

Reviewer By Agriculture Review.

1. Which physiological process involves the loss of water in the form of vapor from the living aerial parts of the plant?

- a) Transpiration
- b) Guttation
- c) Evaporation
- d) Respiration

2. What is the term for the chilling treatment of seeds or plants to induce or promote flowering?

- a) Scarification
- b) Stratification
- c) Vernalization
- d) Acclimatization

3. Which plant hormone is primarily responsible for maintaining apical dominance by suppressing the growth of lateral buds?

- a) Gibberellin
- b) Cytokinin
- c) Auxin
- d) Ethylene

4. In C₄ plants, the initial fixation of atmospheric carbon dioxide into a four-carbon compound occurs in which specific cells?

- a) Bundle sheath cells
- b) Mesophyll cells
- c) Epidermal cells
- d) Guard cells

5. What is the botanical classification for a fruit that develops from a single flower possessing multiple free carpels?

- a) Multiple fruit
- b) Simple fruit
- c) Aggregate fruit
- d) Accessory fruit

6. According to Nikolai Vavilov and subsequent botanical research, the center of origin for cultivated rice (*Oryza sativa*) is widely considered to be where?

- a) South America
- b) Middle East
- c) Southeast Asia
- d) Sub-Saharan Africa

7. Which metabolic pathway is an adaptation to arid conditions, characterized by stomata opening at night to fix CO₂ and closing during the day to minimize water loss?

- a) C₃ pathway
- b) C₄ pathway
- c) CAM pathway
- d) Photorespiration

8. What is the primary physiological function of the tapetum layer located within a plant's anther?

- a) To provide nourishment to developing microspores
- b) To physically facilitate the dehiscence of the anther
- c) To form the protective outer epidermis of the pollen
- d) To transport water to the filament

9. The specific light intensity at which the rate of photosynthesis exactly equals the rate of cellular respiration is known as what?

- a) Light saturation point
- b) Light compensation point
- c) CO₂ compensation point
- d) Permanent wilting point

10. Which essential macronutrient is the central coordinated atom in the porphyrin ring of a chlorophyll molecule?

- a) Iron
- b) Calcium
- c) Magnesium
- d) Manganese

11. The pedogenic process of illuviation, characterized by the accumulation of dissolved or suspended soil materials like clays and oxides, primarily defines which soil horizon?

- a) O horizon
- b) A horizon
- c) E horizon
- d) B horizon

12. What defines the moisture content of a soil after free downward drainage of macropores has ceased, typically 48 to 72 hours after saturation?

- a) Permanent wilting point
- b) Field capacity
- c) Saturation capacity
- d) Hygroscopic coefficient

13. Which specific clay mineral exhibits a 2:1 expanding crystal lattice structure, leading to high shrink-swell potential and high cation exchange capacity?

- a) Kaolinite
- b) Illite
- c) Montmorillonite
- d) Chlorite

14. Under the USDA soil taxonomy system, soils that are predominantly composed of organic materials (peats and mucks) fall into which soil order?

- a) Andisols
- b) Mollisols
- c) Histosols
- d) Vertisols

15. What is the microbiological term for the biological conversion of organic nitrogen compounds into inorganic ammonium (NH_4^+) in the soil?

- a) Nitrification
- b) Denitrification
- c) Ammonification
- d) Nitrogen fixation

16. In the Universal Soil Loss Equation ($A = R \times K \times LS \times C \times P$), what specific factor does 'K' represent?

- a) Rainfall erosivity factor
- b) Slope length and steepness factor
- c) Soil erodibility factor
- d) Cover and management factor

17. Which physical property of soil is calculated as the mass of dry soil divided by its total volume, encompassing both solids and pore spaces?

- a) Particle density
- b) Bulk density
- c) Total porosity
- d) Specific gravity

18. Isomorphous substitution within the crystalline structure of clay minerals is the primary mechanism generating which critical soil chemical property?

- a) Permanent negative charge
- b) pH-dependent negative charge
- c) Variable positive charge
- d) Anion exchange capacity

19. The volumetric ratio of the void space to the total volume of a soil mass is mathematically referred to as what?

- a) Void ratio
- b) Porosity
- c) Degree of saturation
- d) Volumetric water content

20. At which specific soil pH range is the availability of phosphorus typically maximized for plant root uptake, minimizing fixation by iron, aluminum, or calcium?

- a) 4.5 to 5.5
- b) 6.0 to 7.0
- c) 7.5 to 8.5
- d) 8.5 to 9.5

21. In insect morphology, what is the hardened, modified forewing of beetles (order Coleoptera) called, which serves to protect the membranous hindwings?

- a) Haltere
- b) Tegmen
- c) Elytron
- d) Hemelytron

22. Which developmental classification applies to insects that undergo complete metamorphosis, featuring distinct egg, larva, pupa, and adult stages?

- a) Ametabolous
- b) Hemimetabolous
- c) Paurometabolous
- d) Holometabolous

23. In integrated pest management (IPM), what defines the Economic Threshold Level (ETL)?

- a) The lowest pest population density that will cause any visible plant damage
- b) The pest density at which control measures must be applied to prevent reaching the economic injury level
- c) The maximum pest population that a crop can tolerate without any yield reduction
- d) The total eradication point of a specific pest species within a field

24. What is the biological nature of the pathogen causing Rice Tungro disease, which is persistently transmitted by the green leafhopper (*Nephotettix virescens*)?

- a) Fungus
- b) Bacteria
- c) Virus
- d) Nematode

25. Bordeaux mixture, one of the oldest and most effective traditional fungicides, is formulated by combining which two primary active ingredients in water?

- a) Copper sulfate and slaked lime
- b) Zinc sulfate and quicklime
- c) Elemental sulfur and calcium carbide
- d) Ammonium nitrate and copper oxychloride

26. The Papaya ringspot pathogen causes severe mottling and fruit distortion. How is this specific pathogen predominantly transmitted naturally in the field?

- a) By whiteflies in a persistent, circulative manner
- b) By aphids in a non-persistent, stylet-borne manner
- c) By root-knot nematodes residing in the soil
- d) By direct mechanical friction between overlapping leaves

27. The widely utilized systemic insecticide 'Imidacloprid' acts as an agonist at the nicotinic acetylcholine receptors. To which chemical class does it belong?

- a) Organophosphates
- b) Pyrethroids
- c) Neonicotinoids
- d) Carbamates

28. In classical plant pathology, Koch's postulates represent a rigorous set of scientific criteria primarily utilized to establish what?

- a) The genetic inheritance of resistance in a host plant
- b) A definitive causal relationship between a specific microbe and a specific disease
- c) The specific mode of action of a newly synthesized fungicide
- d) The mutation rate and genetic drift of a fungal pathogen over time

29. Upon infecting host roots, root-knot nematodes (*Meloidogyne* spp.) secrete effectors that induce the formation of specialized, multinucleate feeding cells known as what?

- a) Syncytia
- b) Giant cells
- c) Nurse cells
- d) Hypertrophic galls

30. Which aggressive weed species, commonly referred to as 'purple nutsedge', is globally classified among the worst weeds due to its highly resilient subterranean tuber network?

- a) *Echinochloa crus-galli*
- b) *Cynodon dactylon*
- c) *Cyperus rotundus*
- d) *Amaranthus spinosus*

31. Within the complex digestive system of ruminants, which anatomical compartment functions analogously to a monogastric stomach, secreting gastric juices for enzymatic digestion?

- a) Rumen
- b) Reticulum
- c) Omasum
- d) Abomasum

32. What is the standard, biologically accepted gestation period for a sow (domestic female pig)?

- a) 114 days
- b) 150 days
- c) 283 days
- d) 340 days

33. Among specialized dairy cattle breeds, which breed is universally recognized for producing milk with the highest average percentage of butterfat?

- a) Holstein-Friesian
- b) Ayrshire
- c) Jersey
- d) Guernsey

34. In livestock management, what is the specific term for the surgical or bloodless removal of the testicles of male animals to alter behavior and improve carcass quality?

- a) Docking
- b) Castration
- c) Dehorning
- d) Spaying

35. What is the specialized technical term for the very first milk secreted by the mammary glands of mammals immediately following parturition, notable for its high immunoglobulin concentration?

- a) Transitional milk
- b) Mastitis exudate
- c) Colostrum
- d) Meconium

36. In standard commercial poultry nutrition, when utilizing conventional corn and soybean meal-based diets, which essential amino acid is typically the first limiting factor for growth?

- a) Lysine
- b) Methionine
- c) Tryptophan
- d) Threonine

37. Newcastle disease is a highly contagious and economically devastating viral infection in poultry. Which physiological systems are simultaneously affected by highly virulent strains?

- a) Integumentary and reproductive systems
- b) Respiratory, nervous, and digestive systems
- c) Skeletal and muscular systems
- d) Cardiovascular and endocrine systems

38. In small ruminant husbandry, what is the correct and specific terminology used to describe the act of parturition (giving birth) in sheep?

- a) Calving
- b) Kidding
- c) Farrowing
- d) Lambing

39. Which class of macronutrients is composed of amino acids linked by peptide bonds, serving as the fundamental structural framework for animal muscle, organs, and enzymes?

- a) Carbohydrates
- b) Lipids
- c) Protein
- d) Minerals

40. In applied animal genetics, the phenomenon of heterosis (hybrid vigor), where offspring exhibit superior performance traits compared to their parents, is maximized through which breeding strategy?

- a) Inbreeding
- b) Linebreeding
- c) Crossbreeding
- d) Purebreeding

41. According to the Law of Diminishing Marginal Returns in agricultural production, continuously adding variable units of an input to a fixed input will eventually cause what economic outcome?

- a) A proportional increase in the average physical product
- b) An absolute decrease in total fixed costs
- c) A decline in the marginal physical product
- d) A state of constant returns to scale

42. In agricultural marketing, what is the specific term used to define the absolute difference between the retail price paid by the final consumer and the farm-gate price received by the producer?

- a) Marketing efficiency
- b) Marketing margin
- c) Producer surplus
- d) Consumer surplus

43. In the classical three stages of the neoclassical production function, Stage II (the rational zone of production) strictly begins at the exact point where what mathematical relationship occurs?

- a) Total Physical Product reaches its absolute maximum
- b) Marginal Physical Product falls to zero
- c) Marginal Physical Product intersects and equals Average Physical Product
- d) Marginal Physical Product reaches its highest peak

44. Which theoretical market structure involves a multitude of farmers producing a completely homogeneous crop, where no single farmer has the market share to influence the commodity's market price?

- a) Monopolistic competition
- b) Oligopoly
- c) Monopoly
- d) Perfect competition

45. According to Engel's Law and empirical agricultural economics, the income elasticity of demand for basic, staple food commodities is generally characterized as what?

- a) Highly elastic
- b) Unitary elastic
- c) Inelastic
- d) Perfectly elastic

46. When a farm manager wants to financially evaluate the impact of purchasing a new piece of equipment without analyzing the entire farm's finances, which budgeting tool is most appropriate?

- a) Whole-farm budget
- b) Partial budget
- c) Enterprise budget
- d) Cash flow budget

47. What fundamental economic concept represents the potential value or benefit lost by choosing one specific production alternative over the next best alternative?

- a) Sunk cost
- b) Marginal cost
- c) Opportunity cost
- d) Variable cost

48. In the context of the cobweb theorem explaining agricultural price fluctuations, a continuous, perpetual cycle of price swings occurs mathematically when what condition is met?

- a) The absolute elasticity of supply is greater than demand
- b) The absolute elasticity of supply is less than demand
- c) The absolute elasticity of supply exactly equals the elasticity of demand
- d) Both supply and demand are perfectly inelastic

49. Which economic principle guides a farmer to distribute a limited input (like fertilizer) across different crops so that the marginal value product is identical for the last unit applied to each crop?

- a) Principle of comparative advantage
- b) Equi-marginal return principle
- c) Principle of input substitution
- d) Principle of enterprise combination

50. In agricultural marketing, when a single firm acquires or assumes direct control over consecutive, sequential stages of the production, processing, and distribution channel, this is known as what?

- a) Horizontal integration
- b) Vertical integration
- c) Spatial integration
- d) Conglomerate diversification

51. Within Everett Rogers' classical Diffusion of Innovations theory, which specific adopter category is characterized by extreme traditionalism, social isolation, and being the very last to adopt a new agricultural technology?

- a) Early adopters
- b) Early majority
- c) Late majority
- d) Laggards

52. What is widely regarded in academia as the fundamental, overarching philosophical objective of agricultural extension education?

- a) Dictating strictly modern farming methodologies to replace traditional systems
- b) Helping rural people to discover and utilize their own potential to help themselves
- c) Maximizing a nation's agricultural export revenue regardless of local impacts
- d) Enforcing government agricultural policies, quotas, and zoning laws

53. In the methodology of extension education, a 'Result Demonstration' is an instructional technique primarily executed to achieve which specific goal?

- a) To show farmers the mechanical steps of how to perform a specific new skill
- b) To provide tangible proof of the local applicability and economic value of a recommended practice
- c) To quickly disseminate urgent market price information to a massive audience
- d) To distribute subsidized agricultural inputs during emergency relief

54. Which influential early model of communication explicitly introduced the concept of 'noise' as any interference that distorts the accurate transmission of a message between a sender and receiver?

- a) Berlo's SMCR Model
- b) Shannon-Weaver Model
- c) Schramm's Interactive Model
- d) Lasswell's Linear Model

55. The Training and Visit (T&V) system, historically promoted by the World Bank for agricultural extension, relied on a rigid schedule of interactions between which two specific primary actors?

- a) International NGO workers and rural cooperative leaders
- b) Subject Matter Specialists and Village Extension Workers
- c) Private agribusiness salespeople and individual commercial farmers
- d) University researchers and government policymakers

56. In the sequential five-stage innovation adoption process, during which specific stage does an individual actively seek out detailed, specific information regarding the new agricultural technology?

- a) Awareness stage
- b) Interest stage
- c) Evaluation stage
- d) Trial stage

57. When evaluating the classification of extension teaching methods based on audience size and contact format, which of the following is definitively categorized as a mass contact method?

- a) Farm and home visits
- b) Method demonstrations
- c) Radio broadcasts
- d) Extension office calls

58. The Participatory Rural Appraisal (PRA) methodology fundamentally shifts rural development planning by emphasizing which core approach?

- a) Top-down, centralized planning executed solely by external scientific experts
- b) Relying exclusively on rigid, quantitative, and structured questionnaire surveys
- c) Empowering local people to share, map, and analyze their own knowledge of their conditions
- d) Discarding indigenous knowledge entirely in favor of imported modern science

59. In communication theory, the specific psychological and physical process of 'encoding' refers to what specific action performed by the source?

- a) Translating abstract ideas, concepts, or intentions into understandable symbols or a message
- b) Interpreting and assigning personal meaning to the symbols received in a message
- c) Selecting the most appropriate physical medium or channel to transmit data
- d) Providing verbal or non-verbal feedback to verify comprehension

60. A fundamental principle of agricultural extension dictates that any community development program must begin based upon what foundational starting point?

- a) The current knowledge base and available resources already possessed by the local people
- b) The most advanced laboratory research data available globally
- c) Strict government mandates, subsidies, and centralized production quotas
- d) The introduction of capital-intensive, imported agricultural machinery

Answer Key

1. a	2. c	3. c	4. b
5. c	6. c	7. c	8. a
9. b	10. c	11. d	12. b
13. c	14. c	15. c	16. c
17. b	18. a	19. b	20. b
21. c	22. d	23. b	24. c
25. a	26. b	27. c	28. b
29. b	30. c	31. d	32. a
33. c	34. b	35. c	36. b
37. b	38. d	39. c	40. c
41. c	42. b	43. c	44. d
45. c	46. b	47. c	48. c
49. b	50. b	51. d	52. b
53. b	54. b	55. b	56. b

57. c	58. c	59. a	60. a
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