

ICAR AIEEA PG 2025 Agronomy Question Paper With Solutions

Time Allowed :120 Minutes

Maximum Marks :480

Total questions :120

General Instructions

Read the following general instructions carefully and adhere to them strictly:

1. **Duration of the Exam:** The total duration of the examination is 2 hours and 30 minutes.
2. **Total Marks:** The question paper carries a total of 480 marks.
3. **Number of Questions:** The paper contains 120 multiple-choice questions (MCQs)
4. **Question Paper Format:**
 - All questions are compulsory unless otherwise instructed.
 - Each question has four options, out of which only one is correct.
5. **Mode of Examination:** The examination is conducted in online mode (Computer-Based Test).
6. **Marking Scheme:**
 - Each correct answer carries 4 marks.
 - 1 mark will be deducted for each incorrect answer.
 - No marks will be awarded or deducted for unattempted questions.
7. **Medium of Paper:** The question paper will be bilingual (English and Hindi), except for the language section (if applicable).
8. **Electronic Devices:** Use of calculators, mobile phones, smartwatches or any electronic gadgets is strictly prohibited.

1. Which of the following crops is most sensitive to waterlogging conditions?

- (A) Rice
- (B) Maize
- (C) Sugarcane
- (D) Jute

Correct Answer: (B) Maize

Solution:

Maize is highly sensitive to waterlogging, especially during its early growth stages. Excess water in the root zone reduces oxygen availability, leading to root suffocation and stunted growth. In contrast, rice and jute are more tolerant to waterlogged conditions, with rice being adapted to flooded environments.

Quick Tip

Remember: Maize dislikes wet feet; avoid waterlogged fields for maize cultivation.

2. The critical stage for irrigation in wheat is:

- (A) Tillering
- (B) Crown root initiation
- (C) Flowering
- (D) Dough stage

Correct Answer: (B) Crown root initiation

Solution:

Crown root initiation (CRI) occurs around 21 days after sowing in wheat. Irrigation at this stage is crucial as it promotes the development of crown roots, which are essential for nutrient and water uptake. Missing irrigation at CRI can lead to significant yield reductions.

Quick Tip

First irrigation in wheat? Always at CRI stage (21 DAS).

3. Which of the following is a C₄ plant?

- (A) Wheat
- (B) Rice
- (C) Maize
- (D) Barley

Correct Answer: (C) Maize

Solution:

C₄ plants, like maize, possess a specialized mechanism that concentrates CO₂ at the site of the Calvin cycle, enhancing photosynthetic efficiency under high light and temperature conditions. This adaptation makes them more efficient in water and nitrogen use compared to C₃ plants like wheat, rice, and barley.

Quick Tip

C₄ crops: Maize, sorghum, sugarcane; thrive in hot, sunny climates.

4. The term 'Allelopathy' refers to:

- (A) Symbiotic relationship between plants
- (B) Competition for light among plants
- (C) Chemical inhibition of one species by another
- (D) Mutualistic interaction between fungi and roots

Correct Answer: (C) Chemical inhibition of one species by another

Solution:

Allelopathy involves the release of biochemicals (allelochemicals) by one plant species that influence the growth, survival, or reproduction of other species. For example, black walnut releases juglone, inhibiting the growth of nearby plants.

Quick Tip

Allelopathy = Plant chemical warfare; affects neighboring plant growth.

5. Which nutrient is classified as a secondary macronutrient?

- (A) Nitrogen
- (B) Phosphorus
- (C) Calcium
- (D) Iron

Correct Answer: (C) Calcium

Solution:

Nutrients are categorized based on the quantity required by plants. Primary macronutrients: Nitrogen (N), Phosphorus (P), Potassium (K). Secondary macronutrients: Calcium (Ca), Magnesium (Mg), Sulfur (S). Micronutrients, like iron, are needed in trace amounts.

Quick Tip

Secondary macronutrients: Ca, Mg, S; essential but in moderate amounts.

6. The 'Law of the Minimum' was proposed by:

- (A) Liebig
- (B) Mitscherlich
- (C) Blackman
- (D) Lawes

Correct Answer: (A) Liebig

Solution:

Justus von Liebig's Law of the Minimum states that plant growth is limited by the scarcest nutrient resource, not by the total amount of resources available. Even if all other nutrients are abundant, a deficiency in one can limit growth.

Quick Tip

Liebig's Law: Growth is dictated by the most limiting factor.

7. Which cropping system involves growing two or more crops simultaneously on the same field?

- (A) Monocropping
- (B) Intercropping
- (C) Sequential cropping
- (D) Relay cropping

Correct Answer: (B) Intercropping

Solution:

Intercropping is the practice of cultivating two or more crops in proximity. The main goal is to increase productivity per unit area by optimizing resource use. For example, growing maize with beans can enhance nitrogen availability and yield.

Quick Tip

Intercropping = Simultaneous cultivation; boosts resource efficiency.

8. Which weed is known as 'Congress grass'?

- (A) Parthenium hysterophorus
- (B) Eichhornia crassipes
- (C) Lantana camara
- (D) Cyperus rotundus

Correct Answer: (A) Parthenium hysterophorus

Solution:

Parthenium hysterophorus, commonly known as Congress grass, is an invasive weed causing health issues like dermatitis and respiratory problems. It also affects crop yields by competing for nutrients and releasing allelopathic substances.

Quick Tip

Congress grass = Parthenium; a notorious invasive weed.

9. The process of converting atmospheric nitrogen into a form usable by plants is called:

- (A) Nitrification
- (B) Denitrification
- (C) Nitrogen fixation
- (D) Ammonification

Correct Answer: (C) Nitrogen fixation

Solution:

Nitrogen fixation is the process where atmospheric nitrogen (N_2) is converted into ammonia (NH_3) by certain bacteria, making nitrogen available to plants. This can be biological (e.g., Rhizobium in legumes) or industrial (Haber-Bosch process).

Quick Tip

Nitrogen fixation = Making atmospheric N usable for plants.