4 Agriculture

CHAPTER

Level - 1 CORE SUBJECTIVE QUESTIONS

MULTIPLE CHOICE QUESTIONS (MCQs)

1. Option (C) is correct

   Explanation: Rabi crops are winter crops, sown in the cold season. These crops are sown from October to December and harvested from April to June. Cotton, maize, and jute are Kharif crops, not Rabi crops. Rabi crops include wheat, barley, mustard, gram, and peas. Punjab, Haryana, and Uttar Pradesh are important for the production of wheat.

2. Option (D) is correct

   Explanation: Rice is the most widely consumed staple food in India. India is the second-largest producer of rice (after China). Rice is a Kharif crop, grown in the monsoon season.Rice needs high humidity and rainfall (above 100 cm), making it suitable for regions with heavy monsoons.

   Among the other options, Ragi is not a staple food and grown in drier conditions. Bajra is a coarse cereal and grows in dry areas. Wheat is a Rabi crop, grown in winters.

3. Option (A) is correct

   Explanation: Plantation agriculture involves growing a single commercial crop (e.g., tea, coffee, rubber) on a large estate. It is capital-intensive farming as plantation farming requires huge investment in infrastructure, machinery, and labour. plantation agriculture is usually practised in sparsely populated regions, not in areas with high population pressure. plantation farming focuses on cash crops (tea, coffee, rubber, sugarcane, etc.), not food grains like wheat or rice.

4. Option (A) is correct

   Explanation: After rice, wheat is the most important cereal crop in India. Wheat is grown in the winter season and harvested in summer, making it a Rabi crop. It requires a cool growing season and bright sunshine at the time of ripening, which matches wheat's requirements. Wheat grows well in regions receiving 50 to 75 cm of annual rainfall, which is ideal for its cultivation.

MATCH THE FOLLOWING QUESTIONS

1. Option (C) is correct

   Explanation: Wheat is a staple food crop widely consumed in India and globally. Ragi is a millet crop known for its nutritional benefits. Tea is a beverage crop grown mainly in Assam, West Bengal, and Tamil Nadu. Maize is used both as a food crop and as fodder for livestock.

2. Option (C) is correct

   Explanation: Primitive subsistence farming is usually practiced on small patches of land using traditional methods.

   Intensive subsistence farming involves high labour input on small landholdings and often includes multiple crops, not just a single crop.

   Commercial farming use of higher doses of modern inputs. Commercial farming is characterised by the use of high-yield variety (HYV) seeds, chemical fertilisers, pesticides, and modern machinery to maximise production.

   Plantation farming is practised on large estates or large patches of land with single crop specialisation, such as tea, coffee, rubber, or sugarcane.

3. Option (B) is correct

   Explanation: Rice is a staple food crop of India, tea is a plantation beverage crop, cotton is a fibre crop, and horticulture refers to the production of fruits and vegetables.

ASSERTION-REASON QUESTIONS

1. Option (B) is correct

   Explanation: Agriculture provides raw materials to industries (e.g., cotton for the textile industry, sugarcane for the sugar industry). Industries supply machinery, fertilisers, pesticides, and other inputs to enhance agricultural productivity. Both sectors support each other for overall economic growth.

"Industrial growth creates jobs, increases incomes, and boosts economic development, helping in poverty alleviation.

The reason talks about industrial development reducing unemployment and poverty, but it does not directly explain why agriculture and industry move hand in hand. Therefore, while both statements are true, the reason does not correctly explain the assertion.

2. Option (A) is correct

Explanation: High-value crops like fruits, vegetables, pulses, and medicinal plants have higher market demand and profitability compared to cereals like wheat and rice. Diversification reduces over-reliance on staple crops and improves nutritional security.

High-value crops generally require less water compared to rice and wheat, reducing stress on groundwater. Shifting to diverse cropping improves soil fertility and biodiversity, reducing environmental degradation. Farmers can earn more as high-value crops fetch better prices in the market. Diversification helps in both economic (higher income) and environmental (sustainability) benefits.

3. Option (D) is correct

Explanation: Agriculture is one of the oldest economic activities, dating back to the Neolithic period (about 10,000 years ago). Early human civilizations thrived due to farming, which enabled settled life and economic development. Hence, assertion is false.

Farming methods range from subsistence farming (for self-consumption) to commercial farming (for profit and large-scale production).

4. Option (D) is correct.

Explanation: Primitive subsistence farming is practised in sparsely populated areas, not in densely populated ones. It is mostly found in tribal areas of the north-eastern states of India, parts of Africa, and the Amazon basin. Intensive subsistence farming, not primitive, is common in areas of high population pressure on land (like in India, China, and South east Asia).

Primitive subsistence farming relies on natural rainfall as it lacks modern irrigation facilities.

Therefore, assertion is false and reason is true.

VERY SHORT ANSWER TYPE QUESTIONS

1. Agriculture and industry are not exclusive of each other. They move hand in hand. For instance, the agro-industries in India have given a major boost to agriculture by raising its productivity. They depend on the latter for raw materials and sell their products such as irrigation pumps, fertilisers, insecticides, pesticides, plastic and PVC pipes, machines and tools, etc. to the farmers.

	Primitive Subsistence Farming	Commercial Farming
(i)	(i) Primitive subsistence agriculture is practised on small patches of land with the help of primitive tools like hoe, dao and digging sticks and family/ community labour.	In this type of farming higher dose of modern inputs is used.
(ii)	(ii) This type of farming depends upon monsoons, natural fertility of the soil and suitability of other environmental conditions to the crops grown.	High Yielding Variety (HYV) seeds, chemical fertilisers, insecticides and pesticides etc. are used to obtain higher productivity.
(iii)	It is 'slash and burn' agriculture. Farmers clear a patch of land and produce crops. When soil fertility decreases, the farmers shift and clear a fresh patch of land.	The degree of commercialisation of agriculture varies from one region to another. For example, rice is a commercial crop in Haryana and Punjab and it is a subsistence crop in Odisha.
(iv)	Crops are produced to sustain the family.	Commercial farming is done with the view to sell the crops and gain profit.
(v)	It is labour intensive farming, since most of the activities are done by human labour.	It is capital intensive since it depends on machines to get the work done.
(vi)	Land fertility is low as fertilisers are not used.	Land productivity is high.
(vii)	This type of shifting allows nature to replenish the fertility of soil through natural process.	Does not allow nature to replenish the soil fertility through natural process.

(Any two)

3.

	Rabi Crops	Kharif Crops
(i)	Rabi crops are sown in winter from October to December and harvested in summer from April to June.	Kharif crops are grown with the onset of monsoon in different parts of the country and these are harvested in September-October.
(ii)	Some of the important rabi crops are wheat, barley, peas, gram and mustard.	Important crops grown during this season are paddy, maize, jowar, bajra, tur (arhar), moong, urad, cotton, groundnut and soyabean.
(iii)	Punjab, Haryana, Himachal Pradesh, Jammu and Kashmir, Uttarakhand and Uttar Pradesh are important for the production of rabi crops.	Some of the important rice growing regions are Assam, West Bengal, coastal regions of Odisha, Andhra Pradesh, Telangana, Tamil Nadu, Kerala and Maharashtra, particularly the Konkan coast with Uttar Pradesh and Bihar.
(iv)	Require warm climate for germination and cold climate to grow. Availability of precipitation during winter months due to the western temperate cyclones help in the success of these crops.	Kharif crops require hot weather and good rainfall.

(Any two)

4.

	Intensive Subsistence Farming	Plantation Farming
(i)	This type of farming is practised in areas of high population pressure on land..	It is a type of commercial farming. In this type of farming single crop is grown on a large area.
(ii)	It is labour –intensive.	It is capital intensive.
(iii)	Biochemical inputs and irrigation are used for obtaining higher production.	Chemicals and fertilisers are used.
(iv)	Farmers take maximum output from the limited land in the absence of alternative sources.	Plantation has an interface of agriculture and industry.
(v)	Enormous pressure on land.	Practised on large tracts of land.

(Any two)

5. (i) Use of higher doses of modern inputs, e.g. High Yielding Variety (HYV) seeds, chemical fertilisers, insecticides and pesticides in order to obtain higher productivity.

(ii) A single crop is grown on a large area.

(iii) The plantation has an interface of agriculture and industry.

(iv) Plantations cover large tracts of land, using capital intensive inputs, with the help of migrant labourers.

(v) All the produce is used as raw material in respective industries. In India, tea, coffee, rubber, sugarcane, banana, etc., are important plantation crops.

(vi) Tea in Assam and North Bengal and coffee in Karnataka are some of the important plantation crops grown in these States.

(vii) The degree of commercialisation of agriculture varies from one region to another. For example, rice is a commercial crop in Haryana and Punjab, but in Odisha, it is a subsistence crop. (Any two)

6. The main characteristic of this type of farming is the use of higher doses of modern inputs, e.g. high yielding variety (HYV) seeds, chemical fertilisers, insecticides and pesticides in order to obtain higher productivity. He must be using all these to ensure higher productivity.

SHORT ANSWER TYPE QUESTIONS

1. Horticulture is a term used for the cultivation of fruits and vegetables.

Some features of horticulture are:

(i) India is one of the major producers of fruits and vegetables in the world.

(ii) India is a producer of tropical and temperate fruits.

(iii) India produces 13% of the world's vegetables.

2. (i) Jowar, Bajra, Ragi are few important millets grown in India.

(ii) It is a rain-fed crop mostly grown in the moist areas, which hardly need irrigation.

(iii) Major jowar producing states are Maharashtra, Karnataka, Andhra Pradesh and Madhya Pradesh.

(iv) Bajra grows well on sandy soils and shallow black soil. Major bajra producing states are Rajasthan, Uttar Pradesh, Maharashtra and Gujarat.

(v) Ragi is a crop of dry seasons and grows well on red, black, sandy loamy soils.

(Any three)

3. (i) Use of high doses of modern inputs.

(ii) Use of High Yielding variety of seeds.

(iii) Use of chemical fertilisers, insecticides and pesticides in order to obtain higher productivity.

(iv) The degree of commercialisation of agriculture varies from one region to another.

(v) Plantation is a type of commercial farming.

(Any three)

4. (i) Rabi crops are sown in winter from October to December and harvested in summer from April to June.

(ii) Some of the important rabi crops are wheat, barley, peas, gram and mustard.

(iii) These crops are grown in large parts of India.

5. (i) Kharif crops are grown with the onset of monsoon in different parts of the country.

(ii) These are harvested in September-October.

(iii) Important crops grown during this season are paddy, maize, jowar, bajra, tur (arhar), moong, urad, cotton, jute, groundnut and soyabean.

(iv) Some of the most important rice-growing regions are Assam, West Bengal, coastal regions of Odisha, Andhra Pradesh, Tamil Nadu, Kerala and Maharashtra, particularly the (Konkan coast) along with Uttar Pradesh and Bihar. (Any three)

6. (i) Farmers are investing in new technology in farming genetically modified seeds and organic farming.

(ii) They are diversifying from traditional crops to a wide range of high value crops-horticulture, millets, herbs and mushrooms.

(iii) Small and marginal farmers are adopting inexpensive organic farming.

(iv) Farmers are exploring new markets outside India.

(v) Agricultural progress for farmers.

(vi) Insurance schemes for farmers. (Any three)

7. (i) To increase crop yield.

(ii) To protect fertility of soil.

(iii) To diversify their crop.

(iv) To increase their income. (Any three)

8. (i) Provision for crop insurance against drought, flood, cyclone, fire, and disease.

(ii) Establishment of Grameen Banks, Co-operative Societies, and Banks for providing loan facilities to the farmers at lower rates of interest.

(iii) Kissan Credit Card (KCC).

(iv) Personal Accident Insurance Scheme (PAIS).

(v) Special weather bulletins and agricultural programmes for farmers.

(vi) The government has also announced Minimum Support Price, remunerative and procurement prices for important crops.

(vii) Check the exploitation of farmers by speculators and middlemen. (Any three)

LONG ANSWER TYPE QUESTIONS

1. Agriculture plays a crucial role in the Indian economy as it is the backbone of the country's socio-economic structure. Agriculture is the foundation of India's economy, providing employment, food security, and industrial support. Improving agricultural productivity through modernisation, irrigation, and technology will further enhance India's economic growth and rural prosperity. The following points highlight its significance:

(i) **Contribution to GDP:** Agriculture contributes about 17-18% to India's Gross Domestic Product (GDP). It remains a key sector driving economic growth and development.

(ii) **Employment Generation:** Nearly 50% of India's workforce is engaged in agriculture and allied activities. It provides direct and indirect employment to millions, especially in rural areas.

(iii) **Food Security and Self-Sufficiency:** Agriculture ensures food security by providing essential crops like rice, wheat, and pulses. The Green Revolution helped India become self-sufficient in food production.

(iv) **Raw Material for Industries:** Many industries such as textiles, sugar, jute, and food processing depend on agriculture for raw materials. It supports the agro-based industries and enhances industrial growth.

(v) **Source of Livelihood in Rural Areas:** Agriculture is the primary livelihood for a majority of rural households. It helps in poverty reduction and supports rural development.

(vi) **Supports Economic Growth:** Growth in agriculture boosts demand for industrial goods, fertilisers, machinery, and transportation. It plays a key role in overall economic stability and development.

(Any five)

2. Technological and institutional reforms have played a vital role in modernising agriculture and improving the lives of farmers. Continued efforts in mechanisation, financial aid, and market access will further strengthen the agricultural sector and ensure sustainable growth in Indian farming.To improve agricultural productivity and support farmers, the Indian government has implemented various technological and institutional reforms. These reforms aim to modernise farming, enhance crop yield, and ensure financial security for farmers.

(i) **Technological Reforms:** These reforms focus on improving farming techniques through advanced technology.

(1) **Green Revolution (1960s):** Introduction of High-Yielding Variety (HYV) seeds, chemical fertilisers, and pesticides. Improved irrigation facilities and mechanisation of farming.

(2) **Use of Modern Equipment:** Promotion of tractors, harvesters, seed drills, and irrigation pumps to increase efficiency. Drip irrigation and sprinkler irrigation systems to conserve water.

(3) **Biotechnology and Hybrid Seeds:** Development of genetically modified (GM) crops for higher productivity and pest resistance.Improved seed varieties for better yield and climate resistance.

(4) **Satellite and Weather Forecasting Services:** Use of satellite imagery and weather predictions to help farmers plan their crops. Digital platforms like Kisan Suvidha App provide real-time agricultural information.

(ii) **Institutional Reforms:** These reforms focus on policy changes, financial support, and better infrastructure for farmers.

(1) **Land Reforms:** Abolition of Zamindari System to provide land ownership to farmers. Ceiling on land holdings to prevent large-scale land concentration.

(2) **Minimum Support Price (MSP):** The government fixes MSP for major crops to protect farmers from price fluctuations. Ensures farmers get a fair price for their produce.

(3) **Subsidies and Credit Facilities:** Kisan Credit Card (KCC) scheme provides low-interest loans to farmers. Government subsidies on fertilisers, seeds, and electricity to reduce production costs.

(4) **Irrigation and Infrastructure Development:** Expansion of irrigation projects like Pradhan Mantri Krishi Sinchayee Yojana (PMKSY). Rural roads, storage facilities, and cold storage chains to improve market access.

(5) **Crop Insurance Scheme:** Pradhan Mantri Fasal Bima Yojana (PMFBY) provides insurance against crop failure due to natural disasters. Protects farmers from financial losses.

3. (i) Tea cultivation is an example of plantation ferming.

(ii) The tea plant grows well in tropical and sub – tropical climates endowed with deep and fertile well drained soil rich as humus and organise matters.

(iii) Tea bushes require warm and moist frost-free climate all through the years.

(iv) Frequent showers evenly distributed over the years ensures continue growth of tender leaves.

(v) Tea is labour intensive industry.

(vi) Major Tea producing states are Assam, Hills of Darjeeling's and Jalpaigudi (District West Bengal)

4. Primitive Subsistence Farming:

(i) This type of farming is still practised in few pockets of India.

(ii) Primitive subsistence farming practised on small patches of land.

(iii) Use primitive tools like Hoe, Dao and digging sticks.

(iv) This type of farming depends upon monsoon, natural fertility of soil and suitability of essential condition to crops grown.

(v) It is a slash and burn agriculture.

Commercial farming:

(i) The main characteristics of this type of farming is the use of higher doses of modern inputs e.g., HYV seeds, Chemical fertilisers insecticides and pesticides.

(ii) It obtains higher productivity.

(iii) The degree of commercialisation of agriculture varies from one region to another.

(iv) Plantation is also a type of Commercial farming.

(v) Example: Rice is a commercial crop in Haryana but in Odisha, it is a subsistence crops.

5. Intensive Subsistence Farming:

(i) This type of farming is practised in areas of high population pressure on land.

(ii) It is labour-intensive farming.

(iii) High doses of biochemical inputs.

(iv) Irrigation is used for obtaining higher production.

Plantation Farming:

(i) It is a type of commercial farming.

(ii) In this type of farming a single crop is grown.

(iii) The plantation has an interface of agriculture and industry.

(iv) Plantations cover large tracts of land intensive imports with help of migrant labours.

Level - 2 ADVANCED COMPETENCY FOCUSED QUESTIONS

MULTIPLE CHOICE QUESTIONS (MCQs)

1. Option (B) is correct

   Explanation: Most Indian farmers operate on small and fragmented plots due to the division of land across generations. This limits the use of modern machinery, reduces economies of scale, and often leads to lower productivity. It is a key structural challenge in Indian agriculture.

2. Option (C) is correct

   Explanation: Rice needs temperatures above 25°C, high humidity, and annual rainfall of more than 100 cm. These conditions are found in eastern states like West Bengal, Odisha, Assam, and coastal regions like Andhra Pradesh and Tamil Nadu. Therefore, these areas are most suitable for rice cultivation.

3. Option (B) is correct

   Explanation: The overuse of tube wells for irrigation leads to groundwater depletion, especially in water-stressed regions like Punjab and Haryana. Excessive use of chemical fertilisers harms the soil's natural fertility and leads to long-term soil degradation. While productivity may be high initially, such practices are unsustainable and harmful to the environment.

4. Option (C) is correct

   Explanation: The north-eastern and southern states have diverse climates and rich biodiversity, making them ideal for growing a wide range of horticultural crops like fruits, vegetables, spices, and flowers. This climatic advantage supports commercial horticulture, which boosts income, exports, and nutritional security. Hence, it highlights the agricultural potential of these regions beyond staple crops like rice.

5. Option (C) is correct

   Explanation: Shifting cultivation (also known as slash and burn or jhum cultivation) involves clearing forested land by burning and then cultivating it temporarily. Though traditional, it can cause deforestation, loss of biodiversity, and soil erosion, especially when practiced frequently without allowing the land enough time to regenerate. Hence, not all traditional practices are sustainable in the modern context.

ASSERTION-REASON QUESTIONS

1. Option (A) is correct

   Explanation: Assertion is true because the Green Revolution, introduced in the 1960s, transformed Indian agriculture by significantly boosting wheat and rice production, particularly in states like Punjab and Haryana.

   Reason is also true because this was made possible due to the adoption of HYV seeds, along with the increased use of chemical fertilizers, pesticides, and better irrigation techniques.

   Both assertion and reason are true and the reason correctly explains the assertion.

2. Option (D) is correct

   Explanation: Assertion is false because tea cannot be grown in dry and arid regions. It requires moist, humid conditions and is grown in areas like Assam, West Bengal, and Kerala, which have ample rainfall.

   Reason is true, as tea cultivation indeed demands high humidity and well-distributed rainfall.

3. Option (D) is correct

   Explanation: Assertion is false because primitive subsistence farming does not involve modern irrigation techniques or chemical fertilisers. It relies on natural rainfall, simple tools, and local seeds.

   Reason is true as this farming is indeed practiced on small plots with traditional tools like hoe, dao, and digging sticks.

4. Option (A) is correct

   Explanation: Assertion is true because commercial farming is aimed at producing crops for sale in markets rather than for self-consumption.

   Reason is also true because it involves large-scale operations, requiring vast land holdings and heavy investment in modern technology, HYV seeds, fertilisers, and machinery to increase yield.

   Both assertion and reason are true and reason correctly explains the assertion.

5. Option (C) is correct

   Explanation: Assertion is true because agriculture is a primary activity in India and provides livelihood to around 50% of the population, especially in rural areas.

   Reason is false because most Indian farmers practice subsistence farming, not industrial or commercial farming. They work on small landholdings using traditional methods.

VERY SHORT ANSWER TYPE QUESTIONS

1. **Challenges:**
   (i) Small and fragmented landholdings, which limit the use of modern technology and reduce productivity.
   (ii) Lack of access to institutional credit, forcing farmers to depend on moneylenders with high interest rates.

   Suggested Step: The government can provide easy and timely access to low-interest loans through schemes like the Kisan Credit Card, and promote cooperative farming to enhance productivity and income.
2. **Geographical Conditions:**
   High temperature of over 25°C during the growing season.
   High humidity with annual rainfall of more than 100 cm, or availability of good irrigation.
   Major Regions:
   Eastern India (e.g., West Bengal, Bihar)
   Coastal regions (e.g., Tamil Nadu, Andhra Pradesh).
3. **Positive Impacts:**
   (i) It led to a significant increase in food grain production, especially wheat and rice.
   (ii) India became self-sufficient in food, reducing dependency on imports.

   Reason for Regional Inequality:
   The benefits were concentrated in a few states like Punjab, Haryana, and western Uttar Pradesh, where better irrigation, infrastructure, and government support were available, while other regions lagged behind.
4. **Cropping Patterns:**
   (i) Rice in eastern and southern India – grown in regions with high temperature and heavy rainfall during the kharif season.
   (ii) Wheat in northern India – cultivated in cooler winter months with moderate rainfall during the rabi season.

   Explanation: Different regions in India have varied temperatures and rainfall, which influence what crops can be grown and when they are sown and harvested.
5. **Ideal Climatic Conditions for Tea:**
   (i) Warm and humid climate
   (ii) Well-distributed annual rainfall of 150–200 cm
   (iii) Cool temperatures ranging between 20°C to 30°C

   States:
   Tea is grown in Assam
   Coffee is grown in Karnataka.

SHORT ANSWER TYPE QUESTIONS

1. (i) Sowing and Harvesting Cycles: The arrival of the monsoon signals the start of the kharif season, when major crops like rice, maize, and cotton are sown. Delayed or weak monsoons can disrupt sowing and reduce yields.
   (ii) Irrigation Dependency: In many regions, farmers lack proper irrigation systems and depend entirely on rainfall. Inadequate or uneven monsoon rains can lead to droughts and crop failures.
   (iii) Crop Choice and Productivity: The amount and timing of monsoon rainfall influence which crops are grown and their productivity. Areas with poor rainfall may be limited to drought-resistant crops like millets or pulses.
2. (i) Small and Fragmented Landholdings: Most farmers in India own small plots of land, which makes it difficult to adopt modern technology and farming practices efficiently.
   (ii) Lack of Irrigation Facilities: A large portion of Indian agriculture is rainfall-dependent, and inadequate irrigation infrastructure often leads to crop failure during dry spells.
   (iii) Limited Access to Institutional Credit: Many farmers depend on private moneylenders who charge high interest, leading to debt traps and financial distress.
3. (i) Increased Food Grain Production: The use of High-Yielding Variety (HYV) seeds, chemical fertilisers, and improved irrigation led to a sharp rise in the production of wheat and rice, especially in Punjab, Haryana, and western Uttar Pradesh.
   (ii) Self-sufficiency in Food: India became self-reliant in food grain production, reducing its dependence on imports and improving national food security.
   (iii) Regional Imbalances: The Green Revolution mainly benefited certain areas with better infrastructure and irrigation, leading to development gaps between regions like the north-western plains and the rest of the country.
4. (i) **Wheat:**
   Climate: Cool growing season with moderate rainfall (winter/rabi crop).
   Soil: Well-drained alluvial or loamy soil.
   (ii) **Rice:**
   Climate: High temperature (above 25°C), high humidity, and heavy rainfall (above 100 cm).

Soil: Clayey or alluvial soil that can retain water.

(iii) **Millets (e.g., jowar, bajra):**
Climate: Hot and dry conditions; drought-resistant.
Soil: Sandy or shallow black soil; can grow in less fertile soil.

5. **(i) Soil Degradation:** Excessive use of chemical fertilisers and pesticides reduces soil fertility over time, harming long-term productivity.

(ii) Groundwater Depletion: Over-irrigation using tube wells and pumps, especially in Green Revolution areas like Punjab and Haryana, has led to falling groundwater levels.

(iii) Loss of Biodiversity: Focus on a few high-yielding varieties (mostly wheat and rice) has led to a decline in the cultivation of traditional and diverse crops, affecting ecological balance.

CASE BASED QUESTIONS

1. (i) China is the largest and India is the second largest producer of rice in the world.

(ii) Rice is a Karif crop which is grown in high temperatures of above 25 degree Celsius and also needs high humidity. The rainfall needed for its growth is above 100 cms.

(iii) The government at the centre and state have worked towards the establishment of a sound network of canal irrigation and other water supplying resources like tube wells to ensure robust supply of water in the deficient states like Punjab and western Uttar Pradesh.

2. (i) It is based on shifting cultivation.

(ii) The 'Slash and Burn' agriculture is known as 'Conuco' in Venezuela.

(iii) Jhumming is done with the use of primitive tools and without modern input and technology. It is practiced on small patches of land. It just provides food grains for survival of the farmer's family. There are no irrigation facilities available so it has a major problem of low production of grains.

3. (i) Agriculture is called a primary activity because it involves the direct use of natural resources to produce food and raw materials, and a large section of India's population depends on it for livelihood.

(ii) One major drawback is soil degradation and excessive use of groundwater due to over-reliance on chemical inputs and irrigation.

(iii) **Two reasons:**
(1) Lack of access to irrigation facilities
(2) Inability to afford modern tools and credit

Suggested step: The government can provide subsidised farm equipment and easy access to low-interest institutional loans to help farmers adopt modern methods.

4. (i) Raghavan's rice cultivation falls under the kharif season, which depends on the monsoon rains and typically begins in June–July.

(ii) Drip irrigation was suggested, which conserves water by delivering it directly to plant roots, reducing wastage.

(iii) (1) Water Conservation: Growing less water-intensive crops reduces the pressure on groundwater and irrigation resources, especially in areas with erratic rainfall.

(2) Increased Sustainability and Income: Sustainable practices like mixed cropping improve soil health and reduce dependency on a single crop, leading to more stable yields and income even during adverse weather conditions.

LONG ANSWER TYPE QUESTIONS

1. The major types of farming practiced in India are:

(i) Primitive Subsistence Farming: It is practiced on small patches of land using traditional tools like hoe, dao, and digging sticks; relies on family labour and natural rainfall.

(ii) Intensive Subsistence Farming: High population pressure on land; maximum use of land through multiple cropping and limited mechanisation.

(iii) Commercial Farming: Uses high doses of modern inputs such as HYV seeds, chemical fertilisers, and irrigation for crops grown mainly for sale in the market.

(iv) Plantation Farming: A single commercial crop (like tea, coffee, or rubber) is grown over large areas with modern techniques and labour-intensive practices.

(v) Shifting Cultivation (Jhumming): Practiced in hilly and forested areas; land is cleared by slash-and-burn, cultivated temporarily, and then abandoned.

2. **Positive Impacts:**

   (i) Increased Food Grain Production: The use of HYV (High-Yielding Variety) seeds, chemical fertilisers, and improved irrigation led to a sharp rise in the production of wheat and rice, especially in Punjab, Haryana, and western Uttar Pradesh.

   (ii) Food Security and Self-Sufficiency: India became self-sufficient in food grains, reducing its dependence on imports and improving national food security.

   (iii) Growth of Agricultural Infrastructure: The Green Revolution encouraged the development of irrigation systems, rural electrification, and farm credit facilities.

   Negative Consequences:

   (i) Regional Disparities: Only a few states with good irrigation and infrastructure benefitted, leading to regional imbalances in agricultural development.

   (ii) Environmental Degradation: Overuse of chemical fertilisers and excessive extraction of groundwater led to soil degradation, pollution, and falling water tables.

3. **(i) Three Cropping Seasons in India:**

   (1) Kharif Season: Time: June to October (monsoon period)

   Example Crop: Rice, maize, cotton

   Sowing begins with the onset of monsoon and harvesting takes place by September/ October.

   (2) Rabi Season: Time: October to March (winter season)

   Example Crop: Wheat, barley, peas

   Crops are sown after the monsoon ends and harvested in spring.

   (3) Zaid Season: Time: Between rabi and kharif (March to June)

   Example Crop: Watermelon, muskmelon, cucumber

   These are short-duration summer crops grown on irrigated land.

   (ii) Factors That Influence Cropping Patterns in India:

   (1) Climatic Conditions: Temperature, rainfall, and humidity vary across regions and influence what crops can be grown. For example, rice needs heavy rainfall, while wheat requires a cool, dry climate.

   (2) Soil Type: Different crops grow better in specific types of soil. For instance, black soil is suitable for cotton, and alluvial soil is ideal for rice and wheat.

4. The sustainable agricultural practices that can be promoted in India are:

   (i) Organic Farming: Uses natural fertilisers (like compost and manure) and biopesticides instead of chemicals. Helps maintain soil fertility, reduce soil and water pollution, and protect beneficial organisms.

   (ii) Crop Rotation and Mixed Cropping: Growing different crops in a planned sequence or together improves soil nutrients and reduces pest cycles. Enhances soil health and lowers the risk of crop failure.

   (iii) Rainwater Harvesting and Efficient Irrigation (e.g., drip irrigation): Conserves water by using localised and need-based watering methods. Reduces water wastage and prevents groundwater depletion.

   (iv) Use of Renewable Energy in Agriculture (e.g., solar pumps): Replaces diesel or electric pumps with solar-powered systems. Reduces carbon emissions and lowers the cost of farming.

   (v) Agroforestry: Integrates trees and shrubs with crops and livestock farming.

   Enhances biodiversity, reduces soil erosion, and improves carbon sequestration.