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NEXT IAS Roll No.: AIMS24GCRA017 **Date of Examination :** 23/08/23

Exam Centre : Old Rajinder Nagar ☑ Bhopal ☐ Online ☐

Test Code : TC057 **Program :** FLT ☐ FLT+ ☐ SLT ☐ SLT+ ☑

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MAIN TEST SERIES 2023

(TEST-11)

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.....

SUBJECT/PAPER
GENERAL STUDIES

Invigilator's Sign. : .....

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Evaluator's response

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Evaluator Code :

Q.No	Pg No.	Maximum Marks		Marks	Total
1	1				
2	3				
3	5				
4	7				
5	9				
6	11				
7	13				
8	15				
9	17				
10	19				
11	21				
12	24				
13	27				
14	30				
15	33				
16	36				
17	39				
18	42				
19	45				
20	48				
			Grand Total		

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1. उपभोक्ता मूल्य सूचकांक (CPI) एवं थोक मूल्य सूचकांक (WPI) के बीच अंतर स्पष्ट कीजिए। क्या आपको लगता है कि WPI की तुलना में CPI मुद्रास्फीति का बेहतर माप है? सिद्ध कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

Differentiate between Consumer Price Index (CPI) and Wholesale Price Index (WPI). Do you think that CPI is a better measure of inflation as compared to WPI? Substantiate.

(Answer in 150 words) 10 Marks.

Ans)

Inflation measures are necessary for fiscal & monetary policy designing to know the real time dynamics of market.

Differences between CPI & WPI

	CPI	WPI
1	Measure of average cost of Commodity basket for household.	Measure of average cost of ~~final output~~ initial input of industrially produced goods.
2	Final stage of transaction	First stage of transaction
3	Include services	Only goods
4	Released by NSO under Ministry of Statistics & Program Implementation	Office of Economic Adviser, Ministry of Commerce & Industry

Candidates must not write on this margin

⑤ Food & fuel dominant	Manufacturing Dominant
⑥ Basket of 627 Commodities	6got commodities

CPI is a better measure of inflation than WPI

① CPI measures final burden on Consumer & WPI on producer. The former is more important to determine impact on people.

② WPI changes operate with lag. CPI present real cost inflation in economy.

③ Taxation impacts are also included.

④ Reflect change in purchasing power of people.

WPI can be used for industrial policy, but CPI is optimal measure for inflation targetting.

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2. रोजगारविहीन संवृद्धि भारत के विकास पथ का एक अंतर्निहित लक्षण है। भारत में उच्च बेरोजगारी दर के पीछे प्रमुख कारण क्या हैं? भारत में समग्र रोजगार वृद्धि दर में सुधार हेतु उपचारात्मक उपाय सुझाइए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

Jobless growth is an inherent feature of India's growth trajectory. What are the major reasons behind the high unemployment rate in India? Suggest remedial measures to improve the overall employment growth rate in India.

(Answer in 150 words) 10 Marks

Ans 2) For every 1% increase in GDP, increase in employment is only 0.1% reflecting phenomena of ~~GDP growth~~ Jobless Growth.

Major Reasons for high Unemployment Rate

(1) Backwardness in Agriculture (Disguised Unemployment) & low manufacturing base (labour intensive). Service sector boomed post 1991 but it provides limited employment avenues.

(2) Low employability of youth.
- Lack of skills needed
- High Dropout & Educational Competence
- Education-Industry Gap

(3) Low level of female labour force participation rate.

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(4) Low ~~#~~ Human Development Indicators (14% malnourished, 25% illiterate).

(5) Lack of business environment due to legal, structural, taxation etc. Constraints.

Measures to improve overall ~~#~~ Employment

(1) Skill Development & Vocational Education
- PM-Vikas
- National Skill Development Mission
- New Education Policy 2020

(2) Boosting Manufacturing Base
- Make in India
- Export Promotion
- MSME Support & Development

(3) Credit Availability to Vulnerable Section
- SHG Bank Linkage Scheme
- Stand up India
- Fair Credit financing

(4) Promoting Startups & AGRIPRENEURS.

Employment raises economic as well as HUMAN DEVELOPMENT INDICATORS levels.

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3. यूरिया को NBS योजना के तहत लाया जाना भारत में उर्वरक सब्सिडी से संबंधित सभी मुद्दों के साथ-साथ कृषि की पर्यावरणीय समस्याओं के लिए रामबाण के रूप में देखा जा रहा है। यूरिया प्रबंधन से संबंधित मुद्दों पर प्रकाश डालते हुए भारत में टिकाऊ रूप से यूरिया के उपयोग में आवश्यक सुधारों हेतु सुझाव दीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

Bringing urea under the NBS Scheme is seen as the panacea for all the issues related to fertiliser subsidies in India as well as for the environmental problems of agriculture. Highlighting the issues related to urea management, suggest reforms are required to improve the usage of urea in a sustainable manner in India.

(Answer in 150 words) 10 Marks.

Ans) Nutrient Based Subsidy (NBS) Scheme aims at targetted delivery of ~~subsidies~~ subsidies however Urea is exempted owing to ~~populist~~ measures.

Issues related to Urea management

(1) High Subsidy Cost especially post Russia-Ukraine War (₹1.97 lakh Crore >2022-23)

(2) Nutrient Imbalance due to reckless use. Ratio of NPK : Real → 8:3:1 & Ideal → 4:2:1

(3) Diversion of urea for non-farm purposes – leakages & wastages.

(4) Land degradation due to soil salinity (Ex: Hisar, Haryana) -

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⑤ Powerful farmer & chemical lobbies preventing reforms in urea subsidy.

Reforms Required to Improve Usage of Urea

① Vaidyanathan Committee ⇒ Direct Transfer of Urea Subsidy to farmer.

② Promoting use of Liquid Nano Urea.

- 85% efficiency
- Cheaper & less transport cost
- No loss due to surface runoff.

③ Rate Arbitrage in urea prices need to be reformed. PM-BJP can be used for this.

④ Plugging leakages in urea distribution. Government should involve FPOs, Kisan Unions & farmers & convince them for Urea inclusion under NBS Scheme.

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4. भारत की खाद्य सुरक्षा को न केवल घरेलू कारकों बल्कि वैश्विक कारकों से भी चुनौतियों का सामना करना पड़ता है। टिप्पणी कीजिए। भारत की खाद्य सुरक्षा को सुदृढ़ बनाने वाले कुछ उपायों की चर्चा कीजिए।
(150 शब्दों में उत्तर दीजिए) 10 अंक

India's food security faces challenges from not just domestic factors but also global factors. Comment. Discuss some ways to strengthen India's food security. (Answer in 150 words) 10 Marks.

Ans 4) India's food security challenges despite surplus production is reflected as it still houses highest number of hunger stricken population (FAO Nutrition security Report).

~~Do~~ Challenges to Food Security

(1) Domestic :- (i) High Inflation in food prices & low availability.

(ii) Excess dependence on PDS System.

(iii) Crop failures due to rising extreme weather ~~etc~~ events (low wheat production for last 2 years).

(iv) Fragmented landholdings, low quality inputs etc - decreasing farm productivity.

(2) Global Factors :- (i) Headwinds to

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agricultural production - (ex) ⁰/₀ - Fertilizer price rise due to Russia-Ukraine war.

(ii) High Global Prices giving impetus to more exports.

(iii) Supply Chain Disruptions leading to disturbed agri-imports.

Some ways to Strengthen Food Security

(1) Raising agricultural productivity.

- Better Seeds, Assured Irrigation
- Consolidation of landholdings
- Integrated Farming System

(2) Diversification of agri-production by supply side measures.

(3) Removing market distortions in PDS procurement & distribution

(4) Shanta Kumar Committee ⁰ Rationalise PDS Coverage to 40% & increase expenditure.

Zero Hunger is topmost priority under SDG 2.

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5. हाल ही में भारत नासा के नेतृत्व वाले आर्टेमिस समझौते पर हस्ताक्षर करने वाला 27वाँ देश बन गया है। भारत में अंतरिक्ष अन्वेषण कार्यक्रमों के संदर्भ में इस समझौते के निहितार्थों का आलोचनात्मक विश्लेषण कीजिए।

(150 शब्दों में उत्तर दीजिए) 10 अंक

Recently, India became the 27th signatory to the Artemis Accord led by NASA. Critically analyse its implications for the space exploration programmes in India. (Answer in 150 words) 10 Marks.

Ans) Artemis Accord is multilateral space exploration program led by NASA for future space missions.

Benefits of joining Artemis Accords

(1) Share of advance technology & launch vehicle systems with NASA.

(2) Co-partners in data sharing obtained from future space probes.

(3) Sharing expertise on manned space flight (Gaganyaan). Pooling of resources will effectively bring down costs.

(4) Easier access to better computational

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grids & research partnerships with multiple countries.

(5) Push for Outer Space Treaty 2.0 :- Democratic, Inclusive & Sustainable use of space resources-

Limitations of joining Artemis Accord

(1) Same pedestal as other non-space faring members ; indigenous capabilities & achievements of ISRO will be undermined.

(2) Passive acceptance of Block in space exploration : Artemis V/s Russia-China Space Program.

(3) Diversion of manpower & funds which are already scarce.

(4) No clarity of role of India in Artemis. Artemis Accords should be used for technical capacity improvement while focusing on own missions.

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6. मिट्टी में कार्बनिक पदार्थ का अपघटन कार्बन चक्र में किस प्रकार योगदान देता है, और इस प्रक्रिया को प्रभावित करने वाले प्रमुख कारक क्या हैं? (150 शब्दों में उत्तर दीजिए) 10 अंक

How does the decomposition of organic matter in the soil contribute to the carbon cycle, and what are the key factors that influence this process? (Answer in 150 words) 10 Marks.

Ans 6) Decomposition of organic matter releases Carbon either back in soil or directly to atmosphere through multiple pathways.

Decomposition of organic matter & Contribution to Carbon cycle

(1) Bacterial Decomposition releasing Methane (CH4) & Carbon-di-oxide (CO_2) directly in atmosphere (Ex:- Paddy Fields.

(2) Absorption by plants & used for their growth. Conversion to biomass keeps Carbon cycle going.

(3) Subsequent release either through photo-synthesis (Glucose product) or decomposition after death of biomass.

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Key factor influencing the Process

① Presence / Absence of decomposers/detrivores.

② Temperature of area. High Temperature accelerate microbial decomposition.

③ Availability of biomass for decomposition.

④ ~~Atmosphere~~ Chemical Composition of soil. Alkaline conditions inhibit decomposition.

Carbon cycle is important biogeo-Chemical cycle for sustenance of all life forms.

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7. जलवायु परिवर्तन पर शमन और अनुकूलन रणनीति न केवल भविष्य के उत्सर्जन को कम करने से संबंधित है, बल्कि इसमें वायुमंडल में पहले से उत्सर्जित कार्बन को सक्रिय रूप से हटाना भी शामिल है। इस संदर्भ में आप कार्बन संकलन, उपयोग और भण्डारण (CCUS) की अवधारणा से क्या समझते हैं? इससे संबंधित अंतर्राष्ट्रीय समुदाय की प्रगति पर चर्चा कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

Climate change mitigation and adaptation strategy is not only about reducing future emissions but also involves active removal of already released carbon into the atmosphere. In this context what do you understand by the concept of Carbon Capture, Utilisation and Storage (CCUS) and discuss the progress of the international community in this regard. (Answer in 150 words) 10 Marks.

Ans ⇒ To prevent triggering of temperature rise feedback loop it is also essential to reduce the current levels of Carbon along with mitigation Strategies-

Carbon Capture, Utilization & Storage (CCUS)

① Mechanism : (i) Capture : Biomass Capture, Capture at emission source, through wetlands etc.

(ii) Utilization : Industrial Production of methane, fertilizers & other Carbon products.

(iii) Storage : Underground (soil); Blue Carbon (marine) etc.

② The aim is to Retrieve the present Carbon in atmosphere, to use it for

Candidates must not write on this margin

production & to store it sustainably to check temperature rise.

Initiatives by Global Community for CCUS

(1) Promotion to CCUS methods by introducing Carbon Credit mechanism.

(2) Promotion through global initiatives like Mangrove Alliance for climate (initiative also for carbon capture by mangrove).

(3) Carbon Tax (such as CBAM) for Carbon intensive industries not employing CCUS technology.

(4) Indian Initiatives :→ CCUS part of long term mitigation strategy

↓ Infrastructure for CCUS.

↘ Initiatives like MISHTI & Blue Carbon Policy

Negative Emission Technologies along with CCUS can help us achieve under 1.5°C rise.

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8. इमारतों की घटिया डिजाइन, भवन संहिताओं और अग्नि सुरक्षा मानदंडों का घोर उल्लंघनय तथा बढ़ती भीड़भाड़ शहरी क्षेत्रों में आग के उभरते खतरे के लिए जिम्मेदार है। विवेचना कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

Poor building design, flagrant violations of building codes and fire safety norms and overcrowding of spaces are responsible for the rising risk of fires in urban areas. Discuss.
(Answer in 150 words) 10 Marks.

Ans8) Rising deaths due to industrial & residential Complex fires is direct result of Compliance violation in urban areas.

Factors increasing risk of fires in urban area

(i) Poor Building Designs & Unavailability of Fire Exits.

(ii) Unavailability of insulation of electricals

(iii) Violation of height norms for buildings

(2) Violations of Building Codes & Approved minimum distance norms for urban residential Complex.

(iv) Absence of sufficient width & carrying Capacity of staircases & exit ways.

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(iii) Lack of Renewal of safety certificates.

(3) Violation of Fire Safety Norms ∴ (i) Faulty Sprinkler Systems in buildings.

(ii) Unusable fire extinguishers.

(iii) Lack of fire evacuation mock drills.

(iv) Administrative lapses. Eg:- Delhi ~~Fire~~ Development Authority not issuing fire NOCs for certain types of buildings.

(4) Overcrowding of spaces ∴ (i) Quick spread of fires

(ii) Delay in firefighting operations.

(iii) Lapses in evacuation.

Proper Compliance is not merely administrative requirement but sine qua non for safety of human life.

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9. भारत–म्यांमार तथा भारत–बांग्लादेश सीमाओं पर होने वाले नृजातीय संघर्ष और सीमा–पार प्रवासन भारत की आंतरिक सुरक्षा को प्रभावित करते हैं। टिप्पणी कीजिए। (150 शब्दों में उत्तर दीजिए) 10 अंक

Ethnic conflicts and cross-border migration along India-Myanmar and India-Bangladesh borders impact India's internal security. Comment. (Answer in 150 words) 10 Marks.

Ans) Threats to India's internal security are often result of poor border management.

India- Myanmar Border creating challenges

(1) Misuse of free movement regime

- Smuggling of Arms & Drugs
- Shelter to militant groups
- Unchecked flow of goods

(2) Refugee migration creating resource constraints & fueling internal violence.

Ex:- Rhongiya incursion post Junta coup.

(3) Safe Haven & launchpad of rebel groups. Ex:- NSCN-K, ULFA etc.

(4) Rugged terrain & local collusion

Candidates must not write on this margin

make it difficult to check illegal migration.

India-Bangladesh Border creating issues

(1) Illegal trade of arms, cattles & smuggling of drugs, trafficking networks etc. Organized crime create local disturbance.

(2) Bangladeshi migration in Assam creating longstanding dispute.

(3) Easy escape of militant & criminals due to porous borders.

(4) Issues over land & water creating local disturbance & conflicts. (Ex): Unresolved enclaves issues → illegal trade.

Border Management can be ensured through mix of military personnel, local participation & technology use.

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10. धन–शोधन के मामलों की जाँच करने और अभियोग चलाने में कानून प्रवर्तन एजेंसियों के सामने कौन–कौन सी प्रमुख चुनौतियाँ आती हैं तथा उन चुनौतियों को कैसे दूर किया जा सकता है? (150 शब्दों में उत्तर दीजिए) 10 अंक

What are the main challenges faced by law enforcement agencies in investigating and prosecuting cases of money laundering, and how can they be overcome? (Answer in 150 words) 10 Marks.

Ans (10) Money laundering has direct correlation with Criminal & terrorist activities necessitating quicker & resolute clampdown.

Challenges while investigating & prosecuting Money laundering Cases

(1) Limited Jurisdiction of agencies

Ex: Can't investigate Shell companies abroad.

(2) Difficult to track the trail of Hawala transactions as it is cash-based.

(3) Difficult to establish culpability.

Money laundering operate through complex ownership structures.

Candidates must not write on this margin

(4) Evolving digital methods. (Ex) % ML through crypto misuse.

(5) Lack of skilled manpower to investigate multiple cases. Political Protection also acts as hindrance.

Overcoming challenges to tackle money laundering (ML)

(1) Global Cooperation is must to overcome multinational crime. (Ex) FATF & UNSC Anti-ML resolution.

(2) Signing bilateral data sharing treaties with foreign countries.

(3) Harmonizing PMLA & Companies Act - Compulsory disclosure of funds & ownership patterns.

(4) Promoting digital transactions & curbing crypto.

Reducing ML will show direct impact in reduced crime rate.

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11. निम्न कर उत्प्लावकता प्रायः उच्च घाटे और ऋण में तब्दील हो जाती है। क्या उच्च प्रत्यक्ष कर दर लागू करके भारत में समग्र कर–जीडीपी अनुपात में सुधार किया जा सकता है? भारत की समग्र कर संरचना में सुधार के लिए अन्य कौन–कौन से कदम उठाए जा सकते हैं? (250 शब्दों में उत्तर दीजिए) 15 अंक

Low tax buoyancy often translates into higher deficits and debt. Can a higher direct tax rate improve the overall tax-to-GDP ratio in India? What other steps can be undertaken to revamp the overall tax structure in India? (Answer in 250 words) 15 Marks.

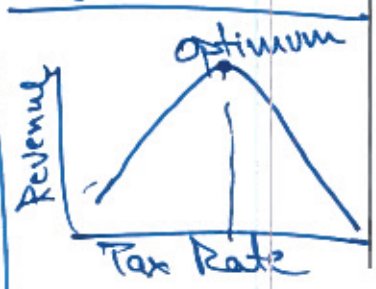
Ans 11) Tax Buoyancy refers to increase in tax revenue vis-a-vis changes in GDP - India's taxes were buoyant with tax buoyancy recorded at 1.2 (Budget 2023).

Direct Tax Rate Increase & impact on tax-to-GDP ratio

Though increase direct taxes rates may appear as quick-fix solution for improving tax collections, but it actually has negative impact because:

(Fig 1)

1) Laffer Curve suggests high direct tax rates actually decrease tax revenue collection.



Candidates must not write on this margin

(2) Lower Reporting of taxable income
- Black Money Economy (Shell Companies increase)
- Less Disclosure under IT Act & Companies Act
- Increased tax avoidance

(3) Disincentive to produce & grow → Regressive impetus to economic growth.

(4) Decreased disposable incomes for households → Low Economic Activity.

(5) Higher informalization of economy.

Steps to revamp overall tax structure

(1) Push for reduction in corporate taxes to promote transparent reporting (Corporate tax collections increased 35% in last 2 years).

(2) Easier filling of tax returns.
- Faceless transaction & assessment
- Lower paperwork
- Digital Expansion.

Candidates must not write on this margin

(3) Further GST reforms for indirect tax collections. (i) Including all products like petroleum, fuel & alcohol.

(ii) Phasing away GST Composition Scheme.

(iii) Reduction in number of slabs & push for revenue neutral rate.

(iv) Increased scope of e-way bills.

(4) Correcting inverted duty structure for exports

(5) Formalisation of Economy. (Ex) UDYAM Portal (MSMEs) & eSHRAM for unorganised workers.

(6) Push for agricultural taxation to big landholders & commercial farming.

Buoyant tax revenues reflect progressive tax reforms however above measures will further increase tax collections.

Candidates must not write on this margin

12. स्टार्टअप तेजी से बदलती आधुनिक अर्थव्यवस्था के प्रेरक इंजन हैं। भारतीय स्टार्टअप अपनी क्षमता का उपयोग करने में क्यों विफल रहे हैं? भारत में स्टार्टअप्स की लाभप्रदता और प्रदर्शन में सुधार हेतु कौन–कौन से कदम उठाए जा सकते हैं?
(250 शब्दों में उत्तर दीजिए) 15 अंक

Startups are the driving engines of the fast-changing modern economy. Why have Indian startups failed to realise their potential? What steps can be undertaken to improve the profitability and performance of startups in India?
(Answer in 250 words) 15 Marks.

Ans) Despite being the 3rd largest Startup ecosystem in the world & hosting numerous unicorns, Indian startups sector has failed to realise complete potential.

Factors for limited potential realisation of Indian Startups

(1) Lack of sectoral diversification. Ex: Crowding in education & delivery apps but less in agri sector.

(2) Lack of scalability of ideas:
- Limitations of Venture Funds
- Absence of Mentoring
- Low Market Research pre-launch.

(3) Emphasis of venture funds & angel investors on quickly converting profits

Candidates must not write on this margin

than expanding business.

(4) low availability of highly skilled workforce. Limited startups in manufacturing or Deep Tech further complicate issues.

(5) Drying up of capital investment & limited access to formal credit source.

(6) Lower realisation of economics of scale. Predatory pricing & deep discounts to boost use in initial days result in Heavy loss.

Steps to improve Profitability & Performance of Startups in India

(1) Structural reforms ⁰/₀ (i) Diversification of sectors. (Ex) - Agriculture Accelerator Fund for agri-startups.

Candidates must not write on this margin

(ii) Providing market research support & easier access to databases. (Ex): GIS Data under Geospatial Data Policy.

(iii) Skilled Workforce Availability - Training & Vocational Education.

(2) Institutional Reforms: (i) Pooling resources & providing infrastructure facilities (Ex): Startup Tech Parks.

(ii) Fiscal Incentives such as tax-breaks.

(iii) Easy Credit Availability. (Ex): Under Startup India & Stand India Scheme.

(3) Demand Side Reforms: (i) Better marketing opportunities (Ex): Use of Big Data Analytics.

(ii) Hackathons for consumer retention.

(iii) Forward linkages improvement.

Startups carry immense potential for human resource rich India to transform to $5 trillion economy.

Candidates must not write on this margin

13. भारत के आयात बिल में खाद्य तेलों का आयात एक बड़ा हिस्सा है। इस संदर्भ में हाल ही में शुरू किए गए खाद्य तेल एवं तेल पाम पर राष्ट्रीय मिशन (NMEO-OP) के महत्त्व का मूल्यांकन कीजिए। भारत में बढ़ते पाम तेल उत्पादन से संबंधित पर्यावरणीय चिंताएँ क्या हैं?
(250 शब्दों में उत्तर दीजिए) 15 अंक

Import of edible oils forms a major part of India's import bill. In this context, evaluate the importance of the recently launched National Mission on Edible Oils and Oil Palm (NMEO-OP). What are the environmental concerns related to increasing palm oil production in India?
(Answer in 250 words) 15 Marks.

Ans (B) Palm Oil's import constitute more than 65% of India's agri-import Bill, thus necessitating urgent steps.

Importance of NMEO-OP for Palm Oil Production

(1) Direct incentive of ₹20,000 acre to promote palm oil plantation.

(2) Input Support by Government.

- High quality seeds
- Fertilisers as per Soil Profiling
- Precision Farming Inputs

(3) Help lower import bill & reduce Current Account Deficit.

Candidates must not write on this margin

④ Control food inflation due to supply decrease or rise in global prices → indigenous surplus of Palm oil.

⑤ Fiscal Support for setting up Palm Oil Processing Units in form of interest subvention.

⑥ Assured Procurement at remunerative prices. Additionally, marketing support for open-sale.

Environmental Concerns related to Palm oil Production

① Not all regions (soil profile) are suitable for palm oil production.

② Issues of Monoculture

- Decrease in soil quality
- Pest Susceptibility
- High Chances of failure

Candidates must not write on this margin

(3) Water intensive plantation → further stress on groundwater table.

(4) Take atleast 3 years to grow fully long turnover times can create production issues for other crops.

(5) Threat to food security due to high fiscal incentives for palm oil production.

Way Forward :- (1) Regional approach with localised incentives for suitable areas.

(2) Promoting Dryland Cultivation of Palm Oil through micro-irrigation techniques

(3) Ensure foodcrop supply is not affected. Palm Oil production will reduce susceptibility to import disruptions & reduce food inflation.

Candidates must not write on this margin

14. एक सुदृढ़ पशुधन अर्थव्यवस्था कृषकों की आय के एक समानांतर स्रोत के रूप में कार्य कर सकती है। भारत के कृषि क्षेत्र में पशुधन अर्थव्यवस्था की भूमिका पर प्रकाश डालते हुए इसके समक्ष आने वाली चुनौतियों पर चर्चा कीजिए। ऐसे उपाय सुझाइए जो किसानों के समग्र कल्याण में योगदान देने के लिए पशुधन क्षेत्र को सशक्त कर सकें।

(250 शब्दों में उत्तर दीजिए) 15 अंक

A robust livestock economy can act as a parallel source of farmers' income. Highlighting the role of the livestock economy in the agriculture sector in India discuss the challenges faced by the livestock sector in India. Suggest interventions that can strengthen the livestock sector to contribute to the overall well-being of the farmers.

(Answer in 250 words) 15 Marks.

Ans 14) Integrated Farming Systems by combining livestock potential with farm income, aims to realise Complete potential of livestock economy.

Role of Livestock Economy in agriculture sector

(1) Contribute 30-35% of Agriculture's Gross Value added with potential of 45%.

(2) India has largest livestock population, second largest animal based exports & highest milk production.

(3) Important role in Doubling Farmer's Income (Ex% Amul success in Gujarat).

(4) High potential for improving GDP contribution

Candidates must not write on this margin

promote agri exports & reduce current Account Deficit.

Challenges faced by Indian Livestock Sector

1. Low yields & productivity of native breeds.
2. High incidence of diseases (Ex: Recent Lumpy Skin disease) & low quality of products (SPS issues delay animal exports).
3. Fodder inflation (More than 50% last year) & low feed availability.
4. Low awareness among farmers for integrated farming systems.
5. Low food processing potential & high perishability of animal products.
6. Absence of market linkages for farmers.

Candidates must not write on this margin

Interventions to strengthen livestock sector

(1) Holistic Development of food processing architecture → SAMPADA
→ Mega Food Parks
→ PLI scheme

(2) Rashtriya Gokul Mission & Pashuhaat for better breeds & high productivity.

(3) Eliminating disease incidence. (Ex:- Proper implementation of Animal Disease Control Program.

(4) Credit Availability to farmers for livestock rearing. Improving food processing linkage will deal with issue of perishability.

(5) Faster transportation of animal products through Krishi Udaan, Krishi Rail etc.

"PASHUDHAN se KISAN Utthan" has been the mission of government to improve livestock economy in India.

Candidates must not write on this margin

15. परमाणु संलयन को भविष्य का ऊर्जा स्रोत माना गया है, जिसमें स्वच्छ, सुरक्षित और वस्तुतः असीमित ऊर्जा प्रदान करने की क्षमता है। परमाणु संलयन के पीछे के वैज्ञानिक सिद्धांतों और व्यावहारिक अनुप्रयोगों के लिए इस तकनीक के उपयोग में आने वाली चुनौतियों और अवसरों पर चर्चा कीजिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

Nuclear fusion has been hailed as the energy source of the future, with the potential to provide clean, safe, and virtually limitless energy. Discuss the scientific principles behind nuclear fusion and the challenges and opportunities in harnessing this technology for practical applications.
(Answer in 250 words) 15 Marks.

Ans (15) Nuclear Fusion is considered as ~~fusion~~ future of nuclear technology as it produce 1000 times more energy than fission process.

Scientific Principle behind Nuclear Fusion

(1) Basic Principle : Combining two light nuclei (such as Deuterium & Tritium) to form a heavy nuclei. Resulting mass defect will produce energy through Einstein's Energy-mass equivalence ($E=mc^2$)

$$D_1^2 + T_1^3 \longrightarrow He_2^4 + \text{Energy}$$

(2) Methods used : (i) Magnetic Confinement using TOKAMAK.

Candidates must not write on this margin

(ii) Load Application to push missiles.

Opportunities in Harnessing Nuclear Fusion

(1) Sustainable Chain Reaction with 10 times more energy than output - important for energy security.

(2) No issue of radioactive waste - Stable Gases are byproducts.

(3) Safer as Compared to fission process - less prone to nuclear hazards.

(4) Easy availability of raw materials.

(5) Decarbonization of Energy Sources - Limiting 1.5° temperature rise by reducing emissions.

(6) Reduced import bill by shifting to non-petroleum sources.

Candidates must not write on this margin

Challenges present in nuclear fusion

(1) High temperature needed to initiate fusion (150 million degree Celsius). Difficult to generate such extreme temperature.

(2) Capital Intensive & Knowledge Intensive. Difficult for smaller economies to adopt it.

(3) Monopoly over fusion resources (like TOKAMAK technology) can accentuate global inequalities.

(4) Potential misuse by state & non-state actors.

(5) Absence of international regulation.

Though nuclear fusion present immense opportunities, yet it requires significant capital & human resource investments.

Candidates must not write on this margin

16. भारत में आईपीआर के प्रशासन में कौन–कौन सी कठिनाइयाँ रही हैं? भारत में नवाचार आधारित अर्थव्यवस्था को प्रोत्साहित करने के लिए आईपीआर के प्रशासन में सुधारात्मक उपाय सुझाइए। (250 शब्दों में उत्तर दीजिए) 15 अंक

What have been the difficulties in the administration of IPRs in India? Suggest measures to improve the administration of IPRs in order to encourage an innovation-led economy in India. (Answer in 250 words) 15 Marks.

Ans) Intellectual Property Rights (IPRs) are methods to ensure that benefits of innovation can be accrued commercially while ensuring public availability of new inventions.

Difficulties in IPR Administration in India

(1) High incidence of piracy & copyright violation - (Ex):- Misuse of brand logos.

(2) Indian Patent Act, 1970 :- Compulsory licensing Provisions deter multinationals from investing in Research & Development in India.

(3) Long process of filing patents. Average time is 3-4 years as compared to global standard of 10-12 months -

Candidates must not write on this margin

(4) Unethical Corporate practices for IPRs-

- Biopiracy (Neem Patent)
- Evergreening of Patent
- Patent for future technology

(5) Demands of Data Exclusivity by Multinational Corporations. This will restrict market access.

(6) Filing of frivolous patents & low rate of patent granting.

Measures to promote innovation led economy

(1) Easier obtaining of patents (IPR Policy 2016) Use-filing of patents.

(ii) Faster clearance of patent applications.

(iii) Providing Institutional support to young researchers in applications process.

Candidates must not write on this margin

(2) Strengthening provisions of biopiracy - sharing of data through digital libraries will promote new innovation.

(3) Overhauling research architecture in India :

- Increasing Spending (Current 1% of GDP)
- Fiscal support for Patent Filing to post-graduates & Professors.

(4) Codifying the conditions for use of Compulsory licensing Provisions.

(5) Clampdown on informal copyright & trade symbols violations.

(6) Promoting innovation under Startup India, IPR Policy etc.

Innovation can drive India's quest for being 3rd largest economy globally in accelerated manner.

Candidates must not write on this margin

17. वन्यजीव संरक्षण अधिनियम में हालिया संशोधन जंगली जानवरों और पौधों के अवैध व्यापार को रोकने के लिए एक रूपरेखा प्रदान करते हैं ताकि यह सुनिश्चित किया जा सके कि उनके अस्तित्व को खतरा न हो। इस संबंध में भारत में अवैध वन्यजीव व्यापार के निहितार्थों का उल्लेख कीजिए तथा इस मुद्दे को हल करने के लिए हाल के संशोधनों की प्रभावशीलता का विश्लेषण कीजिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

The recent amendments in the Wildlife Protection Act provide a framework to prevent illegal trade in wild animals and plants to ensure that their survival is not threatened. In this regard, mention the implications of illegal wildlife trade in India and analyse the effectiveness of the recent amendments to address the issue. (Answer in 250 words) 15 Marks.

Ans 17) Illegal wildlife Trade is menace not only for faunal & floral population but also for ecosystem sustainability.

Implications of Illegal Wildlife Trade in India

(1) Sharply decreasing population of Vulnerable & endangered species Ex: Chinese & Indian Pangolins.

(2) Growth of nexus of smuggling & Organised crime.

(3) Depletion of ecosystem services by creating ecological imbalance Ex:

Candidates must not write on this margin

Disturbing foodchain of forests.

④ Vulnerability of ethnic communities due to increased confrontation with traffickers.

⑤ Losses to State & Central Governments
- Violation of Protection laws
- Violation of International Treaties
- Loss of trade customs & taxes.

Recent Amendments to Wildlife Protection Act

Positives

① Revamping Schedules & New Schedules for species under CITES - better global coordination & regulation

② Control on introduction of Invasive Alien Species (IAS) - protect ecosystems.

③ Increased penalties from 25 lakh to 1 crore for illegal trade violations.

Candidates must not write on this margin

(4) Standing Committee to monitor trade in wildlife & to minimize Animal Wildlife Conflict (Section 6)

(5) Improved Regulation of Protected Areas — National Parks, wildlife sanctuaries etc.

Limitations

(1) Geopolitical definition of IAS instead of natural boundaries.

(2) Exemptions to elephant trade & movement for "religious purpose" (vagueness)

(3) No newer provisions for tech upgradation to monitor wildlife trade.

Local Communities, all level of governments (3tier) & biodiversity conservation groups must work together to effectively limit illegal trade.

Candidates must not write on this margin

18. उन कारकों का विश्लेषण कीजिए जो शहरी क्षेत्रों में बाढ़ की घटनाओं एवं विनाशकारिता को बढ़ाने में योगदान देते हैं तथा उन उपायों का भी विश्लेषण कीजिए जो जोखिम को कम करने और आबादी की सहनशीलता बढ़ाने के लिए अपनाए जा सकते हैं। (250 शब्दों में उत्तर दीजिए) 15 अंक

Analyse the factors that contribute to the increased incidence and severity of floods in urban areas and the measures that can be taken to reduce the risk and enhance the resilience of the population. (Answer in 250 words) 15 Marks.

Ans 18) Recent Bombay floods & Delhi floods are testimony to rising problem of urban flooding in India.

Factors contributing to increased incidence & severity of floods in urban areas

(1) Unplanned urbanisation
- Destruction of wetlands (Ex:- Banglore)
- Absence of drainage Architecture
- Less percolation to ground.

(2) Choked drainage systems & unavailability of stormwater drains -

(3) Loss of greencover & soil water retention capacity.

(4) Highly crowded localities with low lying habitations increases

Candidates must not write on this margin

Vulnerability of urban population.

(5) Haphazard expansion on river banks. (Eg:- Yamuna Bank settlements.

(6) Poor preparedness of urban municipal administration. Uncoordinated works often leads to delay in relief works.

(7) Rising extreme weather events world-wide (Eg:- Increased flash floods.

Measures to tackle the risk of urban flood

(1) Integration of urban flood preparedness in 20 years master plan of cities.

(2) Urban Flood Mitigation
- Stormwater drains
- Clearing up of drains
- Barriers & Embankments

Candidates must not write on this margin

(3) Restoration of wetlands (Ex:- Amrit Sarovar Scheme for all districts.

(4) Concept of Sponge Cities -- for increased groundwater percolation.

Enhancing Resilience of Population

(1) Clearing up of low lying settlements.

(2) Capacity Building through Community Relief Networks for Urban Floods.

(3) Coordinated response of local administration, NDMA & NDRF.

(4) Quick information dissemination system through media & Internet use.

Urban Flood Vulnerability Reduction is important component for Sustainable Cities under UN SDG Goal (12).

Candidates must not write on this margin

19. क्या आपको लगता है कि भारत में आसूचना विभाग तथा विधि प्रवर्तन एजेंसियों के पास संगठित अपराध और आतंकवाद के गठजोड़ से प्रभावी ढंग से निपटने के लिए आवश्यक संसाधन और क्षमताएँ हैं?

(250 शब्दों में उत्तर दीजिए) 15 अंक

Do you think that intelligence and law enforcement agencies in India have the necessary resources and capabilities to effectively tackle the link between organised crime and terrorism?

(Answer in 250 words) 15 Marks.

Ans: Organised Crime & terrorism has been (OC) growing convergence due to mutually compatible claims. Money from OC networks fuel terrorism while commercial terrorism & manpower support OC networks indicating strong linkage.

Resources & Capabilities of Intelligence & Law Enforcement Agencies to tackle link

(1) Legal Framework & Co-operation of Acts like PMLA, 2002 for (money laundering) ~~NIA & UAPA~~ (for terrorism) & NDPS, Marine Piracy Act etc- for organized crime prevention.

Candidates must not write on this margin

(2) Institutional Framework: Intelligence Bureau, NIA, Enforcement Directorate & State agencies like police work in coordinated manner.

(3) Information networks through surveillance, tracking of narcotics or smuggling consignments & crackdown on money laundering which breed terrorism.

(4) Technological Tools like CCTNS, Crypto Regulation, Spy softwares & tapping to uncover linkages between OC & Terrorist groups.

(5) Government has been actively working on citizen participation to act as eyes & ears of government. (Ex): Employing Coastal fishermen to track piracy crimes &

Candidates must not write on this margin

terrorist infiltrations.

However, certain limitations still exist:

(1) Rapidly evolving technology in hands of OC & terror groups. (Eg: use of Darknet to sell drugs & fuel radicalization.

(2) Newer forms of OC & terror linkage:
- Global Funding for terror (crypto)
- Cyber attacks by OCs serve dual purpose
- Proxy attacks on critical infrastructure

(3) Low level of integration of state police with national agencies.

(4) Limitation of funds & manpower.

Nexus of OC & terrorism needs to be destroyed through active vigilance, reliable & actionable input & quick action.

Candidates must not write on this margin

20. भारत को उभरती आंतरिक एवं बाह्य संचार से संबंधित सुरक्षा चुनौतियों से निपटने और साइबर पारिस्थितिकी तंत्र को अधिक सुरक्षित और संरक्षित बनाने के लिए सूचना प्रौद्योगिकी अधिनियम, 2000 को अद्यतन करने की आवश्यकता है। विवेचना कीजिए। (250 शब्दों में उत्तर दीजिए) 15 अंक

India needs to update its Information Technology Act of 2000 to deal with emerging internal and external communication security and to make the cyber ecosystem more safe and secure. Discuss. (Answer in 250 words) 15 Marks.

Ans 20) Discussions on updating IT Act, 2000 to deal with newer forms of cyber warfare & newer challenges.

Necessity for updating IT Act, 2000

(1) Rising cases of data misuse. It is used by both corporates & non-state actors like terror groups for malafide intention. There is need to delineate responsibilities of intermediaries & data fiduciaries.

(2) Use of internet to spread radicalization & recruitment by terror groups.

Ex: Islamic State's Telegram Groups.

(3) Rising cases of online trolling, hate

Candidates must not write on this margin

Speech, Communal polarization & fake news. (Ex):- Delhi Anti-CAA riots fueled by spread of fake news.

(4) Issues of cyberattacks & cyber espionage crippling digital infrastructure of India.
(Ex):- Bombay grid attack by China.

(5) New issues like crypto regulation, NFTs & anonymous transfer of funds. Digital money laundering through Darknet has direct implications for terrorism.

(6) Use of social media to flare up law & order situations creating internal security threats. (Ex):- Misuse during Manipur riots.

Candidates must not write on this margin

Possible Reforms in IT Act, 2000

(1) Removing safe harbour clause for digital intermediaries if they fail to stop spread of fake news, hate speech etc.

(2) Institutional Capacity upgradation to deal with new form of cyber attacks. Involvement of private sector for robust digital security architecture.

(3) Harmonizing IT & Data Protection Act to check misuse of data.

(4) Clampdown of digital terrorism & Radicalization.

(5) Setting up separate agency for regular amendments to IT Act for cyber secure architecture.

IT Act can be suitably amended to tackle emerging threats & ensure robust [illegible] framework.

Candidates must not write on this margin

Space for Rough Work

NEXT IAS