



GENERAL STUDIES

Name Of Candidate **ISHITA KISHORE**Roll No. **1910080460**

Date:

9 JULY '22

Time Allowed: Three Hours

Maximum Marks: 250

INDEX TABLE

Q. No.	Max. Marks	Marks Obtained
1		
2		
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Total:	250	

INSTRUCTION

- Please do furnish Name, Email, Roll No and Mobile in the answer sheet.
- There are TWENTY questions printed in ENGLISH & HINDI, all questions are compulsory.
- The number of marks carried by a question/part is indicated against it.
- 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.
- 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.

Any specific messages for ForumIAS Mentors/Evaluators with respect to your copy? Write it here.

Evaluator's Discretion:

For Student Only

Start Time | **2 PM**End Time | **5 PM**
Total Marks:
Mode Of Examination:

 Online Offline

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.

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ECN CODE:
EG:
Evaluation Date:

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)

The rural-urban divide in India's employment is a peculiar issue

Sectoral Employment & GDP contribution

↙	↓	↘
<u>Agriculture</u>	<u>Industries</u>	<u>Services</u>
46% employment 16% GDP	25% employment 28% GDP	29% employment 56% GDP
┌──────────┐		┌──────────┐
concentrated in rural areas		concentrated in urban areas

Difference in nature

- i- Seasonality of agriculture creates problem of seasonal unemployment in rural areas
[Eg] Rabi & Kharif season
- ii- Feminisation of agriculture with women making half the workforce but owning 12% land titles creates gender gap
[Agri census 2015-17]

- iii- Low skill base of rural workers
- iv- Unorganised industry like FPI in rural areas

Urban areas

- i- Informal Sector : 90% workforce
- ii- Gig economy & Platform workers lack social security
- iii- Frictional unemployment due to shifting jobs

Interrelated Solutions

- i- Skill India : can go a long way in preparing workforce for Industrial Revolution 4.0
- ii- Female LFPR is at a dismal 22%.
[Niti Aayog Report on Gig Economy recommends inclusion in informal sector]
- iii- Promotion of MSME can help bridge the 'missing middle' in rural-urban problems
- iv- Registration of migrant workers on portals like e-Shram, Aarogya can bridge gap

To achieve dream of \$5tr economy, an integrated 'RURBAN' approach is required.

Feedback (For OFFICE use only)

Structure/ Presentation	
Question Interpretation	
Content	
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Total	

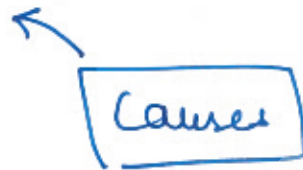
Q.2) Imported inflation is compounding the challenges of post-pandemic recovery for the Indian economy. Discuss. (10 marks, 150 words)

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

Inflation is the rise in the general price level in an economy. Imported

Inflation is the rise in prices due to international factors

Rise in fuel prices



Supply chain disruptions

Geopolitical crisis

(Ukraine War)

Lockdowns across the world

This has compounded challenges in post pandemic recovery as

i- Expenditure is increasing on ^{critical} import like fuel, leaving less scope for welfare schemes

- ii- Reduces Revenue of government as it has ~~not~~ reduced tax rates (eg) Fuel taxes
- iii- Low availability of critical resources (eg) Semiconductors slows down economy
- iv- Pharmaceutical dependence on APIs from china impacts recovery
- v- Food Inflation has been at a record high [Consumer Price Index in double digit] impacting common persons disproportionately
- vi- Impacts Core Industries which stagnates economy [fall in IIP index]

However, it has presented opportunities

- i- Government imposed Windfall Gains Tax on fuel exporters
- ii- India can capitalise on agricultural exports

Thus, supply side inflation from international sector must be tackled with prudent measures based on FRBM Act.

Feedback

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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 is the process of sowing and harvesting crops without artificial intervention with chemicals, fertilisers and pesticides

It includes :

-i- Organic farming which enhances soil health & human health

[Eg] Sikkim: organic state

-ii- ZBNF : Zero Budget Natural Farming
Recommended by S. Palekar

[Eg] Andhra is 1st State to adopt ZBNF
Pradesh

-iii- Suitability of Crop for land

Takes problem of water guzzling crops in rainshadow region

[Eg] Sugarcane in Vidharba is promoted via policies like FRP

Natural farming can thus help in building climate resilience in agriculture via

- i- Soil health : Tackle the current imbalance in NPK ratios [14:7:2 vis a vis recommended 4:2:1]
- ii- Green House Gas Emissions can be reduced \Rightarrow Methane from rice fields
- iii- Water conservation as excessive irrigation is avoided based on suitability of crop for area
 \Rightarrow 'BOLD': Bamboo in Rajasthan
- iv- Diversification of crops via rotation reduces homogenisation and ensures replenishing nutrients
- v- International commitments under NDCs and UNCCD can be achieved.

Thus leveraging traditional knowledge can help us become 'climate smart' & fulfil SDG 13 on climate action

Feedback

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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 is a sunrise industry that entails value addition of a product to enhance its shelf life.

Must be developed as a principal industry as

-i- Employment intensive sector

Sorting → Grading → Packaging → Marketing
can put India's demographic dividend to use

eg → 60% population in age 15-59

-ii- Nutritional Security is a key challenge with 33% children stunted, 57% women anaemic (NFHS II).

Processing & Fortification (Vit. A) can tackle this

-iii- Post harvest losses amount to

₹ 90,000 cr. annually (Dalwai Committee)
FPI can harness this

- iv- Industrial Growth as it has wide scope from meat, bakery to fruits, vegetables
- v- Doubling Farmers Income as they will be more connected in supply chain
- vi- Reduce Current A/c Deficit
(eg) Import of tamarind from Thailand
- vii- Inclusive Growth by including tribals (TRIFED), farmers (NAFED) via cluster based approach

However challenges exists like

- High initial cost of equipment
- low awareness

This programmes like PM Sampada, Farmer Connect Portal (APEDA) & PLI are steps to maximize gains from FPI.

Feedback

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Structure/
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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)

Space based technologies are the stepping stone for development in the 21st century

Role in monitoring development

- i- Land Zone Mapping can help policy makers understand the land distribution
 (Eg) More than 50% area is Zone 3 above in earthquake prone
- ii- Aviation industry ensures accuracy with satellites
 (Eg) GAGAN satellite
- iii- Monitoring pollution emissions by industry & its impact on human health
 (Eg) Smog over Delhi
- iv- Disaster Resilience prevents hazards from becoming disasters (Eg) GLOF in Uttarakhand

Role in enhancing development

- i- Geopolitical strength is showcased
 (Eg) Mission Shakti ASAT testing
- ii- Enhancing knowledge base about origins of earth can help tackle climate change
- iii- Telecom and Communication industry relies on it
 (Eg) Universal internet promised by Elon Musk
- iv- Enhanced availability of data in age of AI, Analytics, Big Data fosters development
 (Eg) Agriculture suitability, climate emergencies

Thus space technology plays a multifaceted role in growth & development.
ISRO is harnessing private participation in this regard with NSIL

Feedback

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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)

Fuel Cell e-vehicles are the new & coming climate friendly technology.
India aims for 30% EVs by 2030

Fuel cells are different from battery cells as they are

- ① Modular: can be used for different sizes & scales
- ② Rechargeable unlike batteries that need to be replaced
- ③ long term as batteries get used up & contribute to e-waste
- ④ Environment friendly as they release only heat & water.

Measures for accelerating e-mobility

① Charging infrastructure must be encouraged

↳ Eg) Delhi Govt Initiative

② Policy support

↳ Eg) Subsidies on EV

③ Climate friendly nature to be part of marketing campaign to make consumers feel responsible

④ Encourage industries to enhance production to achieve economies of scale

↳ Eg) Tata Nano EV

Thus EVs are the future & can ↓ oil imports & also help in

fulfilling SDG 11, 13

↳ & current BoC deficit.

Feedback

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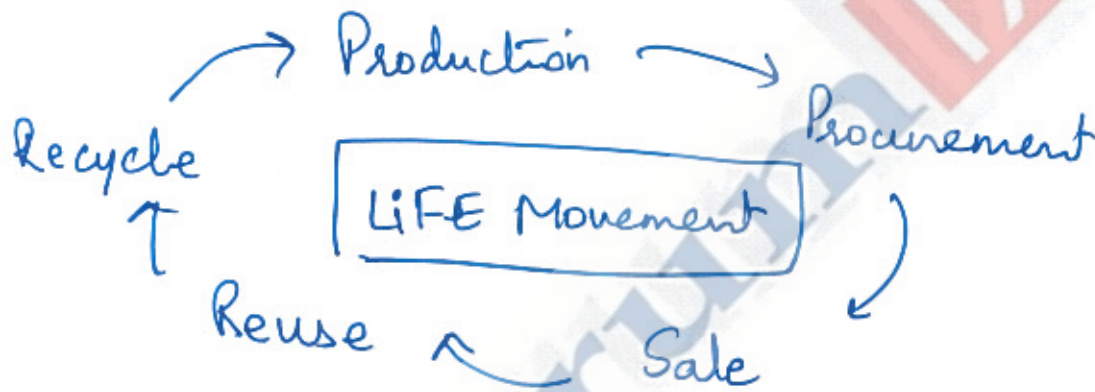
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Q.7) Ensuring sustainable consumption and production patterns for an environmentally conscious world is not possible without fundamental changes in lifestyle. Discuss this statement in light of Lifestyle for the Environment (LiFE) Movement. (10 marks,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

Circular Economy promoted by the Budget envisages sustainable consumption & production patterns



Environmentally conscious world requires lifestyle changes

-i- Conservation Methods in Agriculture

[Eg] System of Rice intensification instead of flooding

-ii- Infrastructure Support

[Eg] Mandating Rainwater harvesting in Building Code

- iii- Education of children
 Eg → Eco clubs in school
- iv- Role Models must be promoted
 Eg → Greta Thunberg
- v- Approach of coexistence must be fostered through community programs

Government initiatives in this regard

include :

- i- Forest Plus 2.0 for ecosystem revival
- ii- Paani Panchayats in Himachal Pradesh
- iii- Reducing Wastage with promoting PLI
- iv- Banning Single Use Plastic
- v- Promotion of EV by 30% by 2030

To ensure achievement of 'Panchamart'

there is a need for lifestyle changes

Eg: Replace indoor cooking w/ LPG
 (Uurat Chulha Abhiyan)

Feedback

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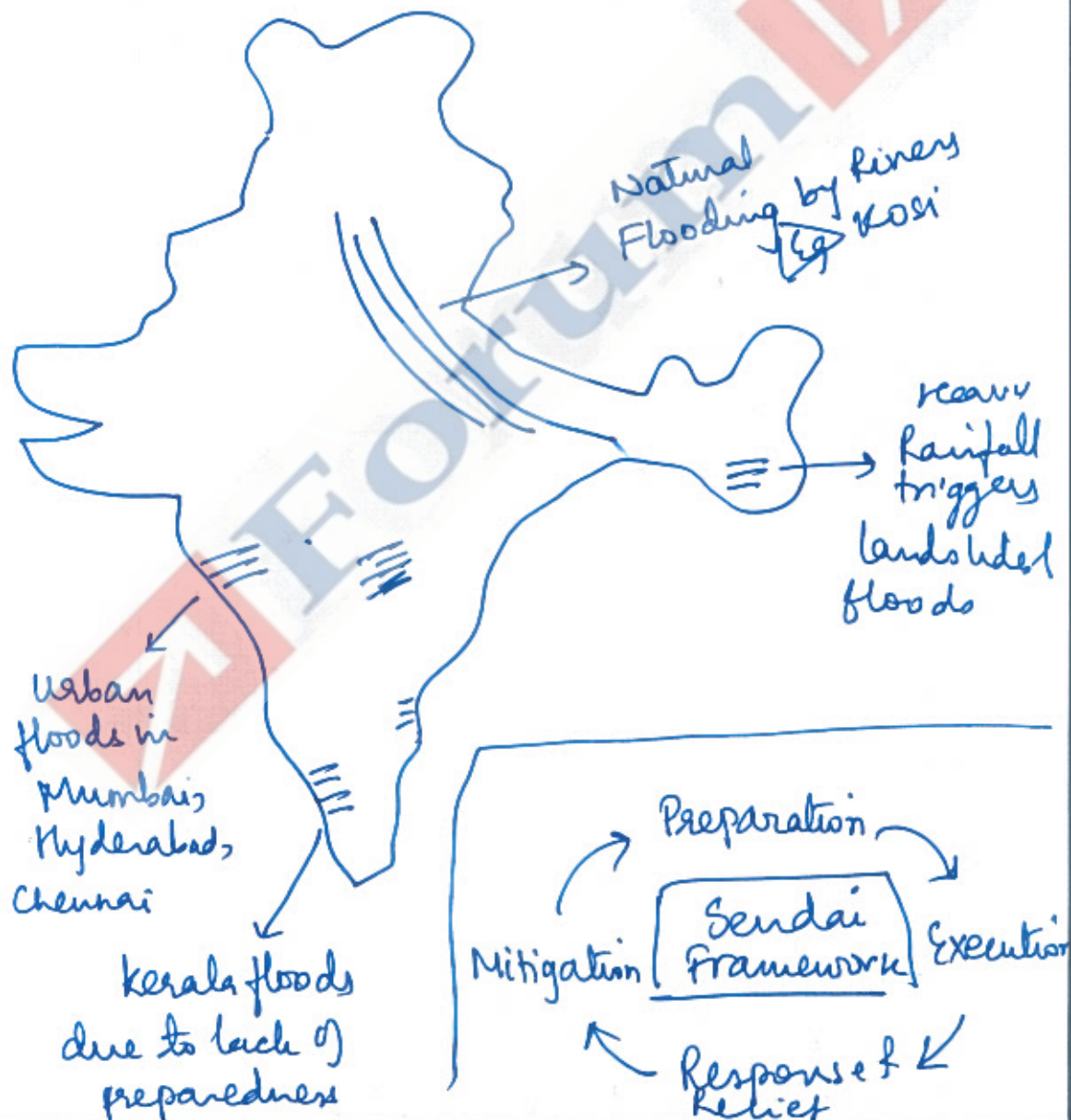
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Q.8) Managing risks, rather than impacts, lies at the core of effective disaster management strategy. In light of this statement, describe the flood risk profile of India and evaluate preparedness for effective flood management. (10 marks, 150 words)

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)

India ranks 7th on the Climate Risk Index & is prone to disasters. Floods are a key area of concern.



Flood Risk Profile of India

- i- Seasonal due to monsoon requires efficient monitoring of dams
 Eg) Mullaperiyar Dam
- ii- Urban floods due to
 - encroachment of wetlands
 - Concrebisation
 - lack of sewage
- iii- Climate vagaries with pockets of concentrated rainfall requires infrastructure
 Eg) Rain water Harvesting
- iv- North East & Tamil Nadu affected by retreating monsoon
 Eg) Chennai floods in October

Preparedness

- i- Technology use
 Eg: iflores in Mumbai
- ii- Land Zone Mapping
 Eg) Imphal Model
- iii- Innovative techniques
 Eg) ALPS
- iv- Mihir Shah Committee recommends Blue Green Infra

Need of the hour is an equipment driven approach & keeping the most vulnerable at centre of policy making w/ 3R: Reconstruct ^{Rehabilitate} Relief

Feedback

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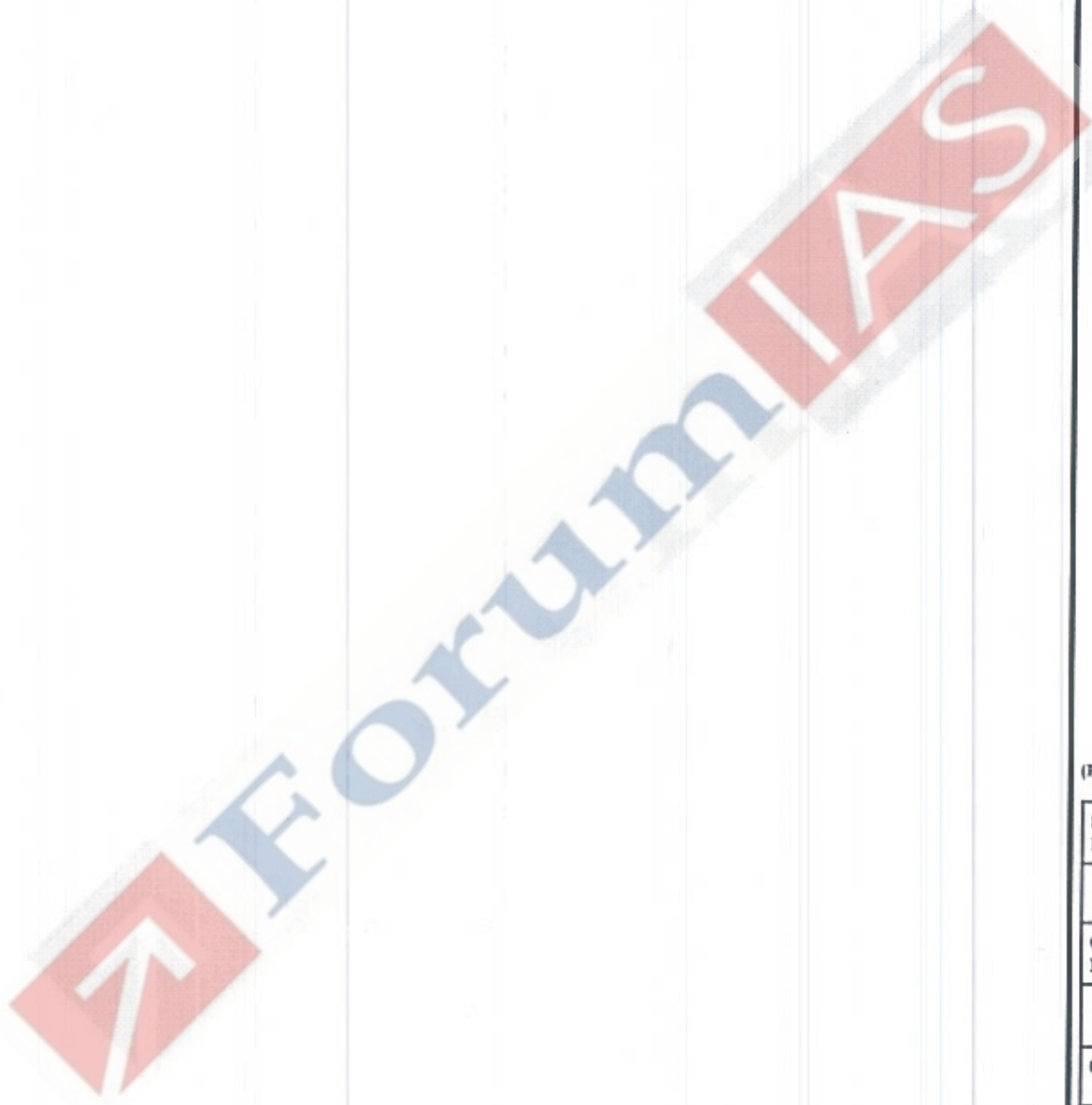
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Q.9) Discuss the salient features of Agnipath scheme. Underlining the benefits of the scheme, mention ways to overcome associated challenges. (10 marks, 150 words)

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)





Feedback

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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)

Technological progress has been a double edged sword. On one hand they make life easy, but on the other are tools for organised crime.

This is done with

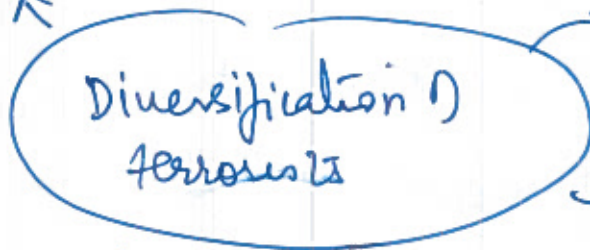
- i- Social Media groups used
 (eg) IET on twitter
 Clubhouse used by terrorists
- ii- VHF communication & Satellite based phones enable faster information spread
- iii- Encryption on apps by MNCs prevents leakage of their identity
 (eg) whatsapp
- iv- Bi-terrorism is a new tool w) spread

of biotech knowledge

- v- low intensity nuclear weapons leaked to terrorists via hostile states

Use of drones for drugs ↑

This has enabled



Cyber war

Privacy of citizens

↓
Coordinated attack

↓
Bio war

Measures to tackle organised crime

- i- Specialized agencies to tackle drug cartels from Golden Crescent & Golden Triangle
 - ii- Community Policing in vulnerable areas like Manipur
 - iii- Border Stringent Checks (Eg) Punjab vulnerable to weapons via drones
 - iv- Monitor Porous borders w/ surprise checks (Eg) Nepal
 - v- Use of Satellites to bust cartels
- Thus the menace of organised crime requires upgradation of forces

Feedback

(For OFFICE use only)

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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)

Despite the economic overhang of the pandemic, India achieved record \$400 bn ~~do~~ merchandise exports. Its forex reserves have also crossed \$600 bn mark, showcasing 'Atmanirbharta'.

Factors for this achievement

i- Robust proactive policy making in the wake of crisis

↳ Atmanirbhar Package for MSME

ii- Leveraging opportunity in global supply chain by the industry

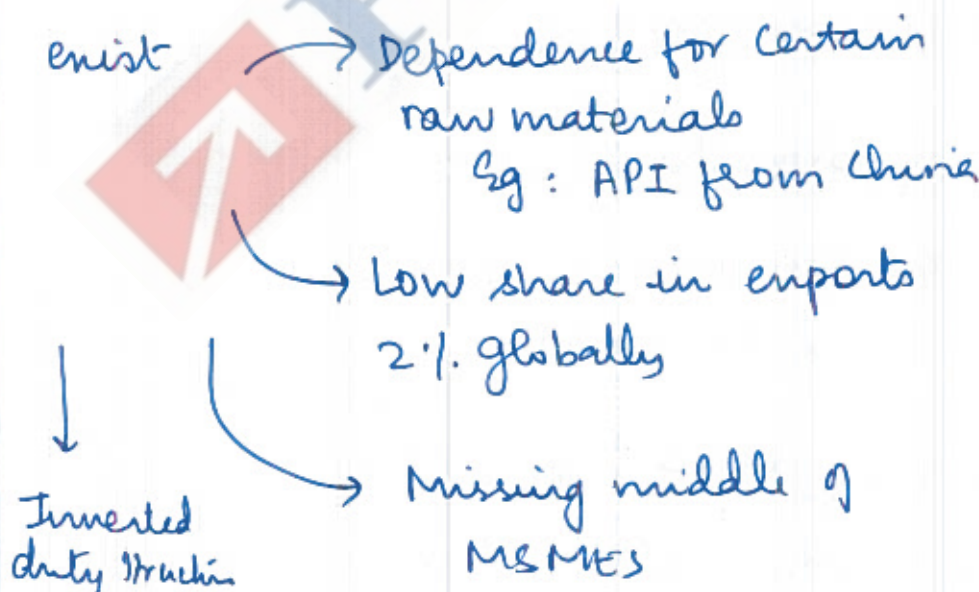
↳ MITRA scheme for textiles

iii- Digitisation of export procedures

↳ Turant Customs scheme

- iv- Promotion of Indian Goods at the international platform
 |Eg> GI Tag for Chikankari suits
- v- Rationalisation of taxes on key products like fuel which impacts the entire supply chain
- vi- Judicious exploration of trade agreements that maximise our benefits
 |Eg> Mercosur, avoiding RCEP

Thus while a multitude of factors are responsible for this feat, challenges exist



This can be tackled with

- i- Rationalising duty structure for imports that are key in exports
- ii- Promote textile & footwear industry as Vietnam, Bangladesh have emerged as leaders here
- iii- Promote sunrise sectors to build supply chain resilience
 Eg) PLI for Food Processing
- iv- Reduce turn around time at ports from current 1.5 days to Singapore level of 10-12 hours
- v- Develop more ports as 13 ports handle around 68% of cargoes
 Eg) Development of Vadhanan Port in Maharashtra

Timely holistic measures are key to take advantage & emerge as a \$5 trillion economy & kickstart 'Amrit Kaal'.

Feedback

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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 is the leveraging of technology based services and solutions to resolve financial hurdles.

Fintech in financial inclusion

i- Government Programmes reach the beneficiaries w/o disruption or diversion

↳ JAM trinity, DBT

₹500 deposited in Jan Dhan A/c in COVID

ii - Enables RBI to spread useful infrastructure like ATMs, ePos

↳ Payment Infra Development Fund

iii- Operational efficiency in government bodies agriculture

↳ e-NAM portal

iv- Transaction ease : UPI clocked more

than 4 billion transactions in Nov 2021
enabling the middle & lower class

-v- International Migrants at ease

↳ RuPay introduced in Gulf nations

-vi- Greater MSME inclusion Eg: GeM portal

Thus Fintech initiatives have helped
fulfil goals of 'Better than Cash' alliance

However hurdles exist like =

-i- Digital divide in India in rural
and urban areas

-ii- Digital Education of low skilled workers
is low and stops prevents use of fintech

-iii- Low internet penetration in
hinterland

-iv- Dormant Jan Dhan A/c's

These can be overcome with

- i- BharatNet Programme implementation must be fast tracked to bridge digital divide
- ii- Common Service Centres at the Panchayat level can foster fintech spread
- iii- Financial and Digital Education must be spread
 [Eg: RBI initiative]
- iv- leverage youth organisations like NYKS, NCC, NSS for ICE on fintech
- v- Use of private sector
 [Eg] Jio revolutionised internet charges

Thus 21st century is the 'Internet Age'
 Initiatives like e-RUPI can go a long way in reaping the development potential of fintech

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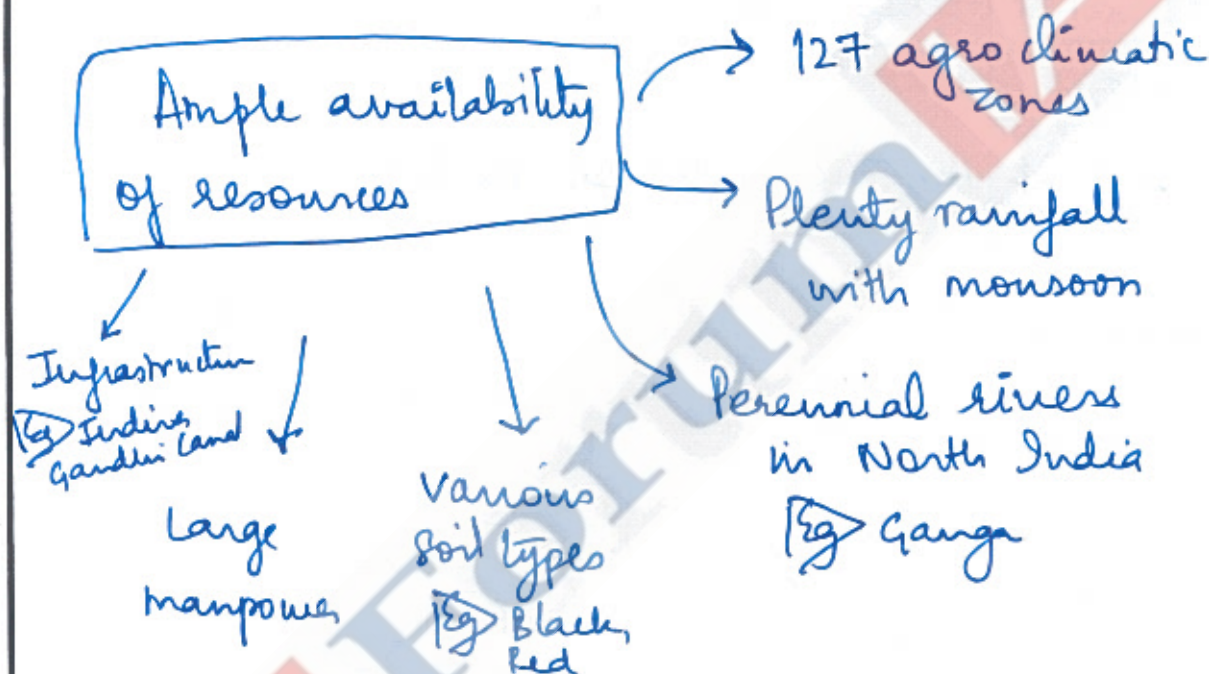
Structure/ Presentation
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Q.13) The fundamental problem in agriculture is not the availability of resources, but their inefficient use. Comment. (15 marks, 250 words)

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

(15 अंक, 250 शब्द)

Agriculture is the mainstay of Indian economy. It employs over 46% of the workforce, yet contributes only 17% to GDP.



However the inefficient use of these resources has exists:

-1- Mismatch in land & crop

Water guzzling crops like sugarcane promoted in water deficient areas

Vidharba, Western UP via policies like FRP

-ii- Excessive use of fertilizers has distorted the soil health

↳ NPK ratio must be 4:2:1 but it is around 14:7:2

-iii- Green Revolution promoted mono cropping practices

↳ MSP for rice & wheat in Punjab

-iv- Excessive groundwater extraction due to distorting policies like free electricity

↳ Punjab reduction in groundwater at 1m/year

-v- Lack of irrigation facilities : only 48% area irrigated, rest in rained without practices like rainwater harvesting

(Should make it mandatory)

-vi- low rural employment opportunities have given rise to disguised unemployment

This can be tackled with

- i- Investment in agriculture to improve efficiency (Eg) Agriculture Infrastructure Fund
- ii- Promoting agriculture allied services (Eg) Animal husbandary to decrease disguised unemployment
- iii- Mandate Rainwater harvesting under New Building Code (Eg) Integrated Watershed Development
- iv- Judicious monitoring of Soil Health Cards to ensure balanced soil structure
- v- Promote crops like Millets that are climate resistant + nutritional & Bamboo for desertified areas (BOLD scheme)
- vi- Revise distorting policies like MSP (Amber) with PM Kisan (Green Box of WTO)

Unlocking agriculture's potential can help become a leader & fulfil dream of 'New India @ 75'

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, as part of Agriculture Allied Sector, can help in unlocking the potential of the Agricultural sector, where 49% employment contributes only 17% to GDP.

Role of livestock farming under MIXED farming in

I Farm Income

- i- Supplementary source of earnings can help in doubling farmers income (Dalwai Committee)
- ii- Huge demand exists for livestock poultry and dairy products
(Eg) India is largest milk producer in

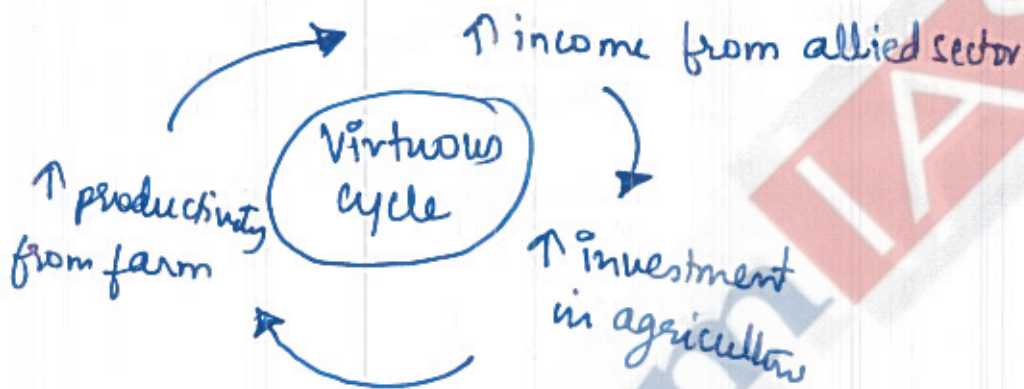
- world but maximum is consumed domestically
- iii- Link with food processing sector can enhance income, increase shelf life
 Procurement under Sampada Scheme
 - iv- Support from Government under new schemes like Rashtriya Gokul Mission, can improve farmers livelihood

II Land Fragmentation

- i- Average land size as per Agriculture Census 2015-16 is 1.08 ha showing poor potential for farmer.
 Thus, diversify profession of livestock
- ii Females own only 12% land titles, for their financial security, mixed farming is a lucrative option
- iii- 85% farmers are small or marginal and thus livestock can help them reach their potential

III Productivity

- i- Stagnation as percentage of GDP can be overcome with allied sector
- ii- Rise in income will create a



- iii- Rising share of agriculture allied sector in agriculture GVA

Thus with population rise & limited land, the Malthusian problem can be resolved by exploring allied activities in Mixed Farming. Promoted by government of

- Artificial Insemination
- Kaandhen.

Feedback

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Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

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)

21st century is fast becoming synonymous with the 'Digital Age' with cutting edge technologies being introduced at a fast pace

'Creative Destruction' is taking place where new age technologies disrupt traditional practices with innovation & invention.

They open fascinating opportunities

i- Social interaction has been revolutionised with social media platforms where those who are thousands of KM apart are one click away [Eg] Facebook, WhatsApp




ii- Political campaigns for government schemes [Eg] 'GOAL' for tribal girls

- iii- Environment : Awareness and knowledge spread [Eg] Greta Thunberg's Fridays for Future
- iv- Health sector with telemedicine
- v- Education within reach of thousands in COVID [Eg] MOOC
- vi- e-Commerce has blossomed
[Eg] Amazon, Blinkit 10min delivery

However it poses threats also

- i- Cyber Security is a key concern with hackers [Eg] Red Echo
- ii- Privacy is under threat w/ data leakages violating Art 21
[Eg] ICICI data leaked
- iii- Culture of consumerism on social media, rising cases of cyber bullying
- iv- Political threat as seen in
[Eg] Cambridge Analytica disrupts

democratic ethos

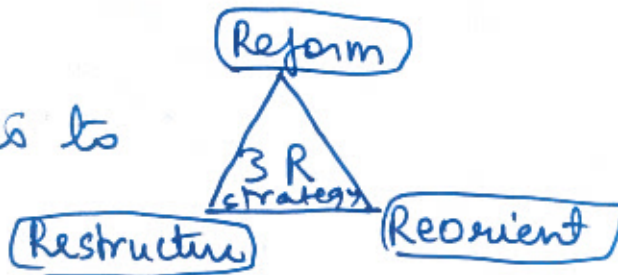
- v- 4th generation Warfare is remote controlled  Estonia's critical infrastructure attacked in 2007
- vi- Cut throat competition for platform workers  Uber drivers
- vii- Age of Fake News creating an 'infodemic'  COVID protocol confusion

Thus these inventions are a double edged sword requiring robust policy

intention  Whatsapp privacy policy
 Twitter compliance officer
 Cert-In for emergency

Need of the hour is to

our traditional organisations to reap benefits of such disruptive innovations & emerge as 'Vishwaguru'



Feedback

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Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

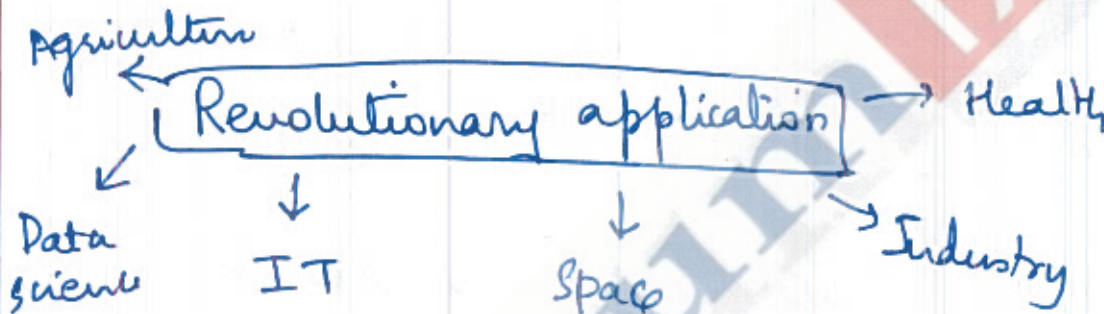
Q.16) Nanotechnology is an inter-disciplinary and inter-connected science that has revolutionary applications across sectors. In this perspective, discuss the relevance of nanotechnology for socio-economic development in the country. (15 marks, 250 words)

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

(15 अंक, 250 शब्द)

Nano technology is the manipulation and use of molecular or atom scale elements for productive gains.

[10^{-9} m = 1 nanometer]



Relevance for socio economic development

-i- Health : Significant use as seen in

- Drug delivery [Eg] Nanomicelles
- Cancer patients [Eg] Prevent healthy cells
- Diabetic Pads
- Surgical instruments

- ii- Agriculture can benefit
 (Eg) Nano liquid urea introduced by IITD
 → understanding soil structure
- iii- Biotechnology
 → Genome sequencing (ATGC base pairs)
 → RT-PCR details
 → Vaccines, fortification
- iv- Space sector
 (Eg) UNNATI program of ISRO for nano satellites
- v- ITech Sector with semiconductor chips
 (Eg) Graphene for screens
- vi- Fullerenes have great use in Security
 (Eg) Bulletproof jackets
- vii- Industry can leverage nanotechnology for advancement in machinery

India has promoted nanotechnology with its Nano Mission.

More efforts are required as Research funds only 0.7% of GDP. Government must set up Centre for Excellence.

Feedback

(For OFFICE use only)

Structure/
Presentation

Question
Interpretation

Content

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)

Central Ground Water Authority has held that over 20% districts in India are 'Water Stressed'. This demands attention.

'Invisible' or 'Virtual Water' is a term that shows use of water in products | Eg 1 kg of rice required 3600 litres of water

Importance of making groundwater visible

for

I Climate Resilience

-i- Agriculture is the largest source of groundwater use. 80% groundwater is channeled here

-ii- Climate Risk Index : India ranks 7th on it & will soon become 'water scarce'

- iii- Industries like paper, steel, coal are water guzzling
- iv- Pollution of surface water like rivers makes groundwater critical
- v- Encroachment of wetlands increases our dependence on groundwater
- vi- Distorted policies like free electricity promote groundwater wastage
 (eg) Decline in Punjab water table 1m/yea

II Achieving SDGs

- i- SDG 13 of climate action requires conservation of water
- ii- SDG 5 of gender inequalities reduction as women are worst sufferers of water decline
- iii- SDG 11 of sustainable cities with judicious use (eg) Delhi suffering

shortages due to Yamuna pollution

-iv- SDG 17 of Partnerships is essential

eg) Mishra Shah Committee recommends unification of CWA and EWC

-v- SDG 1 of 'hunger' as agriculture is dependent on water

-vi- SDG 2 of 'health'

eg) Cancer trains in Bhatinda due to mixing of arsenic & uranium in drinking water

Thus making the invisible visible will go a long way in promoting 'holistic development' and achieving SDG by 2030. As held by Ministry of Jal Shakti 'Jal hai Toh Jeevan Hai'

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)

India recently added the 'Extended Producer Responsibility' under its Plastic Waste Management Rules.

The government has recently introduced a ban on 'SUP' as it impacts

I Health

-i- Animal health is impacted as they consume plastic from garbage

-ii- Marine animals due to plastic garbage in oceans

↳ Recent dead whale on shore had stomach full of plastic

-iii- Microplastics found in human excreta recently

- iv- While plastic itself is not harmful, it has a tendency to concentrate toxins
- v- Furans released due to plastic burning

II Economic

- i- Distort practices as they are cheap
 [Eg] Preferred over cloth bags
- ii- Huge Wastes generated creating issues under 'EPR' which is uneconomical
- iii- Creates competition for other durable products [Eg] Tupperware v/s Milton

III Environmental

- i- Release of Green House Gas on burning [Eg] Furans
- ii- Great Garbage Patch in Pacific Ocean
- iii- Concentration of diseases in animals

impacting biodiversity.

Thus it requires a three pronged approach

I Regulation by Government : Promoting

'One Health', facilitating a 'Circular Economy', creating culture of 'Recycle → Reuse → Refuse'

II Innovation by businesses

→ Use of plastic in road construction

→ Return 'token refund' after product is returned

→ Use of Jute bags

III Individuals

→ Refuse plastic less than 10microns

→ Reuse products to enhance life

→ Collect products for recycling

Thus each one of us can make a difference for all of us to achieve SDGs.

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's maritime borders extend along its coastline of 7500 KM, and experience unique vulnerabilities

Difference between

Maritime Border

- ① Extends to
 - Territorial Waters (12 NM)
 - Exclusive Economic Zone (200 NM)
 - High Seas

- ② Regulated by international treaty like UNCLOS

Territorial border

- ① Shared with countries
 - West & North West Pakistan
 - China
 - Nepal
 - Bhutan
 - Bangladesh
 - Myanmar in East

- ② Boundaries decided by countries & colonial commissions
- (Eg) Radcliffe w/ Pakistan
McMahon w/ China

③ Disputes arise
 [Eg] Sir Creek
 which impacts
 access to marine
resources

④ Indian Coast Guard
 and Indian Navy
 are primary
 organisations
 in charge

⑤ Threat to
fishermen is a
 key concern
 [Eg] Italian
 marines case

③ Border disputes create
 security threat
 [Eg] Galwan Valley
 incident
 or Uui

④ Sachastra Seema Bal w/
 Nepal, Bhutan
 BSF w/ Pakistan, Bangladesh
 ITBP w/ China
 Assam Rifles

⑤ key concern is
 border villages
 [Eg] Tawang region
 of Arunachal

Thus territorial and maritime borders
 have similar but varied concerns

Vulnerability of maritime borders

-i- Centre of global political theatre

[Eg] Indo Pacific Region

- ii- Threat 180° threat with China's String of Pearls strategy
- iii- Proximity to key shipping channels
 [Eg] malacca strait, strait of Hormuz
 makes it vulnerable to geo-economic rivalries
- iv- Maritime Exercises violating UNCLOS
 [Eg] Recently US entered India's EEZ
- v- Terrorism penetration
 [Eg] 26/11 attack
- vi- Spread of extremism
 [Eg] Kerala students shipped to ISIS areas

Thus India's SAGAR strategy is a step in the right direction.
 Need of the hour is institutional global governance & phurilateral coordination [Eg] IOFA

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)

21st century has become synonymous with the 'Cyber Age' with fast penetration of digital technologies.

War of Cyberthreat on State & Impact

on National Security

-i- Critical Infrastructure can be hacked

↳ Kundankulam Nuclear Plant

-ii- Data Misuse by MNCs in an age of globalisation

↳ Mastercard refused data localisation norms

-iii- Functionality of State Services can be impacted

↳ Faceless digital tax assessment.

-iv- Judiciary uses e-courts which can be hacked
 [Eg] Recently in Juhio Chawla's 5g case

-v- Public infrastructure can be victim to geopolitical rivalries

[Eg] Estonia metros stopped by Russian hackers in 2007

War on citizens & disruption of social stability

-i- Privacy is under threat impacting Article 21 [Eg] Dominion data leak

-ii- Cyberbullying is rising

[Eg] Instagram boys locker room

-iii- Targetting minorities on social media

[Eg] Bullibai auction

iv- Culture of consumerism eroding social fabric

[Eg] Youtube travel vloggers

-v- Mental health concern with rising insecurities and suicides

-vi- Fake News penetration with ^{mass} forwards

These have been tackled with :-

→ National level :

- (i) Cert-In for emergency response
- (ii) Ethical hackers hired for cyber drills
- (iii) Data localisation norms
(Eg) Rejecting Osaka track)

→ Social level

- (i) Whatsapp privacy policy fixed
- (ii) Compliance officer mandated
- (iii) Local content requirement in e-commerce

Thus cyberthreats are a key concern

w/ emergence of 4th Gen Warfare & must be prudently tackled.

Feedback

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Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

Mentor Feedback Questions

1

2

3

4

5

Test Goal

1

2

3

Outcomes

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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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