

## GENERAL STUDIES

Name Of Candidate	Anoushka Sharma		
Roll No.	1910103516	Date:	04/08/22

Time Allowed: Three Hours

Maximum Marks: 250

INDEX TABLE			INSTRUCTION	
Q. No.	Max. Marks	Marks Obtained	1. Please do furnish Name, Email, Roll No and Mobile in the answer sheet.	
1			2. There are TWENTY questions printed in ENGLISH & HINDI, all questions are compulsory.	
2			3. The number of marks carried by a question/part is indicated against it.	
3			4. 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.	
4			5. Word limit in questions, if specified, should be adhered to. Any page or portion of the page left blank in the Question-Cum Answer Booklet must be clearly Struck off.	
5			<i>Any specific messages for ForumIAS Mentors/Evaluators with respect to your copy? Write it here.</i>	
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<b>Total:</b>	<b>250</b>			
<b>Evaluator's Discretion:</b>			<b>For Student Only</b>	
			<b>Start Time</b>   11:10 am	<b>End Time</b>   2:15 pm
<b>Total Marks:</b>			<b>Mode Of Examination:</b>	Online <input checked="" type="checkbox"/> Offline <input type="checkbox"/>
<b>Evaluator's Discretion:</b> This is the marks awarded at the discretion of the evaluator based on your overall impression, on the basis of (but not limited to) your handwriting, presentation, use of diagrams, flowcharts, facts and figures or absolutely anything that he/she liked in your copy.			<b>For Office Use Only</b>	
			<b>ECN CODE:</b>	<b>EG:</b>
			<b>Evaluation Date:</b>	

**Note:** You can discuss your evaluated copy with the Mentor. Raise a ticket from your portal to schedule a mentor call or visit the offline centre to meet mentor (all 7 days, Timings - 11 AM to 6 PM). Further if you are unsatisfied with the evaluation, you can seek re-evaluation of the copy.

Parameters	Excellent	Very Good	Good	Average	Poor	Very Poor
Language						
Structure						
Presentation						
Handwriting						
Content						
Attempt						

**ADDITIONAL REMARKS**



**Q.1)** Employment problems of rural and urban areas differ in nature, but their solutions are interdependent and interrelated. Analyze. (10 marks, 150 words)

ग्रामीण और शहरी क्षेत्रों की रोजगार समस्याएं प्रकृति में भिन्न हैं, लेकिन उनके समाधान अन्योन्याश्रित और परस्पर संबंधित हैं। विश्लेषण कीजिए। (10 अंक, 150 शब्द)

According to the recent unemployment statistics for the month of July, unemployment has reached its lowest level for the first time in six months.

Employment has been a key issue to help in growth of a nation.

## \* Employment Problems

- Rural
- ① disguised unemployment in agriculture.
  - ② informal economy → agriculture hires 90% of the informal workers.
  - ③ feminization of agriculture → 80% of women in labour force.
  - ④ migration has reduced entrepreneurship in rural areas.

- Urban
- ① low female labour force participation ~ 20%
  - ② loss of jobs due to automation  
↳ Ex - industries using machines
  - ③ low job creation in formal economy.
  - ④ lack of urban working scheme on lines of MGNREGA.

\* Solutions for employment

1. Skill enhancement of workers

- ↳ through reskilling and upskilling of workers.
- ↳ through Pradhan Mantri Kaushal Vikas Yojana.
- ↳ through private sector participation.
  - ↳ Internet Sakhi.

2. Urban working scheme to provide jobs to urban youth.

3. Promote entrepreneurship through schemes such as STAND UP INDIA, etc.

4. Filling vacancies in government sector.

Therefore, employment is crucial to help India achieve the goal of inclusive growth as well as the target of \$5 Trillion economy.

**Feedback**

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Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

Q.2) Imported inflation is compounding the challenges of post-pandemic recovery for the Indian economy. Discuss. (10 marks, 150 words)

आयातित मुद्रास्फीति भारतीय अर्थव्यवस्था के लिए महामारी के बाद की पुनर्बहाली की चुनौतियों को बढ़ा रही है। चर्चा कीजिए। (10 अंक, 150 शब्द)

Inflation has cooled down from the highs of 12% - WPI and 8% - CPI in April-May. But it still remains a crucial challenge for policy makers.

### \* Imported Inflation

1. Due to Russia-Ukraine war, the crude oil supplies have been hit.
2. Russia is a key exporter of diamonds, which are processed in India. Its supply has reduced.
3. The volatility has made rupee depreciate against dollar.
4. Increase in global food prices due to wheat stocks exports declining.

### \* Impact Post-Pandemic Recovery

1. Reduced purchasing power of the rupee has made imports expensive.

2. Inflation in the economy has impacted demand for goods, especially the poor.
3. Shortages of key energy constituents like coal, oil, etc
4. Impact exporters as competitiveness increases but due to bans, the exports decline.
5. Increase current account deficit for India.

Therefore, going ahead, we can utilize surplus for foreign transactions to make it appreciate. Also we should continue to import oil from Russia at concessional rate. These steps are crucial to help get the economy back on track of recovery.

**Feedback**

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Structure/ Presentation	
Question Interpretation	
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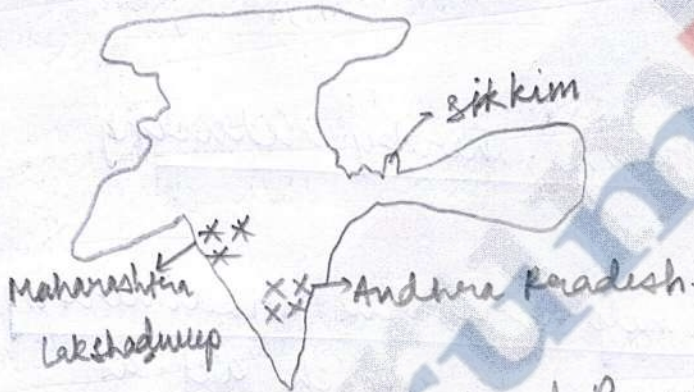


Q.3) What do you understand by natural farming? How can it help in building climate resilient agriculture? (10 marks, 150 words)

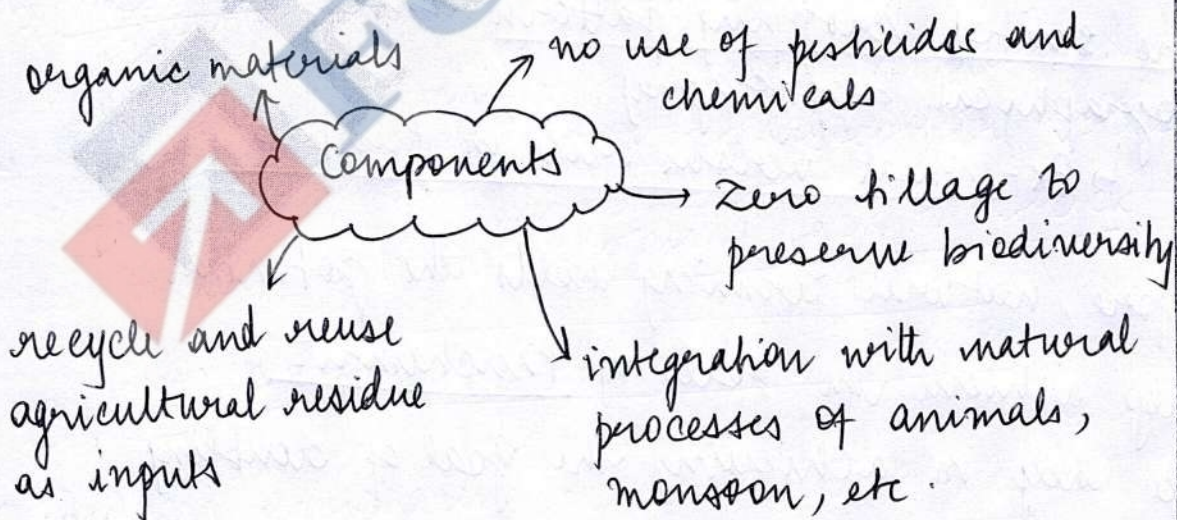
प्राकृतिक खेती से आप क्या समझते हैं? यह जलवायु अनुकूल कृषि के निर्माण में कैसे मदद कर सकती है?

(10 अंक, 150 शब्द)

Natural farming refers to conducting agricultural activities through chemical free and sustainable methods. An example is Zero Budget Natural Farming.



\* Areas where natural farming has been adopted.



## \* Help in building Climate Resilient Agriculture

1. Reduce the exploitation of groundwater  
↳ virtual water trade through wheats
2. Reduce pollution of the soil due to pesticides overuse.  
↳ N:P:K ideal ratio is 4:2:1 but the actual ratio is 10:3:1.
3. Preserve the vegetation, thereby reducing runoff.
4. Zero tillage will help preserve biodiversity such as earthworms, etc which act as detritivores.
5. More suited cropping pattern based on geographical topography.  
↳ Ex - wheat versus rice in Punjab.

Therefore, natural farming holds the potential to help achieve the goals of Panchamrit while help in achieving the goal of doubling farmer's incomes.

### Feedback

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Structure/ Presentation
Question Interpretation
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Value Addition
Total

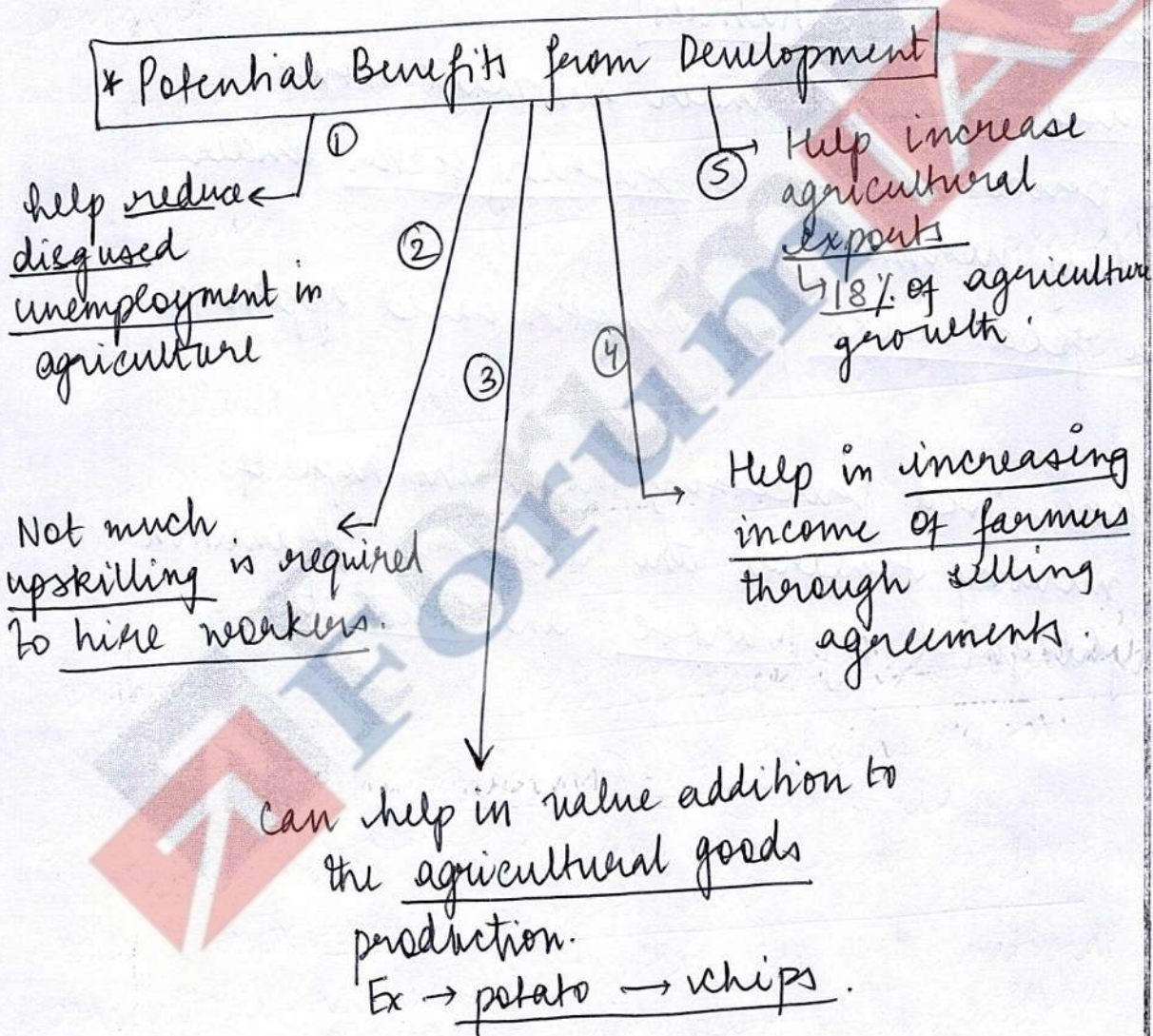




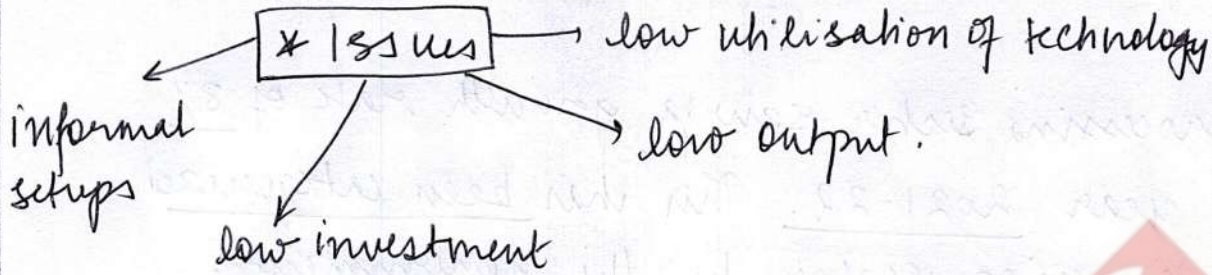
Q.4) Food Processing sector must be developed as one of the principal industries in the country for reasons that go beyond agriculture. Elucidate. (10 marks, 150 words)

खाद्य प्रसंस्करण क्षेत्र को देश के प्राथमिक उद्योगों में से एक के रूप में उन कारणों से विकसित किया जाना चाहिए जोकि कृषि से परे हैं। स्पष्ट कीजिए। (10 अंक, 150 शब्द)

Food processing sector saw a growth rate of 8% in the year 2021-22. This has been categorized as a sunrise sector by the government.



But despite the benefits, certain issues exist which hinder development.



**Government Initiatives**

1. Increased FDI limit under automatic route.
2. Food processing as a priority sector under lending norms.
3. Mega food parks for cluster based approach.

Therefore, food processing holds the hope of India moving towards the industrial transition as highlighted by Nurkse and Kuznet.

**Feedback**

(For OFFICE use only)

<b>Structure/ Presentation</b>
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Q.5) Space based technologies are helpful in not only monitoring development, but also enhancing it. Discuss. (10 marks, 150 words)

अंतरिक्ष आधारित प्रौद्योगिकियां न केवल विकास की निगरानी करने में सहायक हैं, बल्कि इसे बढ़ाने में भी सहायक हैं। चर्चा कीजिए। (10 अंक, 150 शब्द)

India's ISRO has recently stated that the second project of Gaganyaan will take flight before 75 years of Independence are completed. Space based technologies have developed with various manned and unmanned missions.

\* Helpful in monitoring development

1. Geotagging can be monitored through the Satellites to help track progress.

↳ Ex - GeoNREGA.

2. Help in evaluation of forest and tree cover to help take stock of nature.

↳ FSI surveys.

3. Help in enhancing disasters to help preserve infrastructure and save lives.

4. Help in tracking of trains, trucks, etc to help in supply chain management.

\* Enhancing development

1. Utilisation of NAVIC services by fishermen to help increase catches of fish.
2. Utilisation of BHUVAN portal to help understand geography and make plans accordingly.
3. Utilisation of Space based internet to help reach even remote areas where telecom infrastructure cannot reach.  
↳ Ex - Starlink Network.
4. Help in land record management to have accurate and timely records.

Therefore, Space based technologies need to be developed further through private participation through ISA, New Space India Limited as well as international collaboration.

**Feedback**

(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



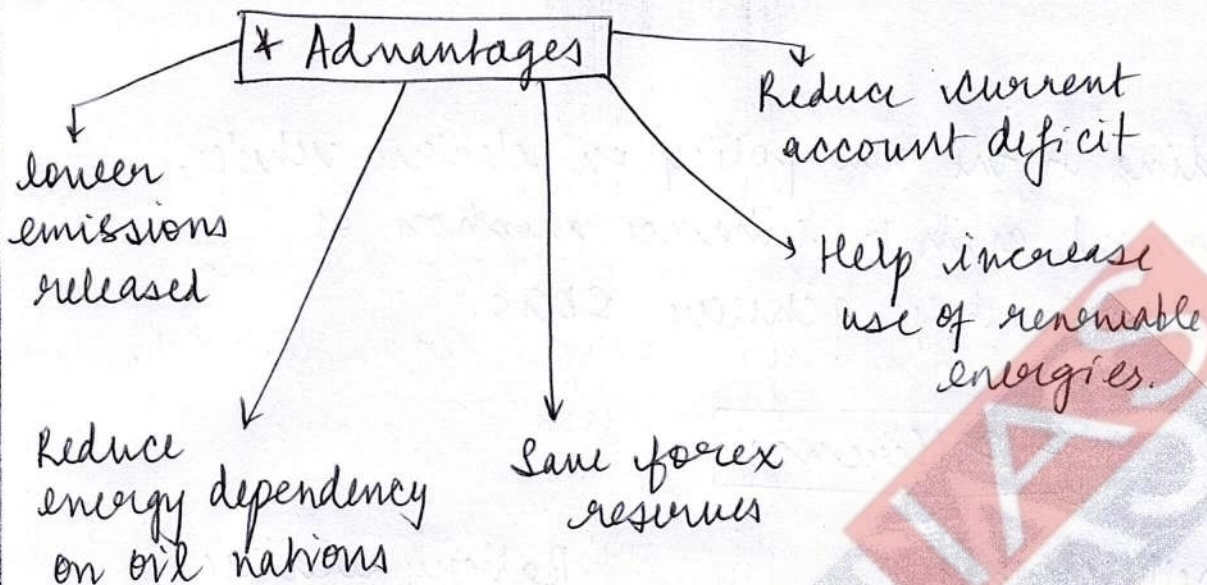
**Q.6)** How are fuel cell electric vehicle (FCEV) different from battery electric vehicle (BEV)? Highlighting advantages of electric vehicles, suggest measures for accelerating e-mobility adoption in the country. (10 marks, 150 words)

ईंधन सेल इलेक्ट्रिक वाहन (FCEV) बैटरी इलेक्ट्रिक वाहन (BEV) से कैसे भिन्न हैं? इलेक्ट्रिक वाहनों के लाभों पर प्रकाश डालते हुए, देश में ई-मोबिलिटी अपनाने में तेजी लाने के उपाय सुझाएं। (10 अंक, 150 शब्द)

According to the new policy on electric vehicles, government aims to enhance adoption of e-vehicles to help achieve SDGs.

### \* Differences

Fuel cell electric vehicle	Battery electric vehicle
→ Needs fuel for usage	→ Based on lithium ion battery
→ needs fuel and charging both.	→ needs frequent charging
→ need slight modification in design	→ need new infrastructure for design
→ higher life cycle	→ lower life cycle
→ higher ease of use	→ higher replacement costs



**\* Measures for Adoption**

1. Incentives such as tax sops.
2. Infrastructure development through developing charging stations, etc.
3. Initial handholding for knowledge sharing and cost sharing.
4. Increased awareness

Therefore, EV adoption provides avenues for us to achieve self reliance and goals under Paris Climate deal.

**Feedback**

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Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

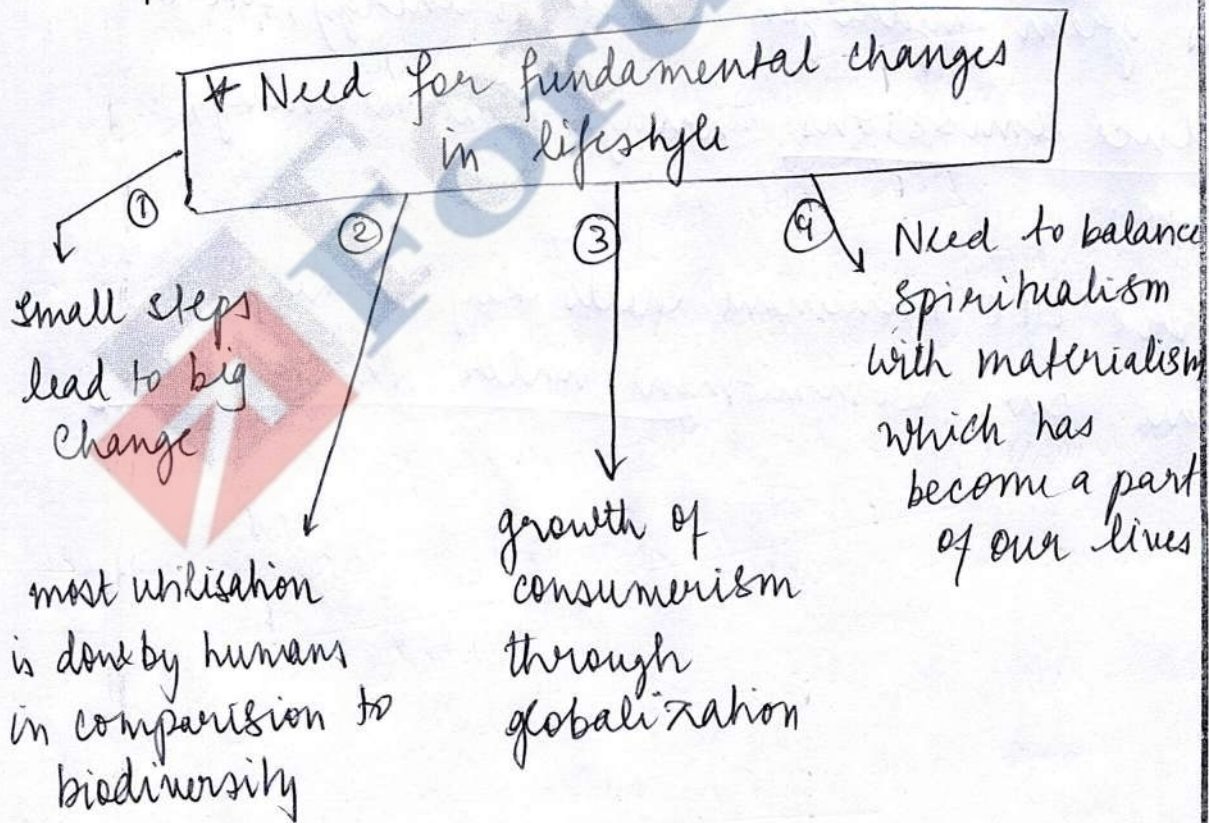


**Q.7)** Ensuring sustainable consumption and production patterns for an environmentally conscious world is not possible without fundamental changes in lifestyle. Discuss this statement in light of Lifestyle for the Environment (LiFE) Movement. (10 marks, 150 words)

जीवन शैली में मूलभूत परिवर्तन लाए बिना पर्यावरण के प्रति जागरूक दुनिया के लिए सतत उपभोग और उत्पादन पैटर्न सुनिश्चित करना संभव नहीं है। पर्यावरण के लिए जीवन शैली (LiFE) आंदोलन के आलोक में इस कथन की चर्चा कीजिए। (10 अंक, 150 शब्द)

Environment is crucial for peaceful living as has been highlighted by the SC in making it a part of Article 21.

Lifestyle for environment movement focusing on lifestyle consumption, spending and behaviours for helping achieve sustainable development.



## \* Changes in consumption and production patterns

1. Need to use resources such as water, air efficiently  
↳ smog towers in factories
2. Consumption patterns need to shift  
wheat, rice → millets  
plastic → cloth.
3. Production using innovative technologies such as green hydrogen, waste to energy, etc.
4. Reduce emissions through coal minning, etc.

Therefore LIFE movement holds key to help achieve our commitment under 'Panchamrit'.

### Feedback

(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



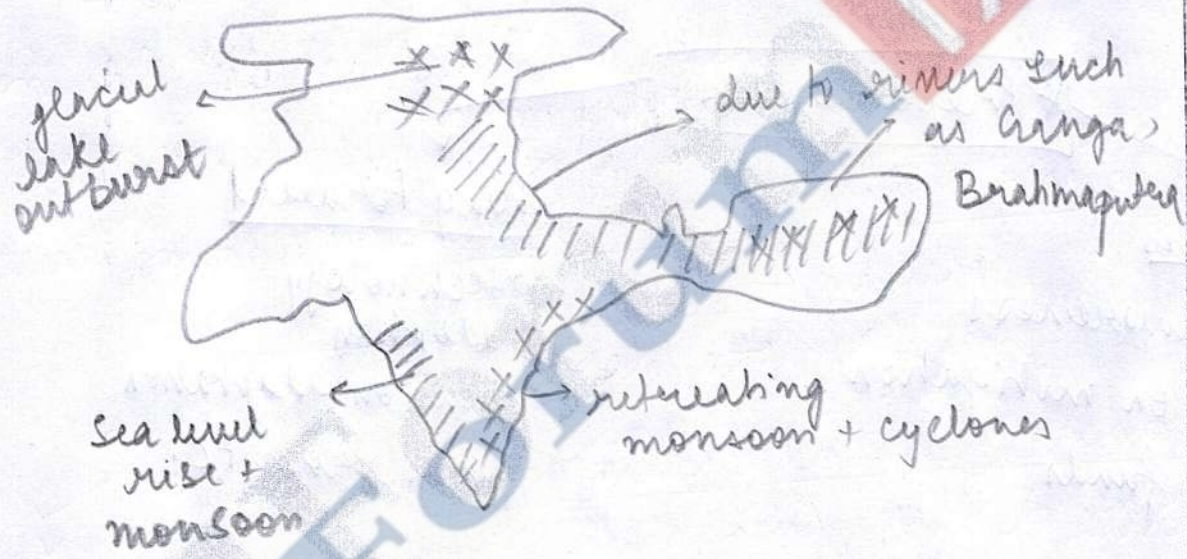


Q.8) Managing risks, rather than impacts, lies at the core of effective disaster management strategy. In light of this statement, describe the flood risk profile of India and evaluate preparedness for effective flood management. (10 marks, 150 words)

प्रभावों के बजाय जोखिमों का प्रबंधन, प्रभावी आपदा प्रबंधन रणनीति के मूल में निहित है। इस कथन के आलोक में, भारत के बाढ़ जोखिम प्रोफाइल का वर्णन करें और प्रभावी बाढ़ प्रबंधन के लिए तैयारियों का मूल्यांकन करें। (10 अंक, 150 शब्द)

Floods refer to the overflow of water based on carrying capacity of the water channels.  
Recently, India saw floods in Kerala.

### \* Risk Profile



### \* Managing risks.

1. Need advance warning systems such as IFLOWS Mumbai
2. Need water channels free from plastics to help in less water logging. Ex-2006

mumbai floods due to Clogged Mithi river

3. Need water bodies for holding water

↳ Bangalore's flood vulnerability increased due to reclamation.

4. Need safety infrastructure such as safe houses, food supplies, etc.

**\* Preparedness**

Issues

- low awareness
- focus on mitigation
- low funds

Way Forward

- technology adoption
- focus on adaptation
- funds from FC.

Therefore, as climate change becomes a reality, India needs to implement Sendai framework for better response.

**Feedback**

(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.9) Discuss the salient features of Agnipath scheme. Underlining the benefits of the scheme, mention ways to overcome associated challenges. (10 marks, 150 words)

अग्निपथ योजना की मुख्य विशेषताओं की चर्चा कीजिए। योजना के लाभों को रेखांकित करते हुए, संबंधित चुनौतियों को दूर करने के तरीकों का उल्लेख करें। (10 अंक, 150 शब्द)

The government has recently come up with the Agnipath scheme which is based on 'Tour of duty' scheme.

## \* Salient Features

1. Age group of 18-23 years.
2. Recruitment for 4 years.
3. Only 25% of recruits will be taken under permanent commission.
4. Rest of the people after retirement will get ₹ 12.5 lakh package.
5. Training period of 6 months.

## \* Benefits of the scheme

1. Utilisation of younger demographic will make the force more agile.
2. Help in adoption of technology faster as younger people use technology more &

easily.

3. Reduce the burden of pension on the government  
 ↳ 40% in pension bills of defence ministry's budget.

4. Help in creating disciplined youth who can contribute productively to the economy.

**\* Way forward**

1. Consider after retirement options of education loans, priority selection in other services on a mandatory basis to reduce uncertainty.

2. Come up with a way to cultivate patriotism and dedication to army despite it being a short service.

3. Help in training for more than 6 months which will make their skills at par with other personnel of armed forces.

Therefore, Agnipath scheme should be utilised to help reap the demographic dividend while ensuring security of the nation.

**Feedback**

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Structure/ Presentation
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Content
Value Addition
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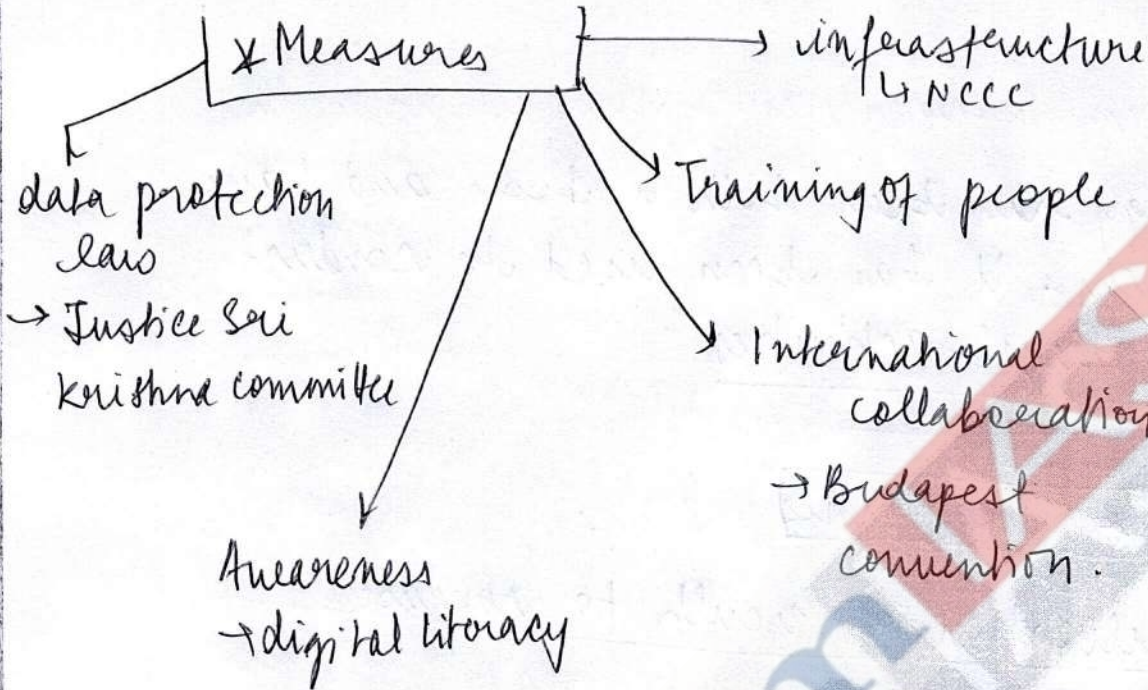
**Q.10)** Examine how advancements in technology has allowed organize crime syndicates to not only expand but also diversify their activities. Also recommend suitable measures to tackle the menace of organized crime. (10 marks, 150 words)

परीक्षण करें कि कैसे प्रौद्योगिकी में प्रगति ने संगठित अपराध सिंडिकेट को न केवल विस्तार करने बल्कि उनकी गतिविधियों में विविधता लाने की भी अनुमति दी है। संगठित अपराध के खतरे से निपटने के लिए उपयुक्त उपायों की भी सिफारिश करें। (10 अंक, 150 शब्द)

Technology has been both a boon and bane for society. It has been used to conduct various illegal activities.

## \* Activities

1. Radicalization of youth to conduct terror activities.
2. Cognitive hacking through polarized content
3. Use of cryptocurrency for money laundering, etc
4. Use of hacking to control critical infrastructure -chore
5. Use of dark web for human trafficking, smuggling, etc.
6. Advancement of crimes against children such as talking through social media, etc



Therefore, steps need to be taken to preserve the dignity and sovereignty of the citizens as well as nations in line with constitution.

**Feedback**

(For OFFICE use only)

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Total



Q.11) Achievement of a 400 billion USD merchandise export is a result of concerted and collective efforts towards an Atmanirbhar Bharat. Identify various factors responsible for this feat. What measures will you suggest to place India at the centre of global supply chains? (15 marks, 250 words)

400 बिलियन अमरीकी डालर के व्यापारिक निर्यात की उपलब्धि एक आत्मनिर्भर भारत की दिशा में ठोस और सामूहिक प्रयासों का परिणाम है। इस उपलब्धि के लिए जिम्मेदार विभिन्न कारकों की पहचान करें। भारत को वैश्विक आपूर्ति श्रृंखलाओं के केंद्र में रखने के लिए आप क्या उपाय सुझाएंगे? (15 अंक, 250 शब्द)

India achieved the target of 400 billion USD exports in the first half of 2022. Exports of India mainly include refined petroleum goods, jewellery, iron and steel, etc.

## \* Steps / Factors responsible

1. Boost to sectors through Production linked incentives schemes.  
↳ which give 4-6% rebate on additional manufacturing.
2. Boost through enhanced credit through schemes such as interest subvention, funds of funds for MSMEs, etc.
3. Enhanced production through Cluster based approach such as textile parks, mega food parks, etc.
4. Depreciation of Rupee helped in making the

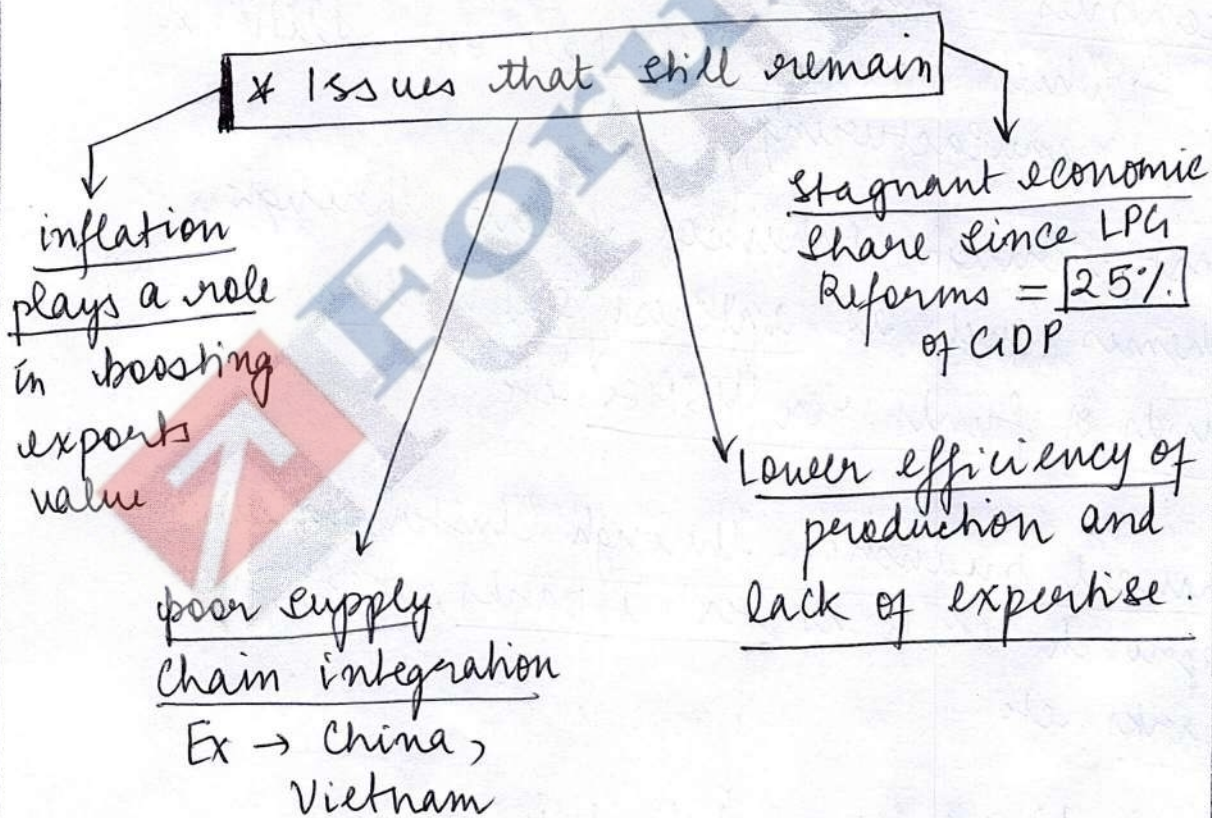
exports more competitive.

5. Increased FDI lead to more investment and employment.

↳ India - 5<sup>th</sup> highest FDI recipient.

6. Revision of labour laws made it easy to hire labour.

7. Increased Ease of doing business - automated processes of approvals and licenses.





\* Measures to suggest India at centre of global supply chains

1. Enhance value addition to the goods through food processing, textiles, etc.
2. Reduce the inverted duty structure on imports, to reduce costs of operation.
3. Enhance the competitiveness through schemes such as RODTEP - where credit scrips are given.
4. Enhancing skills of workers.
5. Improving ease of doing business through easy land acquisition, IBC, etc.

Therefore, improving exports can help increase India's share from 2% to a higher value which will enhance its soft power and growth.

### Feedback

(For OFFICE use only)

Structure/ Presentation
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Value Addition
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Q.12) Fintech is facilitating financial inclusions through innovations, but reaping its developmental potential requires overcoming critical hurdles. Analyze. (15 marks, 250 words)

फिनटेक नवाचारों के माध्यम से वित्तीय समावेशन की सुविधा प्रदान कर रहा है, लेकिन इसकी विकास क्षमता का लाभ उठाने के लिए महत्वपूर्ण बाधाओं को दूर करने की आवश्यकता है। विश्लेषण कीजिए। (15 अंक, 250 शब्द)

Fintech refers to the firms providing financial services through the utilisation of technologies.

The Fintech sector has seen massive growth in India during the last decade.

## Financial Inclusion through Innovations

1. Reducing the cost of doing business  
↳ Neo Banks who have only digital presence.
2. Reducing the human interface, thereby reducing corruption.  
↳ SBI Loans through its apps.
3. Help reduce frauds through initiatives such as tokenisation of cards, etc.
4. Help increase rural penetration as more and more people hold mobile phones.

5. Reduced cash dependency as more people are using UPI, Rupay, etc.
6. Reduced leakages as direct benefit transfers are being made.
  - ↳ Ex - RUPI being used for Kisan Samman Yojana.

## \* Critical Hurdles

1. Low digital infrastructure - poor development of telecom towers, fiberization, etc.
  - ↳ 10 years of Bharatnet Project.
2. Low digital literacy - stands at only 30% in the rural areas.
3. Unfair lending practices such as high rate of interest, harsh recovery mechanisms.
  - ↳ Ex - current suspension of Neobank's license by RBI.
4. Lack of data protection legislation - makes the people vulnerable to data leakage, etc.

5. Authenticity is difficult to verify - according to a study ~ 400/1100 financial apps were fraudulent.

**Way Forward**

1. Enhance digital literacy of people
2. Increased regulation of fintech by RBI.
3. Data Protection Law - Justice Sri Krishna Committee.
4. Experiment in a regulatory sandbox before implementation.
5. Mandatory disclosures and awareness.

Therefore, fintech holds the key to enhance financial inclusion which will help achieve SDG - Zero Poverty.

**Feedback**

(For OFFICE use only)

Structure/ Presentation
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Content
Value Addition
Total

Q.13) The fundamental problem in agriculture is not the availability of resources, but their inefficient use. Comment. (15 marks, 250 words)

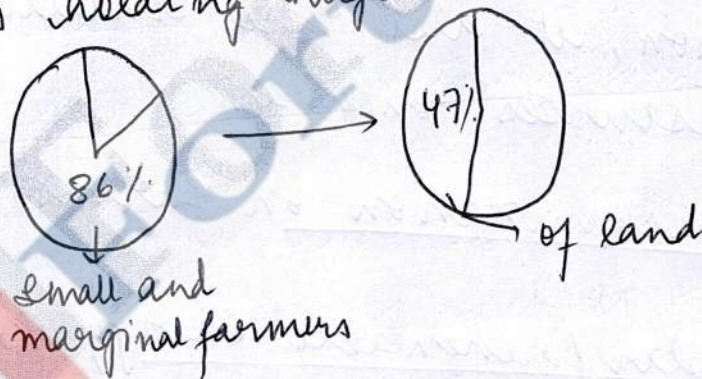
कृषि में मूलभूत समस्या संसाधनों की उपलब्धता नहीं, बल्कि उनका अकुशल उपयोग है। टिप्पणी कीजिए।

(15 अंक, 250 शब्द)

Agriculture is the backbone of the Indian economy. It employs 55% of the labour and contributes 18% to the GDP. Agriculture requires different resources such as land, fertilisers, water, etc for its efficiency.

## \* Inefficient use of resources

1. Uneven land distribution - among large farmers holding huge lands.



2. Inefficient utilisation of fertilisers such as urea. Urea is available under use based transfers versus NBS for phosphates, etc.

↳ Ideal ratio of N:P:K being 4:2:1  
versus actual = 10:3:1.

3. Groundwater exploitation - agriculture uses 89% of the groundwater in India.
4. Virtual water trade - based on water intensive crops.  
↳ China and USA - twice less water in production versus India.
5. Disguised unemployment - where family labour is used inefficiently on farm rather than in other jobs.

But in addition, it also faces inavailability of certain resources such as

1. Lack of mechanization on farms,
2. Lack of solar / renewable energy pumps which reduce costs.
3. Lack of storage facilities for the food grains.
4. Uneven access to resources such as MSP  
↳ 100% wheat procurement in MP versus low procurement from eastern states

## \* Way Forward

1. Utilisation of DBT for urea to help reduce overuse of urea and reduce pollution.
2. Increase private sector role in procurement and development of infrastructure.
3. Groundwater usage charges after a minimum level of usage.
4. Taxing the incomes of large farmers to help receive revenues for expenditure.
5. Help in better cropping patterns based on regional factors.
6. Increase skill and technology adoption by workers. Ex - ICRISAT-AI sowing App.

Therefore, agriculture holds the important place in our development trajectory to help increase our exports share as well as provide food security.

### Feedback

(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.14) Encouraging livestock through mixed farming can be the answer to the triple burden of low farm income, increasing land fragmentation and plummeting productivity in the agriculture sector. Discuss. (15 marks, 250 words)

मिश्रित खेती के माध्यम से पशुधन को प्रोत्साहित करना कृषि क्षेत्र में कम कृषि आय, भूमि विखंडन में वृद्धि और उत्पादकता में गिरावट के तिहरे बोझ का जवाब हो सकता है। चर्चा कीजिए। (15 अंक, 250 शब्द)

Livestock sector saw a growth of 10.28% in the last year. It refers to the rearing of animals for their products such as milk, wool, meat, etc. Therefore, mixed farming which includes both agriculture and livestock farming can help in growth.

## \* Benefits of encouraging livestock

### 1. Enhance farm income

- ① → as it contributes ~ 40% to the non agricultural farm income.
- ② → enhance the productivity by recycling of animal waste in agriculture.
- ③ → help in ploughing, selling diversified goods to people. Ex → milk + crops.

### 2. Deal with land fragmentation

- ① → as it requires low amount of land for rearing animals.



② → reduce disputes for land as new sources of income will increase.

3. Plummeting productivity of agriculture - as people will be able to rely less on agricultural produce.

4. Enhance sustainability as natural raw materials can be used.

↳ Ex - Brijamitra under ZBNF.

5. Help in better utilisation of farm labour.

6. Help enhance exports such as buffalo meat, fishes, etc. which represent key exports of India.

\* But certain issues that hinder their adoption

① → Livestock veterinary services are poor.

② → low disease resilience due to increasing diseases such as African swine flu, etc.

③ → lower productivity of animals such as cows, etc.

\* Way Forward

1. Development through utilisation of Animal Husbandry Fund to develop livestock infrastructure.
2. Better productivity by disease protection such as vaccines for Brucellosis, etc.
3. Increased research and development to increase knowledge such as through Rashtriya Kamdenu Aayog, etc.
4. Increased awareness through programmes for farmers.

Therefore, mixed farming holds the potential to help double farmer's income as recommended by Ashok Dalwai committee.

<b>Feedback</b> (For OFFICE use only)	
Structure/ Presentation	
Question Interpretation	
Content	
Value Addition	
<b>Total</b>	

Q.15) New age digital technologies are creating disruptions that open fascinating opportunities and pose frightening threats. Give an account of how digital disruptive technologies are changing our lives. (15 marks, 250 words)

नए जमाने की डिजिटल प्रौद्योगिकियां व्यवधान पैदा कर रही हैं जो आकर्षक अवसरों को खोलती हैं और भयावह खतरे पैदा करती हैं। डिजिटल डिसरप्टिव प्रौद्योगिकियां हमारे जीवन को कैसे बदल रही हैं, उन्का लेखा-जोखा दीजिए।

(15 अंक, 250 शब्द)

Data is the new oil. This has been made possible through the fourth Industrial Revolution which has enhanced our adoption of technologies.

\* Opportunities - digital disruptive technologies

1. Application in education - where digital education is possible due to apps such as DIKSHA, SWAYAM, etc.
2. Increased access to healthcare such as through teleconsulting with doctors, digital health IDs, etc.
3. Increased financial inclusion - through technology adoption by banks, private institutions.  
↳ transfers under Jan Dhan Yojana.

4. Increased ease of doing business - such as environmental clearances through PARIVESH, quick payments through google pay, etc.
5. Increased resilience of agriculture - through AI sowing apps, Shekarkari magazine, etc.
6. Increased supply chain management  
↳ EVIN controlling vaccine supplies.
7. Increased efficiency as decentralization of technology  
↳ Blockchain.

### \* Digital technologies - Threats

1. Lack of data protection bill - makes sensitive data vulnerable  
↳ ration data leak in Chattisgarh.
2. Lack of regulation such as cryptocurrencies, dark net, etc.
3. Misuse of technology for hacking such as

attack on the kundankulam nuclear plant.

4. Lack of boundaries makes international coordination necessary for regulation.
5. Risk to privacy such as through Pegasus, etc.
6. Can harm the natural balance such as through designer babies.

Therefore, to effectively utilise technology, we need to utilise Aristotle's principles of AI, have frameworks on line of GDPR, MICA of EU as well as collaboration between institutions to reduce harm. This would help control what Martin Luther King said, 'we live in a world of guided missiles and misguided men'.

**Feedback**  
(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.16) Nanotechnology is an inter-disciplinary and inter-connected science that has revolutionary applications across sectors. In this perspective, discuss the relevance of nanotechnology for socio-economic development in the country. (15 marks, 250 words)

नैनोटेक्नोलॉजी एक अंतर-अनुशासनात्मक और परस्पर जुड़ा हुआ विज्ञान है जिसके सभी क्षेत्रों में क्रांतिकारी अनुप्रयोग हैं। इस परिप्रेक्ष्य में, देश में सामाजिक-आर्थिक विकास के लिए नैनो प्रौद्योगिकी की प्रासंगिकता पर चर्चा करें।

(15 अंक, 250 शब्द)

Nanotechnology was coined by Dr Taniguchi in 1980s. It refers to use of materials in the range of 1 to 100 nanometers. It has application in various fields such as healthcare, agriculture, etc.

\* Positive Relevance for socio-economic development

1. Help in delivering targeted healthcare for patients at a lower cost

↳ Carbon nanotubes in place of ruptured blood vessels.

2. Utilisation in agriculture such as through targeted delivery of fertilisers.

↳ India has developed the world's first nanofertiliser of urea.

3. Help in reducing cost of doing business by

reducing theft :

↳ Quantum dots on goods, which are hard to detect by eye but can be tracked.

4. Help in development of stable inert materials which can be used in vehicles, etc.

↳ gold nanoparticles have high heat resistance.

5. Help in research and development for more efficient methods.

6. Help in managing and tracing movements of trucks, etc to make supply chains more efficient.

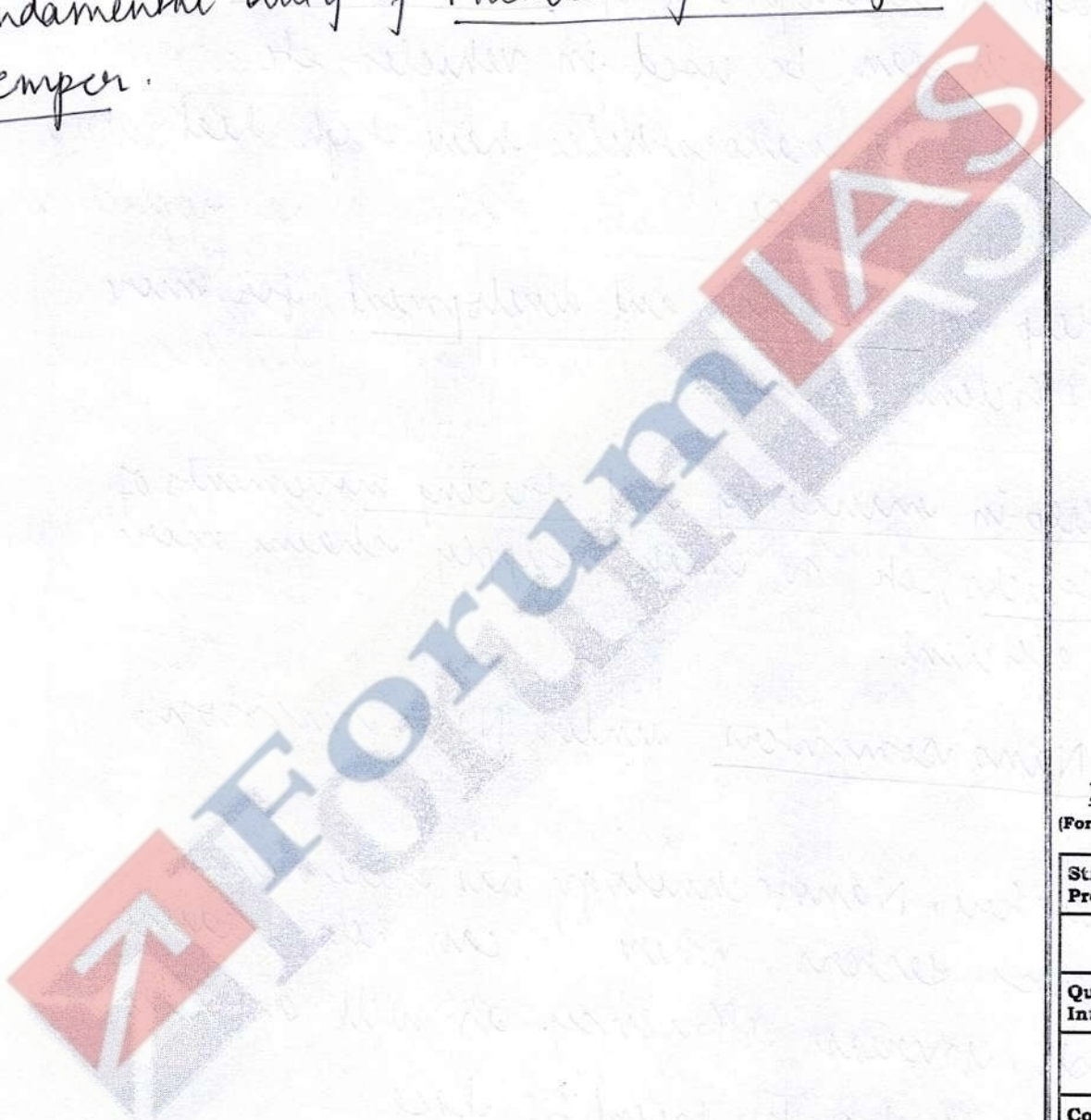
7. Nano computers under Nano mission.

Therefore, Nanotechnology has relevance across sectors, where it can help reduce costs, increase efficiency as well as help India develop its scientific base.

Therefore, going ahead, we should utilize R&D and Nanotechnology mission to

help enhance knowledge economy.

This will help India achieve the fundamental duty of incubating scientific temper.



**Feedback**

(For OFFICE use only)

<b>Structure/ Presentation</b>	
<b>Question Interpretation</b>	
<b>Content</b>	
<b>Value Addition</b>	
<b>Total</b>	



Q.17) Making the invisible groundwater visible is critical for building climate resilience and achieving sustainable development goals. Examine. (15 marks, 250 words)

अदृश्य भूजल को दृश्यमान बनाना जलवायु को लचीलापन बनाने और सतत विकास लक्ष्यों को प्राप्त करने के लिए महत्वपूर्ण है। परीक्षण कीजिए। (15 अंक, 250 शब्द)

Groundwater represents the source of fresh water which is more than the water in rivers, etc. Given the inability to use sea water and water in glaciers, groundwater is a crucial resource.

\* Critical for building climate resilience

1. Help people plant more trees to help in groundwater rejuvenation.
2. Give a boost to rainwater harvesting techniques  
↳ Ex - under new groundwater management Rules 2021 - mandatory provision.
3. Help in balance development with groundwater rejuvenation.
4. Reduce exploitation in growing crops such as rice, etc - which are water intensive.

5. Help in keeping urban local <sup>water</sup> bodies which can act as aquifers.

↳ Bangalore has redeveloped over 100 lakes into urban structures.

**\* Help achieve SDGs**

1. Reduce burden on poor to travel huge distances for water

↳ drying wells and borewells in Rajasthan

2. Help reduce time of women spent on water collection

↳ SDG - Gender Equality.

3. Keep on maintaining geographically suitable cropping patterns, thereby saving biodiversity

↳ SDG - Life on land.

4. Help in moving cropping patterns to pulses, millets, etc., which have potential to deal with malnourishment

↳ SDG - Zero Hunger.

Therefore, groundwater management is crucial to help achieve SDGs and climate resilience.

\* Therefore, the following steps need to be taken

1. Charges for groundwater extraction to reduce overuse.
2. Afforestation and preservation of green trees.  
 ↳ Ex Jan Vayu scheme of Haryana where pension is given for trees older than 75 years.
3. Rejuvenation of groundwater through aquifer rejuvenation.
4. Prevent overuse of fertilizers or plastics to reduce pollution.
5. Utilisation of schemes such as Atal Bhujal mission, AMRUT, etc.

Groundwater management is the need of the hour given necessity of water in every aspect of our life.

**Feedback**  
(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

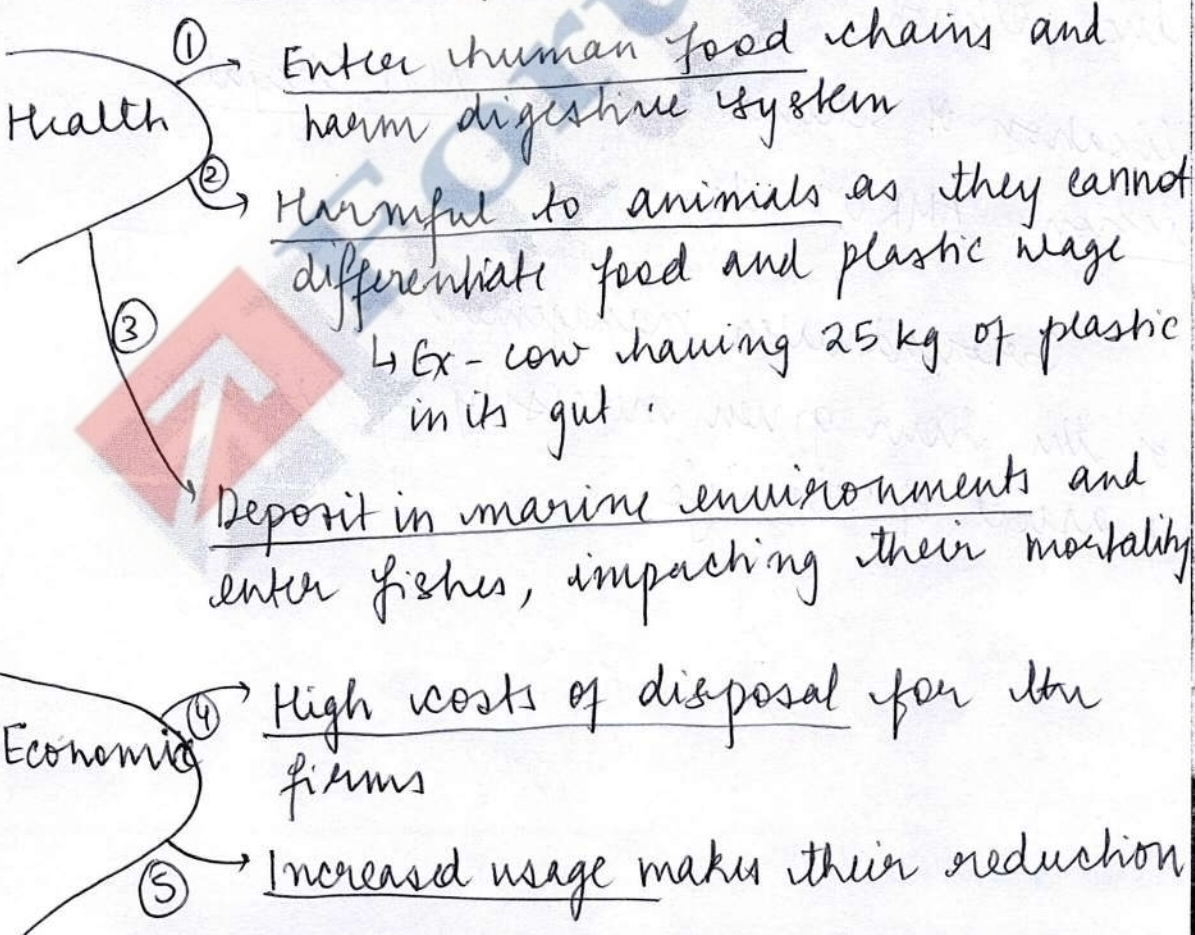


**Q.18)** Single use plastic (SUP) is a health, economic and environmental scourge, that requires governments to regulate, businesses to innovate and individuals to act. Examine in context of recently introduced ban on SUPs. (15 marks, 250 words)

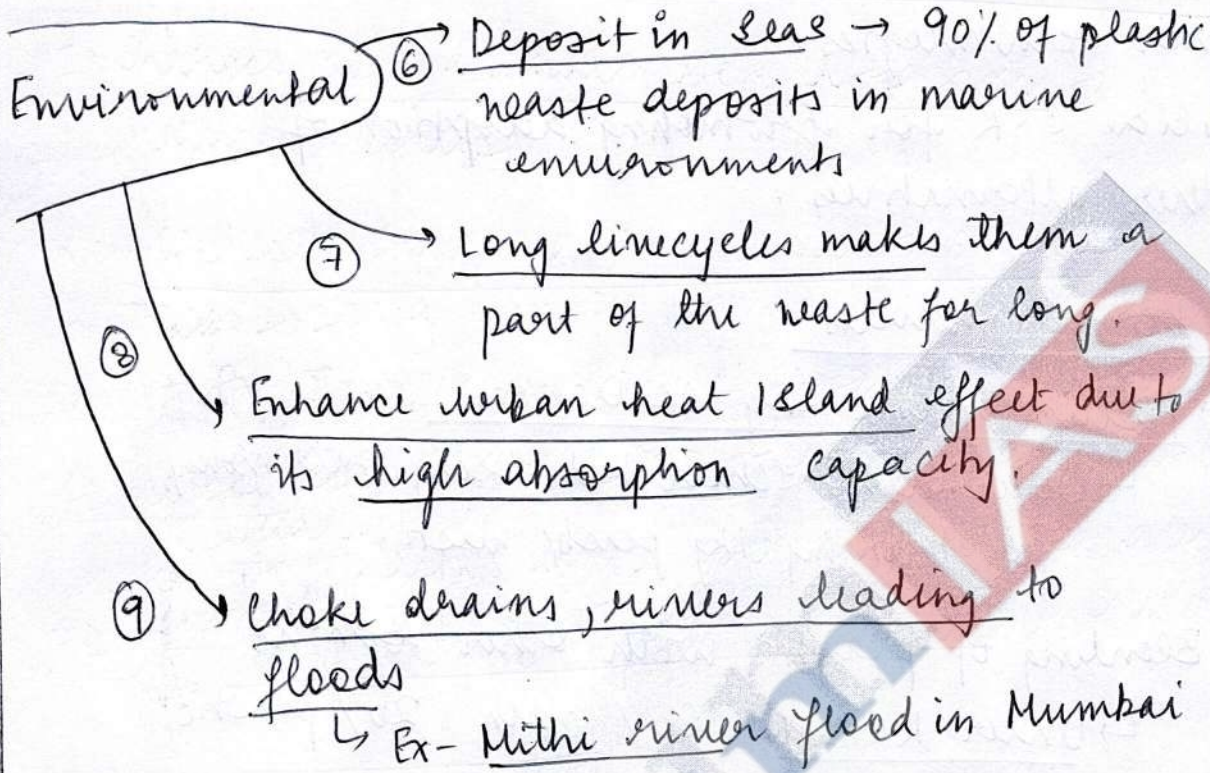
सिंगल यूज प्लास्टिक (SUP) स्वास्थ्य, आर्थिक और पर्यावरणीय संकट है, जिसके लिए सरकारों को विनियमित करने, व्यवसायों को नवाचार करने और व्यक्तिगत रूप से कार्य करने की आवश्यकता होती है। सिंगल यूज प्लास्टिक पर हाल ही में शुरू किए गए प्रतिबंध के संदर्भ में परीक्षण करें। (15 अंक, 250 शब्द)

In July 2022, a ban on single use plastics came into force. A complete ban will be in force by December 2022. Single use plastics refer to plastics which are not reused after their short term purpose is fulfilled.

### \* Scourage



costly, as less cheap alternatives exist.



## \* Steps that need to be taken

### \* Governments to Regulate

- ① → Increase compliance by reducing production through audits and checks
- ② → Cost incentives for producing alternatives
- ③ → Institutions to increase awareness among people

### \* Businesses

- ④ → Increase research and development for

cleaner technologies.

↳ Utilize CSR for promoting adoption of other alternatives.

\* Acts by Individuals

↳ Reduce waste by collection

↳ Uttarakhand school kids being paid money for bringing 1kg plastic waste.

↳ Blending of plastic with other options

↳ Under REPLAN - 80% - cloth + 20% plastic

↳ Nudge theory to change behaviours

Therefore, single use plastic is a nuisance which needs to be dealt with to help achieve goals of Net zero by 2070 as well as sustainable development

**Feedback**  
(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.19) In what ways management of maritime borders differ from that of territorial borders? Also, analyze various vulnerabilities that arise from a large maritime boundary of the country.

(15 marks, 250 words)

समुद्री सीमाओं का प्रबंधन किस प्रकार क्षेत्रीय सीमाओं से भिन्न है? इसके अलावा, देश की लंबी समुद्री सीमा से उत्पन्न होने वाली विभिन्न सुभेदताओं का विश्लेषण करें। (15 अंक, 250 शब्द)

India has a maritime border of almost ~ 4500 kms. It has a key position in the Indian ocean, which has made its policy and measures important.

### \* Difference in management

Maritime Borders	Territorial
1. No close immediate neighbour	1. Have clear neighbours
2. Requires use of navy and airforce	2. Requires use of <u>army and airforce</u>
3. No clear consensus ↳ Non universal adoption of UNCLOS	3. <u>Clear consensus</u> can be built through border agreements.
4. <u>Hard for people to follow</u> ↳ fishermen crossing Palk Strait.	4. <u>Can be fenced</u> , so people have an idea about the border.

\* Vulnerabilities

1. No clear adjudicating body for disputes -  
↳ disregard by USA, China of UNCLOS demarcation
2. Easy for people to cross - making it hard to differentiate between actual offenders versus honest mistakes  
↳ fishermen issues with Pakistan and Sri Lanka.
3. No clear jurisdiction agreement of nation states  
↳ mariners case of Italy
4. Requires development of submarines, ships, aircraft carriers.
5. Risk of piracy - such as Gulf of Aden and Horn of Africa region.
6. Need International coordination as impact is multidimensional.



\* Way Forward

1. Development and implementation of SAGAR policy.
2. Increased coordination through initiatives such as IFC-IOK for whisk shipping, etc
3. Increased regulation to reduce misuse by terrorists, etc.
4. International collaboration through military exercises such as Desert Flag, etc

Therefore, maritime border security is key for India to achieve the goal of net security provider in the Indian ocean.

**Feedback**  
(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



Q.20) Cyberthreats can wage a dual war on the state and citizens, disrupting the national security as well as social stability. Explain. (15 marks, 250 words)

साइबर धमकी राज्य और नागरिकों पर दोहरा युद्ध छेड़ सकती है, जिससे राष्ट्रीय सुरक्षा और सामाजिक स्थिरता बाधित हो सकती है। व्याख्या कीजिए। (15 अंक, 250 शब्द)

According to a recent report, India ranks 10<sup>th</sup> in its cyberthreat vulnerability across the world. It has become a threat in the 21<sup>st</sup> century with the developments of computers, etc.

## \* Threat of cyberthreat - State

- Harm critical infrastructure  
↳ Attack on kundakulam nuclear plant.
- Provide hacking vulnerability of drones, etc which can cause harm on huge scale.
- Access to sensitive information by other nations  
↳ China tracking information on key ministers, Bureaucrats - Indian Express.
- Can harm the governance of state by disrupting data usage and corrupting data

## \* Threat of cyberthreat - citizens

1. Can be used for surveillance on people  
↳ use of Pegasus
2. Threat to privacy as private information can be leaked  
↳ hacking of COWIN by delhi hackers as a challenge to the government.
3. Threat to access to services such as electricity, healthcare  
↳ Chinese cyberattack on Mumbai electricity company disrupted power for a day.
4. Leakage of data for private gains  
↳ Cambridge Analytica case.

Therefore, cyberthreat is an issue which has large scale impacts.

## \* Way Forward

1. Collaboration with Big Tech companies to reduce fake news, deepfakes, etc.

2. Utilisation of infrastructure such as National Cybercrime coordination Centres, CERT-IN, etc.
3. Digital literacy enhancement to reduce vulnerability of people.

Therefore, these steps can help reduce threat from cyberspace and help achieve Article 21- Right to dignified life.

**Feedback**

(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

### Mentor Feedback Questions

- 1 .....
- 2 .....
- 3 .....
- 4 .....
- 5 .....

### Test Goal

- 1 .....
- 2 .....
- 3 .....

### Outcomes

- 1 .....
- 2 .....
- 3 .....

### Marking Scheme

Mark	Good	Average	Below average
10 Marker	3.75 – 5.0	3.0 – 3.5	< 3.0
15 Marker	5.75 – 7.0	4.0 – 5.5	< 4.0
✓✓	Key / Relevant Point		
✗	Vague / Irrelevant		

\* Subject to change without prior notice.

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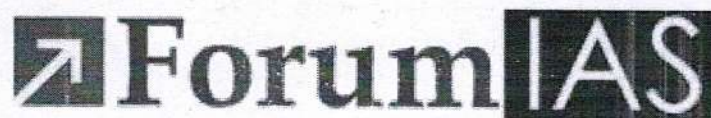
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