

ForumIAS

GENERAL STUDIES

Name Of Candidate	Vedika Bihari		
Roll No.	1910052951	Date:	20/08

Time Allowed: Three Hours

Maximum Marks: 250

INDEX TABLE			INSTRUCTION
Q. No.	Max. Marks	Marks Obtained	<p>1. Please do furnish Name, Email, Roll No and Mobile in the answer sheet.</p> <p>2. There are TWENTY questions printed in ENGLISH & HINDI, all questions are compulsory.</p> <p>3. The number of marks carried by a question/part is indicated against it.</p> <p>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.</p> <p>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.</p> <p><i>Any specific messages for ForumIAS Mentors/Evaluators with respect to your copy? Write it here.</i></p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p> <p>-----</p>
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Evaluator's Discretion:			For Student Only
			Start Time 9:30 AM
			End Time 12:30 AM
Total Marks:			Mode Of Examination: Online <input 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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			Evaluation Date:

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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						
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ADDITIONAL REMARKS

Forum IAS

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 अन्वोन्याभित और परस्पर संबंधित हैं। विश्लेषण कीजिए। (10 अंक, 150 शब्द)

About 41.6% of India's population is engaged in labour force with 50% of India's population in urban areas by 2050 the labour problem of both areas may differ but solution is common

Difference in problem

Urban	Rural
① Unorganized sector mainly due to <u>MNCs</u> and <u>construction</u>	Informal agriculture sector
② frictional and structural unemployment due to skill demand mismatch	Disguised and seasonal unemployment due to agriculture
③ Increasing burden on resources & opportunities due to <u>internal migration</u>	feminisation of poverty & agriculture due to same
④ Gig economy and <u>informalisation</u>	Delayed payments in <u>MGNREGA</u>

22) Imported into economy. Disc...

⑤ Quality of life degraded due to congestion and pollution

Lack of infrastructure and connectivity

⑥ Low female labour force participation (L.F.P.) due to education

About 26% due to agricultural labourers

Skill Mapping :

Develop cooperative and cottage industries in Rural areas

RURBAN : Premium infrastructure and Connectivity

Housing and amenities with portable schemes to internal migrants

Along with smart city, needed through PMKVY

Stepped Migration :

Build alternate towns to reduce burden Eg: Nashik, Thane, Surat

Mass transit system

Rural urban connect to enhance market access

Eg. Bhubaneswar bus services

forward and back ward linkage to agriculture : PPOs

smart villages are

NRLM-SHG, & stream point

Feedback
(For OFFICE use only)

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।

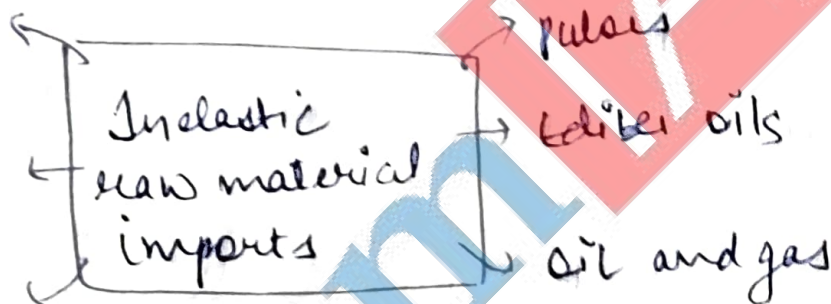
(10 अंक, 150 शब्द)

Imported inflation refers to price rise caused due to global inflation and mainly hiked prices of raw material imports

Computer & electronics

Iron and steel

Fertilisers



Imported inflation : India's inflation (CPI) has been around 6% due to

① Russia-Ukraine war and rise in prices of oil and gas : eg LPG cylinder around ₹1000.

② OPEC cartelisation : Hiked price to recover losses of COVID : eg petrol price more than ₹100/lit.

- ③ Semiconductor shortage ; Caused
black marketing in cars and electronics
due to China's policy
- ④ Supply chain disrupted : freight ships
limited and costly
- ⑤ Shortage of rare earth elements
- ⑥ Increase in prices of pulses, edible oil, etc

In this context Atmanirbhar Bharat
along with PLI to make India
hub of global supply chain can make
India resilient in future.

Feedback

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Structure/
Presentation

Question
Interpretation

Content

Value
Addition

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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 agricultural technique inspired by nature's intervention and natural biogeochemical cycle.

Plant protection

Mulching :
for aeration
(Aachadana)



Bejaniitra :

Rescuing of seeds

Jeevamitra : organic

Uchapsa : manure

Use of ground water through earthworms

Agriculture through water used ground and air pollution impact climate.

Natural farming is needed in this context.

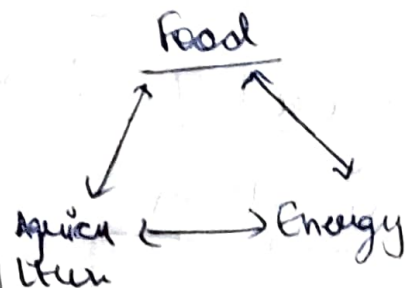


Fig: Circular economy approach

① Reduce ground water over extraction :

Conventional IAP has led to sud zone in

Punjab Haryana

① Decline soil salinisation : Due to saving soil moisture

② Reduced usage of fertilisers : They emit NO_x and CH₄, this can be reduced

③ Carbon sequestration through mulching and build soil organic compound

④ Reduced invasive species : Protect indigenous resilient crops

⑤ Agro forestry : Reduce changes in land use pattern

Economic Survey '20 mentions ZBNF to change from land based approach to water efficiency approach thus making Agriculture more resilient to climate induced scarcity and disasters.

Feedback
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Presentation

Question
Interpretation

Content

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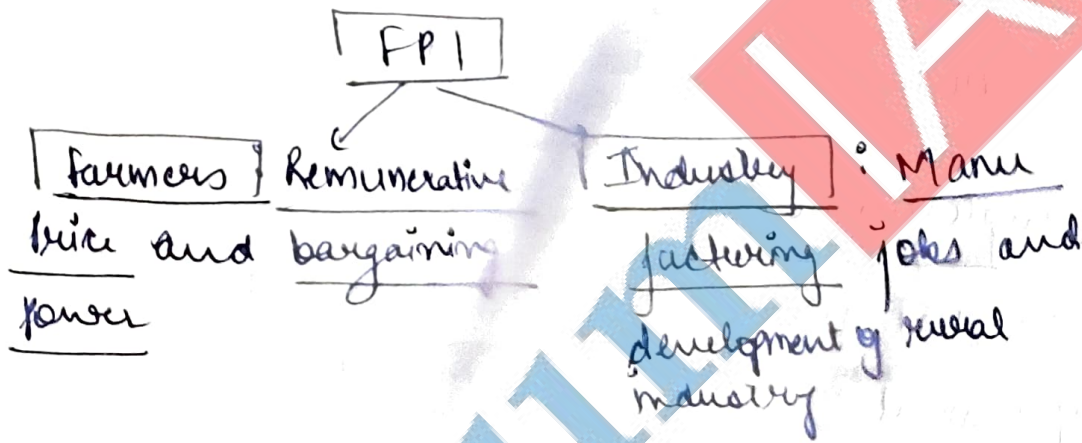
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Q.4) Food Processing sector must be developed as one of the principal industries in the country for reasons that go beyond agriculture. Elucidate. (10 marks, 150 words)

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

Food processing is post production process that incorporate storage, value addition and marketing of consumable food products.



Importance of FPI

① Leverage India's agricultural economy

- ↳ largest milk producer
- ↳ 2nd largest sugar producer
- ↳ large wheat, rice, fruit and vegetables

③ Forward linkage to farmers

- ↳ farm to fork connectivity
- ↳ reduced food wastage
- ↳ value addition

④ Backward linkage to industries

- ↳ develop village industries
- ↳ Reduce pressure on urban areas

④ Employment

- ↳ resolve seasonal and disguised unemployment. ↳ cooperative culture
- ↳ SHG led women empowerment

cooperative model based supply chain infrastructure
 ↳ Cluster models with village - city connectivity

- ↳ Use of Trade receivables discounting
- ↳ Quality check to enhance export
- ↳ Private investment in agriculture
- ↳ Food parks and SAMPRADA scheme

Feedback
(For OFFICE use only)

Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

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 को निगरानी करने में सहायक हैं, बल्कि इसे बढ़ाने में भी सहायक हैं। चर्चा कीजिए। (10 अंक, 150 शब्द)

Space based remote sensing, GPS, GIS can help to monitor development and also provide impetus to development

Monitor development

- ① Monitor land degradation, ground water, forest resources
- ② Monitor extent of urbanisation and satellite towns
- ③ Monitor strategic development on borders for internal security
- ④ Can be used by FSI, NSSO, GIS

Enhance development

- ① publicise national data : National

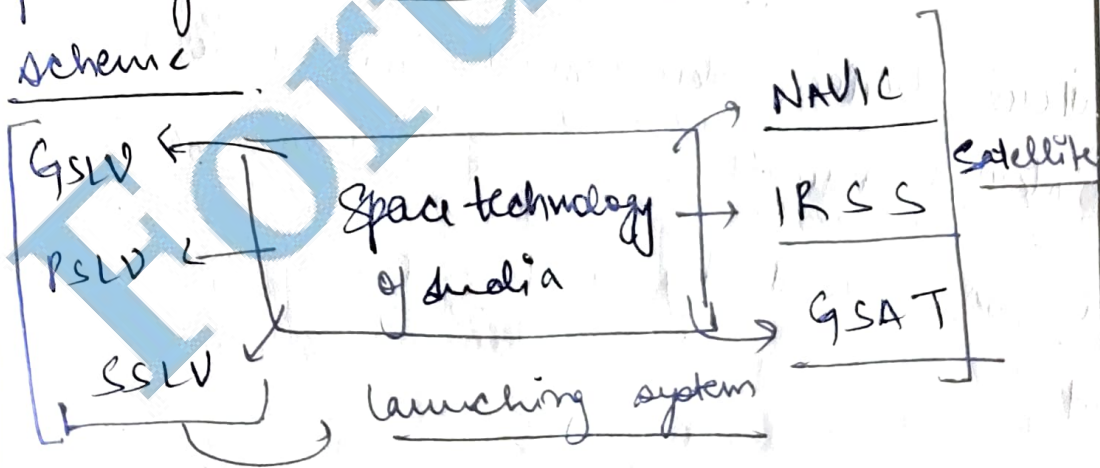
data sharing policy to ensure profitable location based decision

② Use in agriculture ; farm insurance
soil quality

③ Big data analytics and sharing information
regarding smart cities, urban planning

④ Demarcation of mines and exploration

⑤ Accountability and checks on spatial planning and land use pattern of Smart cities



Space is full of opportunities and challenges that is needed to be explored for 124.0

Feedback (For OFFICE use only)	
Structure/ Presentation	
Question Interpretation	
Content	
Value Addition	
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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 use chemical energy i.e. mainly Hydrogen to electricity energy.

<u>FCEV</u>	<u>BEV</u>
constant <u>supply of energy through chemical reaction</u>	rely on <u>stored energy</u>
<u>Costly in nature</u>	<u>Cheaper</u>
<u>energy efficient and high voltage : Used in satellites, rockets</u>	<u>less power</u>
<u>Very little GHG mainly water and heat produced</u>	<u>GHG emission depend on energy source of battery energy</u>

Advantages of EV

- ① Climate friendly reduced GHG emissions eg: Electric bus in Delhi
- ② Reduced dependence on crude oil & energy security
- ③ Employment and manufacturing growth scope
- ④ Cheaper transit system for Auto rickshaw and other public transports eg: Rickshaw

Measures

- ↳ More charging stations
- ↳ Safety and security: More R & D eg: incidents of burning of e-2 wheelers
- ↳ incorporate in urban transit system and TAME
- ↳ Atmanirbhar raw material supply chain of semiconductors and chips to reduce costly expensive imports.

Feedback

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Structure/
PresentationQuestion
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)

Hon'ble PM, Modi Called for changes in lifestyle to sustainable consumption and production at COP 26 to protect environment - resource pressure

LIFE STYLE & related issues

USA	15 ton
UK	5 ton
India	1.8 ton

Per capita carbon emission

① Production issues

↳ discharge of waste in water bodies

eg: Minamata disease due to mercury

↳ outdated and carbon intensive machinery

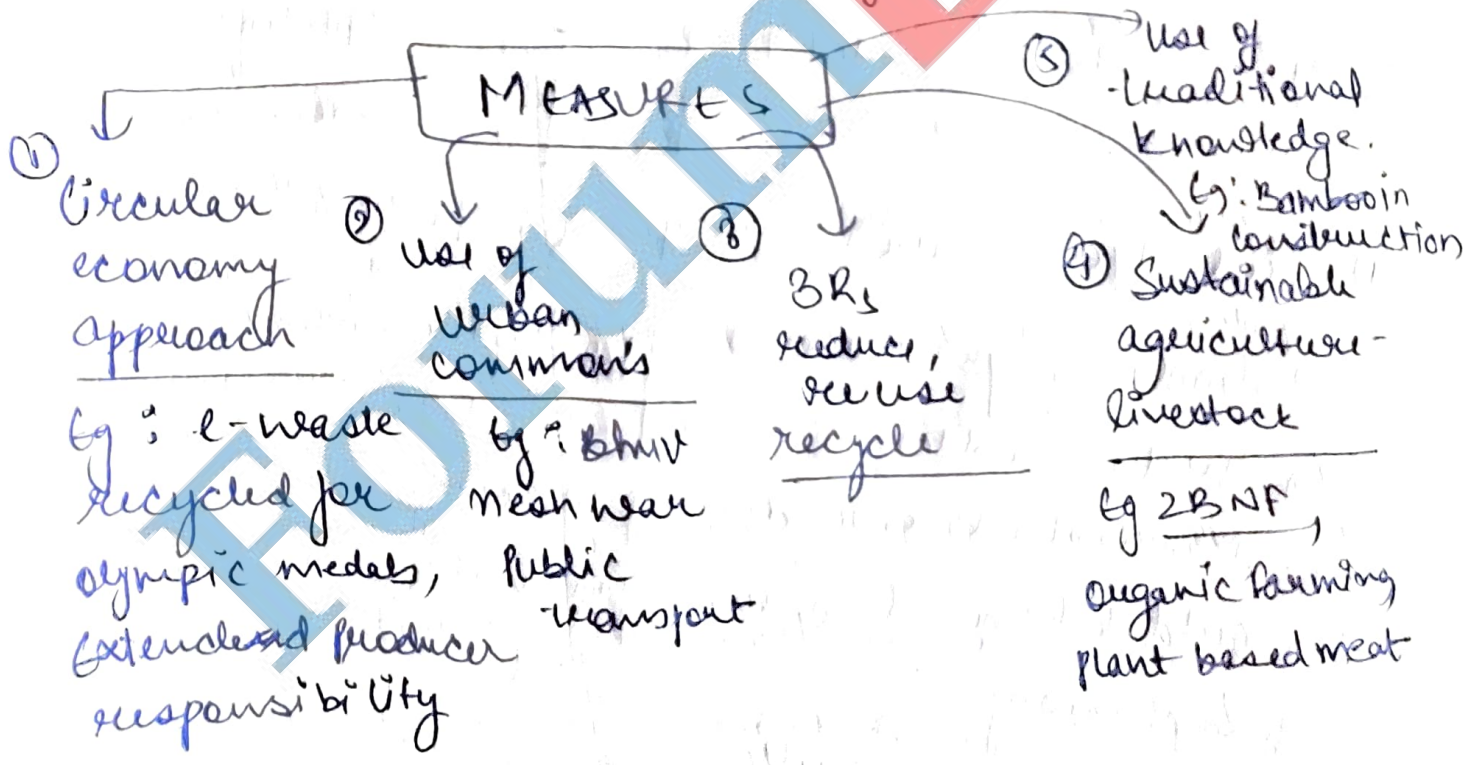
eg: India sugar mills

↳ non compliance on air pollution rule

- ↳ use of SWP
- ↳ less life of product
eg: Mobile, clothes, etc

② Development model

- ↳ coal driven growth model (70% of India)
- ↳ haphazard urbanisation (Chennai floods)
- ↳ land degradation and deforestation (Aarey forest)



There is a need for climate justice equity w/out lifestyle pattern of developed world vs developing world.

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)

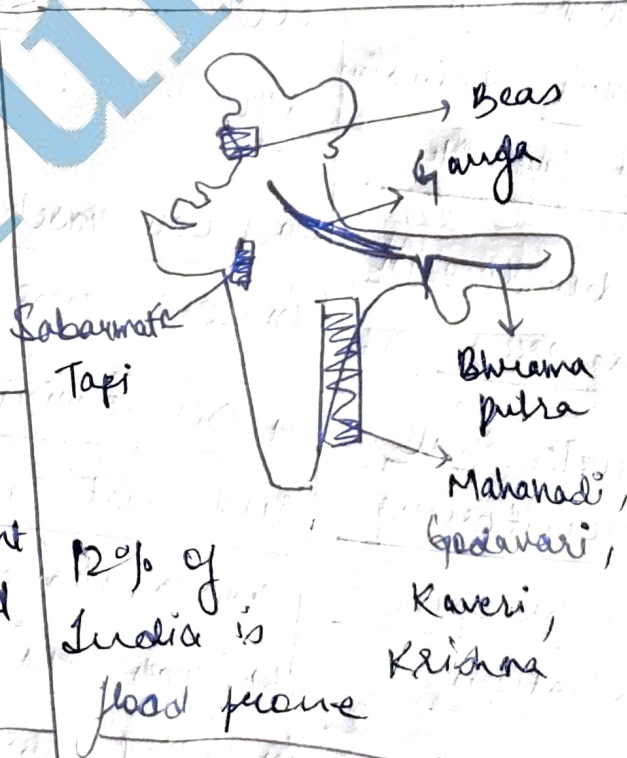
प्रभावों के बजाय जोखिमों का प्रबंधन, प्रभावी आपदा प्रबंधन रणनीति के मूल में निहित है। इस कथन के आलोक में, भारत के बाढ़ जोखिम प्रोफाइल का वर्णन करें और प्रभावी बाढ़ प्रबंधन के लिए तैयारियों का मूल्यांकन करें। (10 अंक, 150 शब्द)

Managing risks is based on 3Ps
 of proactive approach to pre disaster
 management. 3Ps are preparedness, proofing
 and participation.

Flood risk profile : Hazard zonation &
mapping.

Natural floods :
 80% rainfall occur
 in 100 days due to
 South west monsoon

Urban flash floods :
 Due to encroachment
 of river channel and
 lack of storm water
 drainage



Cloud bursts : Due to warming of
Wind Kush Himalayan system by Tehri,
Chamoli

Shifting river course : eg Kosi, Bheemphusa

Evaluation of Preparedness

Problems

- ↳ 65% of waste discharged in waterbodies reducing carrying capacity.
- ↳ High rise building in low lying areas
- ↳ Inadequate real time monitoring
- ↳ Lack of mapping and zonation

Suggestions

- ↳ Green - Blue approach and room for river, sponge cities by Netherlands
- ↳ Flood resilient infrastructure in low lying areas
- ↳ Development of river front and zonation to decrease encroachment of Ahmedabad
- ↳ Proper EA and CIA

About 6% GDP is impacted through water related disasters thus proactive steps are needed

Feedback

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Structure/
Presentation

Question
Interpretation

Content

Value
Addition

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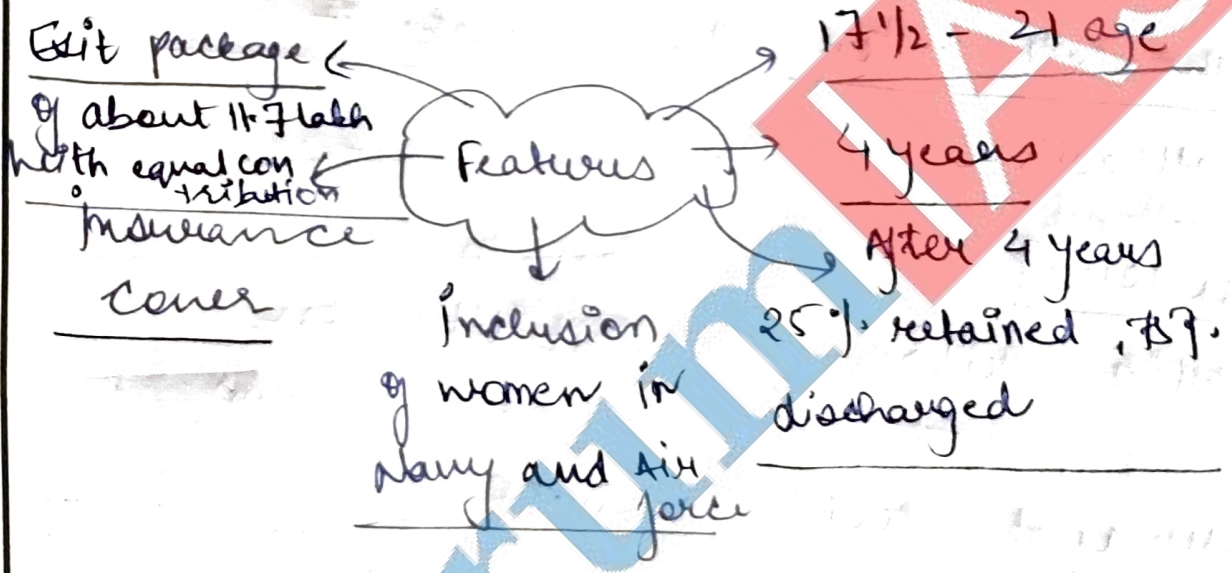
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Q.9) Discuss the salient features of Agnipath scheme. Underlining the benefits of the scheme, mention ways to overcome associated challenges. (10 marks, 150 words)

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)

Agnipath scheme aims to recruit soldiers in age group of 17½ - 21 across all three services



Benefits of the scheme

- ① fiscal space of government
- ② young army soldiers
- ③ employment opportunity
- ④ security and territorial integrity

Challenges

- ↳ on how to reintroduce aggravated to workforce after 4 years
- ↳ less of graduation years
- ↳ high cost ratio FT is make it less attractive

Suggestions

- ↳ Objective criteria of eligibility on exit
- ↳ skill and reskill aggravated
- ↳ exit corpus can have education health and skill corpus
- ↳ reconsideration of high cost ratio

aggravated is to make Indian armed forces younger and resource efficient

Feedback

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Structure/
Presentation

Question
Interpretation

Content

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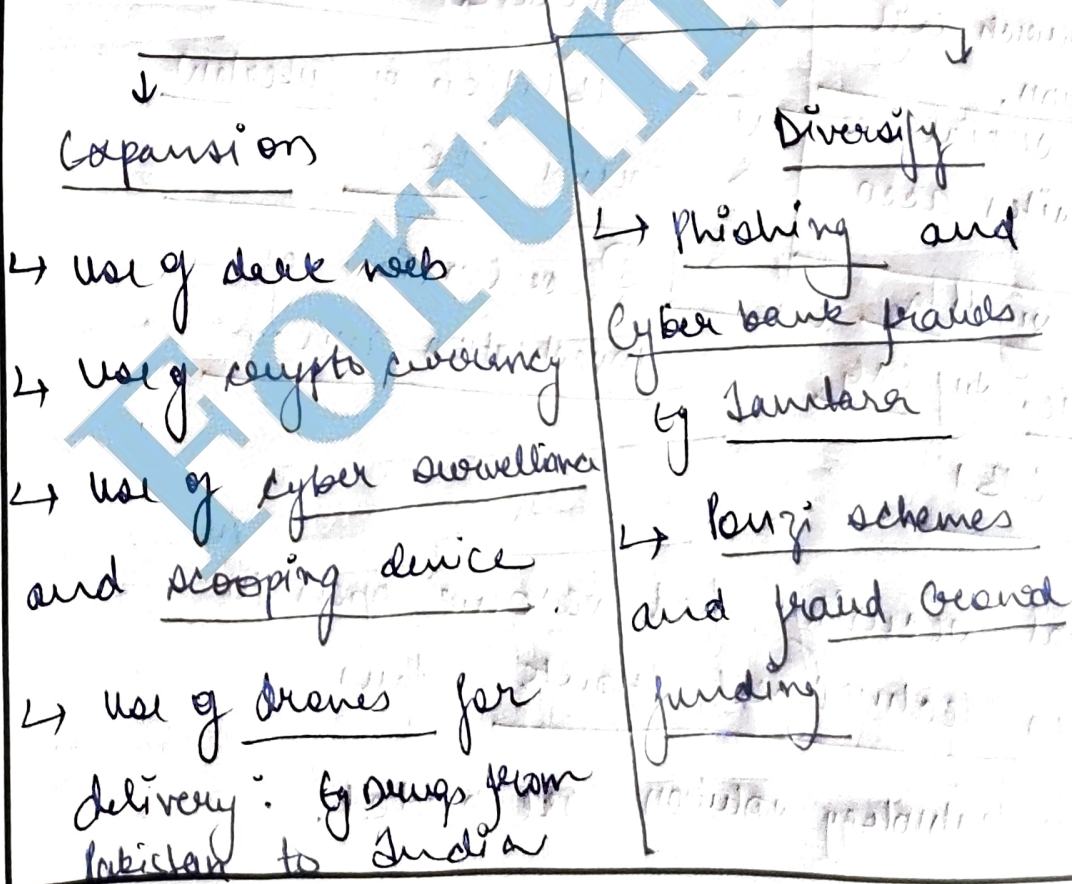
Total

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)

Organized crime refers to well defined
crime groups that engages in money
laundering to fund crime syndicate.
Eg : Human trafficking, narcotics, etc.

Role of technology



↳ online recruiting by : ISIS, Taliban

↳ Use of data and space for illegal arms dealings

↳ Use of block chain to maintain anonymity

↳ cyber and space warfare

③ International cooperation by Christchurch call to action.

④ Upheld social media sites accessible

⑤ Use of big data analytics by CAg, Cx, CBI

① NATGRID, CTNS

system to be leveraged

② Updation of cyberlaw and CERT

③ Coordination of investigation agency

National security has become open to various technological fronts, thus dynamic technology solution are needed.

Feedback (For OFFICE use only)

Structure/Presentation
Question Interpretation
Content
Value Addition
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 अमेरिकी 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 शृंखलाओं के केंद्र में रखने के लिए आप क्या उपाय सुझाएंगे? (15 अंक, 250 शब्द)

Merchandise exports rose by 37% in 2021-22 crossing 400 billion USD. India aims to reach 1 trillion by 2027-28.

- FACTORS
- ① → Pent up global demand after opening of lockdown
 - ② → Anti-China sentiment
 - ③ → Petrochemical exports rose more than 100%
 - ④ → PLIs under Atmanirbhar Bharat
 - ⑤ → Around 3-4% growth in agriculture sector
 - ⑥ → Rise in FDI in India
 - ⑦ → Successful vaccination drive

Measures to make India centre of global supply chain

① FTAs : Niti Aayog suggest this in light of WTO's falling status of India-UK,

India - UAE

② Quality check : especially Agriculture.

③ Technology upgradation programmes for technical textiles

④ Build more SEZs and GIFT city type models

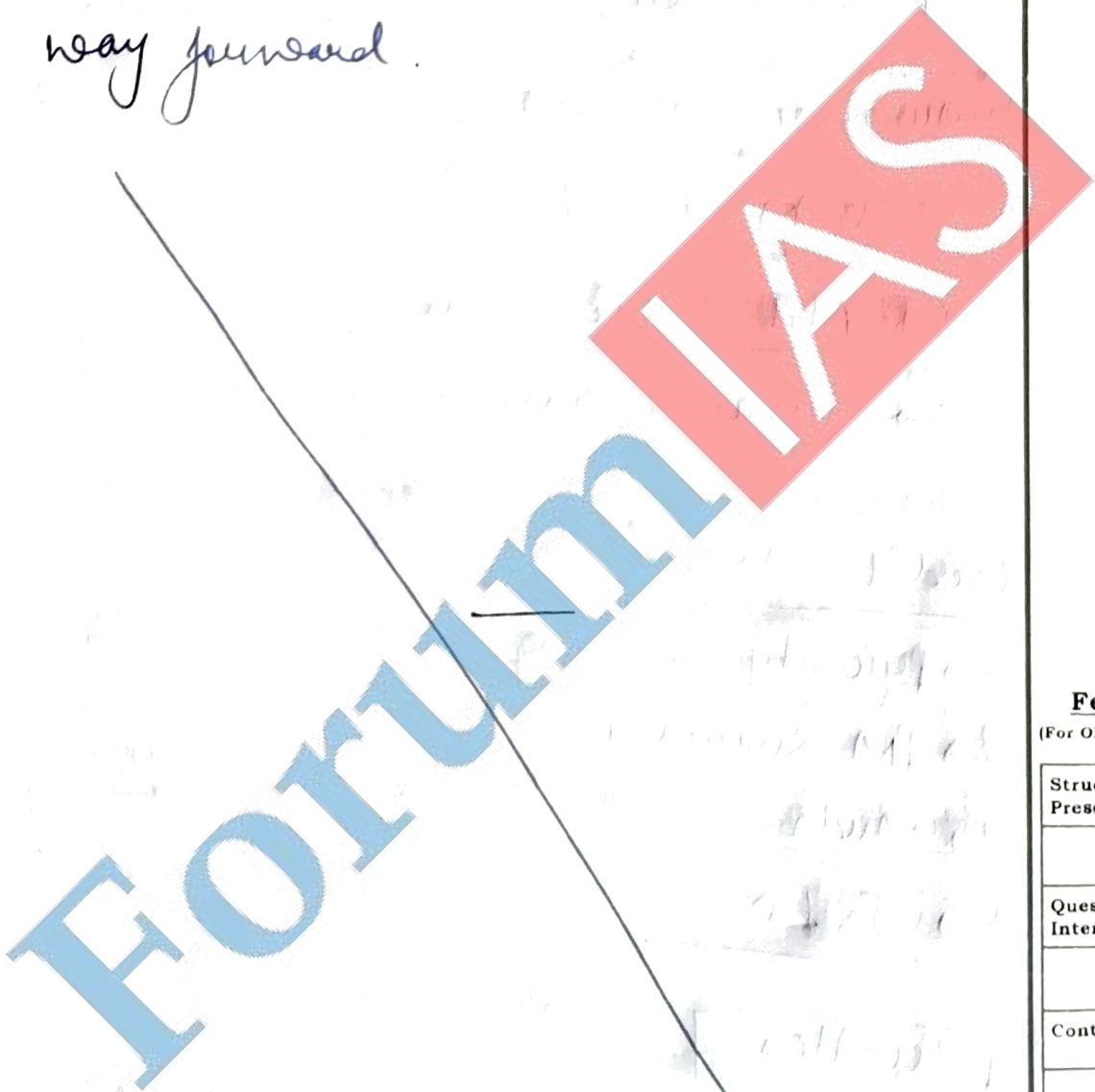
⑤ Logistic sector : very high i.e. 14% GDP, DFC should be built

⑥ MSME growth : contribute 30% of GDP.

Export
Assess
are

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

Export to GDP ratio is declining
Assemble in India , Make in India
 are way forward.



Feedback

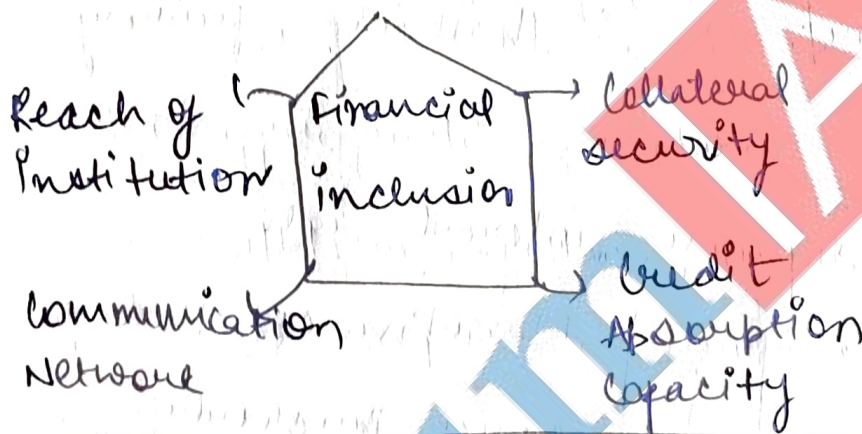
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Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

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

फिन्टेक नवाचारों के माध्यम से वित्तीय समावेशन को 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)

Finance technology is facilitating
financial inclusion.



Use of fintech in India

① Unicorn and start ups : cred,
groww to enhance mutual funds
and retain investors

② Government initiatives

↳ DBT - JAM

↳ e-Rupay

↳ BHIM-UPI

↳ Aadhaar Payment Bridge system

⑧ SHG - Bank linkage in DAY-NRLM

⑨ Insurance schemes

↳ PM SY MY

↳ Atal Pension Yojana

↳ Sukanya Samridhi Yojana

⑩ Credit Access

↳ Priority lending

↳ PM Swanidhi

↳ MUDRA

↳ TREDS

Surveys

⑪ Digital divide : only 23% India has digital penetration.

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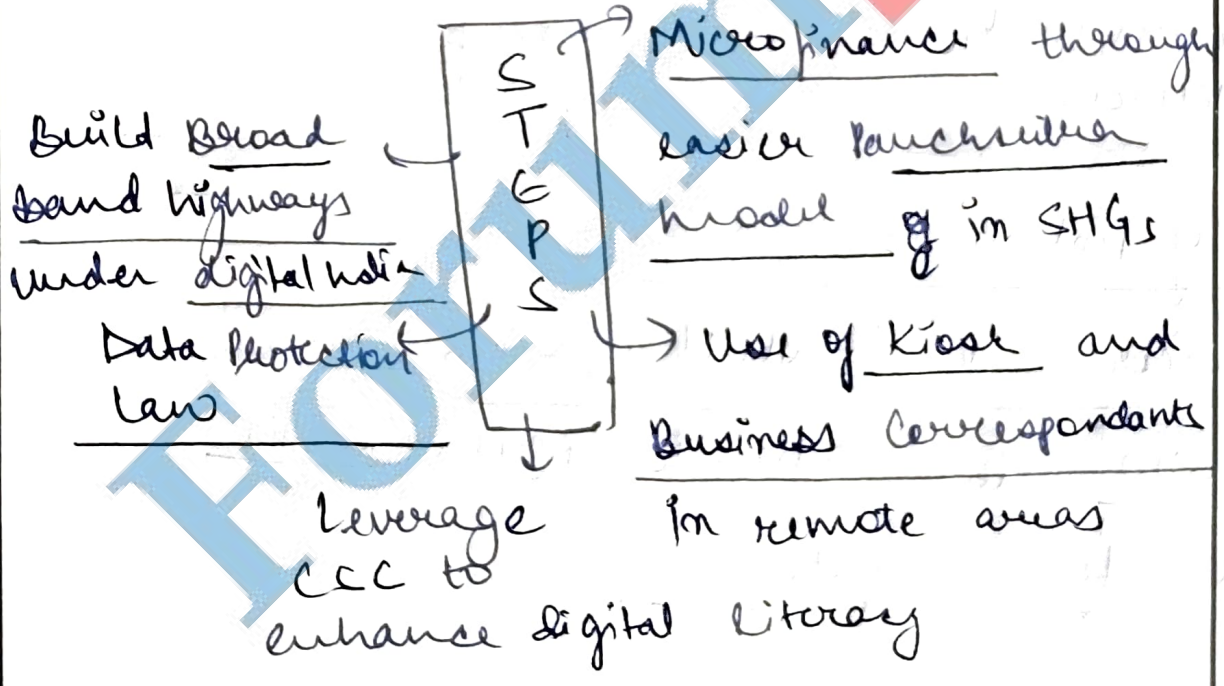
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② Linguistic barrier : $\leq 1/6$ users need local language interface

③ Fraud bank accounts leading to lack of beneficiary identification

④ Cyber crimes : phishing, privacy issues

⑤ Cooperatives have interest rate.



According to RB's national financial inclusion strategy all citizens should be connected to banks by phone by 2024.

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)

India engages about 50% population and 80% water resources to agriculture

yet it contributes only about 16% to GDP

INEFFICIENT

→ Water : excess usage of ground water, salinisation of salt

→ Climate inappropriate : Supercane a water intensive crop is grown in dry region of Vidharba and Bundelkhand

→ Fertilisers : instead of 3:2:1 NPK ratio, 4:2:1 is used

→ Lack of storage : causing food wastage

→ Land use pattern : Land fragmentation 80% small and marginal farmers

Suggestions to improve

① Water appropriate agriculture :

eg Millets in Rajasthan, Punjab
Rice in Ganga-Yamuna doab

② Use of zero budget based natural farming

③ Post production agriculture improvement

↳ cold storage facility

↳ market beyond APMC

↳ Contract farming

↳ FPOs and value addition

④ Use of SHGs, cluster level approach

Feedback
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Structure/
Presentation

Question
Interpretation

Content

Value
Addition

Total

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③ Consolidation of land holdings

↳ SWAMITVA

↳ Record keeping of land titles

↳ Cooperative farming

④ Micro irrigation : PMJSY

Climate resilient agriculture is needed for food security, profitability and sustainable environment

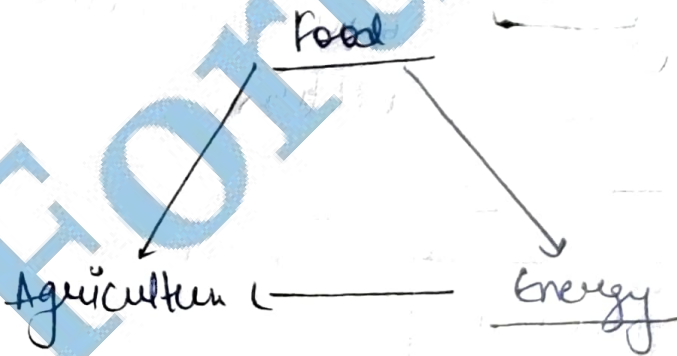


Fig Circular economy approach

Feedback

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Structure/
Presentation

Question
Interpretation

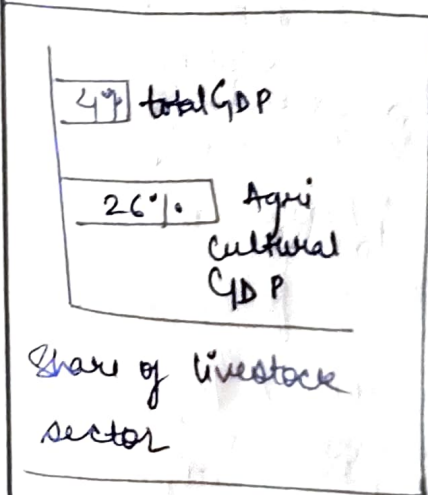
Content

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Addition

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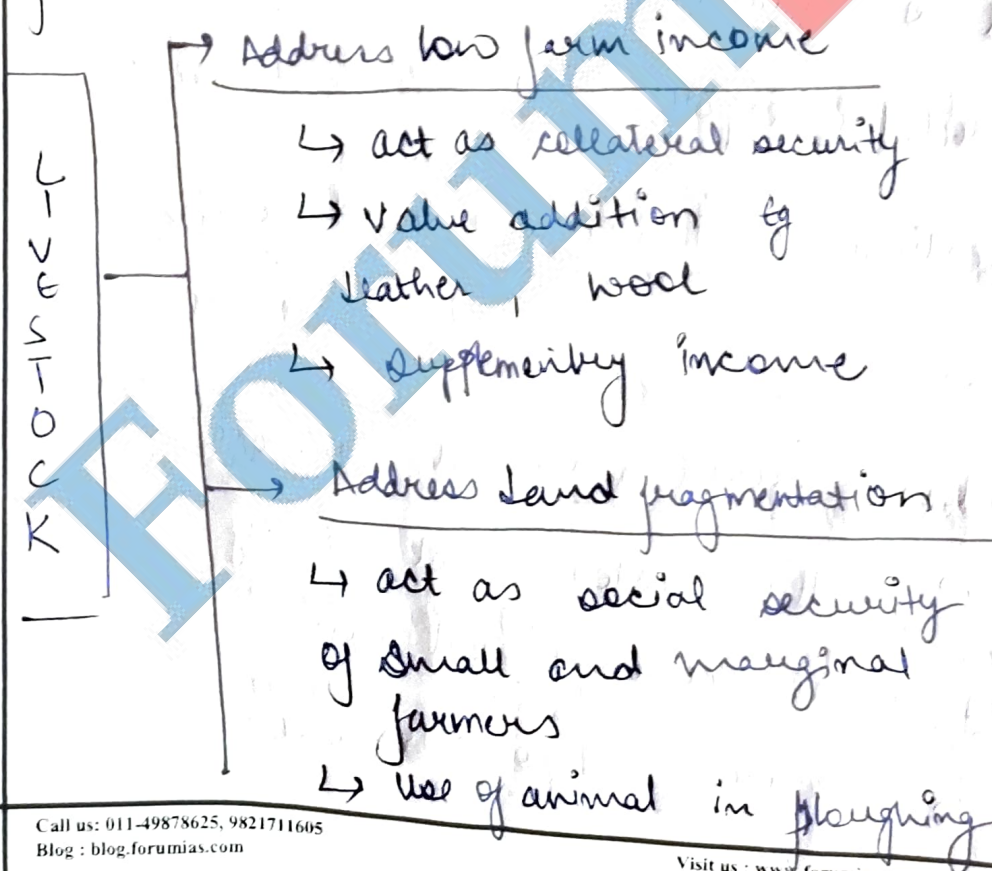
Q.14) Encouraging livestock through mixed farming can be the answer to the triple burden of low farm income, increasing land fragmentation and plummeting productivity in the agriculture sector. Discuss. (15 marks, 250 words)

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



Mixed farming refers to growing crops along with livestock rearing, bee keeping etc to supplement

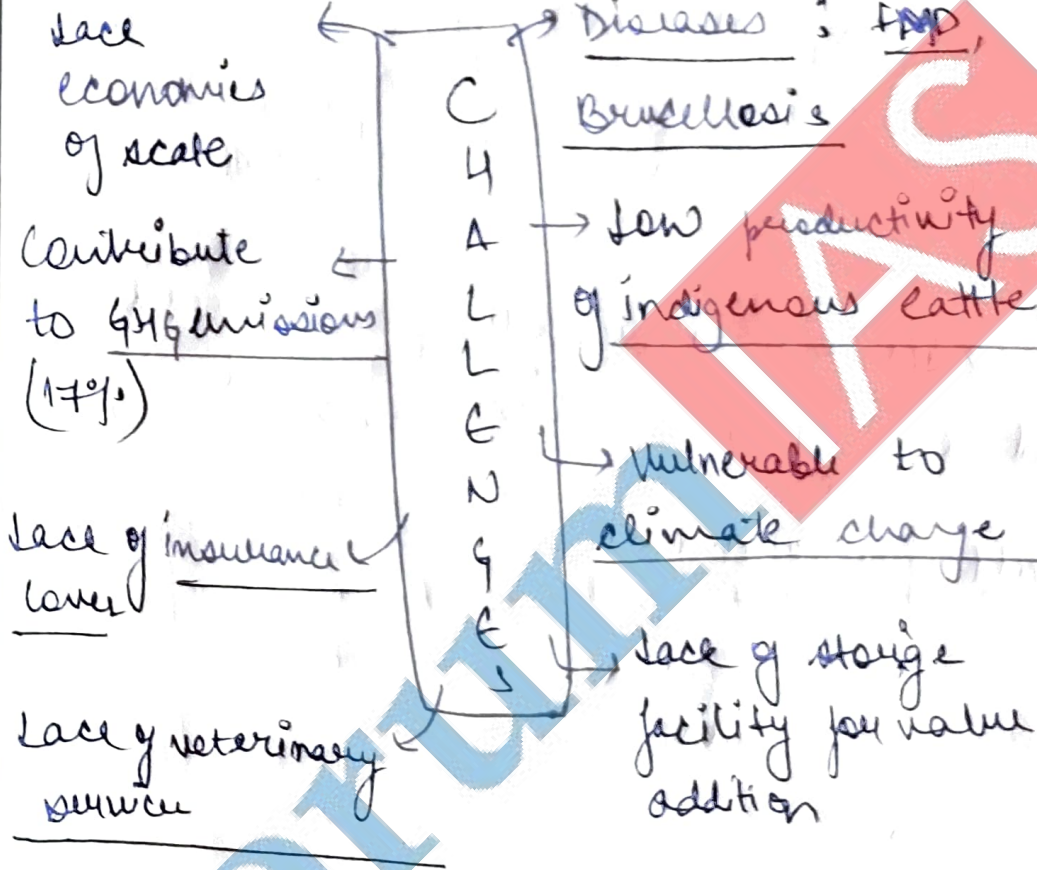
farm income.



→ Control low productivity

↳ help in mulching

↳ reduce invasive species



MEASURES Needed

- ① AHIDF : dedicated fund
- ② NADCP : to control mortality

- ③ one health system
- ④ National artificial insemination programme
- ⑤ expansion of PMBFY to livestock
- ⑥ dashvija Pashu Aayoj to be leveraged
- ⑦ Phyto sanitary control measures and standardisation to enhance dairy related exports.
- ⑧ Protection of indigenous breed of Gir Rathi.

India has world's largest livestock population, this sector not only ensures rural economy but also linked to women empowerment.

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 डिस्टर्बिटिव प्रौद्योगिकियां हमारे जीवन को कैसे बदल रही हैं, उनका लेख-जोखा दीजिए।

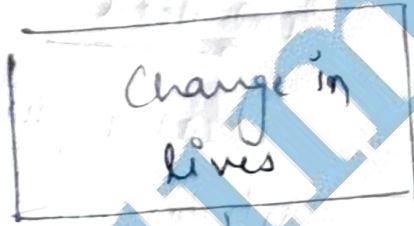
(15 अंक, 250 शब्द)

Disruptive technology are those interventions that displaces traditional production

Or supply method in a radical manner

through use of ICT.

Eg: Swiggy food service, flipkart shopping
etc.



↓
opportunities

- ① consumer
 - ↳ convenience
 - Eg Urban clap
 - ↳ Cheaper service
 - Eg Flash sale

↓
Threat

- ① consumer
 - ↳ privacy breach
 - ↳ algorithm led behaviour
 - ↳ cyber frauds

Arup
Int

↳ Best of world
eg: online education

② Producer

- ↳ deterritorialisation of market
- ↳ use of IOT to product diversification
eg Apple's phone, watch, earpods, laptop, TV.
- ↳ flexible model through gig economy

③ Market

- ↳ experience based technology
eg Augmented Reality
- ↳ heavy competition
eg: Swiggy vs Zomato
- ↳ fast changing nature

④ Producer

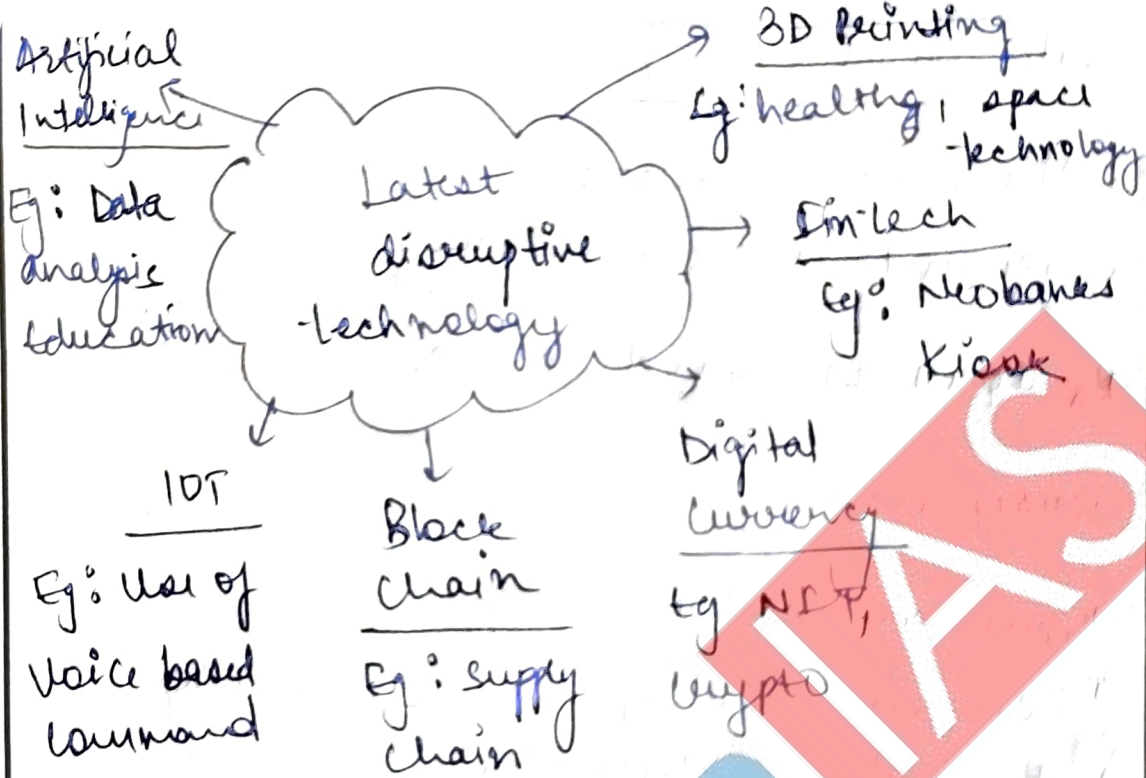
- ↳ traditional retailer/vendor model disrupted
- ↳ structural unemp layment
- ↳ polarisation of skills either high skill or low skill
- ↳ less employee satisfaction by Uber cab drivers

⑤ Market

- ↳ informalisation of jobs
- ↳ lack of social security

Feedback
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Structure/ Presentation
Question Interpretation
Content
Value Addition
Total



World is just changing and disruptive technology forms core of 124.0

In this regard Government's National Blockchain technology mission, building supercomputers, National Quantum technology mission are steps in right direction.

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)

Nano-technology deals with particles ranging from nanometer to 100 nano meters.

Relevance of Nano technology

① Health

- ↳ vaccine manufacture
- ↳ efficient drug delivery system
- ↳ monitoring and diagnosis of cancer
- ↳ water purification

② Agriculture

- ↳ used in fertilisers
- ↳ GM seeds
- ↳ food fortification

3) Climate resilience

- ↳ Air pollution detectors
- ↳ ground water monitoring
- ↳ sensors and chips

4) Energy sector

- ↳ fuel cell battery
- ↳ carbon allotropes in road making
- ↳ lithium ion batteries

5) Space exploration

- ↳ sensors
- ↳ remote sensing
- ↳ imagery

Challenges

1) ocean pollution

- ↳ through nano waste
- ↳ nano plastic pellets
- ↳ nano cosmetics

2) Bioaccumulation and biomagnification

(Don't write anything)

↳ POPs in agriculture

③ Governance challenge

↳ IPR regime

↳ Regulate gene editing, GMOs etc

↳ bioterrorism

Way forward

① Investment in research and development

② Stringent application of BD Act

③ Leverage farm technology

④ Appropriate law on bioterrorism

⑤ Wide spread use in drug delivery and food fortification

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)

According to Niti Aayog's CSMI 20 metropolitan cities have run out of groundwater in 2020. 21% ground water in India is over exploited (CGWA). India is facing groundwater crisis.

Invisible ground water

① Lack of aquifer mapping and private tube wells using national common resource

② Lack of efficient ground water pricing and indiscriminate use under electricity subsidy.

③ 80% ground water used for agriculture causing salinisation eg: Kuvjab
Haryana, Rajasthan

④ Virtual ground water exports through rice, sugar cane, wheat

⑤ Water inefficiency in urban areas by forest deforestation and seeping of dirty water in ground.

Ground water and climate resilience

① Reduces land degradation and desertification by saving soil moisture
 Δ 30% of land in India super degradation

② Reduces surface run off and air bed soil erosion.

Feedback

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Structure/
Presentation

Question
Interpretation

Content

Value
Addition

Total

3) Act as buffer against floods

4) Maintain soil ecosystem and biodiversity eg. earthworms.

5) Maintain humus in soil and protect fertility

6) Jal Shakti Abhiyan : Catch rain

Best Practices

eg: MH's Jalvrat Shivir, Indore water + city

Natura farming and 'mapsha'

S
U
G
&
S
T
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Aquifer mapping and water pricing

Restoration of water bodies
eg: Mission Kakatiya

Urban planning
eg: Green Blue belt, Miyakai method

Mihir Shah committee suggested to use a national water framework and

line cropping pattern to groundwater availability.

Feedback
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Structure/ Presentation
Question Interpretation
Content
Value Addition
Total

5

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 शकट है, जिसके लिए सरकारों को विनियमित करना, 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)

SUPs are thin plastic goods meant for one-time use. India has banned SUP from July 1, 2022.

Scourge

Health Scourge

- ↳ BPA impact brain development
- ↳ POPs causing bioaccumulation
- ↳ Chemicals of plastic leakage released in food
- ↳ Microplastic cause infertility

Economic Scourge

- ↳ Waste generation
- ↳ Impact value of product

3) In what ways management of resources can analyze various vulnerabilities that...

समुद्री स्रोतों का प्रबंधन किस प्रकार होने वाली विभिन्न सुसंवेदनशीलताओं का...

India of 75th

→ Environmental Scavenger

↳ Marine pollution

eg: Pacific garbage patch

Sea snail in sea of Yamuna

↳ Soil pollution : release

chemicals in soil

↳ Water pollution

eg: foaming of Yamuna

Combating Challenge

→ Government regulation

↳ Complete ban

eg: Uttarakhand

↳ increasing microthickness to
enhance viability

↳ extended Producer / Business
Responsibility

→ Innovation

- ↳ Use of jute bamboo
- ↳ return of plastic package
- ↳ buy back cash backs
- ↳ Recycle and circular economy approach.

→ Action

- ↳ bring your own shopping bag
- ↳ reuse plastic bottles as other products
- ↳ Chese to 'not' buy plastic products.

As Hon'ble PM Modi asked to employ LIFESTYLE approach to combat pollution challenge.

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 boundary of 7500 km thus it poses challenges to internal security.

Vulnerabilities

① Refugees : Rohingya

Bangladesh Chakmas

② Illegal trade : Fish

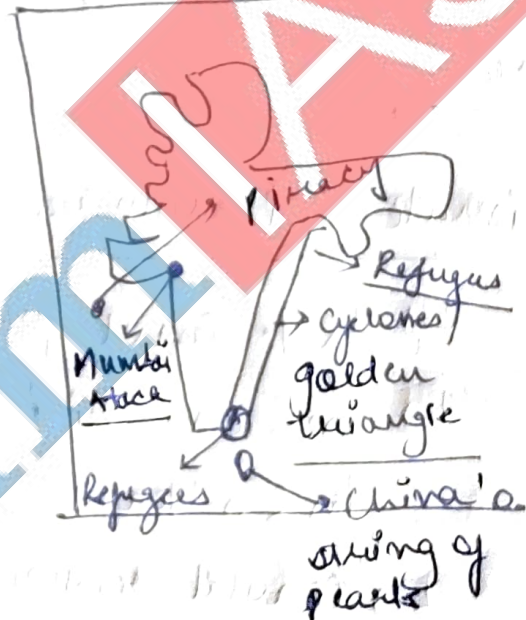
Narcotics, human trafficking

③ Maritime boundary incursion : Eg

USA's freedom of navigation exercise

④ Chinese surveillance : Coco Island

overlook Andaman and Nicobar



Chinese spy vessel in Sri Lanka

⑤ Infiltration of extremists : During

LITTE in Sri Lanka, current refugees from Sri Lanka, Mumbai terror attack

⑥ Climate led vulnerability

↳ H.P. Coast prone to cyclones

↳ 8.5cm rise in Indian ocean in 50 years

↳ Coastal erosion

↳ Indian ocean as fastest warming and marine heat waves.

Difference in Management

Land

↳ clearly defined borders

Maritime

↳ lack of clear demarcation

↳ smart
↳ color

Feedback

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Structure/
Presentation

Question
Interpretation

Content

Value
Addition

Total

↳ smart fencing

↳ colonial legacy
of disputes by Pakistan
China

↳ incursion by village
men due to grazing

↳ non traditional threat
from narcotics and
terrorists

↳ use of BSF and
India Army nearby
bases

↳ absence

↳ Ambiguity in
UNCLOS rules

↳ incursion by
fishermen

↳ terrorists,
narcotics, climate
related issues

↳ use of state
patrol, Indian
Coast Guard

Maritime boundaries are becoming
volatile due to large rule based
order. In this context Epikar
Approach delineated by PM Modi at
UNSC is important.

Feedback

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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)

समस्या अपने राज्य और नागरिकों पर दोहरा युद्ध चला सकती है जिससे राष्ट्रीय सुरक्षा और सामाजिक स्थिरता बाधित हो सकती है। (15 अंक, 250 शब्द)

Cyber threat

↓
State

↳ attack on national important institutions
Eg: Kudankulam Nuclear Plant

↳ Acquire digital assets of other countries

Eg: Ban of China in 5G auction

↳ Use of surveillance warfare

Eg: Use of satellite etc

↳ Hacking of national assets

↳ Railway

↳ telephone lines.

↓
Citizens

↳ Surveillance state

Eg: Pegasus
Janal
Khasoggi

↳ surveillance capitalism

Eg: WhatsApp
discriminatory data policy

↳ infringe human rights

Eg: hacking and snooping on opposition

(Don't Write anything in this Area)

(Don't Write anything in this Area)

↳ Threat to social stability

↳ Mob lynching and radicalisation

↳ ISIS led cyber cells

↳ Udaipur killing

↳ Santara and crime culture

WAY FORWARD

↳ National cyber security strategy

↳ Cyber literacy

↳ Check on social media

↳ updatation of CERT IN

↳ use of NAT GRID CERTNS

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

.....

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.