

MIZORAM PUBLIC SERVICE COMMISSION

**COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF
SOIL CONSERVATION RANGER
UNDER LAND RESOURCES, SOIL & WATER CONSERVATION DEPARTMENT,
GOVERNMENT OF MIZORAM, MARCH, 2019**

PAPER - II (APPLIED SCIENCES)

Time Allowed : 2 hours

Full Marks : 150

Attempt all questions.

All questions carry equal marks of 2 each.

- The textural class of soil is determined from its particular size distribution, and the composition of silt is
 - 2-0.5mm
 - 2-0.05mm
 - 0.05-0.002mm
 - below 0.002mm
- In a sandy soil, the spaces between the separate particles are large to encourage good air movement, and the water holding capacity of sandy soil is
 - High
 - Low
 - Medium
 - None of the above
- The percentage of sand separates of a sandy soil is
 - 35%
 - 40%
 - 60%
 - 70%
- The bulk density of a soil is defined as the mass(weight) of a unit volume of dry soil. The bulk density of sandy soil is high because the soil is
 - Loose and porous
 - More compact
 - Finer textured surface
 - Comparatively well granulated
- A medium textured soil, high in organic matter, the pore space per unit volume is
 - Low
 - Medium
 - High
 - None of the above
- The carbon-nitrogen ratio in humid temperate region under cultivation is usually between
 - 8:1 to 10:2
 - 10:1 to 12:1
 - 10:5 to 15:1
 - 8:1 to 15:1
- Out of 16 essential plant nutrients, some nutrients are designated as macronutrients because plants require in a considerable quantities. Which nutrient is not designated as macronutrients?
 - Potassium
 - Calcium
 - Iron
 - Magnesium
- Which element is not included in micronutrients?
 - Manganese
 - Boron
 - Sulphur
 - Zinc
- Which element is an essential nutrient for animals but non-essential for plants?
 - Molybdenum
 - Cobalt
 - Chlorine
 - Sodium

10. The major plant nutrient lost by leaching is
 - (a) Potassium
 - (b) Calcium
 - (c) Nitrogen
 - (d) Phosphorous
11. The colour of humus is imparted mainly by
 - (a) Rainfall
 - (b) Climate
 - (c) Time
 - (d) None of the above
12. Soil acidity is common in a region where rainfall is
 - (a) High
 - (b) Low
 - (c) Medium
 - (d) None of the above
13. A place where elements like calcium, magnesium and sodium are present in high degree is called
 - (a) Acidic soil
 - (b) Alkaline Soil
 - (c) Neutral Soil
 - (d) None of the above
14. The soil of Arid and Semi-Arid region is
 - (a) Acidic
 - (b) Neutral
 - (c) Alkaline
 - (d) None of the above
15. The most favourable condition of soil for plant growth is the occupation of
 - (a) one-third of the pore space by air and two-third the pore space by water
 - (b) two-third of the pore space by air and one-third of the pore space by water
 - (c) one-fourth of the pore space by air and three-fourth of the pore space by water
 - (d) None of the above
16. The major source of water used by plants in a soil is
 - (a) Hydrosopic Water
 - (b) Capillary Water
 - (c) Gravitational Water
 - (d) Ground Water
17. The C:N ratio of organic matter is
 - (a) 10:1
 - (b) 8:2
 - (c) 12:1
 - (d) 15:1
18. During decomposition of organic matter by soil organism, which substance is broken down last?
 - (a) Sugar
 - (b) Starch
 - (c) Lignin
 - (d) Cellulose
19. Which species is the most abundant among the soil micro flora?
 - (a) Actinomycetes
 - (b) Bacteria
 - (c) Fungi
 - (d) Algae
20. Ammonia is released from organic matter by bacteria and is converted to nitrites by one group, and the nitrites are further converted to nitrates by another group of organisms called
 - (a) Nitrosomonas
 - (b) Nitrobacter
 - (c) Rhizobium
 - (d) Azotobacter
21. A group of bacteria fixed free nitrogen from air and converted it into nitrogenous compound for use of crop plants. A group of bacteria which fixes free nitrogen independently is
 - (a) Rhizobium
 - (b) Nitrobacter
 - (c) Azotobacter
 - (d) Actinomycetes

22. If the pH of soil is less than 7, it is called as
(a) Acidic (b) Alkaline
(c) Neutral (d) Sodic
23. A fertilizer which is more resistant to loss by leaching due to its ion readily absorbed on the colloidal complex of the soil is
(a) Nitrate fertilizer (b) Ammonium fertilizer
(c) Nitrate and Ammonium fertilizer (d) Amide fertilizer
24. The amount of lime to be used for amendment of acidic in sandy soil is
(a) 1 ton/ha (b) 2 ton/ha
(c) 2.5 ton/ha (d) 3 ton/ha
25. The nitrogen content of urea is
(a) 48% (b) 46%
(c) 50% (d) 18%
26. Sodium Nitrate is
(a) Acidic fertilizer (b) Neutral fertilizer
(c) Basic fertilizer (d) None of the above
27. Based on climatic data and vegetation, the five major group of forest are further divided into
(a) 10 groups (b) 12 groups
(c) 15 groups (d) 16 groups
28. Establishment of forest by artificial means on an area from which forest vegetation has always or long been absent is called
(a) Natural regeneration (b) Afforestation
(c) Artificial regeneration (d) Taungya
29. Bamboo needs a felling cycle of
(a) 2-3 years (b) 3-4 years
(c) 4-5 years (d) 5-6 years
30. With leaving at least one node, Bamboo should be cut at a height of
(a) 10 cm (b) 12 cm
(c) 15 cm (d) 20 cm
31. The sustainable land-use system that combines arable crops with tree crops and or livestock on the same unit of land, either spatially or temporally is known as
(a) Afforestation (b) Agroforestry
(c) Social forestry (d) Aquaforestry
32. One of the benefits of social forestry is to
(a) Generate rural employment (b) Increase pressure from natural forest
(c) Decrease the supply of fuel wood and fodder (d) None of the above
33. In village Taungya System, crops are raised by the people who have settled down in a village inside the forest. Usually, each family has allotted a land of about 1 to 2 ha to raise trees alongwith arable crop for
(a) 1-2 years (b) 2-3 years
(c) 3-4 years (d) 4-5 years

34. One of the advantage of Agro-forestry is
- (a) It increases the pressure on forest and reduces better protection of ecological system
 - (b) It enhances run-off, nutrient leaching and soil erosion
 - (c) It augments biological diversity by favouring environmental conditions
 - (d) The interference of trees decreases the crop yield which is lower than monocropping
35. The practice of forestry outside the conventional forest with an aim to provide goods and services of the local people is
- (a) Agro forestry
 - (b) Social forestry
 - (c) Urban forestry
 - (d) Village forestry
36. The social forestry aims to
- (a) Meet the local needs of fuel, small timber, fodder and minor forest produces.
 - (b) Decrease cottage industries in rural areas
 - (c) Degrade the aesthetic value of an area
 - (d) Minimize the available land according to its carrying capacity
37. The practice of forest with the object of developing or maintaining a forest of high scenic value is known as
- (a) Recreation forestry
 - (b) Aesthetic forestry
 - (c) Extension forestry
 - (d) Farm forestry
38. If the intensity of rainfall is between 2.5-7.5 mm/hr, it is termed as
- (a) Light
 - (b) Medium
 - (c) Heavy
 - (d) Very heavy
39. A line of joining equal rainfall is called
- (a) Isohyet
 - (b) Isotherm
 - (c) Isotide
 - (d) None of the above
40. The advantage of rain water harvesting is
- (a) Rain water is bacteriologically pure
 - (b) It improves the quality of existing ground water
 - (c) The structures required are scientific and not costly
 - (d) It is free from organic matter
41. Watershed is classified based on its
- (a) Site
 - (b) Slope
 - (c) Size
 - (d) Length
42. An appropriate area of mini-watershed is
- (a) 50-100 sq.km
 - (b) 100-200 sq.km
 - (c) 200-500 sq.km
 - (d) 500-800 sq.km
43. Rill erosion is an advanced stage of
- (a) Splash erosion
 - (b) Sheet erosion
 - (c) Channel erosion
 - (d) Gully erosion
44. Watershed refers to draining water to a
- (a) Single outlet
 - (b) Two outlet
 - (c) Three outlet
 - (d) No outlet

45. Hyetograph refers to the ratio of
- (a) Rainfall depth versus time
 - (b) Rainfall intensity versus time
 - (c) Discharge versus time
 - (d) Accumulated rainfall versus time
46. The Rational method is used to estimate
- (a) Run-off volume
 - (b) Soil Loss
 - (c) Peak run-off rate
 - (d) None of the above
47. The objective of watershed management is to
- (a) Recharge ground water
 - (b) Measure soil erosion
 - (c) Percolate rain water at some location
 - (d) Study over exploitation of resource in a watershed
48. Rill erosion usually begins in the
- (a) Upper part of land slope
 - (b) Lower part of land slope
 - (c) Middle of land slope
 - (d) Entire length of land slope
49. Land use capability classification is primarily based on
- (a) Land slope
 - (b) Length
 - (c) Soil type
 - (d) None of the above
50. Erosion intensity of severe erosion is
- (a) Less than 20 ton/ha/year
 - (b) 20-40 ton/ha/year
 - (c) 40-80 ton/ha/year
 - (d) Greater than 80 ton/ha/year
51. Construction of Bench Terrace is designed for
- (a) Arid region
 - (b) Semi-Arid region
 - (c) Humid region
 - (d) Tropical region
52. Graded Terraces are suitable for areas with
- (a) Low rainfall
 - (b) Moderate rainfall
 - (c) High rainfall
 - (d) None of the above
53. Raindrop splash is the main cause of
- (a) Rill erosion
 - (b) Gully erosion
 - (c) Splash erosion
 - (d) Sheet erosion
54. Bench Terrace are constructed to change
- (a) The slope of land
 - (b) The length of land
 - (c) Both slope and length of land
 - (d) Direction of land
55. The most active portion of a gully is
- (a) The gully head
 - (b) The gully bed
 - (c) The gully side
 - (d) Both the gully head and gully bed
56. The universal soil loss equation estimates
- (a) Permissible annual soil loss
 - (b) Sediment yield
 - (c) Average annual soil loss
 - (d) None of the above
57. An ICAR has developed a model land use as an alternative to shifting cultivation in which the middle one-third portion of the slope may be put under
- (a) Agriculture
 - (b) Horticulture
 - (c) Forestry
 - (d) Pisciculture

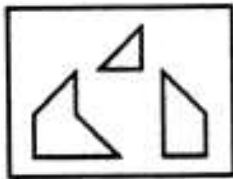
58. In a hilly area, terrace may be constructed below the slope percentage of
(a) 20% (b) 30%
(c) 33% (d) 40%
59. An average top soil loss due to shifting cultivation (Jhum) per hectare per year is estimated as
(a) 20 MT (b) 30 MT
(c) 35 MT (d) 40 MT
60. People who practice shifting cultivation are grouped into different categories. The people of North East are categorized as
(a) Primarily dependent (b) Partially dependent
(c) Marginally dependent (d) None of the above
61. During the construction of Earthen checkdams, the slope of the bunds may be maintained at
(a) 2:1 (b) 1:1
(c) 3:1 (d) 3:2
62. In a small gullies or at the starting stretch of gullies, the following check dams are constructed
(a) Earthen Checkdams (b) Brushwood checkdams
(c) Gabionic checkdams (d) Drystone check dams
63. The width of checkdam at the base should be approximately equal to maximum height in
(a) Drystone checkdam (b) Earthen checkdam
(c) Gabionic checkdam (d) Brushwood checkdam
64. Soil tends to have distinct variations in colour both horizontally and vertically. The colour of Humid Tropic Soil is
(a) Black (b) Red or yellow
(c) Grey (d) Grey blue
65. The most common method of land leveling design is
(a) Plan inspection method (b) Contour adjustment method
(c) Profile method (d) Plane method
66. Look at the series: 2, 1, (1/2), (1/4), ... What number should come next?
(a) (1/3) (b) (1/8)
(c) (2/8) (d) (1/16)
67. Look at this series: 70, 71, 76, ..., 81, 86, 70, 71, ... What number should fill in the blank?
(a) 70 (b) 71
(c) 80 (d) 96

Direction to solve Question 68: Choose the word for which best express the meaning of the given word.

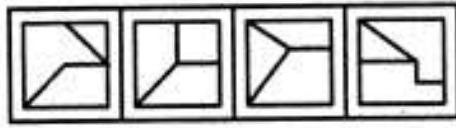
68. AWAKENED
(a) Enlightened (b) Shook
(c) Waken (d) Realised

Direction to solve Questions 69 - 70 : Pick out the best one which can complete incomplete stem correctly and meaningfully

69. Despite his best efforts to conceal his anger....,
(a) He could succeed in doing it easily (b) We could detect that he was very happy
(c) He succeeded in camouflaging his emotions (d) People came to know that he was annoyed
70. They **were all shocked at** his failure in the competition
(a) were shocked at all (b) had all shocked at
(c) had all shocked by (d) No correction required
71. Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).

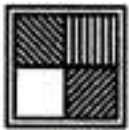


(X)

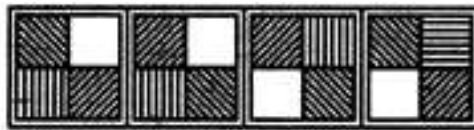


(1) (2) (3) (4)

- (a) 1 (b) 2
(c) 3 (d) 4
72. Find out how will the key figure(X) look like after rotation



(X)



(1) (2) (3) (4)

- (a) 1 (b) 2
(c) 3 (d) 4
73. Three pencils cost the same as two erasers. Four erasers cost the same as one ruler. Pencils are more expensive than rulers. If the first two statements are true, the third statement is
(a) True (b) False
(c) Uncertain
74. CMM, EOO, GQQ, _____, KUU
(a) GRR (b) GSS
(c) ISS (d) ITT
75. Window is to pane as book is to
(a) Novel (b) Glass
(c) Cover (d) Page