

NEXT IAS

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ADVANCED INTEGRATED MENTORSHIP

AGRICULTURE ASSESSMENT TEST-17

(To be filled by candidate)

Test Code : TC318

Name of Candidate : Abhishek Singh

NEXT IAS Roll No. : AIMGCL1035

Date of Examination : 16th Oct 2023

Exam Centre : Old Rajinder Nagar ☐

Bhopal ☐

Online ☒

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 3

Invigilator's Sign. :

(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

MACRO COMMENTS

1. Assess the potential of millet production in promoting sustainable agriculture and improving food security in India. (Answer in 150 words) 10 Marks

Year 2023 was declared as International year of millets by United Nations.

Millets → grass like species
 ↳ 5 minor + 3 major variety in India
 Ex: Jowar, Bajra, Ragi.

Potential of millets in :

① Sustainable Agriculture

↳ Saves water: very less water per hectare is required

↳ Saves electricity for irrigation

↳ Fighting climate change: as they are drought & pest resistant

- ↳ Increases soil fertility → regeneration of micro nutrients (Crop rotation)
- ↳ Can be grown on degraded land (fights desertification)

② Food security

- ↳ highly nutritious: declared Nutri-cereals by Indian govt.
 - ↳ low glycaemic index: slow dissolution of glucose → fights diabetes.
 - ↳ very cheap coarse cereal ⇒ can be included in public distribution system ⇒ enhances Nutritional value.
 - ↳ Poor friendly ⇒ generates extra income
 - ↳ MSP can be announced (M.S. Swaminathan Cmt. recan.)
 - ↳ Value addition ⇒ export → income
- Millet is boon for humanity it can help fight hunger (SDG-2) & Poverty (SDG-1) & Climate change.

2. What is India's stand on the New Agreement on Fisheries Subsidies under WTO? How is the Fisheries sector significant for India? Enumerate the steps taken by the Government to develop this sector.
(Answer in 150 words) 10 Marks

Recently WTO Ministerial Summit was held which concluded New Agreement on fisheries.

New Agreement on fisheries Subsidy

- ↳ Prohibits subsidy on three Cases → Illegal, unreported & underreported fishing
 - ↳ fishing in over-exploited regions
 - ↳ fishing in high seas.
- ↳ 2 years exemption period for developing countries.

India's Stand

- ↳ India demanded 25 yrs of exemption for global South & Small Island developing states
- ↳ reemphasized Polluters pay Principle & Common but differentiated responsibility.

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↳ Developed Nations should help developing nation with funds & exemption

Significance of fisheries in India

- ↳ Employment: 28 mn people employed
- ↳ Export of marine fisheries product
- ↳ livelihood to farmers
- ↳ food processing industry
- ↳ food & Nutritional security

Steps by government

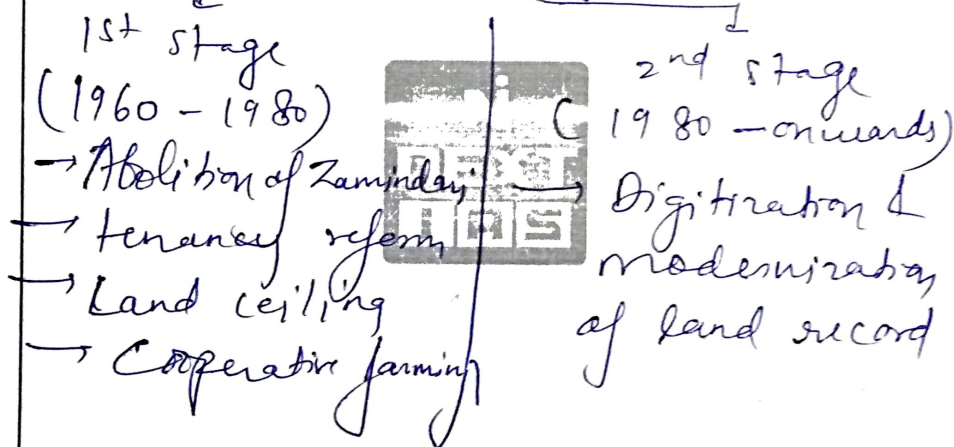
- ↳ ① Pradhan mantri Matsya Sampada yojana → Loans, boats, Skills, Subsidies
- ↳ ② Animal husbandry Infra. dev. Schem
- ↳ ③ Kisan credit cards allowed
- ↳ ④ GPS/GIS technology for fish identification
- ↳ ⑤ Cold storage dev.

Fisheries in India has huge potential, India should establish proper dialogue at WTO to get concessions for its farmers.

3. Analyze the systemic and institutional constraints that continue to hinder land reform efforts in India and propose pragmatic solutions to ensure equitable distribution of land.
(Answer in 150 words) 10 Marks

Land reforms are series of measures taken to transform Indian economy from feudal model to inclusive & equitable model.

Land reforms



Systemic Constraints

- ① Land disputes: As per NITI Aayog more than 40% of all disputes are land related
- ② fragmentation of land with each generation → hinders mechanization
(> 72% hold < 2 ha land)

③ Land ceiling varies from state to state

Institutional Constraints

- ① Legal loopholes like 'personal cultivation' norm, ceiling on individual & not family etc
- ② Income tax exempted (Agriculture income) so more rich are buying lands ¹¹
- ③ Corruption in revenue dept. ^{Concentration}
- ④ Technical errors, data theft etc

Solutions

- ① Digitization & drone verification
- ② Transparent process of identification
- ③ fast track court for solving ^{dispute}
- ④ Cooperative farming & Contract farming
- ⑤ promoting farmer producer organization

Government recently launched S Varmitra Scheme which will help in better land reform & distribution to right owner.

4. Bringing urea under the NBS Scheme is seen as the panacea for all the issues related to fertilizer subsidies in India as well as for the environmental problems of agriculture. Highlighting the issues related to urea management, suggest reforms are required to improve the usage of urea in a sustainable manner in India. (Answer in 150 words) 10 Marks

Ans

Currently Urea doesn't come under NBS. Government controls price of Urea & provides subsidy to companies. While DAP & MAP come under NBS & their prices are unregulated.

Issues related to urea management

- ① Highly regulated sector → from Price, to Storage to distribution everything is controlled → little autonomy & interest for private players
- ② High subsidy on Urea leads to indiscriminate use by farmers
i.e. required → 4:2:1 (N:P:K)
but used → 8:3:1 (N:P:K) (ICAR)
- ③ Black market: Siphoning of Urea for other purposes than

agriculture ex: export to Bangladesh.

④ Huge freight subsidy ~ ₹300 cr/year
given to Companies. (N. Aayog)

⑤ Green house gas emission

⑥ Political issue: vote bank politics
Increasing Subsidy.

Reforms

- ↳ Deregulate price of urea (also suggested by Atishok Gulati (Ct.))
 - ↳ Give more freedom to Companies in price decision
 - ↳ Soil health Card ⇒ Implement it properly to optimize urea use.
 - ↳ Drip & sprinkler irrigation → minimize urea use.
 - ↳ Neem Coated urea by govt should be properly implemented
 - ↳ Nano urea (built by IIT (C)) promotion.
- This time to bring urea under NBS along with above reforms to make it more effective

5. 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

Food Security refers to availability,
accessibility & absorption of food.
Both domestic & international
events affect it.

Domestic factors →

- ① Seasonal fluctuations : Perishable
products like Tomato, onion &
Potato affected the most.
- ② Hoarding by middleman to
make huge profit
- ③ Monsoon variation can affect
supply chain
- ④ Poor cold storage, warehouses
promote post harvest losses
- ⑤ Overproduction of some crop due
to MSP announcement → other
crops deficient

International factors

- ① Russia-Ukraine war : affected supply of wheat, sunflower, fertilizers etc
- ② Covid-19 pandemic : supply chain disrupted world over
- ③ Protectionist policies of some countries
- ④ WTO restrictions on subsidies

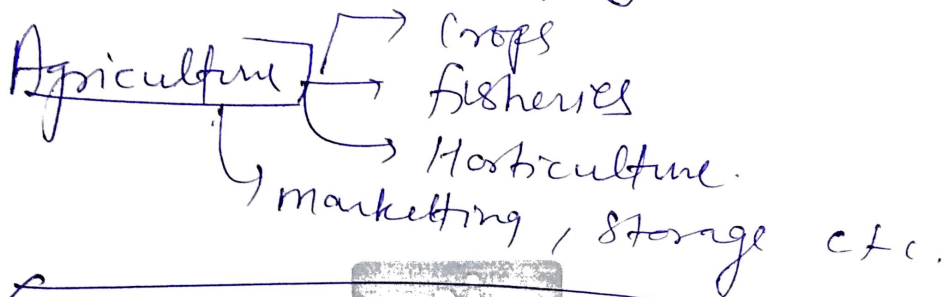
Ways to strengthen food security

- ① Crop diversification : eg: Include millets in food
- ② Post harvest infrastructure development
↳ eg: Warehouses
- ③ Shanta Kumar Committee : FCI should outsource its role to State govt.
- ④ Cooperative farming : ITO promotion
- ⑤ Credit, skill training, seed banks in villages.

Food security is affected by many factors, domestic resilience should be developed for shock absorption by taking above reforms. (SDG goal 1, 2).

11. Despite being a major contributor to the Indian economy, the agriculture sector is plagued by several constraints that impede its growth and development. Examine the role of technology in overcoming these constraints. (Answer in 250 words) 15 Marks

Agriculture sector Contributes to 18% of GDP of India and more than 60% of employment (ICAR).



Constraints of Agri. sector:

- ① Land fragmentation: more than 72% of farmers has < 2 ha of land $\Rightarrow$ prevents mechanization.
- ② Low yield/productivity compared to china, world average.
- ③ Monocropping: due to MSP focus on few crops only.
- ④ Lack of Cold Storage, warehouses

discourage private investment &
cause post harvest loss.

- ⑤ Poor information & awareness
to farmers about diseases,
weather, new technology etc.

Role of technology in solving
constraints :-

- ① Digitization of land records
 - ↳ helps in fighting property disputes &
 - ↳ promotes cooperative farming.
 - ↳ promotes Contract farming.
- ② GIS/GPS Remote Sensing:
helps Identification of field,
diseases, areas sown etc in
advance.
- ③ Aadhar linked ration Card helps
make distribution efficient

- ④ Solar panel driven Cold Storage facilities → Sustainable
- ⑤ Precision farming
→ using micro irrigation,
AI & ML tools for data
analytics ⇒ Saves Cost/time.
- ⑥ ~~Hydroponics~~ Hydroponics, Vertical farming e.t.c ⇒ High yield
- ⑦ GM crops ⇒ DNA technology
to increase yield & fight Climate
Change
- ⑧ E-NAM: National agriculture
market : Integration of
markets & better price discovery
prevents distress sale
- ⑨ M-kisan app : advisory to farmers
- ⑩ weather prediction ⇒ SMS transmission

Above technologies will help in achieving
SDG Goal-12 i.e Sustainable Consumption
& production pattern, so proper implementation
is needed.

12.

Evaluate the impact of irrigation on the environment and natural resources, and suggest measures to ensure the sustainability and equity of irrigation practices in agriculture.

(Answer in 250 words) 15 Marks

In India 51% of Net sown area is rained while 99% is irrigated. out of this 60% is ground water irrigated and 40% is canal irrigated.

Impact of Irrigation on

① Environment

- ↳ Excess irrigation to rice field $\Rightarrow$ more green house gas emission
- ↳ ~~Over~~ Over irrigation causes salinization, land degradation & make soil unfit for cultivation
- ↳ Drying up of lakes $\Rightarrow$ Biodiversity getting killed.

→ Positively, irrigation can help in Agroforestry & help fight Climate change.

② Natural resources

↳ Groundwater depletion

As per CGWB 23% blocks are over critical

↳ Groundwater pollution ⇒ Arsenic, Heavy metals not getting time to filtered.

↳ Creation of Dams, Reservoirs ⇒ Dam failure ⇒ loss of life Property •, Cutting forest for multipurpose project

Measures to ensure

① Sustainability

② Micro Irrigation → Drip
↳ high efficiency → Sprinkler

- ↳ also saves water
- ② organic & ZBNF farming
↳ Conserve water resource
 - ③ Technology to determine
water usage & optimization
 - ④ Incentive to
farmers to use
micro irrigation
- Equity
- ① water harvesting infrastructure
eg: johad (Rajasthan)
 - ② National watershed develop-
ment project → to minimize
loss & equitable distribution
 - ③ Interlinking of rivers → equity.
 - ④ 'Har Khet ko paani' scheme
 - ⑤ Paani Panchayat & Community
Participation

Above steps should be implemented
effectively to fulfill SDG goal 5
(water saving) & SDG-12 (Sustainable
Consumption & production)

13. 'Genome editing holds immense potential for crop improvement, but it also raises ethical and safety concerns'. How far do the new guidelines for the safety assessment of genome-edited plants in India, ensure the safety of genetically modified crops?

(Answer in 250 words) 15 Marks

Recently DMH-11 [genetic edited crop] was allowed for field trials in India

Immense potential of Genome editing

- ↳ Increase yield
- ↳ Drought & pest resistant
- ↳ Doubling farmers Income
- ↳ Increase export
- ↳ Supplement food processing Industry

Ethical Concern

- ↳ Right to tamper with Nature (ex: Covid disaster)
- ↳ Environmental Concerns
- ↳ VS. Development debate
- ↳ Changing Natural biodiversity
- ↳ Monopoly of few Companies

Safety Concern

- ↳ Threat to health of humans & livestock
- ↳ unknown Consequences
- ↳ Illegal Cultivation eg: Bt Brinjal
- ↳ food security $\Rightarrow$ as cost is high

New guidelines for Safety assessment

- ↳ Strict Scrutiny by GEAC before introducing crop
- ↳ Regulation on Export & Import of GM seeds/products/crops.
- ↳ Involving Civil society/ Experts in discussion.
- ↳ Using technology for monitoring.
- ↳ Multiple field trials & Safety tests before Commercial licensing.
- ↳ IPR simplification

Positive/Ensuring Safety of GM crops :

- ↳ Better awareness to citizens about government decision
- ↳ prohibition on illegal cultivation
- ↳ Less disputes as IPR regime will be simplified.
- ↳ Less chances of error as experts are included
- ↳ Less protests from activists

Challenges

- ↳ Lack of funding
- ↳ Less bureaucratic field so experts moving to private industry
- ↳ over-regulation discourages industry players
- ↳ Lack of proper enforcement

GM crops can help in food security & fulfill SDG goals but above challenges should be addressed.

14. Discuss the impact of direct and indirect farm subsidies on the agriculture sector in India.
How have Minimum Support Prices (MSP) affected the agricultural economy?
(Answer in 250 words) 15 Marks

India spends around 2% of GDP on Agriculture Subsidy to the tune of 4 lakh crore per annum.

Direct Subsidy

→ Direct Cash given to farmers
e.g. PM-Kisan, PM-KISAN, MSP prices, etc.

Impact of Direct Subsidy

(*) Positive

- Doubling farmers Income
- Food security
- Reducing farmer suicide
- Less Corruption as DBT is used

Negative

- Moral Hazard
↓
farmers use this money on other activities e.g. Marriage.
- Inclusion & Exclusion error in Beneficiary identification.

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↳ Subsidy in the form of interest subvention, Cheap electricity, Urea Subsidy, loan waiver etc.

Positive Impact

→ Reduces the cost of inputs like seed, fertiliser, water.

→ Redistribution of taxpayers money (Article 38)

→ Increases Export potential

Negative Impact

→ Corruption
→ debt ridden Discoms

→ political vote bank

e.g.: Loan waiver before elections

→ Over use of electricity, Irrigation.

MSP

→ Price guaranteed by government to farmers for Crops (currently 23 crops).

Impact of MSP :-

Positive	Negative
→ India emerged <u>net exporter of grains</u>	→ promoted mono-Culture
→ food security	→ decreased area under Millet Cultivation.
→ Over production of some crops ⇒ huge export	→ Under production of few crops ⇒ price hike
⇒ Doubling farmers Income.	⇒ huge use of HVY seeds, fertilizers, electricity
⇒ Women Empowerment	⇒ <u>burden on government</u>
⇒ food processing industry got raw material	(FCI debt)

Kelkar Committee has advised to slowly do away with subsidy & convert it in Capital expenditure. While Swaminathan Committee has called for expanding MSP to more crops & crop diversification.

15.

The 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

India imports more than 90 % of its palm oil need from countries like Indonesia & Malaysia. To reduce this National mission on Edible oils & oil palm was launched.

National. M. E. O - OP :

↳ To promote oil palm in Northeast & Andaman & Nicobar Islands.

↳ Incentives to farmers for Cultivation (Viability price)

↳ To increase area under palm oil cultivation by 6.5 lakh hectare in 5 years

Importance of NMEO-OP

- ↳ Reducing Import bill
- ↳ Doubling farmers income
- ↳ Helping food processing Industry with cheap oil.
- ↳ Strategic Importance : Increasing the supply chain resilience & protecting from global shock.
- ↳ Inclusive development of North east.
- ↳ Making India an exporting Hub for palm oil
- ↳ women empowerment & increasing wages of labourers.
- ↳ ensured profitable prices to farmers.

Challenges/Concerns

① Environmental issues

- ↳ Large amount of deforestation for oil palm tree
- ↳ Soil erosion due to deforestation
- ↳ Loss of biodiversity
- ↳ Huge water requirement for Palm oil tree

② Other issues

- ↳ tough Competition from Indonesia, Malaysia
- ↳ Poor Infrastructure in North-east, Lack of Cold Storage etc

Palm oil mission is visionary step to make India 'Atmanirbhar' in edible oil but above challenges should be addressed to make it sustainable.