- Question No. 1

The Universal Soil Loss Equation (USLE) estimates average annual soil loss. The USLE is an empirically based equation, and computes sheet and rill erosion as follows: A=RKLSCP where K stands for

Options :

1. Rainfall erosivity factor
2. Soil erodibility factor
3. Slope length factor
4. Slope steepness factor
5. Support practice factor

Answer : Soil erodibility factor

- Question No. 2

C4 plants utilize the Hatch and Slack pathway for carbon fixation, which allows them to thrive in hot and dry climates. Among the following, which plant is categorized as a C4 plant?

Options :

1. Rice
2. Wheat
3. Mango
4. Pineapple
5. Grapes

Answer : Pineapple

- Question No. 3

A system in which forest trees are grown along with agricultural crops and grasses for livestock on the same land at the same time is known as

Options :

1. Agri silviculture
2. Silvi pastoral system
3. Agrisilvipastoral system
4. Hortisilvipastoral system
5. None of the above

Answer : Agrisilvipastoral system

- Question No. 4

Which of the following is a key agronomic practice in Integrated Pest Management (IPM) aimed at preventing pest outbreaks?

Options :

1. Overuse of synthetic pesticides
2. Rotation of crops and use of resistant varieties
3. Monoculture farming
4. Exclusive use of herbicides
5. Complete dependence on organic farming

Answer : Rotation of crops and use of resistant varieties

- Question No. 5

SHGs are often provided financial assistance to help members engage in which of the following activities?

Options :

1. Real estate investments
2. Savings and credit activities, including microenterprise development
3. International trade
4. Stock market trading
5. Political campaigns

Answer : Savings and credit activities, including microenterprise development

- Question No. 6

Urea, as a fertilizer, can lead to certain issues in soil management if overused. Which of the following is a potential problem of excessive urea application?

Options :

1. Buttoning disorder in cauliflower
2. Nitrogen leaching and soil acidification
3. Deflocculation of soil particles
4. Waterlogging
5. Soil salination

Answer : Nitrogen leaching and soil acidification

- Question No. 7

A plant showing yellowing between the veins (interveinal chlorosis) on older leaves is most likely deficient in which essential nutrient?

Options :

1. Phosphorus
2. Nitrogen
3. Magnesium
4. Potassium
5. Calcium

Answer : Magnesium

- Question No. 8

In alley cropping systems, which of the following is a key consideration for choosing tree species to plant between crop rows?

Options :

1. Tree species should require high water input
2. Trees should be slow-growing to avoid competition with crops
3. Trees should provide benefits like nitrogen fixation or fodder
4. Trees should grow taller than 50 meters
5. Trees should not be used for timber

Answer : Trees should provide benefits like nitrogen fixation or fodder

Direction:
Paragraph for question 9 to 12

Chlorophyll pigments, specifically a and b, play a crucial role in photosynthesis and are produced within the chloroplasts of leaf tissues. These molecules possess hydrophobic characteristics due to their phytol tail, and their structure resembles hemoglobin, except chlorophyll holds a magnesium ion at its core instead of iron. Synthesizing chlorophyll is resource-intensive, requiring nitrogen atoms, and as leaves age, the chlorophyll breaks down, with the plant reabsorbing much of the nitrogen for future use. Apart from Chlorphyll there are other pigments like a pigment which is primarily involved in protecting plant tissues from excessive light by absorbing harmful ultraviolet radiation. Some of the pigments like b_ water-soluble and often found in the vacuoles of plant cells. Based on the given paragraph answer the following questions:

- Question No. 9

Find the suitable word for blank “a”.

Options :

1. Chlorophyll a
2. Xanthophylls
3. Anthocyanins
4. Carotenes
5. Flavonoids

Answer : Flavonoids

Direction:
Paragraph for question 9 to 12

Chlorophyll pigments, specifically a and b, play a crucial role in photosynthesis and are produced within the chloroplasts of leaf tissues. These molecules possess hydrophobic characteristics due to their phytol tail, and their structure resembles hemoglobin, except chlorophyll holds a magnesium ion at its core instead of iron. Synthesizing chlorophyll is resource-intensive, requiring nitrogen atoms, and as leaves age, the chlorophyll breaks down, with the plant reabsorbing much of the nitrogen for future use. Apart from Chlorphyll there are other pigments like a pigment which is primarily involved in protecting plant tissues from excessive light by absorbing harmful ultraviolet radiation. Some of the pigments like b_ water-soluble and often found in the vacuoles of plant cells. Based on the given paragraph answer the following questions:

- Question No. 10

Chlorophyll a is a primary pigment in photosynthesis, but what role do accessory pigments such as chlorophyll b and carotenoids play?

Options :

1. They store energy
2. They absorb different wavelengths of light and pass energy to chlorophylla
3. They produce oxygen
4. They absorb water
5. They reduce carbon dioxide

Answer : They absorb different wavelengths of light and pass energy to chlorophylla

Direction:
Paragraph for question 9 to 12

Chlorophyll pigments, specifically a and b, play a crucial role in photosynthesis and are produced within the chloroplasts of leaf tissues. These molecules possess hydrophobic characteristics due to their phytol tail, and their structure resembles hemoglobin, except chlorophyll holds a magnesium ion at its core instead of iron. Synthesizing chlorophyll is resource-intensive, requiring nitrogen atoms, and as leaves age, the chlorophyll breaks down, with the plant reabsorbing much of the nitrogen for future use. Apart from Chlorphyll there are other pigments like a pigment which is primarily involved in protecting plant tissues from excessive light by absorbing harmful ultraviolet radiation. Some of the pigments like b_ water-soluble and often found in the vacuoles of plant cells. Based on the given paragraph answer the following questions:

- Question No. 11

Find the suitable word for blank “b”.

Options :

1. Chlorophyll
2. Carotenoids
3. Xanthophyll
4. Anthocyanins
5. Betalains

Answer : Anthocyanins

Direction:
Paragraph for question 9 to 12

Chlorophyll pigments, specifically a and b, play a crucial role in photosynthesis and are produced within the chloroplasts of leaf tissues. These molecules possess hydrophobic characteristics due to their phytol tail, and their structure resembles hemoglobin, except chlorophyll holds a magnesium ion at its core instead of iron. Synthesizing chlorophyll is resource-intensive, requiring nitrogen atoms, and as leaves age, the chlorophyll breaks down, with the plant reabsorbing much of the nitrogen for future use. Apart from Chlorphyll there are other pigments like a pigment which is primarily involved in protecting plant tissues from excessive light by absorbing harmful ultraviolet radiation. Some of the pigments like b_ water-soluble and often found in the vacuoles of plant cells. Based on the given paragraph answer the following questions:

- Question No. 12

Phycobilins are pigments found in which group of organisms?

Options :

1. Land plants
2. Green algae
3. Red algae and cyanobacteria
4. Fungi

5. Mosses

Answer : Red algae and cyanobacteria

Direction:
Paragraph for question 13 to 16

Mutations are alterations in the DNA sequence that can occur in various forms, such as point mutations, where a single base is changed, or deletions and insertions, which result in the loss or addition of DNA segments. Substitutions involve the replacement of bases, while inversions reverse a DNA segment. Frameshift mutations, caused by insertions or deletions, disrupt the reading frame of genes. When a mutation leads to the replacement of one amino acid with another in a plant protein, it is known as "a" . Mutations play a significant role in plant breeding, as they can introduce beneficial traits, enhance b , and improve crop resistance to diseases or environmental stresses.

- Question No. 13

Which of the following is a specific mutagen commonly used in plant breeding to induce genetic mutations?

Options :

1. Ethyl methanesulfonate (EMS)
2. Glyoxylate
3. Gene splicing
4. Polyethylene glycol
5. Glucagon

Answer : Ethyl methanesulfonate (EMS)

Direction:
Paragraph for question 13 to 16

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environmental stresses.

- Question No. 14

What will be the suitable for blank-"a"

Options :

1. Silent mutation
2. Missense mutation
3. Nonsense mutation
4. Frameshift mutation
5. Deletion

Answer : Missense mutation

Direction:
Paragraph for question 13 to 16

Mutations are alterations in the DNA sequence that can occur in various forms, such as point mutations, where a single base is changed, or deletions and insertions, which result in the loss or addition of DNA segments. Substitutions involve the replacement of bases, while inversions reverse a DNA segment. Frameshift mutations, caused by insertions or deletions, disrupt the reading frame of genes. When a mutation leads to the replacement of one amino acid with another in a plant protein, it is known as "a" . Mutations play a significant role in plant breeding, as they can introduce beneficial traits, enhance b , and improve crop resistance to diseases or environmental stresses.

- Question No. 15

Which type of mutation is least likely to affect the phenotype of a plant, as it does not change the amino acid sequence?

Options :

1. Missense mutation
2. Silent mutation
3. Nonsense mutation

4. Frameshift mutation

5. Insertion

Answer : Silent mutation

Direction:
Paragraph for question 13 to 16

Mutations are alterations in the DNA sequence that can occur in various forms, such as point mutations, where a single base is changed, or deletions and insertions, which result in the loss or addition of DNA segments. Substitutions involve the replacement of bases, while inversions reverse a DNA segment. Frameshift mutations, caused by insertions or deletions, disrupt the reading frame of genes. When a mutation leads to the replacement of one amino acid with another in a plant protein, it is known as ”a” . Mutations play a significant role in plant breeding, as they can introduce beneficial traits, enhance b , and improve crop resistance to diseases or environmental stresses.

- Question No. 16

What will be the suitable for blank-“b”

Options :

1. Homogeneous traits
2. Genetic uniformity
3. Genetic diversity
4. Decreased yield
5. Longer flowering periods

Answer : Genetic diversity

Direction:
Paragraph for question 17 to 20

Agroforestry integrates trees with crops and/or animals to create sustainable agricultural systems, enhancing ecological and economic benefits. The three main types include agrisilvicultural systems, which combine trees with crops, a systems, integrating trees with pastures or animals, and b systems, which involve animals, trees, and crops together. These systems contribute to improved biodiversity, soil health, and resource efficiency, making them valuable for modern agricultural practices and environmental conservation.

- Question No. 17

Which of the following is most appropriate for blank "a"?

Options :

1. Horti-silviculture
2. Silvopastoral systems
3. Agrisilviculture
4. Agro-pastoral system
5. None of them

Answer : Silvopastoral systems

Direction:
Paragraph for question 17 to 20

Agroforestry integrates trees with crops and/or animals to create sustainable agricultural systems, enhancing ecological and economic benefits. The three main types include agrisilvicultural systems, which combine trees with crops, a systems, integrating trees with pastures or animals, and b systems, which involve animals, trees, and crops together. These systems contribute to improved biodiversity, soil health, and resource efficiency, making them valuable for modern agricultural practices and environmental conservation.

- Question No. 18

Which of the following is most appropriate for blank "b"?

Options :

1. Silvopastoral systems
2. Agro-silvopastoral system
3. Agrisilviculture
4. Agro-pastoral system
5. None of them

Answer : Agro-silvopastoral system

Direction:

Paragraph for question 17 to 20

Agroforestry integrates trees with crops and/or animals to create sustainable agricultural systems, enhancing ecological and economic benefits. The three main types include agrisilvicultural systems, which combine trees with crops, a systems, integrating trees with pastures or animals, and b systems, which involve animals, trees, and crops together. These systems contribute to improved biodiversity, soil health, and resource efficiency, making them valuable for modern agricultural practices and environmental conservation.

- Question No. 19

Which agroforestry practice involves planting trees or shrubs along the edges of fields to protect crops from wind and reduce erosion?

Options :

1. Alley cropping
2. Windbreaks
3. Taungya system
4. Silvopastoral system
5. Agroforestry buffer zones

Answer : Windbreaks

- Question No. 20

In order to measure the diameter at breast height is used.

Options :

1. Tree caliper
2. Abney level
3. Dendrometer
4. Clinometer
5. Pycnometer

Answer : Tree caliper

Direction:

Paragraph for question 21 to 24

Herbicides are chemical substances used to control or kill unwanted plants (weeds). They can be classified into selective herbicides, which target specific plant species without affecting others for example a and non-selective herbicides, which kill all vegetation they come into contact with. Herbicides can also be categorized by their mode of action, such as contact herbicides, which kill only the plant parts they touch, or systemic herbicides, which are absorbed and transported throughout the plant, killing it entirely.

- Question No. 21

Which of the following is an example of a systemic herbicide?

Options :

1. Paraquat
2. Glyphosate
3. Bromoxynil
4. Diquat
5. Oxyfluorfen

Answer : Glyphosate

Direction:
Paragraph for question 21 to 24

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- Question No. 22

What is the mode of action for herbicides like atrazine, which affect photosynthesis in plants?

Options :

1. They block protein synthesis

2. They inhibit the photosystem II in chloroplasts
3. They disrupt DNA replication
4. They destroy plant cell walls
5. They interfere with seed germination

Answer : They inhibit the photosystem II in chloroplasts

Direction:
Paragraph for question 21 to 24

Herbicides are chemical substances used to control or kill unwanted plants (weeds). They can be classified into selective herbicides, which target specific plant species without affecting others for example a and non-selective herbicides, which kill all vegetation they come into contact with. Herbicides can also be categorized by their mode of action, such as contact herbicides, which kill only the plant parts they touch, or systemic herbicides, which are absorbed and transported throughout the plant, killing it entirely.

- Question No. 23

What is the primary time of application for a pre-emergence herbicide?

Options :

1. 10 to 15 days before sowing of crop
2. 1 to 2 days after sowing of crop c.
3. 10 to 15 days after sowing of crop
4. It can be applied any time before emergence of weeds
5. Before the sowing season of crop

Answer : 1 to 2 days after sowing of crop c.

- Question No. 24

Which of the following is selective herbicides that can be filled in the blank “a”?

Options :

1. Atrazine

2. 2,4-D
3. Diquat
4. Glyphosate
5. Paraquat

Answer : 2,4-D

Direction:
Paragraph for question 25 to 28

Mango (Mangifera indica) is one of the most important fruit crops cultivated in tropical and subtropical regions. India, renowned for its diverse mango varieties, offers a delightful array of flavors and textures that cater to every palate. The popular varieties include Alphonso, Dasheri, Kesar, and Langra. Most of the south Indian varieties are regular bearer whereas the north Indian varieties are alternate bearer. In order to induce regular flowering in these varieties a is practiced. The b variety, often regarded as the "King of Mangoes," is celebrated for its rich sweetness and creamy texture, particularly prominent in regions like Maharashtra and Gujarat but is susceptible to Spongy tissue disorder. The Langra, known for its unique tangy flavor and fibrous flesh, is popular in Uttar Pradesh and Bihar. Meanwhile, the Kesar mango from Gujarat is cherished for its vibrant color and intense aroma.

- Question No. 25

Which of the following is most suitable for a .

Options :

1. High-density planting
2. Smudging
3. Grafting
4. Paclobutrazol application
5. Mulching

Answer : Paclobutrazol application

Direction:
Paragraph for question 25 to 28

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palate. The popular varieties include Alphonso, Dasheri, Kesar, and Langra. Most of the south Indian varieties are regular bearer whereas the north Indian varieties are alternate bearer. In order to induce regular flowering in these varieties a is practiced. The b variety, often regarded as the "King of Mangoes," is celebrated for its rich sweetness and creamy texture, particularly prominent in regions like Maharashtra and Gujarat but is susceptible to Spongy tissue disorder. The Langra, known for its unique tangy flavor and fibrous flesh, is popular in Uttar Pradesh and Bihar. Meanwhile, the Kesar mango from Gujarat is cherished for its vibrant color and intense aroma.

- Question No. 26

Which of the following is most suitable for b .

Options :

1. Dasheri
2. Bombay Green
3. Alphonso
4. Chausa
5. Totapari

Answer : Alphonso

Direction:
Paragraph for question 25 to 28

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- Question No. 27

The causal agent of anthracnose disease in mango is

Options :

1. Fusarium oxysporum
2. Colletotrichum gloesporoides
3. Oidium mangiferae
4. Xanthomonas campestris
5. Alternaria alternata

Answer : Colletotrichum gloesporoides

Direction:
Paragraph for question 25 to 28

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- Question No. 28

The mango variety Mallika is the cross between

Options :

1. Dasheri × Neelum
2. Neelum × Dasheri
3. Alphonso × Neelum
4. Neelum × alphonso
5. Banganpalli × alphonso

Answer : Neelum × Dasheri