

CUET PG 2024 Agri Business Management Question Paper with Solutions

Time Allowed :1 Hour 45 Mins	Maximum Marks :300	Total Questions :75
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General Instructions

Read the following instructions very carefully and strictly follow them:

1. The examination duration is 105 minutes. Manage your time effectively to attempt all questions within this period.
2. The total marks for this examination are 300. Aim to maximize your score by strategically answering each question.
3. There are 75 mandatory questions to be attempted in the Agri Business Management paper. Ensure that all questions are answered.
4. Questions may appear in a shuffled order. Do not assume a fixed sequence and focus on each question as you proceed.
5. The marking of answers will be displayed as you answer. Use this feature to monitor your performance and adjust your strategy as needed.
6. You may mark questions for review and edit your answers later. Make sure to allocate time for reviewing marked questions before final submission.
7. Be aware of the detailed section and sub-section guidelines provided in the exam. Understanding these will aid in effectively navigating the exam.

1. When E-evaporation, T-transpiration, B-water needs for building up of plant body: CU-consumptive use, ET-evapotranspiration, WR-water requirement, GW-ground water, and ER-effective rainfall, then irrigation requirement (IR) of an individual crop at field head is given by the equation:

- (a) $IR = E + T + B + \text{special needs}$
- (b) $IR = WR - (E + T - B) + \text{special needs}$
- (c) $IR = WR + ER + GW - \text{special needs}$
- (d) $IR = ER + WR - CU - ET$

Correct Answer: (a) $IR = E + T + B + \text{special needs}$

Solution: The irrigation requirement (IR) includes the sum of evaporation, transpiration, water needs for plant body buildup, and special needs. This equation ensures optimal water supply for the crop.

 Quick Tip

Understanding irrigation requirements helps in efficient water management for crops.

2. Species of wheat that has gone practically out of cultivation in India because of its low productivity and disease susceptibility is:

- (a) Triticum aestivum
- (b) Triticum durum
- (c) Triticum dicoccum
- (d) Triticum sphaerococcum

Correct Answer: (d) Triticum sphaerococcum

Solution: Triticum sphaerococcum has gone out of cultivation due to its low productivity and susceptibility to diseases compared to other wheat species.

 Quick Tip

Choosing disease-resistant and high-yielding varieties is essential for sustainable agriculture.

3. In view of storage of the world's water resources, the share of groundwater in total water in the hydrosphere is:

- (a) 1.92%
- (b) 3.84%
- (c) 2%
- (d) 94.23%

Correct Answer: (b) 3.84%

Solution: Groundwater constitutes approximately 3.84% of the total water in the hydrosphere, making it a significant freshwater resource.

 Quick Tip

Efficient utilization of groundwater is critical to addressing global water scarcity issues.

4. Match List-I with List-II:

List-I (Crops)	List-II (Varieties)
(A) Wheat	(I) Pusa Sugandh 5
(B) Rice	(II) HD 2932
(C) Barley	(III) Pusa Composite 383
(D) Pearl millet	(IV) DWR 28

Choose the correct answer from the options given below:

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

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

Solution: The matching of crops with their respective varieties reflects their common classifications in Indian agriculture.

💡 Quick Tip

Knowledge of crop varieties helps in selecting the right type for specific agricultural conditions.

5. The critical stage(s) for irrigation in wheat is/are:

- (A). Crown Root Initiation
- (B). Late tillering
- (C). Late jointing
- (D). Dough

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

Solution: All the mentioned stages are critical for wheat irrigation to ensure proper crop development and high yield.

💡 Quick Tip

Timely irrigation at critical stages ensures better crop health and productivity.

6. Arrange the following millet crops in increasing order of acreage under each:

- (A). Finger millet
- (B). Pearl millet
- (C). Little millet
- (D). Kodo millet

Choose the correct answer from the options given below:

- (a) (A), (B), (C), (D).
- (b) (C), (D), (A), (B).
- (c) (B), (A), (D), (C).
- (d) (D), (C), (A), (B).

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

Solution: The acreage under millet crops varies, with little millet having the smallest acreage, followed by kodo millet, finger millet, and pearl millet.

 Quick Tip

Understanding the acreage helps in prioritizing research and development for less-cultivated millet crops.

7. The allelochemical allyl isothiocyanate is found in the plant:

- (a) Sorghum
- (b) Mustard
- (c) Coffee
- (d) Wheat

Correct Answer: (b) Mustard

Solution: Allyl isothiocyanate is an allelochemical commonly found in mustard plants and is known for its toxic effects on other plants.

 Quick Tip

Allelochemicals like allyl isothiocyanate play a significant role in plant competition and weed control.

8. The phenomenon of one plant having a detrimental effect on another through

the production and release of toxic chemicals is termed as:

- (a) Synergism
- (b) Symbiosis
- (c) Allelopathy
- (d) Mutualism

Correct Answer: (c) Allelopathy

Solution: Allelopathy refers to the production of toxic chemicals by plants that inhibit the growth of nearby plants.

 Quick Tip

Allelopathy is a natural mechanism plants use to reduce competition in their surroundings.

9. The herbicide Metsulfuron methyl belongs to the group:

- (a) Pyridinones
- (b) Phenols
- (c) Sulfonylureas
- (d) Oxidiazoles

Correct Answer: (c) Sulfonylureas

Solution: Metsulfuron methyl is a selective herbicide that belongs to the sulfonylureas group, commonly used for broadleaf weed control.

 Quick Tip

Sulfonylureas are a widely used group of herbicides due to their high efficacy at low application rates.

10. Which of the statement(s) is/are correct?

- (A). Urea herbicides inhibit photolysis in photosynthesis
- (B). Triazines inhibit the growth of emerging seedlings
- (C). Sulfonyl ureas first affect the meristematic tissues resulting into chlorosis and necrosis
- (D). Paraquat is a systemic herbicide

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

Solution: Urea herbicides inhibit photolysis, triazines inhibit seedling growth, and sulfonylureas affect meristematic tissues. Paraquat, however, is a contact herbicide, not systemic.

 Quick Tip

Identifying herbicide mechanisms helps in their appropriate application for effective weed control.

11. Match List-I with List-II:

List-I (Group)	List-II (Herbicide)
(A) Phenoxyacetics	(1) 2,4-D
(B) Ureas	(II) MSMA
(C) Triazines	(III) Atrazine
(D) Arsenicals	(IV) Isoproturon

Choose the correct answer from the options given below:

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

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

Solution: Each group of herbicides is matched with the appropriate chemical commonly used for weed control.

 Quick Tip

Knowing the group and their specific herbicides is crucial for selecting the right weed management approach.

12. Some herbicides control weeds by inhibiting photosynthesis. The sequence of reactions involved in the process is:

- (A). Production of lipid radical and initiation of chain of lipid peroxidation

- (B). Extraction of hydrogen from unsaturated lipids by triplet chlorophyll and singlet oxygen
- (C). Oxidation of lipids and proteins
- (D). Loss of chlorophyll and carotenoids

Choose the correct answer from the options given below:

- (a) (A), (B), (C), (D)
- (b) (A), (B), (D), (C)
- (c) (B), (A), (C), (D)
- (d) (B), (C), (D), (A)

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

Solution: The inhibition of photosynthesis involves extraction of hydrogen by singlet oxygen, production of lipid radicals, oxidation of lipids and proteins, and subsequent loss of chlorophyll and carotenoids.

 Quick Tip

Understanding the mechanism of herbicides helps in identifying their action on plants.

13. Which is not true about organic agriculture?

- (a) Organic production system is managed in accordance to Organic Food Production Act of 1990
- (b) Organic agriculture promotes and enhances biodiversity, biological cycles, and environmental stewardship
- (c) Organic farmers are inspected by independent certifying agencies and must follow specific crop and livestock production guidelines
- (d) Weed control and fertilization are not the challenges faced by organic crop producers

Correct Answer: (d) Weed control and fertilization are not the challenges faced by organic crop producers

Solution: Weed control and fertilization are major challenges in organic agriculture due to restrictions on synthetic chemicals.

 Quick Tip

Organic farming focuses on sustainable practices but faces challenges in managing weeds and maintaining soil fertility.

14. Allowed inputs for organic production are:

- (a) Manure, compost, Elemental Sulfur and Rock phosphate
- (b) Bone meal, Blood meal, Soluble boron and glyphosate
- (c) Magnesium sulfate, manure, compost and Chlorpyrifos
- (d) Manure, compost and Imidachloprid

Correct Answer: (a) Manure, compost, Elemental Sulfur and Rock phosphate

Solution: Organic agriculture allows natural inputs like manure, compost, elemental sulfur, and rock phosphate but prohibits synthetic chemicals like glyphosate and imidachloprid.

 Quick Tip

Organic farming inputs must comply with natural and eco-friendly standards.

15. Which statement is correct about organic agriculture?

- (a) Diverse rotations and nonsynthetic insecticides are used for insect management
- (b) Primarily synthetic herbicides and herbicide resistant transgenic crops are used
- (c) Greater inputs are used than conventional agriculture
- (d) Primarily synthetic fertilizers are used

Correct Answer: (a) Diverse rotations and nonsynthetic insecticides are used for insect management

Solution: Organic farming relies on diverse crop rotations and nonsynthetic insecticides to manage pests sustainably.

 Quick Tip

Organic agriculture emphasizes biodiversity and ecological practices over synthetic inputs.

16. Which of the following statements is/are correct about cropping systems?

- (A). Inclusion of legumes in the cropping systems
- (B). Intercropping is a cropping system in which two or more crops are grown together on the same field during a growing season
- (C). Green manure crop is grown in the cropping system for the primary purpose of ploughing under to improve soil fertility
- (D). Multiple cropping is the sequential production of two or more different crops from the same field each year

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

Solution: All the mentioned statements are correct. These practices improve soil health, optimize resource use, and enhance productivity in cropping systems.

 Quick Tip

Integrating legumes and green manure crops in cropping systems enhances soil fertility and sustainability.

17. Match List-I with List-II:

List-I (System)	List-II (Description)
(A) Agroforestry	(II) A type of system where trees or shrubs are grown for harvest alongside other crops
(B) Alley Cropping	(I) A type of agroforestry where trees are grown in rows with annual or perennial crops between the trees
(C) Strip Cropping	(IV) A polyculture strategy that involves growing crops in adjacent strips within a field
(D) Mixed Cropping	(III) A type of polyculture where two or more crops are grown together at random

Choose the correct answer from the options given below:

- (a) (A) - (II), (B) - (I), (C) - (IV), (D) - (III)
- (b) (A) - (I), (B) - (II), (C) - (II), (D) - (IV)
- (c) (A) - (I), (B) - (III), (C) - (V), (D) - (II)
- (d) (A) - (III), (B) - (IV), (C) - (0), (D) - (I)

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

Solution: Each system is correctly matched with its description, highlighting different cropping strategies used in agriculture.

 Quick Tip

Understanding cropping systems helps in choosing the right method for specific ecological and economic goals.

18. Given below are the activities performed while cultivating a crop, arrange them from first to last:

- (A). Ploughing
- (B). Thinning
- (C). Seeding
- (D). Harvesting

Choose the correct answer from the options given below:

- (a) (A), (B), (C), (D)
- (b) (A), (C), (B), (D)
- (c) (B), (A), (D), (C)
- (d) (C), (B), (D), (A)

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

Solution: The correct sequence of activities is ploughing, seeding, thinning, and harvesting, reflecting the logical flow of crop cultivation.

 Quick Tip

Following the correct sequence in crop cultivation ensures efficient and effective farming operations.

19. Di-ammonium phosphate contains:

- (a) Nitrogen (18%) and Phosphorus (46%)
- (b) Nitrogen (46%) and Phosphorus (18%)
- (c) Nitrogen (46%) only
- (d) Phosphorus (46%) only

Correct Answer: (a) Nitrogen (18%) and Phosphorus (46%)

Solution: Di-ammonium phosphate (DAP) is a widely used fertilizer containing 18% nitrogen and 46% phosphorus, which are essential for plant growth.

 Quick Tip

DAP is highly effective for early plant growth due to its high phosphorus content.

20. In a market economy, resources are allocated by:

- (a) Its demand
- (b) A disaster
- (c) Prices
- (d) Demand and supply

Correct Answer: (c) Prices

Solution: In a market economy, prices serve as the primary mechanism for resource allocation, reflecting supply and demand dynamics.

 Quick Tip

Understanding price mechanisms helps in analyzing market-driven economies.

21. If the marginal cost is greater than average cost, it means:

- (a) Average total cost is increasing
- (b) Average total cost is decreasing
- (c) Average cost is constant
- (d) Cannot be determined

Correct Answer: (a) Average total cost is increasing

Solution: When marginal cost (MC) is greater than average cost (AC), it pulls the average cost upward, meaning the average total cost is increasing.

 Quick Tip

Marginal cost directly affects the average cost curve, and their relationship determines the direction of AC change.

22. The production possibilities frontier shows:

- (a) All combinations of two inputs that can produce a constant level of output
- (b) All combinations of two outputs that can be produced with a constant level of inputs
- (c) All levels of one output that can be produced with varying levels of inputs
- (d) An isoquant

Correct Answer: (b) All combinations of two outputs that can be produced with a constant level of inputs

Solution: The production possibilities frontier (PPF) shows the maximum possible combinations of two goods that can be produced using a fixed set of resources efficiently.

 Quick Tip

PPF illustrates trade-offs and opportunity costs in production decisions.

23. Match List-I with List-II:

List-I (Schemes/Events)	List-II (Year)
(A) Lead Bank Scheme	(IV) 1969
(B) All India Rural Credit Survey Committee	(I) 1954
(C) Regional Rural Banks	(II) 1975
(D) Service Area Approach	(III) 1989

Choose the correct answer from the options given below:

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

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

Solution: Each scheme or event is matched with its respective year of establishment based on historical records.

 Quick Tip

Understanding the timeline of financial schemes helps in analyzing their historical impact.

24. Borrowing funds by the farmers for paying tax to the government is known as:

- (a) Unproductive loan
- (b) Productive loan
- (c) Consumption loan
- (d) Purposive loan

Correct Answer: (b) Productive loan

Solution: Loans taken by farmers for specific purposes such as paying taxes or investing in productive activities are classified as productive loans.

 Quick Tip

Understanding loan classifications aids in financial planning and effective use of credit.

25. Liberalization, Privatization and Globalization (LPG) model of development was introduced by:

- (a) Dr. P. Chidambaram
- (b) Smt. Nirmala Sitharaman
- (c) Dr. Manmohan Singh
- (d) Dr. Yashwant Sinha

Correct Answer: (c) Dr. Manmohan Singh

Solution: Dr. Manmohan Singh introduced the LPG model of economic reforms in India in 1991, which aimed at liberalizing the economy, encouraging privatization, and promoting globalization.

 Quick Tip

The LPG model marked a significant turning point in India's economic history.

26. The third amendment in the Indian Patent Act was introduced during:

- (a) 2004
- (b) 2006
- (c) 2008
- (d) 2010

Correct Answer: (a) 2004

Solution: The third amendment to the Indian Patent Act was introduced in 2004 to align Indian laws with international standards under TRIPS (Trade-Related Aspects of Intellectual Property Rights).

 Quick Tip

Understanding amendments in the Patent Act is crucial for intellectual property rights.

27. Consumers' ability to identify the brand under different conditions, as reflected by their brand or recall performance is known as:

- (a) Brand audit
- (b) Brand awareness
- (c) Brand contact
- (d) Brand community

Correct Answer: (b) Brand awareness

Solution: Brand awareness refers to the extent to which consumers can recognize or recall a brand under various conditions.

 Quick Tip

Strong brand awareness is vital for creating customer loyalty and market success.

28. Financial requirements of the farmers can be classified on the basis of time period:

- (A). Short period
- (B). Medium period
- (C). Long period
- (D). Very very long period

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

Solution: Farmers' financial needs can be categorized as short-term (e.g., for seeds), medium-term (e.g., for machinery), and long-term (e.g., for land development). Very long-term needs are not a common classification.

 Quick Tip

Proper classification helps in addressing farmers' financial needs effectively.

29. RBI set up a high-level committee on agricultural credit chaired by Mr. R.V. Gupta, and he recommended:

- (A). Abolition of stamp duty on mortgage of agricultural land
- (B). Modify service area approach
- (C). Offer farmers a composite credit package
- (D). Devise a liquid savings package

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

Solution: The committee's recommendations covered multiple areas to improve agricultural credit systems in India.

 Quick Tip

Understanding recommendations helps in analyzing credit policies for agriculture.

30. If the data is classified by attributes and if two or more characters are to be compared within each attribute, we use the statistical tool as:

- (a) Component bar diagram
- (b) Percentage bar diagram
- (c) Pie diagram
- (d) Multiple bar diagram

Correct Answer: (d) Multiple bar diagram

Solution: A multiple bar diagram is used when comparing two or more variables for each attribute.

 Quick Tip

Multiple bar diagrams provide a clear visual representation for comparative analysis.

31. The deviation of individual values from their average is called as:

- (a) Quartile deviation
- (b) Mean deviation
- (c) Standard deviation

(d) Relative dispersion

Correct Answer: (b) Mean deviation

Solution: Mean deviation measures the average of absolute deviations of individual data points from their mean. It gives a sense of how spread out the data is around the central value.

 Quick Tip

Mean deviation is a simple measure of dispersion and is easier to calculate compared to standard deviation.

32. Match List-I with List-II:

List-I (Rural Development Programmes)	List-II (Year of Starting)
(A) Prime Minister Rozgar Yojana	(I) 2006
(B) Mahatma Gandhi National Rural Employment Guarantee Act	(II) 1999
(C) Swarnajayanti Gram Swarajgar Yojana	(III) 1989
(D) Integrated Watershed Development Programme	(IV) 15th August 1993

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

Solution: The years of initiation for the given rural development programmes are matched as follows: (A) Prime Minister Rozgar Yojana started in 2006 (IV). (B) Mahatma Gandhi National Rural Employment Guarantee Act started in 1999 (I). (C) Swarnajayanti Gram Swarajgar Yojana started in 1989 (II). (D) Integrated Watershed Development Programme started on 15th August 1993 (III).

 Quick Tip

Review rural development programmes by their starting years to understand their historical context and impact.

33. A process which aims at improving the well-being and self-realization of people living outside the urbanized area through collective processes is known as:

- (a) Social Development
(b) Economic Development

- (c) Market Development
- (d) Rural Development

Correct Answer: (d) Rural Development

Solution: Rural development is focused on improving the quality of life and economic well-being in rural areas through community-based initiatives and resource development.

 Quick Tip

Rural development is essential for bridging the gap between urban and rural communities.

34. Community Development Programme was launched by the Government of India on:

- (a) 2 October 1952
- (b) 2 October 1950
- (c) 2 October 1954
- (d) 2 October 1947

Correct Answer: (a) 2 October 1952

Solution: The Community Development Programme was launched on 2 October 1952 to enhance rural socio-economic infrastructure, focusing on education, health, and agriculture.

 Quick Tip

This program laid the foundation for rural development initiatives in India.

35. When too much of an input is used, and output decreases, the production process results in:

- (a) Constant returns
- (b) Increasing returns
- (c) Decreasing returns
- (d) Negative returns

Correct Answer: (c) Decreasing returns

Solution: Decreasing returns occur when additional units of input lead to a reduction in total output, indicating inefficiency in resource usage.

 Quick Tip

Negative returns signify that optimal input levels have been surpassed, causing production inefficiencies.

36. Arrange the following Rural Development Programmes in chronological order:

- (A) Marthandam
- (B) Gurgaon
- (C) Sarvoday
- (D) Etawah Pilot Project

- (a) (A), (B), (C), (D)
- (b) (A), (D), (B), (C)
- (c) (B), (A), (D), (C)
- (d) (C), (B), (D), (A)

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

Solution: The correct chronological order of Rural Development Programmes is as follows: -

- (B) Gurgaon
- (A) Marthandam
- (D) Etawah Pilot Project
- (C) Sarvoday

 Quick Tip

Chronological order helps in understanding the historical development and implementation sequence of programmes.

37. A measure of revenue and expenses during a specified accounting period is known as:

- (a) Balance sheet
- (b) Income statement
- (c) Net worth statement
- (d) Economic loss statement

Correct Answer: (b) Income statement

Solution: An income statement, also known as a profit and loss statement, measures revenue and expenses over a specific accounting period, providing a summary of the company's financial performance.

💡 Quick Tip

Use the income statement to analyze a business's profitability over time.

38. India's Share in total World's Buffalo population is:

- (a) 20%
- (b) 53%
- (c) 60%
- (d) 70%

Correct Answer: (b) 53%

Solution: India contributes approximately 53% of the world's buffalo population, making it a significant contributor to the global livestock sector.

💡 Quick Tip

India's buffalo population supports its dairy and meat production industries.

39. The equation, $S = f(cl, b, r, p, t...)$ was first formulated by:

- (a) Dokuchaiev
- (b) Jenny
- (c) Hilgard
- (d) Whitney

Correct Answer: (b) Jenny

Solution: Hans Jenny formulated the equation $S = f(cl, o, r, p, t...)$, which describes soil formation as a function of climate (cl), organisms (o), relief (r), parent material (p), and time (t).

💡 Quick Tip

The soil formation equation highlights the factors influencing soil development.

40. Which one of the following minerals is a boron mineral in soils?

- (a) Pyrolusite

- (b) Colemanite
- (c) Haematite
- (d) Apatite

Correct Answer: (b) Colemanite

Solution: Colemanite is a boron-containing mineral commonly found in soils, which serves as a source of boron for plant nutrition.

 Quick Tip

Boron is essential for plant growth, especially in cell wall formation and development.

41. Which of the following statement is/are correct with reference to bulk density?

- (A) Bulk density of soil depends on texture, structure, and organic matter.
- (B) Bulk density decreases with addition of organic matter to the soil.
- (C) Fine-textured soils have more bulk density than coarse-textured soil.
- (D) Compaction of soil increases the bulk density.

- (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: Bulk density depends on soil properties such as texture, structure, and organic matter. Adding organic matter reduces bulk density, while compaction increases it. Fine-textured soils have lower bulk density compared to coarse-textured soils.

 Quick Tip

Understanding bulk density is important for assessing soil health and root penetration.

42. Match List-I with List-II:

List-I (Soil Forming Process)	List-II (Description)
(A) Laterization	(I) Mixing of Soil
(B) Podsolization	(II) Accumulation of Sesquioxide
(C) Pedoturbation	(III) Hydromorphic
(D) Gleization	(IV) Eluviation of Sesquioxide

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

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

Solution: Laterization involves accumulation of sesquioxides.
Podsolization is characterized by the eluviation of sesquioxides.
Pedoturbation involves mixing of soil.
Gleization is a hydromorphic process.

 Quick Tip

Soil forming processes are essential for understanding soil classification and fertility.

43. A soil, which has pH more than 8.5, ESP more than 15, and EC less than 4 ds/m is called:

- (a) Saline Soil
- (b) Alkali Soil
- (c) Saline-Alkali Soil
- (d) Degraded Alkali Soil

Correct Answer: (b) Alkali Soil

Solution: Alkali soils have a high pH (8.5), high exchangeable sodium percentage (ESP 15), and low electrical conductivity (EC 4 ds/m), which make them unsuitable for most crops.

 Quick Tip

Reclamation of alkali soils involves gypsum application and proper drainage systems.

44. Which one of the following is NOT considered as a chemical weathering?

- (a) Hydrolysis
- (b) Carbonation
- (c) Reduction
- (d) Calcification

Correct Answer: (d) Calcification

Solution: Calcification is a pedogenic process rather than a chemical weathering process. Other options like hydrolysis, carbonation, and reduction are chemical weathering processes.

 Quick Tip

Chemical weathering alters the mineral composition of rocks and soils.

45. Arrange the sequence in terms of the increasing order of soil loss from the field due to water erosions:

- (A) Gully erosion
- (B) Rill erosion
- (C) Splash erosion
- (D) Sheet erosion

- (a) (A), (B), (C), (D)
- (b) (A), (C), (B), (D)
- (c) (B), (A), (D), (C)
- (d) (C), (D), (B), (A)

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

Solution: The increasing order of soil loss due to water erosion is: - Splash erosion (C) - Sheet erosion (D) - Rill erosion (B) - Gully erosion (A).

 Quick Tip

Proper soil conservation techniques can mitigate water erosion and prevent land degradation.

46. Size range of soil particles in saltation type of wind erosion is:

- (a) 0.5-1.0 mm
- (b) 1.0-2.0 mm
- (c) 0.05-0.5 mm
- (d) 0.002-0.05 mm

Correct Answer: (c) 0.05-0.5 mm

Solution: Saltation is a process in wind erosion where soil particles of size 0.05-0.5 mm are lifted by the wind and moved in a series of short jumps. These particles are too heavy to be carried in suspension and too light to remain stationary, causing them to bounce along the surface.

💡 Quick Tip

Saltation is a key contributor to soil erosion in arid and semi-arid regions.

47. Match List-I with List-II:

List-I	List-II
(A) Chepil and Milne (1941)	(I) Protection of soil surface from wind action
(B) Surface creep	(II) Alternate arrangement of erosion susceptibility and erosion-resistant crops
(C) Vegetative residue	(III) Coarse soil particles
(D) Strip cropping	(IV) Mechanics of soil movement by wind

Table 1: Match List-I with List-II for Soil Movement by Wind

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

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

Solution: - Chepil and Milne (1941) studied the mechanics of soil movement by wind. - Surface creep involves the movement of coarse soil particles. - Vegetative residues protect the soil surface from wind erosion. - Strip cropping alternates erosion-prone and erosion-resistant crops to prevent soil loss.

💡 Quick Tip

Combining vegetative residues and strip cropping enhances soil conservation.

48. In Universal Soil Loss Equation, $A=RKLSCP$, K denotes:

- (a) Soil Conservation practices
- (b) Soil roughness
- (c) Soil erodibility
- (d) Rainfall factor

Correct Answer: (c) Soil erodibility

Solution: In the Universal Soil Loss Equation (USLE):

A : Average annual soil loss.

R : Rainfall-runoff erosivity factor.

K : Soil erodibility factor, indicating the susceptibility of soil to erosion.

L : Slope length factor.
 S : Slope steepness factor.
 C : Crop management factor.
 P : Erosion control practices.

 Quick Tip

Soil erodibility (K) depends on soil texture, structure, permeability, and organic matter.

49. The practice of conducting all field operations such as ploughing, planting, and cultivating land across the slope is called:

- (a) Contour Farming
- (b) Strip Cropping
- (c) Terrace Farming
- (d) Inter Cropping

Correct Answer: (a) Contour Farming

Solution: Contour farming involves ploughing, planting, and cultivating land along the contour lines of a slope. This practice reduces water runoff and minimizes soil erosion by creating natural barriers to water flow.

 Quick Tip

Contour farming is especially effective in hilly and sloped agricultural areas.

50. Match List-I with List-II:

List-I (Plant Diseases/Famine)	List-II (Year)
(A) Irish Famine	(I) 1943
(B) Bengal Famine	(II) 1870
(C) Coffee rust	(III) 1845
(D) Downy mildew of tobacco	(IV) 1950

- (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)-(I), (C)-(II), (D)-(IV)

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

Solution: - The Irish Famine occurred in 1845 due to potato blight. - The Bengal Famine happened in 1943 due to food shortages. - Coffee rust was identified in 1870. - Downy mildew of tobacco emerged in 1950.

 Quick Tip

Understanding the history of plant diseases helps in planning disease management strategies.

51. Bordeaux mixture is a mixture of:

- (a) Copper sulphate and hydrated lime
- (b) Copper sulphate and slaked lime
- (c) Calcium sulphate and hydrated lime
- (d) Calcium sulphate and slaked lime

Correct Answer: (a) Copper sulphate and hydrated lime

Solution: Bordeaux mixture is a classic fungicide and bactericide made by combining copper sulphate with hydrated lime. It is widely used in agriculture to prevent fungal diseases in crops.

 Quick Tip

Prepare Bordeaux mixture fresh before use for optimal effectiveness in disease control.

52. Who reported that fire blight of pear was caused by a bacterium?

- (a) Prevost
- (b) E.J. Butler
- (c) T.J. Burrill
- (d) E.F. Smith

Correct Answer: (c) T.J. Burrill

Solution: T.J. Burrill was the first to identify that the fire blight disease of pear is caused by a bacterium, marking a significant milestone in plant pathology.

 Quick Tip

Fire blight is caused by *Erwinia amylovora*, a bacterial pathogen affecting fruit trees.

53. Arrange the sequence of spore production in Puccinia:

- (A) Urediospores
- (B) Aeciospores
- (C) Basidiospores
- (D) Teleutospores

Choose the correct answer from the options given below:

- (a) (A), (B), (C), (D)
- (b) (A), (C), (B), (D)
- (c) (B), (A), (D), (C)
- (d) (C), (A), (B), (D)

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

Solution: The correct sequence of spore production in Puccinia is:

1. Agri Business ManagementAeciosporesAgri Business Management: Produced on the alternate host and spread to the primary host.
2. Agri Business ManagementUrediosporesAgri Business Management: Produced repeatedly during the growing season, allowing infection to spread.
3. Agri Business ManagementTeleutosporesAgri Business Management: Thick-walled spores formed for overwintering.
4. Agri Business ManagementBasidiosporesAgri Business Management: Formed after germination of teleutospores in spring, restarting the infection cycle.

💡 Quick Tip

Puccinia species exhibit a heteroecious life cycle, requiring two different hosts to complete their spore stages.

54. Viroids are discovered by:

- (a) Diener
- (b) Prusiner
- (c) Doi
- (d) Kassanis

Correct Answer: (a) Diener

Solution: The discovery of viroids was made by T.O. Diener, who described them as small, circular RNA molecules that cause plant diseases.

💡 Quick Tip

Viroids differ from viruses as they lack a protein coat and replicate autonomously within host cells.

55. Ratoon stunting disease of sugarcane is caused by:

- (a) Virus
- (b) Fungi
- (c) Bacteria
- (d) Nematodes

Correct Answer: (c) Bacteria

Solution: Ratoon stunting disease of sugarcane is caused by the bacterium *Leifsonia xyli* subsp. *xyli*. It reduces cane yield significantly and is spread through infected planting material or mechanical means.

💡 Quick Tip

Use clean planting material and sterilized tools to manage ratoon stunting disease effectively.

56. Arrange the correct sequence of events in a disease cycle:

- (A) Colonization
- (B) Infection
- (C) Inoculation
- (D) Penetration

Choose the correct answer from the options given below:

- (a) (A), (B), (C), (D)
- (b) (D), (B), (C), (A)
- (c) (B), (A), (D), (C)
- (d) (C), (D), (B), (A)

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

Solution: The correct sequence of events in a disease cycle is:

1. Agri Business ManagementInoculationAgri Business Management: The pathogen comes in contact with the host.
2. Agri Business ManagementPenetrationAgri Business Management: The pathogen enters the host tissue.

3. Agri Business Management Infection Agri Business Management: The pathogen establishes itself and begins multiplying.
4. Agri Business Management Colonization Agri Business Management: The pathogen spreads within the host.

 Quick Tip

Understanding the disease cycle helps in developing effective disease management strategies.

57. Match List-I with List-II:

List-I (Cattle Breeds)	List-II (Crossing Breeds)
(A) Karan Swiss	(II) Brown Swiss with Sahiwal
(B) Karan Fries	(III) Holstein-Friesian with Tharparkar
(C) Frieswal	(IV) Holstein-Friesian with Sahiwal
(D) Sunandini	(I) Brown Swiss with Red Sindhi

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

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

Solution: The cattle breeds and their respective crossing breeds are:

Karan Swiss: Cross of Brown Swiss and Sahiwal.

Karan Fries: Cross of Holstein-Friesian and Tharparkar.

Frieswal: Cross of Holstein-Friesian and Sahiwal.

Sunandini: Cross of Brown Swiss and Red Sindhi.

 Quick Tip

Cattle breeding enhances milk production and adapts breeds to local environmental conditions.

58. In open pollinated variety of maize, how much minimum isolation distance is required to produce foundation seed:

- (a) 400 m
- (b) 200 m
- (c) 100 m

(d) 1000 m

Correct Answer: (a) 400 m

Solution: For open pollinated maize varieties, a minimum isolation distance of 400 meters is required to ensure genetic purity while producing foundation seed. Isolation distances prevent cross-pollination with other maize varieties.

 Quick Tip

Maintaining isolation distances is critical in seed production to maintain genetic integrity.

59. Which of the following statements is TRUE about T cytoplasm?

- (a) It is a source of male sterility in soyabeans.
- (b) It is the primary male sterile cytoplasm in sunflower.
- (c) It induces male sterility in maize.
- (d) It causes self-incompatibility in maize.

Correct Answer: (c) It induces male sterility in maize.

Solution: T cytoplasm in maize is known to induce male sterility, which is utilized in hybrid seed production. This cytoplasmic male sterility (CMS) eliminates the need for manual emasculation in hybrid seed production.

 Quick Tip

Cytoplasmic male sterility is a tool for producing hybrid seeds in crops like maize.

60. What was the title of the paper written by Gregor Johann Mendel and published in 1866?

- (a) Experiments on Plant Hybridization
- (b) Hybridization in Pea
- (c) Hybridization Experiments on Pea
- (d) Experiments on Pea Hybridization

Correct Answer: (a) Experiments on Plant Hybridization

Solution: Gregor Johann Mendel's paper, "Experiments on Plant Hybridization," published in 1866, laid the foundation for the field of genetics. His experiments on pea plants established

the basic laws of inheritance.

 Quick Tip

Mendel's work went unrecognized during his lifetime but became the cornerstone of modern genetics.

61. Match List-I with List-II:

List-I (Term)	List-II (Coined by)
(A) Mutation	(I) W. Waldeyer
(B) Gene	(II) K. Mather
(C) Chromosome	(III) Hugo de Vries
(D) Polygenes	(IV) Wilhelm Ludvig Johannsen

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: The terms and their respective coining are as follows:

Mutation: Coined by Hugo de Vries.

Gene: Coined by Wilhelm Ludvig Johannsen.

Chromosome: Coined by W. Waldeyer.

Polygenes: Coined by K. Mather.

 Quick Tip

Knowing the history of genetic terms helps in understanding the development of genetics as a science.

62. Arrange the following sub-stages of prophase I in meiotic cell division in the correct sequence:

- (A) Zygotene
- (B) Leptotene
- (C) Diplotene
- (D) Pachytene

Choose the correct answer from the options given below:

- (a) (A), (B), (C), (D)
- (b) (A), (B), (D), (C)
- (c) (B), (A), (D), (C)
- (d) (C), (B), (D), (A)

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

Solution: The correct sequence of sub-stages in prophase I of meiosis:

1. Agri Business ManagementLeptoteneAgri Business Management: Chromosomes start condensing.
2. Agri Business ManagementZygoteneAgri Business Management: Synapsis begins as homologous chromosomes pair.
3. Agri Business ManagementPachyteneAgri Business Management: Crossing over occurs between homologous chromosomes.
4. Agri Business ManagementDiploteneAgri Business Management: Homologous chromosomes start separating, but chiasmata remain visible.

 Quick Tip

Understanding prophase I is crucial for studying genetic variation mechanisms.

63. Which of the following statements are correct?

- (A) In F1 generation, when the offspring is intermediate of both parents, then it is called co-dominance.
- (B) Polytene chromosomes are formed by the repeated replication of chromosomal DNA without subsequent nuclear division.
- (C) Mutation is the ultimate source of variation in the population.
- (D) Gregor Mendel investigated characters in the garden pea plant that were manifested as two opposing traits.

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: Agri Business ManagementStatement (B)Agri Business Management: Correct. Polytene chromosomes are large chromosomes formed by repeated DNA replication without cell division.

Agri Business ManagementStatement (C)Agri Business Management: Correct. Mutation serves as the primary source of genetic variation.

Agri Business ManagementStatement (D)Agri Business Management: Correct. Mendel's ex-

periments on garden peas revealed traits as two opposing forms (dominant and recessive).
Agri Business Management Statement (A) Agri Business Management: Incorrect. Co-dominance results in both parental traits being expressed, not an intermediate form.

 Quick Tip

Co-dominance and incomplete dominance are distinct phenomena in genetics.

64. Which of the following substances can be used to break the dormancy of buds?

- (a) Phenolic acid
- (b) Para-ascorbic acid
- (c) Gibberellic acid
- (d) Absciscic acid

Correct Answer: (c) Gibberellic acid

Solution: Gibberellic acid is a plant hormone that promotes growth and breaks bud dormancy by stimulating cell elongation and division.

 Quick Tip

Gibberellic acid is widely used in agriculture to enhance seed germination and bud growth.

65. What is a shared characteristic between vegetative reproduction and apomixis?

- (a) Both produce progeny identical to the parent.
- (b) Both produce parthenogenetic seeds.
- (c) Both are applicable only to dicot plants.
- (d) Vegetative reproduction can fix heterosis, not apomixis.

Correct Answer: (a) Both produce progeny identical to the parent.

Solution: Vegetative reproduction and apomixis both result in progeny that are genetically identical to the parent.

Vegetative reproduction involves parts like stems and roots.

Apomixis involves seed formation without fertilization.

 Quick Tip

Both vegetative reproduction and apomixis help maintain the genetic uniformity of plants.

66. Which of the following statements are correct with regard to the position of emergence of flower buds in different fruits?

- (A) In mango, fruit buds are borne terminally and unfold to produce inflorescence without leaves.
- (B) In apple, fruit buds are borne both terminally and laterally but unfold to produce inflorescence terminally.
- (C) In pears, fruit buds are borne terminally, unfolding to produce leafy shoots terminating into flower clusters.
- (D) In jackfruit, fruit buds are always borne adventitiously in the old trunk or shoots.

Choose the correct answer from the options given below:

- (a) (A), (B) and (D) only
- (b) (A), (B) and (C) only
- (c) (A), (C) and (D) only
- (d) (B), (C) and (D) only

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

Solution: Agri Business ManagementMangoAgri Business Management: Fruit buds are terminal, producing inflorescence without leaves.

Agri Business ManagementPearsAgri Business Management: Terminal buds produce leafy shoots that terminate into flower clusters.

Agri Business ManagementJackfruitAgri Business Management: Flower buds appear adventitiously on the old trunk or shoots.

Agri Business ManagementAppleAgri Business Management: While buds are terminal and lateral, inflorescence is terminal.

 Quick Tip

Understanding the position of flower buds aids in proper pruning and cultural practices for fruit crops.

67. Which of the following systems follows the vertical row planting pattern system of layout?

- (a) Rectangular system
- (b) Hexagonal system

- (c) Quincunx system
- (d) Triangular system

Correct Answer: (a) Rectangular system

Solution: The rectangular system follows a vertical row planting pattern, where plants are aligned in straight rows and columns, ensuring easy access and management practices.

💡 Quick Tip

The rectangular system is the simplest and most commonly used planting method in orchards.

68. Consider the following statements/characteristics about the Gir breed of cattle and choose the correct one:

- (A) The breed originated in the regions of Karachi and Hyderabad (Pakistan) during undivided India.
- (B) The breed is characterized by uniquely curved horns, imparting a distinct "half-moon" appearance.
- (C) This breed is renowned for its hardiness and resistance to diseases.
- (D) The milk production of the Gir breed typically ranges from 1200 to 1800 kgs per lactation.

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: The Gir breed is known for its curved horns ("half-moon" shape). It is disease-resistant and hardy, making it a preferred breed for dairy farming. Milk production ranges between 1200-1800 kgs per lactation.

Agri Business Management Statement (A) Agri Business Management is incorrect as the breed originated in Gujarat, India, not Karachi or Hyderabad.

💡 Quick Tip

The Gir breed is extensively used in crossbreeding programs for improved milk production.

69. Climacteric fruits are:

- (a) Banana and Mango
- (b) Banana and Grapes
- (c) Grapes and Mango
- (d) Citrus and Peach

Correct Answer: (a) Banana and Mango

Solution: Climacteric fruits exhibit a rise in respiration and ethylene production during ripening. Examples include bananas, mangoes, apples, and tomatoes. Grapes, citrus, and peaches are non-climacteric fruits.

💡 Quick Tip

Climacteric fruits can be harvested before ripening and ripened during storage.

70. Match List-I with List-II:

List-I (Elements)	List-II (Functions in Plants)
(A) Iron	(I) Chlorophyll biosynthesis
(B) Zinc	(II) Photolysis of water
(C) Manganese	(III) Indole Acetic Acid biosynthesis
(D) Boron	(IV) Translocation of sugars

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

Solution: Agri Business ManagementIronAgri Business Management: Essential for chlorophyll biosynthesis.

Agri Business ManagementZincAgri Business Management: Plays a role in Indole Acetic Acid (IAA) biosynthesis.

Agri Business ManagementManganeseAgri Business Management: Involved in the photolysis of water during photosynthesis.

Agri Business ManagementBoronAgri Business Management: Helps in the translocation of sugars.

💡 Quick Tip

Balanced micronutrient supply enhances plant growth and productivity.

71. Arrange the following electron carriers in the correct sequence of electron flow during photosynthesis in the thylakoid membrane:

- (A) Cytochrome b6-f complex
- (B) Plastoquinone
- (C) PS-II
- (D) Plastocyanin

Choose the correct answer from the options given below:

- (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 of electron flow during photosynthesis is:

1. Agri Business ManagementPlastoquinoneAgri Business Management accepts electrons from PS-II.
2. Agri Business ManagementCytochrome b6-f complexAgri Business Management transfers electrons to plastocyanin.
3. Agri Business ManagementPlastocyaninAgri Business Management carries electrons to PS-I.
4. Agri Business ManagementPS-IAgri Business Management reduces NADP^+ to NADPH.

 Quick Tip

Electron flow in the thylakoid membrane is vital for ATP and NADPH production during the light reactions of photosynthesis.

72. Consider the following statements about agrisilviculture and choose the correct statements:

- (A) It is a land management system where plantation of tree crops and agriculture are practiced simultaneously on the same plot of land.
- (B) It can be used to produce both wood and agricultural crops.
- (C) It is a sustainable land-use system that can improve soil health and reduce erosion.
- (D) It is a three-dimensional production system designed for the concurrent production of agricultural crops, forest crops, and fodder for rearing of domesticated animals on the same plot of land.

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

Solution: Agrisilviculture integrates tree crops with agricultural crops to enhance productivity while maintaining soil health. However, it does not inherently involve fodder production, distinguishing it from agro-silvopastoral systems.

 Quick Tip

Agrisilviculture is effective in controlling soil erosion and providing long-term ecological benefits.

73. Match List-I with List-II:

List-I (Pigment)	List-II (Associated with)
(A) Phytochrome	(I) Stimulation of flowering
(B) Leghaemoglobin	(II) Nitrogen fixation
(C) Chlorophyll a	(III) Red algae
(D) Chlorophyll d	(IV) All photosynthesizing plants except bacteria

Choose the correct answer from the options given below:

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

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

Solution: Agri Business ManagementPhytochromeAgri Business Management: Controls flowering by responding to light quality and photoperiod.

Agri Business ManagementLeghaemoglobinAgri Business Management: Facilitates nitrogen fixation in legume nodules.

Agri Business ManagementChlorophyll aAgri Business Management: Found in all photosynthesizing plants except bacteria.

Agri Business ManagementChlorophyll dAgri Business Management: Present in red algae.

 Quick Tip

Chlorophyll pigments play distinct roles in photosynthesis across different plant groups.

74. Arrange the following steps involved in the Hatch and Slack cycle in correct

sequence:

- (A) Carboxylation of Phosphoenol Pyruvate
- (B) Splitting of Malate
- (C) Breakdown of Oxaloacetate
- (D) Phosphorylation of Pyruvate

Choose the correct answer from the options given below:

- (a) (A), (C), (B), (D)
- (b) (A), (B), (C), (D)
- (c) (B), (A), (D), (C)
- (d) (C), (B), (D), (A)

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

Solution: The correct sequence in the Hatch and Slack cycle is: 1. Agri Business Management-Carboxylation of Phosphoenol PyruvateAgri Business Management to form oxaloacetate. 2. Agri Business ManagementBreakdown of OxaloacetateAgri Business Management into malate. 3. Agri Business ManagementSplitting of MalateAgri Business Management to release CO₂ for the Calvin cycle. 4. Agri Business ManagementPhosphorylation of PyruvateAgri Business Management to regenerate phosphoenol pyruvate.

 Quick Tip

The Hatch and Slack cycle is essential for efficient CO₂ fixation in C₄ plants.

75. Which nutrient element is involved in energy transformation in metabolic processes?

- (a) Molybdenum
- (b) Zinc
- (c) Sulphate
- (d) Phosphorus

Correct Answer: (d) Phosphorus

Solution: Phosphorus plays a critical role in energy transformation as it is a key component of ATP (adenosine triphosphate), which acts as the energy currency in metabolic processes.

 Quick Tip

Adequate phosphorus availability is essential for energy metabolism and plant growth.