



INSIGHTSIAS

SIMPLIFYING IAS EXAM PREPARATION

INSTA 75 DAYS REVISION PLAN FOR UPSC CSE PRELIMS 2024

INSTA TEST: DAY - 26

SUBJECT : AGRICULTURE



1. Consider the following statements regarding Conservation Tillage:

1. It helps reduce soil erosion and improves soil structure by leaving crop residues on the field.
2. It can enhance soil organic matter content, thereby aiding carbon sequestration in the soil.
3. It completely eliminates the need for herbicides in crop cultivation.

Which of the above statements is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

2. With reference to Agroforestry, consider the following statements:

1. Agroforestry integrates trees or shrubs with crops and/or livestock on the same land.
2. It enhances soil fertility and biodiversity, and can help sequester carbon from the atmosphere.
3. It involves planting only fruit-bearing trees alongside agricultural crops.

Which of the above statements is/are correct?

- (a) 1 and 2 only
- (b) 1 and 3 only
- (c) 2 only
- (d) 1, 2 and 3

3. Consider the following statements about Cover Cropping:

1. Cover crops are grown primarily to protect and enrich the soil rather than for direct economic harvest.
2. Using cover crops can help prevent soil erosion, conserve soil moisture, and improve soil fertility.
3. In general, cover cropping tends to deplete soil nutrients and is therefore avoided in sustainable farming.

How many of the above statements is/are correct?

- (a) Only one
- (b) Only two

- (c) All three
- (d) None

4. How many of the following statements is/are correct regarding vertical farming?

1. Vertical farming cultivates crops in stacked layers or vertically inclined surfaces, often using controlled environment conditions.
2. Vertical farms typically use soil as the growing medium and rely primarily on natural sunlight for plant growth.
3. Vertical farming can achieve higher productivity per unit of land and use significantly less water than conventional field farming.

Select the correct answer using the codes given below:

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

5. How many of the following statements about hydroponic farming is/are correct?

1. Hydroponics is a technique of cultivating plants without soil, using nutrient-rich water solutions to feed the plants.
2. Hydroponic systems generally require much more water than conventional soil-based farming, due to the constant water circulation.
3. Aquaponics is a variant of hydroponics where plant cultivation is combined with fish farming, creating a mutually beneficial system.

Select the correct answer using the codes given below

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

6. The Global Agriculture and Food Security Program (GAFSP) is an international mechanism often mentioned in context of financing food security. Which of the following

statements is/are correct regarding GAFSP?

1. GAFSP is a multilateral financing partnership dedicated to supporting agricultural development and food security in the world's poorest countries.
2. It was launched by the Group of 20 (G20) nations in the wake of the 2007–08 global food price crisis.
3. India is one of the contributing donor countries to the GAFSP fund.

- (a) 1 and 2 only
(b) 1 and 3 only
(c) 2 only
(d) 1, 2 and 3

7. Regarding the international organization Rainforest Alliance, which of the following statements is/are correct?

1. The Rainforest Alliance is an international non-profit organization that works at the intersection of business, agriculture, and forests to promote sustainable land use.
2. It provides a globally recognized certification seal for products (like coffee, tea, cocoa, and bananas) that are produced using sustainable practices.
3. The Rainforest Alliance was involved in founding the Forest Stewardship Council (FSC) and has pioneered sustainable forestry certification.

- (a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

8. What is "1000 Landscapes for 1 billion People" (1000L), often seen in discussions of global sustainable development?

1. It is a global initiative that aims to support integrated landscape management and restoration in 1000 landscapes worldwide.
2. The goal of the initiative is to improve ecosystems and livelihoods for 1 billion people by 2030 through sustainable land-

scape solutions.

3. It is led by a coalition of environmental NGOs, research organizations, and community groups, with EcoAgriculture Partners being a key convener.

Which of the above statements is/are correct?

- (a) 1 and 2 only
(b) 2 only
(c) 3 only
(d) 1, 2 and 3

9. The Agriculture Innovation Mission for Climate has been in the news. How many of the following statements is/are correct about AIM for Climate?

1. AIM for Climate is a joint initiative launched by the United States and the United Arab Emirates to boost innovation in climate-smart agriculture.
2. It was officially announced during the UN Climate Change Conference (COP26) in 2021.
3. India was one of the founding partners of AIM for Climate at its launch in 2021.

Select the correct answer using the codes given below

- (a) Only one
(b) Only two
(c) All three
(d) None

10. Which of the following statements about vermicomposting is correct?

- a) Vermicomposting relies on microorganisms exclusively to decompose organic waste.
- b) Earthworms used in vermicomposting primarily feed on inorganic materials.
- c) The process results in the production of vermicast, which is rich in nutrients beneficial for plant growth
- d) Vermicomposting significantly increases the presence of heavy metals in the soil.

11. Consider the following statements regarding National Mission on Natural Farming:

1. It has been launched as a central sector

scheme for North Eastern states for a period of 5 years.

2. It will be implemented in 15000 clusters in Gram Panchayats with an aim to target 1 crore farmers by 2026.
3. Under its Natural Farming Model Demonstration Farms are to be established at Krishi Vigyan Kendras to train willing farmers.

Which of the statements given above is/are correct?

- (a) 1 and 3 only
- (b) 2 and 3 only
- (c) 1 and 2 only
- (d) 1, 2 and 3

12. Consider the following statements regarding Pradhan Mantri Matsya Sampada Yojana:

1. Under it 100 coastal fisherman villages near coastline will be developed as Climate Resilient Coastal Fishermen Villages.
2. It aims to enhance per capita fish consumptions in the country.
3. Under the scheme private investment and entrepreneurship in fishery sector will be promoted.

How many of the statements given above is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

13. Consider the following statements:

1. AgriSURE is a capital fund with contributions from the National Bank for Agriculture and Rural Development and FAO.
2. AgriSURE has been registered with SEBI as an Alternative Investment Fund.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

14. Consider the following statements:

1. Turmeric is a tropical crop native to the Indian subcontinent and Southeast Asia.
2. Curcumin is responsible for the yellow colour and anti-inflammatory and anti-microbial properties of turmeric.
3. The National Turmeric Board has been established under the Ministry of AYUSH to promote its medicinal properties.

Which of the statements given above is/are correct?

- (a) 1 and 3 only
- (b) 2 only
- (c) 1, 2 and 3
- (d) 1 and 2 only

15. Which of the following best describes the Anna Chakra Initiative?

- (a) An initiative for fortification of food grains
- (b) A tool to streamline Public Distribution System
- (c) An agricultural method in which nutrients are added that promote plant growth as well as replenish soil
- (d) An initiative to promote natural farming

16. The INR Konnect Platform is related to:

- (a) Enhancement of rubber production in India
- (b) Platform for export of by-products of coconut industry
- (c) Export of handmade bamboo products
- (d) Promotion of Indian coffee varieties

17. Consider the following statements:

1. The World Organisation for Animal Health (WOAH) is responsible for preparing Terrestrial and Aquatic Animal Health codes.
2. The WOAH codes are accepted by the World Trade Organisation.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

18. Consider the following statements with reference to Virtually Integrated System to Access Agricultural Resources project:

1. It aims to develop Digital Public Infrastructure (DPI) for agricultural extension by supporting efforts of State Agricultural Universities.
2. It is funded by the International Fund for Agricultural Development.
3. The project leverages deployed ground level AI chatbots and its subsequent integration with AgriStack.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 1, 2 and 3
- (c) 1 and 3 only
- (d) 2 and 3 only

19. Consider the following statements regarding Digital Agriculture Mission:

1. Under its AgriStack feature, Farmer ID will be introduced containing data regarding land records and livestock ownership of farmers.
2. It includes Krishi Decision Support System to integrate remote sensing data on crops and soil into a Geospatial system.
3. The Digital General Crop Estimation Survey under the mission will be used for increasing accuracy of agricultural production.

How many of the statements given above is/are correct?

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

20. Which of the following best describes Kisan Kavach, recently seen in news?

- (a) A Pension scheme developed particularly for farmers
- (b) It is an Anti-pesticide suit for farmers
- (c) A list containing details of all pesticides including their short- and long-term effects on health

- (d) An app for promotion of Farmer Producer Organisations

21. With reference to India's first mission to Venus, consider the following statements

1. It is scheduled to be launched by ISRO in 2028 and will be India's first interplanetary mission.
2. The mission aims to study Venus' surface, atmosphere, and its interaction with solar radiation.
3. The mission plans to use aero-braking to adjust the satellite's orbit using Venus' atmosphere.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) All three

22. With reference to the CO₂-to-Methanol pilot plant recently announced in India, consider the following statements:

1. It is being established in Maharashtra through a collaboration between IIT-Delhi and a private company.
2. The project aims to contribute to carbon capture and utilization efforts and reduce India's crude oil imports.
3. The pilot plant will primarily focus on blending methanol into aviation fuel to reduce emissions in the aviation sector.

Which of the statements given above is/are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) All three

23. Kleptoparasitism, recently seen in the context of animal behaviour, best refers to

- (a) A mutualistic interaction between different species for shared food resources
- (b) A reproductive strategy involving parental care by both sexes
- (c) The act of stealing food or other resources

- es by one animal from another
- (d) A type of camouflage used by prey animals to avoid predators

24. With reference to the International Big Cat Alliance (IBCA), consider the following statements:

1. The IBCA aims to conserve seven species of big cats, including the Puma and Jaguar.
2. It was launched in 2023 by India to commemorate the 50th anniversary of Project Tiger.
3. Its Secretariat is based in Geneva under the United Nations Environment Programme (UNEP).

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) All three

25. India's first Nano DAP (Liquid) plant, recently inaugurated, is located in:

- (a) Panipat, Haryana
- (b) Kalol, Gujarat
- (c) Raipur, Chhattisgarh
- (d) Bhopal, Madhya Pradesh

Passage:

It is no longer enough for us to talk about providing for universal access to education. Making available schooling facilities is an essential prerequisite, but is insufficient to ensure that all children attend school and participate in the learning process. The school may be there, but children may not attend or they may drop out after a few months. Through school and social mapping, we must address the entire gamut of social, economic, cultural and indeed linguistic and pedagogic issues, factors that prevent children from weaker sections and disadvantaged groups, as also girls, from regularly attending and complementing elementary education. The focus must be on the poorest and most vulnerable since these

groups are the most disempowered and at the greatest risk of violation or denial of their right to education.

The right to education goes beyond free and compulsory education to include quality education for all. Quality is an integral part of the right to education. If the education process lacks quality, children are being denied their right. The Right of Children to Free and Compulsory Education Act lays down that the curriculum should provide for learning through activities, exploration and discovery. This places an obligation on us to change our perception of children as passive receivers of knowledge, and to move beyond the convention of using textbooks as the basis of examinations. The teaching-learning process must become stress-free; and a massive programme for curricular reform should be initiated to provide for a child-friendly learning system, that is more relevant and empowering. Teacher accountability systems and processes must ensure that children are learning, and that their right to learn in a child-friendly environment is not violated. Testing and assessment systems must be re-examined and redesigned to ensure that these do not force children to struggle between school and tuition centres, and bypass childhood.

26. According to the passage, which of the following is/are of paramount importance under the Right to Education?

1. Sending of children to school by all parents
2. Provision of adequate physical infrastructure in schools
3. Curricular reforms for developing child-friendly learning system

Select the correct answer using the code given below.

- a) 1 only
- b) 1 and 2 only
- c) 3 only
- d) None of the above

27. The number of mangoes in three baskets are in the ratio of 3:4:5. In which ratio the number of mangoes in first two baskets must be increased so that the new ratio becomes 5:4:3?

- a) 1:3
- b) 2:1
- c) 3:4
- d) 2:3

28. LCM of first 100 natural numbers is N. What is the LCM of first 105 natural numbers?

- a) $5! \times N$
- b) $N \times 101 \times 103$
- c) $105N / 103$
- d) $4N$

29. The H.C.F. of two numbers is 11 and their L.C.M. is 7700. If one of the numbers is 275, then the other is:

- a) 279
- b) 283
- c) 308
- d) 318

30. A bell rings every 18 minutes. A second bell rings every 24 minutes. A third bell rings every 32 minutes. If all the three bells ring at the same time at 8 o'clock in the morning, at what other time will they all ring together?

- a) 12: 40 hrs
- b) 12: 48 hrs
- c) 12: 56 hrs
- d) 13: 04 hrs

SOLUTIONS

1. Answer: A

Conservation tillage (including practices like zero-tillage or reduced tillage) involves minimal soil disturbance and retaining crop residues on soil. This practice indeed reduces soil erosion and improves soil quality by protecting the soil surface and maintaining structure.

Hence, statement 1 is correct

By leaving crop residues and undisturbed soil, conservation tillage increases soil organic matter over time, which means more carbon is stored (sequestered) in the soil.

Hence, statement 2 is correct.

However, weeds can be a challenge in conservation tillage since the soil isn't ploughed to bury weed seeds. Farmers often rely on herbicides to control weeds in no-till fields. Therefore, it is incorrect to say it "eliminates" herbicide need – on the contrary, herbicides are usually still required.

Hence, statement 3 is incorrect.

2. Solution: A

Agroforestry is a land-use system that deliberately combines woody perennials (trees or shrubs) with crops and/or livestock on the same plot.

This definition is correct.

Hence, statement 1 is correct.

The presence of trees in farmland provides numerous ecological benefits: trees improve soil quality and fertility (through leaf litter and root activity), reduce erosion, and provide shade and habitat that boost on-farm biodiversity.

Importantly, trees in agroforestry systems act as carbon sinks – they absorb CO₂ and store carbon in biomass and soils. Thus, agroforestry is recognized for enhancing climate resilience and aiding carbon sequestration.

Hence, statement 2 is correct.

Agroforestry is not limited to fruit trees. It can include timber trees, fodder trees, nitrogen-fixing trees, or various shrubs depending on the purpose. For example, windbreaks, shelterbelts, or mixed plantations in agroforestry may use a variety of tree species (not only fruit-bearing

ones).

In essence, agroforestry is an age-old practice (not a new invention) that diversifies farm production (timber, fruits, fodder, etc.) while improving environmental outcomes. It is flexible in species choice, so requiring exclusively fruit trees is false. **Hence, statement 3 is incorrect.**

3. Solution: B

Cover crops (such as clover, rye, or legumes grown during off-season or between main crops) are indeed planted for land protection and soil improvement rather than for sale.

Hence, statement 1 is correct.

Farmers use cover cropping to keep the soil covered and biologically active when it would otherwise be bare. This practice yields many benefits: it prevents erosion by holding soil in place, reduces nutrient leaching, and can improve soil structure and water retention.

Hence, statement 2 is correct.

Additionally, cover crops (especially legumes) can add nutrients to the soil by fixing nitrogen and increasing organic matter upon decomposition. Therefore, **Statement 3 is incorrect** – far from depleting nutrients, cover crops are a cornerstone of sustainable agriculture because they build soil fertility and health. They also suppress weeds and pests naturally by covering the ground

4. Solution: B

- *Vertical farming* refers to growing crops in vertically stacked layers (in shelves, towers, or multi-story structures), usually in a highly controlled environment (indoors or in greenhouses). **Hence, statement 1 is correct.**
- Vertical farms often employ soilless growing techniques like hydroponics or aeroponics – in fact, most vertical farms do *not* use soil at all. Instead of natural sunlight, they frequently rely on artificial grow lights (LEDs) to provide the precise spectrum and duration of light needed

for plants. This allows year-round production independent of weather or daylight. **Hence, Statement 2 is incorrect.**

- One major advantage of vertical farming is the efficient use of resources: because conditions are controlled and water is recycled in hydroponic systems, vertical farms use far less water than traditional farms – often 70–95% less water for the same produce.
- They also require much less land area since crops are grown in multiple tiers. As a result, productivity per unit land can be extremely high, with some reports of higher yields per square foot compared to open fields. These systems can be located near or inside cities, reducing transportation emissions. However, they do consume significant energy for lighting and climate control. In summary, vertical farming offers *high land and water-use efficiency*, but it is characterized by soilless culture and artificial lighting. **Hence, statement 3 is correct.**

5. Solution: B

- *Hydroponics* is the practice of growing plants in a water-based nutrient solution, without soil. Instead of extracting nutrients from soil, plant roots sit in or are periodically bathed with a solution that contains all the necessary minerals. Hydroponics is by definition soilless cultivation with nutrients delivered in water. **Hence, statement 1 is correct.**
- In fact, one of the benefits of hydroponics is its water efficiency: because the water is recirculated in closed systems, hydroponic setups use significantly *less* water than traditional field agriculture for equivalent plant growth.
- Studies indicate hydroponic and related vertical farming methods can cut water use by anywhere from ~70% up to 95% compared to soil farming. **Hence, statement 2 is incorrect.**
- There is some continuous water circulation, but it is recycled rather than lost

to deep percolation or evaporation as in open fields. *Aquaponics* is a specialized form of hydroponic system integrated with aquaculture (fish rearing).

- In an aquaponics setup, fish are raised in tanks and their waste nutrients (which would otherwise accumulate to toxic levels for fish) are circulated to hydroponic plant beds; the plants uptake these nutrients as fertilizer, thereby filtering the water, which is returned clean to the fish. This creates a symbiotic cycle: fish feed the plants, and plants purify the water for fish. Aquaponics is a notable innovation that combines sustainable fish farming with soilless crop production. **Hence, statement 3 is correct**

6. Solution: A

- The *Global Agriculture and Food Security Program (GAFSP)* is a multilateral financing initiative aimed at combating hunger and malnutrition by investing in agriculture and food systems in low-income countries. **Hence, statement 1 is correct.**
- It pools funds from multiple donors into both public sector grants and private sector financing for agricultural projects, with a focus on smallholder farmers and food security.
- GAFSP was conceived as a response to the sharp rise in global food prices in 2007–08 that threatened food security in many developing nations. The program was launched by the G20 (and administered through the World Bank) in 2010, directly following the 2007–08 food crisis. **Hence, statement 2 is correct.**
- The idea was to channel more coordinated funding into agriculture to prevent future crises. Over the past decade, GAFSP has financed projects for improving crop productivity, agricultural infrastructure, farmer livelihoods, and climate resilience in dozens of vulnerable countries
- India is not a donor to GAFSP. The fund's contributors include a range of devel-

oped countries and organizations – for example, the United States, Japan, the UK, Germany, Canada, South Korea, the Gates Foundation, etc. **Hence, statement 3 is incorrect**

7. Solution: D

- All the statements about the *Rainforest Alliance* are correct. The Rainforest Alliance is a global NGO (non-profit) that operates in over 60 countries, aiming to conserve biodiversity and ensure sustainable livelihoods by transforming land-use practices. It works with a variety of stakeholders – farmers, businesses, consumers – to promote sustainability in agriculture (e.g., preventing deforestation for farming), forestry, and even tourism. **Hence, statement 1 is correct.**
- One of the Rainforest Alliance’s most well-known roles is its certification program. Products that meet the organization’s rigorous standards for environmental, social, and economic sustainability can carry the Rainforest Alliance Certified seal (a green frog emblem). This applies to commodities like coffee, tea, cocoa, bananas, palm oil, timber, etc. **Hence, statement 2 is correct.**
- Consumers worldwide see this seal on packaged foods or wood products, indicating those goods were produced in compliance with criteria such as conserving forests, fair treatment of workers, and protecting wildlife.
- The Rainforest Alliance also has a history in advancing sustainable forestry. In fact, it helped establish the Forest Stewardship Council (FSC) in 1993 – FSC is the leading global body for certifying responsibly managed forests.
- The Rainforest Alliance was a founding member of FSC and was instrumental in developing forestry certification as a tool for conservation. Early on (in the late 1980s), the Rainforest Alliance launched one of the first global sustainable forestry certification programs, which later con-

tributed to the creation of FSC. **Hence, Statement 3 is correct.**

8. Solution: D

- 1000L is a global initiative focused on integrated landscape management, coordinating agriculture, conservation, water, energy, and livelihoods to achieve sustainable development at scale. **Statement 1 is Correct**
- The term “1 billion People” reflects the goal of improving lives of 1 billion people by 2030 through restored ecosystems and enhanced human well-being. However, it is an aspirational target, not an already achieved outcome. **Statement 2 is Incorrect**
- 1000L is a coalition-based initiative, led by organizations like Eco Agriculture Partners, involving NGOs, indigenous groups, the private sector, and development agencies. It provides tools, funding, and training to local partnerships, such as via the Terraso digital platform. **Statement 3 is Correct**

9. Solution: B

- AIM4C is a **joint initiative by the United States and the United Arab Emirates**, launched to boost innovation and investment in agriculture and food systems to tackle climate change. **Statement 1 in correct**
- It was announced at **COP26 in Glasgow (2021)** and received early endorsement from over **30 countries** and several non-governmental partners, signaling increased focus on agriculture in climate negotiations. **Statement 2 in correct**
- **India was not a founding member** of AIM4C; it **joined later in 2023**, not at the time of its launch in 2021. **Statement 3 in Incorrect**

10. Solution: C

The process results in the production of vermicast, which is rich in nutrients beneficial for plant growth. Explanation: Vermicomposting

involves the use of earthworms to break down organic matter, resulting in vermicast—a nutrient-rich substance that enhances soil fertility and supports plant growth.

11. Solution: B

- The National Mission on Natural Farming has been launched to promote natural farming in **mission mode across the country as a stand alone centrally sponsored scheme under the Ministry of Agriculture and Farmers' Welfare.**
- It has a total outlay of 2481 crore (Government of India share 1518 crore and state share 897 crore) till the 15th finance commission (2025- 26).

Hence statement 1 is incorrect

- The NMNF within 2 years, will be implemented in 15000 clusters in Gram Panchayats which are willing, and reach 1 crore farmers and initiate natural farming in 7.5 lakh hectare area.
- Preference will be given to areas having prevalence of practicing natural farming.

Hence statement 2 is correct

- Under it around 2000 natural farming model demonstration farms shall be established at Krishi Vigyan Kendras and Agricultural Universities and Farmers' fields and shall be supported by experienced and trained farmer master trainers
- The willing farmers will be trained in these farms on natural farming package of practices, preparation and other things near their villages.

Hence statement 3 is correct

12. Solution: C

- Under the scheme the Department of Fisheries has **identified 100 coastal fishermen villages situated close to the coastline as 'Climate Resilient Coastal Fishermen Villages' to make them climate resilient and economically vibrant fishermen villages.**
- The fisheries development activities in the villages will focus on creation of

basic infrastructure facilities for smooth conduct of fisheries post harvest related activities like fish drying, fish market, ice plant, cold storage, etc

Hence statement 1 is correct

The scheme envisages to

- add an additional fish production of 70 lakh metric tonnes by 2024-25,
- Enhance aquaculture productivity from the national average of 3 tonne to 5 tonne per hectare,
- Reduce post harvest losses,
- Generate direct and indirect employment,
- Enhance fisheries export to 1 lakh crore by 2024- 25 enhancing per capita fish consumption from the current 5 to 6 kg to 12 KG during 5 years
- Encourage private investment and
- Facilitate growth of entrepreneurship in the fisheries sector.

Hence statements 2 and 3 are correct

13. Solution: B

- AgriSURE or Agri Fund for Start-up and Rural Enterprises has been launched by Union Minister for Agriculture and Farmers' Welfare marking a step in transforming India's agriculture landscape.
- AgriSURE is an innovative Rs.750 crore blended capital Fund with donations from the Government of India (Rs250 crore), NABARD (Rs250 crore) and private investors (Rs250 crore).

Hence statement 1 is incorrect

- It is a blended capital fund that is registered with the Securities and Exchange Board of India as a category II Alternative Investment Fund.
- The fund aims to promote growth and innovation in agriculture and rural start-up ecosystem with a focus on high risk, Technology driven high impact Ventures.

Hence statement 2 is correct

14. Solution: D

- Turmeric is a rhizometos herbaceous plant **native to the Indian subcontinent**

and Southeast Asia.

- **Curcumin** is the active compound in turmeric which gives its yellow colour and is **known for providing anti-inflammatory, antioxidant and detoxifying properties of turmeric.**
- It helps protection from liver damage and supports detoxification in the body.
- Turmeric grows well in tropical and subtropical climates with temperatures between 20°C and 30°C in areas with well drained fertile soils rich in organic matter.

Hence statements 1 and 2 are correct

- Recently the National Turmeric Board has been established to promote cultivation, production, processing and marketing of turmeric in India as well as enhancing income of turmeric farmers.
- It consists of a chairperson appointed by the government with representatives of Ministry of AYUSH, Department of Pharmaceuticals, Department of Agriculture and Farmers' Welfare and Department of Commerce along with rotating senior representatives from three states.
- The **Board functions under the Ministry of Commerce and Industry.**

Hence statement 3 is incorrect

15.Solution: B

- Recently the Union Minister of Consumer Affairs Food and Public distribution launched Anna chakra tool with the aim to modernise public distribution system in India.
- It will enhance efficiency of the PDS supply chain and streamline the subsidy claim process which will benefit citizens depending on food security programs.
- Anna Chakra is a tool for optimising the supply chain of PDS in India developed in collaboration with the World Food Programme and the Foundation for Innovation and Technology Transfer at IIT Delhi.
- It harnesses advanced algorithms to identify optimal routes for the transportation of food grains.

Hence option B is correct

16.Solution: A

- **INR Konnect is a web-based platform aimed at increasing productivity by connecting growers of untapped rubber holdings with interested adopters.**
- The Rubber Board has launched this initiative to boost Indian Rubber's Global prominence and increase domestic production.
- It is in line with the National Rubber Policy 2019 that seeks to build an environmentally sustainable and globally competitive Rubber industry.

Hence option A is correct

17.Solution: C

- The WOAHP develops normative documents relating to rules that member countries can use to protect themselves from the introduction of diseases and pathogens without setting up unjustified sanitary barriers
- The main normative work prepared by the organisation are Terrestrial Animal Health code, Manual of diagnostic Tests and Vaccines for Terrestrial animals, Aquatic Animal Health code and the Manual for Diagnostic Tests for Aquatic Animals.

Hence statement 1 is correct

- The **WOAH standards are recognised by the World Trade Organisation as reference international sanitary rules.**
- They are prepared by elected specialist commissions and working groups bringing together International renowned scientists.
- These standards are adopted by World Assembly of Delegates.

Hence statement 2 is correct

18.Solution: C

- The **Virtually Integrated System to Access Agricultural Resources or VISTAAR project** aims to develop a uni-

fied digital ecosystem for agriculture by integrating reliable, validated and up to date resources across platforms.

- By driving Centre -state convergence, fostering partnership with stakeholders and aligning with broader efforts of ICAR Institutes and state Agricultural Universities, VISTAAR supports the development of robust digital public infrastructure for Agricultural extension.

Hence statement 1 is correct

- Project VISTAAR is **not funded by the International Fund for Agricultural Development**.
- The Department of Agriculture and Farmers' Welfare supports existing project implementation and **no separate funds are allotted for it**.

Hence statement 2 is incorrect

- VISTAAR aims integration with all initiatives and Federal solutions via the network for access of farmers to up to date information.
- This includes leveraging AI enabled chat bots deployed at the ground level and subsequent integration with AgriStack.

Hence statement 3 is correct

19.Solution: C

- AgriStack is designed as a farmer centric Digital Public Infrastructure to streamline services and scheme delivery to farmers.
- A Crucial feature of AgriStack is the introduction of Farmer ID similar to Aadhar Card serving as a trusted digital identity for farmers
- these will be created and maintained by State Government and will be linked to various farmer related data including Land record, livestock ownership, crops sown and benefits availed.

Hence statement 1 is correct

- The Krishi Decision Support System is a component of the Scheme
- KDSC will integrate remote sensing data on crops, soil, weather and water resources into a comprehensive Geospatial system

Hence statement 2 is correct

- Under the Digital Agriculture Mission, the Digital General Crop Estimation survey will be used for crop cutting experiments to provide precise yield estimate, enhancing Agricultural production accuracy.

Hence statement 3 is correct

20.Solution: B

- **Kisan kavach is India's first anti-pesticide body suit** that prevents chemicals from leaching into the skin.
- It has been launched by the Ministry of Science and Technology
- It has been designed to protect farmers from the harmful effects of pesticides exposure including respiratory disorder, loss of vision and death.
- It is made of oxime fabric that can chemically breakdown any of the common pesticides that get sprayed onto cloth or body during spraying operations in fields.
- It has been developed by BRIS-inStem, Bangalore in collaboration with Sepio Health Pvt. Limited.

Hence option B is correct

21.Solution: B

India's First Mission to Venus – ISRO

Overview and Launch Timeline:

India's first mission to Venus has been approved by the Union Cabinet and is being developed by ISRO. The mission is scheduled for launch in **March 2028**. It will be **India's second inter-planetary mission**, following the **Mars Orbiter Mission (Mangalyaan)** launched in 2013. (Hence, statement 1 is incorrect)

Mission Objectives:

The mission is designed to explore and study multiple aspects of Venus, including:

- **Surface and sub-surface features**
- **Thick atmosphere and ionosphere**
- **Interaction with solar radiation and solar wind**, which will help understand greenhouse effects and climate systems of rocky planets
- (Hence, statement 2 is correct)

Scientific Instruments:

The payloads include:

- **L- and S-band Synthetic Aperture Radar**
- **Thermal infrared camera**
- Experiments to detect **high-energy particles and interplanetary dust**

Use of Aero-Braking Technology:

India plans to use **aero-braking**—a technique that uses atmospheric drag to gradually reduce a spacecraft's orbit—during the Venus mission. The method involves using **Venus' atmosphere** to slow the satellite, instead of traditional fuel-based propulsion. This will be one of the first such applications by ISRO.

(Hence, statement 3 is correct)

Significance of the Mission:

- It enhances India's role in planetary science and deep space exploration.
- Provides scientific insight into **climate dynamics, planetary formation, and Earth-Venus comparison**.
- Strengthens India's technological capacity in **orbital maneuvering and planetary science instrumentation**.

<https://indianexpress.com/article/explained/explained-sci-tech/india-venus-mission-9584146/>

22.Solution: A

CO₂-to-Methanol Pilot Plant:

- **Establishment and Collaboration:** India's first CO₂-to-methanol pilot plant is being set up in **Pune, Maharashtra**, through a **public-private partnership** between **IIT-Delhi** and **Thermax Limited**.
- (Hence, statement 1 is correct)
- **Objective and Significance:**
 - The plant aims to advance **Carbon Capture and Utilization (CCU)** technologies, converting captured carbon dioxide into usable methanol.
 - This initiative contributes to **India's climate action goals** by promoting carbon reduction.
 - It aligns with efforts by **NITI**

Aayog and the Ministry of Petroleum to reduce India's dependency on crude oil imports, particularly by promoting **15% methanol blending in diesel**.

- (Hence, statement 2 is correct)
- **Focus of the Plant:**
 - The pilot plant will act as a "**living lab**" to demonstrate innovations in CCU and CO₂-to-chemical conversion, especially **for broader industrial use**, such as in **coal-based thermal power plants**.
 - It is **not focused on blending methanol into aviation fuel**.
 - (Hence, statement 3 is incorrect)
- **Broader Application:** The technology has potential for **scaling up** in sectors contributing heavily to emissions, such as thermal power, thereby supporting long-term industrial decarbonization strategies.

<https://www.thehindubusinessline.com/news/indias-first-co2-to-methanol-pilot-plant-to-come-up-in-pune/article68652392.ece>

23.Solution: C

Kleptoparasitism:

- **Kleptoparasitism** is a biological phenomenon where one animal **steals food or other resources** (like nest material or stored food) that another animal has collected, caught, killed, or prepared.
- (Hence, statement (c) is correct)
- This form of **feeding behavior** allows the kleptoparasite to benefit **without expending energy** in searching or hunting for food. It is a type of **social parasitism**.
- **Intraspecific kleptoparasitism:** Occurs within the same species.
- **Interspecific kleptoparasitism:** Occurs between different species, often closely related ones (as per **Emery's Rule**).
- Observed in various **animal groups:**
 - **Birds** (e.g., frigatebirds stealing fish from other seabirds)
 - **Insects** (e.g., cuckoo bees laying

- eggs in nests of other bees)
- **Mammals** (e.g., hyenas stealing kills from cheetahs)
- It also includes stealing of **non-food items**, such as **nest material** or other vital inanimate resources.
- **Incorrect options:**
 - (a) Refers to **mutualism**, not parasitism.
 - (b) Refers to **reproductive behavior**, not resource theft.
 - (d) Refers to **camouflage**, which is unrelated to kleptoparasitism.

(Hence, option C is correct)

<https://scienceblog.com/547761/seabird-food-theft-may-spread-deadly-avian-flu>

24. Solution: A

International Big Cat Alliance (IBCA):

- **Launch and Background:**
 - The International Big Cat Alliance (IBCA) was launched by **India in April 2023** to mark the **50th anniversary of Project Tiger**.
 - The initiative was first proposed by the Prime Minister of India in **2019**.
 - It is aimed at strengthening global cooperation to **conserve big cat species and their habitats**.
 - (Hence, statement 2 is correct)
- **Focus Species:**
 - IBCA covers **seven big cat species: Tiger, Lion, Leopard, Snow Leopard, Cheetah, Jaguar, and Puma**.
 - Among these, **five species are found in India** (Tiger, Lion, Leopard, Snow Leopard, and Cheetah); **Jaguar and Puma are not found in India**.
 - (Hence, statement 1 is correct)
- **Secretariat and Governance:**
 - The **Secretariat of IBCA is located in India**, not Geneva.
 - The alliance follows a governance structure similar to the **International Solar Alliance (ISA)**, with:

- **Assembly of Members**
- **Standing Committee**
- **Director-General appointed by MoEFCC**
(Hence, statement 3 is incorrect)

- **Objectives and Functions:**
 - Prevent illegal wildlife trade involving big cats.
 - Promote conservation of big cat habitats and biodiversity.
 - Mobilize financial and technical support for protection efforts.
 - Support climate change mitigation through nature-based solutions.
 - Align efforts with the **Sustainable Development Goals (SDGs)**.
- **Funding:**
 - The Union Cabinet approved a **one-time budgetary support of ₹150 crore** for five years (2023–2028).

<https://www.hindustantimes.com/india-news/india-approves-big-cat-alliance-framework-and-becomes-a-member-101726859761858.html>

25. Solution: B

India's First Nano DAP (Liquid) Plant:

- **Inauguration:** India's first **Nano DAP (Liquid)** plant was inaugurated by the **union home minister and Minister of Cooperation in Kalol, Gandhinagar district, Gujarat**.
- (Hence, option **(b) Kalol, Gujarat** is correct)
- **Implementing Agency:** The plant has been set up by **IFFCO (Indian Farmers Fertiliser Cooperative Limited)**.
- **Purpose:**
 - The **Nano DAP** (Di-Ammonium Phosphate) is a **liquid fertiliser** meant to increase nutrient efficiency.
 - It is intended to reduce dependence on conventional granular fertilisers and enhance **sustainable agriculture practices**.
- **Significance:**

- Aims to **boost crop yield** with **lesser environmental impact**.
- Supports “**Atmanirbhar Bharat**” and the government’s push toward **green and smart agriculture**.
- **Advantages:**
 - Easier to store and transport compared to traditional DAP.
 - Reduces soil degradation and nutrient run-off.
 - Enhances **absorption efficiency** by crops through nano-technology.

26. Correct Option: C

Justification:

Statement 1 is incorrect: Although these may seem correct in a general sense, the passage states the “The right to education goes beyond free and compulsory education” thus emphasizing the need for something more than attendance.

Statement 2 is incorrect: “Making available schooling facilities is an essential prerequisite, but is insufficient” thus infrastructure may be essential but not of paramount importance.

Statement 3 is correct: “a massive programme for curricular reform should be initiated....., that is more relevant and empowering” this line clearly states that circular reforms are paramount.

Question Level: Moderate

27. Correct Option: B

Justification:

The number of mangoes in the third basket are unchanged.

The number of mangoes is multiple of both 3 and 5. So, we have to take LCM of 3 and 5 i.e. 15.

If we assume the number of mangoes in the third basket as 15, the old ratio will be 9:12:15.

New ratio will be 25:20:15.

Thus, the mangoes to be increased in first and second basket respectively will be 16 and 8.

So, the required ratio is 16:8 i.e. 2:1.

Question Level: Easy

28. Correct Option: B

Justification:

N is the LCM of first 100 natural numbers.

Now 101 is a prime number, so 101 and N do not have any common factors. Hence their LCM = $101 \times N$

$102 = 2 \times 51$, since $2 < 100$ and $51 < 100$, 102 divides N

103 is a prime number, no common factors between 103 and N

$104 = 52 \times 2$; since $2 < 100$ and $52 < 100$, 105 divides N

$105 = 21 \times 5$; since $5 < 100$ and $21 < 100$, 105 divides N

Hence, LCM of first 105 natural number is $N \times 101 \times 103$

Question Level: Moderate

29. Correct Option: C

Justification:

Other number = $(11 \times 7700) / 275 = 308$.

Question Level: Moderate

30. Correct Option: B

Justification:

Take the LCM of 18, 24 and 32 which comes out to be 288 minutes i.e. 4 hours and 48 minutes.

Add to 8'o clock. The time is 12:48 hours.

Question Level: Moderate