

NEXT IAS**MAIN TEST SERIES 2024 (FLT)**

(To be filled by candidate)

TEST CODE : FLT003**Test No. : 03**Name of Candidate: Vidhi Mobile No. Roll No. : GSM ACT 24 A 1315 Start Time 6:00 PM End Time 9:30 PMDate of Examination: 15/08/24 Medium : English ☒ Hindi ☐

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
TOTAL MARKS - 100		

Q. No.	Maximum Marks	Marks Obtained
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
7	10	
8	10	
9	10	
10	10	
TOTAL MARKS - 100		

GRAND TOTAL - / 250**EVAL CODE:** **EVAL DTE:****GENERAL INSTRUCTIONS**

1. Immediately on receipt of the QCA 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.
2. Candidates must mention all relevant details like Name, Email, Roll No, Mobile, etc. in the space allocated.
3. Candidate is expected to attempt all 10 questions within the given timeline.
4. Answers must be written in the medium authorized at the time of admission.
5. Candidates must write answers for the specific question under the respective question itself. Any answer written outside the space allotted may not be given credit.
6. Please write neatly. Avoid illegible writing.
7. Do not write/mark irrelevant matters in the QCAB.

सामान्य निर्देश

1. QCA पुस्तिका प्राप्त होने पर कृपया तुरंत जांच लें कि इस QCA पुस्तिका में कोई पृष्ठ या सामग्री आदि गलत छपी हुई या फटी हुई या गायब तो नहीं है। यदि ऐसा है, तो इसे एक नई QCA पुस्तिका से बदल लें।
2. अभ्यर्थियों को सभी प्रासंगिक विवरण जैसे नाम, ईमेल, रोल नंबर, मोबाइल नंबर आदि का आवंटित स्थान पर उल्लेख करना होगा।
3. अभ्यर्थियों से अपेक्षा की जाती है कि वह आवंटित समय-सीमा के भीतर ही सभी 20 प्रश्नों के उत्तर-लेखन का प्रयास करें।
4. प्रत्येक उत्तर, प्रवेश के समय चुनी गयी भाषा के माध्यम में ही लिखे जाने चाहिए।
5. अभ्यर्थियों को विशिष्ट प्रश्न के उत्तर संबंधित प्रश्न के नीचे ही लिखने होंगे। आवंटित स्थान के बाहर लिखे गए किसी भी उत्तर को क्रेडिट नहीं दिया जाएगा।
6. कृपया साफ-सुथरा लिखें। अस्पष्ट लेखन से बचें।
7. QCAB में अप्रासंगिक तथ्यों को न लिखें / न ही चिह्नित करें।

REMARKS:

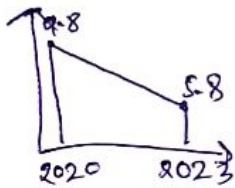
FOR OFFICE USE ONLY

1. भारत में उच्च राजकोषीय घाटे में योगदान देने वाले कारकों पर प्रकाश डालते हुए, ऐसे घाटे के संभावित परिणामों पर चर्चा कीजिए तथा राजकोषीय समेकन (Fiscal consolidation) सुनिश्चित करने के उपाय सुझाए। (10 अंक, 150 शब्द)
Highlighting the factors contributing to high fiscal deficit in India, discuss the potential consequences of such deficit and suggest measures to ensure fiscal consolidation.
 (10 marks, 150 words)

Fiscal Deficit (FD) is the excess of expenditure incurred by the government over its revenue, excluding Borrowing.

$$FD = \text{Total Expenditure} - \text{Total Revenue}$$

Recently, India's FD reached 9.8% in 2020 & it is on downward trend



Factors

- High spending during COVID-19 [Countercyclical Fiscal Policies]
- Social sector spending → increased budget outlay for MGNREGA & others.
- Provision of subsidised foodgrains under PMKAY (~800 cr)
- Rising prices of fuel & fertilisers due to external factors like Russia-Ukraine War ⇒ increase in subsidy burden.

- Decrease or poor returns from Disinvestment policies
- Low Tax Base ~17% > OECD ~34% countries

Consequences

↑ FD → crowding out of private investment in the economy.

- ↑ interest rates ⇒ further increase interest repayment burden
- ~~poor~~ depreciation of domestic currency
- Against the principal of intergenerational equity
- inflationary tendencies in the market

Fiscal consolidation is the process of managing fiscal deficit while balancing growth

Measures

- Abiding by the rules of FRBMA, 2002
 - Rationalisation of Tax slabs to widen tax base. (GST)
 - Repealing & reviving subsidies. i.e. fertilisers etc.
 - Take disinvestment & asset monetisation measures for non-performing PSUs like Bharat Scooter etc.
 - Spend on Capital formation [Golden Rule of Fiscal Policy] Economic survey
- Hence, fiscal glide path is recommended to balance the fiscal expenditure & growth

2. 2047 तक भारत के विकसित राष्ट्र बनने की आकांक्षा महत्वपूर्ण पूँजीगत निवेश पर निर्भर है। इसके आलोक में, इस लक्ष्य को प्राप्त करने में पूँजीगत निवेश की संभावनाओं पर चर्चा कीजिए। इस संदर्भ में भारत के समक्ष क्या चुनौतियाँ हैं? (10 अंक, 150 शब्द)

India's aspiration to be a developed nation by 2047 hinges on significant capital investment. In light of this, discuss the potential of capital investment in achieving this vision. What are the challenges India faces in this regard? (10 marks, 150 words)

Recently, In budget Govt. has
announced to invest ₹11,11,111 lakh
crore for Capital Formation

Potential of Capital investment

→ Multiplicative effect → generating employment opportunities
eg → Sagarmala expected to generate 10mn employment

• Regionally balanced development
bridging Rural-Urban divide

• Development of Industrial corridors
eg → Delhi-Mumbai Corridor

Acceleration effect

→ It will help in market integration ⇒ wider Demand

↳ Further lowers down
logistics cost (~14%); China 8% &
reduces Ex of doing business

- Digital connectivity will ensure soeio-economic development through → Ted education - eg Swayam Portal
Ted Health eg E-Sanjeevani
 - It will promote backward & forward linkages in all sectors eg Food Processing, Agriculture
 - It will increase FDI/FII,
eg During 2022, FDI Ted by 72%
- Potential challenges

- ⇒ Long gestation ⇒ Cost Overruns
eg National Highway delay.
- ⇒ Land Acquisition Policies ⇒ poor land records, reluctance of owner
- ⇒ Contract enforcement & credit issues
- ⇒ In conflict with environmental regulation eg Char-Dham project
- ⇒ Corruption; Administrator-Politician Nexus

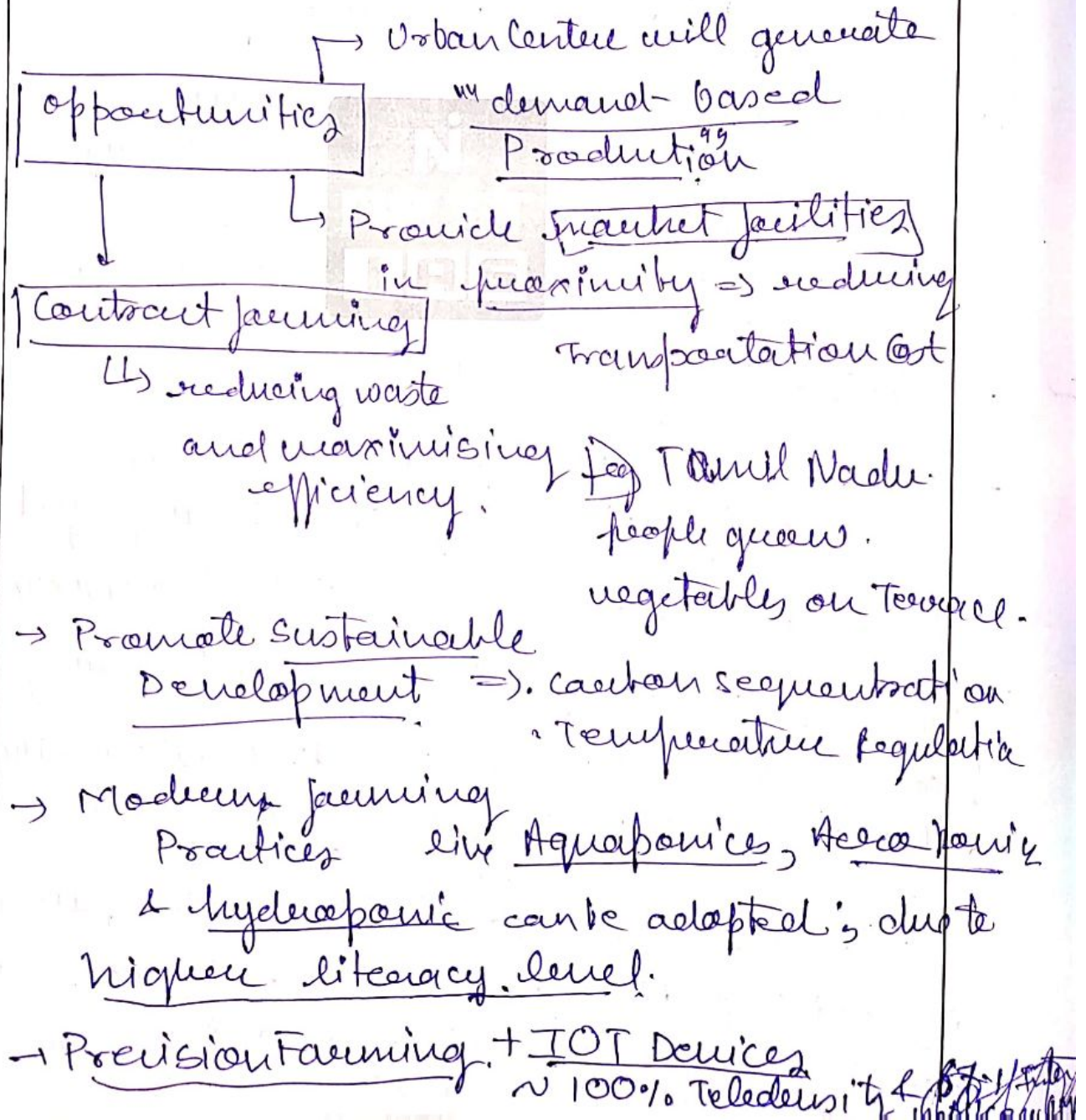
Measures → Promote Transparent Bidding Procedure

- ↳ Collaboration with state ⇒ Multi-Modal connectivity
- ↳ Remote areas development ⇒ Bharat Net, PMGSY
- ↳ Infer Development Bonds, zero coupon, discounted securities

Pvt Gati Shakti is a comprehensive infrastructure development initiative to realise vision of developed India by 2047

3. "नगरीकरण में वृद्धि के साथ, पेरी-अर्बन/परिनगरीय कृषि (Peri-urban agriculture) ताजा कृषि उपज की आवश्यकताओं के लिए एक महत्वपूर्ण योगदानकर्ता के रूप में उभरी है"। इस संदर्भ में, सतत रूप से पेरी-अर्बन कृषि को बढ़ावा देने से सम्बंधित अवसरों और चुनौतियों पर चर्चा कीजिए। (10 अंक, 150 शब्द)
- "With growing urbanization, peri-urban agriculture is emerging as a significant contributor to fresh farm produce needs". In this context, discuss the opportunities and challenges associated with promoting peri-urban agriculture in a sustainable manner. (10 marks, 150 words)

Peri-urbanisation agriculture is growing of farm products in near urbanised settlements.



67% of internet users (IMAI)

→ Assured credit supply, insurance facility will reduce risk.

→ Infrastructure availability → cold storage, warehouses

Challenges → Low availability of land in urban areas

→ High Rental cost (₹10,000-₹14K).

→ Pollution level

eg) Delhi Smog, PM2.5 & PM10

→ Most of the economy is service-led in urban area → lack adequate farming skills.

⇒ Lack of adequate government support, no policy yet:

⇒ Altering weather pattern;
Urban heat island → reduce productivity of crops

⇒ Some crops need longer gestation period, eg) Mango etc, ~~urban~~ centre

Hence, peri-urban agriculture is a ^{growing} technology to ensure balance between development & food security to achieve the SDG 12.

4. दालों और वनस्पति तेलों में आत्मनिर्भरता प्राप्त करने के लिए भारत के कृषि क्षेत्र के समक्ष कौन सी प्रमुख चुनौतियाँ हैं? इन चुनौतियों के समाधान भी सुझाइए। (10 अंक, 150 शब्द)
 What are the major challenges faced by India's agriculture sector to achieve self-sufficiency in pulses and vegetable oils? Suggest measures to address these challenges. (10 marks, 150 words)

Indian agriculture is the backbone of the Indian economy, ensuring food & nutritional security of the Nation.

It contributes to ~16% GDP & employs ~46% of manpower.

Challenges in self-sufficiency in pulses & vegetable oils

- Skewed nature of production, side effect of Green Revolution, i.e. Rice-wheat dominance
- Govt. policies permeate impact, open ended procurement policies of rice-wheat, MSP policies.
- Poor remuneration for other crops.
- Poor availability of seeds & other raw material for pulses.
- Poor knowledge about market demands; traditional way of agriculture
- Practice of monocropping $\Rightarrow$ soil $\Rightarrow$ desterilisation $\Rightarrow$ Reducing production

All these factors contributed to India being the net importer of pulses & vegetable oils.

Measures

- National mission for Palm oil, to increase its production
- MSP is provided for mustard, Niger & sunflower oil.
- Contract Farming
- Pulses → promoted in arid/semi-arid regions of Rajasthan
- Irrigation facilities for oil seed production.
- Processing facilities for oil seed (eg) FPO.
- Use of Biotechnology to increase the crop yield of pulses & oil seeds
- Promote intercropping for soil health management
Hence, dedicated efforts are needed to alter the cropping pattern depending upon the market demand & that also ensures to double farmer income.

7.

कार्बन क्रेडिट ट्रेडिंग स्कीम (CCTS) 2023 की प्रमुख विशेषताओं का परिक्षण कीजिए। भारत में हरित गृह गैस (Greenhouse gas) उत्सर्जन को कम करने की इसकी संभावनाओं का विश्लेषण कीजिए। (10 अंक, 150 शब्द)
Examine the key features of the Carbon Credit Trading Scheme (CCTS) 2023. Analyze its potential for mitigating greenhouse gas emissions in India. (10 marks, 150 words)

CCTS 2023 is introduced by Central govt. to establish a carbon-market in India. It aims to regulate certain set of industries to reduce CO_2 & CH_4 emissions.

Key Features

- It is similar to Kyoto Market based mechanism
- Regulated by Bureau of Energy Efficiency.
- Targets will be given to Industries over achievements can generate Credit under achievements → will buy Credit
- Credit Certificates will be managed by CERC.
- It is to stimulate Renewable energy and green technology adoption

Potential → It will help in reducing
CO₂ emissions,

eg India is 3rd largest
CO₂ emitter

→ It helps in achieving Panchamrit
target (COP26) to generate 500GW
of Renewable Energy.

→ It will establish - exchange based
GHG creditation ⇒ balance between
Economic growth & Sustainable
development

→ It will generate Job opportunities.
eg GCF, ~24 million job
can be generated in Renewable
energy

→ Technology: concentrated in India & China

challenges → Supply of Energy equipment
eg Solar PV cells
(China Dominated)

→ Long - Gestation
period ⇒ High Risk.

→ ~~Long~~ Assessment & monitoring
challenges; Greenwashing &
eg Volkswagen dieselgate
scandal.

CCTS, is an explorable & appreciable step
to achieve climate goals, however.
Behavioural change should also be promoted

8. पिछले दशक में हीट वेव की बढ़ती गहनता, आवृत्ति और अवधि के मद्देनजर, क्या "हीट वेव" को अब आपदा प्रबंधन अधिनियम, 2005 के तहत एक अधिसूचित आपदा के रूप में शामिल किया जाना चाहिए? (10 अंक, 150 शब्द)
In light of the increased intensity, frequency and duration of heat waves in the last decade, do you think the time has come to include "heat waves" as a notified disaster under the Disaster Management Act, 2005? (10 marks, 150 words)

Heat waves are observed when the temperature rises ^{by} ~~above~~ $(4-6)^{\circ}\text{C}$ above average temperature (IMD)

$>35^{\circ}\text{C}$ $\rightarrow$ In Hilly areas

$>40^{\circ}\text{C}$ $\rightarrow$ In Plain Areas

- Causes of Rising Heat Waves $\rightarrow$ Increasing global warming?
According to IPCC 6th AR, 1°C has already risen since pre-industrialisation
- $\rightarrow$ El-Niño Year $\Rightarrow$ decrease in monsoon impact
- $\rightarrow$ Deforestation activities
- $\rightarrow$ Encroaching of water bodies $\Rightarrow$ reducing their temperature moderating impact
- $\rightarrow$ Pollution $\Rightarrow$ CO_2 & CH_4 contribution rise in heat

Impact of Heat Waves.

- $\rightarrow$ It will cause food insecurity $\Rightarrow$ $\downarrow$ Agricultural production
 $\rightarrow$ Reducing crop yield.
- $\rightarrow$ Water stress $\Rightarrow$ intensify social inequities.
 $\rightarrow$ Women has to travel long-distances to fetch water

- Increase in cardiovascular & ~~the~~ respiratory problems
- It will reduce the labour productivity causing economic loss.
- Extended duration $\Rightarrow$ loss of lives
 feg) In Africa ~50000 lives are lost due to excessive heat.
- Drying up of forest $\Rightarrow$ prone to forest fires
 $\hookrightarrow$ Biodiversity loss.

DM Act, 2005 includes the policies that are to be undertaken to deal with disaster. Hence, Heatwaves causing multi-dimensional impacts can be incorporated into it.

- Other measures $\rightarrow$ ^{Body} Water restoration project
 feg) Arawari Development Project
- $\rightarrow$ Agro-forestry, Mulching
 - $\rightarrow$ Promotion of Rainwater Harvesting
 feg) Tanks, Johads, Bani
 - $\rightarrow$ Afforestation activities under CAMPA fund

Heatwaves needs a multi-sectoral dedicated efforts & it a disaster in reality, that needs to be specially tackled with NDMA Guidelines

10. पाकिस्तान और बांग्लादेश से सटे राज्यों में सीमा सुरक्षा बल (BSF) के प्रादेशिक क्षेत्राधिकार के विस्तार की आवश्यकता एवं संभावित मुद्दों पर चर्चा कीजिए।
(10 अंक, 150 शब्द)
Discuss the necessity and potential issues surrounding the extension of the Border Security Force's (BSF) territorial jurisdiction in states adjacent to Pakistan and Bangladesh.
(10 marks, 150 words)

Central Government has extended the territorial jurisdiction of BSF to ~50 Km around border areas.

Necessity

→ Rising instances of illegal migration near Bangladesh border due to porosity



→ Use of modern warfare tactics like Drone fog In 2022 BSF shot 1000+ near Pak border

→ Organised crimes

→ Drug Trafficking near Punjab border

→ Cattle smuggling due to porous nature of border near Bangladesh (~74 inter-state since)

→ It will ensure swift & smooth decision making ⇒ enhance efficiency

- The close cultural nature across border $\Rightarrow$ difficulty in identification of foreigners, extending jurisdiction will help in identification.
- Enhances intelligence network & monitoring area

Potential Issues

- Federal issues $\rightarrow$ conflict between Centre & States
- Smaller states like Punjab will lose majority of its territory
- Encroachment upon its jurisdiction of local police.
- The ^{inefficiency} ~~capabilities~~ of BSF in countering anti-militant operations
- The non-awareness & poor demarcation of jurisdiction at grass root level.

National security needs collaboration between Centre govt. & border state govt. and the capabilities of defense forces should be extended by deploying modern equipments to enhance its efficiency.

11. भारत की आर्थिक विकास की कहानी प्रायः बेरोजगारी की निरंतर चुनौतियों से प्रभावित होती है। संरचनात्मक बेरोजगारी की अवधारणा का विश्लेषण कीजिए और भारत की वर्तमान आर्थिक स्थिति के संदर्भ में इसकी प्रासंगिकता पर चर्चा कीजिए। (15 अंक, 250 शब्द)
- India's economic growth story is often overshadowed by the persistent challenges of unemployment. Analyze the concept of structural unemployment and discuss its relevance in the context of India's current economic situation. Suggest policy measures to promote inclusive job growth. (15 marks, 250 words)

According to IMF India is the
higlighted with growing 7.6% in
real terms since past three decades.

Structural unemployment arises due
to changing nature of employment
opportunities $\rightarrow$ ~~Robot~~ Automation

Causes of
Structural
Unemployment

- $\rightarrow$ Service-led growth, post 1991
reforms $\Rightarrow$ Stagnant growth.
- $\rightarrow$ The stagnant nature of industrial
sector in generating employment
opportunities
- $\rightarrow$ Disguised unemployment in agri-
culture sector $\sim$ 46% of workforce
- $\rightarrow$ Capital intensive growth, with
low employment elasticity to demand

- ~~Structural~~ → Procedural hurdles
- Structural issues → Poor labour laws reforms
 - ↳ Red-Tapism
 - ↳ Inefficient Labour Reform Policies
- Rising automation due to emerging technologies like AI & ML.
- Low skill level (eg) Ac ~40% of unemployable. (India's skill report)

Measures to Promote Inclusive Job growth
- Focus on labour intensive sector like FPIs, Textile, Tourism, SMGs, (high employment potential)
- Supporting MSME sector through credit support, PM-MUDRA.

[~40% of GDP] ES
- Promotion of Export, through Export promotion Units, SEZs,

@ Export share ~ 2.1% (3.2%) Target
- Smoothing & streamlining of filling procedures to promote EoDB.

- Promote FDI & FII's
L ~ 480 bn (2023) L ~ 400 bn (2023)
- Infrastructure development
L PM-GATI SHAKTI,
SAGAR MALA, BHARAT
MALA -
- Promoting Vocational education
& skill development
~ 10.5 cr skilled under Skill
India Mission
- Gender-inclusive workplace,
implementation of MBA, POSH Act.
- Adoption of Technology ⇒ expand
market reach, consumer
base. eg) OLA, UBER,
SWIGGY.
- Promote entrepreneurship ⇒ AIMCMTI AAYO
Unicorn 5100
- Development of Tier 2 - Tier 3 cities,
Educational institutes eg) BIT Guwahati
Health infrastructure IIT Guwahati
AIIMS &

Indian growth story depends upon its
employability of youth to generate demographic
dividend and achieve \$5 trillion by 2025

12.

भारत में क्षेत्रीय विकास को बढ़ावा देने में सूक्ष्म, लघु और मध्यम उद्यमों (MSMEs) की भूमिका पर चर्चा कीजिए। औद्योगिक विविधीकरण और उन्नत प्रौद्योगिकी प्राप्त करने में डेढ़े किस प्रकार योगदान दे सकते हैं?

(15 अंक, 250 शब्द)

Discuss the role of Micro, Small, and Medium Enterprises (MSMEs) in fostering regional growth in India. How can MSMEs contribute to achieving industrial diversification and technological advancement?

(15 marks, 250 words)

MSMEs are the manufacturing units defined under MSME Act 2006, based upon their investment and turnover.

	Investment	Turnover
Micro	< ₹ 1 cr	< 10 cr
Small	< ₹ 10 cr	< 50
Medium	< ₹ 50 cr	< 250

Role of MSMEs in
Regional growth

- Contribution in Economic growth, ~30% of GDP (EG)
- Export contribution = ~40% of Total Export
- They use local raw materials, can promote "Vocal for local initiative"
- They employ huge labour force, eg. Manufacturing sector ~11% of Total workforce
- Established in Tier 2 & Tier 3 cities eg. Lucknow, Jaipur - woollen clothes.

NEXT IAS

Candidate
write on it

- Agriculture base food processing industries $\rightarrow$ KISAN.
- Textile Sectors $\rightarrow$ Cotton in Maharashtra
 $\rightarrow$ Jute mills in West Bengal
- MSME's promote domestic entrepreneurship & promoting innovation in local areas $\rightarrow$ Machinery Parks
e-goods in Karnataka
- Rising concentration of MSME's $\Rightarrow$ expansionary effect $\Rightarrow$ development of Banking facilities, Insurance, Infrastructure development (Hub-based development)

In Industrial Development & technology advancement

- Promoting development of industries in different areas $\Rightarrow$ Regionally balanced growth

- Taking innovation activities
- Use of locally available ~~to~~ raw materials

Challenges with MSMEs

- Informal sector; majority of MSMEs are informal
- Limited capacity ~~for~~ to reap 'economies of scale'
- 'Dualism issue' (Economic Survey 2019)
- Poor credit supply.
- Obsolete technology & use of inefficient raw material
- Low information about market.

Way Forward → Multi-based development ~~for~~ PM-MITRA

- Credit supply ~~for~~ PM-MUDRA, ECLBIS (2020)
- Infrastructure development ⇒ enhanced market connectivity ~~for~~ Bharat Nalee..
- Export ~~promotion~~ Promotion through FTA, CECA etc.

MSME's are the engines of growth in India's target of Developed country by 2047.

13.

"MSP का एकमात्र उद्देश्य किसानों को आकस्मिक मूल्य परिवर्तन के आघात से बचाना है"। क्या आपको लगता है कि MSP को वैधानिक बनाने से किसानों को आकस्मिक आघातों से बचाया जा सकेगा? MSP आधारित खरीद को प्रभावी बनाने के लिए अन्य कौन से उपाय किए जा सकते हैं?

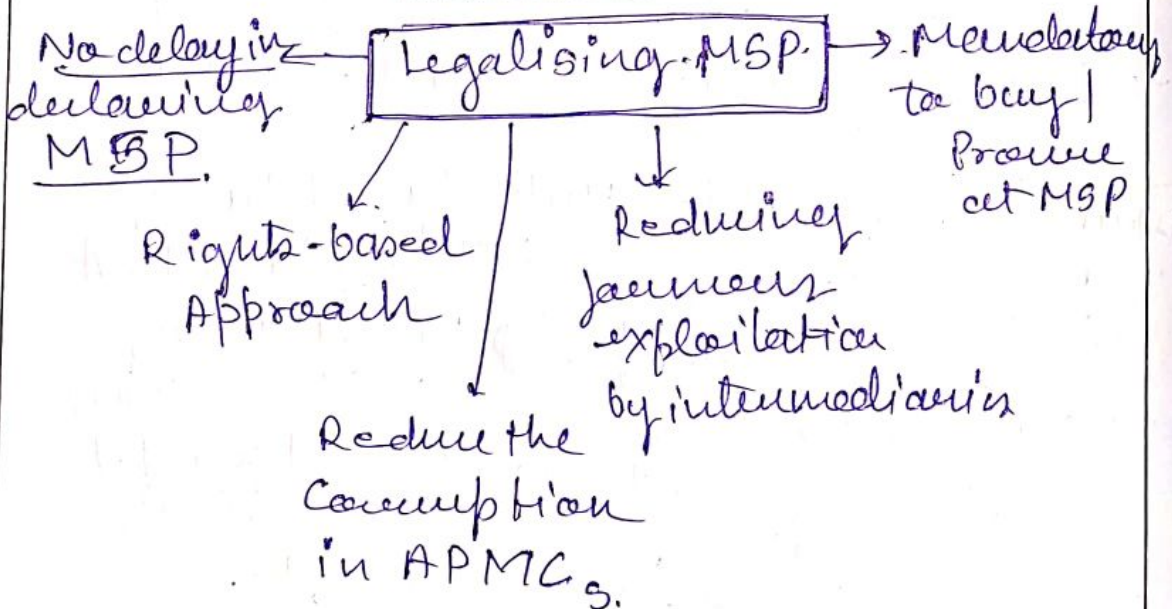
(15 अंक, 250 शब्द)

"The sole point of MSP is to protect farmers from sudden price shock". Do you think legalization of MSP can insure farmers from sudden price shocks? What are the other measures which can be taken to make MSP-led procurement effective?

(15 marks, 250 words)

MSP is a price-assurance provided by the govt. to farmers on 23 crops, to insure them against sudden price shock. MSP act as a basic minimum price level for the farmers.

MSP → declared by CCEA on the recommendation of CCAP, based on A2+FL formula.



However, legalising MSP →

⊕ Intensity already skewed. cropping pattern in favour of wheat & rice.

- If the ceiling of base-price it will become market price, reducing farmers remuneration.
- Peemense impact on environment.
↳ Soil Alkalinity, → In Haryana, reducing groundwater level. eg Hoshiyarpur in Punjab.
- Burden of expenditure, already fertilizer subsidy $\sim 0.5\%$ of GDP (CG), Food subsidy $\sim 1\%$ of GDP (CG).
- The awareness regarding MSP before sowing is less $\sim 5\%$.
- It will increase the judicial burden eg Goa case and pending (NSDG).
- Politicization of issue will lead to politic Disputes.

Other measures

- On Farm → Promote Demand based production, promotion of Horticulture.
eg MIDH, National Horticulture mission.

→ MSP can be provided for millets,
vegetables to incentivise their
production

→ Adoption of Precision Farming to
enhance agri-productivity.

→ Crant. can provide interest
subvention, assured
internet supply through
Bharat Net.

Market

→ Decentralisation of market, &

→ FCI, increase their warehousing
capacity, cold-storage facilities
to maintain quality of food
grain

Crant.

→ Digitalisation,

Direct transfer of subsidies
to Bank account of Farmer,

- Timely dissemination of MSP information
through Radio channels,

- Promotion of organic farming & cream sales within,

Hence Agriculture is very essential tool for
income, food & nutritional
security and in achieving SDG 12.

MSP

14.

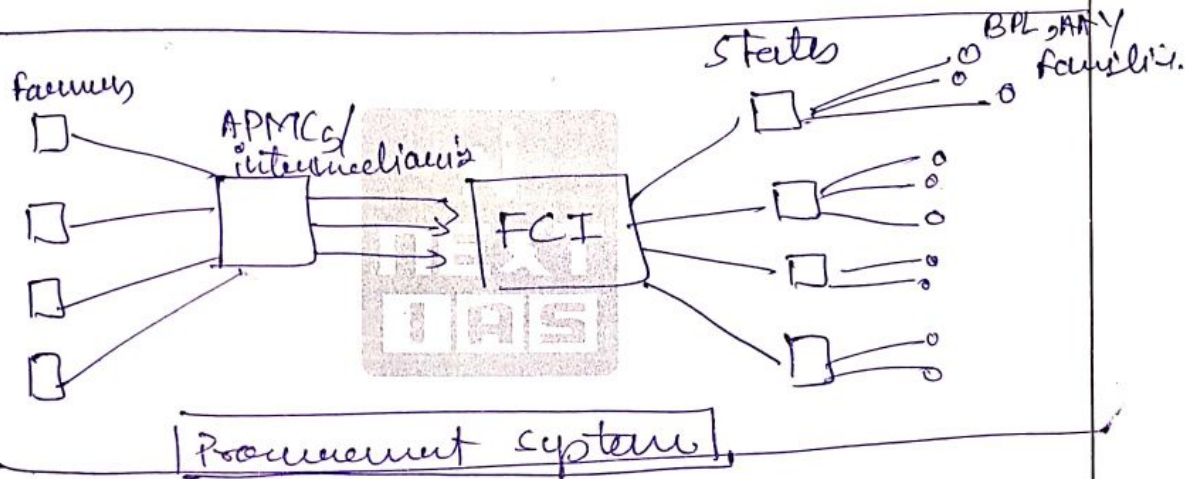
भारत में खाद्य सुरक्षा सुनिश्चित करने के लिए सार्वजनिक वितरण प्रणाली (PDS) में भारतीय खाद्य निगम (FCI) की भूमिका पर चर्चा कीजिए। भारतीय खाद्य निगम की दक्षता और प्रभावशीलता को बढ़ाने के लिए इसकी कार्यप्रणाली में आवश्यक सुधारों को सुझाइए।

(15 अंक, 250 शब्द)

Discuss the role of the Food Corporation of India (FCI) in the Public Distribution System (PDS) to ensure food security in India. Suggest necessary reforms in the functioning of FCI to enhance its efficiency and effectiveness.

(15 marks, 250 words)

PDS was introduced to provide adequate food grains to BPL families & AAY families to maintain food and nutritional security of individual.



Role of FCI

- FCI procures food grains from farmers and intermediaries
eg Wheat - Rice.
- It maintains buffer-stock of food grains to meet any shock
- It releases food grain in open-market to stabilise price level
eg Open Market purchases

16. 2023 का भौतिकी का नोबेल पुरस्कार क्वांटम डॉट्स के संश्लेषण की खोज के लिए एकिमोव, ब्रस और बावेन्डी को संयुक्त रूप से दिया गया। इस संदर्भ में क्वांटम डॉट्स के अनुप्रयोगों पर चर्चा कीजिए। (15 अंक, 250 शब्द)
The Nobel Prize in Physics of 2023 was jointly awarded to Ekimov, Brus and Bawendi for the discovery of synthesis of quantum dots. In this context, discuss the applications of quantum dots. (15 marks, 250 words)

Quantum dots are the nano^{scale} particles that have different light-emitting properties depending upon their size.

Applications

- Electronic watch - use in screen of television by QLED's Samsung
- Light emitting devices - LED's, different lights can be emitted
- Communication ⇒ Quantum communication
+ secure & encrypted
- Quantum computers
L. for data processing & fast analysis.
- Medicines - can be use for drug delivery at specific site

→ checking efficiency of drugs & medicines $\Rightarrow$ DNA Testing

→ Environment - use for pollution detection like
 $PM_{2.5}$, O_3 , CO_2 , CH_4

→ Supply chain Management - Tagging & tracking of products easily
is transportation & identification of goods.

→ Disease Analysis - Imaging of organs & identifying symptoms like
 $\Rightarrow$ Heart imaging

Challenges Associated

→ These Quantum Dots are non-biodegradable in nature,
causing Bioaccumulation & Biomagnification.

- Toxic in nature; using for drug delivery may have side effects.
- No international standards & regulations are developed.
- Very high cost, limiting their adoption on wide scale.
- Ethical concerns of using QD for human disease treatment.
- Research & innovation is at very initial stage, more results are needed.
- Degradation properties of QD based solar PV. ^{QD based solar PV. fails to operate} QD based solar PV. fails to operate
- QD are upcoming & emerging area of interest in optical, lighting & technology. However, responsible use through formulation of framework should be done.

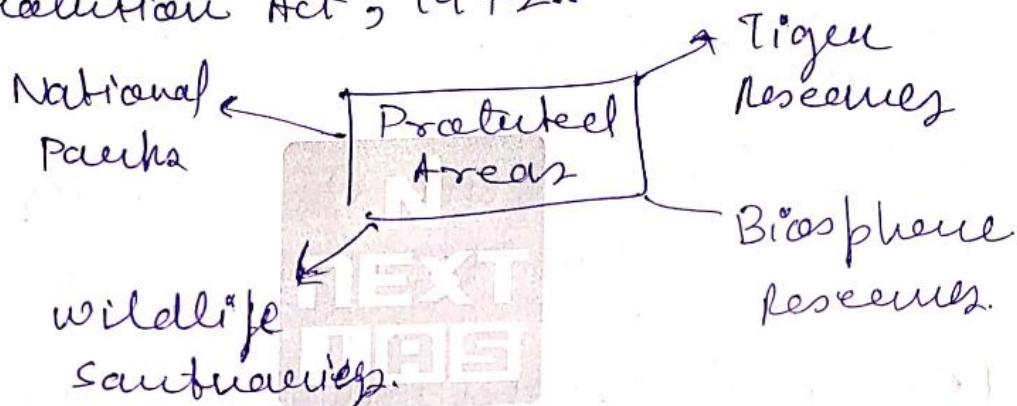
17.

भारत में जैव विविधता संरक्षण में आरक्षित क्षेत्रों (Protected areas) की भूमिका का मूल्यांकन कीजिए। भारत की जैव विविधता को संरक्षित करने में राष्ट्रीय उद्यान, वन्यजीव अभयारण्य और बायोस्फीयर रिजर्व (जैवमंडल निचय) कितने प्रभावी रहे हैं? (15 अंक, 250 शब्द)

Evaluate the role of protected areas in biodiversity conservation in India. How effective have national parks, wildlife sanctuaries, and biosphere reserves been in preserving India's biodiversity? (15 marks, 250 words)

Protected areas are specially demarcated zones for biodiversity conservation.

They are declared under wildlife protection Act, 1972.



Role of protected Areas.

→ Nature-based conservation
habitat protection

eg core areas in Tiger Reserves

→ No-development zones for conserv.
original natural eg Western Ghats

- Conservation of endemic species.
 feg) Nilgiri Tahr in
 Eranikulam National Park
- Regulation of Human activities like use of fossil fuels, cutting of trees will lead to protection of ecology.
- These areas help in minimising human-animal conflicts.
- Sustaining the complex food chain & food web in the ecosystem
- ⇒ Balancing between human existence & animals existence feg) Buffer zones near Biosphere Reserves
- ⇒ Scientific management
 - ↳ captive breeding centres
 - Relocation of endangered animals
 feg) Kuno-NP - cheetah
 Reintroduction

Effectiveness of Protected Areas

Hwy → Raised Tiger population
 > 700 in Madhya Pradesh

- Also enhanced biodiversity Tourism ~~eg~~ Ranthambore in Rajasthan
- ~~Too~~ concerning vulnerable species ~~eg~~ Rhino in Kaziranga National Park.
- ~~Potential~~ Ineffective → Poaching & hunting for animal product ~~eg~~ Pangolin scales.
- Human Animal ~~eg~~ conflict In Kerala.
- Unscientific establishment of wildlife corridors.
- mining activities in Jharkhand release of pollutants in water bodies & soil.
- Deforestation & illegal smuggling ~~eg~~ Red Sanders.

Dedicated efforts are needed for protection of biodiversity. Bottom-up approach are needed with community engagement practices to achieve SDGs.

18. भारत में पार्टिकुलेट मैटर (PM2.5 and PM10) और ओजोन प्रदूषण के उच्च स्तर होने के क्या कारण हैं? पार्टिकुलेट मैटर और ओजोन प्रदूषण को कम करने के लिए सरकार द्वारा किए गए विभिन्न प्रयास कितने प्रभावी रहे हैं?

(15 अंक, 250 शब्द)

What the causes of high levels of particulate matter (PM2.5 and PM10) and ozone pollution in India. How effective are the various steps taken by the government to mitigate particulate matter and ozone pollution?

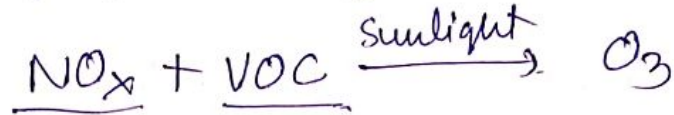
(15 marks, 250 marks)

According to WHO, the threshold limit of PM2.5 & PM10 is $5 \mu\text{g}/\text{m}^3$ & $15 \mu\text{g}/\text{m}^3$ respectively. However, there are frequent breach of thresholds in India.

Causes.

- High Industrial emission eg Jamshedpur
- Vehicular emission eg Delhi - Traffic.
- Air pressure system ⇒ higher dispersal of pollutants
- Waste Management ⇒ fires in landfills.
release toxic pollutants, stubble burning in Northern India.
- Inefficient & incomplete burning of fossil fuel release black soot
- ⇒ Rapid Urbanisation ⇒ rising energy demand,
(~40% by 2030 (NITI AAYOG))
mainly from Thermal Power Plant

Ozone pollution is caused by the secondary pollutants, giving rise to tropospheric ozone.



Causes →

- Vehicular emission
- Poorly ventilated houses
- Over-crowded ~~leg~~ slums.

Steps taken by the government.

- Monitoring of pollutants by CPCB through AQI, informed Decision Making
- Use of electrostatic Precipitator in Industries.
- Use of catalytic Converter in Vehicles, to reduce polluting emission
- Promoting renewable energy.
 - PM-SURYA GHAT Yojana
 - National Bio-fuel Mission.
 - National Green Hydrogen Mission.
 - Promoting E-Vehicles ~~leg~~ FAME Scheme.
 - Shifting from BSIV → BSVI norms.

Effectiveness of govt measures

- Poor adoption of EVs due to infrastructure gap i.e. poor charging point.
- Frequent violation by Industries in reducing emission.
- Stubble burning has not reduced,
eg) Delhi Smog during November
- Renewable energy → Inter-grid connectivity challenges
 - Battery storage issues
- Green spaces are reducing due to development & construction activities; (Heat Domes)
- Unplanned & Rapid Urbanisation, inefficient city planning, causing conurbation

multiple steps have been initiated, however challenges need to be tackled with collaborative efforts from government and community.

19. अंतर्राष्ट्रीय नारकोटिक्स नियंत्रण बोर्ड (INCB) रिपोर्ट 2023 दक्षिण एशिया में मादक पदार्थों की तस्करी के बढ़ते खतरे को प्रदर्शित करती है, जिसका कि भारत एक प्रमुख केंद्र है। भारत के संदर्भ में इस चुनौती के विभिन्न आयामों का विश्लेषण कोजिए। साथ ही, इससे निपटने के लिए बहु-आयामी दृष्टिकोण भी सुझाइए।
(15 अंक, 250 शब्द)
- The International Narcotics Control Board (INCB) Report 2023 highlights a growing menace of drug trafficking in South Asia, with India being a major hub. Analyze the various dimensions of this challenge with respect to India. Also suggest a multi-pronged approach to address it.
(15 marks, 250 words)

With rising menace of Drug Trafficking in South Asia, it poses costs ~\$650 billion contributing ~30% of the overall illicit economy.

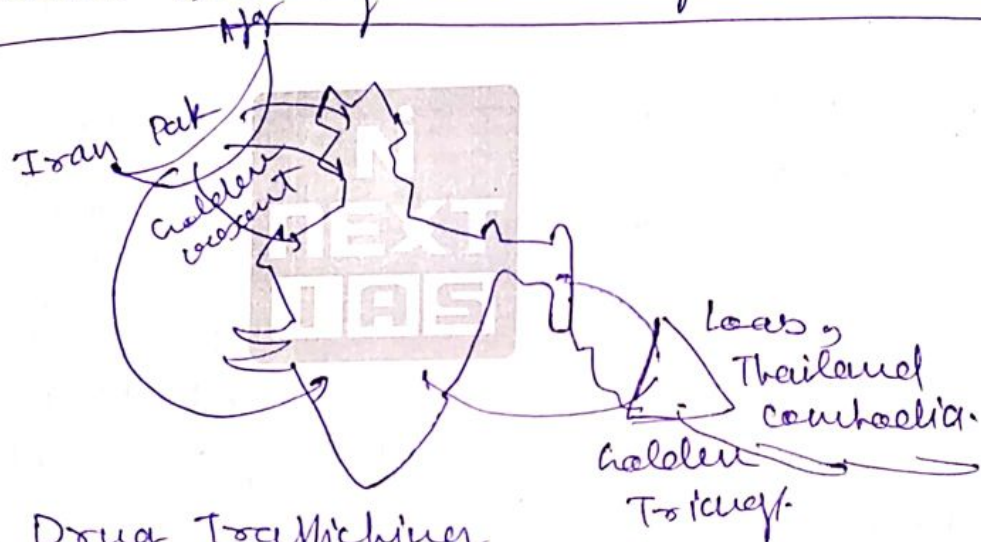


Fig-1: Drug Trafficking

Causes for high Drug Trafficking

- Proximity to Golden Crescent & Golden Triangle.
- Unsecured spaces $\Rightarrow$ conducive for illicit trade
 $\Rightarrow$ Taliban, Haqqani Network
- Porous border near Myanmar.

- Use of modern payment mechanism (eg) Cryptocurrency
- Dealing on Dark Web; outside regulatory reach.
- ⇒ Demand from Urban centres like Delhi, Singapore etc.

Challenges to INDIA

- It will fuel organised crime in India ⇒ Money laundering (~ (5-6)% World GDP (UN)).
- Weakening of Human Resources, decreasing productivity of youth ~ 68% (15-59) years
↳ Demographic Disaster
- 'Black hole syndrome', nexus between drug traffickers & Terrorism.
- It will give rise to parallel economy, loss of govt. revenue.
- Weakening of social relations
- Health related (eg) AIDS in North East Region, consequences

Addicted Youth can be radicalised
causing security concerns.

Approach to Tackle it

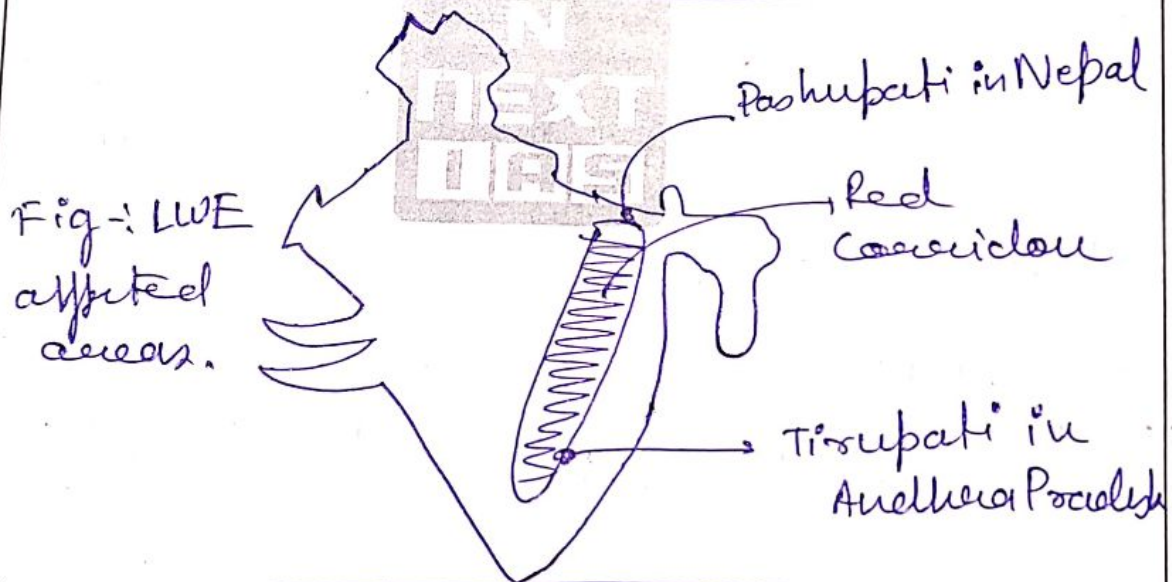
- ⇒ Border Management Practices ⇒ Smart Borders ⇒ eg CBM3, BADAI
- ⇒ Intelligence & monitoring network
- ⇒ Check against use of AI, Dark-web for communication.
- ⇒ Strict Enforcement of PMLA, NDPS Act in true spirit.
- ⇒ Rehabilitation measures for addicted youth eg Yoga
- ⇒ Development measures ⇒ Education institutes sports facilities like football, Hockey, Boxing
- ⇒ Employment through MSME sector eg PM-MUDRA
- ⇒ International collaboration through FATF, NMTF etc.

There is a menace of drug trafficking need
multi pronged approach.

20. वामपंथी उग्रवाद के प्रति भारत की प्रतिक्रिया (कारवाई) में नक्सलवाद के मूल कारणों को दूर करने के लिए कठोर सुरक्षा उपायों के साथ-साथ सामाजिक-आर्थिक नीतियों और संवाद जैसे नरम दृष्टिकोणों/उपायों (Soft approaches) को एकीकृत करने की आवश्यकता है। चर्चा कीजिए।
(15 अंक, 250 शब्द)
- India's response to left wing extremism needs to integrate soft approaches like socio-economic policies and dialogue along with hard security measures to address the root causes of Naxalism. Discuss.
(15 marks, 250 words)

LWE is the armed and violent struggle raised by a group motivated by extreme left-wing ideology (Marxism) to destabilise the constitutionally established government.

Recently no. of affected districts decreased to < 40.



Root Causes

→ Historical → Naxalbari Movement gave birth to CPI(M)

→ Development → underdeveloped areas
→ Poor infrastructure.

Administrative deficit ⇒ Poor public Service Delivery

NEXT IAS

Candidates must
write on this page

- Land reforms policies were ineffective ⇒ social inequalities
- Displacement & dislocation ^{for Mander Dam Project}
- Geography → Difficult Terrain, Dense forest, movement across states, vicinities etc
- Low social-economic indicators, mainly tribals ⇒ low education level.
- Security forces & police excess.
 - Operation Green Hunt
 - ↳ death of civilians
- ⇒ Inhumane practices like Salwa Judum.
- Inefficient intelligence network.
- External support ⇒ Urban Naxalism

India Response.Hard Measures.

- Deployment of security forces
 - COBRA Battalion of CRPF
 - Bastar Battalion
- Modern Weaponry → Helicopter, Drones.

NEXT IAS

- Secret operations to capture hideouts
- Legislative Measures [eg] MCOCA [Maharashtra Act]
- SAMADHAN Strategy

Socio-economic Measures

Infrastructure Development

- under PMGISDY.
- Eklamya Residential Model School Education
- Digital inclusion → Bharat Net, Digital India

Financial inclusion → PM-Jan Dhan Yojana

→ Rehabilitation measures. Similar to

"operation Nigrah" in J&K

→ ABP & ADP for comprehensive Development

⇒ Promotion of Tribal Handicrafts,

establish Self-Help Groups

[eg] Bakery run by widows in Dantewada.

→ Delivery of Public Service — water, electricity etc

Need to balance between both hard measures & socio-economic approach

can help in reducing LWE & establishing

"EK BHARAT SHRESHT BHARAT"