

MIZORAM PUBLIC SERVICE COMMISSION

COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF FOREST RANGER UNDER ENVIRONMENT, FORESTS & CLIMATE CHANGE DEPARTMENT, GOVERNMENT OF MIZORAM, JUNE, 2024.

GENERAL SCIENCE - II

Time Allowed: 2 hours

Full Marks: 200

*All questions carry equal marks of 2 each.
Attempt all questions.*

1. In soil profile, the upper layer which contains organic material is called
 - (a) A- Horizon
 - (b) B- Horizon
 - (c) C-Horizon
 - (d) D- Horizon
2. Soils which show good development at all layers are
 - (a) Podzols
 - (b) Pedocals
 - (c) Chernozems
 - (d) Loam
3. Soils in which sand, clay and humus are found more or less in equal proportion are called
 - (a) Loamy soil
 - (b) Regur
 - (c) Chernozem
 - (d) Pedalfer
4. If the soil textural class has clay content more than 45%, then it is called?
 - (a) Sandy Clay
 - (b) Silty clay Loam
 - (c) Sandy Clay Loam
 - (d) Clay
5. Which type of soil is suitable for the cultivation of Rubber and Arecanut?
 - (a) Red soil
 - (b) Alluvial soil
 - (c) Laterite soil
 - (d) Clayey soil
6. _____ contains high salt low humus content
 - (a) Alluvial soil
 - (b) Black soil
 - (c) Laterite soil
 - (d) Arid soil
7. _____ is considered to be the most important of the soils organisms bringing about the conversion of $\text{NO}_2\text{-N}$ to $\text{NO}_3\text{-N}$
 - (a) *Nitrosomonas*
 - (b) *Nitrobacter*
 - (c) *Azotobacter*
 - (d) *Azospirillum*
8. Peat soil are generally
 - (a) Black, heavy & neutral
 - (b) Black, light & basic
 - (c) Black, heavy & acidic
 - (d) Red, light & acidic
9. Compact sub soil has pore space percentage of
 - (a) 10-20%
 - (b) 20-25%
 - (c) 25-30%
 - (d) 30-35%

10. The total water available to plants is known as?
(a) Echard (b) Hollard
(c) Chresard (d) Delta
11. Which fertilizer produce acidity in soil
(a) Ammonium sulfate (b) Sodium nitrate
(c) Calcium ammonium nitrate (d) Calcium nitrate
12. A soil horizon is a result of
(a) Pedoturbation (b) Pedozination
(c) Pedogenesis (d) Pedology
13. Alkali soils are generally found in
(a) Humid climate (b) Sub-humid climate
(c) Arid and semi-arid climate (d) Temperate climate
14. Which of the following is the cause of soil erosion?
(a) Deforestation (b) Over-grazing
(c) Faulty methods of cultivation (d) All the above
15. The slow, down-hill flowage of water saturated regolith is known as
(a) Soil creep (b) Solifluction
(c) Slump (d) Rockfall
16. The most important layer in a soil profile which facilitates geomorphic studies of a region is
(a) Eluvial zone (b) Illuvial zone
(c) Clay pan (d) Weathered country rocks
17. Which one of the following plant nutrients imparts resistant to disease and insect-pest?
(a) Potassium (b) Nitrogen
(c) Phosphorus (d) Calcium
18. Which of the following nutrients is cycled in the soil through atmosphere?
(a) Phosphorus (b) Potash
(c) Zinc (d) Nitrogen
19. Most of the plants obtain nitrogen from the soil in the form of:
(a) Nitrate (b) Nitrite
(d) Nitric acid (d) Nitrous oxide
20. Hydrogen bond is found in which clay mineral?
(a) Kaolinite (b) Montmorillonite
(c) Vermiculite (d) Beidelite
21. Denitrification is a process of _____
(a) Oxidation (b) Reduction
(c) Hydration (d) Carbonation
22. Optimum growth of bacteria in soil is seen in
(a) Acidic (b) Alkali
(c) Neutral to slightly alkaline (d) Slightly acidic to neutral

23. Net loss of soil is called
- (a) Soil erosion
 - (b) Soil loss
 - (c) Weathering
 - (d) Mass movement
24. _____ is an ancient technique used for preventing soil erosion in areas of steep terrain.
- (a) Stream buffer
 - (b) Silt fence
 - (c) Contour plowing
 - (d) Terracing
25. Erosion control where farmers plant rows of crops parallel to the outline of the field is
- (a) Contouring
 - (b) Terracing
 - (c) Shelterbelts
 - (d) Cover crop
26. What is the traditional practice of creating firebreaks to control wildfires and promote controlled burning in Northeast India?
- (a) Controlled Ignition
 - (b) Prescribed Burning
 - (c) Wildfire Containment
 - (d) Rapid Fire Response
27. Which of these is not a category of tropical forests in India, according to Champion and Seth?
- (a) Moist tropical forests
 - (b) Dry tropical forests
 - (c) Warm tropical forests
 - (d) Littoral and swamp forests
28. Which Northeast Indian state is known for its extensive tropical rainforests and is often referred to as the "Green Paradise"?
- (a) Manipur
 - (b) Tripura
 - (c) Arunachal Pradesh
 - (d) Assam
29. The botanical definition of a tree is:
- (a) A plant with roots, stem, and leaves.
 - (b) A large, woody perennial plant with a single main stem or trunk, typically having branches.
 - (c) A plant that grows horizontally along the ground.
 - (d) A plant that produces flowers but not fruits.
30. What role do forests play in the environment and society?
- (a) Forests have no significant impact on the environment.
 - (b) Forests contribute to air and water pollution.
 - (c) Forests provide habitat for wildlife and support biodiversity, regulate climate, improve air and water quality, and offer various resources and ecosystem services.
 - (d) Forests are primarily used for urban development and have little impact on society.
31. Why is legal protection and management of forests important?
- (a) Legal protection of forests is not necessary as they are self-sustaining ecosystems.
 - (b) Forests are not subject to any legal regulations.
 - (c) Legal protection ensures sustainable management, prevents deforestation, safeguards biodiversity, and promotes the rights of indigenous communities.
 - (d) Legal regulations about forests only pertain to aesthetics and recreational activities.
32. The major types of forests found in India are:
- (a) Pine Forests, Desert Forests, and Marsh Forests
 - (b) Bamboo Forests, Grasslands, and Alpine Forests
 - (c) Shrublands, Eucalyptus Forests, and Savannah Forests
 - (d) Rainforests, Coniferous Forests, and Mangrove Forests

33. What is the primary factor that differentiates a forest from a grassland or savannah?
- (a) The height of the vegetation (b) The presence of water bodies
(c) The absence of biodiversity (d) The colour of the soil
34. According to ISFR 2021, the total percentage forest cover of India is:
- (a) 19.71% (b) 20.71%
(c) 21.71% (d) 22.71%
35. Who is known as the “Forest Man of India”?
- (a) Sunderlal Bahuguna (b) Jadav Molai Payeng
(c) Mahatma Gandhi (d) Chandi Prasad Bhatt
36. Living fossil is:
- (a) *Rhododendrum spp.* (b) *Sesquioioia semeperverens*
(c) *Gingko biloba* (d) None of the above
37. As per ISFR 2021, what is the percentage forest cover of Mizoram?
- (a) 74.53% (b) 78.53%
(c) 83.53% (d) 84.53%
38. Which government agency is responsible for the conservation and management of forests in India?
- (a) Ministry of Agriculture and Farmers Welfare
(b) Ministry of Environment, Forest, and Climate Change
(c) Ministry of Finance
(d) Ministry of Urban Development
39. Which of the following is not a main silvicultural system used in India?
- (a) Clear Cutting (b) Shelterwood Cutting
(c) Coppicing (d) Shelterwood Regeneration
40. Which silvicultural system focuses on allowing a new generation of trees to establish under the canopy of older trees before they are harvested?
- (a) Coppicing (b) Clear Cutting
(c) Shelterwood Regeneration (d) Selection Cutting
41. The primary objective of the “coppicing silvicultural system” is:
- (a) To harvest trees for timber production
(b) To create openings in the canopy for light penetration
(c) To encourage natural regeneration through seeds
(d) To produce multiple stems from the stump of a tree
42. Which silvicultural system is known for its focus on maintaining a continuous forest canopy while allowing for the establishment of new trees under the shade?
- (a) Selection Cutting (b) Shelterwood Regeneration
(c) Clear Cutting (d) Coppicing
43. What is the purpose of “Salvage Cutting” in silviculture?
- (a) Removing dead and dying trees for aesthetic purposes
(b) Creating openings in the canopy for light penetration
(c) Harvesting trees for timber production
(d) Preventing the spread of forest pests and diseases

44. What is “assisted natural regeneration” in forestry?
- (a) Natural growth of trees without any human intervention
 - (b) Clearing a forest for agricultural purposes
 - (c) Planting trees in a controlled environment
 - (d) Enhancing the natural regeneration process by removing competing vegetation and providing favourable conditions for seedling growth
45. What is “revegetation” in forestry?
- (a) The process of removing all vegetation from a forest area.
 - (b) The process of transplanting non-native species into a forest.
 - (c) The natural regrowth of vegetation after a forest fire.
 - (d) The process of planting vegetation, including trees and other plants, in a previously disturbed area.
46. Which of the following methods involves the use of containers to grow tree seedlings before planting them in a forest?
- (a) Direct seeding
 - (b) Natural regeneration
 - (c) Polybag regeneration
 - (d) Containerized seedling production
47. What is the significance of the *Miyawaki method* in ecological restoration?
- (a) It emphasizes the use of non-native and invasive species.
 - (b) It helps create self-sustaining and biodiverse ecosystems in a short span of time.
 - (c) It accelerates the process of forest degradation.
 - (d) It contributes to soil erosion and degradation.
48. Which of the following is a common challenge in artificial regeneration efforts?
- (a) Rapid and successful establishment of diverse species.
 - (b) Excessive reliance on natural regeneration processes.
 - (c) Lack of suitable planting sites for seedlings.
 - (d) Absence of wildlife interference in the regrowth process.
49. How does crown thinning contribute to tree health and growth?
- (a) It reduces sunlight exposure to the tree crown.
 - (b) It promotes the growth of low-quality branches.
 - (c) It improves air circulation and reduces disease risk.
 - (d) It increases the likelihood of pest infestations.
50. Which factor is important to consider when determining the appropriate timing for pruning in forestry?
- (a) Pruning can be done at any time of the year without any impact.
 - (b) Pruning should be done only during the winter months.
 - (c) Pruning should be done when trees are actively growing.
 - (d) Pruning is most effective during heavy rainfall.
51. In which year was the Indian Board of Wildlife was constituted?
- (a) 1952
 - (b) 1972
 - (c) 1966
 - (d) 1994

52. The primary objective of social forestry is:
- (a) To conserve forests for commercial timber production.
 - (b) To establish wildlife sanctuaries and national parks.
 - (c) To involve local communities in tree planting and forest management.
 - (d) To promote the growth of invasive species in natural ecosystems.
53. What is the significance of urban forestry in the context of social forestry?
- (a) It focuses solely on timber production within urban areas.
 - (b) It aims to create urban parks without any trees.
 - (c) It involves planting trees in urban areas for environmental and aesthetic benefits.
 - (d) It encourages deforestation within city limits.
54. What is the significance of forests in regulating the water cycle?
- (a) Forests have no impact on the water cycle.
 - (b) Forests help maintain soil moisture, prevent flooding, and regulate stream flow.
 - (c) Forests increase soil erosion and water runoff.
 - (d) Forests reduce the need for irrigation in agricultural areas.
55. India's first Forest Policy was enunciated during which year?
- (a) 1894
 - (b) 1927
 - (c) 1952
 - (d) 1988
56. The "Project Tiger" was launched in the year:
- (a) 1972
 - (b) 1980
 - (c) 1995
 - (d) 1973
57. Which factor has led to the degradation of Mizoram's natural environment and forests?
- (a) Sustainable resource management practices
 - (b) Excessive use of traditional farming techniques
 - (c) Effective waste management systems
 - (d) Deforestation and shifting cultivation practices
58. What is "Green Mizoram"?
- (a) A project focused on building high-rise buildings in urban areas.
 - (b) An initiative to promote industrial growth and urbanization in Mizoram.
 - (c) A sustainable development program aimed at environmental conservation and livelihood improvement.
 - (d) A campaign to replace traditional farming practices with modern techniques.
59. Which government agency is primarily responsible for implementing Joint Forest Management in India?
- (a) Ministry of Agriculture and Farmers Welfare
 - (b) Ministry of Rural Development
 - (c) Ministry of Commerce and Industry
 - (d) Ministry of Environment, Forest and Climate Change
60. What is the overall purpose of the National Forest Policy of 1988?
- (a) To exploit forest resources for short-term economic gains.
 - (b) To establish complete government control over forest resources.
 - (c) To achieve sustainable forest management, conservation, and community involvement.
 - (d) To clear forests for agricultural expansion.

61. Which region of India was the epicentre of the Chipko Movement?
(a) Western Himalayas (b) Eastern Himalayas
(c) Western Ghats (d) Eastern Ghats
62. Which government agency is responsible for enforcing the Wildlife Protection Act of 1972?
(a) Ministry of Agriculture and Farmers Welfare
(b) Ministry of Environment, Forest, and Climate Change
(c) Ministry of Commerce and Industry
(d) Ministry of Science and Technology
63. The cropping system in which only one major crop is grown on the same land year after year is _____
(a) Intercropping (b) Multiple cropping
(c) Monoculture (d) Relay cropping
64. The sequence of growing, Sorghum → Wheat → Green gram, in a year on same land is an example of _____.
(a) Intercropping (b) Multiple cropping
(c) Monoculture (d) Mixed cropping
65. The system of growing leguminous shrubs on hedge rows and arable crops between the rows is called _____.
(a) Alley cropping (b) Sequence cropping
(c) Intercropping (d) Relay cropping
66. The number of land capability classes in India are _____.
(a) 04 (b) 05
(c) 08 (d) 10
67. The two land capability classes not supporting any form of vegetation are _____.
(a) Class I and II (b) Class IV and V
(c) Class VII and VIII (d) Class III and IV
68. The crops of different heights and vertical layers of leaf canopies maintained under same land is called _____.
(a) Alley cropping (b) Multiple cropping
(c) Monoculture (d) Multi-storeyed cropping
69. One of the following is not ideal character of a good intercrop
(a) It should have different root depth than the base crop
(b) It should have different growth habit than the base crop
(c) It should have different nutrient requirement than the base crop
(d) It should mature at the same stage as base crop
70. One of the following is not a cash crop.
(a) Sugarcane (b) Cotton
(c) Cow pea (d) Coffee
71. _____ is an example of an invasive weed species
(a) *Chromolaena odorata* (b) *Rauwolfia serpentina*
(c) *Mesua ferrea* (d) *Tephrosia candida*

72. Summer ploughing is _____ method of weed control
- (a) Mechanical method (b) Chemical method
(c) Bio control (d) Cultural method
73. Which of the following is a nitrogenous fertilizer?
- (a) Rock phosphate (b) Muriate of potash
(c) Trichoderma (d) Urea
74. The cultivation of crop regrowth after harvest is called _____
- (a) Re-cropping (b) Ratooning
(c) Double cropping (d) Relay cropping
75. Agrisilvicultural system of classification of Agroforestry is based on _____
- (a) Nature of components (b) Functional basis
(c) Arrangement of components (d) Ecological basis
76. Ratio of height and width in shelter belts should be roughly _____.
- (a) 1:10 (b) 1:15
(c) 1:5 (d) 1:1
77. Headquarter of ICRAF is located in which country?
- (a) India (b) Switzerland
(c) Kenya (d) Brazil
78. One of the following is a Multipurpose Tree (MPTs) _____.
- (a) *Tectona grandis* (b) *Dalbergia latifolia*
(c) *Santalum album* (d) *Azadirachta indica*
79. Primary objective of home garden is _____.
- (a) Wood production (b) Food production
(c) Fodder production (d) Soil conservation
80. Type of agroforestry system suitable for small land holding?
- (a) Alley cropping (b) Silvi pastoral system
(c) Shifting cultivation (d) Multi-storey system
81. Integrated farming system model consists of _____.
- (a) Crops, trees, livestock, poultry and fish (b) Crops and trees
(c) Crops and livestock (d) Trees and livestock
82. Slopping Agricultural Land Technology (SALT) was first developed in _____.
- (a) India (b) Bhutan
(c) China (d) Philippines
83. Number of models in Slopping Agricultural Land Technology (SALT) is/are _____.
- (a) One (b) Two
(c) Three (d) Four
84. Mizoram state launched NLUP/NEDP in the year _____.
- (a) 2004 (b) 2011
(c) 2016 (d) 2022

85. Which of the following statements is not true with respect to shifting cultivation in Mizoram?
- (a) About 17% of total net sown area in Mizoram is under shifting cultivation
 - (b) About 50% of rural population follow jhumming
 - (c) Reduced fallow period has led to increased production recently
 - (d) Earlier longer fallow period helped soil recovery
86. SWEET stand for _____
- (a) Soil and Watershed Environmental and Ecological Technology
 - (b) Slopping Watershed Environmental and Ecological Technology
 - (c) Slopping Watershed Environmental Engineering Technology
 - (d) Soil and Watershed Environmental Engineering Technology
87. Conserving agrobiodiversity in farmland is an example of _____
- (a) In situ conservation
 - (b) Ex situ conservation
 - (c) Cryopreservation
 - (d) Gene bank
88. Which of the following salts are the main causes of temporary hardness in water?
- (a) Calcium sulphate
 - (b) Magnesium sulphate
 - (c) Magnesium chloride
 - (d) Magnesium carbonate
89. Which gas is depleted due to air pollution-
- (a) Oxygen
 - (b) Nitrogen
 - (c) Carbon dioxide
 - (d) Ozone
90. The movement of surface litter and topsoil from one place to another is called -
- (a) Soil submerge
 - (b) Soil degradation
 - (c) Soil erosion
 - (d) Soil pollution
91. When the organic matter present in the sanitary landfill decomposes, it generates
- (a) Methane
 - (b) Nitrogen
 - (c) Hydrogen
 - (d) All of the above
92. For Solid waste management, which of the following is done on an individual level?
- (a) Burning
 - (b) Disposal
 - (c) Recycling
 - (d) Source reduction
93. Which of the following natural phenomena cannot be predicted accurately-
- (a) Earthquake
 - (b) Lightning
 - (c) Thunderstorm
 - (d) Cyclone
94. Palmer Index is associated with which of the following natural disasters?
- (a) Earthquake
 - (b) Drought
 - (c) Hurricanes
 - (d) Landslides
95. When an infectious disease jumps from an animal to a human, it is termed as
- (a) Zoonotic disease
 - (b) Infectious disease
 - (c) Congenital disease
 - (d) Latrogenic disease
96. Which among the following is the first major Environmental Protection act to be promulgated in India?
- (a) Biological Diversity Act
 - (b) Forest Conservation Act
 - (c) Wildlife Protection Act
 - (d) Environmental Protection Act

97. International Environmental Education Programme (IEEP) was launched by-
- (a) UNO
 - (b) UNICEF
 - (c) UNESCO
 - (d) UNDP
98. Which among the following is an important step to control biopiracy at the International level?
- (a) Kyoto Protocol
 - (b) Convention on Biological Diversity
 - (c) Paris Agreement
 - (d) Bali Action Plan
99. With regard to air quality monitoring, which of the following statement is FALSE?
- (a) Particles larger than 10 micron are best indicator of air pollution
 - (b) PM10 allows for a targeted approach to assessing air quality
 - (c) TSP includes all particles suspended in air
 - (d) PM2.5 is considered more harmful to human health
100. The Sustainable Development Goals (SDGs) set by the United Nations are envisioned to be achieved by the year-
- (a) 2025
 - (b) 2030
 - (c) 2040
 - (d) 2050

* * * * *