

TEST CODE : 5 1 0 6 3

FIAS – MGP 2022 (C-10) – GS Paper #3

ForumIAS**GENERAL STUDIES**Name Of Candidate ADITYA SRIVASTAVARoll No. 190098104Date: 19.07.2022

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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Total:	250			
Evaluator's Discretion:			For Student Only	
			Start Time <u>10:45</u>	End Time <u>13:59</u>
Total Marks:			Mode Of Examination:	
			Online <input checked="" type="checkbox"/>	Offline <input type="checkbox"/>
Evaluator's Discretion: 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.			For Office Use Only	
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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)

A-1) According to CPII E data, 8.0% is the current unemployment rate in the country.

Difference between rural & urban employment issue

- 1) Rural areas have issue of disguised unemployment in agriculture
 ↳ Urban areas have structural unemployment due to mismatch between skills requires & ~~possessing~~ ^{possessing} /.
- 2) Lack of employment in rural areas make people fall back to MNREGA — Urban areas don't have employment guarantee.
- 3) Closely knit society in rural area provides social security net — not

available in urban area.

- 4) Higher inflation in urban areas \Rightarrow more need for employment with better wages than compared to rural areas.

Interrelated solution

- 1) PURA vision of Dr Kalan to integrate rural and urban economy.
- 2) Prevent congestion in urban area by rural development — focus on food processing sector \Rightarrow reduce food inflation
- 3) Provision of urban employment guarantee in line with MUKTA scheme of Odisha \Rightarrow domestic demand for rural goods.
- 4) Export driven solution for holistic development of country — in line with target of one district one product.

This will help simultaneously harness the rural & urban demographic dividend for \$5 trillion economy.

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)

A.2) Recent case of Ukraine crisis pushed crude oil prices above \$120/barrel against budget estimate of \$75/barrel

This led to imported inflation with CPI remaining above 4% and WPI in double digits for past 12 months.

Compounding challenges

- 1) Denting domestic demand due to high inflation on all items
↳ non essentials suffer most,
- 2) Reducing savings and disposable income ⇒ lack of investment.
- 3) Agriculture suffers due to lack of transport affordability ⇒ food wastage
- 4) Export competitiveness dents due to

Costly inputs

- 5) FPI and FDI inflows decrease due to reduced investor sentiment
↳ recent Black Swan report by RBI warns
- 6) Pressure on fiscal space due to force to reduce ~~subsidy~~ tax and increase subsidy — recent cuts on excise duty of petrol
- 7) Can enhance current account deficit due to spillover by twin deficit theory
- 8) Reduce the borrowing willingness due high interest rates & reduce investment

Need of the hour

- 1) Reduce non-essential imports — increase in custom duty on gold to 12.5% in right direction.
- 2) Increase policy rates and focus on resilience of supply chain.
This will help improve the regressive inflationary tax on people & make economy rebound.

Feedback	
(For OFFICE)	
Structure/Presentation	
Question Interpretation	
Content	
Value Addition	
Total	

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)

A3) The concept of natural farming was given by Subhash Palekar. This has been also stressed in this year's budget (2022-23).

Components of natural farming

- Jeeramruta = use of cowdung, etc. as natural fertilizer.
- Bejamruta = treatment of seeds to protect from infections.
- Acchadana = mulching to protect soil & moisture.
- Whapasa for climate appropriate irrigation.

Building climate resilient agriculture

- 1) India already ranks 7th on Global Climate Risk Index - Monsoon variation will increase according to IPCC report.
- 2) Jeeramruta can decrease reliance on chemical fertilizers.

- ↳ Improve NPK ratio from current 8:4:1 to ideal 4:2:1
- ↳ restore soil organic carbon lost by years of mineralization
- 3) Beejamruta, can help reduce need for pesticides \Rightarrow harmony with local ecology
Eg: use of ladybird as biopesticide
- 4) Mulching can help reduce loss of water \Rightarrow check loss of groundwater as in Punjab.
- 5) Mulching can also ~~prevent~~ provide the needed fertilizer if ploughed back.
- 6) Whapasa can prevent runoff and eutrophication \Rightarrow uphold SDG-14
- 7) Whapasa can also reduce costs and promote climate resilience in 50% rainfed area

Thus quick move to natural farming is needed while ensuring that food security is not hampered. This can help double farmers incomes in near future

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)

A-4) Food processing contributes 1.6% to GDP and employs 1.92 million people as of 2021.

Food processing for agricultural reasons

- 1) Promote farmer income realization
- 2) Prevent wastage of food due to post harvest loss - ₹92000 (NITI Aayog data)
- 3) Benefit agricultural forward linkages by providing raw materials to FPIs.

Food processing beyond agriculture

- 1) Employment of unskilled labour in economy - CMIE data showed unemployment rate at 7.8% in June, 2022
- 2) Promote SDG 2 by jams and cheese in mid day meal for tackling hunger

3) Check malnutrition by food fortification.

Eg: iron in rice to tackle anaemia.

4) Promote value added exports and help achieve \$ 800 billion export target for 2022-23.

5) Augment secondary sector GVA — currently 9% contribution.

6) Tap the potential of millets like ragi bread — 2023 as International year of millets.

7) Gender empowerment since 70% of the workers are women.

8) Establish technologically advanced factories like atmospheric steamed canner.

9) Targetted market innovation for all segments like ready to eat for working middle class.

Steps like PM Kisan Sampada are in right direction to make India a food factory of the world.

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)

A.5) Space sector in India is growing at a rapid pace and currently contributes 0.23% to GDP - expected to become 4 times by 2024.

Space technology for monitoring development

- 1) Satellite imaging for mineral exploration and monitoring of infrastructure, mining etc.
- 2) Remote sensing for data land records and digitization \Rightarrow rights of people secured.
- 3) Resource scanning as in Jharkhand region to promote effective bidding of mines.
- 4) Monitoring of critical infrastructure like pipeline to protect from Naxalites & foreign enemies.
- 5) Helping policy formulation by mapping water resources.

Space technology to enhance development

- 1) Space tourism can open employment and GDP growth opportunities.
- 2) Efforts of NSIL and ISRO are leading to export oriented development of space services.
- 3) Infiltration of internet to all areas via LPWAN gateways.
- 4) Satellite based education to remote areas via Swayam portal augmentation.
- 5) Telemedicine penetration to remote areas.

However India still has only $\boxed{2\%}$ share in global space sector \Rightarrow need for incentives, handholding by ISRO is needed to bring out true potential of the sector.

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)

A6 FAME scheme of government pushed ahead the adoption of electric vehicles.

Difference

Fuel cell vehicle	Electric battery vehicle
1) Uses fuel like <u>hydrogen</u> to generate electricity <u>in-situ</u>	1) Use batteries which are already charged - with DC electricity.
2) Needs refuelling & no charging.	2) Needs special charging infrastructure
3) Can be refuelled in 5 minutes	3) Need at least 40-60 minutes to recharge.

Advantages of electric vehicles

- 1) Promote national autonomy by reducing dependence on oil imports (~85% dependency)
- 2) Environmental pollution reduction - no particulate matter, SO₂, NO₂, etc. given.

- 3) Hasten achievement of Panchamrit targets by reducing GHG emission.
- 4) Boost economic growth — help achieve \$5 trillion economy by 2025
- 5) Provide employment opportunities in charging and manufacturing establishment.
- 6) Improve mobility index of the country as the subsidy makes EV cheaper.

Way ahead for adoption

- 1) Subsidy to promote adoption. Eg. ~~Delhi~~ Delhi govt giving 1.5 lakh subsidy on cars (electric)
- 2) Quick promotion of charging infrastructure to promote buyer confidence.
- 3) R&D to prevent thermal runoff and related danger to people.
- 4) Expand PLI scheme to include all components of electric vehicle supply chain.
This will help simultaneous achievement of Article 48A vision and SDGs

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)

A-7] The lifestyle of modern era is characterized by consumerism and linearity in economies as seen with Great Garbage Patch of Pacific.

Need for sustainable consumption & production

- 1) Plastic waste is causing havoc in all ecosystems. — Now found in fresh antarctic snow to deep ocean to human blood
- 2) Fast fashion has turned Atacama Desert into dump site of clothes
↳ ecology affected.
- 3) Ever increasing waste generation and limited recycling — only 25% of municipal waste recycled.

4) Air pollution due to vehicle usage as in Delhi - every person rides a car despite pooling being better option.

5) Water wastage and pollution ⇒ water crisis as in Chennai due to polluted Adyar river.

6) Profit motive of corporates leading to issues around health and environmental degradation.

This lead to Lifestyle for Environment campaign which envisages -

- 1) Healthy and environmentally compatible lifestyle.
- 2) Can be achieved by value education and awareness among the people.
- 3) Government decision to eliminate single use plastic in right direction (from 01.07.2022)
- 4) Promote mindful and deliberate utilization instead of mindless destruction.

This will help to promote the motto of Pro Planet People for sustainability.

Feedb
(For OFFICE)

Structure/
Presentat

Question
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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)

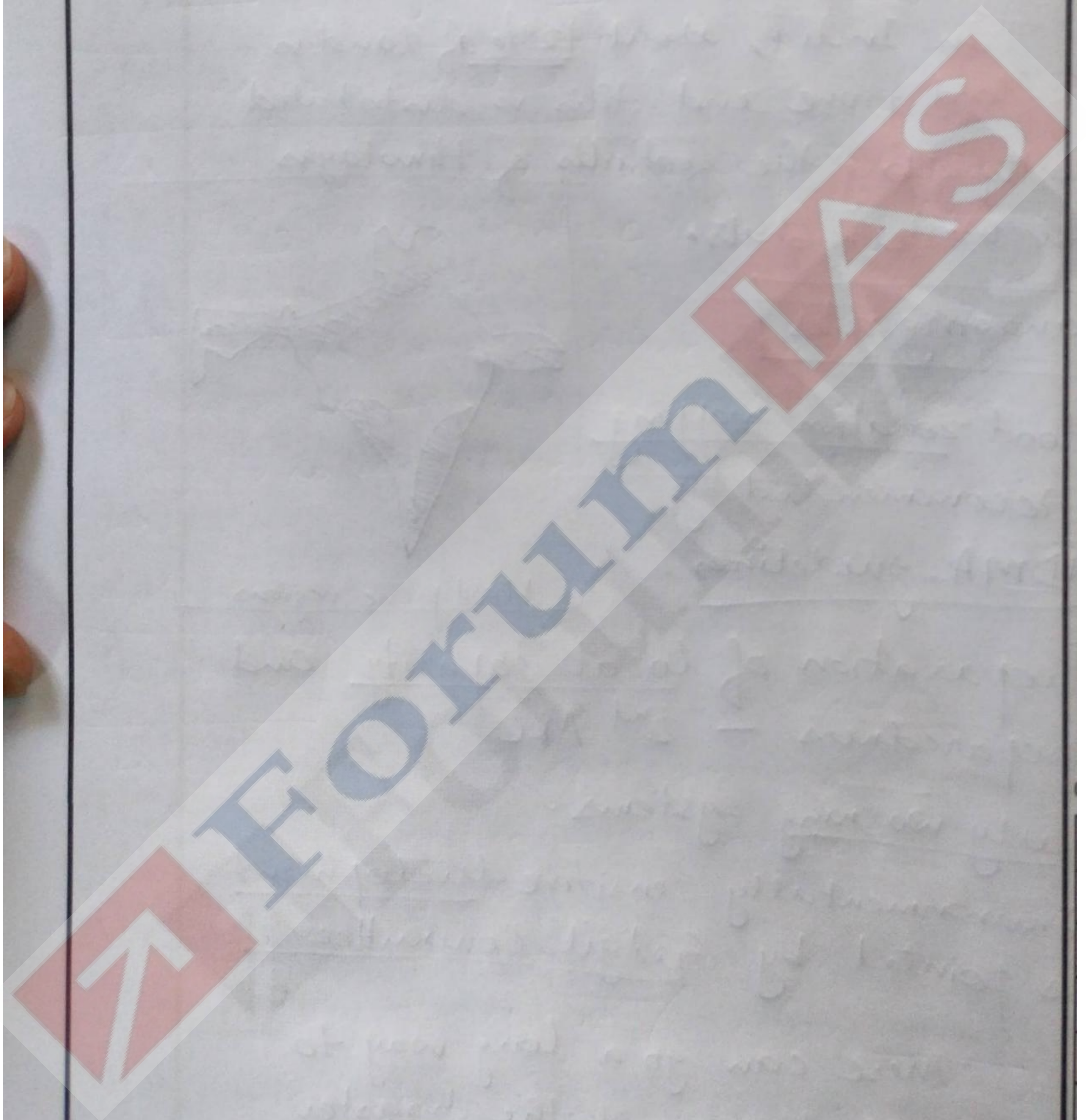
A-8] In India, about 12% of land is flood prone and this is distributed mostly along the foothills of Himalayas and Western Ghats.

Managing risks

- 1) Flood zonation mapping as recommended by NDMA guidelines
- 2) Preparation of local capacity and preparedness - 2nd ARC
- 3) Early warning systems.
- 4) Environmentally sensitive development as pointed by Gadgil Committee



These can go a long way to increase effectiveness of the disaster management strategy.



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)

AG Agnipath scheme was launched recently by the government to introduce 4 year tour of duty in the armed forces.

Salient features

- Taking in youth in age bracket of 17-21 years,
- Train them with advanced technology and technique of asset for the nation,
- Salary in range of 30000 to 40000 per month + 11 lakh lumpsum at retirement.
- Preference to these youth in other government jobs like CRPF, etc.

Benefits of the scheme

- Reduce pressure on government finances since more than 60% defence expenditure goes to pension and salary.
- Create future assets for country and a reserve force for exigencies.

↳ Tap energy of youth and reduce average age of army from 31 to less than 25 years.

Challenges associated

- ↳ Concerns around future employment as 75% recruits won't be retained by the armed forces.
- ↳ Concerns around discrimination against people ~~whose~~ whose age crossed 21 years due to no recruitment in 2021 & 2020.
- ↳ Only few departments and companies have showed willingness to employ them.

Solutions

- ↳ Reservation in CAPF, etc is a step in right direction — can include in paramilitary too.
 - ↳ Role based focus in scheme for professional competency development (learn from Karmayogi mission)
 - ↳ Collaboration with private sector to fully utilize potential of trained youth in swimming training, fitness, etc.
- These will make the agniveers secure assets of the nation & promote human capital

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)

A.10 Organized crime syndicates have been a threat to India since Dawood's Statement after 1993 Mumbai blasts.

Technology driven expansion

1) Dark web has enabled

- Demand based pornography as seen in the Syrian case
- Drugs trafficking below the nose of security agencies.
- use of TOR in Arab Spring for arms smuggling
- Human trafficking as prevalent in the regime of ISIS linked crimes.

2) Crypto currency has made the transactions anonymous. Eg: use of bitcoin for funding of terrorists.

Diversified organized crime

- 1) Impostering and identity theft utilizing deep learning and deep fake technology.
- 2) Crypt based money laundering due to ease of movement & no checks.
- 3) Drone based smuggling of drugs and arms as reported across LoC.

Suitable measures

- 1) Creation of a cyber army with specialists to tackle ToK related crimes.
- 2) Central command in line with CDS for coordination and comprehensive intelligence.
- 3) Use of deep learning to track phrases and catch smuggling.
- 4) Learning from Israel about use of technology to counter technology.
- 5) Dedicated cybercrime cells at district and state level (Indrajit Rao committee)

This will help make our security regime resilient of 4th industrial revolution

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 आत्मनिर्मर 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 शृंखलाओं के केंद्र में रखने के लिए आप क्या उपाय सुझाएंगे? (15 अंक, 250 शब्द)

A-11) India crossed the 400 billion dollar merchandise exports, ^{in FY22} highest-ever and 40% increase from FY 21.

This can be said to be result of collective & concerted efforts as—

- 1) Petroleum products saw rise of 114%.
- 2) Electronic & engineering goods saw rise of 35%
- 3) Agricultural exports rose by 20%
- 4) Gems & jewellery exports by 30%

Factors responsible

- 1) Government will as the target had been set in Budget-speech.
- 2) Measures like single window clearance for country of origin → better FTA utilization
- 3) Agricultural resilience to Pandemic

- highest agricultural exports -
- 4) Reopening of world economy post COVID
→ highest demand for petroleum products.
 - 5) Consumer confidence reviving as can be seen from jump in non-essential exports like gems and jewellery.
 - 6) Efforts of tax authorities and schemes like RoDTEP → increasing export competitiveness.
 - 7) Depreciating rupee which has now crossed ₹80/dollar mark.
 - 8) PLI scheme leading to greater indigenous production and export.
 - 9) Image of India as net security provider leading to high of ₹13000 crore defence export.
 - 10) COVID impact on supply chains like of Vietnam → Indian exports gain market

Suggestion to place India at centre of
Global Supply Chain

- 1) Improving ease of doing business
like contract enforcement, etc. → attract

- foreign capital & expertise
 - 2) Government investment in sectors for promoting regional growth \Rightarrow leading to lower input cost
 \hookrightarrow example of UP can be emulated.
 - 3) Quick finalization of FTAs with European Union, etc — CEPA with UAE in right direction.
 - 4) Leverage strengths like in natural fibre to fight climate impact of synthetic fibre in fashion \Rightarrow boost cotton & jute exports (textile)
 - 5) Leverage China plus one strategy regime to gain markets by providing competitive price
 - 6) Technology upgradation in key sectors like electronics, etc. to improve product quality.
 - 7) Focus on branding — hire IIM student as interns.
 - 8) Focus on food processing in line with demands of foreign market — involve embassies
- This will help make India a giant in global supply chain and also introduce resilience in the supply chains.

Feedback
(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

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)

A.12) Fintech is currently contributing a small amount to GDP but reports say it can provide \$ 1 trillion boost to GDP by 2025

Facilitating financial inclusion

- 1) Reaching the unbanked via technology as in case of UPI infiltration favouring Paytm usage in rural areas.
- 2) Providing cheaper credit accessibility as by HDFC tied PayZapp → freeing from menace of moneylender.
- 3) Facilitating digital payments and helping small vendors — Gpay as the saviour
- 4) Providing discounting services to MSME receivables as being done by TReDs.
- 5) Promoting savings and financial literacy via its reachout offices.
- 6) Help women empowerment by empowering

SHGs → pointed by Pabiben bags leader in Gujarat

Challenges faced by Fintech

- 1) Government regulations like recent RBI ban on giving credit by fintech players.
↳ entire business model of lazy pay, etc can collapse
- 2) Digital divide as NSSO data shows 14% rural internet penetration vs 42% urban
- 3) Low transaction margins due to lack of uniqueness in product.
- 4) Lack of brand image → easily replaceable as seen in recent survey by Bharat Pe.
- 5) Lack of trust especially among the elderly → prefer relationship finance

Solutions to above challenges

- 1) Promoting resilience by strengthening RBI support like by regulatory sandbox
↳ can help promote innovation by fintech companies.

2) Digital literacy and financial literacy campaigns for adoption.

3) Focus on building relationships by fintech \Rightarrow bring elderly customers

4) Liberal policy with agile approach by government \Rightarrow feedback driven

5) Bridge digital divide via BharatNet and PM Wani speed up.

This will help achieve inclusive growth and achieve SDG-10.

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)

A-13 Agriculture contributes 20% to GDP but utilizes 90% of all water used. It gives employment to 45% people but mostly has disguised unemployment.

Problems with availability of resources

- 1) Lack of irrigation facility as in Central and Western India — 55% area is rain fed.
 - 2) Lack of credit availability → 52% households have loans but 40% only from formal sources.
 - 3) Lack of forward linkages — storage and transport infrastructure missing as pointed by Shanta Kumar Committee.
- However, major issue is wasteful use of resources where they are available —

- 1) Overexploitation of groundwater as in Punjab due to electricity subsidy.
- 2) Overuse of urea & other fertilizer \Rightarrow 8:4:1 NPK ratio against ideal of 4:2:1.
- 3) Wasteful utilization of credit from Kisan Credit card as seen recently from Odisha.
- 4) Runoff of water due to bad irrigation leading to eutrophication.
- 5) MSP utilization restricted to only certain regions and monopolized by rich farmers & poor farmer suffer.
- 6) Land degradation due to practice of fallowing in rainfed areas.
- 7) Shifting cultivation & jhum as in north east leading to soil erosion and fertility loss.

This calls for steps to improve the utilization of available resources —

- 1) Adoption of micro-irrigation for better water use efficiency.
- 2) Use of E-npi with soil health card - integrate to optimize fertilizer usage.
- 3) Separate feeder for electricity to agriculture as in Gujarat → rationalize electricity subsidy.
- 4) Promote crop diversification to reduce loss of soil organic carbon by monoculture.
- 5) MSP decentralization for agro-climatic agriculture.
- 6) Awareness and education to farmers - Strengthen extension services.

This will help in doubling farmer income by 2024 and introduce element of sustainability in agriculture.

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. (15 marks, 250 words)

Discuss.

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)

A.14 Current farming system faces

multiply whammy due to being outdated and partly due to exploitation as shown.

Low farm income

1) Shanta Kumar Committee showed that farmers get only 15% of market price
↳ drops to 9% for onion farmers.

2) Average household income is only ₹6700 according to NABARD.

3) Huge burden of loans as average loan amount is ₹74000 among 52% farm houses.

Increasing Land Fragmentation

1) 86% farmers are small and marginal with less than 2 hectare land.

2) Further fragmentation due to inheritance

and other reasons.

Plummeting productivity

- 1) India ranks 7th in Global Climate risk index & heatwaves/erratic monsoon hamper productivity → wheat exports stopped in 2022 due to low production.
- 2) IPCC report says rice productivity can drop by 20-30% due to climate change.

This calls for climate resilient agriculture and mixed farming to provide buffer from climate change.

Role of livestock

- ↳ Can help provide additional income via milk and other processed products like ghee
- ↳ Reduce input cost as desi breeds can live on agricultural waste.
- ↳ Can be maintained on smaller land and gives much higher productivity

per acre than all crops

↳ Supplement household nutritional needs via dahi, butter, etc.

↳ Demand in global market for A2 milk (protein) ⇒ export-potential

↳ Setting up food processing units under PM FME scheme ⇒ produce cheese ^{chicken wings} and other high income products.

Steps which can be taken

1) Integration of agriculture with livestock rearing ⇒ growing fodder on part of land.

2) Use of technology like IndiGAV for better ~~best~~ health tracking.

3) Harit Dhara feed to make livestock rearing climate friendly.

4) Government can provide for forward linkages to market via PPP model

This will help make agriculture remunerative again for the farmer and prevent Vidharba type suicides.

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, उनका लेखा-जोखा दीजिए।

(15 अंक, 250 शब्द)

A-15

4th Industrial Revolution and Web 3.0

have opened a plethora of technologies to the ~~web~~ world.

Opportunities by new technologies

- 1) Drones can be used for mapping, delivery of food and ~~drugs~~ medicine.
↳ PM Swamitra used this for land record digitization.
- 2) Artificial intelligence can help provide targetted education and health, assess risk to bank frauds (as being done by American Express), create new opportunities for employment.
- 3) Augmented and Virtual reality can help develop indigenous gaming eco-

system and promote game based learning

4) Blockchain can help in peer to peer lending, safeguard data from breach, elections via smart contract (as in Singapore) and assure privacy of data as by Brave browser

5) Internet of things can help in real time data gathering about soil, crops, rains, moisture, etc. via sensors.

6) Space based technology like LPWAN gateways can help in providing internet to remote areas ⇒ inclusivity

Threats by modern technology

1) Use of drones by terrorists to harm security — recent J&K airbase attack.

2) Use of crypto currency for smuggling and money laundering on the dark web — recent Accenture report,

- 3) Cyber attacks as recently by Red Echo in Maharashtra power grid
- 4) Deepening inequality due to existing digital divide — away from SDG10
- 5) Militarization of space leading to new front of warfare.
- 6) Social media related fake news as seen in 2013 Muzaffarnagar riots
- 7) Radicalization via facebook and whatsapp — ISIS recruitment case in Kerala.

Need of the hour

- 1) Creating of cyber deterrence capability to deter state actors from cyber attacks.
- 2) Educating people about threats of tech — include chapter in school books.
- 3) Central agency like CERT-In to be decentralized according to Gulshan Rai Committee.
 — These will help to make India harness the potential of technology with security.

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)

A-16 Nanotechnology refers to the use of quantum properties which exist when we move to size dimensions of less than 100 nm range.

Nanotechnology as inter-disciplinary and interconnected science

1) Harnessing chemistry concepts about reactivity — increases with increase in surface area.

2) Harnessing physics concepts that optical and electro-magnetic properties change when size of particle approaches wavelength

3) Harnessing biology concepts which show that bacteria and virus are larger than 10nm \Rightarrow can't enter into mesh sizes smaller than that

Nano technology for social development

- 1) Promote health of people by
 - ↳ usage of carbon nanotubes for replacing blood vessels in surgery.
 - ↳ usage of biosensors made of nanoparticles for detecting and treating cancers.
 - ↳ Targetted drug delivery reducing side effects as caused by radiation therapy.

2) Promote nutrition by food fortification with nano iron and nano folic acid for greater absorption → tackle anaemia

3) Promote employment and jobs — higher pay package due to emerging tech.

Nano technology for economic development

1) Efficient energy generation — gold nano particle can increase solar module efficiency by 30%.

- 2) Efficient biosensors to track soil & water in agriculture ⇒ data driven cultivation
 - 3) Targetted pesticide delivery ⇒ less chance of contamination ⇒ higher exports
 - 4) Nano-technology usage can lead to more luminosity in nano-LED and lower costs of energy
 - 5) Economy around ~~rest~~ waste recycling
↳ higher reactivity can help remediation.
 - 6) Newer research can open plethora of opportunities → tag and trace ability
 - 7) Prevent food wastage — nano clay doesn't allow bacteria & virus infiltration
- Government steps like Nano Mission by Dept of IT are steps in the right direction to promote nanotech for improving human development and economic growth in the country.

Feedback
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Value
Addition

Total

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)

A-17 Groundwater has been overexploited in 17% of areas according to CGWA data. In cities like Delhi it has gone down by >4m in 2 decades.

Invisible groundwater

- 1) Agriculture uses 90% groundwater leading to virtual water export
 ↳ rice uses 3000 litre/kg water & is largest commodity in agri-export basket
- 2) Pollution of groundwater
 ↳ Arsenic contamination in West Bengal
 ↳ Nitrate contamination all over India
- 3) Illegal submersible usage in urban area → wastage of groundwater as seen in Chennai crisis.
- 4) Saltwater encroachment as seen in coastal areas.

Role of making groundwater visible for climate resilience

- 1) Promote vegetation support and sustainable agriculture due to being available.
- 2) Fulfil drinking water needs in areas like Dantewada where <2% houses have water supply.
- 3) Lesser health issues due to clean water — prevent diseases like methanoglobinemia.
- 4) Rainwater harvesting like Taniswada model can help recharge rainwater into ground \rightarrow prevent flooding of areas.
- 5) Simultaneous management of groundwater and infrastructure, as in Bidhana patten can help promote resilience.

Role in sustainable development

- 1) Important for SDG-5 since women face disproportionate burden of water crisis
- 2) Important for SDG-6 to provide clean water and sanitation for all
- 3) Important for SDG-11 to promote sustainable cities unlike what happened in Cape Town (groundwater ran out).
- 4) Important for SDG-15 to promote life on land as biodiversity is direct function of soil moisture & water table.
- 5) Important for SDG-10 to reduce inequality as burden of less water is faced mostly by the poor.

Need of the Hour

- 1) Following Chennai's model for wastewater treatment & recharge.
- 2) Rationalize power subsidy as in Punjab to prevent overuse. This will help achieve climate resilience with use of groundwater as an agent

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)

A.18) Single use plastic is generated to the tune of 3.5 million tonnes in India with most of it ending ~~and~~ unrecycled on land & in water.

SUP = Health Scourge

- 1) Plastic microparticles found in human blood — PET plastic from bottles,
- 2) Health of animals like cows affected due to consumption → die to choking

SUP = Economic Scourge

- 1) Large part of resources are spent on collecting and removing plastics from drains, roads, etc.
- 2) Urban floods occur due to choking of drains by plastic which is now being

generated unprecedentedly — seen in Delhi case

SUP = environmental scourge

- 1) Great Pacific Garbage patch and microplastics found in gut of marine animals.
- 2) Microplastics in fresh antarctic snow
 ⇒ can exacerbate glacier melting & hence climate change.

Seeing all this government banned single use plastic from 1st July 2022. This will help —

Government to regulate

- 1) Reducing usage and increasing recycling of plastic.
- 2) Can introduce a certification scheme and enable trading of credits for plastic usage and recycling.
- 3) Fines from breach can be used to

establish recycling infrastructure.

Business to innovate

- 1) Find alternative cheap replacement to plastic which is environment friendly.
- 2) Bring down cost of recyclable plastic

Individuals to act

- 1) Awareness about the harms of plastic usage & voluntary compliance.
- 2) Can help start movement like LIFE by PM → use of climate friendly lifestyle
- 3) Rest of them can bow down to social stigma as & when it gets attached to plastic use

However lack of feasible alternative is a key issue. Need of the hour is to spend on R&D for finding the same by government and private collaboration.

Feedback (For OFFICE)

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 सुभेदाओं का विश्लेषण करें।

(15 अंक, 250 शब्द)

A.19] India has a 7500 km long maritime boundary which makes India vulnerable to variety of security threats as highlighted by 26/11 Mumbai attacks

Management differences

Maritime borders	Land borders
1) Not possible to build <u>fences</u> due to ambiguous nature	1) Fences have been built with <u>Pakistan border</u> .
2) Not an abrupt boundary - <u>territorial waters</u> followed by <u>EEZ</u> → <u>fishermen</u> suffer as in Sri Lankan case due to lack of <u>clarity</u>	2) <u>Abrupt</u> boundary making management easier due to <u>demarcation</u>
3) One force cannot guard → need <u>layered security regime</u>	3) <u>One border one force</u> possible - <u>Madhav Gadbole committee</u>

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4) Large gaps/vulnerability due to no clear route of movement.

5) Piracy and related attacks as in Creek of Gujarat and Sunderban

4) Easier to regulate movement in most cases.

5) Infiltration more difficult and piracy type things absent.

Vulnerabilities from long maritime boundary

1) Increase in criminal activity in India Ocean region due to Somalian Coast → threats of piracy & arms smuggling

2) Multiple States involvement leading to issues of coordination
↳ no central command as of now.

3) Jurisdictional issues due to overlap and lack of clear boundaries.

4) Fishermen community have discontent due to poor living standard

- cant function as "eyes & ears"
- 5) Lack of technological upgradation leading to gaps and vulnerability in coasts.
- 6) Not adequate manpower — only 25% of sanctioned strength in marine police
- 7) Only 31% of required infrastructure exists → Kargil Review Committee

Need of the hour

- 1) Creating an apex body for coordination — Kargil Review Committee
- 2) Creation of Central Marine Police Force like CAPF to augment capacity
- 3) Heightened vigil of riverine and marine borders using laser walls — Madhukar Gupta Committee
- 4) Comprehensive legislation to lay out roles for all stakeholders.
This will help make borders a phenomenon of development with security.

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)

A.20 Cyberthreats are increasing year on year as NCRB data shows 11.8% increase in FY 20-21.

Dual war by cyber threats

On Citizens

- 1) DTP related fraud leading to economic loss
- 2) Identity theft and breach of privacy (Article 21)
- 3) Ransomware attacks leading to compromise of key resources.

on state

- 1) Attacks on critical infrastructure as seen by Colonial pipeline ransomware attack (USA)
- 2) State sponsored attacks as on Mumbai power grid by Red Echo.
- 3) Log4shell can compromise governments systems - still depend on open source

NSA Doval has said that use of social media and civil society can wage dual war

against citizen as well as State.

Disrupting national security

- 1) Increasing success in attacks on organizations from 44% to 61% in past 2 years → Accenture report
↳ shows improving ability against security.
- 2) Pegasus case highlighted role of zero click malware attacks on sensitive individuals.
- 3) Use of social media to hamper national security as seen by mobilization done during Pulwama + stone pelting in J&K

Disrupting social fabric

- 1) Role of fake news being run maliciously on whatsapp, etc.
↳ led to mob lynching as in Pehlu Khan case
↳ communal riots as in 2013 Muzaffarnagar.
- 2) Radicalization by ISIS in Kerala using

Social media

- 3) Dark web, for drug trafficking → menace of rave parties in urban areas.
- 4) Distrust and discrimination among & against certain religions due to spillover of threat perception.

Need of the hour

- 1) Sectoral Certs instead of central Cert In
↳ Gulshan Rai Committee
- 2) Dedicated cybercrime cells in districts
↳ Inderjeet Rao Committee
- 3) Use of deep learning to catch phrases leading to radicalization.
- 4) Comprehensive hate speech legislation within ambit of IT Act.
- 5) Layered security structure with multiple point authentication.
- 6) Certification for best practices.

This will help to make cyber Surakshit Bharat a ~~real~~ reality

Feedba
(For OFFICE use)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

Mentor Feedback Questions

- 1
- 2
- 3
- 4
- 5

Test Goal

- 1
- 2
- 3

Outcomes

-
-
-
-

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		

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