Next IAS ID: MT23FLTRA027, TC011, 03-09-2023 11:11 PM

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(To be filled by candidate)

Name of Candidate : Jaswant Malik

NEXT IAS Roll No.: ..... **Date of Examination :** 03/09/2023

Exam Centre : Old Rajinder Nagar ☐ Bhopal ☐ Online ☐

Test Code : TC011

Time Taken : 3:00

Program : FLT ☑ FLT+ ☐ SLT ☐ SLT+ ☐

MAIN TEST SERIES 2023
(TEST-11)

GENERAL INSTRUCTIONS

This Question-cum Answer (QCA) Booklet contains 56 pages. Immediately on receipt of the booklet, please check that this QCA booklet does not have any misprint or torn or missing pages or items, etc. If so, get it replaced by a fresh QCA booklet.

Candidates must read the instructions on this page and the following pages carefully before attempting the paper.

Candidates should attempt the questions strictly in accordance with the instructions specified in the question paper and in the space prescribed under each question in the booklet. Any answer written outside the space allotted may not be given credit.

Question paper will be provided separately and can be taken by the candidates after conclusion of the exam.

.....

SUBJECT/PAPER
GENERAL STUDIES

Invigilator's Sign. : .....

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(For filling by Examiners only)

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				

Signature

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MACRO COMMENTS

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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.

The Reserve Bank of India uses the CPI estimates for inflation targetting and management.

Consumer Price Index	Wholesale Price Index
1) Estimates change in prices of goods & services consumed at retail / Individual level	2) WPI measures change in prices at factory output / wholesale level.
2) Weightage → maximum to food and beverages (≈ 40%)	2) Manufacturing goods (67%) weightage
3) Estimates prices of Services	3) Restricted to goods only
4) Accounts for imported goods.	4) Restricted to domestically produced goods
5) Prepared by NSSO	5) Prepared by Office of Economic Advisers, Ministry of commerce

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CPI a better measure of Inflation

1) More comprehensive in Nature.

2) Calculates the estimates at the lower end of supply chain i.e. final consumer.

3) Components of food, fuel, housing, with varying Rural / Urban weightage presents true picture.

4) Takes care of impact of imported goods and services.

Due to its comprehensive nature RBI adopted it in 2015 as inflating targetting estimates.

Way forward

+ Continuous updation required for better estimation (↑ share of transport and rent)
+ Changing nature of consumption

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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

The jobs elasticity in India post the 1991 reforms has remained sub optimal leading to Jobless growth.

Major Reasons for high unemployment

A). **Supply side factors**

1) Issues of Employability

↳ >50-1. of Indian graduates lack required skills

2) Lack of formalized training (<5-1. of total workforce, NITI Aayog)

3) Issues of Disguised unemployment with 46-1. in Agriculture, contributing 18-1. to GDP.

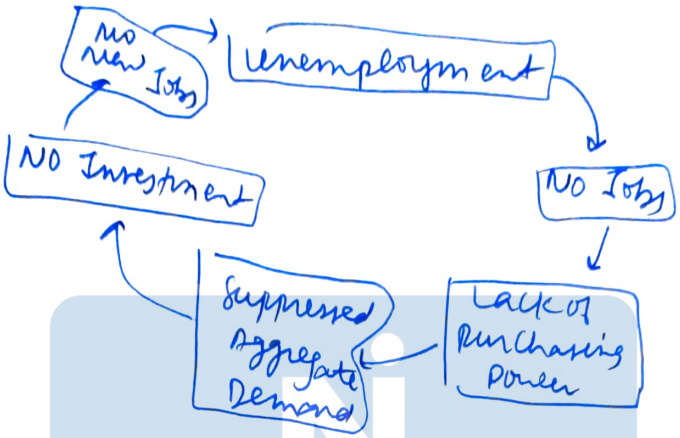
B) **Demand side factors**

1) Capital Intensive growth; gets low creation of jobs per unit of Investment.

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2) Software services contribute 8-1. to GDP but only .8-1. to labor force.

3) Vicious cycle of



4) Challenges of Automation, with greater technology integration.

Remedial measures

1) Focus on labor-intensive sectors (textile, leather)

2) Upskilling, re-skilling of employees.

3) leverage service sector requiring semi-skills
   (eg) food processing

4) Infrastructure led growth.; Construction sector largest Jobs creator.

Decent Jobs for all, with social security is the need of the hour.

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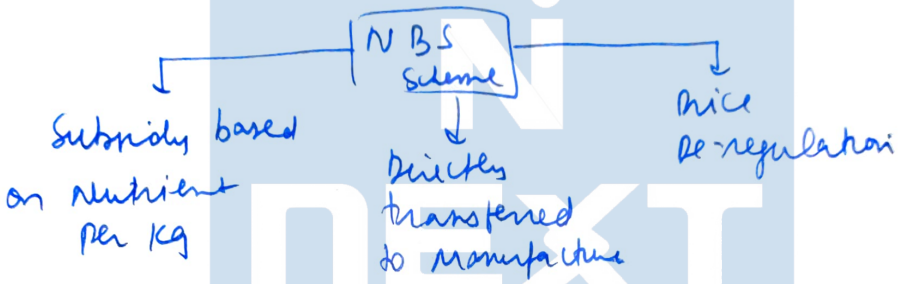
3. यूरिया को NBS योजना के तहत लाया जाना भारत में उर्वरक सब्सिडी से संबंधित सभी मुद्दों के साथ-साथ कृषि की पर्यावरणीय समस्याओं के लिए रामबाण के रूप में देखा जा रहा है। यूरिया प्रबंधन से संबंधित मुद्दों पर प्रकाश डालते हुए भारत में टिकाऊ रूप से यूरिया के उपयोग में आवश्यक सुधारों हेतु सुझाव दीजिए।

(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.

The share of fertilizer subsidies is ₹ 1.87 crore in 2023 Budget, increased 10% from last year.



Issues in Urea Management

1) Excessive use of urea, as its prices are controlled and suppressed.

2) No limitation on use leading to indiscrimin buying.

3) Mis-allocation and used in other sectors like Dairy etc

4) Destroys nutrient balance in soil

N : P : K
4 2 1 (Required)

Excess urea → N P K
8 : 4 : 2 (Supply)

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Reforms to Improve Usage

1) Deregulate the prices of urea and make it market-based.

2) Strict limits on number of bags purchased

3) Link it with land holding of farmers

4) Prevent its diversion to non-Agri Sector

5) Technology leverage → Nano liquid urea, Neem-coated for better absorption.

Way Forward

1) Adopt zero budget Natural farming.

2) Precision based agriculture, with proper soil testing.

Judicious fertilizer use necessary for reducing subsidy burden, food security, and environment sustainability.

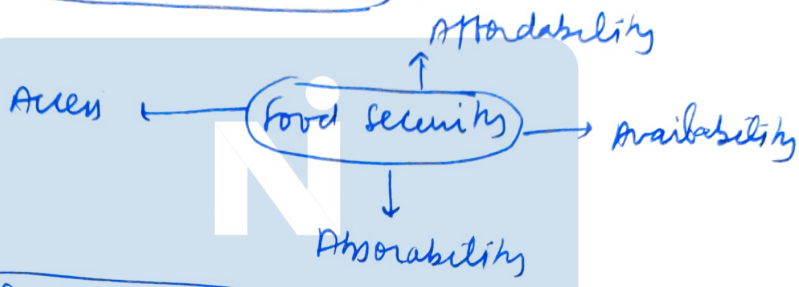
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4. भारत की खाद्य सुरक्षा को न केवल घरेलू कारकों बल्कि वैश्विक कारकों से भी चुनौतियों का सामना करना पड़ता है। टिप्पणी कीजिए। भारत की खाद्य सुरक्षा को सुदृढ़ बनाने वाले कुछ उपायों की चर्चा कीजिए।

(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.

India performs poorly in global Hunger Index (107/121 countries) raising issue of food insecurity.



Food security challenges

A. Domestic factors

1) Cerelization of Agriculture

2) Rice-wheat turn cycle reducing pulses, millet cultivation → Nutritional insecurity

3) 52% cultivable Area rainfed → rainfall variability → Production variability

4) Poor purchasing power
(50% of Indians earn < ₹4500/month)

5) Governance challenges
PDS poor targeting, corruption, diversion of grains.

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Global factors →
- Russia-Ukraine crisis (Edible oil)
- Pulses import from Africa
- Restrictions on Palm oil import from Indonesia
- Risks global uncertainty (Post COVID)

Ways to Strengthen Food Security

A) Food Availability
- Climate-resilient Agriculture (eg Suvarna Rice)
- Diversification of crops (↑ millet Production)

B) Food Access & Affordability
- Decent Jobs creation → ↑ in purchasing power
- Strengthen food/nutrition programmes. (PDS, POSHAN Abhiyan)

C) Global Coordination
- long term contracts with nations (Pulses, edible oil)

Food Security challenges need to be overcome to ensure healthy and productive Demographic Dividend.

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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.

Artemis Accord is a series of agreements led by USA for space activities on moon.

Positives for India's Signing Artemis Accords

1) Entering an elite club of nations.

2) Access to superior and cutting edge technology.

3) Greater global cooperation in managing free, open, demilitarised moon.

4) Get help in own Space programmes
   - (eg) Training of Astronauts for space travel

5) Access and utilization of International Space station (ISS) and other space infra.

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Challenges for India

1) Broad agreement, with no clear specific guidelines

2) Fear of USA Domination, and using it strategically to counter Russia-Ukraine Alliance

3) No agreements on technology transfer or active support.

Way forward

→ Need to tread cautiously

→ Seek engagement and collaboration with friendly nation (Eg Japan LUPEX Mission)

→ Enhance India's space economy share from 2-1. to 5T.

→ Increase private sector participation (eg InSPACe, NSIL)

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NEXT IAS

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.

Carbon cycle is important for managing and effectively regulating the amount of carbon on earth.

Decomposition of Organic Matter : Process

1) Organic matter from plants and animals after their decay and death comes to the soil

2) Fungi, Bacteria and worms begin the decomposition process.

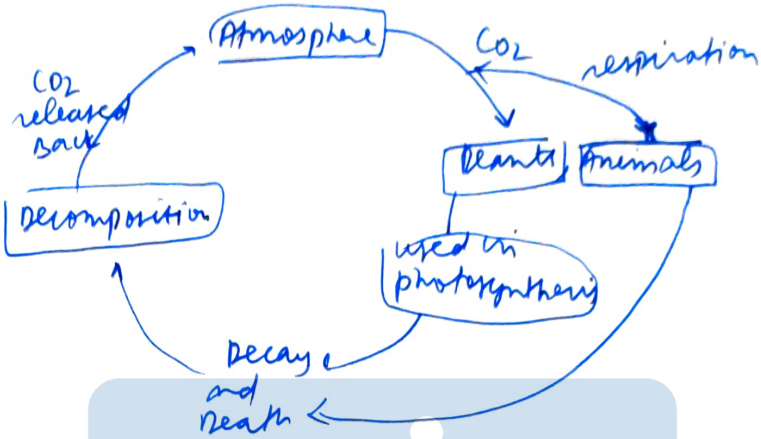
3)

Plants, Animals (Organic matter) —Role of Bacteria, worms, fungi→ CO_2, water, other gases

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4) The CO_2 is released back into atmosphere completing the cycle



Key factors Influencing the process

1) Temperature of the region (high temp. faster decomposition)

2) Moisture Availability

3) Activity of Organisms

4) Type and nature of plants and animal Carcass

Carbon cycle, with decomposition, plays a role in soil formation.

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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.

According to IPCC, the emissions of greenhouse gases (CH_4) has increased 10.1. in last few years.

Carbon Capture, Utilization and Storage (CCUS)

1) It refers to capturing the CO_2, CH_4 in the atmosphere and storing them underground, spent coal mines, salt caverns.

2) Gases like CO_2 stay in atmosphere for 100 years

3) Captured carbon can be used in production of syn-gas, fertilizers production and in other sectors.

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Progress of International Community

1) In UNFCCC, COP 21 Paris, CCUS technologies dissemination role and potential was discussed.

2) > 50 % of global energy still coal, fossil fuel based

3) Climate adaptation fund (managed by WB) provides loans and grants.

4) India-UK green growth equity fund, highlights importance of CCUS in fighting climate change.

5) In COP, 27 Sharmel-Sheik, a share of global resource mobilization to be used for CCUS.

CCUS technologies allow for green, equitable and inclusive transition. Need for Achieving Panchamrita goals.

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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.

The fire in Mukherjee Nagar, Delhi led to the death of several students and loss of property.

Rising Risk of fires in Urban Areas

A) **Poor Building Design**

- Lack of proper ventilation;
- Dingy, small rooms with no windows
- Lack of emergency exits
  (eg Fire tragedy at Uphaar Cinema Delhi)

B) **Flagrant Violations of Building and Safety Norms**

- No provision of fire fighting tools
  (lack of fire extinguisher)
- Not following the measurements for designing safe emergency exits
  (eg reduce stairs width)
- The buildings have not proper fire alarms, communation and alert systems

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5) Overcrowding of Spaces

- Rising demand of houses but land limitation
- Illegal multifloor buildings
- Overcrowding restricts entry of fire fighting vechicles
- Maximize Damage as nearby areas also catches fire

Way Forward

1. Municipal Bodies to regularly survey and update the properties in area
2. Mandatory fire audits every quarter
3. Fire Safety Drills, protocol every 6 months
4. Public education and Awareness
5. Robust greivance redressal and complaint mechanism.

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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.

The ongoing Kuki-Meitei clashes highlight the risks of free border regimes with India-Myanmar.

Ethnic conflicts and cross Border migration



A) India - Myanmar

1) Free movement regime upto 16 km

2) Entry of insurgents, and sanctuaries set up across border

3) Military Junta coming to power (2021) Myanmar created Illegal migration challenge

4) Supply of weapons

5) Illegal trafficking of drugs, goods

(eg) Churachandpur area → Illegal poppy cultivation

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B) India - Bangladesh

1) Porous borders, with riverine islands, difficult to manage

2) Claims of "Demographic change"; illegal migration happening since 1971 war.

3) Bodo militants, ULFA groups active on the border

4) organized crime networks → Wildlife
→ Drugs
→ Weapons

Way forward

1) Implement comprehensive Border Management Solution → Laser walls
→ Thermal Imaging
→ Infrared Sensor

2) Regulating Activities at Integrated check posts

3) Infrastructure development for easier movement of security forces

4) Vibrant Village programme → to reduce development deficit

Approach of 3D (Dialogue, Deterrence and development) to resolve conflicts.

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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.

Money laundering refers to concealing the source of illegally earned money or not paying tax on legal money.

Placement → Layering → Integration

Process of Money Laundering

Main challenges of Money Laundering Investigation

1) Coordination issues with multiple departments (finance, revenue, police etc)

2) Lack of international collaboration & Barriers in Extradition (eg Mehul Choksey case)

3) Fast evolution of technology
   (a) Revalence of cryptocurrency.

4) Informal Economy (90%) with no proper documentation.

5) Real Estate (one of the largest sector) with Black money invested → poor land records.

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6) Inter State Issues, with differing laws of land

7) Shortage of personnel and low capacity

Overcoming Challenges

1) Need to leverage technology and build capacity in AI, Blockchain to track Dark Net.

2) Enter into legal assistance, Extradition treaties

3) Greater synergy and convergence of efforts between departments.

4) Effective enforcement of e-KYC.

5) Action on Hawala Channels and networks

6) FATF sanctions on states harbouring offenders (Eg Pakistan)

With 4.2% of trials completed in all registered ML cases, need for complete overhaul Investigation systems.

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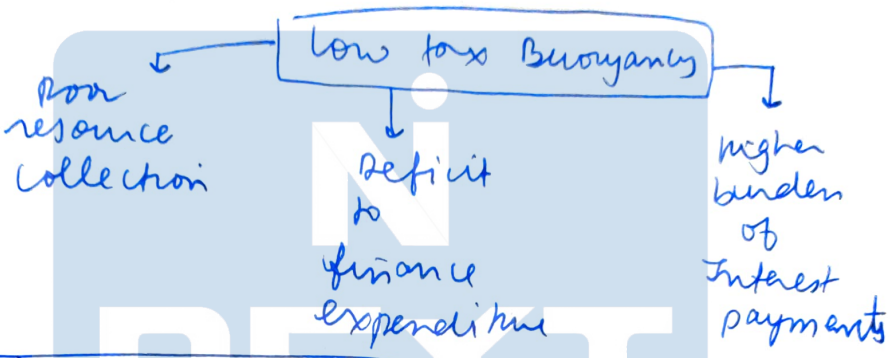
11. निम्न कर उत्प्लावकता प्रायः उच्च घाटे और ऋण में तब्दील हो जाती है। क्या उच्च प्रत्यक्ष कर दर लागू करके भारत में समग्र कर–जीडीपी अनुपात में सुधार किया जा सकता है? भारत की समग्र कर संरचना में सुधार के लिए अन्य कौन–कौन से कदम उठाए जा सकते हैं?

(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.

India has a low tax to GDP ratio of 12.1%, China has 28.1% and EU 33%.



Higher Direct tax rate: To Improve Ratio

Advantages

(1) High Income inequality in India with top 10% having 77% share in GDP

(2) Higher tax rates would lead to higher resource collection.

3) High tax rate ensures easier to collect revenue from less number of firms and individuals.

4) High tax ensures equitable and inclusive growth pattern.

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Challenges in High tax rate

1) Compliance rate is very low (1.6% of total population pays tax)

2) Dis-incentivise investment from foreign and domestic sources

3) Personal Income tax (highest slab at 41.5%) already very high.

4) High corporate tax rate would discourage capital formation, infrastructure investment from private companies.

5) Issue is low tax base and not low tax rate.

Steps to ensure and revamp Overall tax Structure

1) Reduce ~~the~~ regulatory cholesterol, simply return processes.

2) Promote faceless assessment of returns, and reduce discretionary powers of tax inspectors.

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3) Rationalising slabs of GST, to increase tax compliance and buoyancy.

4) Strengthen dispute resolution mechanisms (Eg Vivaad se Vishwas tax scheme)

5) Rationalise the tax benefits and keep a low tax rate (15-1.) to promote start-ups.

6) Leverage AI modelling and Big data analysis to curb tax evasion

7) New Avenues → crypto assets tax
→ Online gaming.

A higher tax-GDP ratio ensures fiscal stability and ensure greater inclusive growth.

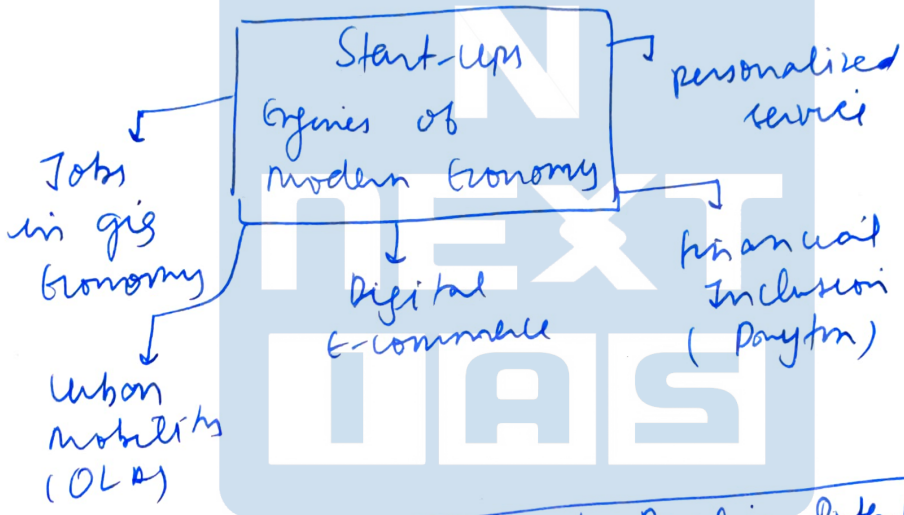
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12. स्टार्टअप तेजी से बदलती आधुनिक अर्थव्यवस्था के प्रेरक इंजन हैं। भारतीय स्टार्टअप अपनी क्षमता का उपयोग करने में क्यों विफल रहे हैं? भारत में स्टार्टअप्स की लाभप्रदता और प्रदर्शन में सुधार हेतु कौन–कौन से कदम उठाए जा सकते हैं? (250 शब्दों में उत्तर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

Ministry of Commerce, defines start-up as any enterprise with less than ₹100 crore turnover and life span of less than 7 years.



Indian Startups failed to Realise Potential

1) Absence of original ideas
   - most startups copying western models in Indian contexts
   - (eg) crypto based startups

2) Glut in the market
   - too many startups offering similar services

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3) Size of middle class in India not growing fast.

4) Absence of congenial and supportive ecosystem.

5) Drying up of capital investment from foreign funders

6) Global headwinds, slowdown post COVID

7) Failure of Global capital Banks (Start-up Banks declared Bankruptcy in US)

8) High competition from legacy corporates (Eg) Reliance entry into e-commerce

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Steps to improve profitability and performance

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1) Need to set up mentoring and handholding institutions to guide in initial years.

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2) Rationalizing the labor and other restrictions on Startups.

3) Adopting new forms of regulation frameworks

(eg) RBI regulatory sandbox for fintech startups.

4) Focus on achieving breakeven before expansion

5) Reducing dependence of VC capital funds and push to generate own profits and Revenue.

6) Adopting Best practices from Israel, South Korea (Hsinchu Tech park).

7) Leverage the new emerging technologies to reduce costs.

A robust start-up ecosystem is necessary to achieve $5 million dollar economy.

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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?

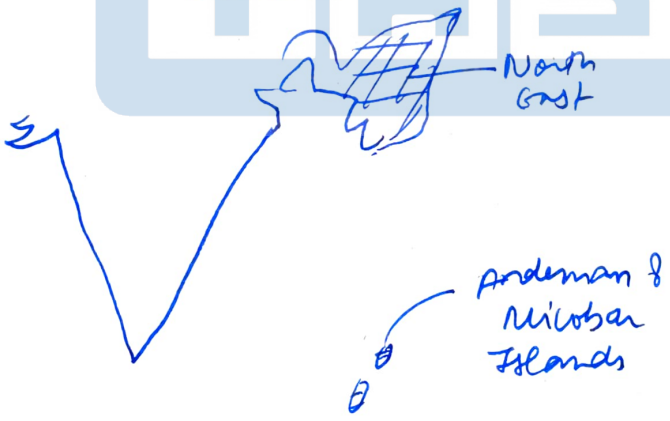
(Answer in 250 words) 15 Marks

Edible oil imports has the largest share in Agri Imports (>30%) in value.

India fulfils 60% of its palm oil demand from imports.

Importance of National Mission on Edible Oils and Oil Palm

1) Pushing for cultivation of oil-seeds in untapped areas.



2) Instituting Minimum support price for oil seed crops that is 14% of global crude oil prices.

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3) focus on provision on quality inputs to farmers (high yield seeds, adequate fertilizers)

4) Target to triple the production from 3.9 mn tonnes to 11.7 mn tonnes. ~~in next~~

5) Provides sustainable livelihood opportunities to people

6) Ensures food security and reduces import dependence.

Challenges and Concerns

A) Environmental Concerns

1) palm oil plantations requir deforestation of large land areas

2) Threat of loss of Biodiversity

3) Enhances vulnerability to alien species attack, as introduced in pristine areas

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Of Andaman Islands

4) Require high water and constant fertilizer and pesticides → Increase pressure on local ecosystem.

5) Carbon sink reduction

Other Concerns

1) Long gestation crops with high volatility of prices

2) Difficult to convince farmers to new crop

3) Complementary infrastructure (mills, oil processing units lacking)

4) Capital-intensive crop, affordable finance option lacking

High oil seed and palm production crucial to reduce imports and strengthen food security.

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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.

Livestock sector contribute 30-1. % Agriculture GVDP and 4.35 % of national GDP.

Role of livestock economy in Agriculture:

1) Provides sustainable livelihood opportunities (support 8.8 % of population)

2) Contributes to Integrated farming
   (eg) Organic manure used in farming.

3) Act as shock reliever and supports farmer in poor yield year.

4) Enhances Nutritional security
   (eg) Eggs, milk rich source of protein

5) Gender empowerment potential high
   (eg) SAMPOORNA mission in Assam

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[Challenges faced by livestock sector]

1) Rising price of fodder cost, reduces income of farmer

2) Spread of diseases leading deaths and poor yield.

(eg) Brucellosis in cows.

3) Lack of technological integration leading to poor productivity.

4) Low value addition in products affects revenue.

5) Excessive use of antibiotics to increase milk yield artificially → impact on human health.

6) Poor average yields ($\frac{2}{3}$rd of global average) → unable to compete with global players

7) Lack of processing facilities

(eg) Cold reefer trucks → High spoilage

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Interventions to strengthen Livestock Sector

1) Enhancing Veterinary doctors and health infrastructure

2) focussed attention on disease prevention
   (eg) foot-and mouth disease

3) encourage Artificial insemination facilities to enhance yield.

4) Protection and promotion of indigenous yield
   (eg) GOKUL mission

5) Overcome backward and forward linkages with processing industries → enhance value addition

6) Mandatory health audits and inspection.
   (eg) Animal - Aadhaar for tracking

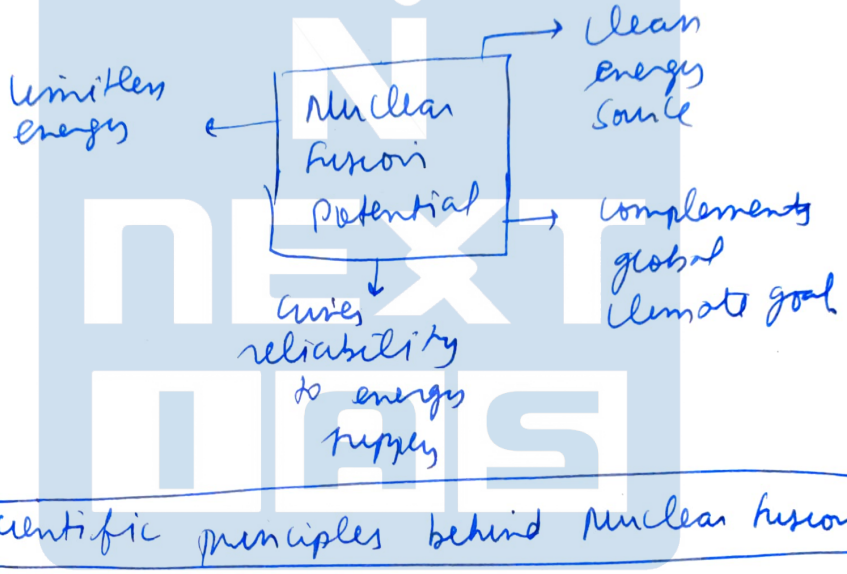
"A robust livestock sector is crucial for doubling farmers income"
— Ashok Dalwai Commission.

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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.

Presently 7 GW (1.7%) of total installed electricity capacity, is generated from Nuclear power in India.



Scientific principles behind Nuclear fusion

1) Two small atoms of hydrogen are fused together to create one helium atom

$$H_2 + H_2 \rightarrow 2He + \text{Energy}$$

2) Trying to simulate the energy production in Sun.

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3. The hydrogen atoms are heated and put into high pressure system till the transform into the physical state of plasma.

4. The Nuclear reactor (TOKAMAK), ensures the plasma state is maintained and continuous energy is produced.

Challenges in Harnessing

1) Till now, no nuclear reactor has been able to achieve energy positive state for long.

2) Difficult to maintain the hydrogen atom in plasma stage for long.

3) Consumes large amount of energy than it is able to produce, right now.

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Opportunities in harnessing

1) Unlike nuclear fission, less risk of emissions damaging environment

2) Overcomes the raw material constraint of Uranium availability.

3) Reduces dependence on polluting fossil fuel energy sources of coal, petrol etc

4) Gives consistency and reliability to renewable energy power systems.

The ongoing ITER Nuclear fusion experiment, in which India is a participant, would prove consequential in future deciding of nuclear fusion energy.

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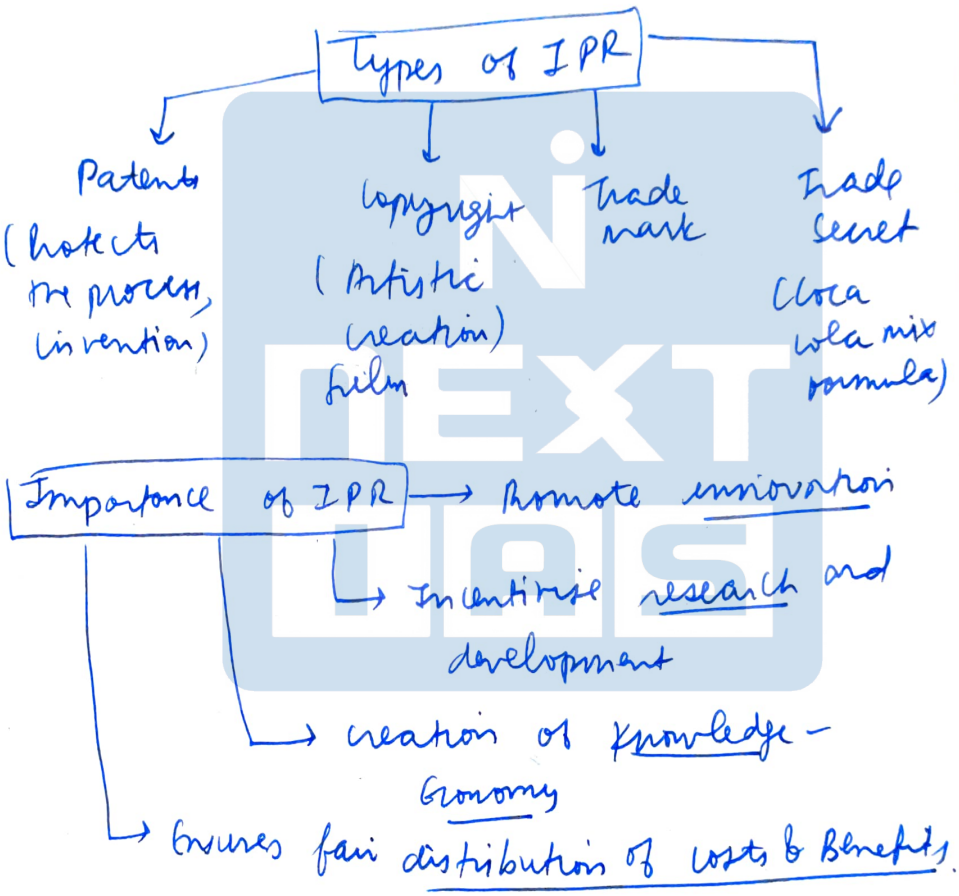
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16. भारत में आईपीआर के प्रशासन में कौन–कौन सी कठिनाइयाँ रही हैं? भारत में नवाचार आधारित अर्थव्यवस्था को प्रोत्साहित करने के लिए आईपीआर के प्रशासन में सुधारात्मक उपाय सुझाइए। (250 शब्दों में उत्तर दीजिए) 15 अंक

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.

IPRs refers to intellectual property rights, they protect the creations of human mind.



Difficulties in administration of IPRs

1) Under-capacity of department of commerce to properly enforce laws.

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2) Multiple legislations (like Patent Act, 1970, GI Act, 1999) creates challenge of proper coordination

3) Lack of public awareness and dissemination to IPRs
   (eg) Jugaad culture → low cost copy of original

4) Cumbersome IPR registration process

5) Lack of effective grievance redressal mechanism
   (eg) Delay in settling of IPR abuse cases

6) Lack of accessibility to small firms, Tribals etc → opens them to exploitation from big firms.

Measures to Improve Administration

1) Conducting regular updation of IPR protected lists and survey audits.

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2) Streamlining the application process for easier registration.

3) Set up effective adjudication institutions for faster conflict resolution

4) Public awareness and information drives.

5) Making IPR registries public for greater transparency.

The National IPR policy, 2016 covers many of these provisions. Need to balance Inventor's interest and public welfare.

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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.

Wildlife Protection Act, 1972 is an omnibus legislation with provisions of regulation and management of protected Areas.

Implications of Illegal wildlife trade

1) Loss of Biodiversity

(eg) Threat of extinction of Indian pangolin.

2) Threatens the balance of forest food chain

(eg) Killing of top predator (Tiger)

3) Funds from illegal trade supports other organized crime (Drug, human trafficking)

4) Violation of tribal rights

5) Loss of indigenous culture

(eg) Zeliang-Kuki tribes consider tiger brothers.

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6) Economic loss → as wildlife tourism suffers.

7) Creates law and order situation.

8) Promote man-Animal conflict.

Recent Amendments in WPA, 1972

1) The 6 schedules for animal-plants protection have been rationalised into 4.

2) Greater clarity on declaration of wildlife sanctuary and regulation of boundaries.

Effectiveness of Amendments

Positives

1) Streamlines the focus on animal protection

2) Gives greater power and authority to state government

3) Adopt a multi-stakeholder Approach.

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4) Takes an integrated area based policy focus than limiting to species

Challenges Remaining

1) Poor capacity of forest guards
2) Low infrastructure development
3) Inter-state coordination issues.

There is greater need to eliminate Illegal wildlife trade to secure environment protection and Biodiversity promotion.

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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.

The recent Delhi floods (2023) brought the entire city to stand still and led to huge economic loss.

Factors Contributing to Urban floods

A) Natural factors

1) Cloudburst & heavy rainfall
   - (eg) Kerala floods

2) Tropical cyclone
   - (eg) Dipajoy in Surat (Gujarat)

3) Landslides causing diversion of river waters

B) Anthropogenic Reasons

1) Unplanned urbanization led construction



Major Urban Floods

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2) Concretization of land surface

3) Encroachment of river floodplains
(eg) Yamuna plains in Delhi

4) Drying up and conversion of urban wetlands
(eg) Pallikaranai marshlands in Chennai

5) Weather phenomenas like "urban Heat Island", "Urban Dome" affect rainfall pattern

6) Loss of Green cover due to land-use changes.

7) Clogging of Drainage and low capacity

Measures taken to Enhance Resilience

1) Setting up of Robust Early Warning Systems
(eg) IFLOWS - Chennai

2) **Overhaul Drainage Infrastructure**
→ Conduct survey and audit to estimate capacity gap.

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- Build New storm drains
- Proper waste management to prevent clogging

3) Re-creation of rivers and streams

4) Sustainable Urbanization
- Develop Green-Blue Infrastructure (Nitin Shah Committee)
- Bioswales, Rain gardens to de concretize surface
- Ideas of "Sponge Cities" in urban planning

5) Local Body Capacity
- Ensure adequate skilled personnels
- Create fund allocation
- Strict enforcement of Building norms

Cities are engines of economic growth ($\frac{1}{3}$rd population, $\frac{2}{3}$rd GDP).

Need for Sustainable urbanization (SDG - 11).

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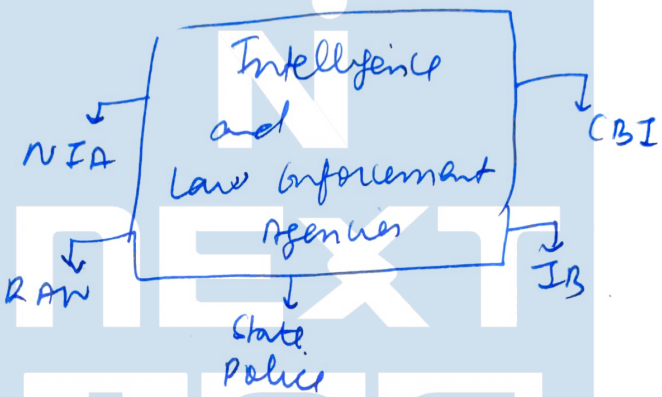
19. क्या आपको लगता है कि भारत में आसूचना विभाग तथा विधि प्रवर्तन एजेंसियों के पास संगठित अपराध और आतंकवाद के गठजोड़ से प्रभावी ढंग से निपटने के लिए आवश्यक संसाधन और क्षमताएँ हैं?

(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.

The major terror attacks (Mumbai 26/11), Pulawama (2019) have all happened due to failure of intelligence and law enforcement agencies



Intelligence and Law Enforcement Agencies Not Have Resources and capability

1) Shortage in police force

(ex) 167/1 lakh population ; UN Recommend 222/1 lakh

2) lack of effective coordination between different agencies.

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3) Access to latest technologies like AI enabled robotic, drones missiles

4) Sharing and dissemination of critical info channels weak

5) Diversion of personnels for other work ; harms effectiveness
(eg) VIP security

6) Lack of general consent from states, CBI and poor synergy with various state police.

7) New emerging threats with Dark web, crypto currency

Positive role / performance of forces

1) Despite limited resources able to prevent attacks
2) Ensured effective External security
3) with setting up of NATGRID, NTCCC, cyber command ; capacity has risen

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4) Crime and criminal tracking system (CCTS) ensured convergence.

Way forward

1) Expand the scope of NATGRID to collect and asses other data sources (social media, e-commerce)

2) Better International collaboration (INTERPOL)

3) Increase personnel strength.

4) Ensure proper coordination among agencies for easier flow of information

5) Take concerted action

6) Developing new technology

↳ Crypto-key communication

Intelligence agencies need to be modernized to meet 21st century challenges.

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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.

India daily receives 200,000 cyber threats endangering national security.

Needs to update IT, Act 2000

1) Changing Nature of threats

(eg) Advanced malwares "Stadowpad"

2) Increase in national vulnerability

1) 708 million Internet users

2) 33% on Social media

3) Threats to critical Infrastructure

(eg) RedEcho attack on Mumbai Power systems

4) Rise of various non-State actors

(eg) AIIMS Ransomware attack

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5) Rising digital economy

6) Need to accomodate dangers of AI, Blockchain and other Dark Net

7) Rising economic profile of India, more prone to threat.

8) Operational issues of coordination, synergy and duplication of efforts.

Way forward

1) Enhance cyber security work force

2) Complete recruitment of 500,000 personnels

3) Develop offensive capabilities

4) International collaboration (eg Budapest convention)

5) Greater private sector participation

Candidates must not write on this margin

to resolve threats

need to improve cyber security

Rank from current 10. to