Board Exam Desk

Foresters Reviewer

Foresters Licensure Examination | PRC | 120 original questions

2026 Edition | Updated November 2026

Original board-style practice questions with an answer key.

Practice questions

Forest Biological Sciences

1. A nursery is labeling seedlings of the Philippines' national tree for a city greening project. Which scientific name belongs on the label?

A. Pterocarpus indicus
B. Vitex parviflora
C. Intsia bijuga
D. Swietenia macrophylla

2. Apitong, bagtikan, white lauan and yakal, which dominate many lowland forests in the country, all belong to which plant family?

A. Meliaceae
B. Fabaceae
C. Dipterocarpaceae
D. Myrtaceae

3. While mapping a mangrove stand, a forester sees trees supported by arching stilt roots that spring from the lower trunk. Which genus is most likely present?

A. Rhizophora
B. Avicennia
C. Sonneratia
D. Nypa

4. Agoho (Casuarina equisetifolia) can colonize nutrient-poor beach sand largely because its root nodules host which nitrogen-fixing organism?

A. Rhizobium, a bacterium
B. Glomus, a mycorrhizal fungus
C. Frankia, an actinomycete
D. Azotobacter, a free-living bacterium

5. A seed collector gathers fresh dipterocarp fruits and plans to sun-dry them and keep them in sealed jars for next year's planting. What is the main problem with this plan?

A. The seeds are recalcitrant and lose viability when dried
B. The seeds need a year of cold storage to germinate
C. The seeds have hard coats that need acid scarification
D. The seeds are orthodox and will rot if not dried further

6. A landslide scar in a montane watershed is first colonized by trees with small wind-dispersed seeds, fast height growth and high light demand. These trees are best described as:

A. Pioneer species
B. Climax species
C. Shade-tolerant species
D. Emergent species

7. In a vegetation survey, species A has 18 of the 120 trees recorded, a frequency of 9 out of a summed frequency of 45 for all species, and 3.2 m2 of the 12.8 m2 total basal area. What is its importance value?

A. 60
B. 40
C. 45
D. 35

8. A plot contains 100 trees: 50 of species X, 30 of species Y and 20 of species Z. Using natural logarithms, what is the Shannon diversity index H'?

A. 1.10
B. 0.94
C. 1.03
D. 0.62

9. Before sowing Benguet pine, a nursery mixes in topsoil collected beneath an established pine stand. What is the main purpose of this practice?

A. To raise the pH of the potting medium
B. To introduce ectomycorrhizal fungi to the seedlings
C. To supply nitrogen-fixing nodule bacteria
D. To suppress damping-off with added clay

10. Plants first establishing on a newly cooled lava flow, where no soil exists yet, are part of which process?

A. Secondary succession
B. Primary succession
C. Retrogressive succession
D. Cyclic succession

11. Along the boundary between an old-growth forest and a newly cleared pasture, light, temperature and species composition differ sharply from the forest interior. This phenomenon is called:

A. Ecotypic variation
B. Canopy closure
C. Edge effect
D. Competitive exclusion

12. The critically endangered bird of prey endemic to the Philippines and declared the national bird has which scientific name?

A. Haliaeetus leucogaster
B. Pithecophaga jefferyi
C. Spilornis holospilus
D. Nisaetus philippensis

13. A wildlife officer is assigned to a survey of the tamaraw (Bubalus mindorensis) in its only natural range. To which island should the team go?

A. Palawan
B. Negros
C. Mindanao
D. Mindoro

14. A soil sample from a reforestation site contains 40% sand, 40% silt and 20% clay. Using the USDA texture triangle, what is its textural class?

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

15. On a high mountain ridge frequently covered in clouds, a forester finds short, gnarled trees whose trunks and branches are thickly covered with epiphytes. Which forest formation is this?

A. Lowland dipterocarp forest
B. Mossy (upper montane) forest
C. Molave forest
D. Beach forest

16. Destructive sampling estimates a total one-sided leaf area of 52,000 m2 over a 1-ha plantation. What is the leaf area index?

A. 5.2
B. 0.52
C. 52
D. 26

17. Vandals strip a complete ring of bark and inner bark around the trunk of a large mahogany. Why does the tree usually die months later?

A. Phloem is severed, so the roots are starved of sugars
B. Xylem is severed, so the crown wilts within hours
C. The cambium regrows inward and blocks the pith
D. Stomata on the trunk can no longer exchange gases

18. In a forest restoration plan, fig trees (Ficus spp.) are retained because they fruit at different times of the year and feed many birds, bats and primates when other foods are scarce. This role makes figs an example of:

A. Keystone species
B. Indicator species
C. Invasive species
D. Nurse crop species

19. During a storm, gross rainfall above a forest canopy is 80 mm, throughfall is 60 mm and stemflow is 4 mm. What percentage of the rainfall was lost to canopy interception?

A. 25%
B. 15%
C. 5%
D. 20%

20. A plant species that occurs naturally only within the Philippine archipelago and nowhere else in the world is described as:

A. Exotic
B. Cosmopolitan
C. Naturalized
D. Endemic

21. A secondary forest holds 180 t/ha of aboveground dry biomass. Using a carbon fraction of 0.47, about how much CO2 equivalent is stored aboveground per hectare?

A. 84.6 t
B. 660.0 t
C. 310.2 t
D. 330.0 t

22. A dendrology student examines a leaf with many leaflets attached on both sides of a central axis. How should this leaf be described?

A. Palmately compound
B. Simple and lobed
C. Simple and serrate
D. Pinnately compound

23. Rattan, a major non-timber resource harvested from Philippine forests, is botanically classified as a:

A. Woody grass
B. Tree fern
C. Woody liana legume
D. Climbing palm

24. In a multi-layered tropical rainforest, the scattered giant trees whose crowns rise well above the continuous canopy form which layer?

A. Understory layer
B. Shrub layer
C. Emergent layer
D. Ground layer

Silviculture and Forest Protection

25. A plantation is established at a square spacing of 3 m x 3 m. How many trees are planted per hectare?

A. 3,333
B. 900
C. 1,000
D. 1,111

26. A 40-ha reforestation project uses 2.5 m x 2 m spacing and orders 15% extra seedlings for replanting. How many seedlings should be ordered?

A. 80,000
B. 92,000
C. 120,000
D. 73,600

27. Trees are planted in a triangular (equilateral) pattern with 4 m between neighboring trees. About how many trees fit in one hectare?

A. 625
B. 500
C. 833
D. 722

28. A survival count one year after planting finds 1,248 living seedlings out of 1,600 planted. What is the survival rate?

A. 78%
B. 22%
C. 75%
D. 82%

29. A stand is thinned by removing mostly suppressed and intermediate trees while keeping the dominants and codominants. This is called:

A. Crown thinning (thinning from above)
B. Selection thinning
C. Mechanical (row) thinning
D. Low thinning (thinning from below)

30. A mature stand is harvested in two or three cuts over several years so that a new crop establishes under the partial cover of the remaining trees. Which regeneration method is this?

A. Clearcutting method
B. Coppice method
C. Shelterwood method
D. Seed tree method

31. After harvest, only about eight to ten well-formed trees per hectare are left standing for a few years to provide seed for natural regeneration of a light-demanding species. This is the:

A. Seed tree method
B. Shelterwood method
C. Single-tree selection method
D. Coppice with standards

32. A fuelwood plantation of a vigorously sprouting species is cut every few years and regrows from shoots arising from the stumps. Which silvicultural system is being applied?

A. Shelterwood system
B. Coppice system
C. Seed tree system
D. Selection system

33. A young natural stand of saplings is being overtopped and suppressed by a few large, older trees of poor form. Removing those older trees is best classified as:

A. Sanitation cutting
B. Salvage cutting
C. Liberation cutting
D. Thinning from below

34. In a selectively logged-over dipterocarp forest with gaps lacking desirable regeneration, seedlings of valuable native species are planted in lines or gaps under the residual canopy. This practice is:

A. Afforestation
B. Clearfelling and replanting
C. Taungya planting
D. Enrichment planting

35. Seeds of a hard-coated leguminous tree germinate poorly even under ideal moisture. Which pretreatment is most appropriate?

A. Drying the seeds in direct sun for a week
B. Storing the seeds in a sealed moist bag
C. Nicking or soaking the seeds in hot water
D. Removing the seed wings before sowing

36. A nursery needs 30,000 plantable seedlings. The seed lot has 25,000 seeds per kg, 90% purity and 80% germination, and 85% of germinants survive to plantable size. How much seed is needed?

A. 1.20 kg
B. 1.50 kg
C. 1.67 kg
D. 1.96 kg

37. Two weeks before outplanting, nursery workers gradually reduce watering and move seedlings from shade into full sunlight. What is the purpose of this step?

A. Inducing dormancy in the seeds
B. Hardening off the seedlings
C. Pruning the taproots
D. Inoculating with mycorrhizae

38. A propagator wants stem cuttings of a native hardwood to root faster and more uniformly. Which plant growth regulator is commonly applied to the cut base?

A. Gibberellic acid (GA3)
B. Abscisic acid (ABA)
C. Ethylene
D. Indole-3-butyric acid (IBA)

39. Newly germinated seedlings in a seedbed collapse at the soil line in patches after a week of overwatering. The most likely cause and preventive measure are:

A. Termite attack; apply mulch around the seedbed
B. Nitrogen deficiency; add urea to the seedbed
C. Sunscald; increase light intensity
D. Damping-off fungi; use sterilized media and reduce watering

40. A crew clears a wide strip of vegetation down to mineral soil along a plantation boundary before the dry season. Which side of the fire triangle does this firebreak attack?

A. Oxygen
B. Heat
C. Fuel
D. Ignition source

41. A fire burns slowly and with little flame through the deep organic layer and peat beneath the forest floor, persisting for weeks. This is classified as a:

A. Surface fire
B. Crown fire
C. Spot fire
D. Ground fire

42. Firefighters deliberately ignite vegetation along a control line so that the new fire burns toward the advancing main fire and consumes its fuel. This tactic is:

A. Backfiring
B. Prescribed burning
C. Mop-up
D. Spot-fire suppression

43. In the mid-1980s, ipil-ipil (Leucaena leucocephala) plantations across the Philippines were severely defoliated by which sap-sucking insect?

A. Mahogany shoot borer (Hypsipyla robusta)
B. Coconut rhinoceros beetle (Oryctes rhinoceros)
C. Leucaena psyllid (Heteropsylla cubana)
D. Teak defoliator (Hyblaea puera)

44. A plantation manager combines resistant planting stock, mixed species, regular monitoring and spot treatment only when pest populations exceed a threshold. This approach is called:

A. Calendar spraying program
B. Integrated pest management
C. Biological eradication
D. Quarantine control

45. When pruning branches from young timber trees to produce clear wood, where should the cut be made to reduce the risk of decay entering the stem?

A. Just outside the branch collar
B. Flush with the trunk, removing the collar
C. Midway along the branch
D. Inside the stem below the collar

46. On a sloping upland farm, double rows of nitrogen-fixing shrubs are planted along the contours, and food crops are grown in the strips between the hedgerows. This agroforestry practice is:

A. Taungya system
B. Sloping Agricultural Land Technology
C. Multistorey cropping
D. Silvopastoral grazing

47. Farmers are allowed to grow upland rice and vegetables between newly planted timber seedlings for the first two years, while also tending the trees. This is known as the:

A. Alley cropping system
B. Home garden system
C. Shifting cultivation
D. Taungya system

48. A 6-year-old plantation with 1,100 trees/ha receives a thinning that removes 40% of the stems. How many trees per hectare remain?

A. 660
B. 440
C. 700
D. 1,060

Forest Mensuration and Management

49. A tree has a diameter at breast height of 45 cm. What is its basal area?

A. 0.6362 m2
B. 0.1590 m2
C. 0.3534 m2
D. 0.7069 m2

50. A 0.05-ha plot contains six trees with DBHs of 22, 30, 35, 41, 48 and 26 cm. What is the stand basal area per hectare?

A. 0.57 m2/ha
B. 5.71 m2/ha
C. 11.42 m2/ha
D. 45.68 m2/ha

51. Using a wedge prism with a basal area factor of 4 m2/ha, a cruiser counts 9 'in' trees at a point. What is the estimated basal area per hectare at that point?

A. 36 m2/ha
B. 13 m2/ha
C. 2.25 m2/ha
D. 4 m2/ha

52. A 6-m log has end diameters of 50 cm and 38 cm. What is its volume by Smalian's formula?

A. 0.912 m3
B. 0.929 m3
C. 1.178 m3
D. 1.859 m3

53. A 5-m log measures 44 cm in diameter at its midpoint. What is its volume by Huber's formula?

A. 3.041 m3
B. 0.380 m3
C. 0.760 m3
D. 1.728 m3

54. A 4-m bolt has diameters of 40 cm at the large end, 35 cm at the middle and 30 cm at the small end. What is its volume by Newton's formula?

A. 0.3927 m3
B. 0.3848 m3
C. 0.3875 m3
D. 0.5027 m3

55. Standing 20 m horizontally from a tree on level ground, a forester reads +38 degrees to the tip and -6 degrees to the base. What is the total tree height?

A. 17.7 m
B. 13.5 m
C. 19.3 m
D. 14.4 m

56. Between two points 40 m apart horizontally, the ground rises 12 m. What is the slope in percent?

A. 16.7%
B. 3.3%
C. 30%
D. 12%

57. What radius should a cruiser use to lay out a circular sample plot of 0.05 ha?

A. 17.84 m
B. 12.62 m
C. 3.99 m
D. 79.58 m

58. Five 0.1-ha plots in a plantation contain a total of 212 trees. What is the estimated stocking in trees per hectare?

A. 2,120
B. 42
C. 1,060
D. 424

59. A tree with a DBH of 40 cm and total height of 18 m has a measured stem volume of 1.20 m3. What is its form factor?

A. 0.53
B. 0.13
C. 2.26
D. 0.07

60. An 18-year-old yemane (Gmelina arborea) plantation has a standing volume of 216 m3/ha. What is its mean annual increment?

A. 18 m3/ha/yr
B. 12 m3/ha/yr
C. 10.8 m3/ha/yr
D. 14 m3/ha/yr

61. A stand's volume is 120 m3/ha at age 10 and 133 m3/ha at age 11. What is the current annual increment during that year?

A. 12 m3/ha/yr
B. 12.1 m3/ha/yr
C. 11.6 m3/ha/yr
D. 13 m3/ha/yr

62. A manager wants the rotation that maximizes average volume production per year. At what point should the stand be harvested?

A. When current annual increment reaches its peak
B. When the stand reaches maximum basal area
C. When mean annual increment reaches its peak
D. When the trees reach maximum height

63. A stand grows from 150 m3/ha to 210 m3/ha over 5 years. What is the compound annual growth rate in volume?

A. 6.96%
B. 8.00%
C. 5.71%
D. 6.67%

64. A forest has a growing stock of 180,000 m3 and a planned rotation of 40 years. Using Von Mantel's formula, what is the annual allowable cut?

A. 4,500 m3
B. 9,000 m3
C. 7,200 m3
D. 18,000 m3

65. Under area control, a plantation estate has 3,000 ha of productive forest managed on a 30-year rotation. How much area should be harvested each year?

A. 100 ha
B. 90 ha
C. 300 ha
D. 150 ha

66. A pilot cruise shows a coefficient of variation of 40% in plot volume. How many plots are needed for an allowable error of 10% at about 95% confidence (t = 2)?

A. 16
B. 32
C. 80
D. 64

67. Sixteen plots give a mean volume of 180 m3/ha with a standard deviation of 36 m3/ha. What is the standard error of the mean?

A. 2.3 m3/ha
B. 36.0 m3/ha
C. 9.0 m3/ha
D. 4.5 m3/ha

68. Two pine stands are compared by the average height of their dominant and codominant trees at a reference age of 20 years. This measure of site productivity is the:

A. Stocking index
B. Form quotient
C. Site index
D. Crown competition factor

69. A forest area contains distinct strata of old-growth, residual and plantation forest. Why would the inventory designer use stratified random sampling rather than simple random sampling?

A. It removes the need to measure tree heights
B. It guarantees every plot has the same volume
C. It avoids the need for a sampling frame or map
D. It lowers sampling error for the same number of plots

70. Lacking a diameter tape, a cruiser wraps an ordinary tape around a tree at breast height and reads a girth of 157 cm. What is the tree's diameter?

A. 50.0 cm
B. 78.5 cm
C. 25.0 cm
D. 70.7 cm

71. On a 1:50,000 topographic map, a forest block measures 4 cm2 by planimeter. What is its actual area?

A. 100 ha
B. 10 ha
C. 1,000 ha
D. 20 ha

72. A forest management plan describes an ideal forest in which every age class from one year to rotation age occupies an equal area of equal productivity, giving a sustained equal yield. This model is the:

A. Climax forest
B. Virgin forest
C. Residual forest
D. Normal forest

Forest Products and Utilization

73. A green wood sample weighs 650 g and 500 g after oven-drying. What is its moisture content on an oven-dry basis?

A. 30%
B. 23.1%
C. 130%
D. 15%

74. A board has an oven-dry mass of 500 g. What should it weigh when it reaches the target moisture content of 12% (oven-dry basis)?

A. 440 g
B. 512 g
C. 560 g
D. 568 g

75. As a green plank dries from 60% to 35% moisture content, its dimensions hardly change; noticeable shrinkage only starts at lower moisture contents. This is explained by the:

A. Equilibrium moisture content
B. Glass transition temperature
C. Fiber saturation point
D. Specific gravity of the cell wall

76. A wood specimen has a green volume of 700 cm3 and an oven-dry mass of 420 g. What is its basic specific gravity?

A. 0.42
B. 0.60
C. 1.67
D. 0.54

77. Under a hand lens, a cross-section of an unknown timber shows numerous pores (vessels) scattered among the fibers. What does this indicate?

A. It is a softwood (conifer)
B. It is a hardwood (angiosperm)
C. It is a palm or rattan
D. It is a bamboo culm

78. Why is the darker heartwood of many tropical species more resistant to decay than the sapwood of the same log?

A. Heartwood has a higher moisture content than sapwood
B. Heartwood contains toxic extractives deposited as cells die
C. Heartwood cells are still living and resist fungi
D. Heartwood has more starch to feed beneficial microbes

79. A furniture maker needs boards that shrink and swell as little as possible in width. Which sawing pattern should the mill use?

A. Plain-sawing (tangential faces)
B. Live sawing through and through
C. Quarter-sawing (radial faces)
D. Cross-cutting into short blocks

80. A sawmill processes 2.5 m3 of logs and produces 1.3 m3 of lumber. What is the lumber recovery rate?

A. 48%
B. 52%
C. 65%
D. 1.92%

81. How many board feet are in a piece of lumber measuring 2 in x 8 in x 12 ft?

A. 192 bd ft
B. 32 bd ft
C. 16 bd ft
D. 8 bd ft

82. Plywood panels are almost always made with an odd number of plies whose grain alternates at right angles. What is the main reason?

A. To make the panel easier to nail at the edges
B. To reduce the amount of adhesive needed
C. To make the face veneer look more uniform
D. To balance the panel so it stays flat and stable

83. In veneer production, a softened log is turned on a lathe against a long knife so that a continuous sheet peels off. This method is called:

A. Flat slicing
B. Rotary cutting
C. Half-round slicing
D. Sawn veneering

84. A pulp mill dissolves lignin from wood chips by cooking them in a solution of sodium hydroxide and sodium sulfide. Which process is this?

A. Kraft (sulfate) process
B. Sulfite process
C. Groundwood process
D. Soda-only process

85. Marine piles must carry the highest possible preservative loading. Which pressure treatment process is most suitable?

A. Empty-cell (Rueping) process
B. Full-cell (Bethell) process
C. Empty-cell (Lowry) process
D. Simple brush application

86. A charge of 0.12 m3 of posts absorbs 24 kg of preservative solution at 4% concentration. What is the preservative retention?

A. 8 kg/m3
B. 200 kg/m3
C. 0.96 kg/m3
D. 4 kg/m3

87. A furniture factory switches from air drying to kiln drying its lumber. Which is the main advantage?

A. Faster drying to a lower, controlled moisture content
B. Elimination of all drying defects
C. Lower energy use than air drying
D. Increase in the natural durability of the wood

88. In directional felling, what determines the direction in which a tree falls?

A. The orientation of the face notch and the hinge
B. The height of the stump above the ground
C. The depth of the back cut beyond the notch
D. The side of the tree the faller stands on

89. Which practice is a defining element of reduced impact logging in natural forests?

A. Clearing all undergrowth before felling
B. Felling every merchantable tree in a block
C. Pre-harvest tree mapping and planned skid trails
D. Skidding logs straight downslope to streams

90. A logging road climbs 9 m over a horizontal distance of 150 m. What is its grade?

A. 9%
B. 1.67%
C. 6%
D. 16.7%

91. Logs must be extracted from very steep terrain where ground skidding would cause severe erosion. Which extraction system is generally most appropriate?

A. Crawler tractor skidding
B. Wheeled skidder skidding
C. Cable yarding
D. Animal skidding

92. Which chemical component makes up the largest share of the dry mass of wood?

A. Lignin
B. Hemicellulose
C. Cellulose
D. Extractives

93. Newsprint made from mechanical (groundwood) pulp yellows quickly in sunlight. What is the reason?

A. Mechanical pulping removes all of the cellulose
B. Mechanical pulping retains most of the lignin
C. Mechanical pulp contains residual sodium sulfide
D. Mechanical pulp is made only from bark

94. A panel product is made of long, thin wood strands laid in cross-oriented layers and bonded with resin. This product is:

A. Medium-density fiberboard
B. Hardboard
C. Particleboard
D. Oriented strand board

95. Almaciga trees (Agathis philippinensis) are tapped by upland communities for which marketable non-timber product?

A. Rattan cane
B. Tannin bark extract
C. Rubber latex
D. Manila copal resin

96. A kiln converts 1,200 kg of air-dry wood into 300 kg of charcoal. What is the charcoal yield on a weight basis?

A. 40%
B. 75%
C. 4%
D. 25%

Forest Policy, Administration and Laws

97. Presidential Decree No. 705, issued in 1975, is commonly known by what title?

A. Philippine Environment Code
B. Forestry Profession Act
C. National Integrated Protected Areas System Act
D. Revised Forestry Code of the Philippines

98. A land classification team finds that a public domain parcel has an average slope of 22%. Under PD 705, how should the parcel be treated?

A. It may be released as alienable and disposable
B. It cannot be classified as alienable and disposable
C. It must be declared a strict nature reserve
D. It may be titled once planted with fruit trees

99. Under PD 705, forest land with a slope of 55% may not be classified as which type of land?

A. Watershed reservation
B. Timberland
C. Protection forest
D. Grazing land

100. Which law, enacted in 2015, regulates the practice of the forestry profession and repealed the earlier Forestry Profession Law (RA 6239)?

A. Republic Act No. 10690
B. Republic Act No. 9147
C. Republic Act No. 7586
D. Republic Act No. 8371

101. The National Integrated Protected Areas System Act of 1992 (RA 7586) was substantially amended in 2018 by which law?

A. RA 9175, the Chainsaw Act
B. RA 10690, the Forestry Profession Act
C. RA 11038, the Expanded NIPAS Act
D. RA 9147, the Wildlife Act

102. Under the NIPAS law, which multi-sectoral body serves as the policy-making and decision-making authority for each individual protected area?

A. Community Environment and Natural Resources Office
B. Provincial Development Council
C. Forest Management Bureau
D. Protected Area Management Board

103. A proposed protected area consists of terraced farms, villages and forest patches whose scenic and cultural value comes from the long interaction of people with nature. Which NIPAS category fits best?

A. Strict nature reserve
B. Protected landscape
C. Natural monument
D. Wildlife sanctuary

104. A trader is caught shipping wild-caught native birds without permits. Which Philippine law primarily governs the conservation and trade of wildlife resources?

A. Republic Act No. 9175
B. Republic Act No. 10690
C. Republic Act No. 9147
D. Presidential Decree No. 1067

105. A hardware owner wants to sell chainsaws to local customers. Under the Chainsaw Act (RA 9175), what is the basic requirement for possessing, selling or using a chainsaw?

A. Registration with and permit from the DENR
B. Clearance from the local barangay only
C. A license from the Department of Trade
D. Membership in a registered loggers' association

106. Before a reforestation project can proceed inside an ancestral domain, the Indigenous Peoples' Rights Act requires which of the following from the affected community?

A. A certificate of stewardship contract
B. Free and prior informed consent
C. A municipal zoning variance
D. A forest charges clearance

107. Which 1995 executive order adopted community-based forest management as the national strategy for sustainable forestry and social justice?

A. Executive Order No. 23
B. Executive Order No. 263
C. Executive Order No. 26
D. Executive Order No. 192

108. Executive Order No. 23 of 2011 declared a moratorium on the cutting and harvesting of timber in which forests?

A. Natural and residual forests
B. Industrial tree plantations
C. Private tree farms
D. Agroforestry farms in A&D lands

109. Under the 1987 Constitution, lands of the public domain are classified into which four categories?

A. Agricultural, forest or timber, mineral lands, and national parks
B. Residential, commercial, industrial, and agricultural
C. Alienable, disposable, ancestral, and protected
D. Timberland, grazing land, mangrove, and watershed

110. The principle that all lands of the public domain belong to the State, and that private title must trace back to a grant from the State, is called the:

A. Stewardship doctrine
B. Public trust doctrine
C. Doctrine of eminent domain
D. Regalian doctrine

111. Delivered logs sell for PHP 8,500/m3. Felling and extraction cost PHP 3,200/m3, hauling costs PHP 1,400/m3 and an allowance for profit and risk is PHP 900/m3. What is the stumpage value by the residual method?

A. PHP 3,000/m3
B. PHP 3,900/m3
C. PHP 5,300/m3
D. PHP 6,200/m3

112. A timber harvest expected to yield a net PHP 120,000 per hectare in 15 years is evaluated at an 8% discount rate. What is its present value per hectare?

A. PHP 54,545
B. PHP 34,356
C. PHP 37,829
D. PHP 47,654

113. Bare land is expected to yield a net harvest revenue of PHP 200,000 per hectare every 25 years in perpetuity, starting 25 years from now. At 6% interest, what is the land expectation value?

A. PHP 46,600
B. PHP 60,756
C. PHP 133,333
D. PHP 64,401

114. A town decides to keep a forest as a watershed reserve instead of leasing it for logging that would earn PHP 5 million. In economic analysis, the forgone PHP 5 million is the reserve's:

A. Sunk cost
B. Marginal revenue
C. Fixed cost
D. Opportunity cost

115. An extension forester spends several days with an upland community using resource mapping, seasonal calendars and transect walks drawn up by the residents themselves. This approach is:

A. Top-down technology transfer
B. Participatory rural appraisal
C. Randomized controlled trial
D. Remote sensing analysis

116. A downstream water utility pays upland farmers each year to keep forest cover on the slopes above its intake. This arrangement is an example of:

A. A forest charge on timber
B. A stumpage auction
C. A tax on watershed residents
D. Payment for ecosystem services

117. In international climate negotiations, REDD+ refers to an approach that rewards countries mainly for:

A. Replanting exotic species on degraded farmland
B. Reducing emissions from deforestation and forest degradation
C. Recycling and reusing discarded wood products
D. Regulating exports of endangered timber species

118. Which international agreement controls cross-border trade in specimens of threatened wild animals and plants through a permit system based on appendices?

A. Ramsar Convention
B. CITES
C. Kyoto Protocol
D. Montreal Protocol

119. A protected area earns a steady net income of PHP 15,000 per hectare per year from ecotourism, expected to continue indefinitely. At a 5% interest rate, what is the capitalized value per hectare?

A. PHP 750,000
B. PHP 300,000
C. PHP 15,750
D. PHP 285,714

120. A forestry investment is analyzed with a nominal interest rate of 9% while inflation is 3% per year. What is the real interest rate?

A. 6.00%
B. 12.00%
C. 12.27%
D. 5.83%

Answer key

Foresters

1. A. Pterocarpus indicus

Narra, the national tree, is Pterocarpus indicus; the others are molave, ipil and big-leaf mahogany.

2. C. Dipterocarpaceae

Dipterocarpus, Parashorea, Shorea and Hopea are genera of the Dipterocarpaceae, the dominant family of Philippine lowland forests.

3. A. Rhizophora

Rhizophora (bakauan) is recognized by arching prop or stilt roots; Avicennia and Sonneratia produce upright pneumatophores and Nypa is a palm.

4. C. Frankia, an actinomycete

Casuarina forms actinorhizal nodules with Frankia; Rhizobium nodulates legumes and Glomus forms arbuscular mycorrhizae but does not fix nitrogen.

5. A. The seeds are recalcitrant and lose viability when dried

Most dipterocarp seeds are recalcitrant: they are shed with high moisture, die when dried, and should be sown soon after collection.

6. A. Pioneer species

Fast-growing, light-demanding species with easily dispersed seeds are pioneers that dominate early succession on open sites.

7. A. 60

RD = 18/120 = 15%, RF = 9/45 = 20%, RDo = 3.2/12.8 = 25%; IV = 15 + 20 + 25 = 60.

8. C. 1.03

H' = -(0.5 ln 0.5 + 0.3 ln 0.3 + 0.2 ln 0.2) = 1.03; 1.10 would be the maximum (ln 3) for three equally abundant species.

9. B. To introduce ectomycorrhizal fungi to the seedlings

Pines depend on ectomycorrhizal fungi for nutrient uptake; soil from existing pine stands serves as inoculum.

10. B. Primary succession

Succession on surfaces without prior soil or vegetation, such as fresh lava, is primary succession.

11. C. Edge effect

Changes in microclimate and species composition where two habitats meet are known as the edge effect.

12. B. Pithecophaga jefferyi

The Philippine eagle is Pithecophaga jefferyi; the others are the white-bellied sea eagle, Philippine serpent eagle and Philippine hawk-eagle.

13. D. Mindoro

The tamaraw is a dwarf buffalo found in the wild only on Mindoro.

14. C. Loam

About 40% sand, 40% silt and 20% clay lies inside the loam class of the USDA texture triangle.

15. B. Mossy (upper montane) forest

Persistent cloud cover at high elevation produces stunted trees laden with mosses and epiphytes, typical of mossy forest.

16. A. 5.2

LAI = leaf area / ground area = 52,000 m2 / 10,000 m2 = 5.2.

17. A. Phloem is severed, so the roots are starved of sugars

Girdling cuts the phloem, so sugars from the leaves cannot reach the roots; the roots slowly die while the intact xylem keeps the crown alive for a while.

18. A. Keystone species

A species whose effect on community structure is large relative to its abundance, such as figs sustaining frugivores, is a keystone species.

19. D. 20%

Interception loss = 80 - 60 - 4 = 16 mm, which is 16/80 = 20% of gross rainfall.

20. D. Endemic

A species restricted to a particular geographic area is endemic to that area.

21. C. 310.2 t

Carbon = 180 x 0.47 = 84.6 t/ha; CO2e = 84.6 x 44/12 = 310.2 t/ha.

22. D. Pinnately compound

Leaflets arranged along a central rachis form a pinnately compound leaf; palmate leaflets radiate from one point.

23. D. Climbing palm

Rattans such as Calamus species are spiny climbing palms of the family Arecaceae; bamboos are the woody grasses.

24. C. Emergent layer

Trees whose crowns protrude above the main canopy make up the emergent layer.

25. D. 1,111

Trees/ha = 10,000 / (3 x 3) = 1,111.

26. B. 92,000

10,000 / (2.5 x 2) = 2,000 per ha; 2,000 x 40 = 80,000; x 1.15 = 92,000.

27. D. 722

Each tree occupies 0.866 x 4^2 = 13.86 m2, so 10,000 / 13.86 = 722 trees/ha (square spacing would give 625).

28. A. 78%

Survival = 1,248 / 1,600 = 78%.

29. D. Low thinning (thinning from below)

Low thinning removes trees from the lower crown classes, imitating natural mortality.

30. C. Shelterwood method

The shelterwood method removes the old stand in a series of cuttings so regeneration starts under partial shade.

31. A. Seed tree method

Leaving a few scattered trees mainly as seed sources, with full exposure for the new crop, is the seed tree method.

32. B. Coppice system

The coppice system regenerates a stand vegetatively from stump sprouts after cutting.

33. C. Liberation cutting

Liberation cutting frees a young stand from older overtopping trees; cleaning targets competitors of the same age.

34. D. Enrichment planting

Enrichment planting adds desired species to a degraded or poorly stocked forest without removing the existing stand.

35. C. Nicking or soaking the seeds in hot water

Hard seed coats impose physical dormancy; mechanical or hot-water scarification lets water enter the seed.

36. D. 1.96 kg

Seed = 30,000 / (25,000 x 0.90 x 0.80 x 0.85) = 30,000 / 15,300 = 1.96 kg.

37. B. Hardening off the seedlings

Hardening off conditions seedlings to field stress so they survive transplanting.

38. D. Indole-3-butyric acid (IBA)

IBA is an auxin widely used to stimulate adventitious root formation on cuttings.

39. D. Damping-off fungi; use sterilized media and reduce watering

Pre- and post-emergence damping-off, caused by fungi such as Pythium, Rhizoctonia and Fusarium, thrives in wet, unsterilized media.

40. C. Fuel

A firebreak removes combustible material, breaking the fuel side of the fire triangle.

41. D. Ground fire

Ground fires smolder in organic soil layers and roots below the litter; surface fires burn litter and undergrowth.

42. A. Backfiring

Backfiring is set from a control line toward the oncoming fire to remove fuel in its path.

43. C. Leucaena psyllid (Heteropsylla cubana)

The psyllid Heteropsylla cubana spread through Asia in the 1980s and devastated Leucaena stands.

44. B. Integrated pest management

Integrated pest management combines several tactics and uses action thresholds instead of routine spraying.

45. A. Just outside the branch collar

Cutting just outside the branch collar preserves the tree's natural barrier zone and allows proper wound closure.

46. B. Sloping Agricultural Land Technology

SALT uses contour hedgerows of nitrogen-fixing species to control erosion and supply green manure to alley crops.

47. D. Taungya system

The taungya system uses temporary intercropping by farmers during plantation establishment.

48. A. 660

Residual = 1,100 x (1 - 0.40) = 660 trees/ha; 440 is the number removed.

49. B. 0.1590 m2

BA = 0.7854 x 0.45^2 = 0.1590 m2.

50. C. 11.42 m2/ha

Plot BA = sum of 0.7854 D^2 = 0.5710 m2; per hectare = 0.5710 / 0.05 = 11.42 m2/ha.

51. A. 36 m2/ha

BA/ha = BAF x count = 4 x 9 = 36 m2/ha.

52. B. 0.929 m3

A1 = 0.1963, A2 = 0.1134 m2; V = (A1 + A2)/2 x L = 0.1549 x 6 = 0.929 m3.

53. C. 0.760 m3

V = 0.7854 x 0.44^2 x 5 = 0.1521 x 5 = 0.760 m3.

54. C. 0.3875 m3

V = (A_b + 4A_m + A_t)/6 x L = (0.1257 + 4 x 0.0962 + 0.0707)/6 x 4 = 0.3875 m3.

55. A. 17.7 m

H = 20 x (tan 38 + tan 6) = 20 x (0.7813 + 0.1051) = 17.7 m.

56. C. 30%

Slope = rise / horizontal distance x 100 = 12/40 x 100 = 30%.

57. B. 12.62 m

Area = 500 m2, so r = sqrt(500/pi) = 12.62 m.

58. D. 424

Total area sampled = 5 x 0.1 = 0.5 ha; 212 / 0.5 = 424 trees/ha.

59. A. 0.53

BA = 0.7854 x 0.40^2 = 0.1257 m2; cylinder = 0.1257 x 18 = 2.262 m3; f = 1.20 / 2.262 = 0.53.

60. B. 12 m3/ha/yr

MAI = total volume / age = 216 / 18 = 12 m3/ha/yr.

61. D. 13 m3/ha/yr

CAI = 133 - 120 = 13 m3/ha/yr; 12 and 12.1 are the MAIs at ages 10 and 11.

62. C. When mean annual increment reaches its peak

The rotation of maximum volume production is the culmination of MAI, which occurs where the CAI curve crosses the MAI curve.

63. A. 6.96%

Rate = (210/150)^(1/5) - 1 = 1.4^0.2 - 1 = 6.96% per year; 8.00% is the simple-interest average.

64. B. 9,000 m3

AAC = 2 x GS / R = 2 x 180,000 / 40 = 9,000 m3.

65. A. 100 ha

Annual cut area = productive area / rotation = 3,000 / 30 = 100 ha.

66. D. 64

n = t^2 x CV^2 / E^2 = 4 x 1,600 / 100 = 64 plots.

67. C. 9.0 m3/ha

SE = s / sqrt(n) = 36 / sqrt(16) = 36 / 4 = 9.0 m3/ha.

68. C. Site index

Site index is the height of dominant trees at a specified base age and expresses site productivity.

69. D. It lowers sampling error for the same number of plots

Grouping similar areas into strata reduces within-stratum variance, giving a more precise estimate for the same effort.

70. A. 50.0 cm

D = C / pi = 157 / 3.1416 = 50.0 cm.

71. A. 100 ha

1 cm on the map = 500 m, so 1 cm2 = 250,000 m2 = 25 ha; 4 x 25 = 100 ha.

72. D. Normal forest

The normal forest is a theoretical regulated forest with a complete, balanced series of age classes producing a constant annual yield.

73. A. 30%

MC = (650 - 500)/500 x 100 = 30%; 23.1% would be the wet-basis figure.

74. C. 560 g

Mass = 500 x (1 + 0.12) = 560 g.

75. C. Fiber saturation point

Shrinkage begins only when bound water leaves the cell walls, below the fiber saturation point of roughly 25 to 30%.

76. B. 0.60

Basic SG = oven-dry mass / (green volume x density of water) = 420 / 700 = 0.60.

77. B. It is a hardwood (angiosperm)

Vessels appearing as pores are characteristic of hardwoods; conifer wood consists mainly of tracheids and lacks vessels.

78. B. Heartwood contains toxic extractives deposited as cells die

As sapwood converts to heartwood, extractives such as phenolics are deposited that inhibit fungi and insects.

79. C. Quarter-sawing (radial faces)

Radial shrinkage is roughly half of tangential shrinkage, so quarter-sawn boards are more dimensionally stable in width.

80. B. 52%

Recovery = 1.3 / 2.5 x 100 = 52%.

81. C. 16 bd ft

Board feet = (2 x 8 x 12)/12 = 16 bd ft.

82. D. To balance the panel so it stays flat and stable

Cross-banding restrains movement, and an odd number of plies keeps the construction symmetric about the core, preventing warping.

83. B. Rotary cutting

Rotary cutting peels a continuous veneer sheet from a rotating log and gives high yield for plywood.

84. A. Kraft (sulfate) process

The kraft or sulfate process uses NaOH and Na2S as the active cooking chemicals.

85. B. Full-cell (Bethell) process

The full-cell process applies an initial vacuum, leaving the cell lumens filled and giving the maximum retention.

86. A. 8 kg/m3

Retention = 24 x 0.04 / 0.12 = 0.96 / 0.12 = 8 kg/m3; 200 kg/m3 is the solution, not the active ingredient.

87. A. Faster drying to a lower, controlled moisture content

Kilns control temperature and humidity, drying wood quickly to the low moisture contents needed indoors.

88. A. The orientation of the face notch and the hinge

The face notch points toward the intended direction and the uncut hinge guides the fall.

89. C. Pre-harvest tree mapping and planned skid trails

Reduced impact logging relies on pre-harvest inventory, mapping, planned skid trails and directional felling to limit damage.

90. C. 6%

Grade = 9 / 150 x 100 = 6%.

91. C. Cable yarding

Cable systems lift or drag logs to a landing without driving machines on steep, erodible slopes.

92. C. Cellulose

Cellulose typically forms about 40 to 50% of wood dry mass, more than lignin or hemicellulose.

93. B. Mechanical pulping retains most of the lignin

Mechanical pulping gives high yield because lignin is kept, but lignin darkens on exposure to light.

94. D. Oriented strand board

Oriented strand board uses aligned strands in layers; MDF and hardboard use fibers, and particleboard uses unoriented particles.

95. D. Manila copal resin

Almaciga yields a resin traded as Manila copal, used in varnishes and other products.

96. D. 25%

Yield = 300 / 1,200 x 100 = 25%.

97. D. Revised Forestry Code of the Philippines

PD 705 is the Revised Forestry Code; the Forestry Profession Act is RA 10690 and NIPAS is RA 7586.

98. B. It cannot be classified as alienable and disposable

PD 705 prohibits classifying public land of 18% slope or over as alienable and disposable.

99. D. Grazing land

PD 705 bars forest land of 50% slope or over from being classified as grazing land.

100. A. Republic Act No. 10690

RA 10690 is the Forestry Profession Act of 2015; the others are the Wildlife Act, NIPAS Act and IPRA.

101. C. RA 11038, the Expanded NIPAS Act

RA 11038 (ENIPAS Act of 2018) amended RA 7586 and legislated many additional protected areas.

102. D. Protected Area Management Board

Each protected area is governed by a Protected Area Management Board (PAMB) with government and stakeholder members.

103. B. Protected landscape

Protected landscapes and seascapes conserve areas shaped by the harmonious interaction of people and land.

104. C. Republic Act No. 9147

RA 9147, the Wildlife Resources Conservation and Protection Act of 2001, regulates collection, possession and trade of wildlife.

105. A. Registration with and permit from the DENR

RA 9175 requires chainsaws to be registered with the DENR, and selling, possessing or using them without a permit is penalized.

106. B. Free and prior informed consent

RA 8371 (IPRA) requires the free and prior informed consent of indigenous communities for activities within their ancestral domains.

107. B. Executive Order No. 263

EO 263 (1995) adopted CBFM as the national strategy; EO 23 (2011) imposed the logging moratorium and EO 26 (2011) launched the National Greening Program.

108. A. Natural and residual forests

EO 23 imposed a moratorium on cutting in natural and residual forests, while allowing harvest from plantations and private lands.

109. A. Agricultural, forest or timber, mineral lands, and national parks

Article XII, Section 3 classifies public lands as agricultural, forest or timber, mineral lands and national parks; only agricultural lands may be alienated.

110. D. Regalian doctrine

The Regalian doctrine holds that the State owns all lands of the public domain not clearly shown to be privately owned.

111. A. PHP 3,000/m3

Stumpage = 8,500 - 3,200 - 1,400 - 900 = PHP 3,000/m3.

112. C. PHP 37,829

PV = 120,000 / 1.08^15 = 120,000 / 3.1722 = PHP 37,829.

113. B. PHP 60,756

LEV = R / ((1 + i)^t - 1) = 200,000 / (1.06^25 - 1) = 200,000 / 3.2919 = PHP 60,756.

114. D. Opportunity cost

Opportunity cost is the value of the best alternative given up when a choice is made.

115. B. Participatory rural appraisal

Participatory rural appraisal uses visual, community-led tools so local people analyze their own conditions.

116. D. Payment for ecosystem services

Users paying land stewards to maintain environmental services such as clean water is payment for ecosystem services.

117. B. Reducing emissions from deforestation and forest degradation

REDD+ stands for reducing emissions from deforestation and forest degradation, plus conservation, sustainable management and enhancement of carbon stocks.

118. B. CITES

CITES regulates international trade in listed species; Ramsar covers wetlands and the two protocols address climate and ozone.

119. B. PHP 300,000

Value of a perpetual annual income = a / i = 15,000 / 0.05 = PHP 300,000.

120. D. 5.83%

Real rate = (1.09 / 1.03) - 1 = 5.83%; 6% is only the approximation.

Topics to review

• Silviculture and forest regeneration

• Forest inventory and mensuration

• Watershed, wildlife and protected area management

• Forest policy, utilization and community forestry

Online question banks and study resources

Foresters - Pass Harbor (Question bank)

Official PRC board information

Current PRC exam programs

Independent study material prepared by Board Exam Desk.