MIZORAM PUBLIC SERVICE COMMISSION

AGRICULTURE & ALLIED SERVICES (COMBINED TECHNICAL) EXAMINATION, 2024 FOR RECRUITMENT OF JR. GRADE OF MIZORAM AGRICULTURE SERVICE UNDER AGRICULTURE & FARMERS' WELFARE DEPARTMENT, GOVERNMENT OF MIZORAM, DECEMBER-2024

AGRICULTURE SCIENCE PAPER-I

Time Allowed : 3 hours FM : 200

SECTION - A *(Multiple Choice Questions) (100 Marks)*

All questions carry equal mark of 2 each. Attempt all questions.

*This Section should be answered only on the **OMR Response Sheet** provided.*

1. Crops which are grown to supplement the yield of main crop?

(a) Cash crops (b) Cover crops

(c) Industrial crops (d) Augment crops

2. Which gene is responsible for dwarfing characteristic in rice?

(a) Tift 23-A (b) Norin-10

(c) Dee-gee-woo-gen (d) Opaque-2

3. The first hybrid variety of pigeon pea in the world is-

(a) ICPL-87 (b) ICPH-8

(c) Karishma (d) IPH 15-3

4. Most commonly used herbicide to kill broad leaved weeds in wheat field is-

(a) Isoproturon (b) 2,4-D

(c) Alachor (d) Butachlor

5. In functional Allelopathy:

(a) Toxic substances are released as such from the plant

(b) A Precursor is released which is converted into active substances by some organisms

(c) There is no question of release of any toxic substance

(d) Release of nitrogen from nodule of legume take place

6. LEISA is related to-

(a) Organic farming (b) Natural farming

(c) Inorganic farming (d) Dry farming

7. Dropsy disease in human being is caused by which weed?
   (a) Argemone mexicana (b) Digera arvensis
   (c) Convolvulus arvensis (d) Pluchea lanceolata
8. *Parthenium hysterophorus* can be biologically controlled by-
   (a) Chrysomella spp (b) Dactylopius tomentosus
   (c) Zygogramma bicolorata (d) Neochetina spp
9. Which term describes the portion of solar energy that is reflected back into space by the Earth?
   (a) Solar irradiance (b) Earth's emissivity
   (c) Albedo (d) Radioactive forcing
10. Any structural or functional modification in plants to survive and reproduce in a particular environment is known as-
   (a) Tolerance (b) Adaptation
   (c) Resistant (d) Modification
11. The study of soils in relation to crop growth is known as-
   (a) Soil Ecology (b) Pedology
   (c) Edhaphology (d) Agrogeology
12. Negative adsorption in soil is-
   (a) Adsorption of anions by positive charge sites (b) Repulsion of anions by negative charge sites
   (c) Adsorption of cations by negative charged sites (d) Adsorption of polymeric anion clay
13. Gobar gas production was first started in-
   (a) Germany (b) Japan
   (c) India (d) U.S.A.
14. The C:P ratio for net immobilization of phosphorus is-
   (a) >300:1 (b) <200:1
   (c) <300:1 (d) >200:1
15. Which of the following is not a narrow leaved weed?
   (a) Cynodon dactylon (b) Cyperus rotundus
   (c) Setaria glauca (d) Amaranthus viridis
16. Contribution of flag leaf in photosynthesis is-
   (a) 30-32% (b) 40-42%
   (c) 50-52% (d) 60-62%
17. The colorimeter is based on-
   (a) Bragg's law (b) Lambert-Beer's law
   (c) Plank's law (d) Kirchoff's law
18. According to fertilizer control order 1957, Biuret content in urea should not exceed-
   (a) 1.0% by weight (b) 1.5% by weight
   (c) 2.0 % by weight (d) 2.5% by weight

19. Which of the following soils has higher buffering capacity and lower activity ratio of potassium?

(a) Kaolinite dominant soil (b) Smectite dominant soil

(c) Sandy soil (d) Red soil

20. The nutrient concentration range in which added nutrient will not increase yield but can increase nutrient concentration is referred as-

(a) Deficient range (b) Critical range

(c) Toxic range (d) Luxury consumption

21. In universal soil loss equation(A=RKLSCP) where K denotes-

(a) Soil erodibility factor (b) Slope gradient

(c) Soil Erosivity (d) Soil cover

22. Hydrogen bonding results in the interlayer of-

(a) Muscovite (b) Montmorillonite

(c) Pyrophyllite (d) Kaolinite

23. Grass tetany is caused by deficiency of the following nutrient in forage crops:

(a) Ca (b) S

(c) Mg (d) Mn

24. Which element is the non-metal among the following micronutrients?

(a) Iron (b) Manganese

(c) Zinc (d) Boron

25. "White Alkali" soils are-

(a) Saline soil (b) Acid soil

(c) Sodic soil (d) Saline sodic soil

26. To which one of the soil orders does black soils of India belong?

(a) Alfisol (b) Inceptisol

(c) Vertisol (d) Oxisol

27. The ratio of mass of a soil to the volume it occupies is known as-

(a) Particle density (b) Bulk density

(c) Porosity (d) Void ratio

28. Nitrification bacteria is-

(a) Obligate heterotrophs (b) Facultative heterotrophs

(c) Obligate autotrophs (d) Facultative autotrophs

29. The following C:N ratio is optimum for rapid decomposition of organic matter.

(a) 5:1 to 8:1 (b) 8:1 to 10:1

(c) 10:1 to 15:1 (d) 25:1 to 30:1

30. For tobacco crop, the preferred potassic fertilizer is-

(a) Potassium nitrate (b) Potassium chloride

(c) Potassium sulphate (d) Potassium iodate

31. Full form of IFOAM is-

(a) Indian Federation of Organic Agriculture Movements

(b) International Federation of Organic Agriculture Movement

(c) International Federation of Organic Agriculture Management

(d) International Foundation of Organic Agriculture Management

32. Who is considered as the father of modern organic agriculture?

(a) Sir Albert Howard (b) F.H King

(c) Rudolf Steiner (d) Lord Northbourne

33. Which one of the following is the biochemical test?

(a) Brick Gravel test (b) Seed size

(c) First count (d) Tetrazolium test

34. Which of the following nutrient is essential for oil synthesis in rapeseed and mustard?

(a) Calcium (b) Sulphur

(c) Boron (d) Nitrogen

35. Who is responsible for implementing NPOP in India?

(a) Ministry of Agriculture and Farmers Welfare (b) Ministry of Environment and Forest

(c) Ministry of Food vProcessing Industries (d) Ministry of Commerce and Industry

36. The prescribed seed moisture content for storing paddy seeds under open storage is-

(a) 10 per cent (b) 12 per cent

(c) 14 per cent (d) 8 per cent

37. Khaira disease of rice is due to-

(a) Calcium deficiency (b) Zinc deficiency

(c) Boron deficiency (d) Phosphorus deficiency

38. The technique used for hybrid seed production of sunflower is-

(a) CMS (b) GMS

(c) CGMS (d) Emasculation and dusting

39. In Tobacco, the first GMO crop, what type of resistance has been developed?

(a) Insect resistance (b) Herbicide resistance

(c) Disease resistance (d) Herbicide tolerant

40. Gullies whose dimensions are enlarged with time called-

(a) U-shaped gully (b) V-shaped gully

(c) Active gully (d) Inactive gully

41. Atmometer is used to measure-

(a) Transpiration (b) Water requirement

(c) Rate of water evaporation (d) Evapotranspiration

42. Restriction of export and import of seeds was envisaged through-

(a) Seed Act, 1968 (b) Seed Control Order, 1983

(c) New Seed Policy (d) Seed Bill

43. The diagnostic surface horizons of soil are called-

(a) Genetic horizons (b) Pedons

(c) Endopedons (d) Epipedons

44. In the Universal Soil Loss Equation (USLE) , what does 'LS' factor represent?

(a) Land slope and soil type (b) Land use and surface cover

(c) Length and steepness of slope (d) Latitude and slope direction

45. Head Quarter of International seed testing association is located at-

(a) China (b) Switzerland

(c) Australia (d) India

46. Progeny of the breeder seed is-

(a) Foundation seed (b) Nucleus seed

(c) Certified seed (d) T.L.Seed

47. Tag used for foundation seed is-

(a) Golden yellow (b) Blue

(c) Green (d) White

48. The quick seed viability test is-

(a) Tetrazolium test (b) Germination test

(c) Field test (d) Vigour test

49. Which GIS- derived factor is commonly integrated into the Revised Universal Soil Loss Equation (RUSLE) model for soil loss prediction?

(a) Vegetation density (b) Topographic factor

(c) Crop type (d) Soil pH

50. For production of wheat foundation seed, an isolation distance is-

(a) 1 m (b) 3 m

(c) 5 m (d) 10 m

SECTION - B *(Conventional Type) (100 Marks)*

*This Section should be answered only on the **Answer Sheet** provided.*
Marks for each question is indicated against it.
Attempt all questions.

1. Outline the key objectives of the National Policy on agriculture. Discuss the significance of agriculture in India's GDP, employment generation and poverty alleviation. **(3+5=8)**
2. Define GIS and GPS. Discuss how these technologies are applied to improve crop management and yield. **(2+3=5)**
3. Define Integrated farming system with example. Give an account of different advantages of IFS. **(2+5=7)**
4. List the essential Plant nutrients and classify them as macronutrients and micronutrients. Explain the concept of essentiality in plant nutrient. Discuss common deficiency symptoms of any two macronutrients in plants. **(2+2+6=10)**
5. Elaborate the characteristic of acid soil, saline soil and sodic soil and the problems associated with these types of soils. **(10)**
6. List key initiatives taken by central and state governments to promote oranic farming. Discuss the impact of these initiatives on the growth of organic agriculture in India. **(3+3=6)**
7. Describe the role of NGOs in supporting organic farming. **(4)**
8. What factors should be considered when choosing crops for organic farming? Describe the importance of crop diversity and crop rotation in organic systems. Explain how crop choice impacts pest and disease management in organic farming. **(3+4+3=10)**
9. Explain the different kinds of Intellectual Property Rights (IPR) in the context of agriculture. **(8)**
10. Give an account of different classes of seeds used in a seed production programme. Briefly describe the requirement for certified seeds. **(3+3=6)**
11. Describe the factors affecting seed viability during storage. Explain the role of packaging in protecting seeds from environmental factors. **(3+3=6)**
12. Describe the different types of soil and water conservation measures. **(10)**
13. Define Remote Sensing (RS) and their relevance in soil and water conservation. Explain how RS and GIS are applied in soil erosion mapping and monitoring. **(4+6=10)**

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