Board Exam Desk

Agriculture Reviewer

Agriculture Licensure Examination | PRC | 120 original questions

2026 Edition | Updated November 2026

Original board-style practice questions with an answer key.

Practice questions

Crop Science

1. A corn grower plants one seed per hill at a spacing of 75 cm between rows and 25 cm between hills. Assuming every seed establishes, how many plants are there per hectare?

A. 40,000
B. 66,667
C. 26,667
D. 53,333

2. A field needs 53,333 established corn plants per hectare. The seed lot germinates at 90% and 1,000 seeds weigh 300 g. Ignoring other losses, how much seed is needed per hectare?

A. 16.0 kg
B. 17.8 kg
C. 14.4 kg
D. 19.8 kg

3. A rice crop yields 5.4 t/ha of grain and 6.6 t/ha of straw, both on a dry basis. What is its harvest index?

A. 0.82
B. 0.45
C. 0.55
D. 1.22

4. Rice seedlings are transplanted in a square pattern at 20 cm x 20 cm. How many hills are there in one hectare?

A. 2,500,000
B. 25,000
C. 125,000
D. 250,000

5. Which of the following field crops uses the C4 photosynthetic pathway, giving it high efficiency under hot, bright conditions?

A. Rice
B. Soybean
C. Corn
D. Wheat

6. A crop opens its stomata mainly at night, stores CO_2 as malic acid, and fixes it into sugars during the day. Which plantation crop shows this behavior?

A. Sugarcane
B. Pineapple
C. Coconut
D. Banana

7. A traditional photoperiod-sensitive rice variety planted in the wet season flowers only when day length falls below a critical value. How is this variety classified?

A. Long-day plant
B. Short-day plant
C. Day-neutral plant
D. Intermediate-day plant

8. Philippine mango growers commonly spray mature trees with a chemical solution to induce off-season flowering. Which compound is classically used for this purpose?

A. Gibberellic acid
B. Potassium nitrate
C. Ammonium sulfate
D. Indole-3-butyric acid

9. A nursery worker dips the bases of stem cuttings in a hormone powder before sticking them in the propagation bed. Which plant hormone group is used to promote root formation?

A. Auxins
B. Gibberellins
C. Cytokinins
D. Abscisic acid

10. A branch of a lanzones tree is girdled, wrapped with moist coco coir, and cut from the tree only after roots form at the wound. What propagation method is this?

A. Cleft grafting
B. Inarching
C. Marcotting (air layering)
D. Budding

11. When cleft grafting mango, what is the most important condition for a successful graft union?

A. Scion longer than the rootstock
B. Rootstock with leaves removed
C. Scion taken from a seedling tree
D. Cambium of scion and stock in contact

12. A farmer saves seed from his F1 hybrid corn harvest and plants it the next season, but yields drop and plants look uneven. What best explains this?

A. F2 plants segregate and lose vigor
B. Saved seed was contaminated by fungi
C. Hybrids are always male sterile
D. Soil nutrients were depleted

13. Which crop is naturally cross-pollinated because its male and female flowers are borne separately on the same plant?

A. Rice
B. Peanut
C. Corn
D. Mungbean

14. What planting material is normally used to establish a commercial cassava field?

A. True seeds
B. Mature stem cuttings
C. Root tubers
D. Leaf cuttings

15. In establishing a new banana plantation from suckers, which type of sucker is preferred for vigorous growth?

A. Water sucker
B. Peeper sucker
C. Mature fruiting stem
D. Sword sucker

16. After sugarcane is harvested, the stubble is left in the field and allowed to sprout into a new crop. What is this regrowth crop called?

A. Relay crop
B. Catch crop
C. Ratoon crop
D. Cover crop

17. Freshly harvested palay will be stored in sacks for several months. To about what moisture content should it be dried for safe storage?

A. 18%
B. 14%
C. 22%
D. 26%

18. Seeds of a leguminous tree fail to germinate because their hard, impermeable coat blocks water uptake. Which treatment directly addresses this type of dormancy?

A. Stratification
B. Scarification
C. Vernalization
D. Priming with ethylene

19. Under drought stress, which plant hormone accumulates in leaves and triggers stomatal closure?

A. Gibberellic acid
B. Abscisic acid
C. Cytokinin
D. Indole-3-acetic acid

20. A forage seed lot has 96% purity and 85% germination. If the recommendation is 15 kg of pure live seed per hectare, how much bulk seed must be sown per hectare?

A. 18.4 kg
B. 17.6 kg
C. 15.6 kg
D. 12.2 kg

Animal Science

21. Using the Pearson square, a 500-kg batch of 18% crude protein feed is to be mixed from ground corn (9% CP) and soybean meal (44% CP). How much soybean meal is needed?

A. 371.4 kg
B. 90.0 kg
C. 128.6 kg
D. 102.3 kg

22. A grower pig goes from 25 kg to 105 kg live weight while consuming 224 kg of feed. What is its feed conversion ratio?

A. 2.80
B. 2.13
C. 0.36
D. 8.96

23. A finished hog weighing 110 kg live yields a hot carcass of 79.2 kg. What is its dressing percentage?

A. 28.0%
B. 72.0%
C. 79.2%
D. 138.9%

24. A layer house holds 2,500 hens and collects 2,050 eggs in one day. What is the hen-day egg production for that day?

A. 82.0%
B. 18.0%
C. 122.0%
D. 20.5%

25. A gilt is bred on March 1. Using the average swine gestation length of 114 days, on about what date should farrowing be expected?

A. June 23
B. June 14
C. July 3
D. July 29

26. A hatchery sets eggs from egg-type ducks used for balut and table eggs. After about how many days of incubation do duck eggs normally hatch?

A. 21 days
B. 35 days
C. 18 days
D. 28 days

27. Under the AM-PM rule for artificial insemination, a cow first seen in standing heat early in the morning should be inseminated when?

A. Immediately that morning
B. The morning of the next day
C. Late afternoon of the same day
D. Two days later

28. Which sign is the most reliable indicator that a cow is in true heat and ready for breeding?

A. She stands still when mounted
B. She mounts other cows
C. Her feed intake increases
D. Her milk yield rises sharply

29. Of the major volatile fatty acids produced in the rumen, which is the chief precursor for glucose synthesis in the liver of cattle?

A. Acetic acid
B. Butyric acid
C. Caproic acid
D. Propionic acid

30. Why are confined piglets routinely given an iron injection within the first few days of life?

A. Sow's milk supplies too little iron
B. To prevent scours caused by E. coli
C. To speed up tooth development
D. To replace antibodies from colostrum

31. Why should a newborn calf receive colostrum within the first few hours after birth?

A. Antibody absorption declines quickly
B. Colostrum is lowest in protein later
C. The rumen starts digesting fiber at birth
D. The calf cannot drink later

32. In a typical corn-soybean meal diet for growing pigs, which amino acid is usually the first limiting?

A. Methionine
B. Tryptophan
C. Threonine
D. Lysine

33. Chopped napier grass is packed tightly in a sealed silo. What mainly preserves the forage as good-quality silage?

A. Acetic acid from aerobic decay
B. Ammonia from protein breakdown
C. Heat from aerobic respiration
D. Lactic acid from anaerobic fermentation

34. Fresh napier grass contains 18% dry matter. A cow is to receive 9 kg of dry matter per day from this grass. How much fresh grass must be offered daily?

A. 1.6 kg
B. 10.6 kg
C. 50.0 kg
D. 45.0 kg

35. Which river-type buffalo breed has been used in the Philippines to upgrade native swamp-type carabao for milk production?

A. Murrah
B. Brahman
C. Anglo-Nubian
D. Landrace

36. A swine breeder wants a white breed with long body, large drooping ears and good mothering ability for the dam line. Which breed fits best?

A. Duroc
B. Hampshire
C. Landrace
D. Pietrain

37. Unvaccinated chickens show gasping, greenish diarrhea, sudden drop in egg production and twisted necks, with high mortality. Which disease is most likely?

A. Coccidiosis
B. Fowl pox
C. Newcastle disease
D. Infectious coryza

38. On the seventh day of incubation, a hatchery worker shines a bright light through each egg. What is the main purpose of this practice?

A. Determine the sex of the embryo
B. Remove infertile or dead-germ eggs
C. Warm eggs that have cooled
D. Measure eggshell thickness

39. A pasture produces 8,000 kg DM/ha per year, of which 60% can be safely grazed. Each 400-kg cow eats dry matter equal to 2.5% of body weight daily. About how many cows can one hectare support year-round?

A. 1.32
B. 2.19
C. 0.76
D. 1.64

40. In a brooder house, the chicks are crowded together directly under the heat source and chirping loudly. What does this behavior indicate?

A. Brooding temperature is too high
B. Ventilation is excessive at floor level
C. Feeder space is inadequate
D. Brooding temperature is too low

Soil Science

41. A soil sample contains 40% sand, 40% silt and 20% clay. What is its textural class based on the USDA textural triangle?

A. Silt loam
B. Clay loam
C. Loam
D. Sandy loam

42. An undisturbed core of 200 cm3 weighs 270 g after oven drying. Assuming a particle density of 2.65 g/cm3, what is the total porosity?

A. 50.9%
B. 38.2%
C. 62.4%
D. 49.1%

43. A moist soil sample weighs 182 g and 140 g after oven drying at 105 degrees C. What is its gravimetric water content?

A. 23.1%
B. 76.9%
C. 42.0%
D. 30.0%

44. A soil has volumetric water contents of 0.34 at field capacity and 0.16 at permanent wilting point. How much plant-available water is held in a 0.6 m root zone?

A. 204 mm
B. 108 mm
C. 96 mm
D. 180 mm

45. What is the mass of the plow layer of one hectare if it is 20 cm deep and has a bulk density of 1.25 Mg/m3?

A. 2,000 t
B. 250 t
C. 3,125 t
D. 2,500 t

46. A soil has a CEC of 26 cmol(+)/kg with exchangeable Ca 9, Mg 3, K 0.6 and Na 0.4 cmol(+)/kg. What is its percent base saturation?

A. 46.2%
B. 34.6%
C. 50.0%
D. 61.5%

47. Which clay mineral gives soils high cation exchange capacity along with strong shrinking and swelling as moisture changes?

A. Kaolinite
B. Montmorillonite
C. Gibbsite
D. Quartz

48. Soils formed from volcanic ash, with low bulk density, high allophane content and strong phosphorus fixation, belong to which soil order?

A. Vertisols
B. Histosols
C. Aridisols
D. Andisols

49. A clayey soil develops wide, deep cracks during the dry season and becomes very sticky when wet. To which soil order does it most likely belong?

A. Vertisols
B. Andisols
C. Oxisols
D. Spodosols

50. Corn plants show interveinal yellowing that starts on the older, lower leaves while new leaves stay green. Which nutrient deficiency is most likely?

A. Iron
B. Calcium
C. Magnesium
D. Boron

51. Why is phosphorus availability usually low in a strongly acidic soil with pH 4.8?

A. Phosphate leaches rapidly as a gas
B. Calcium phosphates dominate at low pH
C. Phosphate binds with iron and aluminum
D. Microbes convert phosphate to nitrate

52. An acidic upland soil also tests low in magnesium. Which liming material corrects both problems in one application?

A. Calcitic limestone
B. Gypsum
C. Dolomitic limestone
D. Elemental sulfur

53. Which small floating aquatic fern is grown in lowland rice fields as a green manure because it hosts a nitrogen-fixing cyanobacterium?

A. Salvinia
B. Azolla
C. Water hyacinth
D. Duckweed

54. Nitrate fertilizer applied to a continuously flooded rice field is quickly lost as N2 and N2O gases. Which process is responsible?

A. Nitrification
B. Denitrification
C. Mineralization
D. Ammonification

55. Fresh sawdust was mixed into a vegetable bed, and the seedlings soon turned pale yellow. What is the most likely cause?

A. Sawdust raised soil pH too high
B. Sawdust supplied excess potassium
C. Roots were burned by released ammonia
D. Microbes immobilized soil nitrogen

56. In a soil profile, the horizon where clay, iron and aluminum leached from above accumulate is called the:

A. E horizon
B. A horizon
C. O horizon
D. B horizon

57. A 1.5-ha rice field requires 80 kg N/ha. How much urea (46-0-0) is needed for the whole field?

A. 173.9 kg
B. 55.2 kg
C. 266.7 kg
D. 260.9 kg

58. A recommendation of 90-42-42 kg/ha of N-P2O5-K2O is met by first applying 14-14-14 to satisfy the P and K needs, then urea (46-0-0) for the remaining N. How much urea is needed per hectare?

A. 195.7 kg
B. 104.3 kg
C. 91.3 kg
D. 48.0 kg

59. A soil test calls for 20 kg of elemental P per hectare, to be supplied with single superphosphate (0-20-0). How much fertilizer is needed per hectare? (P2O5 = 2.29 x P)

A. 100.0 kg
B. 229.1 kg
C. 45.8 kg
D. 43.7 kg

60. On an 18% slope, a farmer plants double rows of nitrogen-fixing shrubs along the contour with food crops grown in the strips between them. What is the main purpose of this system?

A. Increase soil salinity for crops
B. Reduce soil erosion and runoff
C. Raise the water table on the slope
D. Replace all fertilizer needs

Crop Protection

61. In integrated pest management, what does the economic threshold refer to?

A. Pest density at which control should begin
B. Pest density causing total crop loss
C. Lowest pest density detectable
D. Highest dose of pesticide allowed

62. Control costs PHP 2,400/ha, the crop sells at PHP 16/kg, each larva per plant reduces yield by 15 kg/ha, and the treatment kills 80% of larvae. What is the economic injury level?

A. 10.0 larvae per plant
B. 12.5 larvae per plant
C. 8.0 larvae per plant
D. 6.4 larvae per plant

63. An insecticide EC contains 250 g of active ingredient per liter. The recommended rate is 0.5 kg a.i. per hectare. How much product is needed for a 0.6-ha field?

A. 2.0 L
B. 2.4 L
C. 1.2 L
D. 0.3 L

64. Spray volume is calibrated at 240 L/ha with a 16-L knapsack sprayer. How many tank fills, counting a partial last fill, are needed for 0.5 ha?

A. 15
B. 7
C. 8
D. 12

65. A label recommends 30 mL of fungicide per 16 L of water. How much fungicide should be added to a 200-L drum to keep the same concentration?

A. 480 mL
B. 300 mL
C. 375 mL
D. 600 mL

66. Circular patches of rice turn yellow then brown and dry, and many small brownish insects cluster at the base of the tillers near the water line. Which pest is most likely?

A. Brown planthopper
B. Rice stem borer
C. Rice bug
D. Rice leaffolder

67. Which insect is the principal vector of rice tungro disease?

A. Green leafhopper
B. Brown planthopper
C. Whitebacked planthopper
D. Rice black bug

68. Rice leaves show spindle-shaped lesions with gray centers and brown margins, and some panicle necks rot and break. What type of pathogen causes this disease?

A. Bacterium
B. Virus
C. Fungus
D. Nematode

69. Young transplanted rice wilts and dies (kresek), and older leaves show wavy yellow-to-white lesions from the tips that ooze milky droplets. Which disease is this?

A. Rice blast
B. Bacterial leaf blight
C. Sheath blight
D. Tungro

70. Cavendish banana plants show yellowing of older leaves that collapse around the pseudostem, and cutting the pseudostem reveals reddish-brown vascular strands. What is the most likely disease?

A. Fusarium wilt
B. Banana bunchy top
C. Black Sigatoka
D. Banana freckle

71. Coconut cadang-cadang, which causes progressive yellowing, small round nuts and eventual death of palms, is caused by what type of agent?

A. Fungus
B. Bacterium
C. Viroid
D. Phytoplasma

72. Cards bearing parasitized eggs of Trichogramma are released in cornfields against the Asian corn borer. How does Trichogramma control the pest?

A. It preys on adult moths
B. It parasitizes the pest's eggs
C. It infects larvae with a virus
D. It repels moths from tassels

73. How does the Bt toxin in Bt corn kill corn borer larvae?

A. Contact vapor paralyzes the larvae
B. It blocks larval molting hormones
C. It makes the leaves unpalatable
D. Ingested protein damages the larval gut

74. Insecticide A has an acute oral LD50 of 5 mg/kg and insecticide B has 500 mg/kg in rats. Which statement is correct?

A. B is more acutely toxic than A
B. Both are equally toxic
C. A is more acutely toxic than B
D. LD50 says nothing about toxicity

75. Why is a systemic insecticide often preferred over a contact insecticide for controlling aphids hidden on the undersides of curled leaves?

A. It moves within the plant's tissues
B. It persists longer on leaf surfaces
C. It repels aphids from a distance
D. It kills aphid eggs in the soil

76. Diamondback moth on cabbage no longer responds to an insecticide the farmer has sprayed weekly for several seasons. What is the best resistance-management step?

A. Double the dose of the same product
B. Rotate insecticides with different modes of action
C. Spray the same product twice weekly
D. Mix it with a product of the same group

77. In proving that a fungus causes a new leaf spot, the fungus is isolated, inoculated onto healthy plants, and the same symptoms appear. What step is still needed to complete Koch's postulates?

A. Spray a fungicide on the plants
B. Grow the fungus at a different temperature
C. Re-isolate the same fungus from them
D. Measure the yield loss caused

78. A tomato grower last sprayed an insecticide with a 14-day pre-harvest interval on August 3. What is the earliest date the fruits may be harvested?

A. August 17
B. August 10
C. August 31
D. August 14

79. Tomato roots are covered with knot-like swellings, and plants wilt at midday despite moist soil. Which pest is the most likely cause?

A. Cutworm
B. Mole cricket
C. Bacterial wilt
D. Root-knot nematode

80. Newly transplanted rice seedlings are cut at the base overnight, and clusters of bright pink egg masses appear on stems and bunds. Which pest is responsible?

A. Rice field rat
B. Rice whorl maggot
C. Golden apple snail
D. Armyworm

Agricultural Economics and Marketing

81. Producing one hectare of palay costs PHP 75,000 and the expected yield is 5,000 kg. What is the break-even price?

A. PHP 13.33/kg
B. PHP 16.67/kg
C. PHP 15.00/kg
D. PHP 20.00/kg

82. A vegetable enterprise earns gross revenue of PHP 135,000 with total costs of PHP 90,000. What is the return on investment?

A. 150.0%
B. 50.0%
C. 33.3%
D. 66.7%

83. When the retail price of rice rises by 8%, the quantity demanded falls by 2%. What is the price elasticity of demand and how is demand classified?

A. -4.0, elastic
B. -0.25, elastic
C. -4.0, inelastic
D. -0.25, inelastic

84. Farmers sell onions at PHP 21/kg and consumers pay PHP 35/kg at retail. What is the farmer's share of the consumer peso?

A. 40.0%
B. 66.7%
C. 14.0%
D. 60.0%

85. A hand tractor costs PHP 180,000, has a salvage value of PHP 30,000 and a useful life of 6 years. What is its annual straight-line depreciation?

A. PHP 30,000
B. PHP 35,000
C. PHP 20,000
D. PHP 25,000

86. A farmer keeps adding equal increments of fertilizer to a fixed area. Beyond a certain point each added increment raises yield by less than the previous one. Which principle is this?

A. Law of diminishing returns
B. Law of demand
C. Principle of comparative advantage
D. Economies of scale

87. In the classical three-stage production function, where should a rational producer operate?

A. From zero input to maximum APP
B. Beyond the point where MPP is negative
C. Only at maximum total product
D. From maximum APP to zero MPP

88. Rice yield response to nitrogen is Y = 3,000 + 40N - 0.2N^2 (kg/ha). Nitrogen costs PHP 60/kg and palay sells at PHP 20/kg. What N rate maximizes profit?

A. 92.5 kg/ha
B. 100.0 kg/ha
C. 85.0 kg/ha
D. 107.5 kg/ha

89. A farmer uses his own land to grow corn instead of leasing it to a neighbor for PHP 20,000 per season. In economic analysis, the forgone rent is best described as:

A. Sunk cost
B. Opportunity cost
C. Variable cash cost
D. Depreciation cost

90. Which of the following is a variable cost in a rice farm enterprise?

A. Annual land amortization
B. Fertilizer applied this season
C. Depreciation of the farm shed
D. Real property tax

91. In a district, many sugarcane farmers can sell their cane to only one sugar mill. What market structure do the farmers face?

A. Monopoly
B. Perfect competition
C. Monopolistic competition
D. Monopsony

92. As household income rises, the proportion of income spent on food tends to fall even though absolute food spending may rise. This is known as:

A. Say's law
B. Engel's law
C. Gresham's law
D. Law of supply

93. High hog prices this year lead many raisers to expand, causing low prices when the pigs reach market, which then leads to cutbacks. Which model explains this recurring cycle?

A. Kinked demand model
B. Cobweb model
C. Lorenz curve
D. Production possibility frontier

94. What is the present value of PHP 50,000 to be received three years from now if the discount rate is 8% per year compounded annually?

A. PHP 39,691.61
B. PHP 40,322.58
C. PHP 46,296.30
D. PHP 38,000.00

95. Country X can produce both rice and coconut more cheaply than Country Y, but its cost advantage is much greater in coconut. According to trade theory, Country X should specialize in:

A. Rice, to protect food security
B. Both crops equally
C. Neither, and import both
D. Coconut, its comparative advantage

96. In a partial budget evaluating a switch from hand weeding to herbicide, which item belongs on the same side as added returns?

A. Added costs
B. Reduced returns
C. Fixed costs unchanged by the change
D. Reduced costs

97. A trader buys corn at harvest when prices are low and holds it in a warehouse for sale months later. Which form of utility does storage create?

A. Time utility
B. Place utility
C. Form utility
D. Possession utility

98. Republic Act No. 6657, enacted in 1988, is better known as which law?

A. Local Government Code
B. Philippine Cooperative Code
C. Agriculture and Fisheries Modernization Act
D. Comprehensive Agrarian Reform Law

99. Which law, enacted in 1997 as Republic Act No. 8435, set the framework for modernizing Philippine agriculture and fisheries?

A. Comprehensive Agrarian Reform Law
B. Local Government Code
C. Agriculture and Fisheries Modernization Act
D. Organic Agriculture Act

100. A farmers' cooperative holds its annual general assembly. Under the internationally recognized cooperative principle of democratic member control, how are votes allocated?

A. One member, one vote
B. One vote per share owned
C. Votes by volume of produce
D. Only officers may vote

Agricultural Extension and Communication

101. After hearing about a new rice variety, a farmer plants it on a small portion of his field to see how it performs before deciding. Which stage of the adoption process is he in?

A. Awareness
B. Trial
C. Interest
D. Adoption

102. In Rogers' classification of adopter categories, about what percentage of a population are the early adopters?

A. 13.5%
B. 2.5%
C. 34%
D. 16%

103. A new seed variety can be planted on just a few square meters before a farmer commits his whole farm. Which innovation attribute does this illustrate?

A. Observability
B. Compatibility
C. Relative advantage
D. Trialability

104. Farmers resist a recommended practice because it conflicts with their customary planting schedule and beliefs. Which innovation attribute is lacking?

A. Compatibility
B. Trialability
C. Complexity
D. Observability

105. An extension worker first trains respected, well-connected farmers, expecting them to pass ideas on to their neighbors. Which communication concept guides this approach?

A. Two-step flow through opinion leaders
B. One-way mass media effect
C. Hypodermic needle model
D. Agenda-setting by the press

106. In Berlo's SMCR model of communication, what do the four letters stand for?

A. Sender, medium, content, response
B. Source, meaning, code, result
C. Source, message, channel, receiver
D. Speaker, message, context, reaction

107. After a radio program on fertilizer use, farmers call in with questions that show they misunderstood the dosage. In communication terms, these calls serve as:

A. Noise
B. Encoding
C. Feedback
D. Channel

108. An extension worker shows a group of farmers, step by step, how to graft mango seedlings, and each farmer then practices. What extension method is this?

A. Result demonstration
B. Field day
C. Method demonstration
D. Farm and home visit

109. What is the central learning approach of the Farmer Field School, first widely used for rice IPM in Asia?

A. Lectures by experts in a classroom
B. Distribution of printed technology guides
C. Radio-based distance instruction
D. Season-long discovery learning in the field

110. Which extension system, promoted by the World Bank, relies on village extension workers making regular scheduled visits to selected contact farmers?

A. Farmer Field School
B. Farming systems research
C. Training and Visit system
D. Participatory technology development

111. Which law devolved the delivery of agricultural extension services in the Philippines to local government units?

A. Comprehensive Agrarian Reform Law
B. Philippine Cooperative Code
C. Agriculture and Fisheries Modernization Act
D. Local Government Code of 1991

112. Within the Department of Agriculture, which agency serves as the main extension and training arm?

A. Bureau of Plant Industry
B. Bureau of Agricultural Statistics
C. Agricultural Training Institute
D. National Food Authority

113. Following the principles of andragogy, which training design is most suitable for adult farmers?

A. Long lectures on theory first
B. Problem-centered with direct farm relevance
C. Memorization of technical terms
D. Teacher-controlled with no discussion

114. According to Dale's cone of experience, which learning experience is the most concrete?

A. Verbal symbols
B. Direct, purposeful experience
C. Visual symbols
D. Recordings and still pictures

115. An extension office wants many farmers across a province to quickly become aware of a new pest outbreak. Which channel is most effective for this goal?

A. Individual farm visits
B. Small group discussions
C. Mass media such as radio
D. Result demonstration plots

116. During a participatory rural appraisal, the team and residents walk across the village from one boundary to another, noting land use, soils and problems. Which tool is this?

A. Transect walk
B. Seasonal calendar
C. Venn diagram
D. Pairwise ranking

117. Communication between an extension worker and farmers is smoother when they share similar language, background and values. What is this similarity called?

A. Homophily
B. Heterophily
C. Empathy
D. Cognitive dissonance

118. Which of the following is classified as a group extension method?

A. Farm and home visit
B. Radio broadcast
C. Personal letter to a farmer
D. Field day at a demonstration farm

119. What is normally the first step in planning an agricultural extension program for a municipality?

A. Situation analysis of the area
B. Selecting the evaluation design
C. Printing extension materials
D. Scheduling demonstration field days

120. When the cumulative number of farmers adopting an innovation is plotted against time, what shape does the curve typically take?

A. S-shaped curve
B. Straight declining line
C. U-shaped curve
D. Inverted V-shape

Answer key

Agriculture

1. D. 53,333

Plants per hectare = 10,000 m2 / (0.75 m x 0.25 m) = 10,000 / 0.1875 = 53,333.

2. B. 17.8 kg

Seeds needed = 53,333 / 0.90 = 59,259; mass = 59,259 x 0.30 g = 17.8 kg.

3. B. 0.45

Harvest index = grain / total above-ground biomass = 5.4 / (5.4 + 6.6) = 5.4 / 12.0 = 0.45.

4. D. 250,000

Hills per hectare = 10,000 m2 / (0.20 m x 0.20 m) = 10,000 / 0.04 = 250,000.

5. C. Corn

Corn (maize) is a C4 grass that concentrates CO2 in bundle-sheath cells; rice, soybean and wheat are C3 plants.

6. B. Pineapple

Pineapple uses crassulacean acid metabolism (CAM), fixing CO2 at night to conserve water; sugarcane is C4 and the others are C3.

7. B. Short-day plant

Plants that flower when day length is shorter than a critical length are short-day plants; many traditional rice varieties respond this way.

8. B. Potassium nitrate

Potassium nitrate sprays induce flowering in mature mango terminals; gibberellic acid tends to promote vegetative growth instead.

9. A. Auxins

Synthetic auxins such as IBA and NAA stimulate adventitious root initiation in cuttings.

10. C. Marcotting (air layering)

Marcotting induces roots on a branch while it is still attached to the parent plant, then the rooted branch is detached and planted.

11. D. Cambium of scion and stock in contact

The graft unites only if the vascular cambium layers of scion and rootstock touch, allowing callus and new vascular tissue to bridge them.

12. A. F2 plants segregate and lose vigor

Hybrid vigor is maximal in the uniform F1; in the F2 generation genes segregate, producing variable plants and reduced heterosis.

13. C. Corn

Corn is monoecious, with a tassel and ears on the same plant, so wind carries pollen between plants; rice, peanut and mungbean are mainly self-pollinated.

14. B. Mature stem cuttings

Cassava is propagated vegetatively using 20 to 25 cm cuttings from mature stems; true seeds are used mainly in breeding.

15. D. Sword sucker

Sword suckers have narrow leaves and a broad, well-attached base, so they draw strongly on the corm and grow vigorously; water suckers are weak.

16. C. Ratoon crop

A ratoon crop regrows from buds on the stubble left after harvest, saving the cost of replanting.

17. B. 14%

Paddy dried to about 14% moisture resists mold growth and respiration losses during storage; higher moisture promotes heating and spoilage.

18. B. Scarification

Scarification nicks, abrades or acid-softens the seed coat so water can enter; stratification addresses embryo dormancy through cold-moist treatment.

19. B. Abscisic acid

Abscisic acid signals guard cells to lose turgor, closing stomata and reducing transpiration during water deficit.

20. A. 18.4 kg

PLS = 0.96 x 0.85 = 0.816; bulk seed = 15 / 0.816 = 18.4 kg/ha.

21. C. 128.6 kg

Parts: corn 44 - 18 = 26, soybean meal 18 - 9 = 9, total 35; soybean meal = 9/35 x 500 = 128.6 kg.

22. A. 2.80

FCR = feed eaten / weight gained = 224 / (105 - 25) = 224 / 80 = 2.80.

23. B. 72.0%

Dressing percentage = carcass weight / live weight x 100 = 79.2 / 110 x 100 = 72.0%.

24. A. 82.0%

Hen-day production = eggs laid / hens present x 100 = 2,050 / 2,500 x 100 = 82.0%.

25. A. June 23

March 1 + 114 days = June 23 (30 days remain in March, then 30 in April, 31 in May, 23 in June).

26. D. 28 days

Common duck eggs hatch in about 28 days, compared with about 21 days for chicken eggs.

27. C. Late afternoon of the same day

Ovulation occurs roughly 10 to 14 hours after the end of standing heat, so morning-detected cows are bred that afternoon or evening.

28. A. She stands still when mounted

Standing to be mounted is the primary sign of estrus; mounting others and other behaviors are secondary and occur outside heat too.

29. D. Propionic acid

Propionate is glucogenic and is converted to glucose in the liver; acetate and butyrate are used mainly for fat synthesis and energy.

30. A. Sow's milk supplies too little iron

Piglets are born with low iron reserves and sow's milk is iron-poor, so without soil contact they develop iron-deficiency anemia.

31. A. Antibody absorption declines quickly

The newborn gut can absorb intact immunoglobulins only for a short time after birth, so early colostrum feeding ensures passive immunity.

32. D. Lysine

Corn is low in lysine, and lysine is generally the first limiting amino acid in corn-soybean swine diets; methionine is usually first limiting for poultry.

33. D. Lactic acid from anaerobic fermentation

Under anaerobic conditions lactic acid bacteria ferment sugars, lowering pH to about 4 and preventing spoilage organisms from growing.

34. C. 50.0 kg

Fresh weight = dry matter needed / DM fraction = 9 / 0.18 = 50.0 kg.

35. A. Murrah

Murrah is a river-type dairy buffalo from India; Brahman is a cattle breed, Anglo-Nubian a goat and Landrace a pig breed.

36. C. Landrace

Landrace is white, long-bodied, lop-eared and prolific; Duroc is red, Hampshire is black with a white belt, and Pietrain is spotted with erect ears.

37. C. Newcastle disease

Respiratory signs plus greenish diarrhea and nervous signs such as torticollis are characteristic of virulent Newcastle disease.

38. B. Remove infertile or dead-germ eggs

Candling reveals blood vessels of a live embryo; clear or blood-ring eggs are removed to save incubator space and avoid contamination.

39. A. 1.32

Usable DM = 8,000 x 0.60 = 4,800 kg; cow intake = 400 x 0.025 x 365 = 3,650 kg; capacity = 4,800 / 3,650 = 1.32 cows/ha.

40. D. Brooding temperature is too low

Chicks huddle under the heater when cold; when too hot they move away from it and pant.

41. C. Loam

With 20% clay, 40% silt and 40% sand, the sample falls inside the loam region of the USDA triangle.

42. D. 49.1%

Bulk density = 270 / 200 = 1.35 g/cm3; porosity = 1 - 1.35/2.65 = 0.491, or 49.1%.

43. D. 30.0%

Gravimetric water content = mass of water / oven-dry mass = (182 - 140) / 140 = 0.30, or 30.0%.

44. B. 108 mm

Available water = (0.34 - 0.16) x 600 mm = 0.18 x 600 = 108 mm.

45. D. 2,500 t

Volume = 10,000 m2 x 0.20 m = 2,000 m3; mass = 2,000 m3 x 1.25 Mg/m3 = 2,500 t.

46. C. 50.0%

Sum of bases = 9 + 3 + 0.6 + 0.4 = 13 cmol(+)/kg; base saturation = 13 / 26 x 100 = 50.0%.

47. B. Montmorillonite

Montmorillonite is an expanding 2:1 smectite with large internal surface area and high CEC; kaolinite is a 1:1 clay with low CEC.

48. D. Andisols

Andisols develop from volcanic ejecta and are dominated by short-range-order minerals such as allophane that bind phosphate strongly.

49. A. Vertisols

Vertisols are rich in expanding clays that shrink into deep cracks when dry and swell when wet.

50. C. Magnesium

Magnesium is mobile in the plant, so deficiency appears first on older leaves; iron, calcium and boron deficiencies show on young tissues.

51. C. Phosphate binds with iron and aluminum

At low pH, soluble iron and aluminum react with phosphate to form insoluble compounds; calcium phosphate precipitation is a problem in alkaline soils.

52. C. Dolomitic limestone

Dolomitic limestone contains calcium and magnesium carbonates, raising pH while adding Mg; gypsum does not neutralize acidity and sulfur acidifies.

53. B. Azolla

Azolla lives in symbiosis with the cyanobacterium Anabaena azollae, which fixes atmospheric nitrogen that becomes available to rice.

54. B. Denitrification

In the reduced layer of flooded soil, anaerobic bacteria use nitrate as an electron acceptor and convert it to gaseous nitrogen.

55. D. Microbes immobilized soil nitrogen

Sawdust has a very wide C:N ratio, so decomposing microbes take up available soil nitrogen, temporarily starving the crop of N.

56. D. B horizon

The B horizon is the zone of illuviation where translocated materials accumulate; the E horizon above is the zone of eluviation.

57. D. 260.9 kg

Total N = 80 x 1.5 = 120 kg; urea = 120 / 0.46 = 260.9 kg.

58. B. 104.3 kg

14-14-14 needed = 42 / 0.14 = 300 kg, supplying 42 kg N; remaining N = 90 - 42 = 48 kg; urea = 48 / 0.46 = 104.3 kg.

59. B. 229.1 kg

P_2O_5 needed = 20 x 2.2914 = 45.8 kg; fertilizer = 45.8 / 0.20 = 229.1 kg.

60. B. Reduce soil erosion and runoff

Contour hedgerows slow runoff and trap sediment, gradually forming natural terraces, while their prunings add organic matter.

61. A. Pest density at which control should begin

The economic threshold is the action level set below the economic injury level so control can take effect before losses exceed control costs.

62. B. 12.5 larvae per plant

EIL = C / (V x D x K) = 2,400 / (16 x 15 x 0.80) = 2,400 / 192 = 12.5 larvae per plant.

63. C. 1.2 L

a.i. needed = 0.5 x 0.6 = 0.3 kg = 300 g; product = 300 / 250 = 1.2 L.

64. C. 8

Volume = 240 x 0.5 = 120 L; 120 / 16 = 7.5, so 8 fills are needed.

65. C. 375 mL

Product = 30 mL x (200 / 16) = 30 x 12.5 = 375 mL.

66. A. Brown planthopper

Brown planthopper sucks phloem sap at the plant base and causes patchy drying known as hopperburn.

67. A. Green leafhopper

Rice tungro viruses are transmitted mainly by the green leafhopper, Nephotettix virescens.

68. C. Fungus

These are symptoms of rice blast, caused by the fungus Magnaporthe oryzae (anamorph Pyricularia oryzae).

69. B. Bacterial leaf blight

Kresek and leaf-tip lesions with bacterial ooze are characteristic of bacterial leaf blight caused by Xanthomonas oryzae pv. oryzae.

70. A. Fusarium wilt

Fusarium oxysporum f. sp. cubense invades the xylem, causing vascular discoloration and wilting; Tropical Race 4 attacks Cavendish.

71. C. Viroid

Cadang-cadang is caused by the coconut cadang-cadang viroid, a small circular RNA without a protein coat.

72. B. It parasitizes the pest's eggs

Trichogramma wasps lay their eggs inside corn borer eggs, killing them before larvae hatch.

73. D. Ingested protein damages the larval gut

Bacillus thuringiensis Cry proteins are activated in the alkaline larval midgut, bind receptors and form pores that destroy the gut lining.

74. C. A is more acutely toxic than B

LD50 is the dose killing half of the test animals; a smaller LD50 means less is needed to kill, so A is far more toxic.

75. A. It moves within the plant's tissues

Systemic insecticides are absorbed and translocated in the plant, so sap-feeding insects are exposed even where spray does not reach.

76. B. Rotate insecticides with different modes of action

Alternating chemical groups with different modes of action reduces selection pressure for resistance to any single target site.

77. C. Re-isolate the same fungus from them

Koch's postulates end with re-isolating the same organism from the artificially inoculated, diseased plants.

78. A. August 17

Earliest harvest = last application + PHI = August 3 + 14 days = August 17.

79. D. Root-knot nematode

Meloidogyne nematodes induce giant cells that form root galls, impairing water uptake and causing midday wilting.

80. C. Golden apple snail

Golden apple snail (Pomacea canaliculata) feeds on young rice seedlings and lays conspicuous pink egg clusters above the water line.

81. C. PHP 15.00/kg

Break-even price = total cost / yield = 75,000 / 5,000 = PHP 15.00 per kg.

82. B. 50.0%

Net income = 135,000 - 90,000 = 45,000; ROI = 45,000 / 90,000 x 100 = 50.0%.

83. D. -0.25, inelastic

Elasticity = %change in quantity / %change in price = -2 / 8 = -0.25; its absolute value is below 1, so demand is inelastic.

84. D. 60.0%

Farmer's share = farm price / retail price x 100 = 21 / 35 x 100 = 60.0%.

85. D. PHP 25,000

Depreciation = (cost - salvage) / life = (180,000 - 30,000) / 6 = PHP 25,000 per year.

86. A. Law of diminishing returns

With other inputs fixed, the marginal physical product of a variable input eventually declines.

87. D. From maximum APP to zero MPP

Stage II runs from maximum average physical product to where marginal physical product is zero; Stages I and III are irrational.

88. A. 92.5 kg/ha

Set marginal product equal to the price ratio: 40 - 0.4N = 60/20 = 3, so N = 37 / 0.4 = 92.5 kg/ha (yield peaks at 100 kg/ha).

89. B. Opportunity cost

Opportunity cost is the value of the best alternative given up, here the rent the land could have earned.

90. B. Fertilizer applied this season

Variable costs change with the level of production, such as fertilizer; amortization, depreciation and taxes are fixed regardless of output.

91. D. Monopsony

A monopsony has a single buyer facing many sellers, giving the buyer power over price.

92. B. Engel's law

Engel's law describes the declining budget share of food as income increases.

93. B. Cobweb model

The cobweb model explains price cycles when producers base output decisions on past prices and supply responds with a lag.

94. A. PHP 39,691.61

PV = 50,000 / 1.08^3 = 50,000 / 1.259712 = PHP 39,691.61.

95. D. Coconut, its comparative advantage

Specialization follows comparative advantage, the good with the lowest relative opportunity cost, even when a country has absolute advantage in both.

96. D. Reduced costs

A partial budget weighs added returns plus reduced costs against added costs plus reduced returns.

97. A. Time utility

Storage makes the product available when consumers want it, adding time utility; transport adds place utility and processing adds form utility.

98. D. Comprehensive Agrarian Reform Law

RA 6657 is the Comprehensive Agrarian Reform Law of 1988, which established the Comprehensive Agrarian Reform Program.

99. C. Agriculture and Fisheries Modernization Act

RA 8435 is the Agriculture and Fisheries Modernization Act (AFMA) of 1997.

100. A. One member, one vote

Democratic member control gives each primary-cooperative member equal voting rights regardless of capital contributed.

101. B. Trial

The classical adoption stages are awareness, interest, evaluation, trial and adoption; small-scale testing is the trial stage.

102. A. 13.5%

Rogers' categories are innovators 2.5%, early adopters 13.5%, early majority 34%, late majority 34% and laggards 16%.

103. D. Trialability

Trialability is the degree to which an innovation can be experimented with on a limited basis, which speeds adoption.

104. A. Compatibility

Compatibility is the degree to which an innovation fits existing values, experiences and needs of potential adopters.

105. A. Two-step flow through opinion leaders

The two-step flow model holds that ideas move from media or experts to opinion leaders, who then influence others.

106. C. Source, message, channel, receiver

Berlo's model describes communication through the source, message, channel and receiver.

107. C. Feedback

Feedback is the receiver's response returned to the source, allowing the message to be corrected.

108. C. Method demonstration

A method demonstration teaches how to do a skill; a result demonstration shows the outcome of a practice compared with the usual one.

109. D. Season-long discovery learning in the field

Farmer Field Schools bring farmers together over a full season to observe, experiment and analyze their own fields.

110. C. Training and Visit system

The Training and Visit system uses fixed schedules of worker training and fortnightly visits to contact farmers.

111. D. Local Government Code of 1991

The Local Government Code of 1991 (RA 7160) transferred agricultural extension and on-site research services to LGUs.

112. C. Agricultural Training Institute

The Agricultural Training Institute is the DA's extension and training arm, supporting LGU extension workers.

113. B. Problem-centered with direct farm relevance

Knowles' adult learning principles stress self-direction, experience and immediate problem-centered relevance.

114. B. Direct, purposeful experience

Direct purposeful experience forms the base of the cone; verbal symbols at the apex are the most abstract.

115. C. Mass media such as radio

Mass media reach large audiences rapidly and are most effective at creating awareness; interpersonal channels matter more at decision stages.

116. A. Transect walk

A transect walk is a systematic walk through an area with local people to observe and record resources and conditions.

117. A. Homophily

Homophily is the degree of similarity between communicators; greater homophily generally leads to more effective communication.

118. D. Field day at a demonstration farm

Group methods reach several people at once in person, such as field days and meetings; visits and letters are individual methods and radio is mass.

119. A. Situation analysis of the area

Program planning starts by analyzing the situation, farmers' needs and resources, which guide objectives, activities and evaluation.

120. A. S-shaped curve

Adoption starts slowly, accelerates as the majority adopts, then levels off, giving an S-shaped cumulative curve.

Topics to review

- Crop production and pest management
- Soil properties, fertility and conservation
- Animal production and nutrition

• Farm economics and agricultural extension

Online question banks and study resources

Agriculture - Pass Harbor (Question bank)

Official PRC board information

Current PRC exam programs

Independent study material prepared by Board Exam Desk.