IBPS AFO PREVIOUS YEAR PAPER 2014 BY AGRIGURU

1. **In Indo-Gangetic plains, rice wheat cropping system covers about**

(1) Mustard

(1) 5 m ha

(2) 10 m ha

(3) 15 m ha

(4) 20 m ha

(5) None of these

The correct answer is (4) 20 m ha

Explanation: The rice-wheat cropping system is a dominant agricultural practice in the Indo-Gangetic plains, a region that stretches across northern and eastern India, parts of Pakistan, and Bangladesh. This system is significant due to its contribution to food security in the region. According to various agricultural studies and reports, the rice-wheat cropping system in the Indo-Gangetic plains covers approximately 20 million hectares (m ha).

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Explanations for Incorrect Options:

- **(1) Mustard**: This option is not relevant to the question as it does not specify an area and instead mentions a different crop.

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- (2) 10 m ha: While 10 million hectares would be a substantial area, it significantly underestimates the extent of the rice-wheat cropping system in the Indo-Gangetic plains.
- **(3) 15 m ha**: This option is closer to the correct answer but still underestimates the total area. The actual coverage is larger.
- **(5) None of these:** This option is incorrect because option (4) correctly states the area covered by the rice-wheat cropping system.

The rice-wheat cropping system's coverage of 20 million hectares underscores its importance in regional agriculture and the livelihood of millions of farmers in the Indo-Gangetic plains.

2. **Which soil has the highest efficiency?**

(1) Loamy soil

(2) Sandy soil

(3) Clay soil

(4) Both (1) and (2)

(5) None of these

The correct answer is (1) Loamy soil

Explanation: Loamy soil is considered to have the highest efficiency among the soil types listed. This is because loamy soil is a balanced mixture of sand, silt, and

clay, which provides it with ideal characteristics for agriculture:

- Nutrient Retention: Loamy soil retains nutrients well, which are essential for plant growth.
- Drainage: It has good drainage properties, preventing waterlogging that can damage roots.
- Water Retention: Loamy soil retains moisture efficiently, providing a steady supply of water to plants.
- Workability: It is easier to work with compared to very sandy or clay-heavy soils, making it ideal for cultivation.

Explanations for Incorrect Options:

- **(2) Sandy soil:** Sandy soil has large particles and poor nutrient retention. It drains water quickly, which can be a disadvantage in terms of water efficiency as plants may not get a consistent supply of moisture.
- **(3) Clay soil:** Clay soil has very small particles and tends to retain water excessively, leading to poor drainage and aeration issues. While it can hold nutrients well, the poor drainage and difficulty in working with it make it less efficient compared to loamy soil.
- **(4) Both (1) and (2):** This option is incorrect because sandy soil does not have the high efficiency

that loamy soil has. Loamy soil alone is the most efficient among the options provided.

- **(5) None of these**: This option is incorrect because loamy soil is indeed the most efficient among the types listed.

Loamy soil's balanced properties make it the most efficient for supporting plant growth, thus making it the best choice among the options provided.

3. **Magnesium is a constituent of:**

(1) Nucleic Acid

(2) Enzyme system

(3) Cell wall

(4) Chlorophyll

(5) None of these

The correct answer is (4) Chlorophyll

Explanation: Magnesium is a central component of the chlorophyll molecule, which is essential for photosynthesis in plants. Chlorophyll is the pigment that gives plants their green color and plays a critical role in capturing light energy for the process of photosynthesis.

Explanations for Incorrect Options:

- **(1) Nucleic Acid:** Nucleic acids (DNA and RNA) do not contain magnesium as a constituent. They are primarily composed of nucleotides, which include a phosphate group, a sugar, and a nitrogenous base.

- **(2) Enzyme system:** While magnesium acts as a cofactor for many enzymes and is essential for their activity, it is not a constituent of the enzymes themselves. Instead, it helps stabilize structures of enzymes and interacts with substrates during enzymatic reactions.
- **(3) Cell wall:** The cell wall of plants is primarily made up of cellulose, hemicellulose, and lignin. Magnesium is not a structural component of the cell wall.
- **(5) None of these:** This option is incorrect because magnesium is indeed a constituent of chlorophyll.

Magnesium's role in chlorophyll is crucial because it enables plants to perform photosynthesis, which is the process by which they convert light energy into chemical energy. This function underscores the importance of magnesium in plant biology.

4. **The largest tea production state in India is:**

(1) Tamil Nadu

(2) Assam

(3) Meghalaya

(4) Kerala

(5) None of these

The correct answer is

(2) Assam

Explanation: Assam is the largest tea-producing state in India, contributing more than half of the country's total tea production. The state's climate, characterized by heavy rainfall and high humidity, along with fertile soil, makes it ideal for tea cultivation. Assam tea is renowned for its robust flavor and is a key component of many blends, including breakfast teas.

Explanations for Incorrect Options:

- **(1) Tamil Nadu:** Tamil Nadu is one of the significant tea-producing states in India, particularly known for the Nilgiri tea from the Nilgiri hills. However, its production is much lower than that of Assam.
- **(4) Kerala:** Kerala also produces tea, mainly from the districts of Wayanad, Idukki, and the Anamalai hills. While it is an important tea-growing region, its production volume does not surpass that of Assam.
- **(3) Meghalaya:** Meghalaya has some tea plantations, but it is not among the top tea-producing states in India. Its production is minimal compared to Assam.
- **(5) None of these:** This option is incorrect because Assam is indeed the largest tea-producing state in India.

Assam's dominance in tea production is well-documented and contributes significantly to both the national and global tea markets.

5. **The average concentration of carbon dioxide in the atmosphere is:**

(1) 0.03 ppm

(2) 30 ppm

(3) 0.3 ppm

(4) 300 ppm

(5) None of these

The correct answer is (5) None of these

Explanation: The average concentration of carbon dioxide in the atmosphere is currently about 415 parts per million (ppm) as of recent measurements. This value has been rising steadily due to human activities such as burning fossil fuels and deforestation.

Explanations for Incorrect Options:

- **(1) 0.03 ppm:** This value is far too low. Carbon dioxide concentrations are much higher than 0.03 ppm.
- **(2) 30 ppm**: While this is higher than the first option, it is still significantly below the actual concentration of CO_2 in the atmosphere.
- **(3) 0.3 ppm**: This is also much too low. CO_2 levels are measured in the hundreds of ppm, not fractions of a ppm.
- **(4) 300 ppm:** This value is closer but still underestimates the current levels of CO_2 in the

atmosphere. Historical data shows that the last time atmospheric CO_2 was at 300 ppm was several decades ago, before the significant increases observed in recent years.

- **(5) None of these:** This is the correct answer because none of the provided options accurately reflect the current average concentration of CO_2 in the atmosphere, which is around 415 ppm.

Understanding the concentration of CO_2 in the atmosphere is critical for addressing climate change, as this greenhouse gas plays a significant role in global warming and environmental changes.

6. **Atmospheric layer nearest to earth Surface is**

(1) Biosphere

(2) Exosphere

(3) Thermosphere

(4) Troposphere

(5) None of these

The correct answer is (4) Troposphere

Explanation: The troposphere is the lowest layer of Earth's atmosphere and extends from the Earth's surface up to about 8 to 15 kilometers (5 to 9 miles) high, depending on the location (thicker at the equator and thinner at the poles). It contains approximately 75% of the atmosphere's mass and is where most of the Earth's

weather phenomena, such as clouds, rain, and storms, occur.

Explanations for Incorrect Options:

- (1) **Biosphere**: The biosphere refers to the global ecological system integrating all living beings and their relationships, including their interaction with elements of the lithosphere, hydrosphere, and atmosphere. It is not a layer of the atmosphere.
- (2) **Exosphere**: The exosphere is the outermost layer of the Earth's atmosphere, extending from about 600 kilometers (373 miles) above the Earth's surface and gradually fading into outer space. It is the farthest layer from the Earth's surface.
- (3) **Thermosphere**: The thermosphere is located above the mesosphere and below the exosphere, starting around 80 kilometers (50 miles) above the Earth's surface and extending up to about 600 kilometers (373 miles). It is characterized by high temperatures but is not the closest layer to the Earth's surface.
- (5) **None of these**: This option is incorrect because the troposphere is indeed the atmospheric layer nearest to the Earth's surface.

The troposphere's proximity to the Earth's surface and its role in weather and climate make it the most dynamic layer of the atmosphere, crucial for life on Earth.

7. **Impact of green house effect is:**

(1) Global warming

(2) Ice melting

(3) Sea formation

(4) Sea level rise

(5) None of these

The correct answer is (1) Global warming

Explanation: The greenhouse effect results in the trapping of heat in the Earth's atmosphere by greenhouse gases such as carbon dioxide (CO_2), methane (CH_4), and water vapor. This process leads to an increase in the planet's average surface temperature, which is referred to as global warming. Global warming is the direct impact of the greenhouse effect and is the fundamental cause of many subsequent environmental changes.

Explanations for Incorrect Options:

- (2) **Ice melting:** Ice melting is a significant consequence of global warming. As temperatures rise due to the greenhouse effect, glaciers and polar ice caps melt at an accelerated rate. This is a secondary effect of global warming.
- (3) **Sea formation:** Sea formation is not a consequence of the greenhouse effect. This process involves geological and hydrological activities that are unrelated to the greenhouse effect or global warming.

- (4) **Sea level rise:** Sea level rise is another consequence of global warming. It happens due to the melting of ice and the thermal expansion of seawater as it warms. Like ice melting, sea level rise is a secondary effect resulting from global warming.
- (5) **None of these:** This option is incorrect because global warming (option 1) is indeed the primary impact of the greenhouse effect.

In conclusion, global warming is the primary and direct impact of the greenhouse effect, leading to further environmental consequences such as ice melting and sea level rise.

8. **Which food is designated as "Boneless meat"?**

(1) Banana

(2) Potato

(3) Soybean

(4) Tapioca

(5) None of these

The correct answer is (3) Soybean

Explanation: In some contexts, especially in vegetarian or vegan cooking, soybeans are often used as a substitute for meat due to their high protein content and meat-like texture when processed. Products made from soybeans, such as tofu and tempeh, are commonly referred to as meat substitutes or meat analogs. Since soybeans can be

used to create dishes with a texture and taste similar to meat, they are sometimes humorously or informally referred to as "boneless meat."

This usage of the term "boneless meat" is not standard or widely recognized, but it may be used colloquially or within specific culinary communities to describe soybean-based products that mimic the texture and flavor of meat. Therefore, if "Soybean" is the designated answer in the given context, it could be interpreted as a playful or unconventional use of the term "boneless meat" to describe a meat substitute.

9. **Soil mulch is useful in:**

(1) Minimizing evaporation losses

(2) Improving aeration

(3) Improving drainage

(4) Removing weeds

(5) None of these

The correct answer is (1) Minimizing evaporation losses

Explanation: Soil mulch is a protective layer of material, such as straw, leaves, or plastic, spread or left on the ground around plants. One of its primary functions is to minimize evaporation losses by reducing water loss from the soil surface due to evaporation. By providing a barrier between the soil and the atmosphere, mulch helps retain

moisture in the soil, thus reducing the need for frequent irrigation.

Explanations for Incorrect Options:

- (2) **Improving aeration:** While mulch can indirectly improve aeration by maintaining soil moisture and preventing soil compaction, its primary function is to reduce evaporation rather than to directly improve aeration.
- (3) **Improving drainage:** Mulch can help regulate soil moisture levels, but it does not directly improve drainage. In fact, some types of mulch, such as organic mulches like wood chips or straw, may temporarily impede drainage until they decompose.
- (4) **Removing weeds:** Mulch can suppress weed growth by blocking sunlight and preventing weed seeds from germinating, but it does not actively remove existing weeds. Weed removal typically requires manual or mechanical intervention.
- (5) **None of these:** This option is incorrect because soil mulch is indeed useful in minimizing evaporation losses, as explained above.

In summary, while soil mulch can have various benefits for soil health and plant growth, its primary function is to minimize evaporation losses and conserve soil moisture.

10. **The depth of seeding in wheat is dependent on**

(1) Length of mesocotyl

(2) Length of radical

(3) Length of coleoptiles

(4) Both (1) and (2)

(5) None of these

The correct answer is (3) Length of coleoptiles

Explanation: In wheat cultivation, the depth of seeding is primarily dependent on the length of coleoptiles. Coleoptiles are protective sheaths covering the young shoot of a grass embryo (including wheat) as it emerges from the seed. The coleoptile elongates in response to light and aids in the emergence of the seedling from the soil. The depth of seeding should be such that the coleoptile length is sufficient to reach the soil surface and allow the seedling to emerge properly.

Explanations for Incorrect Options:

- (1) **Length of mesocotyl:** The mesocotyl is a part of the embryo found in monocotyledonous plants (including wheat). However, its length is not typically considered a significant factor in determining the depth of seeding in wheat.
- (2) **Length of radical:** The radical is the embryonic root of a seedling, which develops into the primary root upon germination. While the radical is important for anchoring the seedling and absorbing water and

nutrients, its length does not directly determine the depth of seeding in wheat.

- (4) **Both (1) and (2):** While the length of the mesocotyl and the radical may have some influence on the depth of seeding, the primary factor in wheat cultivation is the length of coleoptiles. Therefore, this option is incorrect.
- (5) **None of these:** This option is incorrect because the depth of seeding in wheat is indeed dependent on the length of coleoptiles.

In wheat farming, ensuring proper seeding depth is crucial for achieving optimal germination and establishment of the crop. Adjusting seeding depth based on the length of coleoptiles helps facilitate successful emergence and early growth of wheat seedlings.

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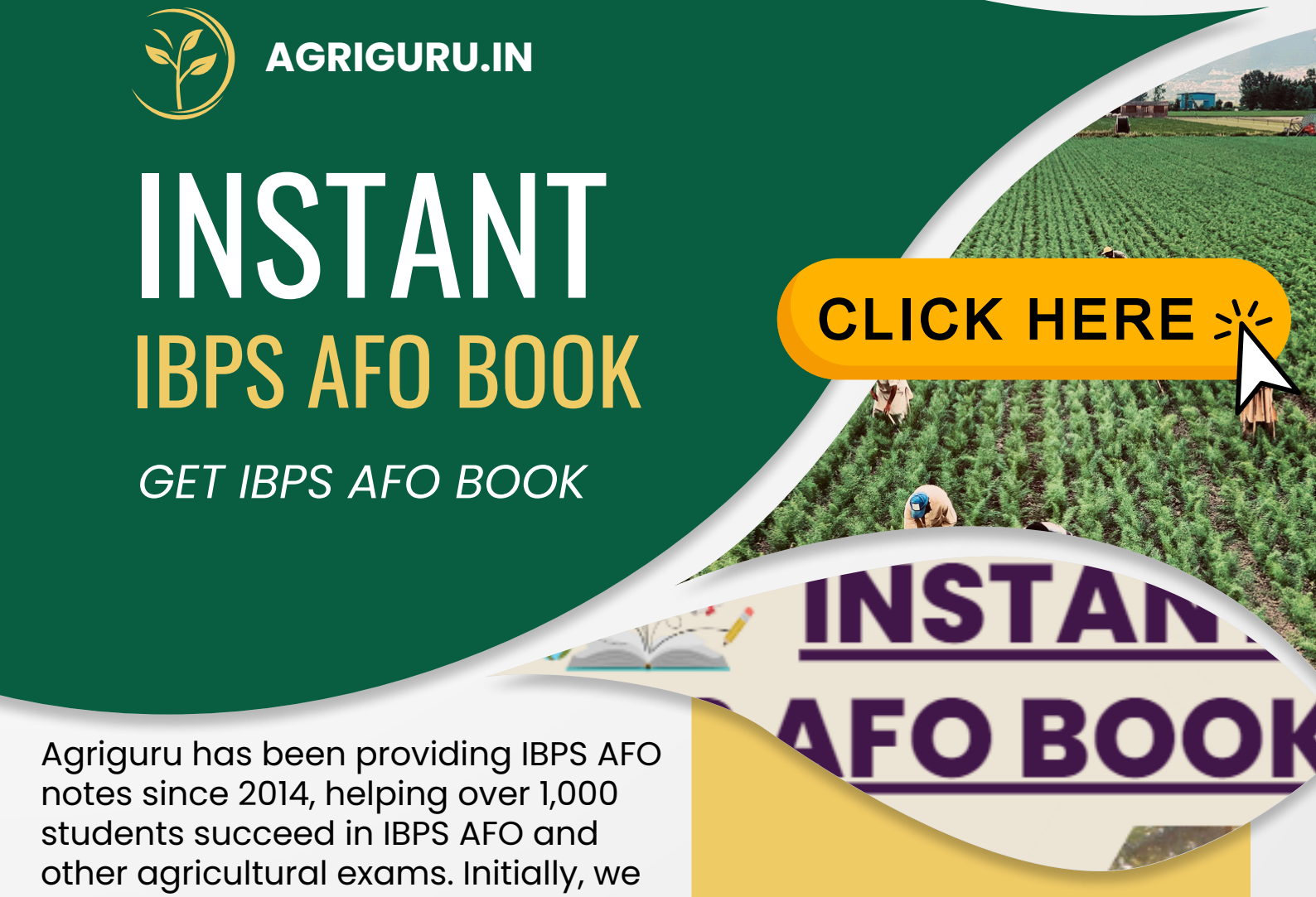
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