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GENERAL STUDIES (TEST CODE : 1503)

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Medium Eng./Hindi	Online English	Registration Number	
Center	Online	Date	4/12/2020

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INSTRUCTIONS

Q. No.	Maximum Marks	Marks Obtained
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- Do furnish the appropriate details in the answer sheet (viz. Name, Registration Number and Test Code).
उत्तर पुस्तिका में सूचनाएं भरना आवश्यक है (नाम, प्रश्न-पत्र कोड, विद्यार्थी क्रमांक आदि)।
- There are **TWENTY** questions printed in **ENGLISH & HINDI**
इसमें बीस प्रश्न हैं अंग्रेजी और हिन्दी में छपे हैं।
- All questions are compulsory.**
सभी प्रश्न अनिवार्य हैं।
- The number of marks carried by a question/part is indicated against it.
प्रत्येक प्रश्न/भाग के अंक उसके सामने दिए गए हैं।
- Answers must be written in the medium authorized in the Admission Certificate, which must be stated clearly on the cover of this Question-Cum-Answer (QCA) Booklet in the space provided. No marks will be given for answers written in medium other than the authorized one.
प्रश्नों के उत्तर उसी माध्यम में लिखे जाने चाहिए जिसका उल्लेख आपके प्रवेश पत्र में किया गया है और उस माध्यम का स्पष्ट उल्लेख प्रश्न-सह-उत्तर (क्यूसीए) पुस्तिका के मुख्य पृष्ठ पर अंकित निर्दिष्ट स्थान पर किया जाना चाहिए। उल्लिखित माध्यम के अतिरिक्त अन्य किसी माध्यम में लिए गए उत्तर पर कोई अंक नहीं मिलेंगे।
- Word limit in questions, if specified, should be adhered to.
प्रश्नों में शब्द सीमा, जहाँ विनिर्दिष्ट है, का अनुसरण किया जाना चाहिए।
- Any page or portion of the page left blank in the Question-Cum-Answer Booklet must be clearly struck off.
उत्तर पुस्तिका में खाली छोड़ा हुआ पृष्ठ या उसके अंश को स्पष्ट रूप से काटा जाना चाहिए।

Total Marks Obtained:

Remarks:

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EVALUATION INDICATORS

1. Contextual Competence
2. Content Competence
3. Language Competence
4. Introduction Competence
5. Structure - Presentation Competence
6. Conclusion Competence

Overall Macro Comments / feedback / suggestions on Answer Booklet:

1.

2.

3.

4.

5.

6.

1. It has been argued that remedying the exclusion of the majority of women from access to and control of rural land in India is one of the most significant steps that could be taken towards enhancing the country's rural livelihoods. In this context, identify the challenges in access to land rights by women. What measures can be taken to strengthen these rights?

(150 words) 10

यह तर्क दिया जाता है कि भारत में ग्रामीण भूमि तक पहुँच और उस पर नियंत्रण से अधिकांश महिलाओं के बहिष्करण का समाधान, देश की ग्रामीण आजीविका में उन्नति की दिशा में उठाए जा सकने वाले सर्वाधिक महत्वपूर्ण कदमों में से एक है। इस संदर्भ में, भूमि अधिकारों तक महिलाओं की पहुँच में विद्यमान चुनौतियों की पहचान कीजिए। इन अधिकारों को सुदृढ़ बनाने के लिए क्या उपाय किए जा सकते हैं?

According to NITI Aayog only 14%
(CENSUS - 2011)
Landholdings are owned by women
farmers in India.

When control of rural lands is given to
women :-

- ① Better production outcomes as males are usually migrating for urban jobs.
- ② Gender equality and women empowerment
- ③ Better social conditions such as reduction in female infanticides + child marriages

Challenges in accessing land rights

① Patriarchy and lower ownership rights over land of women in Traditional Indian Society. (Hindu law)

② Excess burden of Unpaid Domestic work
(acc. to NSSO report women spent around 2 hours more than men in domestic work)

③ Marriage and subsequent Migration of

women
④ lower literacy rates $\begin{cases} \text{Male} \rightarrow 85\% \\ \text{female} \rightarrow 65\% \end{cases}$

Measures need to be taken $\rightarrow$

① Increase literacy rates and education in women (NEP 2020)

② Psychological and behavioural changes required in society.

③ Hindu law needs to be amended to provide ownership rights (active involvement of judiciary required)

2. Various challenges need to be addressed in order to successfully push forward the agenda of decarbonizing the transport sector in India. Discuss.

(150 words) 10

भारत में परिवहन क्षेत्र के वि-कार्बनीकरण के एजेंडे को सफलतापूर्वक आगे बढ़ाने के लिए विभिन्न चुनौतियों का समाधान करने की आवश्यकता है। चर्चा कीजिए।

In its Nationally determined contributions (NDC) 2015, India has committed to reduce 33-35% of its CO₂ emissions by 2030 then its 2005 levels.

for this goal, India needs to push for decarbonizing transport.

CHALLENGES →

① Huge dependence of fossil fuels for transport in India (Petrol, diesel, Natural Gas).

② Renewable technologies such as Hydrogen fuel cell, Electric vehicles still at an nascent stage.

- ③ India's logistics still take place as much as 63% by roadways.
- ④ The new technologies will push further the vehicle costs.

Steps required →

- ① Moving towards technologies that reduces the CO_2 emission (BS VI engines, ethanol blending program, etc.)
- ② Generate awareness about CO_2 & GHG emissions & the need to decarbonise transport
- ③ Green tax → ~~tax~~ Increase tax on more polluting vehicle.
- ④ Subsidies & Incentives needs to be provided on Electric vehicles.
- ⑤ Increase spending on R&D from 0.65% of GDP to 2-3% of GDP.
- Decarbonising will not only reduce climate change but also help to achieve SDG 7.

3. The System of Rice Intensification (SRI) has the potential to mitigate the concerns associated with rice production in India. Analyze. Also, suggest ways in which this can be achieved. (150 words) 10

चावल तीव्रीकरण प्रणाली (SRI) भारत में चावल के उत्पादन से संबद्ध चिंताओं को कम करने की क्षमता रखती है। विश्लेषण कीजिए। साथ ही, उन तरीकों का भी सुझाव दीजिए, जिनके माध्यम से इसे हासिल किया जा सकता है।

System of Rice intensification (SRI) is the process of reducing the water intake for rice field irrigation.

POTENTIAL of SRI →

① Paddy is a water guzzling crop.

This has ~~lead~~^{led} to depletion of Ground water table. SRI can protect Ground water from further depletion.

② Paddy produces CH₄ (Methane) which is a GHG. SRI can reduce the production of Methane.

③ Reduce the ripening time of Paddy and enable farmer to take an additional crop in the year.

- ④ It increases the yield of Paddy.
- ⑤ It reduces the excess usage of fertilizer & thus reducing soil salinity & river field runoff.

IMPACT OF SRI

Positive

- Ground water table has been increasing in those areas where SRI is practiced.
- It has increased the productivity of paddy farmers & thus their incomes too has increased.

Negative

- Lack of awareness among farmers.
- Still indiscriminate use of flooding irrigation & Urea & other fertilizers.

WAYS it can be Achieved →

- ① Massive awareness campaigns (successful examples)
- ② giving Incentives for practicing SRI
- ③ providing formal credit at cheap rates to enable them to procure inputs needed for SRI

4. Identifying the key elements under the National Beekeeping and Honey Mission (NBHM), explain how it can help achieve the goal of "Sweet Revolution" in India. (150 words) 10

राष्ट्रीय मधुमक्खी पालन एवं मधु मिशन (NBHM) के अंतर्गत शामिल प्रमुख तत्वों की पहचान करते हुए, स्पष्ट कीजिए कि यह भारत में "मीठी क्रांति" के लक्ष्य को प्राप्त करने में कैसे सहायता कर सकता है।

NBHM is a program which aims to achieve productive enhancement of honey in India

Key Elements →

- ① Providing credit to farmers to get adequate inputs for bee keeping.
- ② Providing awareness on best practices of bee keeping.
- ③ Providing adequate vaccines, medicines, Spray, etc for healthy development of bees.
- ④ Development of gardens which can provide adequate nectar to bees.
- ⑤ Providing markets to the bee farmers to sell their produce @ adequate prices.

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- ⑥ Building Robust Infrastructure such as linkages to Food processing Industries (FPIs), etc. to provide better opportunities to bee farmers.
- ⑦ Boosting export potential of Honey.

Achieving the Goal of "Sweet Revolution"

- ① Production of honey will rise.
- ② Use of honey in FPIs will Increase.
- ③ Enhanced employment & income in rural areas.
- ④ Honey could be exported to various countries. Thus bringing FOREX.
- ⑤ Honey could replace sugarcane as it is a water intensive crop.

Hence, NBHM has a potential of bringing Sweet revolution in India. Govt should Invest adequately for upliftment of bee farmers.

5. It is argued that excessive state intervention in itself has created multiple hurdles in the agricultural marketing system in India. Explain with adequate evidence.
(150 words) 10

यह तर्क दिया जाता है कि स्वयं राज्य के अत्यधिक हस्तक्षेप ने भारत में कृषि विपणन प्रणाली में अनेक बाधाएं उत्पन्न की हैं। यथोचित साक्ष्यों के आधार पर स्पष्ट कीजिए।

According to Economic survey of India 2019-2020, there are certain sectors where government intervention must more than its help.

[For example] → Essential commodities Act (ECA).

[Hurdles due to ECA] →

① Putting stocking limits discourages investment in storage (cold storage, warehouses, etc)

② Due to ECA, various agricultural products gets inflated due to lack of a robust infrastructure.

③ When stocking limits are applied, the APMCs face lot of challenges in performing their marketing activities due to lack of procurement.

Thus in case of ECA, government intervention must more than it helps.

Other issues →

① Contract farming has not been very successful due to excessive state intervention. State while protecting the farmers put excessive regulations and compliances on the company. Hence it becomes unattractive for the private player.

Way forward → State should intervene only when market forces cannot ~~not~~ strike a balance.

6. Bring out the inefficiencies that plague the core road logistics business in India. Also, suggest some ways to overcome them. (150 words) 10
- भारत में प्रमुख सड़क सभार-तंत्र व्यवसाय को संकटग्रस्त करने वाली अक्षमताओं को स्पष्ट कीजिए। साथ ही, उन्हें दूर करने के लिए कुछ तरीकों का भी सुझाव दीजिए।

Road sector in India is the 2nd largest ecosystem in the world (after USA).
 Road also carries > 65% of total logistics in India.

Inefficiencies →

- ① Over-congestion of National highways and state highways (More than 40% traffic is only on NH).
- ② Lack of all weather connecting roads to the last mile.
- ③ Slower pace in construction of new roads.
- ④ Inadequate Maintenance & Repairing worn out roads.

- ⑤ More/high number of accidents due to not following of traffic rules.
- ⑥ Excessive delays in transportation due to traffic jams.

WAYS to OVERCOME →

- ① Building robust road infrastructure by increasing the pace of construction of building roads.
 - ② Ensuring road connectivity to every nook and corner of Indian village.
 - ③ Ensuring following of traffic rules by the drivers.
 - ④ Decongestion of NHs (e.g. Dedicate freight corridors can help).
 - ⑤ Speedy Maintenance & repair of road.
- India needs to spend more on its road sector to bring the overall cost of

7. Discuss the opportunities & challenges in privatisation of railways in India.

(150 words) 10

भारत में रेलवे के निजीकरण में निहित अवसरों और चुनौतियों की विवेचना कीजिए।

Railway in India is the 3rd largest ecosystem in the world.

It is the largest passenger carrier and the 4th largest freight carrier in the world.

Opportunities of privatisation of railway →

- ① Increase in capital by the entry of private entity.
- ② The construction of coaches and locomotive engines can be given to the private sector.
- ③ They bring new & innovative technologies with them.
- ④ It will Increase employment opportunities as they'll establish new ~~and~~ forms.

- ⑤ FDI can be attracted. This will increase FOREX as well as Rupee stability will increase.
- ⑥ It can bring down the cost of travel for the citizens.
- ⑦ Movement of freight can be faster.

CHALLENGES →

- ① There is no regulator between the two (Indian Railways will only regulate)
- ② Safety concerns are real.
- ③ Willingness of citizens about giving public entity in hands of private management has to be considered.
- ④ COVID-19 has brought economic slowdown. Lack of private investors.

WAY forward

- Safety check-ups should be done regularly of private system
- A Robust grievance redressal

8. The Public Distribution System (PDS) in India is not only a significant anti-poverty measure but also serves as an instrument of raising nutritional security. Discuss. (150 words) 10

भारत में सार्वजनिक वितरण प्रणाली (PDS) न केवल एक महत्वपूर्ण निर्धनता-रोधी उपाय है, अपितु यह पोषणात्मक सुरक्षा बढ़ाने के एक साधन के रूप में भी कार्य करती है। चर्चा कीजिए।

The National food security act (2013) provides for a PDS system to provide food security to the vulnerable section of India.

PDS is provided to around 83 crore individuals

- 50% in Urban
- 75% in Rural.

PDS as an Anti-poverty Measure →

- ① Provide Rice @ 3 Rs/Kg and wheat @ Rs 2/Kg. In addition also provided Millets Coarse grain @ Rs 1/Kg.

- ② during covid-19, additional 5 kg of grain were provided to the PDS beneficiaries
- ③ As food to pregnant and lactating mothers & take care of their health & their child health.

PDS as Instrument of Raising Nutritional security :-

- ① Bio-fortification of food.
for e.g. Golden Rice (added vitamin)
- ② Healthy Carbohydrates & fats are provided via Cereals & proteins provided via pulses.
- ③ Since it covers around 67% of food deprived population, it can significantly provide them Nutritional security.

PDS is a very crucial system for achieving SDG-2 i.e. Zero hunger in

9. In order to make fisheries in India a profitable and sustainable enterprise, the subsidy regime needs to be rationalized. Do you agree? (150 words) 10
भारत में मत्स्य पालन को लाभदायक और संधारणीय उद्यम बनाने के लिए सब्सिडी व्यवस्था को युक्तिसंगत बनाने की आवश्यकता है। क्या आप सहमत हैं?

India is 2nd largest fisheries
sector in the world.

In addition to that Marine products
have been the largest exports among
the food products exports.

Need to Rationalise Subsidy Regime →

① PM Matsya yojna provides subsidies
to procure boats and fishing gears.
This has increased the fish production

② Subsidies to procure other input
such as nets, fish food, etc also
needs to be given in order to make
their production profitable.

Impacts of Subsidies

Positive

- Production will increase
- Income will increase
- more employment in fisheries sector

Negative

- WTO issues b/w developing & developed countries
- excess burden on countries' fiscal resources

Subsidies need to be provided in order to provide ample opportunities to fish farmers to earn a decent standard of living.

10. Explaining the significance of millet cultivation, give reasons behind its low cultivation in India.

(150 words) 10

मोटे अनाजों की खेती का महत्व स्पष्ट करते हुए, भारत में इसकी कम खेती के लिए उत्तरदायी कारणों का उल्लेख कीजिए।

India is the largest producer of millets in the world.

Significance →

① Economic →
provides enhanced incomes & employment

② Nutrition →
More nutritious than cereals.

③ Environment →

Millet sequester CO_2 (absorb CO_2)
Paddy releases CH_4 (Methane).



Reasons behind low cultivation

→ Considered "food of poor"
(social stigmas)

→ MSP more for Paddy & Wheat

→ Lack of awareness to farmers

To aim for food security &

SDG-2 we must increase
the production as well as the

consumption of Millet in India.

11. Discuss the issues plaguing crop procurement in India. Also, suggest measures to strengthen the procurement framework. (250 words) 15

भारत में फसल खरीद को बाधित करने वाले मुद्दों की विवेचना कीजिए। साथ ही, खरीद ढांचे को मजबूत बनाने के उपायों का भी सुझाव दीजिए।

The National Food Security Act (2013) mandates the state to procure crops from farmers for the purpose of food security.

However, there exists various gaps and issues in the process.

ISSUES →

① Issues faced by FCI (Food Corporation of India)

(i) High amount of post harvest loss.

(acc. to NITI aayog around 30% of crops lost at farm gates)

(ii) High logistics cost, transportation costs
(India spends around 14% GDP in logistics which is very high)

(iii) Storage issues :- Lack of warehouses, Cold storages, etc.

(iii) Issues with MSP (Minimum Support Price)

- (i) Regional disparities in procurement.
(for g. 90% wheat is procured from only Pb, ~~MP~~ MP & HR).
- (ii) Only benefits Paddy & wheat farmers
- (iii) due to this, significant shift to overproduction of wheat & Paddy.

Issues faced by farmers →

- (i) low prices for their produce.
(they demand higher MSP (C2)).
- (ii) Lack of APMC, near to the farms.

MEASURES TO STRENGTHEN →

- (i) NITI Aayog India @ 75 suggests
Village level procurement to reduce

harvest loss.

(ii) Increase storage facilities with the help of PPP project.

(iii) Need to bring efficiency in logistics.
(e.g. Multimodal logistics park).

(iv) farmers need to be provided with adequate returns for their produce (C2).

(v) Crop diversification needs to be promoted

A robust crop procurement system is the need of the hour to achieve SDG-2 which is Zero Hunger.

12. In the context of India's transportation multimodal mix, highlight the reasons behind the low share of water transport. Also, mention the steps that can be taken in this regard, with specific reference to Major Port Authorities Bill, 2020. (250 words) 15

भारत में परिवहन के बहुविध मिश्रण के संदर्भ में, जल परिवहन की निम्न हिस्सेदारी के लिए उत्तरदायी कारणों पर प्रकाश डालिए। साथ ही, प्रमुख पत्तन प्राधिकरण विधेयक, 2020 का विशेष संदर्भ देते हुए इस संबंध में उठाए जा सकने वाले कदमों का भी उल्लेख कीजिए।

India has a long coastline of 7500 KM. It has a significant number of large and small Rivers. But still the share of water transport remain low in transporta multimodal mix.

REASONS → .

- (i) Significant Initial cost of water transport development.
- (ii) Rivers run along the major National highways as well as railways.
- (iii) River-linking has not been adequate, which hinders the movement of goods & people

(iv) Indian coastline has a gentle slope hence Heavy weight vessels face issues in accessing the ports.

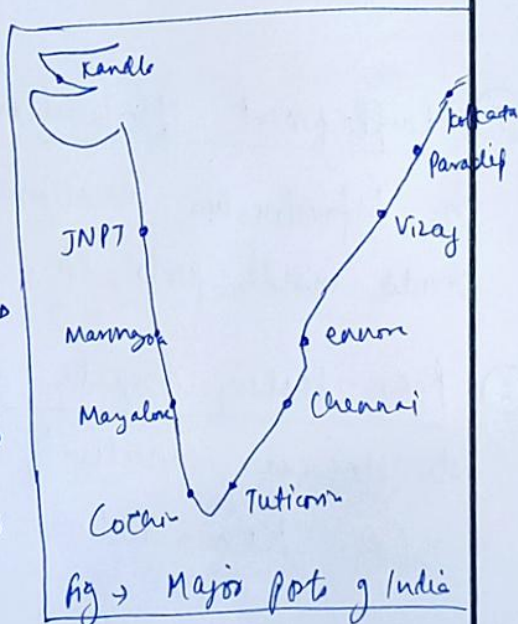
(v) The Rivers of peninsular India are non-navigable due to abundance of water falls.

due to all these reasons, Water transport has a lower share.

STEPS That Can be Taken

① Major ports Authorities Bill, 2020, establishes Local bodies for port development.

② It gives these bodies autonomy to raise loans for Infrastructure development



- ③ International Collaboration can be considered for Dredging operations.
- ④ Turn around time of ships can be reduced by faster approvals & clearances
 (current $\rightarrow$ 64 hours
 global $\rightarrow$ 24 hours)
- ⑤ Employment opportunities can be increased in Infrastructure development such as storage roads inside ports, etc.
- ⑥ River-linking projects should be undertaken to increase connectivity
 (eg. Ken - Betwa linking)

Water transport needs to be integrated in the multimodal transport mix in order to bring down the overall logistics cost for India and make it a \$5 trillion economy.

13. A reliable and efficient transport system is the key to agricultural marketing. Discuss. Also, highlight the significance of Kisan Rail Scheme and Krishi Udan Scheme in this context.

(250 words) 15

एक विश्वसनीय और कुशल परिवहन प्रणाली कृषि विपणन की कुंजी है। चर्चा कीजिए। साथ ही, इस संदर्भ में किसान रेल योजना और कृषि उड़ान योजना के महत्व पर भी प्रकाश डालिए।

According to NITI aayog report around ₹ 99000 crore worth of crops is lost from the farm gates due to inadequate transport infrastructure.

IMPORTANCE of reliable & efficient transport system

- (i) Perishable products such as fruits, vegetables, etc. needs to be transported faster to APMCs.
- (ii) Leakages in food crops (esp. cereals) is a serious issue. It needs to be handled by efficient transport system.
- (iii) Better income of farmers if their produce reach APMCs on time.

(iv) Cold storages, Cold refrigerators, etc protect the crops from pests and harsh climate.

(v) From APMCs, the agricultural produce need to be transported safely to the retail shops & fair price shops.

(vi) For growth of food processing Industries the ~~trans~~ efficient transport is sine qua non.

However, our transport system is not efficient. According to NITI aayog report around 30% of crops gets wasted due to inefficiency in transport.

SIGNIFICANCE OF KISAN KAIL SCHEME →

① It provides Cold refrigeration for Perishable products. This would reduce food wastage.

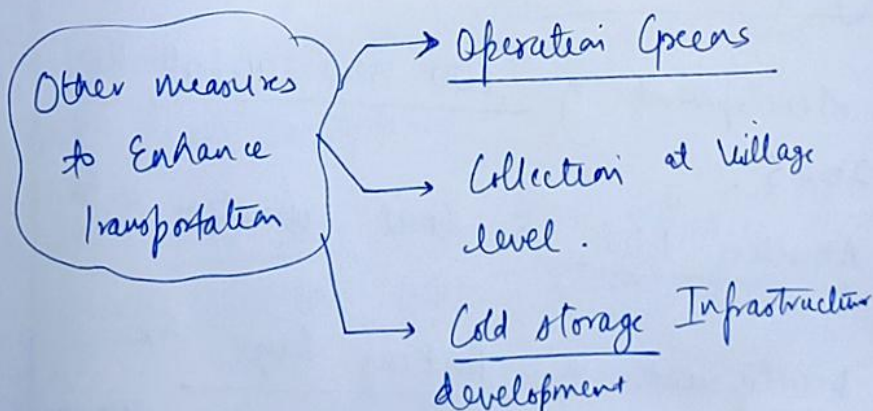
while transporting for long distance.

- ② Enhanced Income for farmers
- ③ Lower prices for consumers
- ④ Achievement towards Food security.

SIGNIFICANCE of KRISHI UDAN scheme →

It provides cold refrigeration in Air freight.

- ① Transportation of over long distances; reduce wastage.
- ② Boost Exports (esp fruits & vegetables)
- ③ Will lead to Increase in FOREX.



A robust transport system is very significant for Booming Indian food processing Industry and overall agriculture marketing.

14. Enumerate the key provisions of RCS-Udan Scheme. Also, discuss performance and challenges associated with this scheme since inception. (250 words)

आर.सी.एस.-उडान योजना के प्रमुख प्रावधानों को सूचीबद्ध कीजिए। साथ ही, अपने शुभारंभ से इस योजना के प्रदर्शन और संबद्ध चुनौतियों की भी विवेचना कीजिए।

Presently, India is 3rd largest domestic

Civil aviation Industry.

India aims to become 3rd largest

International Market by 2025.

RCS Udan scheme can play a big role in achieving this dream.

Key provisions →

- ① Development of 100 new airports by 2023.
- ② Attracting FDI in Civil aviation sector.
- ③ Development of Parking bays for aeroplanes (as India will face shortage in coming years)

for instance → Parking spaces are being built
 @ Pantnagar airport in Uttarakhand

- ④ Enhancing the airspace : recongesting air routes for better civil aviation transportation
- ⑤ Enhancing safety measures in various airports (especially Table top airports such as Mangalore, Kozhikode, etc).

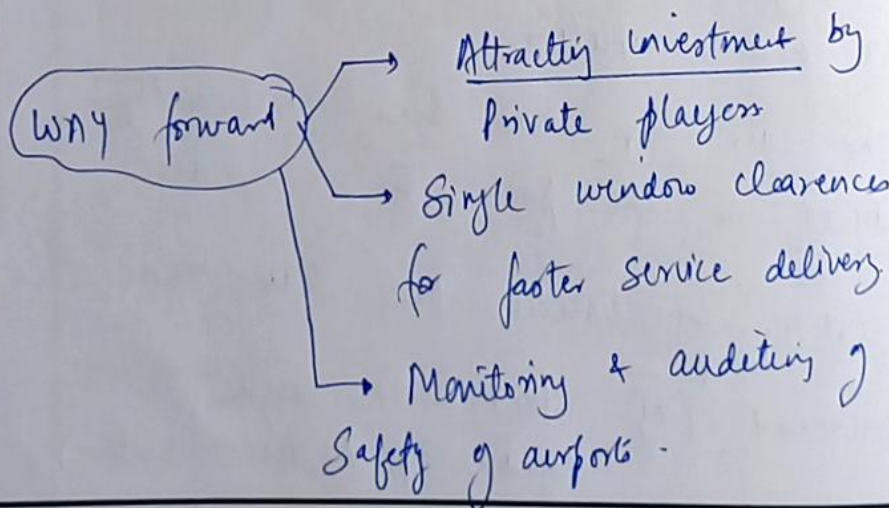
PERFORMANCE →

- ① Various new Airports have been made functional (eg. Kushinagar airport in UP)
- ② Parking bays are being built and are near completion.
- ③ The air-fare has been significantly reduced in the past ~~5~~ 5 years
- ④ Safety of various ports has been increased (eg. Speed checks and landing speed control systems).

CHALLENGES associated →

- ① It requires huge investment. (Lack of Capital & funding)
- ② Bureaucratic hurdles in (Land acquisition, environmental clearances, etc)
- ③ Regional disparities. (backward areas have been kept away from the scheme)

For a faster and more safer mode of transport, the civil aviation infrastructure needs to be robust.



15. Discuss the reasons behind increasing demand of processed food in India and the scope for Farmer Producer Organisations (FPOs) in this context. What important factors should be considered while facilitating formation of FPOs? (250 words) 15

भारत में प्रसंस्कृत खाद्य पदार्थों की बढ़ती माँग के लिए उत्तरदायी कारणों और इस संदर्भ में किसान उत्पादक संगठनों (FPOs) के लिए निहित अवसर की विवेचना कीजिए। FPOs के गठन को सुविधाजनक बनाते समय किन महत्वपूर्ण कारकों पर विचार किया जाना चाहिए?

Food Processing Industry (FPI) has been growing at a rate of 10% in last 5 years.

THE reasons for Increasing demand are →

- ① Increasing Urban Population & Urban food habits. (Acc to CENSUS 2011 → 37 Crore Urban Population. It is being predicted to rise to 60 Crores in 2030).
- ② Increasing purchasing power of people (due to Increasing Income & employment)
- ③ for Food Security of India.
- ④ Reducing food wastage (NITI Aayog tells ₹90000 Crore wastage)

- ⑤ More choices to consumers.
- ⑥ Helps in pulling down the Inflation.
(for e.g. frozen peas are now available all year round)

SCOPE of FPOs in this regard →

- ① FPOs can help in food crop procurement, transportation & storage.
- ② With the help of Govt. funding, they can initiate FPIs of their own.
- ③ Increase Awareness about FPIs among farmers and rural population.
- ④ They can increase Employment opportunities, provide loans and thus enhance rural income.

Factors that should be considered while facilitating formation of FPOs.

- ① Adequate Formal credit to FPOs
(By Priority sector lending norms, other govt. schemes, etc.
(PMKSY, etc.)
- ② Adequate Infrastructure, such as all weather connecting roads, access to markets, etc.
- ③ Access to a nearby FPI which can procure crop directly from FPOs.
- ④ Provision of warehouses, Covered and Plinth facilities, Cold storages, etc in the village area.
- ⑤ Access to nearby Markets (APMCs).

FPIs are the rising Industries which not only can bring food security but also

Increase India's exports. Hence govt. needs to provide big boost to FPIs in India

16. What do you understand by e-agriculture? Explaining how information communication technology (ICT) can help the agriculture sector, highlight some initiatives taken by the government in this regard. (250 words)

ई-कृषि से आप क्या समझते हैं? यह स्पष्ट करते हुए कि सूचना और संचार प्रौद्योगिकी (ICT) कृषि क्षेत्र की सहायता कर सकती है, इस संबंध में सरकार द्वारा की गई कुछ पहलों पर डालिए।

E-agriculture can be defined as the use of Information and Communication Technologies (ICT) to aid production, logistics and marketing of farm produce.

[ICT helping Agriculture sector] →

- ① Various mobile apps provide data and information regarding weather prediction, market information, etc.

eg. Kisan Suvidha app

- ② ISRO's → Bhuvan Portal → Help in providing the soil fertility map to farmers.

③ Natral Crop Insurance portal → It is the online portal where all information & claims of PM-fasal Beema Yojana are made

④ EKTA portal (EKikrit Kisan takniki Abhuyan) → It provides real time information about best practices for various crops such as onion, garlic, mangoes, etc

⑤ KVKs (Krishi Vigyan Kendras) → help farmers to adopt to various new technologies which will help in increasing productivity.

⑥ e-NAM (National Agriculture Market)
Uses ICT to integrate the segmented India market into one National Agriculture market.



Other benefits that ICT can provide

- ① Make the logistics sector efficient by use of a real time tracking mechanism.
- ② Enhance the storage by tracking the filled space as well as the remaining space for storage of crops.
- ③ Mobile application can convey the water quantity ~~the~~ that a farmer need to irrigate a particular crop.
(for instance, ^(internet of things) IOT can be utilised to control water from a mobile app)
- ④ Fertilizer & pesticide concentrations can be calculated via use of ICT.

To enhance the food security in India & to achieve SDG 2, use of ICT in Agriculture became very crucial

17. Explaining the concept of Integrated Water Resource Management, discuss how it can help in addressing the gaps in the present system of water management in India. (250 words)-15

एकीकृत जल संसाधन प्रबंधन की अवधारणा की व्याख्या करते हुए, चर्चा कीजिए कि यह भारत में जल प्रबंधन की वर्तमान प्रणाली में व्याप्त कमियों को दूर करने में कैसे सहायता कर सकता है।

Integrated water resource management can be understood as a comprehensive exercise to utilise the scarce water resources in India judiciously.

India has 17% of world's population & only 4% water resources. In addition Ground water table is falling & Climate Change is adding more problems.

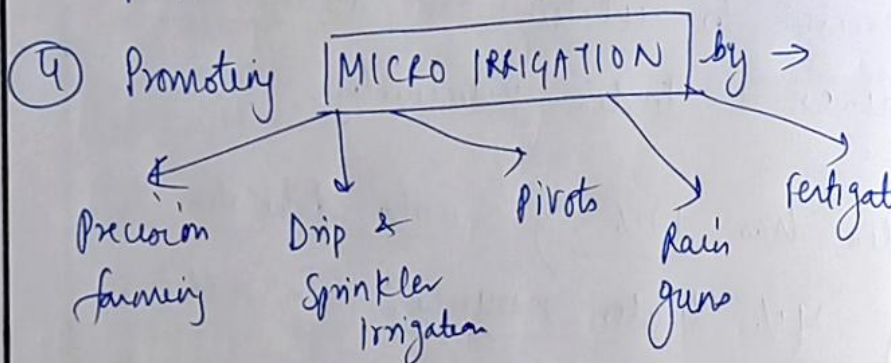
Hence, An Integrated Water Resource Management (IWRM) becomes very important.

Feat Features of IWRM →

- ① Watershed development (check dams, Afforestation, mulching to conserve moisture, etc)

2) Recharging the ground water table by Rainwater storage.

3) Rainwater harvesting ("Catch the Rain Campaign" to save ground water depletion)



5) Regeneration of Traditional water bodies such as Ponds, tanks, etc.

6) Awareness campaign to spread the importance of water

GAPS in Present Water Management →

① Indiscriminate use of ground water
(depleted water table)

- ② flooded Irrigation, which is only 50% effective.
- ③ Misuse of water, wastage of water in domestic works.
- ④ runoff from fields which mixes toxic pesticides & herbicides in rivers & drinking ponds

IWRM can help in filling these gaps

 →

- ① Watershed development can Increase the water use efficiency. Mulching reduces evaporation, thus less irrigation is needed.
- ② Rainwater can be utilised for both irrigation purposes as well as domestic purposes. This saves further depletion of ground water table.
- ③ IWRM can bring alive the local water bodies and aid in the availability of water.
- ④ It can prevent droughts & famines

Hence, IWRM is the key now in saving the country from water crises.

18. Highlighting its potential, discuss the challenges that are being faced in the dairy sector in India. Also suggest some steps, which can be taken in the regard. (250 words)

डेयरी क्षेत्र की क्षमता पर प्रकाश डालते हुए, भारत में इस क्षेत्र को द्वारा सामना की जा चुकी चुनौतियों की विवेचना की जाए। साथ ही, इस संबंध में उठाए जा सकने वाले कुछ कदमों का सुझाव दी जाए।

India is the leading producer of dairy in the world:

But still in terms of exports, we are far behind.

POTENTIAL of DAIRY SECTOR →

- ① It can provide employment to rural population.
- ② Additional income for farmers.
(helps in achieving the aim of doubling farmers' income by 2022.)
- ③ Economic empowerment of rural women.
- ④ Provide boost to the Food Processing Industry.

in India.

③ Enhanced Exports and thus FOREX increase.

CHALLENGES

→

- ① Lack of connectivity to markets in nearby areas.
- ② Infrastructure deficit (such as all weather connecting roads, Internet penetration, etc).
- ③ Lack of Initial capital (Since, Income is less)
- ④ Lack of Vet Veterinary doctors and hospitals in rural areas.
- ⑤ Lack of Vaccines and vaccination set ups for cattle.
- ⑥ High Incidence of diseases (Foot & mouth diseases, Brucellosis, etc)
- ⑦ Excessive crossbreeding → Increased vulnerability

to diseases, including various exotic diseases.

Steps to be taken →

- ① Robust Credit Mechanism required.
(collateral free long term loans with minimal interests)
- ② Infrastructure development (access to markets, roads, etc.)
- ③ Mobile veterinary services (Door step service)
- ④ Increase the rate of vaccination for cattle
- ⑤ Increase the Budget for research and development in Animal husbandry.
- ⑥ Artificial Insemination can be considered
- ⑦ Increase number of veterinary hospitals and Medical schools.

Dairy sector can aid the farmers income and help India to achieve its \$5 trillion.

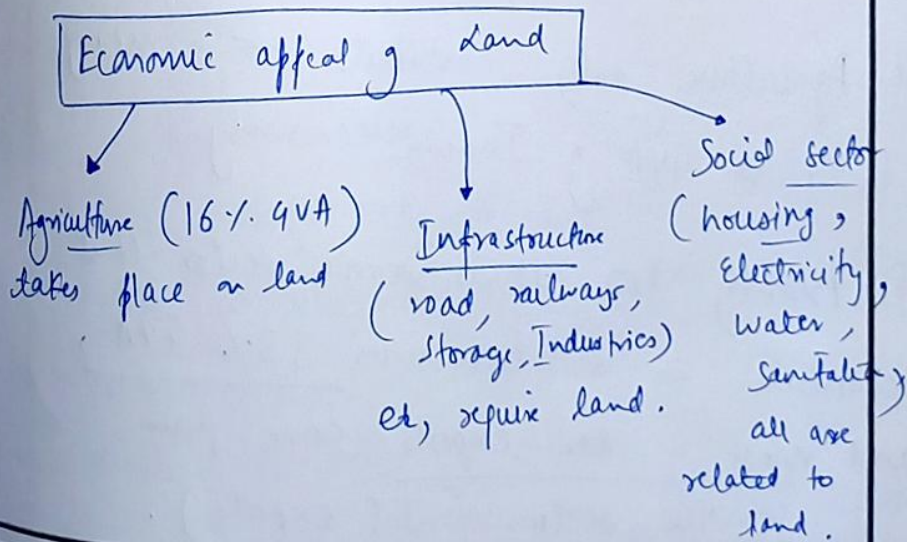
19. Do you agree with the view that despite its enormous economic appeal, land in India has never been the engine of growth? Give reasons.

(250 words) 15

क्या आप इस विचार से सहमत हैं कि अत्यधिक आर्थिक आकर्षण के बावजूद, भारत में भूमि कभी भी संवृद्धि का इंजन नहीं रही है? कारण बताइए।

Agriculture sector in India, was not the engine of economic growth till 2002-2003. Only after 2003, Agriculture was declared as the main sector of Indian economy.

Land is intricately linked to the Agriculture economy. Hence, land was not considered as an engine of growth.



Land : Not an engine of economic growth

- ① Traditionally in India, Land was associated with prestige & status, and never as an economic asset.
- ② Since, independence India focused more on Industrial sector (esp. PSUs, etc.)
- ③ Post 1991 reforms, Service sector provides boost to Indian economy & thus land was taken to a backseat.
- ④ Agriculture only contribute ~~to~~ a meagre 16% to GVA of Indian economy.
- ⑤ Presently too, it is service sector that contributes to a enormous 55% GVA, and most of the exports come from service sector (IT exports).

LAND : As an engine of economic growth →

- ① Agriculture supports 43% workforce in India (Eco-survey 20-21)
- ② 75% of Indian rural households are dependent on Agriculture as livelihoods (Eco-survey 2019-2020)
- ③ It is the Upstream of ~~almost all the~~ ^{many} industries (e.g. food processing, textile, leather, etc)
- ④ It contributes to a major chunk in Indian exports (e.g. Basmati, Non-Basmati, etc).

Hence, Land has been an engine of economic growth but its realisation happened only after we suffered some setbacks in our economy. Further, More investments are needed to build a Robust Infrastructure so that we can maximise the benefits from the ^{that we have}

20. The overall farm mechanization in India has been lower than many other major countries. Discuss the need for farm mechanisation, the hurdles in this context and the steps required to ensure adequate progress.

(250 words) 15

भारत में समग्र कृषि मशीनीकरण कई अन्य प्रमुख देशों की तुलना में कम रहा है। इस संदर्भ में कृषि मशीनीकरण की आवश्यकता, व्यास बाधाओं और पर्याप्त प्रगति सुनिश्चित करने के लिए आवश्यक कदमों की विवेचना कीजिए।

Farm mechanization means the use of modern machines to replace humans and animals, and increase the overall productivity and efficiency of the agriculture sector.

The penetration of mechanization has been much lower in India than many of its western counterparts.

The agriculture of USA, UK, Germany and many other countries is heavily mechanised. (e.g. only 1% of population of USA is engaged in agriculture activities)

In India only those areas which saw
Green ~~note~~ revolution saw mechanization.

Eg. Pb, HR, Rajasthan, Western UP, etc.

NEED for farm mechanization →

- ① To enhance the overall productivity from
Sowing & harvesting.
- ② Machines like happy seeders can enhance
the sowing process of seeds.
- ③ Combine harvesters can more efficiently
harvest as well as segregate the cereals.
- ④ Power weeder remove the weeds and
other invasive plants which can harm
the crops.
- ⑤ Reduce Stubble burning in Delhi-NCR.
- ⑥ Enhance Microirrigation and fertilizer
usage.

Thus mechanization can Enhance productivity
and reduces soil salinity & make it fertile.

PROBLEMS →

- ① high initial costs (Income of Indian farmers is low)
 - ② 87% of Indian farmers are small & marginal (~~cons~~ segmented landholdings)
 - ③ Lack of formal institutional credit
 - ④ Low awareness of mechanization in rural areas
 - ⑤ Abundance of Labour in Agriculture sector.
- These factors make Mechanization in India challenging.

Steps Required

↓
Subsidies can be provided to

FPOs and farmer groups.

→ Customs hiring centers need to be increased.

→ Awareness has to be provided

→ Excess labour can be shifted to other employment activities.