CUET PG 2024 Agriculture Science Question Paper with Solutions

Time Allowed :1 hour 45 minutes	**Maximum Marks :**300	**Total questions :**75

General Instructions

Read the following instructions very carefully and strictly follow them: [label=()]

(A) This question paper comprises 75 questions. All questions are compulsory.

(B) Each question carries 04 (four) marks.

(C) For each correct response, candidate will get 04 (four) marks.

(D) For each incorrect response, 01 (one) mark will be deducted from the total score.

(E) Un-answered/un-attempted response will be given no marks.

(F) To answer a question, the candidate needs to choose one option as correct option.

(G) However, after the process of Challenges of the Answer Key, in case there are multiple correct options or change in key, only those candidates who have attempted it correctly as per the revised Final Answer Key will be awarded marks.

(H) In case a Question is dropped due to some technical error, full marks shall be given to all the candidates irrespective of the fact who have attempted it or not

1. In chromosomal aberrations, when two breaks occur in a chromosome and the intercalary segment rejoins in a reverse order, it is classified as:

(A) Duplication

(B) Translocation

(C) Inversion

(D) Segmental duplication

Correct Answer: (C) Inversion.

Solution: An inversion occurs when a segment of a chromosome breaks and then reattaches in reverse order. This rearrangement does not result in any loss or gain of genetic material but can affect gene function if breakpoints interrupt critical regions.

Quick Tip

Inversions can lead to changes in gene expression if the inversion disrupts a gene's coding sequence or regulatory regions.

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2. Who first discovered the phenomenon of mutation?

(A) Muller

(B) De Vries

(C) Seth Wright

(D) Stadler

Correct Answer: (B) De Vries.

Solution: Hugo de Vries is credited with the discovery of mutation. He observed sudden, heritable changes in the evening primrose (Oenothera) and recognized these changes as mutations, contributing significantly to genetics.

Quick Tip

De Vries' work laid the foundation for modern genetics by introducing the concept of sudden, inheritable changes in organisms.

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3. The Genetic Engineering Appraisal Committee (GEAC) is set up under which

ministry?

(A) Ministry of Environment, Forest and Climate Change

(B) Ministry of Agriculture and Farmers Welfare

(C) Ministry of Consumer Affairs, Food and Public Distribution

(D) Ministry of Corporate Affairs

Correct Answer: (A) Ministry of Environment, Forest and Climate Change.

Solution: The GEAC, which regulates the use of genetically modified organisms (GMOs) and genetic engineering technologies in India, operates under the Ministry of Environment, Forest and Climate Change. It plays a crucial role in ensuring the safe use of biotechnology in agriculture and environmental sectors.

Quick Tip

Regulatory bodies like the GEAC ensure safety and environmental protection in the development and use of GMOs.

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4. Which of the following rice varieties is a hybrid?

(A) IR-64

(B) CSR-30

(C) PRH-10

(D) Pusa 44

Correct Answer: (C) PRH-10.

Solution: PRH-10 is a hybrid variety of rice, developed to combine superior yield and stress resistance, making it more productive in challenging environmental conditions. Hybrid varieties are specifically engineered to achieve higher yield potential and enhanced resilience.

Quick Tip

Hybrid rice varieties like PRH-10 contribute to food security by increasing crop yield and adapting to various environmental conditions.

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5. Match the scientists with their contributions:

List-I	List-II
(Scientist)	(Contribution)
(A). T.H. Morgan	(I). Restriction endonucleases
(B). Kornberg	(II). Recombinant DNA
(C). Nathan and Smith	(III). Sex-linked inheritance
(D). Paul Berg	(IV). DNA polymerase

Choose the correct answer from the options given below:

(a) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

(b) (A) - (I), (B) - (III), (C) - (II), (D) - (IV)

(c) (A) - (I), (B) - (II), (C) - (IV), (D) - (III)

(d) (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

Correct Answer: (d) (A) - (III), (B) - (IV), (C) - (I), (D) - (II).

Solution: T.H. Morgan's work on sex-linked inheritance provided foundational insights into genetics, while Kornberg's discovery of DNA polymerase was key in understanding DNA replication. Nathan and Smith discovered restriction endonucleases, critical for molecular biology techniques, and Paul Berg's work on recombinant DNA technology laid the groundwork for genetic engineering.

Quick Tip

These scientists revolutionized genetics and biotechnology, and their discoveries are essential for modern genetic research and applications in medicine, agriculture, and biotechnology.

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6. Which of the following statements about seeds are correct?

(A) Progeny of nucleus seed is breeder seed.

(B) TZ test is for evaluation of field performance of seed

(C) Seed rate of wheat is 100 kg/ha

(D) Tobacco is an example of the smallest seed

Choose the correct answer from the options given below:

(a) (A), (B) and (D) only.

(b) (A), (B) and (C) only.

(c) (A), (B), (C) and (D).

(d) (A), (C) and (D) only.

Correct Answer: (d) (A), (C) and (D) only.

Solution: The correct statements include: - The progeny of nucleus seeds is indeed breeder seed. - The TZ test is used to evaluate seed viability, not field performance. - The seed rate of wheat is typically 100 kg/ha. Tobacco does not have the smallest seeds; orchids have some of the smallest seeds.

Quick Tip

Knowing the characteristics of seeds and their proper management is crucial for optimizing crop yields and maintaining soil health.

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7. Which of the following statements about Hammerling's experiment on Acetabularia is/are correct?

(A) It demonstrates that Acetabularia is a unicellular organism.

(B) It demonstrates the role of cytoplasm in heredity.

(C) It demonstrates the role of nucleus in heredity.

(D) It demonstrates the role of cytoplasm in determining rhizoid shape.

Choose the correct answer from the options given below:

(a) (A) and (D) only.

(b) (A) only.

(c) (B) only.

(d) (C) only.

Correct Answer: (d) (C) only.

Solution: Hammerling's experiments with Acetabularia provided crucial insights into the role of the nucleus in heredity, showing that the nucleus controls the organism's development and morphology. The experiment demonstrated the control exerted by the nucleus, rather than cytoplasm, over inheritance.

Quick Tip

Hammerling's work emphasized the nucleus's central role in hereditary processes and its control over cellular functions, laying the groundwork for later genetic research.

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8. Linkage drag is the phenomenon in which:

(a) The undesirable genes also get transferred along with the desirable genes.

(b) Only the desirable genes from the donor parent get transferred.

(c) The frequency of recombination between the desired and unwanted genes is increased.

(d) The unwanted genes are eliminated from the population.

Correct Answer: (a) The undesirable genes also get transferred along with the desirable genes.

Solution: Linkage drag occurs when undesirable genes, which are linked to desirable genes on the same chromosome, are transferred along with the desirable genes during the breeding process. This phenomenon can reduce the overall quality of the offspring.

Quick Tip

Understanding linkage drag is crucial for breeders to develop strategies that separate linked undesirable genes from desirable traits.

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9. In a pea flower, five petals are arranged in a specialized manner with one posterior, two lateral, and two anterior. These are named as:

(a) Wing, Keel and Standard

(b) Keel, Wings and Standard

(c) Standard, Wings and Keel

(d) Wing, Standard and Keel

Correct Answer: (c) Standard, Wings and Keel.

Solution: In a pea flower, the petals are arranged in a specific configuration: the standard (posterior), wings (lateral), and keel (anterior). This arrangement is characteristic of flowers in the Fabaceae family, facilitating pollination.

Quick Tip

The arrangement of petals in pea flowers enhances pollination, with the keel protecting reproductive parts and the wings and standard attracting pollinators.

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10. Linkage equilibrium can be achieved by:

(a) Selfing

(b) Random mating

(c) Sibling crossing

(d) Crossing

Correct Answer: (b) Random mating.

Solution: Linkage equilibrium is best achieved through random mating, which enhances genetic diversity and helps distribute alleles evenly across the population. This process breaks up linkage disequilibrium over time.

Quick Tip

Random mating ensures genetic variability and helps reduce the persistence of harmful gene combinations, promoting genetic health in populations.

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11. What is the term for the negative effect that a host plant has on the growth of an insect-pest that feeds on it?

(a) Antixenosis

(b) Antibiosis

(c) Non-preference

(d) Tolerance

Correct Answer: (b) Antibiosis.

Solution: Antibiosis refers to the negative effect a plant has on the growth and development of an insect-pest feeding on it, typically through the production of toxic compounds.

Quick Tip

Antibiosis is an important defense mechanism for plants to deter pest populations and protect their growth.

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12. Which of the following could be the valid value(s) of the correlation coefficient between two variables?

(a) -1

(b) +1

(c) -2

(d) +2

Choose the correct answer from the options given below.

(a) (A) only

(b) (A)and (B) both

(c) (A), (B), (C)and (D)

(d) (B) only.

Correct Answer: (b) (A) and (B) both.

Solution: The correlation coefficient can only range from -1 to +1. Any values outside this range are invalid. Therefore, both -1 and +1 are valid values.

Quick Tip

The correlation coefficient measures the strength and direction of a linear relationship between two variables, with -1 and +1 representing perfect negative and positive correlations, respectively.

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13. Conservation Agriculture includes adoption of -

(a) burning of crop residues to manage pests.

(b) minimum tillage

(c) crop rotations

(d) mulching

Choose the correct answer from the options given below

(a) (A), (B) and (D) only.

(b) (A), (B) and (C) only.

(c) (A), (B), (C) and (D)

(d) (B), (C) and (D) only.

Correct Answer: (d) (B), (C), and (D) only.

Solution: Conservation Agriculture involves sustainable practices such as minimum tillage, crop rotations, and mulching. Burning crop residues is not part of conservation agriculture.

Quick Tip

Conservation agriculture focuses on soil health and sustainable farming practices to reduce environmental impact and enhance crop productivity.

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14. Diammonium phosphate contains-

(a) 46% N and 18% P2O5

(b) 18% N and 46% P2O5

(c) 20% N and 20% P2O5

(d) 46% N and 20% P2O5

Correct Answer: (b) 18% N and 46% P2O5.

Solution: Diammonium phosphate (DAP) is a commonly used fertilizer with 18% nitrogen (N) and 46% phosphorus (P2O5).

Quick Tip

DAP is rich in phosphorus, which supports root development and enhances plant growth.

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15. What is the approximate composition of biogas, generated after decomposition of bio-degradable agricultural waste?

(a) 55-65% of methane, 35-44% of carbon dioxide and traces of other gases

(b) 35-44% of methane, 55-65% of carbon dioxide and traces of other gases.

(c) 50% of methane and 50% of carbon dioxide and no other gases.

(d) 25-35% of methane, 65-75% of ammonia and traces of other gases.

Correct Answer: (a) 55-65% of methane, 35-44% of carbon dioxide and traces of other gases.

Solution: Biogas, generated from the anaerobic decomposition of agricultural waste, typically contains 55-65% methane, 35-44% carbon dioxide, and small amounts of other gases like hydrogen sulfide.

Quick Tip

Biogas is a renewable energy source with methane as the primary component, used for heating, cooking, and electricity generation.

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16. The Food Corporation of India was established in which year?

(a) 1975

(b) 1955

(c) 1965

(d) 1967

Correct Answer: (c) 1965.

Solution: The Food Corporation of India (FCI) was established in 1965 with the objective of ensuring the procurement, storage, and distribution of food grains across India.

Quick Tip

FCI plays a crucial role in maintaining food security and managing the distribution of essential food commodities in India.

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17. Which one of the following is a good example of subsistence farming?

(a) Organic farming

(b) Commercial farming

(c) Extensive and Intensive farming

(d) Shifting cultivation

Correct Answer: (d) Shifting cultivation.

Solution: Shifting cultivation is a traditional method of farming, primarily for subsistence, where land is cleared for agriculture and then abandoned after a few years. It is mainly practiced in regions with low population density.

Quick Tip

Shifting cultivation involves moving cultivation to new areas after exhausting the soil's nutrients, typically practiced by indigenous communities.

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18. What was India's food grain production in 2021-22?

(a) 310.7 million tonnes

(b) 315.7 million tonnes

(c) 297.5 million tonnes

(d) 305.7 million tonnes

Correct Answer: (b) 315.7 million tonnes.

Solution: India's food grain production in 2021-22 was recorded at 315.7 million tonnes, marking a significant increase over previous years. This was attributed to better agricultural practices and favorable monsoon conditions.

Quick Tip

Food grain production is a key factor in ensuring national food security, and India's increased production is vital for supporting its large population.

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19. Which of the following conditions characterizes disguised unemployment?

(a) When the marginal productivity of labour is greater than one

(b) When the marginal productivity of labour is zero

(c) When the marginal productivity of labour is greater than two

(d) When the marginal productivity of labour is greater than one and less than two

Correct Answer: (b) When the marginal productivity of labour is zero.

Solution: Disguised unemployment occurs when additional workers are employed, but their

marginal productivity is zero, meaning they do not contribute to increased output. This is common in sectors with excessive labor.

Quick Tip

Disguised unemployment is a form of hidden unemployment where more people are employed than necessary for the task at hand, resulting in wasted resources.

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20. Sequence the principal stages of biological nitrogen fixation in their correct order of occurrence.

(A) Formation of infection thread

(B) Rhizobium multiply to colonize.

(C) Curling of root hair.

(D) Differentiation of cortical cells into nitrogen fixing cells

Choose the correct answer from the options given below.

(a) (B), (C), (A), (D)

(b) (A), (B), (C), (D)

(c) (B), (A), (D), (C).

(d) (C), (B), (D), (A)

Correct Answer: (b) B), (C), (A), (D).

Solution: The correct sequence for biological nitrogen fixation is: 1. Rhizobium multiply to colonize the root. 2. Curling of root hair happens next. 3. Formation of infection thread follows. 4. Finally, differentiation of cortical cells into nitrogen-fixing cells occurs.

Quick Tip

Biological nitrogen fixation is essential for enriching soil with nitrogen, a key nutrient for plants, especially legumes.

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21. Match List-I with List-II

List-I	List-II
(Millet)	(Botanical name)
(A). Barnyard millet	(I). *Paspalum scrobiculatum*
(B). Kodo millet	(II). *Setaria italica*
(C). Foxtail millet	(III). *Echinochloa frumantacea*
(D). Finger millet	(IV). *Eleusine coracana*

Options:

(a) (A)- (I), (B) - (II), (C) - (III), (D) - (IV)

(b) (A)- (III), (B) - (I), (C) - (II), (D) - (IV)

(c) (A)-(I), (B) - (II), (C) - (IV), (D) - (III)

(d) (A)- (III), (B)- (IV), (C) - (I), (D) - (II)

Correct Answer: (b) (A)- (III), (B) - (I), (C) - (II), (D) - (IV)

Solution: The botanical names are correctly matched with their respective millet types in option (b). Barnyard millet is Echinochloa frumantacea, Kodo millet is Paspalum scrobiculatum, Foxtail millet is Setaria italica, and Finger millet is Eleusine coracana.

Quick Tip

Memorize the botanical names of common millets as they often appear in agricultural science exams.

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22. Which of the following statement is not true for NABARD?

Options:

(a) NABARD provides loans to individuals

(b) NABARD encourages research work related to agriculture and rural development

(c) NABARD supervises Cooperative Banks and Regional Rural Banks

(d) The Cooperative Development Fund (CDF) was established by NABARD on February 2nd, 1993

Correct Answer: (a) NABARD provides loans to individuals

Solution: NABARD does not provide loans directly to individuals; instead, it finances and

supports various projects through institutions. The other statements are correct about NABARD.

Quick Tip

Understand the role of NABARD in agricultural financing and rural development to address similar questions in exams.

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23. Which of the following is a promising chemical for flower induction in mango?

Options:

(a) 24D

(b) Ethylene

(c) Gibberellic acid

(d) Paclobutrazol

Correct Answer: (b) Ethylene

Solution: Ethylene is known for promoting flowering in various fruit trees, including mango, by affecting the hormonal balance within the plant.

Quick Tip

Ethylene is effective in inducing flowering but should be used carefully to avoid excessive fruit drop.

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24. What is the name of the microbial spray, consisting of blend of seven fungi, developed by ICAR-IARI, New Delhi for the insitu accelerated degradation of paddy straw or parali?

Options:

(a) Pusa Composter

(b) Pusa Biogranule

(c) Pusa Decomposer

(d) Pusa Bio-Composter

Correct Answer: (c) Pusa Decomposer

Solution: The Pusa Decomposer is a microbial spray developed by ICAR-IARI for the rapid decomposition of paddy straw in the field, helping to manage crop residue effectively.

Quick Tip

Pusa Decomposer can significantly reduce air pollution caused by the burning of paddy straw.

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25. Match List-I with List-II

List-I	List-II
(Classes of Seed)	(Colour of Tag)
(A). Breeder Seed	(I). Green Opal
(B). Foundation Seed	(II). Azure Blue
(C). Certified Seed	(III). White
(D). T.L. Seed	(IV). Golden yellow

Options:

(a) (A)-(II), (B) - (I), (C) - (III), (D) - (IV)

(b) (A)-(IV), (B) - (III), (C) - (II), (D) - (I)

(c) (A)- (I), (B)- (II), (C) - (IV), (D) - (III)

(d) (A)-(III), (B) - (IV), (C) - (1), (D) - (II)

Correct Answer: (b) (A)- (IV), (B) - (III), (C) - (II), (D) - (I)

Solution: The classes of seeds are matched correctly with their tag colors in option (b). Breeder Seed is Golden yellow, Foundation Seed is White, Certified Seed is Azure Blue, and T.L. Seed is Green Opal.

Quick Tip

Knowing the tag colors associated with different classes of seeds is crucial for handling and certification processes in agriculture.

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26. The number of replications are equal to number of treatments in the

Options:

(a) Latin square design

(b) RBD

(c) CRBD

(d) SPD

Correct Answer: (a) Latin square design

Solution: In the Latin square design, the number of replications is equal to the number of treatments, ensuring that each treatment appears exactly once in each row and column.

Quick Tip

The Latin square design is used to control for two blocking factors while testing more than one factor at a time.

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27. Match List-I with List-II

List-I	List-II
Disease	(Causal organism)
(A). Black rust	(I). *Puccinia recondita*
(B). Yellow rust	(II). *Cercospora arachidicola*
(C). Brown rust	(III). *Puccinia graminis*
(D). Tikka disease of groundnut	(IV). *Puccinia striformis*

Options:

(a) (A)- (III), (B) - (II), (C) - (I), (D) - (IV)

(b) (A)- (I), (B) - (III), (C) - (II), (D) - (IV)

(c) (A)- (I), (B) - (II), (C) - (IV), (D) - (III)

(d) (A)- (III), (B)- (IV), (C) - (I), (D) - (II)

Correct Answer: (d) (A)- (III), (B)- (IV), (C) - (I), (D) - (II)

Solution: The diseases are correctly matched with their causal organisms in option (d). Black rust is caused by Puccinia graminis, Yellow rust by Puccinia striiformis, Brown rust by Puccinia recondita, and Tikka disease by Cercospora arachidicola.

Quick Tip

Understanding the causal organisms of common crop diseases can help in better management and prevention strategies.

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28. Bacterial cells are more resistant to osmotic shock than eukaryotic cells due to the

Options:

(a) cell wall composed of cellulose

(b) presence of osmoregulatory porins

(c) cell wall shows selective permeability.

(d) cell wall composed of peptidoglycan

Correct Answer: (d) cell wall composed of peptidoglycan

Solution: The peptidoglycan layer in the bacterial cell wall is primarily responsible for its increased resistance to osmotic shock compared to eukaryotic cells, which typically do not have such a structured cell wall.

Quick Tip

The structure of the cell wall can greatly influence a cell's susceptibility to environmental stresses.

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29. Which of the following is the correct sequence of reagents given below used in the Gram staining process?

(A). Iodine

(B). Crystal violet

(C). Safranin

(D). Alcohol

Options:

(a) (A), (B), (C), (D)

(b) (A), (C), (B), (D)

(c) (B), (A), (D), (C)

(d) (C), (B), (D), (A)

Correct Answer: (c) (B), (A), (D), (C)

Solution: The correct sequence for the Gram staining process starts with Crystal violet, followed by Iodine, then Alcohol for decolorization, and finally counterstained with Safranin. This method distinguishes between Gram-positive and Gram-negative bacteria.

Quick Tip

Understanding the correct sequence of staining in microbiological techniques is crucial for accurate diagnosis and research.

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30. Which of the follwing terms specifically refers to the practice of rearing stingless bees?

Options:

(a) Nesting

(b) Apiculture

(c) Meliponiculture

(d) Iridiculture

Correct Answer: (c) Meliponiculture

Solution: Meliponiculture specifically refers to the rearing and management of stingless bees, a practice distinct from apiculture, which is the broader term for beekeeping.

Quick Tip

Specializing in meliponiculture can be beneficial for sustainable beekeeping practices and biodiversity conservation.

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31. Consider the following statements regarding economic importance of fungi and choose the correct statements-

(A). Extract of the sclerotia of Claviceps purpurea is used to produce ergot drug

(B). Agaricus campestris is a fungus which is edible.

(C). Aflatoxin, a powerful toxin is produced by the Aspergillus

(D). Saccharomyces cerevisiae is the source of enzyme invertase.

Options:

(a) (A), (B) and (D) only.

(b) (A), (B) and (C) only.

(c) (A), (B), (C) and (D)

(d) (B), (C) and (D) only.

Correct Answer: (c) (A), (B), (C) and (D)

Solution: All statements regarding the economic importance of fungi are correct. Claviceps purpurea is used in medicinal compounds, Agaricus campestris is an edible mushroom, Aflatoxin is indeed a toxin produced by Aspergillus species, and Saccharomyces cerevisiae produces invertase.

Quick Tip

Understanding the beneficial and harmful roles of fungi can help in fields like pharmacology and food science.

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32. Match List-I with List-II

List-I	List-II
Micro organism	Disease
(A). *Colletotrichum falcatum*	(I). Late blight of potato
(B). *Phytophthora infestans*	(II). Green ear of bajra
(C). *Sclerospora graminicola*	(III). Red rot of sugarcane
(D). *Ustilago nuda var. tritici*	(IV). Loose smut of wheat

Options:

1. (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

2.(A)- (II), (B) - (I), (C) - (III) ,(D) - (IV)

3. (A)- (I), (B) - (II), (C) - (IV), (D) - (III)

4. (A)-(III), (B) - (I), (C) - (II), (D) -(IV)

Correct Answer: (d) (A)-(III), (B) - (I), (C) - (II), (D) -(IV)

Solution: Correct matching is as follows: Colletotrichum falcatum causes red rot of sugarcane, Phytophthora infestans causes late blight of potato, Sclerospora graminicola

causes green ear of bajra, and Ustilago nuda var. tritici causes loose smut of wheat.

Quick Tip

Recognizing the causal agents of plant diseases is crucial for effective disease management and prevention in agriculture.

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33. Who did work on the recurrence of wheat rusts in India?

Options:

1. T. Sadasivan
2. K.C. Mehta
3. Y.L. Nene
4. R.N. Singh

Correct Answer: (b) K.C. Mehta

Solution: K.C. Mehta was a prominent researcher who worked extensively on the problem of wheat rusts in India, contributing significantly to the understanding and management of this agricultural issue.

Quick Tip

Studying historical figures in agricultural science can provide insights into how past challenges were addressed and overcome.

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34. Match List-I with List-II

List-I	List-II
(Disease)	(Symptom)
(A). Downy mildew	(I). Dead areas on the stem bark of woody trees.
(B). Blight	(II). Angular and elongated spots appearing on the veins on the lower surface of the leaf.
(C). Canker	(III). Cottony growth on the host surface.
(D). Anthracnose	(IV). Burnt appearance

Options:

1. (A)- (II), (B)- (I), (C) - (III), (D) - (IV)
2. (A)-(I), (B)- (III), (C)- (I)I, (D)- (1V)
3.(A)- (I), (B)-(III), (C)- (IV), (D) - (1II)

4.(A)- (III), (B)-(IV), (C)- (I), (D) (1I)

Correct Answer: (d) (A)- (III), (B)-(IV), (C)- (1), (D) (1I)

Solution: Correct symptom matching is: Downy mildew shows cottony growth on the host surface, Blight presents a burnt appearance, Canker leads to dead areas on the stem bark of woody trees, and Anthracnose results in angular and elongated spots appearing on the veins on the lower surface of the leaf.

Quick Tip

Understanding the symptoms associated with different plant diseases aids in accurate diagnosis and effective management.

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35. Which of the following statements about extent of infection and perpetuation of pathogen are correct?

(A). Disease which is confined to a particular part or organ is known as systemic disease.

(B). Arhar wilt is a soil-borne disease

(C). Smut disease of cereals are seed-borne

(D). Mildew and rusts are air-borne

Options:

(A), (C) and (D) only.

(B) and (D) only.

(A), (B)and (D) only.

(B), (C) and (D) only.

Correct Answer: (d) (B), (C) and (D) only.

Solution: The correct statements regarding the extent of infection and perpetuation of pathogens are that Arhar wilt is soil-borne, smut diseases of cereals are seed-borne, and mildew and rusts are air-borne. The statement about systemic diseases is incorrect; they affect the whole organism, not just a part.

Quick Tip

Distinguishing how diseases spread and persist can guide effective control strategies in crop management.

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36. Which of the following statements related to disease management is/are correct

(A). Biological management of disease make use of, hyperparasitism

(B). Thiram is a contact fungicide

(C). Bordeaux mixture consists of copper sulphate, ammonium carbonate and water.

(D). Crop rotation is a prophylactic measure of disease management

Options:

1. (A), (B) and (D) only.

2.(A), (B) and (C) only

3.(A), (B), (C) and (D)

$4_{(}B), (C)and(D)only.$

Correct Answer: (a) (A), (B) and (D) only.

Solution: The correct statements are that biological management of diseases can utilize hyperparasitism, Thiram is indeed a contact fungicide, and crop rotation is a prophylactic measure. The Bordeaux mixture is incorrect as stated; it contains copper sulphate, lime, and water, not ammonium carbonate.

Quick Tip

Accurate knowledge of fungicides and biological control measures is essential for effective disease management in agriculture.

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37. Match List-l with List-ll

List-I (Hormone)	List-II (Physiological Effect)
(A) Cytokinin	(III) Promotes lateral shoot growth
(B) Auxin	(II) Prevent leaf and fruit drop at early stage
(C) Gibberellin	(I) Increase stem length
(D) Abscisic acid	(IV) Stimulates stomata closing

Options:

1.(A)- (III), (B) - (II), (C)- (I), (D) - (IV)

2. (A)- (I), (B) - (III), (C) - (II), (D) - (IV)

3.(A)- (I), (B) - (II), (C) - (IV), (D) - (III)

4.(A)-(III), (B) - (IV), (C) - (1), (D) - (II)

Correct Answer: (a) (A)- (I), (B) - (II), (C) - (IV), (D) - (III)

Solution: Correct matching of hormones and their physiological effects is: Cytokinins increase stem length, Auxins prevent leaf and fruit drop, Gibberellins stimulate stem elongation and growth, and Abscisic acid promotes stomata closing.

Quick Tip

Understanding the roles of different plant hormones can help in their application for growth regulation and stress responses.

---

38. Normal seedlings upon putting in dark, for few days, get converted into white like albinos. Which of the following terms will you use to describe them?

Options:

1. Mutated

2. Embolised

3. Etiolated

4. Bolted

Correct Answer: (c) Etiolated

Solution: When seedlings are grown in the absence of light, they become etiolated, char-

acterized by elongated, pale stems and small, unexpanded leaves due to lack of chlorophyll development.

Quick Tip

Recognizing signs of etiolation can help in ensuring that plants receive adequate light for proper growth and development.

---

39. Horizontal growth of seedling, swelling of axis and apical hook formation of dicot seedlings are associated with

Options:

1. Photoperiodism
2. Vernalisation
3. Ethylene
4. Cytokinin

Correct Answer: (c) Ethylene

Solution: Ethylene is involved in various aspects of growth regulation including the horizontal growth of seedlings, stem swelling, and apical hook formation in dicot seedlings. These effects help the seedling break through the soil surface.

Quick Tip

Ethylene's role in plant stress responses and developmental processes makes it a critical hormone for study in plant biology and agriculture.

---

40. Which of the following statements is/are correct about photosynthesis ?

(A). Liberation of oxygen when green cells are exposed to sun light in presence of suitable acceptor is known as emerson effect

(B). Green light is not effective for photosynthesis

(C). When CO, is added to PEP, the first stable product is oxaloacetate.

(D). PEPis the primary CO, acceptor in C4 plants

Options:

(A), (B)and (D) only.

(A), (B)and (C) only.

(A), (B), (C)and (D)

(B), (C)and (D) only.

Correct Answer: (d) (B), (C)and (D) only.

Solution: The correct statements about photosynthesis are that green light is less effective for photosynthesis, when CO2 is added to PEP the first stable product is oxaloacetate, and PEP is the primary CO2 acceptor in C4 plants. The Emerson effect refers to the enhancement of photosynthesis when red and far-red light are used together, not the liberation of oxygen alone.

Quick Tip

Understanding the specifics of photosynthesis, including light absorption and carbon fixation pathways, is crucial for fields like plant biology and agricultural sciences.

---

41. 'Indian Farming' magazine is a publication of

(a) IARI, New Delhi

(b) IVRI, Izatnagar

(c) CRRI, Cuttak

(d) ICAR, New Delhi

Correct Answer: (d) ICAR, New Delhi

Solution: 'Indian Farming' magazine is published by the Indian Council of Agricultural Research (ICAR), headquartered in New Delhi.

Quick Tip

ICAR is a central body responsible for coordinating agricultural education and research in India.

---

42. In which crop and year was the first All India Co-ordinated Research Project set up in India with the assistance of Rockefeller Foundation of the USA?

(a) Bajra, 1927

(b) Wheat, 1957

(c) Maize, 1957

(d) Maize, 1967

Correct Answer: (c) Maize, 1957

Solution: The first All India Co-ordinated Research Project was established for maize in the year 1957, funded by the Rockefeller Foundation.

Quick Tip

Collaborative research projects enhance crop yields and agricultural practices through focused and coordinated efforts.

---

43. Match List-I with List-II

List-I (Institute)	List-II (Year of Establishment)
(A) Institute for Rural Management	(1) 1979
(B) National Academy for Agricultural Research Management	(3) 1976
(C) National Institute of Agricultural Extension Management	(2) 1987
(D) National Institute of Agricultural Marketing	(4) 1988

Options:

(a) (A) - (1), (B) - (2), (C) - (3), (D) - (4)

(b) (A) - (1), (B) - (3), (C) - (2), (D) - (4)

(c) (A) - (1), (B) - (2), (C) - (4), (D) - (3)

(d) (A) - (3), (B) - (4), (C) - (1), (D) - (2)

Correct Answer: (b) (A) - (1), (B) - (3), (C) - (2), (D) - (4)

Solution: The correct matches for the establishments are: Institute for Rural Management was established in 1979, National Academy for Agricultural Research Management in 1987, National Institute of Agricultural Extension Management in 1976, and National Institute of Agricultural Marketing in 1988.

Quick Tip

Awareness of the foundational years of agricultural institutes can provide context on the evolution of agricultural education and training in India.

---

44. Which of the following is not a measure of dispersion?

(a) Range

(b) Mean deviation

(c) Standard deviation

(d) Mode

Correct Answer: (d) Mode

Solution: The mode, being a measure of central tendency, is not used to describe dispersion. It indicates the most frequently occurring data point in a dataset.

Quick Tip

Understanding different statistical measures helps in accurately interpreting data and results in research and applied sciences.

---

45. In a normally distributed population, the number of observations falling within the range Mean ± S.D. is approximately:

(a) 16%

(b) 32%

(c) 68%

(d) 95%

Correct Answer: (c) 68%

Solution: In a normal distribution, about 68% of the data lies within one standard deviation of the mean.

Quick Tip

The rule of 68-95-99.7 (Empirical Rule) is fundamental in statistics for understanding the distribution of data points.

---

46. While conducting a chi-square test to examine the independence of attributes in an $m \times n$ contingency table, what formula determines the degree of freedom?

(a) $m(n-1)$

(b) $n(m-1)$

(c) $(n-1)$

(d) $(m-1)(n-1)$

Correct Answer: (d) $(m-1)(n-1)$

Solution: The degrees of freedom for a chi-square test in an $m \times n$ contingency table are calculated using the formula $(m-1)(n-1)$.

Quick Tip

Properly determining degrees of freedom is crucial for the correct interpretation of chi-square tests in statistics.

---

47. Arrange the following steps in the correct sequence for implementing an agricultural

extension programme

(A) Developing extension materials

(B) Implementing the programme

(C) Evaluating the programme

(D) Conducting needs assessment

Options:

(a) (A), (B), (C), (D)

(b) (A), (C), (D), (B)

(c) (B), (A), (D), (C)

(d) (D), (A), (B), (C)

Correct Answer: (d) (D), (A), (B), (C)

Solution: The logical order for implementing an agricultural extension programme begins with conducting needs assessment, followed by developing materials, implementing the programme, and finally evaluating it.

Quick Tip

Effective agricultural extension programs are built on a strong understanding of the community's needs and ongoing evaluation.

---

48. Diffusion of an innovation occurs through a step process. Arrange the following stages in the adoption process in sequential order

(A) Decision

(B) Implementation and Confirmation

(C) Persuasion

(D) Knowledge

Options:

(a) (A), (B), (C), (D)

(b) (C), (B), (A), (D)

(c) (D), (C), (A), (B)

(d) (C), (B), (D), (A)

Correct Answer: (c) (D), (C), (A), (B)

Solution: The adoption process for innovations typically follows this sequence: Knowledge acquisition, Persuasion, Decision making, and then Implementation and Confirmation.

Quick Tip

Understanding the stages of adoption can help in effectively spreading new technologies and practices in various fields.

---

49. Which of the following marketing concepts involves dividing a market into distinct groups of buyers based on their needs, characteristics, or behavior, who may require different products or marketing mixes?

(a) Product differentiation

(b) Market segmentation

(c) Market targeting

(d) Market positioning

Correct Answer: (b) Market segmentation

Solution: Market segmentation involves dividing the market into distinct groups based on varying needs and behaviors, allowing for targeted marketing strategies.

Quick Tip

Segmenting a market allows businesses to focus their efforts more efficiently and tailor their products to better meet consumer demands.

---

50. Match List-I with List-II

List-I (Scientist)	List-II (Scientific Contribution)
(A) Hans Krebs	(1) Citric acid cycle
(B) P. Mitchell	(2) Chemiosmotic hypothesis
(C) W. M. Stanley	(4) Crystallization of Tobacco Mosaic Virus
(D) M. Calvin	(3) C3 cycle

Options:

(a) (A) - (2), (B) - (1), (C) - (3), (D) - (4)

(b) (A) - (1), (B) - (3), (C) - (2), (D) - (4)

(c) (A) - (1), (B) - (2), (C) - (4), (D) - (3)

(d) (A) - (3), (B) - (4), (C) - (1), (D) - (2)

Correct Answer: (c) (A) - (1), (B) - (2), (C) - (4), (D) - (3)

Solution: The correct matches are: Hans Krebs is known for the Citric acid cycle, P. Mitchell for the Chemiosmotic hypothesis, W. M. Stanley for the crystallization of Tobacco Mosaic Virus, and M. Calvin for the C3 cycle.

Quick Tip

These scientists and their discoveries have been foundational to modern biochemistry and molecular biology.

---

51. The following are the steps of chemiosmotic ATP synthesis in the light reaction. Arrange them in correct order of their occurrence-

(A) H^+ diffuse through ATP synthetase and it makes ATP.

(B) Electrons from PS-II pass along electron transport chain

(C) H^+ concentration gradient generates across the membrane

(D) Light excites electrons in PS-I

Options:

(a) (A), (B), (C), (D)

(b) (D), (B), (C), (A)

(c) (B), (A), (D), (C)

(d) (C), (B), (D), (A)

Correct Answer: (b) (D), (B), (C), (A)

Solution: The correct sequence is light excitation in PS-I, electron transport from PS-II, generation of a proton gradient, and ATP synthesis by ATP synthase.

Quick Tip

Understanding the sequence of light reactions is fundamental for comprehending how plants convert light energy into chemical energy.

---

52. Consider the following statements and choose the correct statements

(A) Sugarcane has kranz anatomy in their leaves

(B) Maize is a C4 plant

(C) Photolysis of water in photosynthesis require Mg^{2+} ions

(D) C4 pathway of photosynthetic CO_2 fixation was discovered by Hatch and Slack

Options:

(a) (A), (B) and (D) only.

(b) (A), (B) and (C) only

(c) (A), (B), (C) and (D)

(d) (B), (C) and (D) only.

Correct Answer: (a) (A), (B) and (D) only.

Solution: Sugarcane has kranz anatomy, Maize is a C4 plant, and the C4 pathway was indeed discovered by Hatch and Slack. The statement about Mg^{2+} ions is incorrect; it is Mn^{2+} that is involved in water photolysis.

Quick Tip

Clarifying the roles of minerals in photosynthesis can prevent misconceptions in plant biochemistry.

---

53. Match List-I with List-II

List-I (Element)	List-II (Biological Function)
(A) Iron	(1) Pollen germination
(B) Zinc	(2) Photolysis of water
(C) Boron	(3) Required in chlorophyll biosynthesis
(D) Manganese	(4) IAA biosynthesis

Options:

(a) (A) - (1), (B) - (2), (C) - (3), (D) - (4)

(b) (A) - (1), (B) - (3), (C) - (2), (D) - (4)

(c) (A) - (1), (B) - (2), (C) - (4), (D) - (3)

(d) (A) - (3), (B) - (4), (C) - (1), (D) - (2)

Correct Answer: (d) (A) - (3), (B) - (4), (C) - (1), (D) - (2)

Solution: Iron is essential for chlorophyll biosynthesis, Zinc for IAA biosynthesis, Boron for pollen germination, and Manganese is crucial for the photolysis of water in photosynthesis.

Quick Tip

Each microelement plays a specific role in plant development and physiology, highlighting the complexity of plant nutrient requirements.

---

54. The technique of growing plants in nutrient solution, in complete absence of soil, can be employed for

(A) Identification of essentiality of mineral elements

(B) Commercial production of vegetables

(C) Studying the deficiency symptoms of a particular element

(D) Conservation of germplasm

Options:

(a) (A), (B) and (D) only.

(b) (A), (B) and (C) only.

(c) (A), (B), (C) and (D)

(d) (B), (C) and (D) only

Correct Answer: (b) (A), (B) and (C) only.

Solution: Hydroponics, the technique of growing plants in a nutrient solution without soil, is useful for studying essential mineral elements, commercial vegetable production, and identifying deficiency symptoms but not typically used for germplasm conservation.

Quick Tip

Hydroponics allows for precise control over nutrient delivery, making it ideal for experimental and commercial horticulture.

---

55. Certain bacteria living in the soil convert nitrates into nitrites and then to free nitrogen. Such bacteria are termed as

(a) nitrogen fixing bacteria

(b) denitrifying bacteria

(c) nitrifying bacteria

(d) ammonifying bacteria

Correct Answer: (b) denitrifying bacteria

Solution: Denitrifying bacteria convert nitrates into nitrites and then to nitrogen gas, releasing it back into the atmosphere.

Quick Tip

Understanding soil bacteria functions helps in managing soil health and fertility in agricultural practices.

---

56. During seed germination, its stored food is mobilised by

(a) auxin

(b) ethylene

(c) gibberellin

(d) ABA

Correct Answer: (c) gibberellin

Solution: Gibberellin plays a key role in germination, stimulating the breakdown of starches in seeds to glucose, which is used as energy for growth.

Quick Tip

Gibberellins are essential for breaking seed dormancy and initiating germination, an important aspect of agricultural seed development.

---

57. Match List-I with List-II

List-I (Fertilizer)	List-II (Component/Description)
(A) Urea	(3) Organic chemical fertilizer
(B) CAN	(4) Neutral fertilizer
(C) SSP	(1) Sulphur
(D) MoP	(2) KCl

Options:

(a) (A) - (1), (B) - (2), (C) - (3), (D) - (4)

(b) (A) - (1), (B) - (3), (C) - (2), (D) - (4)

(c) (A) - (1), (B) - (2), (C) - (4), (D) - (3)

(d) (A) - (3), (B) - (4), (C) - (1), (D) - (2)

Correct Answer: (d) (A) - (3), (B) - (4), (C) - (1), (D) - (2)

Solution: Correct matches are Urea as an organic chemical fertilizer, CAN as a neutral fertilizer, SSP containing Sulphur, and MoP as KCl.

Quick Tip

Knowing the composition and type of fertilizers helps in their appropriate application, optimizing plant growth and minimizing environmental impact.

---

58. Match List-I with List-II

List-I (Disorder)	List-II (Nutrient Deficiency)
(A) Black heart of Potato	(1) Calcium
(B) Interveinal chlorosis of younger leaves	(3) Iron
(C) Whip-tail in Cauliflower	(4) Molybdenum
(D) Die-back of terminal buds	(2) Boron

Options:

(a) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

(b) (A) - (II), (B) - (III), (C) - (IV), (D) - (I)

(c) (A) - (I), (B) - (II), (C) - (IV), (D) - (III)

(d) (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

Correct Answer: (b) (A) - (II), (B) - (III), (C) - (IV), (D) - (I)

Solution: Black heart of Potato is caused by a deficiency of Boron, Interveinal chlorosis of younger leaves by Iron, Whip-tail in Cauliflower by Molybdenum, and Die-back of terminal buds by Calcium.

Quick Tip

Identifying specific nutrient deficiencies can guide effective supplementation and management practices in crop cultivation.

---

59. The formula of gypsum is

(a) $CaCO_3$

(b) $CaSO_4.2H_2O$

(c) $Ca(OH)_2$

(d) CaO

Correct Answer: (b) $CaSO_4.2H_2O$

Solution: Gypsum is chemically known as calcium sulfate dihydrate, with the formula $CaSO_4.2H_2O$.

Quick Tip

Gypsum is used in agriculture to improve soil structure and as a source of calcium and sulfur for plant nutrition.

---

60. What was the name of "the Commission for Agricultural Costs and Prices (CACP)" prior to 1980?

(a) Agricultural Prices Commission

(b) Commission for Farming Prices and Costs

(c) Farming Costs and Prices Commission

(d) Support Price Commission

Correct Answer: (a) Agricultural Prices Commission

Solution: Before being renamed as the Commission for Agricultural Costs and Prices in 1980, it was known as the Agricultural Prices Commission.

Quick Tip

The history of agricultural policy bodies provides insight into the evolving priorities and challenges of agricultural economics and policy-making.

---

61. Which of the following statements about correlation coefficient and regression coefficients are correct?

(A) The correlation coefficient is unaffected by change of origin and scale

(B) Regression coefficients are independent of change of origin but not of scale

(C) Correlation coefficient is the geometric mean of two regression coefficients

(D) If one regression coefficient is greater than 1, the other must also be greater than 1

Options:

(a) (A), (B) and (D) only.

(b) (A), (B) and (C) only.

(c) (A), (B), (C) and (D)

(d) (B), (C) and (D) only.

Correct Answer: (b) (A), (B) and (C) only.

Solution: The statements (A), (B), and (C) are correct. Statement (D) is incorrect because regression coefficients are not necessarily symmetric in their influence.

Quick Tip

Correlation provides a measure of the strength and direction of a linear relationship between two variables, which is scale invariant.

---

62. Which of the following exchangeable sodium percentage is characteristic of alkaline soils?

(a) greater than¿15%

(b) 10-15%

(c) less than ¡5%

(d) 5-10%

Correct Answer: (a) greater than ¿15%

Solution: Alkaline soils typically have an exchangeable sodium percentage (ESP) greater than 15%.

Quick Tip

High ESP can lead to soil structure degradation, making it imperative to manage salinity and sodicity in agricultural lands.

---

63. Consider the following statements regarding chrysanthemum-

(A) Corms are used for propagation

(B) Y2K is a variety of chrysanthemum

(C) De-suckering is the removal of new shoots that develop from the base of the plant

(D) Chrysanthemum is a short-day plant for flower bud initiation

Options:

(a) (A), (B) and (D) only.

(b) (A), (B) and (C) only.

(c) (A), (B), (C) and (D)

(d) (B), (C) and (D) only.

Correct Answer: (d) (B), (C) and (D) only.

Solution: Chrysanthemums do not propagate via corms; they are propagated through cuttings or division. Statements (B), (C), and (D) are correct.

Quick Tip

Understanding the specific propagation methods and growth requirements of different plants is crucial for effective horticulture.

64. The colour of beetroot is attributed to which of the following compound?

(a) B-Cyanins and B-Xanthins

(b) B-Carotene and xanthophylls

(c) Anthocyanin

(d) B-Cyanins and B-Carotene

Correct Answer: (a) B-Cyanins and B-Xanthins

Solution: The vibrant red-purple color of beetroot is primarily due to the presence of B-Cyanins and B-Xanthins.

Quick Tip

The pigments in beetroot not only provide color but also have antioxidant properties beneficial for health.

---

65. Place the following jelly making steps in the correct order-

(A) Add sugar, boil and remove any scum

(B) Boiling with water and add citric acid

(C) Cut the fruits into thin slices

(D) Strain the fruit mixture and test for pectin

Options:

(a) (A), (C), (B), (D)

(b) (A), (B), (C), (D)

(c) (B), (A), (D), (C)

(d) (C), (B), (D), (A)

Correct Answer: (d) (C), (B), (D), (A)

Solution: The correct sequence for making jelly is to first cut the fruits, then boil with water and add citric acid, followed by straining and testing for pectin, and finally adding sugar to boil and remove any scum.

Quick Tip

Proper sequence in food processing techniques like jelly making is essential for achieving the desired texture and flavor.

---

66. Match List-I with List-II

List-I (Plant)	List-II (Characteristic)
(A) Carrot	(1) Sporophytic self-incompatibility
(B) Radish	(2) Heteromorphic flower
(C) Brinjal	(3) Protoandry
(D) Papaya	(4) Dioecy

Options:

(a) (A) - (I), (B) - (II), (C) - (III), (D) - (IV)

(b) (A) - (III), (B) - (I), (C) - (II), (D) - (IV)

(c) (A) - (I), (B) - (II), (C) - (IV), (D) - (III)

(d) (A) - (III), (B) - (IV), (C) - (I), (D) - (II)

Correct Answer: (b) (A) - (III), (B) - (I), (C) - (II), (D) - (IV)

Solution: The correct associations are: Carrot with Protoandry, Radish with Sporophytic self-incompatibility, Brinjal with Heteromorphic flower, and Papaya with Dioecy.

Quick Tip

Recognizing the reproductive strategies of crops can aid in understanding their breeding patterns and pollination mechanisms.

---

67. Amrapali is a cross of

(a) Dashehari X Neelum

(b) Neelum X Kesar

(c) Neelum X Alphonso

(d) Dashehari X Alphonso

Correct Answer: (a) Dashehari X Neelum

Solution: The mango variety Amrapali is a hybrid cross between Dashehari and Neelum.

Quick Tip

Hybridization in fruit crops like mango can result in new varieties with improved traits such as flavor, size, and resistance to diseases.

---

68. Thermal efficiency of diesel engine is

(a) 32-38%

(b) 55-60%

(c) 42-48%

(d) 45-52%

Correct Answer: (a) 32-38%

Solution: The typical thermal efficiency of diesel engines ranges from 32% to 38%.

Quick Tip

Understanding the efficiency of different engine types can guide decisions in machinery selection for various applications.

---

69. Which of the following statements about tillage are correct?

(A) Tillage operation in which nearly 30% crop residues are left on the soil surface is called conventional tillage

(B) An open trench left in between two adjacent strips of land after finishing ploughing is

called dead furrow.

(C) Jethro Tull was known as father of tillage

(D) Conservation tillage has mitigation effect on climate change

Options:

(a) (A), (B) and (D) only.

(b) (A), (B) and (C) only

(c) (A), (B), (C) and (D).

(d) (B), (C) and (D) only

Correct Answer: (d) (B), (C) and (D) only.

Solution: Statement (A) is incorrect as conventional tillage usually involves turning over the soil completely, leaving little to no residue. Statements (B), (C), and (D) are correct.

Quick Tip

Understanding different tillage practices helps in making informed decisions that can lead to sustainable farming and soil conservation.

---

70. Dropping of seeds in furrow lines in a continuous flow and covering them with soil is called as-

(a) Hill dropping

(b) Check row planting

(c) Drilling

(d) Broadcasting

Correct Answer: (c) Drilling

Solution: Drilling is a seed planting technique where seeds are systematically dropped into furrow lines in a continuous flow and then covered with soil. This method ensures uniform seed depth and spacing, which is crucial for optimal plant growth and yield. Drilling is a seed

planting technique where seeds are systematically dropped into furrow lines in a continuous flow and then covered with soil. This method ensures uniform seed depth and spacing, which is crucial for optimal plant growth and yield.

Quick Tip

The drilling method of planting is efficient for large-scale farming, promoting even growth and facilitating mechanized farming.

---

71. Consider the following statements regarding pest management in rice and choose correct options-

(A) ETL for rice earhead bug in milky stage is 109 bugs/hill.

(B) Use of synthetic pyrethroids may cause resurgence of sucking pest in rice.

(C) Tip drying and orange discoloration of rice leaves is a typical symptom of Recilia dorsalis.

(D) Alternate wetting and drying is a good management technique for controlling B.P.H. in rice.

Choose the correct answer from the options given below:

(a) (A), (B) and (D) only.

(b) (A), (B) and (C) only.

(c) (A), (B), (C) and (D).

(d) (B), (C) and (D) only.

Correct Answer: (a) (A), (B) and (D) only

Solution: The use of synthetic pyrethroids can lead to the resurgence of sucking pests, and alternate wetting and drying is an effective technique for controlling Brown Plant Hopper (B.P.H.) in rice. These methods are integral to integrated pest management strategies, which aim to minimize pest damage while reducing reliance on chemical pesticides.

Quick Tip

Understanding pest life cycles and their interactions with environmental factors is crucial for effective pest management in crops like rice.

---

72. Hand picking and killing of insects in field is a-

(a) Mechanical method.

(b) Cultural method

(c) Biological method.

(d) Preventive method.

Correct Answer: (a) Mechanical method

Solution: Hand picking is a straightforward mechanical method of pest control where pests are physically removed from plants and killed. This method is effective in reducing pest populations without the use of chemicals, making it an environmentally friendly option.

Quick Tip

Mechanical methods like hand picking are environmentally friendly and can be effective in managing pest levels on a small scale or in gardens.

---

73. National Bureau of Agricultural Insect Resources (NBAIR) is located at-

(a) Chennai, Tamilnadu

(b) New Delhi

(c) Bengaluru, Karnataka

(d) Karnal, Haryana

Correct Answer: (c) Bengaluru, Karnataka

Solution: The National Bureau of Agricultural Insect Resources (NBAIR) is situated in Ben-

galuru, Karnataka. It serves as a key research center focused on agricultural insect resources, contributing significantly to pest management and agricultural research in India.

Quick Tip

Being aware of such key institutions can enhance collaboration and access to specialized knowledge in agricultural practices and pest management.

---

74. Match List-I with List-II:

List-I (Term)	List-II (Coined by)
(A) Ecology	(1) Ernst Hackel
(B) Pheromone	(II) Raymond C. Bushland
(C) Integrated control	(III) Karlson and Luscher
(D) Pest management	(IV) V. Stern

Choose the correct answer from the options given below:

(a) (A)-(1), (B) - (II), (C) - (III), (D) - (IV)

(b) (A)-(1), (B) - (III), (C) - (IV), (D) - (II)

(c) (A)(I), (B) (II), (C) - (IV), (D) - (III)

(d) (A)(III), (B) (IV), (C) - (I), (D) - (II)

Correct Answer: (b) (A)-(1), (B) - (III), (C) - (IV), (D) - (II)

Solution: The correct matching pairs are A-1, B-III, C-IV, and D-II. This reflects the accurate identification of each term with its originator in the field of ecological and pest management studies.

Quick Tip

Understanding the history and origin of key scientific terms can provide deeper insights into their development and application in the field.

---

75. Select the correct sequence of organs in the alimentary canal of insects, starting from mouth-

(A) Ileum

(B) Oesophagus

(C) Crop

(D) Pharynx

Choose the correct answer from the options given below:

(a) (D), (B), (C), (A).

(b) (A), (B), (C), (D).

(c) (B), (A), (D), (C)

(d) (C), (B), (D), (A).

Correct Answer: (a) (D), (B), (C), (A).

Solution: The correct sequence of organs in the alimentary canal of insects, starting from the mouth, is Pharynx, Oesophagus, Crop, and Ileum. This sequence describes the path that food follows from ingestion to digestion in insects.

Quick Tip

Knowledge of insect anatomy is essential for studying their feeding habits and developing targeted pest control strategies.
