

MIZORAM PUBLIC SERVICE COMMISSION

COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF FOREST RANGER UNDER ENVIRONMENT, FORESTS & CLIMATE CHANGE DEPARTMENT, GOVERNMENT OF MIZORAM, OCTOBER, 2019

GENERAL SCIENCE - II

Time Allowed: 2 hours

Full Marks: 200

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

- Clay minerals are called:
 - Primary minerals
 - Secondary minerals
 - Accesorias minerlas
 - Tectosilicates minerals
- 1 silicon tetrahedron + 1 aluminium octahedron (1:1) of clay minerals structure is called:
 - Kaolinite
 - Illite
 - Vermiculite
 - Montmorillonite
- Residual soils that are cemented with iron oxides and are found in tropical regions is:
 - Eolian Soils
 - Loamy soils
 - Lateritic soils
 - Loess
- Fine-grained soils grain size is less than:
 - 75mm
 - 7.5mm
 - 0.75mm
 - 0.075mm
- In chemical weathering process, the water molecules dissociate into cation and anion is called:
 - Hydrolysis
 - Hydration
 - Reduction
 - Oxidation
- The parent material of soil transported from their place of origin by the gravity is called:
 - Alluvium
 - Collivium
 - Eolian
 - Lacustrine
- Acid igneous rocks (like granite, rhyolite) produce light-textured soils is called:
 - Vertisols
 - Entisols
 - Inceptisols
 - Alfisols
- In Soil profile, the parent material from which the soil is formed is known as:
 - Horizon A
 - Horizon B
 - Horizon C
 - Horizon O
- _____ play a very important role in soil fertility.
 - Clay particles
 - Sandy
 - Silty
 - Loamy
- When a plant becoming an overall yellowing of leaves and stunted growth is due to:
 - Potassium deficiency
 - Nitrogen deficiency
 - Phosphorus deficiency
 - Sulphur deficiency

11. An acidic soil is the pH value less than:
(a) Eight (b) Seven
(c) Six (d) Five
12. The smallest element of landscape that can be called 'soil' is:
(a) Pedon (b) Solum
(c) Eluviation (d) Illuviation
13. A mineral, vitamin, or other substance that is essential, even in very small quantities, for plant growth or metabolism is called:
(a) Chlorosis (b) Macronutrient
(c) Micronutrient (d) None of the above
14. In Soil erosion: as water concentrates, it first forms small channels called:
(a) Sheet (b) Gully
(c) Rills (d) splash
15. Soil erosion is a three-step process: *detachment* followed by *transport* and:
(a) Deposition (b) Solifluction
(c) Channel (d) Sedimentation
16. The Universal Soil Loss Equation (USLE) for estimating average annual soil erosion is: $A =$
(a) RKLSCP (b) RKLMNO
(c) RKPRST (d) RKCBHP
17. Who is the Father of Green Revolution in India?
(a) Vandana Shiva (b) M. S. Swaminathan
(c) M.V. Rao (d) Norman Borlaug
18. Which state has the largest waste-land in India?
(a) Uttar Pradesh (b) Gujarat
(c) Rajasthan (d) Madhya Pradesh
19. The general rules of windbreak, inside the barrier wind speed reduce to:
(a) 30 to 40 percent (b) 50 to 60 percent
(c) 60 to 70 percent (d) 70 to 80 percent
20. Soil particles move in three ways during wind erosion: *surface creep*, *suspension*, and:
(a) Sliding (b) Saltation
(c) Diversion (d) Flying
21. A range of rocky material placed along shorelines, bridge foundations and steep slopes to protect from scour and erosion is called:
(a) Gabian (b) Rock bolt
(c) Retaining wall (d) Rip rap
22. C:N higher ratios are likely to come from a source of:
(a) Terrestrial (b) Marine
(c) Aeolian (d) Lacustrine
23. Which is not belongs to the classification of Soil microorganisms?
(a) Bacteria (b) Actinomycetes
(c) Nematodes (d) Algae

24. Nitrogen fixation is a process by which molecular nitrogen in the air is converted into:
- (a) Ammonia (b) Nitric Acid
(c) Nitrogen dioxide (d) Sodium nitrate
25. In NPK fertilizers, which improves fruit and/or flower production as well as root growth?
- (a) Nitrogen (N) (b) Phosphorus (P)
(c) Potassium (K) (d) None of these
26. According to Champion and Seth (1968), the forests in India are classified into _____ type groups.
- (a) Six (b) Fourty nine
(c) Eight (d) Sixteen
27. Which one of the forest type groups in India covers maximum area?
- (a) Tropical Semi-evergreen forest (b) Tropical dry deciduous forest
(c) Tropical Moist deciduous forest (d) Tropical dry evergreen forest
28. India's goal to increase the forest cover and tree cover is:
- (a) 25% of the country's geographical area (b) 33% of the country's geographical area
(c) 45% of the country's geographical area (d) 50% of the country's geographical area
29. The word 'Forest' is derived from the _____ word 'Foris'.
- (a) Greek (b) Sanskrit
(c) Latin (d) None of these
30. The maximum diversity of bamboo is found in the _____ state of North East India.
- (a) Mizoram (b) Arunachal Pradesh
(c) Nagaland (d) None of these
31. A forest can be called as open forest if canopy cover is:
- (a) More than 10% to equal to 40% (b) 10% to less than 40%
(c) More than 10% to less than 40% (d) None of these
32. In Mizoram Dipterocarps are mostly distributed in _____ of the state.
- (a) Easter part (b) Western Part
(c) North Eastern Part (d) South Eastern Part
33. The number of wildlife sanctuaries in Mizoram are:
- (a) 6 (b) 8
(c) 10 (d) 12
34. As per SFR, 2017, total forest cover including tree cover of Mizoram of its total geographical areas is:
- (a) 57.23% (b) 88.48%
(c) 92.37% (d) None of these
35. As per Champion and Seth (1968) the number of forest type groups in Mizoram is:
- (a) 4 (b) 6
(c) 8 (d) 10
36. Tree arboretum is an example of:
- (a) *In-situ* conservation (b) *Ex-situ* conservation
(c) Both (a) & (b) (d) None of these

37. The state tree of Mizoram belongs to plant family:
- (a) Meliaceae (b) Gesneraceae
(c) Lauraceae (d) Combretaceae
38. Which of the following plant species produces State flower of Mizoram?
- (a) *Mesua ferrea* (b) *Globba wengeri*
(c) *Renanthera imschootiana* (d) *Vanda coerulea*
39. Preparation of seedlings in a nursery for planting out by gradually reducing water, shade and/or shelter is called:
- (a) Hardening out (b) Transplanting out
(c) Seedling establishment (d) Hardening off
40. The scientific name of teak defoliator is:
- (a) *Hyblaea puera* (b) *Plecoptera reflexa*
(c) *Eutectona macheralis* (d) None of these
41. Casualty replacement in a forest plantation is also called:
- (a) Replanting (b) Beating up
(c) Healing (d) None of these
42. When regeneration is obtained from seed, the forest is termed as:
- (a) Pure forest (b) High forest
(c) Natural forest (d) None of these
43. Number of plants required for 10 ha of plantation in which plants are 2m apart in rows which are 4m apart:
- (a) 12,500 (b) 15,000
(c) 10,000 (d) None of these
44. Plantation register is also called as:
- (a) Plantation record (b) Plantation notes
(c) Plantation document (d) None of these
45. Which of these is a non coppice?
- (a) *Dalbergia* (b) *Albizzia*
(c) *Cedrus* (d) *Salix*
46. In crown thinning there are _____ numbers of grades.
- (a) 2 (b) 3
(c) 4 (d) 5
47. The time that elapses between successive main felling on the same area is called as:
- (a) Felling series (b) Felling cycle
(c) Age gradation (d) Cutting section
48. A tending operation done in a sapling crop is called:
- (a) Weeding (b) Thinning
(c) Cleaning (d) Pruning
49. Improvement felling is an example of:
- (a) System of Concentrated regeneration (b) System of diffused regeneration
(c) Coppice system (d) Accessory system

50. The species in which Alternate clear strip system is followed is:
(a) *Pinus roxburghii* (b) *Pinus kesiya*
(c) *Cedrus deodara* (d) *Shorea robusta*
51. According to forest policy of India, 1952, the minimum forest area for hilly region should be:
(a) 60% (b) 20%
(c) 33% (d) 80%
52. Ban on deforestation for the purpose of Non-forestry use is as per:
(a) National forest policy, 1988 (b) National forest policy 1952
(c) National forest policy 1894 (d) Forest Conservation Act, 1980
53. Which chapter of Wildlife Protection Act, 1972 deals with trade or commerce in wildlife?
(a) IV (b) V
(c) II (d) VI
54. Pandurang Hegde is associated with:
(a) Chipko movement (b) Salient valley movement
(c) Apiko movement (d) Narmada Bachao Andolan
55. Which Forestry practice is not included in the scope of social forestry?
(a) Farm Forestry (b) Extension forestry
(c) Recreational Forestry (d) Protection forestry
56. Which type of species should be selected for farm forestry?
(a) Short rotation (b) Medium rotation
(c) Both (a) & (b) (d) None of these
57. Main aim of community forestry is:
(a) Production of Fuel wood (b) Production of fodder
(c) Production of timber (d) Both (a) & (b)
58. A major thrust to “social forestry concept” was given by:
(a) NCA report (b) Forest Conservation Report
(c) National Forest Policy (d) Indian Forest Act
59. JFM was first initiated in India in the state of:
(a) Uttar Pradesh (b) Bihar
(c) Tamil Nadu (d) West Bengal
60. The minimum sale proceeds that must be realized by VFC under JFM is:
(a) 18% (b) 40%
(c) 25% (d) 15%
61. Which of the following is not appropriate for urban forestry:
(a) *Lagerostroemia speciosa* (b) *Tectona grandis*
(c) *Delonix regia* (d) *Jacaranda mimosifolia*
62. First Green Mizoram Day was observed in the year:
(a) 1990 (b) 1988
(c) 1999 (d) 2000

63. Factors influencing land capability classification includes:
- (a) Soil profile characteristics
 - (b) External feature of the land
 - (c) Climate factor
 - (d) All of these
64. According to the land capability classes, class 1 will have soil depth of:
- (a) 30 - 45cm
 - (b) 45 - 90 cm
 - (c) > 90 cm
 - (d) < 7.5cm
65. Land capability subclass _____ is made up of soils for which the susceptibility to erosion is the dominant problem or hazard affecting their use.
- (a) Subclass w
 - (b) Subclass s
 - (c) Subclass c
 - (d) Subclass e
66. In relay cropping, sowing of the next crop is done at:
- (a) Three months after harvest of the standing crops
 - (b) Immediately after harvest of the standing crops
 - (c) Before harvesting of the standing crops
 - (d) None of these
67. The objective of inter cropping is:
- (a) Insurance against crop failure
 - (b) Higher productivity per unit area
 - (c) Sufficient utilization of resources
 - (d) All of these
68. In India, _____ is basic to the cropping system followed by the farmers in sequence cropping.
- (a) Secondary crops
 - (b) food crop
 - (c) filler plants
 - (d) none of these
69. Farmers usually practice _____ in conditions such as lands situated in river basins which often remain flooded during rainy season.
- (a) mono cropping
 - (b) relay cropping
 - (c) sequence cropping
 - (d) inter cropping
70. Application of _____ to cereal + legume intercropping system not only reduce the nitrogen fixation capacity of legumes, but also growth of the legume is suppressed by aggressive fast growth of cereals.
- (a) higher dose of nitrogen
 - (b) higher dose of phosphorus
 - (c) higher dose of potassium
 - (d) none of the above
71. Weed problems is _____ in multiple cropping system because of intensive cropping as compared to the mono cropping system.
- (a) More
 - (b) Less
 - (c) Same
 - (d) Zero
72. Pest and diseases occurrence is believed to be _____ in intercropping system due to crop diversity than sole crops.
- (a) Not affected
 - (b) Increased
 - (c) Reduced
 - (d) Highly increased
73. Efficient cropping systems for a particular farm depend on:
- (a) farm resources
 - (b) farm enterprises
 - (c) farm technology
 - (d) all of these

74. Which of the following is not true for a sequence cropping:
- (a) It is possible to practice zero tillage in all sequence cropping systems
 - (b) Management practices can be similar with that of inter cropping
 - (c) Soil fertility management is very simple
 - (d) All of these
75. The length of fallow period for shifting cultivation in Mizoram in recent years is estimated to be:
- (a) 20 - 30 years
 - (b) 10 - 20 years
 - (c) 5 - 10 years
 - (d) less than 5 years
76. The sequence of activities in shifting cultivation is:
- (a) burning, slashing, sowing, ploughing and harvesting
 - (b) slashing, burning, sowing, weeding and harvesting
 - (c) ploughing, burning, weeding, sowing and harvesting
 - (d) slashing, burning, ploughing, sowing, and harvesting
77. Which one of the following is not a case for shifting cultivation?
- (a) It is labour intensive and economical in production
 - (b) It is often built around the concepts of community ownership, participation and responsibility
 - (c) Shifting cultivators practice mixed cropping, and traditionally food grains and vegetables
 - (d) Recent years problem is short cycle due to land use pressure
78. The ten steps of Sloping Agricultural Land Technology (SALT 1) includes:
- (a) Make an A-frame; Locate the contour lines; Prepare the contour lines; Plant seeds of nitrogen fixing trees and shrubs; Cultivate horticulture crops; Plant permanent crops; Plant short and medium term crops; Trim regularly nitrogen fixing trees/shrubs; Practice crop rotation; Build green terraces.
 - (b) Make an A-frame; Livestock rearing; Prepare the contour lines; Plant seeds of nitrogen fixing trees and shrubs; Cultivate alternate strips; Plant permanent crops; Plant short and medium term crops; Trim regularly nitrogen fixing trees/shrubs; Practice crop rotation; Build green terraces.
 - (c) Make an A-frame; Locate the contour lines; Prepare the contour lines; Plant seeds of nitrogen fixing trees and shrubs; Cultivate alternate strips; Plant permanent crops; Plant short and medium term crops; Trim regularly nitrogen fixing trees/shrubs; Practice crop rotation; Build green terraces.
 - (d) Make an A-frame; Locate the contour lines; Prepare the contour lines; Plant seeds of nitrogen fixing trees and shrubs; Cultivate alternate strips; Bee keeping; Plant short and medium term crops; Trim regularly nitrogen fixing trees/shrubs; Practice crop rotation; Build green terraces.
79. Which one of the following is not included in the advantage of Sloping Agricultural Land Technology (SALT)?
- (a) It protects soil from erosion
 - (b) It helps restore soil fertility and structure
 - (c) It is ecologically sound
 - (d) Fruit trees, forest and other crops are the first priority
80. The Sloping Watershed Engineering Technology (SWEET) has proved most effective in the:
- (a) low-altitude zone of 100 meter to 500 m;
 - (b) mid-altitude zone of 500 meter to 1,500 m;
 - (c) high -altitude zone of 1,500 meter to 3,500 m;
 - (d) none of these

81. Some of the characteristics of Multipurpose tree species (MPTs) includes:
- (a) Multiple uses such as food, feed, firewood, construction materials, etc.
 - (b) Ability to fix atmospheric nitrogen
 - (c) Easy to propagate and prolific seed producer
 - (d) All of these
82. A homestead garden generally consist of
- (a) a herbaceous layer near the ground,
 - (b) a tree layer at the upper levels
 - (c) an intermediate layer
 - (d) all of these
83. The production of woody perennials combined with annuals and pastures is referred to as
- (a) Agrisilvicultural sytem
 - (b) Silvopastoral system
 - (c) Agrisilvopastural system
 - (d) Aquaforestry
84. Which of the following is not included in the environmental impact of agroforestry system?
- (a) Increase of pressure on natural forest
 - (b) Reduction of surface runoff, nutrient leaching and soil erosion
 - (c) Improvement of soil structure through constant addition of organic matter
 - (d) Better protection of ecological system
85. Agrobiodiversity does not include:
- (a) Genetic resources such as varieties and breed
 - (b) Farm inputs such as manures, fertilizers and pesticides
 - (c) Non harvested species such as soil microorganisms, predators and pollinators
 - (d) Agricultural, pastoral, forest and aquatic ecosystems
86. The technology evolved in the G.B Pant Institute of Himalayan Environment and Development, that checks soil erosion, maintains fertility, increases crop productivity, promotes cash fruit and fodder crops and stores rainwater, is the
- (a) Sloping Agricultural Land Technology (SALT)
 - (b) Slopping Watershed Engineering Technology (SWEET)
 - (c) ICAR 3-tier system
 - (d) None of these
87. Which of the following is not a result of the practice of agrobiodiversity?
- (a) Increase productivity, food security, and economic returns
 - (b) Make farming systems more stable, robust, and sustainable
 - (c) Contribute to increased pest and disease problems
 - (d) Conserve soil and increase natural soil fertility and health
88. During dry season, pollution of river can be controlled by providing extra:
- (a) Water
 - (b) Nitrogen
 - (c) Carbon dioxide
 - (d) Oxygen
89. Which one of the following is the biggest source of surface and ground water pollution in India?
- (a) Domestic waste and Sewage
 - (b) Industrial effluents
 - (c) Thermal pollution
 - (d) Agricultural effluents
90. What is the PH value of normal rain?
- (a) 1
 - (b) 5.6
 - (c) 8
 - (d) 7

91. Which one of the following is incorrect?
- (a) India has implemented 5 emission standards for four-wheeled and heavy-duty vehicles.
 - (b) India has decided to implement BS VI by 2021.
 - (c) The BS VI standards will be implemented in all vehicles manufactured on or after April 1, 2020.
 - (d) The new emission standard has low sulfur content as compared to the present one.
92. Which act makes EIA clearance mandatory for new projects?
- (a) Environmental (Protection) Act 1986
 - (b) The Forest (Conservation) Act, 1980
 - (c) Water (Prevention and Control of Pollution) Act, 1974
 - (d) Air (Prevention and Control of Pollution) Act, 1981
93. Basel Convention is related to
- (a) Hazardous Wastes
 - (b) Radioactive waste
 - (c) Air pollution
 - (d) Water pollution
94. When did Convention on Biological Diversity established?
- (a) 1990
 - (b) 1991
 - (c) 1992
 - (d) 1993
95. Which of the following is incorrect?
- (a) Ecomark is an eco-labelling scheme launched by Central Pollution Control Board
 - (b) Ecomark was launched in 2000 for easy identification of environment-friendly products
 - (c) The logo of Indian Ecomark Scheme is earthen pot
 - (d) Ecomark labelled products are not necessarily more expensive than conventional products
96. What does ISO stand for?
- (a) International Organisation for Standardization
 - (b) International Standards Organisation
 - (c) International Systems Organisation
 - (d) Integrated Systems Operation
97. The normal range for pH in packaged drinking water as per Indian Standard is between
- (a) 6.5 and 8.5
 - (b) 6 and 8
 - (c) 7.5 and 9.5
 - (d) 7 and 9
98. The most commonly cited definition for sustainable development is given by:
- (a) Brundtland World Commission on Environment and Sustainable Development
 - (b) Brundtland World on Committee Environment and Sustainable Development
 - (c) Brutland World Committee on Environment and Development
 - (d) Brundtland World Commission on Environment and Development
99. Maps that form an important part of a disaster manager's resources include:
- (a) Topographic maps
 - (b) Demographic maps
 - (c) Land-use maps
 - (d) All of these
100. The ambient air quality standard (24 hours average) for Sulphur Dioxide (SO₂) in industrial/residential area is:
- (a) 80 mg/m³
 - (b) 75 mg/m³
 - (c) 85 mg/m³
 - (d) 90 mg/m³