीक्षण कीजिए।

India has second largest number of mobile phone subscribers and internet users after China - increasing its vulnerability to cyber attacks -

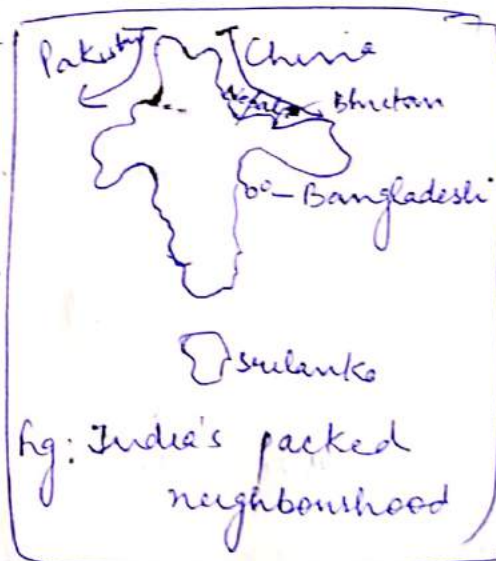
Geo-strategic instability of region

→ Vulnerability to attacks from Pakistan and China

→ Possession of state of the art technology with China

→ Reports of China led "Shadowpad" and Red Echo attacks on Indian power systems

→ Terrorist outfits having expertise in cyber attacks eg recruitment of hackers in



ISIS, Taliban

Awareness of cyber threat

Increasing
e-governance
initiatives

Eg Aadhar,
UPI
payments

Enhanced
digital
dependency

Eg DTrack
malware
attack in
Kudankulam
nuclear
plants

Huge quantities
of
data prone
to attack

Eg: ransomware
attacks on
hospitals during
Covid-19

Cyber security doctrine and initiatives

1) Institutional
capacity

→ CERT-IN - Ministry of
electronics
→ National Critical core
informational technology
centre
→ N/Cyber co-ordination
centre - under
Home affairs

2) National cyber security coordinator

3) Cyber swachhta Kendra

These

1. Carry out research
2. Detection of attacks
3. Regulation of complaints

[Only modest progress yet]

1. Lack of intelligence infrastructure
eg Red Echo attack - ^{studied} only after USA reports
- 2.) Prone to surveillance activities and
lack of transparency eg Pegasus attack
on journalists
- 3) Lack of co-ordination among different
departments
- 4) Inadequate skilling in handling
cyber threats
- 5) No data protection law as of
now
- 6) Lack of expenditure on research and
development
- 7) Inadequate funding allocations

India must prioritise right to privacy - a fundamental right of
citizens - Puttaswamy judgement. A data
protection Act - as per BN Sureshna
Committee recommendations is the
need of hour

20. Developmental interventions alone cannot play a defining role in the resolution of existing and protracted internal conflicts in various parts of India within a reasonable time frame. Discuss. (250 words) 15

भारत के विभिन्न हिस्सों में व्याप्त और दीर्घकाल से जारी आंतरिक संघर्षों को उचित समय सीमा के भीतर हल करने में केवल विकासवादी हस्तक्षेप एक निर्णायक भूमिका नहीं निभा सकते हैं। चर्चा कीजिए।

India with a diverse population and geographical diversity, faces different threats in different regions.

Various internal conflicts

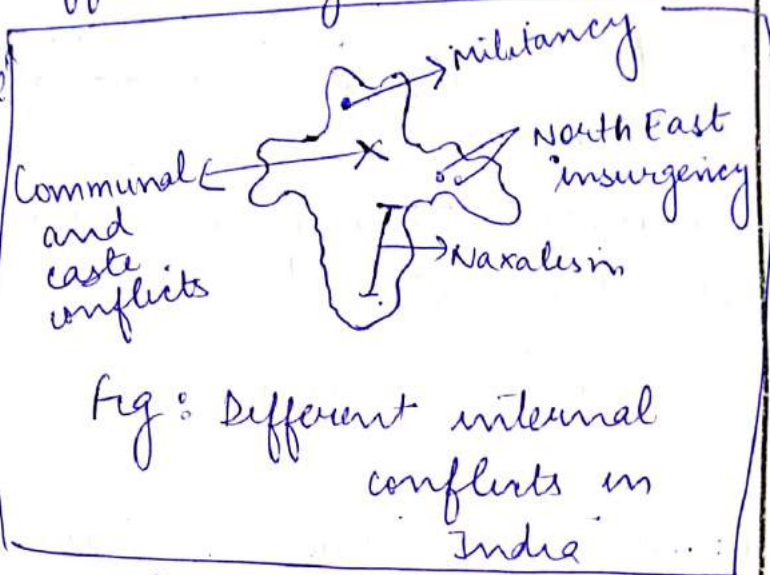
→ Threat to security

* Naxalism in Jharkhand, Odisha etc.

* North Eastern insurgency

* Secessionist movements in Jammu Kashmir

* Caste based conflicts and religious
eg Bhunia, Koregaon riots,
Muzaffargarh riots,
Anti CAA Delhi protests



→ Parallel Government

Development alone not sufficient

* Time consuming and long term policy.

eg decades of education and skilling
will lead to elimination of hostility

* Conflicts occur despite developmental initiatives

eg abolishment of untouchability - Article 17

↓
continued instances eg recent gang
rape in UP.

* Vestige self interests of few sections
who incite violence

* Resistance to development activities
in fringe Maoist areas

eg using blasts, IEDs against Government
officials

Need of the hour: a coherent policy

→ Development along with
adequate use of force is needed
eg SAMADHAN initiative against Naxalism

- 2) Increased deterrence via speedy adjudications and timely punishments
- 3) Use of technology eg drones, satellites for surveillance
- 4) ^{choke} ~~cut~~ the sources of funding through enhanced surveillance
- 5) Trained manpower and specialised forces eg Greyhounds, Operation Green Hunt
- 6) Anti-insurgency operations eg Operation Sunrise with Myanmar army

Developmental activities cannot be ignored

→ Schemes like ROSHNI for fringe areas, USTAAD for minorities, Stand Up India to eliminate inequalities are also essential.

Government needs a multi-dimensional approach and proper balancing of actions to eliminate internal conflicts and ensure peace and stability.