

ICAR-AIEEA-PG Plant Science 2025

Question 1

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R)

Assertion (A): Sesamum phyllody is caused by Phytoplasma and develop Witches broom symptom

Reason (R): All floral parts turn green, apical leaves also become very small and hence the name is phyllody. It is

transmitted by both leaf hopper (*Orosius albicinctus*) and aphids.

In light of the above statements, choose the most appropriate answer from the options given below

1. Both (A) and (R) are correct and (R) is the correct explanation of (A).
2. Both (A) and (R) are correct, but (R) is not the completely correct explanation of (A)
3. (A) is correct but (R) is not correct.
4. (A) is not correct but (R) is correct.

Question 2

During its growth through the style, the pollen tube's cell wall is modified to facilitate its progression and interaction with

the female tissues. Which of the following components is primarily involved in the strengthening and extension of the pollen tube cell wall?

1. Lignin
2. Cellulose and pectin
3. Suberin
4. Chitin

Question 3

In Frederick Griffith's transformation experiment (1928), the following activities were performed. Arrange the activities in

proper sequential order from first to last.

- (A) Injected mice with live R-strain: Mice lived.
- (B) Injected mice with a mixture of heat-killed S-strain and live R-strain: Mice died.
- (C) Injected mice with live S-strain: Mice died.
- (D) Injected mice with heat-killed S-strain: Mice lived

Choose the correct answer from the options given below:

1. (A), (C), (B), (D)
2. (A), (C), (D), (B).
3. (B), (A), (D), (C)
4. (C), (A), (D), (B).

Question 4

Given below are two statements:

Statement (I): Heterosis breeding involves crossing two genetically diverse inbred lines to produce F₁ hybrids with superior traits.

Statement (II): The vigour observed in F₁ hybrids remains unchanged for many subsequent generations if the hybrid is self-pollinated

In light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true.
2. Both Statement (I) and Statement (II) are false
3. Statement (I) is true but Statement (II) is false.
4. Statement (I) is false but Statement (II) is true.

Question 5

During the development of the female gametophyte (megagametogenesis) in angiosperms, the functional megaspore

that results from meiotic division of the megasporocyte proceeds through a specific sequence of nuclear events. Which

of the following options best characterizes this developmental pathway?

1. The functional megaspore undergoes a single meiotic division followed by cytokinesis to directly form the egg apparatus
2. Following meiotic reduction, the surviving megaspore completes three successive mitotic divisions without immediate cellular partitioning, leading to an eight-nucleate, seven-celled embryo sac.
- 3 All four megaspores formed by meiosis contribute equally to the formation of a sixteen-nucleate mature female gametophyte.
- 4 The megaspore enters two rounds of meiosis followed by syngamy-independent nuclear fusion events forming a triploid embryo sac prior to fertilization_

Question 6

The 'random cup method' of seed sampling techniques is particularly suitable for seeds that are not extremely chaffy,

do not tend to bounce or roll and require a representative working sample of size (gram):

1. Up to 10 grams
2. Up to 50 grams
3. Up to 100 grams
4. Up to 150 grams

Question 7

The fourth rule of Koch's postulates was contributed by:

1. Robert Koch
2. Antonie van Leeuwenhoek
3. EF. Smith
- 4 Julius Oscar Brefeld

Question 8

The megaspore mother cell (IMC) in angiosperms undergoes meiosis to produce:

1. Four microspores, of which usually one is functional
2. Four megaspores, of which usually one is functional
3. A diploid embryo sac
- 4 Atriploid endosperm

Question 9

In plant species exhibiting alternation of generations (sporophyte, gametophyte), the sporophytic generation is

characterized by:

1. Haploid chromosome number and gamete production via mitosis.
2. Diploid chromosome number and spore production via meiosis.
3. Haploid chromosome number and spore production via meiosis.
4. Diploid chromosome number and gamete production via mitosis.

Question 10

Which of the following statements is CORRECT about Nucleus Seed?

4. Nucleus seed is produced solely by private seed companies under minimal supervision.
2. Nucleus seed is a mix of different varieties bred for broad adaptation.
3. Nucleus seed is the genetically pure seed maintained by the original breeder or institution.
4. Nucleus seed is always distributed directly to farmers for commercial planting.

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Question 11

Integrated plant disease management is necessary for sustainability and to avoid adverse effects on the environment. Hence, step-wise one should follow the plant disease

management principles like =

- (A) Eradication
- (B) Avoidance
- (C) Exclusion
- (D) Protection
- (E) Resistance
- (F) Therapy

Choose the correct answer (proper sequence) from the options given below:

1. (B), (A), (C), (E), (D), (F)
2. (B), (C), (A), (E), (D), (F)
3. (A), (B), (C), (E), (DB), (F)
4. (A), (D), (F), (B), (C), (E)

Question 12

Given below are two statements, one is labeled as Assertion (A) and other one labelled as Reason (R)

Assertion (A): *Trichoderma harzianum* is used as a biocontrol agent against *Rhizoctonia solani*

Reason (R): *Trichoderma harzianum* parasitize *Rhizoctonia* by coiling around and penetrating its hyphae thus disrupting the cytoplasm and causing suppression

In light of the above statements, choose the correct answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
- 2 Both (A) and (R) are true but (R) is NOT the correct explanation of (A)
3. (A) is true but (R) is false
4. (A) is false but (R) is true.

Question 13

Arrange the following crops in ascending order of their area under cultivation (mha-million hectares) during 2023-24

(based on Government of India data):

- (A) Groundnut
- (B) Rapeseed and Mustard
- (C) Soybean
- (D) Sunflower

Choose the correct answer from the options given below:

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

Question 14

Which of the following pigment contributes to the yellow colour of the maize kernel:

1. Cryptocyanin
2. Anthocyanin
3. Zeaxanthin
4. Pyocyanin

Question 15

Seed germination is a tightly regulated physiological process that requires the weakening of the seed coat to allow the

emergence of the radicle. This weakening involves hormonal signaling that activates enzymes responsible for

degrading specific components of the seed coat and surrounding tissues. Which of the following hormonal interactions

is primarily responsible for initiating this seed coat weakening during the early stages of germination?

4. Synergistic action of GA and ethylene stimulating the production of cell wall-degrading enzymes.
2. ABA and cytokinin working together to weaken the seed coat.
3. Auxin and salicylic acid inhibiting cell wall reinforcement
4. Ethylene and ABA collaborating to induce seed coat lignification.

Question 16

Select the rRNA associated with the eukaryotic ribosomes:

- (A). 5S
- (B). 23S
- (C). 28S
- (D). 18S
- (E) 58S

Choose the correct answer from the options given below:

- 1. (A), (D) and (E) only
- 2. (C), (D) and (E) only
- 3. (A), (B), (C) and (D) only
- 4 (A), (C), (D) and (E) only

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Question 17

Identify the yeast genera -

- (A). Saccharomyces
- (B). Stenotrophomonas
- (C). Rhodotorula
- (D). Candida

Choose the correct answer from the options given below:

- 1. (A), (B) and (D) only
- 2. (A) and (D) only.
- 3. (A), (B), (C) and (D)
- 4 (A), (C) and (D) only.

Question 18

In a typical diploid angiosperm, the unique process of double fertilization involves the fusion of two male gametes with distinct female gametophytic cells. Considering the ploidy of the gametes and the nuclei involved, what is the resultant

ploidy level of the primary endosperm nucleus formed immediately after double fertilization?

- (A). It is haploid (n), as it originates from a single male gamete fusing with one polar nucleus.
- (B). It is diploid (2n), similar to the zygote, since it involves two nuclei
- (C). It is triploid (3n), due to the fusion of one male nucleus with two haploid polar nuclei
- (D). It becomes tetraploid (4n) if both sperm nuclei fuse with the central cell simultaneously.

Choose the correct answer from the options given below:

- 1. (A) only.
- 2 (C) only.
- 3. (B) only.
- 4. (A) and (D) only.

Question 19

The inheritance of mitochondrial DNA (mtDNA) in most sexually reproducing organisms exhibits a unique pattern primarily due to

- 1. High rates of homologous recombination during oogenesis.
- 2. Predominant paternal inheritance of mitochondrial genomes.
- 3. Maternal inheritance of mitochondrial genomes.
- 4. Strict biparental inheritance with equal contribution from both parents.

Question 20

Which is NOT a multi-parent mapping population?

- 1. MAGIC population
- 2. NAM population
- 3. Association mapping panel
- 4. F₂-plants

Question 21

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).
 Assertion (A): *Bacillus thuringiensis*, a soil bacterium possessing Cry-1Ac gene, kills the larvae of boll worms.
 Reason (R) Cry-1Ac gene codes for crystal protein which is responsible for the insecticidal effect
 In light of the above statements, choose the correct answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
- 4 (A) is false but (R) is true.

Question 22

In hybrid sunflower seed production, what is the typical ratio of the A-line (female parent) to the R-line (male parent)?

- 1.44
- 3.33
- 4.44

Question 23

Consider a hypothetical repressible operon under negative control. A mutation in the gene encoding the repressor protein results in a non-functional repressor that cannot bind to the operator. What would be the expected expression pattern of the structural genes in this operon?

1. Expression would be induced only in the presence of the corepressor.
2. Expression would be repressed under all conditions.
3. Expression would occur constitutively, regardless of the presence or absence of the corepressor.
4. Expression would be completely abolished.

Question 24

If a typical diploid rice plant (*Oryza sativa*) has $2n = 24$, which of the following could be an example of an aneuploid form?

1. A plant with 12 chromosomes
- 2 A plant with 24 chromosomes
3. A plant with 48 chromosomes
- 4 A plant with 25 chromosomes

Question 25

A series of groundbreaking experiments were conducted by various workers that collectively led to the scientific understanding that DNA is the genetic material. Identify the key experiments from the list:
 (A) Alfred Hershey and Martha Chase's Experiment (1952)
 (B) Frederick Griffith's Transformation Experiment (1928)
 (C) Heinz Fraenkel-Conrat's Experiment (1957)
 (D) Oswald Avery, Colin MacLeod, and Maclyn McCarty's Experiment (1944)
 Choose the correct answer from the options given below:

1. (A), (B) and (C) only.
- 2 (A), (B) and (D) only
3. (A), (C) and (D) only.
- 4 (B), (C) and (D) only.

Question 26

Given below are two statements:
 Statement (I): Population of Actinobacteria is higher in alkaline soils.
 Statement (II): Actinobacteria plays an important role in the decomposition of recalcitrant compounds such as chitin, lignin and cellulose.
 In light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true
2. Both Statement (I) and Statement (II) are false
3. Statement (I) is true but Statement (II) is false.
4. Statement (I) is false but Statement (II) is true.

Question 27

Given below are two statements:

Statement (I): Transformation is a natural process in which a bacterium can take up naked DNA from the environment.

Statement (II): Transformation does not cause genetic recombination _

In light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true.
2. Both Statement (I) and Statement (II) are false.
3. Statement (I) is true but Statement (II) is false.
4. Statement (I) is false but Statement (II) is true.

Question 28

Match List-I with List-II

List-I List-II

Eukaryotic cell organelles Major function

(A) Mitochondria (I) Site of protein synthesis and modification for secretion.

(B) Lysosomes (II) Contains digestive enzymes to break down waste materials and debris

(C) Golgi apparatus (III) Generates most of the cell's supply of adenosine triphosphate (ATP).

(D) Chloroplasts (IV) Modifies, sorts, and packages proteins and lipids for secretion or delivery to

other organelles _

Choose the correct answer from the options given below-

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

Question 29

Which one of the following is a rapid test to detect the mechanical damage to legume seeds?

1. Topographical Tetrazolium Test
2. X-ray Photography Test
3. Lactophenol Test
4. Ferric Chloride Test

Question 30

Match List-I with List-II

List-I List-II

(Pathogen) (Culture media)

(A) Fluorescent pseudomonads (I) Tetrazolium chloride agar

(B) Ralstonia solanacearum (II) Potato dextrose agar

(C) Xanthomonas species (III) King's B medium

(D) Fungi and bacteria (IV) Yeast extract nutrient agar

Choose the correct answer from the options given below:

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

Question 31

Match List-I with List-II

List-I List-II

Institute Mandates

(A). Central Plantation Crops Research Institute (CPCRI) (I). Avikanagar, Rajasthan

(B). Central Arid Zone Research Institute (CAZRI) (II). Thiruvananthapuram, Kerala

(C). Central Tuber Crops Research Institute (CTCRI) (III). Jodhpur, Rajasthan

(D). Central Sheep and Wool Research Institute (CSWRI) (IV). Kasaragod, Kerala

Choose the correct answer from the options given below:

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

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

Question 32

The likelihood of an individual in a population carrying two specific alleles of a human DNA marker, each of which has a frequency of 0.3, will be:

1. 0.03
2. 0.06
3. 0.18

Question 33

Match List-I with List-II

List List

Event Scientist

- (A) Coining the term "Gene" (I) James Watson and Francis Crick
- (B) Construction of the first accurate physical model of DNA. (UI) Erwin Chargaff
- (C) Confirmation of the semi-conservative replication of DNA. (II) Wilhelm Johannsen
- (D) Discovery of Chargaff's Rules (IV) Matthew Meselson and Franklin Stahl

Choose the correct answer from the options given below:

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

Question 34

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A): Synchronization of flowering between parental lines ensures effective hybrid seed set.

Reason (R): For effective synchronization of flowering, the seed parental line is sown earlier than the pollen parent

In light of the above statements, choose the most appropriate answer from the options given below.

1. Both (A) and (R) are correct and (R) is the correct explanation of (A)
2. Both (A) and (R) are correct but (R) is NOT the correct explanation of (A)
3. (A) is correct but (R) is not correct.
4. (A) is not correct but (R) is correct.

Question 35

Match the following items

List-I List-II

Marker technique Description

- (A). RFLP (I). Uses short arbitrary primers under low-stringency PCR
- (B). RAPD (II). Polymorphisms detected by restriction enzymes and Southern blot
- (C). AFLP (III). Tandem repeats amplified by specific flanking primers
- (D). SSR (Microsatellite) (IV). Combines restriction digestion with selective PCR amplification

Choose the correct answer from the options given below:

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

Question 36

Arrange the following legal instruments in chronological order of their adoption/ enactment:

- (A). Convention on Biological Diversity
- (B). Protection of Plant Varieties and Farmers' Rights Act, India
- (C). Biological Diversity Act, India
- (D). International Treaty on Plant Genetic Resources for Food and Agriculture

Choose the correct answer from the options given below:

1. A+B3+C—D
2. A3D+B—C

3.B-A+D—C
4C+A—B—D

Question 37

Certain plant species produce recalcitrant seeds that are highly sensitive to desiccation and low temperatures, making traditional seed banking unsuitable. Which of the following ex situ conservation approaches is most appropriate for long-term preservation of such species, and why?

1. Establishing field gene banks, because natural conditions are best replicated in situ.
2. Conventional seed storage in dry, cold conditions, as it maximizes longevity.
3. In vitro tissue culture combined with cryopreservation, as it circumvents the drying intolerance.
- 4 Botanical gardens, since they provide a semi-controlled outdoor environment.

Question 38

Which of the following best describes the primary mechanism by which histone modifications contribute to heritable changes in gene activity without altering the DNA sequence?

1. They directly alter the base pairing within the DNA double helix.
2. They recruit DNA repair enzymes that introduce specific mutations.
3. They influence chromatin compaction and accessibility to transcription factors.
4. They lead to the degradation of specific mRNA transcripts.

Question 39

The classic 'Operon' structure, which consists of a cluster of genes under the control of a single promoter, and is transcribed together into a single polycistronic mRNA molecule, is primarily found in:

1. Viruses only
2. Eukaryotes only
3. Prokaryotes (Bacteria and Archaea)
4. Both prokaryotes and eukaryotes.

Question 40

Seed certification processes typically involve several key steps as given below. Arrange the steps in the correct sequence order from the start to the end.

- (A) Supervision at post-harvest stages, including processing and packaging
- (B) Receipt and scrutiny of application, and verification of seed source.
- (C) Seed sampling and testing for genetic purity and seed health, and grant of the certificate.
- (D) Field inspection to verify compliance with the prescribed field standard.

Choose the correct answer from the options given below:

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

Question 41

Which type of pollination involves the transfer of pollen from the anther to the stigma of the same flower?

1. Geitonogamy
2. Autogamy
3. Xenogamy
- 4 Plasmogamy

Question 42

A plant infected with a mild strain of virus can protect it from the infection of virulent strain of the same virus. This phenomenon is known as:

1. Antagonism

2. Parasitism
3. Cross protection
- 4 Allelopathy

Question 43

Given below are two statements:

Statement (I): The National Dairy Research Institute (NDRI) in Karnal, Haryana, focuses on dairy production, management, and processing research.

Statement (II): The Central Institute of Fisheries Education (CIFE), Mumbai, is not recognized as a Deemed-to-be University under ICAR.

In light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true.
2. Both Statement (I) and Statement (II) are false
3. Statement (I) is true but Statement (II) is false.
- 4 Statement (I) is false but Statement (II) is true.

Question 44

In host plant resistance, the race specific PR proteins are encoded by genes:

- (A) RFO1
- (B) Ror
- (C) CF2
- (D) Yr

Choose the correct answer from the options given below:

- 1 (A) and (B)
2. (B) and (C)
3. (C) and (D)
- 4 (B) and (D)

Question 45

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R)

Assertion (A): Digitally assisted diagnosis (DAD) is one kind of modern telecommunications used in plant disease diagnosis.

Reason (R): Diagnosis becomes fast and accurate; hence DAD is most reliable for first-hand information generation of crop diseases.

In light of the above statements, choose the correct answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of the merit of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of the merit of (A).
3. (A) is true but (R) is false.
- 4 (A) is false but (R) is true.

Question 46

Which statement is generally true regarding Bt cotton hybrids in India?

1. They are primarily used for resistance against sucking pests.
2. They incorporate genes for resistance against bollworm complexes
3. They originated exclusively from *G. barbadense*
- 4 They have completely eliminated the need for insecticide usage.

Question 47

The sugar industry produces several by-products during the processing of sugarcane. Match the following by-products

(Column A) with their corresponding uses or characteristics (Column B):

Column A Column B

- (A). Bagasse (I). Filter cake used as soil amendment
- (B). Molasses (I). Fibrous residue used as biofuel or in paper/board manufacturing
- (C). Press Mud (II). Distillery effluent used for biogas or fertilizer
- (D). Vinasse (IV). Syrupy leftover used to produce ethanol or rum

Choose the correct answer from the options given below:

1. (A)I, (B){1}, (C)I, (D)-(IV)
- 2 (A)-(II), (B)-(IV), (C)-(1), (D)-(IN1)
3. (A)-(I), (B)AIN, (C)-(III), (D}{-IV)
4. (A)-(IV), (B){I}, (C)I, (D){IN}

Question 48

Given below are two statements:

Statement (I): The respiratory chain of bacteria is associated with the cytoplasmic membrane

Statement (II): The respiratory chain of eukaryotes is present in the nuclear membrane

In light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true.
2. Both Statement (I) and Statement (II) are false.
3. Statement (I) is true but Statement (II) is false.
- 4 Statement (I) is false but Statement (II) is true.

Question 49

Given below are two statements:

Statement (I): Pearl millet is considered as a drought tolerant crop.

Statement (II): Roots of pearl millet form association with microaerophilic diazotrophic bacteria of genus Azospinillum.

In light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true.
2. Both Statement (I) and Statement (II) are false.
3. Statement (I) is true but Statement (II) is false.
4. Statement (I) is false but Statement (II) is true

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Question 50

Match List-I with List-II

List-I List-II

(A) Self-incompatibility (I) Two specialized cells located within the embryo sac at the micropylar end, which (Sporophytic Type) play a crucial role in guiding pollen tube entry and degeneration after fertilization.

(II) A situation where anthers mature and release pollen before the stigma becomes.

(B) Synergids

receptive, promoting outbreeding.

fev tie rust (I) A pollen rejection mechanism determined by the genotype of the pollen-producing sporophyte, preventing self-fertilization.

(IV) A key event where one male gamete fuses with the two polar nuclei, leading to the

D) Dich 'Protand!

JP) Dicheganiy (rotate) formation of the primary endosperm nucleus.

Choose the correct answer from the options given below:

1. (A) - (tl), (B) - (1), (C) ~ (ill), (D) - (IV)
- 2 (A)- (1), (B) - (II), (C) (IV), (D) - (tl)
3. (A) - (1), (B) - (ill), (C) - (IV), (D) - (M1)
4. (A) - (II), (B) - (1), (C) - (IV), (D) - (II)

Question 51

Given below are two statements:

Statement (I): In replication of DNA, the leading strand is synthesized continuously in the same direction as the

movement of the replication fork, requiring only one initial primer

'Statement (II): In DNA replication, the lagging strand is synthesized discontinuously in the opposite direction to the

movement of the replication fork, in short fragments called Okazaki fragments. Each Okazaki fragment requires a new

RNA primer.

In light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true

- 2 Both Statement (I) and Statement (II) are false
3. Statement (I) is true but Statement (II) is false
- 4 Statement (I) is false but Statement (II) is true.

Question 52

The Oomycetes can cause various foliar diseases like -

- (A) Damping off
- (B) White rust
- (C) Downy mildews
- (D) Stem rust and

nts)
Choose the correct answer from the options given below:

1. (A) and (B) only
2. (B) and (C) only
3. (A) and (C) only
- 4 (A), (B) and (C) only

Question 53

Match List-I with List-II

List-I List-II

Crop Technology

- (A) Onion (I) Bolting
- (B) Cabbage (II) Emasculation and dusting
- (C) Maize (III) Bulb to seed method
- (D) Cotton (IV) Detasseling

Choose the correct answer from the options given below:

1. (A) - (III), (B) - (I), (C) - (I), (BD) - (IY)
2. (A) - (1), (B) - (III), (C) - (I), (D) - (IV)
3. (A) - (1), (B) - (I), (C) - (IV), (D) - (II)
- 4 (A) - (III), (B) - (1), (C) - (IY), (DB) - (I)

Question 54

Hindrance to self-pollination due to some physical barriers, such as the presence of a thin membrane around the

anther, is known as

1. Herkogamy
2. Dichogamy
3. Chasmogamy
- 4 Plasmogamy

Question 55

'N-Acetylglucosamine (NAG) and N-Acetylmuramic acid (NAM) of peptidoglycan layer in the cell wall of bacteria are

linked by

1. alpha-(1,4) glycosidic bond
2. alpha-(1,6) glycosidic bond
3. beta-(1,4) glycosidic bond
4. beta-(1,3) glycosidic bond

Question 56

The disease cycle of a plant pathogen comprises various events/stages as mentioned below. The events/stages follow the proper order to complete the cycle. Arrange the following events/stages in the correct order of sequence:

- (A) Dissemination,
- (B) Inoculation,
- (C) Incubation,
- (D) Colonization,
- (E) Penetration,

Choose the correct answer proper sequence from the options given below:

1. (A), (D), (B), (C), (E)
2. (A), (B), (C), (E), (D)
3. (B), (C), (E), (D), (A)
4. (B), (A), (C), (E), (D)

Question 57

Across between two breeding lines, one with dark red flowers and one with bright white flowers, produces F offspring that flowered light red. When the F₂ progeny are selfed, a 1:2:1 ratio of dark red to light red to bright white flowers is observed. What genetic phenomenon is consistent with these results?

1. Complete dominance
2. Incomplete dominance
3. Co-dominance
4. Overdominance

Question 58

Match List-I with List-II

List-I List-II

(Disease) (Year of entry into India)

- (A) Downy mildew of grapes (I) 1940
(B) Bunchy top of banana (II) 1910
(C) Rice blast (III) 1953
(D) Wart of potato (IV) 1918

Choose the correct answer from the options given below:

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

Question 59

Bacteria responsible for thermophilic flat sour defect in canned food is -

1. *Bacillus polymyxa*
2. *Bacillus stearothermophilus*
3. *Lactobacillus bulgaricus*
4. *Clostridium butyricum*

Question 60

Here are four statements about meiosis. Identify the correct statements.

- (A) Homologous chromosome pairing and synapsis during prophase I are critically mediated by the synaptonemal complex.
(B) The reductional division of meiosis I is followed by an equational division in meiosis II, where sister chromatids separate and reduce the chromosome number twice
(C) Meiosis maintains the specific chromosome number of a species.
(D) Meiosis occurs in the reproductive cells.

Choose the correct answer from the options given below:

1. (A), (B) and (C) only.
2. (A), (B) and (D) only.
3. (A), (C) and (D) only.
4. (B), (C) and (D) only.

Question 61

Along with the 'Dominance' and 'Overdominance' hypotheses, there is another hypothesis called the 'Epistasis

hypothesis' of heterosis. The following are statements about the 'Epistasis hypothesis' of heterosis. Select the correct statements about the epistasis hypothesis.

- (A) Epistasis is also known as non-allelic interaction
- (B) Heterosis has a positive association with the presence and magnitude of non-allelic interaction
- (C) The non-allelic interactions are of two types only, viz., additive x additive and dominance x dominance.
- (D) Epistasis, particularly those that involve dominance x dominance interaction. may contribute to heterosis.

Choose the correct answer from the options given below:

- 4. (A), (B) and (C) only.
- 2. (A), (B) and (D) only.
- 3. (A), (C) and (D) only.
- 4. (B), (C) and (D) only.

Question 62

Given below are two statements:

Statement (I): Viruses can spread by direct transfer of sap from a virus infected plant to a healthy plant

Statement (II): Insects never transmit viruses in plants.

in light of the above statements, choose the most appropriate answer from the options given below.

- 1. Both Statement (I) and Statement (II) are true
- 2. Both Statement (I) and Statement (II) are false.
- 3. Statement (I) is true but Statement (II) is false.
- 4. Statement (I) is false but Statement (II) is true

Question 63

Which of the following missions were announced by the Government of India as part of the Union Budget 2025-26

- (A). National Mission on High Yielding Seeds
- (B). Mission for Cotton Productivity
- (C). Millet Mission
- (D). National Mission on Edible Oils

Choose the correct answer from the options given below:

- 1. (A), (B) and (D) only.
- 2. (A) and (B) only.
- 3. (A) and (D) only.
- 4 (B) and (C) only.

Question 64

The black rust of wheat caused by *Puccinia graminis tritici*. This heteroecious pathogen completes its life cycle by various spore forms. These are:

- (A) Basidiospores,
- (B) Teleutospores/ Teliospores,
- (C) Uredospores,
- (D) Aeciospores,
- (E) Pycniospores.

Choose the correct spore formation sequence from the options given below:

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

Question 65

Match List-I with List-II

List-I List-II

(Institute/Centre) (Location)

- (A). HCIO and Indian Type Culture Collection (ITCC) (I). Hyderabad
- (B). National Bureau of Plant Genetic Resources (NBPGR) (ID. LAR I, New Dethi
- (C). Central Potato Research Institute (CPRI) (UD. New Delhi
- (D). International Crops Research Institute for Semi-Arid Tropics (ICRISAT) (IV). Shimla, Himachal Pradesh

Choose the correct answer from the options given below:

- 1. (A) - (ii), (B) - (III), (C) - (IV), (D) - (1)
- 2 (A) - (ii), (B) - (I), (C)- (IV), (D)- (Mt)

3. (A) - (IV), (B) - (III), (C) - (1), (DB) - (I)

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

Question 66

Common scab of potato is more severe in- 1] II

1. Sandy loam soil
2. Clay loam soil

Question 67

The crop(s) affected by smut diseases are -

- (A). Wheat
- (B). Rice
- (C). Chickpea
- (D). Sugarcane

Choose the correct answer from the options given below:

1. (A) and (B) only
2. (A), (B) and (D) only
3. (A) only
- 4 (B), (C) and (D) only

Question 68

Which of the following is a by-product of biogas production?

1. Ash
2. Slurry
3. Sawdust
- 4 Biochar

Question 69

Which of the following tests is primarily used to check the viability of seeds?

- (A). Germination test
- (B). Grow-out Test
- (C). Accelerated aging test
- (D). Tetrazolium test

Choose the correct answer from the options given below:

1. (A), (B) and (D) only.
2. (A), (C) and (D) only.
3. (A), (B) and (C) only.
- 4 (B), (C) and (D) only.

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Question 70

Match List-I with List-II

List-I List-II

(Fungicides) (Disease control)

- (A). Sulphur (1). Blast of rice
- (B). Kitazin (I). Rust
- (C). Planivax (III). Late blight of potato
- (D). Ridomil (IV). Powdery mildews

Choose the correct answer from the options given below:

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

Question 71

Given below are two statements:

Statement (1): Lignin is the constituent of cell wall that confers structural support, impermeability and

resistance against
microbial attack.

Statement (II): Lignin is not decomposed by any microorganism.

In light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true
2. Both Statement (I) and Statement (II) are false
3. Statement (I) is true but Statement (II) is false.
4. Statement (I) is false but Statement (II) is true.

Question 72

Match List-I with List-II

List-I List-II

Feature Characteristic

(A) Initiation of protein synthesis using N-formylmethionine (I) Eukaryotic genome organization

(B) Presence of spliceosomal introns within protein-coding genes. (II) Prokaryotic cellular structure

(C) Cellular respiration sites, primarily located on the inner mitochondrial

(III) Prokaryotic protein synthesis

membrane.

(D) Genetic material, typically organized as a single circular DNA molecule (IV) Eukaryotic energy metabolism

in the cytoplasm without a nuclear envelope

Choose the correct answer from the options given below:

1. (A) - (IIN), (B) - (1), (C) - (IV), (D) - (HI)
2. (A) - (INI), (B)- (TV), (C) - (II), (D) - (I)
3. (A) - (1), (B) - (M1), (C) - (IV), (D) - (INI)
4. (A) - (III), (B) - (TY), (C) - (1), (D) - (HI)

Question 73

The large vessel containing conditions necessary for the growth of desired microorganisms is called as

1. Bioreactor
- 2 Autoreactor
3. Impeller
- 4 Autoclave

Question 74

The sclerotia of *Sclerotinia sclerotiorum* and *Sclerotium rolfsii* resemble to those of

- (A). Rat droppings
- (B). Black sand particles
- (C). Mustard seeds
- (D). Flat-irregular structures

Choose the correct answer from the options given below:

- 1 (A) and (B), respectively
2. (B) and (C), respectively
3. (B) and (D), respectively
- 4 (A) and (C), respectively

Question 75

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A): Denitrification is favored under flooded conditions.

Reason (R): Enzyme nitrate reductase, which is involved in denitrification, is inhibited in the presence of oxygen.

In light of the above statements, choose the correct answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
- 4 (A) is false but (R) is true.

Question 76

Arrange the following in logical sequence for a farmer registering a traditional variety under the PPVFRA:

(A). Submission of registration form (with minimal fee or fee waiver)

- (B). Verification of farmer's variety claims by the Authority
 (C). DUS testing (if necessary/ feasible for that variety)
 (D). Registration and issuance of certificate

Choose the correct answer from the options given below:

1. C+B+A—D
2. A+C—+D-B
3. A+B—+—C—D
4. B-A—D—C

Question 77

Which of the following examples correctly illustrates the relationship among x , n , and $2n$ in a tetraploid species?

1. $x=5, n=5, 2n=10$
2. $x=5, n=10, 2n=20$
3. $x=5, n=20, 2n=40$
4. $x=10, n=5, 2n=10$

Question 78

In a Hardy-Weinberg population, if the frequency of allele 'R' is $p = 0.8$ and of allele 'r' is $q = 0.2$, which genotype frequency is correct?

1. rr frequency = 0.4
2. RR frequency = 0.16
3. Rr frequency = 0.32
4. RR frequency = 0.48

Question 79

Given below are two statements:

Statement (I): Inbreeding depression is most common in cross pollinated crops.

Statement (II): Repeated selfing, though it reduces vigour, is necessary to create genetically stable inbred lines that maximize heterosis in the F_2 .

In light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true.
2. Both Statement (I) and Statement (II) are false.
3. Statement (I) is true but Statement (II) is false.
4. Statement (I) is false but Statement (II) is true.

Question 80

Which of the following organization established by the Government of India is responsible for the promotion and

exports of agricultural and processed food products?

4. NABARD
2. FSSAI
3. APEDA
4. NBPGR

Question 81

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A): According to the 'overdominance hypothesis', the 'heterosis' is the result of the superiority of the

heterozygote over its two homozygous parents.

Reason (R): The 'overdominance hypothesis' states that the superiority of the heterozygotes arises due to the masking

of the deleterious effect of the recessive alleles by their corresponding dominant alleles.

In light of the above statements, choose the most appropriate answer from the options given below

1. Both (A) and (R) are correct and (R) is the correct explanation of (A)
2. Both (A) and (R) are correct but (R) is NOT the correct explanation of (A)
3. (A) is correct but (R) is not correct.

4 (A) is not correct but (R) is correct.

Question 82

The family of the genus *Xanthomonas* was formerly known as:

1. Enterobacteriaceae
2. Rhizobacteriaceae
3. Pseudomonadaeae
- 4 Proteobacteriaceae

Question 83

Given below are two statements:

Statement (I): Blue-green algae are a type of bacteria that are capable of photosynthesis

Statement (II): Blue-green algae possess phycocyanin pigment that is responsible for the blue color in light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true.
2. Both Statement (I) and Statement (II) are false.
3. Statement (I) is true but Statement (II) is false.
4. Statement (I) is false but Statement (II) is true.

Question 84

Which of the following statements about the scope of the ITPGRFA are correct?

- (A). It covers crop species that are listed under Annex I.
(B). It includes all the world's plant species across every biome.
(C). It emphasizes food security as a key motivation for its coverage.
(D). It aims to cover animals that support agriculture-

Choose the correct answer from the options given below:

1. (A) and (B) only.
2. (A), (C) and (D) only.
3. (B) and (C) only.
4. (A) and (C) only.

Question 85

In endomycorrhizal associations, which of the following structures are formed intracellularly in the host plant
©

1. Vesicles
- 2 Arbuscule
3. Spores
- 4 Sporangia

Question 86

Match List-I with List-II

List-I List-II

Crop Planting material

- (A) Sugarcane (I) Vine cuttings
(B) Banana (II) Seed setts
(C) Sweet potato (III) Runner plant
(D) Strawberry (IV) Suckers

Choose the correct answer from the options given below:

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

Question 87

Which of the following rust is not caused by fungi:

1. Red rust of tea
2. Black rust of wheat
3. White rust of mustard

4. Yellow rust of wheat

Question 88

Given below are two statements:

Statement (I): Mycoplasmas are not inhibited even by high doses of penicillin

Statement (II): Mycoplasmas can be inhibited by antibiotics that affect protein synthesis

In light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true.
2. Both Statement (I) and Statement (II) are false.
3. Statement (I) is true but Statement (II) is false.
4. Statement (I) is false but Statement (II) is true

Question 89

Which of the following is NOT an assumption of the Hardy-Weinberg's law of equilibrium?

1. Mutations
2. Random mating
3. Small population size
4. Selection

Question 90

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R)

Assertion (A): The Indian Council of Agricultural Research (ICAR) celebrates Agricultural Education Day every year on December 03.

Reason (R): It is celebrated to commemorate the birth anniversary of Dr. Rajendra Prasad, the first President of independent India and the Union Minister of Agriculture

In light of the above statements, choose the correct answer from the options given below.

- 1 Both (A) and (R) are true and (R) is the correct explanation of (A)
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A)
3. (A) is true but (R) is false
- 4 (A) is false but (R) is true.

Question 91

Here are 4 major activities during replication in prokaryotes. Arrange them in the sequential order of occurrence from start to finish.

(A) Primase synthesizes short RNA primers on both template strands, providing a free 3'-OH end to start synthesis.

(B) The enzyme helicase further unwinds the DNA at the replication forks, separating the two strands.

(C) DNA polymerase III adds deoxyribonucleotides to the 3' end of the RNA primers, extending the new DNA chain in the 5' to 3° direction.

(D) Initiator proteins bind to specific sequences within oriC and form a small replication bubble.

Choose the correct answer from the options given below:

1. (D), (A), (B), (C)
2. (B), (A), (C), (D)
3. (D), (B), (A), (C)
4. (C), (B), (D), (A)

Question 92

The cell wall of Oomycetes is composed of:

1. Cellulose only
2. Chitin only
3. Chitosan only
- 4 Cellulose and glucans

Question 93

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A): Pigeonpea (*Cajanus cajan*) is considered as an 'often cross-pollinated' crop.

Reason (R): In Pigeonpea, although self-pollination can occur within the bud before the flower opens, cross-pollination (20-70%), often facilitated by insects like bees, is a common and significant factor in seed set.

In light of the above statements, choose the correct answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) is true but (R) is false.
4. (A) is false but (R) is true-

Question 94

Blight disease in rice is caused by =

1. *Xanthomonas oryzae* pv *oryzae*
2. *Xylella fastidiosa*
3. *Pseudomonas syringae*
- 4 *Pseudomonas putida*

Question 95

The detection and identification of a physiological race is done only by -

1. Selective culture medium
- 2 ELISA
3. Differential host range
- 4 Nested multiplex PCR

Question 96

Find out the events/factors that are exceptions to Mendelian principles-

- (A) Complete dominance
- (B) Incomplete dominance
- (C) Co-dominance
- (D) Polygenic traits

Choose the correct answer from the options given below:

1. (A), (B) and (C) only
2. (A), (B) and (D) only
3. (A), (C) and (D) only.
- 4 (B), (C) and (D) only.

Question 97

Given below are two statements:

Statement (I): Actinobacteria are a large group of bacteria that produce asexual spores like fungi

Statement (II): Some actinobacterial genera can be pathogenic to plants and animals

In light of the above statements. choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true.
2. Both Statement (I) and Statement (II) are false.
3. Statement (I) is true but Statement (II) is false.
- 4 Statement (I) is false but Statement (II) is true.

Question 98

Here are the general steps for seed processing. Arrange it in a typical sequence from start to end

(A) Testing the seeds for quality parameters such as purity, germination percentage, vigour, and moisture content.

(B) Harvesting, threshing and drying the seeds to an appropriate moisture content.

(C) Packaging of the seeds and labelling with all necessary information.

(D) Thorough cleaning of the seeds to remove impurities such as weed seeds, other crop seeds, diseased seeds,

insect-damaged seeds, and inert matter.

Choose the correct answer from the options given below:

1. (B), (A), (D), (C)
- 2 (A), (C), (B), (D)

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

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

Question 99

Here are 4 statements about 'heterosis'. Select the correct statements.

(A) Heterosis typically manifests as the superior performance of F₁ hybrids in traits like yield, growth rate, or stress

tolerance compared to their homozygous parental lines

(B) The dominance hypothesis explains heterosis by suggesting that deleterious recessive alleles from one parent are

masked by dominant favorable alleles from the other parent in the hybrid

(C) Overdominance hypothesis states that heterozygotes (Aa) have a fitness advantage superior to either homozygote

(AA or aa) due to allelic interactions, etc.

(D) Narrow-sense heritability is consistently higher in F₂ hybrids exhibiting strong heterosis, reflecting the increased

additive genetic variance contributed by the parental lines.

Choose the correct answer from the options given below:

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

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

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

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

Question 100

Which of the following polymers are associated with plant cell wall -

(A). Chitin

(B). Cellulose

(C). Peptidoglycan

(D). Hemicellulose

(E). Pectin

Choose the correct answer from the options given below:

1_ (A), (B) and (E) only.

2 (A), (B), (D) and (E) only

3. (B), (D) and (E) only.

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

Question 101

The plant parasitic bacterium was first reported by -

1. Mikhail Woronin

2. T.J.Burriel

3. EF Smith

4 R.A Fischer

Question 102

The Koch's postulates are the first approach to confirm a disease. There are a few major steps followed in the postulates. Those are:

(A) Inoculation: Introduction of the pure culture of the pathogen into healthy plants.

(B) Observation: The pathogen must be found in diseased plants, but not in healthy plants. Disease symptoms are noted.

(C) Isolation: The pathogen must be Isolated from a diseased plant

(D) Pure culture: Maintenance of the pure culture of the suspected pathogen.

(E) Re-isolation: Isolation of the pathogen from the artificially inoculated plants.

(F) Comparison: The disease symptom developed through artificial inoculation must be matched with the original symptoms.

Choose the correct sequence of the activities from the options given below:

4. (C), (B), (A), (E), (D), (F)

2. (B), (C), (D), (A), (E), (F)

3. (A), (B), (C), (E), (F), (DB)

4. (A), (O), (B), (C), (E), (F)

Question 103

In the context of ex situ conservation of plant genetic resources, what is the primary benefit of integrating molecular marker technologies during germplasm characterization and evaluation?

1. They entirely eliminate the need for field-based phenotypic assessments.
2. They enable accurate and efficient evaluation of genetic diversity and help identify genetically redundant accessions.
3. They ensure that conserved germplasm is completely free from all harmful genetic mutations.
4. They significantly reduce the cost and labour required for maintaining live accessions in field gene banks.

Question 104

Given below are two statements:

Statement (I): AFLP combines restriction enzyme digestion with selective PCR amplification of genomic fragments.

Statement (II): AFLP typically functions as a co-dominant marker system, providing easy heterozygote detection.

In light of the above statements, choose the most appropriate answer from the options given below.

1. Both Statement (I) and Statement (II) are true.
2. Both Statement (I) and Statement (II) are false.
3. Statement (I) is true but Statement (II) is false.
4. Statement (I) is false but Statement (II) is true.

Question 105

The tetrazolium test is used to test the viability of a seed. The steps of a tetrazolium test are as follows. Arrange the

steps in appropriate order from the first to the last.

- (A) Immersing the seeds in the Tetrazolium salt solution and incubating for a specific (24-48 hrs) period.
- (B) Rinsing the seeds in fresh water to remove the extra stain.
- (C) Soaking the seeds to hydrate the tissues.
- (D) Examining the seeds for intensity and location of staining.

Choose the correct answer from the options given below:

1. (C), (B), (A), (D)
2. (A), (B), (C), (D)
3. (B), (A), (D), (C)
4. (C), (A), (B), (D)

Question 106

Here are a few statements about crossing over, genetic recombination, and recombination frequencies. Choose the

combination of correct statements.

- (A) Crossing over takes place in the pachytene stage of meiotic prophase I, where unequal exchange of chromosomal segments occurs between non-sister chromatids.
- (B) Recombination frequency depends on the distance between a pair of genes.
- (C) Recombination frequency in general does not go beyond 50%.
- (D) Genes located on different chromosomes exhibit independent assortment.

Choose the correct answer from the options given below:

1. (A), (B) and (C) only.
2. (A), (B) and (D) only.
3. (A), (C) and (D) only.
4. (B), (C) and (D) only.

Question 107

Here is a list of schemes that are running for the welfare of farmers in the country. Arrange the schemes in ascending

order of their launching/introduction.

- (A) PM Fasal Bima Yojana
- (B) National mission on edible oils - Oil palm
- (C) Soil Health Card

(D) PM Kisan Sanman Nidhi

Choose the correct answer from the options given below:

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

Question 108

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A): Gene deployment strategy in wheat is the most effective strategy in restricting the spread of rust disease.

Reason (R): Monoculture of one popular variety but susceptible to a disease may lead to quick epidemic situation

Therefore, different resistant varieties are grown in a mosaic pattern covering large area.

In light of the above statements, choose the correct answer from the options given below.

4. Both (A) and (R) are true and (R) is the correct explanation of (A)
- 2 Both (A) and (R) are true but (R) is NOT the correct explanation of (A)
3. (A) is true but (R) is false.
- 4 (A) is false but (R) is true.

Question 109

Two genes, G and H, are located on the same chromosome and have a recombination frequency of 20%. An individual

is GgHh in cis-configuration (GH / gh). What fraction of that individual's gametes is expected to be parental (GH or gh)

versus recombinant (Gh or gH)?

1. 50% parental, 50% recombinant
- 2 60% parental, 40% recombinant
3. 80% parental, 20% recombinant
4. 90% parental, 10% recombinant

Question 110

Below are statements about the 'Dominance hypothesis' of 'Heterosis'. Choose the correct ones.

(A) The dominance hypothesis was originally proposed by Davenport in 1908.

(B) According to this hypothesis, heterosis results from 'heterozygosity'

(C) It states that the heterosis is directly proportional to the number of dominant genes each parent contributes.

(D) In the heterozygous state, the deleterious effects of recessive alleles are masked by their dominant alleles.

Choose the correct answer from the options given below:

- 1 (A), (B) and (C) only.
2. (A), (C) and (D) only.
3. (A), (B) and (D) only.
- 4 (B), (C) and (D) only.

Question 111

In self-pollinated crops, what is the most important step to make sure the seeds produced stay genetically pure and true to type?

1. Letting different varieties of the same crop grow side-by-side
2. Keeping the seed field isolated and using seeds from only one uniform plant type (genotype).
3. Mixing seeds from different varieties to increase diversity.
4. Using machines to harvest the crop and cleaning the seeds after harvesting.

Question 112

Given below are two statements, one is labelled as Assertion (A) and other one labelled as Reason (R).

Assertion (A) = Nitrogen deficiency significantly reduces a plant's capacity for photosynthesis.

Reason (R) : Nitrogen is an essential constituent of chlorophyll, and hence its deficiency affects photosynthesis.

In light of the above statements, choose the correct answer from the options given below.

1. Both (A) and (R) are true and (R) is the correct explanation of (A).
2. Both (A) and (R) are true but (R) is NOT the correct explanation of (A).
3. (A) Is true but (R) is false.
4. (A) is false but (R) is true_

Question 113

In a Chi-square (χ^2) test with 2 phenotypic classes for plant height, what would be the degree of freedom (df)?

1.0

NAY RY . Seals

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Question 114

In loose smut of wheat, spore balls are formed due to conversion of -

- (A). Flag leaf
- (B). Floral parts
- (C). All leaves
- (D). Apical stems

Choose the correct answer from the options given below:

1. (A) and (B)
2. (B) and (C)
3. (A) only
4. (B) only

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Question 115

Match List-I with List-II

List-I List-II

Specialty Crop Name

- (A). Golden fibre (I). Jute
- (B). White gold (II). Maize
- (C). King of cereals (III). Cotton
- (D). Queen of cereals (IV). Wheat
- (E). Camel crop (V). Sorghum

Choose the correct answer from the options given below:

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

Question 116

Citrus tristeza virus is detected by using the indicator plant -

1. Sweet orange
2. Rangpur Lime
3. Trifoliate orange
- 4 Kagzi Line

Question 117

The first Krishi Vigyan Kendra (KVK) was established in 1974 at:

1. Puducherry (Pondicherry) under the TNAU, Chennai
2. Puducherry under the TNAU, Coimbatore
3. Kudumiyamalai under the TNAU, Coimbatore
- 4 Puducherry under the TNAU, Madurai

Question 118

As per the seed certification standard for sugarcane, the age of the seed cane crop at harvest for seed purposes in the tropics should be:

1. 4-6 months
2. 6-8 months
3. 8-10 months
4. 10-12 months

Question 119

Match List-I with List-II

List-I List-II

Name of various seed tests Scientist concerned

(A). Tetrazolium Test (1). Mills and Gherna (1987)

(B). Indoxyl Acetate Test (II). Fick and Hibbard (1925)

(C). Electrical Conductivity Test for seed vigor in Pea (III). Florence Flemion (1934)

(D). Excised Embryo Test (IV). George Lakon (1942)

Choose the correct answer from the options given below:

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

Question 120

A plant with both staminate (male) and pistillate (female) flowers on separate branches of the same plant can best be described as:

1. Cleistogamous
2. Dioecious
3. Monoecious
4. Apomictic