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ADVANCED INTEGRATED MENTORSHIP

AGRICULTURE ASSESSMENT TEST-17

(To be filled by candidate)

Test Code : TC318

Name of Candidate : RITIKA CHITLANGIA

NEXT IAS Roll No. : AIM24GCRA075

Date of Examination : 21/10/23

Exam Centre : Old Rajinder Nagar ☒

Bhopal ☐

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GENERAL STUDIES

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

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1.

Assess the potential of millet production in promoting sustainable agriculture and improving food security in India.

(Answer in 150 words) 10 Marks

Currently, India is the 2nd largest producer and exporter of millets, promoting it as the 'Sri Anna' in the International Year of Millets.

Potential of millets

(i) Sustainable Agriculture

① Dryland crop, suited to agro-ecological conditions of dryland areas.

② Millets require less water $\Rightarrow$ replenishment of groundwater.

③ Improves the soil quality $\Rightarrow$ replenishes the lost nutrients.

④ Requires less fertiliser $\Rightarrow$ bettering soil organic carbon and decreasing soil & water pollution.

⑤ Makes Indian agriculture resilient to climate change as it is a hardy crop, resistant to drought.

(ii) Improving food security

① Helps mitigate crop losses as it is resistant to drought and has a short gestation period.

② Can be cultivated easily with low investments, especially in arid and semi-arid areas.

Eg: Sahel region of Sahara.

③ Improves nutritional security as millets are rich in amino acids, fibres etc.

④ Promotes crop diversification & counters the 'rice-wheat centric economy'.

Hence, millets has the potential for making agriculture 'Climate Smart', with a market of \$ 50 million by 2025.

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

At present, the fisheries sector contributes nearly 47000 cr to export earnings, registering 19 fold growth since 2012.

India's stand on Fisheries Agreement

The fisheries agreement at WTO aims to curb 'Illegal, Unreported and Unregulated Fishing' (IUU) by cutting down on fisheries subsidies.

India's stand

① Developing country, with a coastline of 7517 km $\Rightarrow$ nearly 40% of the popⁿ dependent on fishing in coastal areas.

② India has promoted sustainable fisheries, through ambitious Blue Revolution 2.0.

Importance of Fisheries sector

① Alternate source of income for farmers $\Rightarrow$ crucial pillar to realise the target of 'doubling farmer's income'.

- ② Important to ensure food and nutritional security of India.
- ③ Crucial to develop fisheries for a vibrant agri-export ecosystem.
- ④ Inland fisheries contribute more than marine fisheries $\Rightarrow$ significant in all districts of the country.

steps taken by Govt. of India

- ① PM- Matsya Sampada Yojana $\Rightarrow$ outlay of 6000 cr to improve production of fisheries in a sustainable manner.
- ② Fisheries Infrastructure Development Fund $\Rightarrow$ for technological upgradation of the fisheries ecosystem.
- ③ cheap credit support to fish farmers to update to better fishing nets and trawlers.
- ④ Hence, the challenges of fisheries sector like low productivity, toxicity, poverty among fishermen etc. needs to be alleviated to realise the full potential of fisheries sector.

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 were a key socialist objective based on the concept of pareto-optimality, correcting historical mistakes and boosting productivity of the Indian agriculture.

constraints of Land Reforms

① Systemic

① Biases against caste, gender, tribal ⇒ impediments in consolidation of land holdings.

② The system of zamindari, though abolished, still deeply entrenched in power dynamics between landless labourers and money lenders.

③ Emotional attachment to land ⇒ people are not ready to give up land due to sentimental claims.

② Institutional

① Bureaucratic fallacies in terms of village land surveys, varying fertility assessments,

equitable distribution of lands.

② Lox implementation in terms of tenancy rules and security of land tenure.

③ varying land use $\Rightarrow$ Not all land is cultivable $\Rightarrow$ issue of land acquisition for consolidation of land holdings.

Solutions

① Use of digital surveys through drones to ease titling of land to remove legal problems.

② Assessment of land use types, fertility variations through remote sensing & GIS.

③ Promoting farmer producer organisations to harvest pooled land.

Thus, government initiatives like DILRMP, svamitva scheme etc. will aid the use of technology to resolve land reforms disputes in a sustainable and pragmatic manner.

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

There are 2 kinds of fertilizer subsidy available in India, one being urea subsidy and the other being Nutrient-based subsidy.

Issues related to urea management

- ① Disproportionate use of urea as the subsidy is greater for urea.
- ② Heavy fiscal burden on the union and states to provide urea.
- ③ Most of the urea subsidy doesn't even reach the beneficiary, as it is smuggled to parts of Nepal & B'desh.
- ④ No limit on accessing urea under Point of sale.
- ⑤ Environmental degradation and soil pollution due to excessive use of urea.

Role of NBS in urea management

- ① Nutrient-based subsidy provides subsidy on grounds of requirement

of different nutrient requirements.

② use of NBS can help proportionate the use of NPK, where Nitrogen (urea) occupies 60% of the subsidy and use.

③ Equilibrium in the use of urea $\Rightarrow$ better soil health management.

Other reforms

① Use of soil health card scheme to assess the nutritional requirements of the soil $\Rightarrow$ proportionate use of urea.

② Precision farming, involving drip facilities and fertigation for dispensation of fertilisers.

Therefore, the disproportionate use of urea is a major problem of Indian agriculture, which needs to be corrected to ensure sustainable farming.

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

Post Green Revolution of 1960's, India has been a food secure nation, in terms of availability, accessibility and affordability of food to 1.2 Billion people.

Challenges to Food security

(A) Domestic Factors

① Uneven production $\Rightarrow$ seasonal & year production fluctuations due to:

- (i) climate $\Rightarrow$ S.W. monsoon
- (ii) MSP
- (iii) consumer sentiment

② Infrastructure deficit in terms of storage, packaging, transportation $\Rightarrow$ 45% of fruits and vegetables produced are victim of post-harvest losses.

③ Government policy $\Rightarrow$ export bans, import bans etc.

④ Lack of crop diversification $\Rightarrow$ rice & wheat centric agriculture $\Rightarrow$ leads to nutritional insecurity.

B) Global Factors

① Supply chain disruptions $\Rightarrow$ for every one disruption in global value chain, food insecurity to developing nations increases by 3.3%. (FAO).

② Wars & conflicts $\Rightarrow$ Eg: Russia-Ukraine war $\Rightarrow$ shortage of wheat, soyabean, sunflower oil etc.

③ Raising prices due to global monetary tightening $\Rightarrow$ weaker investment in food processing infrastructure.

④ Global inflation $\Rightarrow$ Eg: pulses imported from Canada $\Rightarrow$ shortage in supply $\Rightarrow$ rise in prices $\Rightarrow$ food insecurity for BPL families.

Ways to strengthen Food security

① Crop surveillance - weekly, monthly and before harvest $\Rightarrow$ to ascertain supply.

② Nutritional security through use of crops like millets.

③ Global consensus on free movement of agri-products.

Therefore, need to take a humanistic & welfare approach when it comes to food security.

6. Jal Jeevan Mission has the potential to end the regional disparity in the availability and accessibility of drinking water. Highlighting the significance of the mission, discuss the underlying impediments in achieving the desired objectives.

(Answer in 150 words), 10 Marks

Jal Jeevan Mission promises to deliver fresh drinking water to all taps of the country by 2024. It has the potential to avert 6 lakh diarrhoea deaths.

significance of the mission

- ① Availability of fresh drinking water to households, especially in rural areas.

Eg: Goa has achieved 100% of its objective under JJM.

- ② Gender empowerment as women don't have to travel long distances to fetch drinking water.

- ③ Fodder and humans don't have to consume contaminated water $\Rightarrow$ prevents numerous water borne diseases.

- ④ Potential to better rural quality of life by improving health outcomes.

- ⑤ Helps in achieving sustainable development goals.

Impediments to the mission

- ① Environmental consequences in terms of draining of rivers and lakes.
- ② Large-scale implementation lapses and bureaucratic hurdles.
- ③ Gender and caste bias in access to freshwater.
- ④ Diversion of freshwater for irrigation or other non-drinking purposes.

Way Ahead

There can be linkage of Mission Amrit Sarovar with Jal Jeevan Mission to improve the poor of freshwater; credit support to install RO's in rural areas; proper cleansing and maintenance of collection tanks; rain water harvesting etc. to improve water use efficiency and ensure fulfilment of objective of JSM.

7. Numerous foreign travellers have vividly documented their observations of the Vijayanagara Empire over time, offering valuable sources for reconstructing its history. Elucidate.

(Answer in 150 words) 10 marks

From 14-17th century, a massive empire was reigning in the south, at its capital Hampi, where numerous foreign travellers visited.



Foreign Travellers

① Abdur Razak ⇒ Samarkand → mentioned his sources of women participation in the Vijaynagar empire.

② Niccolo de conti ⇒ European traveller who visited during the reign of early dynasties and recorded observations of spice trade & horses trade between Arabs and the Vijaynagara empire.

③ Cunhes ⇒ Another European traveller ⇒ mentioned about the morphology of towns; celebration of Navratri (Vijaydashmi) at the Mahanavami Dibba.

④ Domingo Paes ⇒ visited during the reign of Krishnadeva Raya I, mentioned explicitly about the works of irrigation undertaken during his reign.

Hence, the sources of foreign travellers are key to decipher the grandeur of the Vijayanagara economy, society, polity and culture.

8. Do you agree that Dr. B.R. Ambedkar's view of the caste problem was more political than social? Also, highlight his efforts aimed at social reform. (Answer in 150 words) 10 marks

Dr. B.R. Ambedkar was the leading social reformer of colonial and post-independence India, giving his contribution to the social concept of swaraj.

Ambedkar's Perception of Caste Problem
while Mandhi attempted the political concept of caste, Ambedkar wanted the 'annihilation of caste' from the society and scriptures.

① He radically wanted to change/destroy the social systematization of caste.

Eg. inter-caste dining; refusal of dalits to pick up dead animals etc.

② He wanted not only the political empowerment of lower castes, but the elimination of the concept of caste from village society.

③ He wanted to ensure that each Dalit should be provided with equal representation, opportunity and empowerment, through separate electorates (political empowerment $\Rightarrow$ social upliftment).

Efforts of Ambedkar

- ① Organised several temple entry movements for lower castes.
 - ② Published a journal called 'Mooknayak' for the cause of Dalit emancipation.
 - ③ Organised the All India Scheduled Castes Federation in 1942.
 - ④ Started a newspaper called 'Barikhat Bharat', through an organisation called 'Bharat Hitkarni Sabha'.
 - ⑤ Rejected the Simon Commission report due to non-involvement of Dalits.
- Thus, Dr. Ambedkar was the leader of caste emancipation, the ideals of whom are revered even today.

9. Why is the world today confronted with a crisis of availability of and access to freshwater resources? (Answer in 150 words) 10 Marks

World has about 2% of freshwater, trapped in ice-caps, glaciers, rivers, lakes, ponds etc.

As per the Global Monitor, nearly 58 million people globally are living in water stressed regions.

Crisis of Availability of fresh water

① Erratic patterns of rainfall due to climate change $\Rightarrow$ shortening of El Nino cycle $\Rightarrow$ sea level rise etc.

② climate change & global warming is increasing the melting of glaciers & melting of cryosphere.

③ Pollution and contamination of available freshwater sources.

Eg: Aral sea $\Rightarrow$ shrinking due to diversion of water for cotton cultivation.

Crisis of Accessibility of fresh water

① The disproportionate impact of climate change $\Rightarrow$ Eg: China faced its worst drought of the century.

while sindh was flooded with water.

② Rich-poor divide $\Rightarrow$ in case of resource shortage, the worst impact is on the vulnerable like BPL, women, children, old people $\Rightarrow$ shortage of money to afford.

③ Improper water management $\Rightarrow$ every year, agricultural hubs of India are worried about drought, while urban cities reel under floods.

Solutions

① Reuse, Recycle and Reduce water usage.

② Canalisation of rivers for improving water use efficiency of freshwater.

③ Global action on harmonious & ecological-centric water-shed management, especially for international rivers.

④ Fulfillment of Paris Goals to control rise in temperature to 1.5°C .

⑤ Use of geoengineering to reduce global warming.

hence, freshwater resource is crucial for human existence.

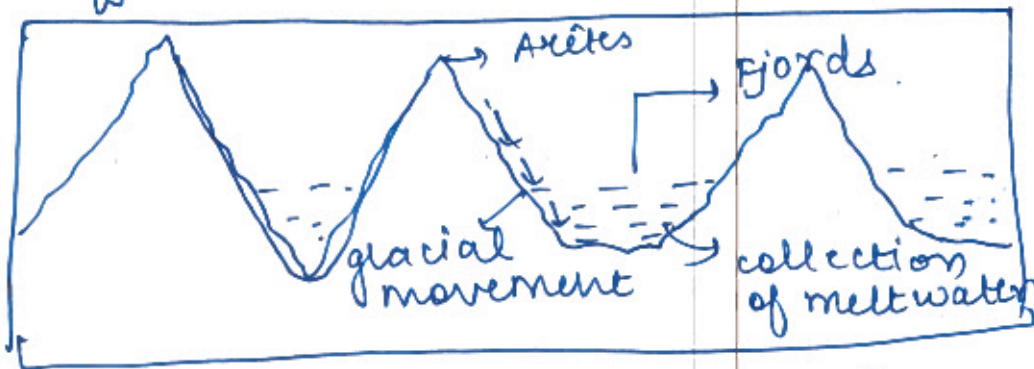
10. How are the fjords formed? Why do they constitute some of the most picturesque areas of the world? (Answer in 150 words) 10 Marks

Fjords are glacial landforms, which are typically characteristic of Scandinavian countries, usually associated with high altitudes, glaciated regions.

Formation of Fjords

- ① Fjords are erosional landforms.
- ② As the glacier recedes and moves along the gravitational slope, it cuts across the step ridges of the slope, forming arêtes and horns.
- ③ As these arêtes and horns become prominent, a steep slope 'saw-toothed' develops, forming V-shaped valleys.
- ④ The basin of the valley forms a depression, which collects the glacial till and meltwater $\Rightarrow$ forming high altitude lakes, known

as fjords.



Why Fjords are picturesque?

→ usually situated in the midst of snow-capped mountains, having crystal clear water.

→ Purest form of water $\Rightarrow$ melting of glacial ice.

→ sometimes, fjords also have incursions of sea water $\Rightarrow$ brackish water bodies.

→ source of tourism for the high altitude Scandinavian and Canadian countries.

Fjords are at a risk of rising sea level due to melting of glaciers, which threatens several human settlements near it. Therefore, need to protect the fjords.

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 17% to the economy and employs nearly 53% of the workforce. Yet, it is plagued by several impediments.

Challenges of Agriculture sector

- ① low productivity $\Rightarrow$ half the yield of India and China $\Rightarrow$ fragmented land holdings (0.4 Ha per capita availability).
- ② low price realisation for the farmers due to limited agri-extension facilities.
- ③ climate change and dependence on erratic SW monsoon $\Rightarrow$ only 49% of the cultivated area is under irrigation.
- ④ feminisation of agriculture as

there is male-selective out migration.

- ⑤ Traditional, subsistence agriculture
 ⇒ low farm mechanisation ⇒
 only 40% in India, as compared to
85% in Brazil, 92% in China &
97% in USA (FAO).

Role of Technology

- ① Agritack ⇒ collection of technological
 platforms that helps farmers in
 marketing of their harvest.
 Eg: E-NAM, AGMARKNET etc.
- ② Use of drones for crop
 monitoring, weather patterns,
 pest etc.
- ③ Use of AI and ML in pre-
 sowing & post cultivation
 for better productivity.
 Eg: Bands based on edge-computing
 for monitoring livestock
 health etc.

- ④ Agriculture Ups $\Rightarrow$ e.g. 'MILLET 40' to promote infrastructure and information and dissemination.
- ⑤ Big Data Analytics to analyse the price of different crops by estimating the impact of different variables.

Therefore, technology is the key to increase farm productivity. As per the Ashok Dalwai committee, it was the potential to increase farm productivity by 50% and raise farm incomes by 45%. Therefore, crucial to adopt technology to fulfill the goal of 'doubling farmers' income'.

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

As per the MO Agriculture and Farmer's Welfare, only 49% of the cultivated area is under irrigation facilities.

Impact of irrigation

(A) Environment

① Post Green Revolution $\Rightarrow$ use of 'switch button technology' $\Rightarrow$ excessive use of electricity based on fossil fuels $\Rightarrow$ pollution

② Pollution of freshwater sources due to run-off from farms, chemical based fertilisers.

③ Due to depletion of soil moisture $\Rightarrow$ affects on soil biodiversity due to lack of water supplies, especially in arid areas.

(b) Natural Resources

- ① Depletion of groundwater $\Rightarrow$
Eg: Punjab, 80% of groundwater
overutilised.
- ② Excessive irrigation $\Rightarrow$ soil
salinity, waterlogging and silt
Eg: capillary effect.
- ③ Harm the marine and riverine
ecosystems due to depletion of
volume of water & increasing
concentration of contaminants.

Measures

(A) Sustainability

- ① Use of micro-irrigation and
precision irrigation methods $\Rightarrow$
Kshok Salwai committee $\Rightarrow$
Drip irrigation can reduce
water loss by 50%, increase
productivity by 45% & farmer's
income by 40%.

- ② Rain water harvesting to replenish ground water reserves.
- ③ Mandatory use of drip/ furrow irrigation for water intensive crops. Eg: sugarcane -
- ④ Educating the farmers to ensure scientific cultivation of crops, as per the agro-ecological conditions.
- ⑤ Equity
 - ① Limits on extraction of groundwater (Model water Use Act).
 - ② Cheap credit support for installation of micro-irrigation facilities.
 - ③ Canalisation of rivers to improve access to water resources by improving water use efficiency.

Therefore, irrigation is the hallmark of modern agriculture, but should be carefully studied to manage its negative impacts.

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

As per the MoS and technology, 'Gene Revolution' holds immense potential for increasing the productivity and resilience of agriculture.

Potential of genome Editing

- ① Increasing productivity $\Rightarrow$
DMH 11, Golden Rice, Rubber $\Rightarrow$
 better the productivity and yield
 of the crops, as much as 23%
 (B27 report).
 - ② Increasing resilience of Indian
 crops in face of climate change
 $\Rightarrow$ salt tolerant, drought tolerant,
flood tolerant etc.
 - ③ Improves pest resistance and
ensures food security. Eg: Bt
 cotton, Bt Brinjal etc.
- Ethical concerns of GM crops.

- ① Threat of new mutations $\Rightarrow$ uncontrollable off-gene mutations.
- ② Pest resistance $\Rightarrow$ Bt cotton doesn't protect us against american bollworm.
- ③ Horizontal gene transfer $\Rightarrow$ Bacterial mutations that can lead to plant toxicity.

Guidelines for safety Assessment of genome-edited plants

- ① mandatory registration with the Institutional Bio safety committee.
- ② conducting in-lab trials $\Rightarrow$ ministry of science & tech to regulate the trials.
- ⑤ Further approval given by the Genetic Engineering Appraisal committee (GEPA, 1986).
- ④ No Objectification Certificate to be obtained from state government after getting approval for environmental

Rials.

- ⑤ leaving the cultivated land fallow, burning the produce and leaving up of adjacent areas.

lacunae

- ① The 'NOC' clause is often not strictly implemented.
- ② Implementation lapses $\Rightarrow$ cases of bureaucratic fallacy and arbitrariness.
- ③ conflict of interest $\Rightarrow$ member of seed developing team as part of GEAC.

Way Ahead

In order to maintain its commitments to Cartagena (Kuala Lumpur) Agreement, India needs to carefully assess the potential of genome editing & CRISPR crops to ensure maximum benefit with minimum harm.

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

As per the Budget 2022-23, the GOI spends nearly 70,000 cr on farm subsidies, which are targeted towards increasing food security, farmer's income and crop diversification.

Impact of subsidies

- ① DIRECT SUBSIDIES - given to the farmers directly for farm or non-farm expenses, Eg: PM-KISAN, through direct benefit transfers.

Impacts: Positives

- ① Improves farmer's autonomy to allocate the given subsidy.
- ② Part of 'green box' subsidy at WTO ⇒ Non-trade distorting.
- ③ Improves farm management, lifestyle of farmers etc.
- ④ Doesn't directly harm the environment.
- ⑤ Boosts savings & consumer demands.

Negatives

- ① can lead to inflationary tendencies due to increase in aggregate demand.
- ② May not increase farm production.
- ③ May go towards non-recumnerative expenses like alcoholism, weddings etc.

② INDIRECT SUBSIDIES - Those which are given on farm inputs like fertiliser, seeds, irrigation, MSP etc.

Impact - Positives

- ① Direct increase in production.
- ② curtails inflation due to boost in aggregate farm supply.
- ③ helps to increase demand for fertilisers, seeds etc.

Negatives

- ① May lead to pollution $\rightarrow$ excessive use of fertilisers.
- ② No regulation to ensure if the beneficiary actually benefits.
- ③ curbs crop diversification.
- ④ cobweb phenomena.

Impact of minimum support Price

MSP is the floor price given to the farmers to ensure fair & just price realisation.

Positives

- ① Protects farmer interest.
- ② Ensures vibrant agriculture trading $\rightarrow$ middlemen cannot offer lower price than MSP.
- ③ Tool to ensure crop diversification.
- ④ Necessary to ensure food security.

Negatives

- ① MSP has led to Indian agriculture becoming 'rice-wheat centric'.
 - ② Exploitation and pollution of environment.
 - ③ Disequilibrium in crop production as MSP is offered only for 14 crops.
 - ④ MSP has become a tool of populist election policies.
eg: Raising MSP before elections.
- Thus, MSP is a unique element of Indian agriculture, but it should be oriented to better income of the farmers and prop 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

Import of edible oils from Canada, Brazil, Indonesia, Malaysia etc. forms a significant chunk of India's import bill.

Reasons for edible oil imports

- ① Low production in India due to unsuitability of the climate.
- ② Environmental hazards like plantation monoculture.
- ③ High land & water requirements
→ not fiscally suitable for small & marginal farmers.
- ④ Low agri-processing and marketing infrastructure.

National Mission on Edible oils and Oil Palm → grouping of the largest oil importers like India, Pakistan, Bangladesh, Philippines, Myanmar etc.

Benefits

- ① Ensure systematisation of oil imports in India $\Rightarrow$ reduce the fluctuations in supply and curb price volatility.
- ② Help to increase the production of oil palms indigenously with technology upgradation & use.
- ③ Promote research and development to ensure better productivity and shorter gestation period.

Challenges

- ① India is being blamed for the ecological destruction due to oil palm cultivation in export countries.
- ② Decrease the indigenization process of oil palms due to imports.
- ③ Increase current Account deficit.

Environmental concerns of oil Palm

- ① Oil palm is a tropical crop, native to Africa $\Rightarrow$ India doesn't host suitable agro-ecological conditions for its cultivation.
 - ② Oil palm would demand deforestation of huge swathes of land, as it is a plantation crop $\Rightarrow$ promotes monocultures.
 - ③ Depletion of groundwater reserves.
 - ④ Large technological inputs $\Rightarrow$ unsustainable in small fragmented landholding.
- Therefore, India should focus on decreasing import reliance and demarkation of barren land for cultivation of oil palms under the mission for indigenisation of oil Palms.

16. 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

As per report of the 40th, livestock sector contributes 30% of the agri-GDP. It is the key sector to focus on to improve farmer's income.

Role of Livestock Economy

- ① Improves farmer's income $\Rightarrow$ India ranks 1st in milk production, 3rd in egg production and 8th in meat production $\Rightarrow$ supplements the farm income.
- ② Mitigates risks associated with climate change as it acts as an alternate in case of crop losses.
- ③ Better export potential due to vibrant agro-processing $\Rightarrow$ meat exports constitute 8% of India's agri-exports baskets.
- ④ Animal products fetch better prices than crop products.

⑤ Improves mixed farming potential
⇒ circular farm management cycle
challenges of livestock sector

① low productivity of ruminants.
Indigenous breeds are only 60%
capable of exotic breed production.

② Animal diseases like lumpy
skin disease, foot & mouth disease
decrease productivity.

③ lack of insurance and credit
support ⇒ NO MSP or insurance
facility for animal products.

④ Threat to crops due to presence
of animals.

⑤ high investment and maintenance
cost ⇒ unaffordable for small and
marginal farmers.

Interventions

① Private sector participation
by harbouring contract
farming ⇒ investment flow.

- ② Promoting farmer producer organisations to overcome challenges of resource crunch.
 - ③ Strong agri-market support to livestock farmers.
 - ④ Developing use of AI & ML in veterinary health management.
 - ⑤ Farmer education and awareness about proper vaccination of livestock.
- Way Forward

The government has taken steps like Rashtriya Gokul Mission, National Livestock Mission, Animal Husbandry Infrastructure Investment Fund $\Rightarrow$ Need to synthesise & harmonise these initiatives to ensure development of livestock economy.

17. Most of the unemployment in India is structural in nature. Examine the methodology adopted to compute unemployment in the country and suggest improvements.

(Answer in 250 words) 15 marks

As per the centre for Monitoring Indian Economy, the unemployment rate currently stands at 8%.

$$\text{Unemployment Rate} = \frac{\text{Total No. of } \overset{\text{looking for a job}}{\cancel{\text{labour force}}} }{\text{Total no. of labour Force Participation} \times 100}$$

Nature of unemployment in India

Most of unemployment is 'structural' in the sense that structural nature of jobs has changed, to which the current labour force is not dynamic enough to update its skill set.

Reasons for structural unemployment

- ① low skill development and employability potential → As per TISS survey, only 50% of graduates have employability skills.

② lack of coordination between industry and education.

③ Lack of technical upgradation of curriculum $\Rightarrow$ NO incentive to make dynamic & practical curriculums.

④ Lack of aptitude to accommodate to Industry 4.0 $\Rightarrow$ AI, ML, blockchain etc.

Methodology to estimate unemployment

Labour Force
Rate (LFPR)

$\Rightarrow$ NO. of people in the working age group (15-59 years)

Workforce

$\Rightarrow$ NO. of people employed in the working age group (15-59 year)

unemployment $\Rightarrow$ NO. of people in the working age group looking for a job, but unable to find a job due to involuntary reasons.

$$\therefore \text{Unemployment} = \frac{\text{No. of people looking for a job}}{\text{No. of labour force}} \times 100$$

Improvements required

Problems with estimation methodology

- ① only includes those who are looking for a job & unable to find one due to involuntary reason $\Rightarrow$ ignores the structural impediments to voluntary reasons.
- ② Ignores disguised & seasonal unemployment.

Improvements

① Ensure detailed analytical survey of structural impediments to unemployment.

② Holistic coverage of all types of unemployment.

Unemployment is the biggest challenge for policy makers, and the correct estimation of reasons and numbers is the first step to eliminate it.

18. The Intergovernmental Panel on Climate Change (IPCC) has predicted a global sea level rise of about one metre by AD 2100. What would be its impact on India and the other countries in the Indian Ocean region? (Answer in 250 words) 15 marks

As per IPCC report, the world glaciers are receding at an average rate of 10 cm/year, leading to the addition of sea water.

Impact of sea-level rise on India

① Environmental Impact $\Rightarrow$ addition of sea water will lead to submergence of coastal areas of Mumbai, Chennai, Bangalore, Kolkata etc. $\Rightarrow$ moreover, it will increase the incidences of coastal flooding, tropical cyclones, storm surges etc.

② Economic Impact - Inundation of coastal fishing villages $\Rightarrow$ adverse impact on coastal economy, in terms of fishing industry.

③ Cultural / societal Impact $\Rightarrow$
disturbances in arrival of
monsoons, frequency of disasters
 $\Rightarrow$ negative social omen.

④ Health impacts $\Rightarrow$ rise in cases
of water-borne diseases, destruction
of income sources $\Rightarrow$ rise in poverty
levels & decreased physical &
mental well-being.

Impact on Indian Ocean region

① Increasing doubt of china $\Rightarrow$
in terms of maritime challenges
posed by climate change & sea level
rise.

② Increasing frequency of disasters
in neighbouring countries like
maldives & sri lanka $\Rightarrow$ influx of
climate refugees into india.

③ Disturbances in trade relations
due to uncertainty of global

maritime routes.

④ Issues of humanitarian aid and climate funding.

Hence, rise of global sea level is a warning indicator for the catastrophic impacts of climate change, that needs to be well-handled through collaborative approaches like SAGAR, Indian Ocean Rim Association etc.

19. Critically examine the procedures through which the Presidents of India and France are elected. (Answer in 250 words) 15 marks

India and France are some of the longest surviving democracies, with the french ideals of liberty, equality, fraternity being reflected in the preamble of Indian Constitution.

Election Procedures of India & French Presidential Elections

India

- ① In India, president is a ceremonial, nominal head of the state, who is also the first citizen of the country.

Election Procedure $\Rightarrow$ indirect voting, comprising of an electoral college ~~or~~ consisting of elected MP's and MLA's.

- ② The candidates register their nominations as 50 supporters & 50 seconders.

① Indirect voting takes place through Proportional representation through single transferable vote.

$$\text{② Value of 1 MLA} = \frac{\text{Total MLA's voted}}{\text{Total population of the state.}}$$

$$\text{③ value of MP's} = \frac{\text{Total value of all votes of MLA's}}{\text{Total No. of MP's}}$$

⇒ In order to win ⇒ the presidential candidates needs to secure 50+1% of the ~~pr~~ votes.

Critical Analysis

① Indirect voting method ⇒ No involvement of the mass population.

② Usually the candidate nominated by the majority party wins.

③ The nominated MP's & MLA's of Rajya Sabha & state legislative council are not allowed to vote.

④ Since the president is nominal head, elections ensure that he/she doesn't become an alternate source of power.

Presidential Election of France

⇒ France is a semi-presidential democracy ⇒ President is the head of the state as well as the executive.

⇒ The election is direct in nature, comprising of electoral college.

⇒ The selection is done through 'run-off' voting system, where the candidate needs to secure a majority of votes.

Critical Analysis

- ① Favours large parties and doesn't provide scope for regional autonomy.
- ② candidates favour party over the candidate.
- ③ Little connect between the presidential candidate and the constituents.

Therefore, the democracies of India and France are different in their structure, but continue to be representative and functional.

20. While the national political parties in India favour centralisation, the regional parties are in favour of State autonomy. Comment.
(Answer in 250 words) 15 marks

At present, as per the Election Commission of India, there are 8 national parties and numerous regional parties.

National Parties favour centralisation

① National Parties have significant pan-India clout and usually forms the union legislature ⇒ in support of centralisation bec:

① residuary powers of legislation with the union government.

② collect the CST and 14ST and are not responsible to share the cesses and surcharges with the states.

③ Responsible for constituting the Finance Commission ⇒ negotiating powers to reduce devolution of grants to states.

④ Power to resolve inter states

water disputes.

- ① lesser burden to accommodate the interests of smaller coalition partners.

State/Regional Parties favour state Autonomy: significant political clout within the state: advocates of federation of power.

Reasons:

- ① Greater autonomy within the state to form legislations, collect taxes etc.
- ② Greater financial security to work with lesser reliance on union/central government.
- ③ Better adapted to deal with state dynamics $\Rightarrow$ power to implement rules etc.

Balance between centralisation and state autonomy

• Risks of Excessive centralisation:

- ① Threat to diversity of India.
- ② Regional interests will be neglected.
- ③ Excessive authoritarianism and majoritarian rule.
- ④ Discontent among the states $\Rightarrow$ secessionism & sub-nationalism.

• Risks of excessive state Autonomy

- ① Lack of national unity, especially on international front.
- ② May lead to feelings of regionalism & ignorance of important national matters.
- ③ State governments are vulnerable to collapse and instability due to intricate power relations within state.

Thus, Indian polity is a semi-federal structure, wherein the 7th schedule, office of governor etc. help to maintain balance between varying interests.

Space for Rough Work

