COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF
JR. GRADE OF MIZORAM HORTICULTURE SERVICE
UNDER HORTICULTURE DEPARTMENT,
GOVERNMENT OF MIZORAM. OCTOBER, 2023

TECHNICAL SUBJECT PAPER-III

Time Allowed : 2 hours   Full Marks : 200

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

1. Which one is the precursor of ethylene?
   - (a) ABA
   - (b) Tryptophane
   - (c) Methionine
   - (d) Indole Acetic Acid

2. Tomato fruits for canning are harvested at which stage?
   - (a) Mature green stage
   - (b) Breaker Stage
   - (c) Half ripe stage
   - (d) Red ripe stage

3. Which chemical is used for controlling sprouting of onion in storage?
   - (a) Maleic Hydrazide (MH)
   - (b) Cycocel
   - (c) Succinic acid dimethylhydrazide (SADH)
   - (d) Gibberellic acid

4. Pineapple variety suitable for canning _____.
   - (a) Mauritius
   - (b) Kew
   - (c) Queen
   - (d) Cayenne

5. Temperature for cellar storage is about _____.
   - (a) 0 to 5°C
   - (b) -18 to -40°C
   - (c) 15°C
   - (d) 25°C

6. Lye peeling is done using _____.
   - (a) NaCl
   - (b) NaOH
   - (c) HCl
   - (d) Na_2SO_4

7. Suitable drying temperature for red chillies _____.
   - (a) 20-30°C
   - (b) 30-40°C
   - (c) 50-60°C
   - (d) 70-80°C

8. Strain of yeast commonly used for making grape wine is _____.
   - (a) *Staphylococcus aureus*
   - (b) *Saccharomyces ellipsoideus*
   - (c) *Candida utilis*
   - (d) None of these

9. Acidity content in RTS should be _____.
   - (a) 0.3%
   - (b) 0.7%
   - (c) 1%
   - (d) 1.2%

10. Example of a non-climacteric fruit _____ .
    (a) Papaya   (b) Sapota
    (c) Pineapple   (d) Banana

11. The dominant hypothesis for heterosis was proposed by
    (a) Davenport and Bruce   (b) Shull and East
    (c) Mather and Jinks   (d) Jones

12. Transgressive segregation obtained in F2 generation of cross is manifested due to
    (a) Dominance gene action   (b) Non additive gene action
    (c) Additive gene action   (d) All of above

13. Emasculation of flowers is necessary to hybridization between the two parents in the following type
    (a) Male sterile plants   (b) Self pollinated plants
    (c) Self incompatible plants   (d) All of these

14. Sudden heritable changes in the characteristics of an organism are referred to as
    (a) Heritability   (b) Genetic Advance
    (c) Mutation   (d) Epistasis

15. The progeny of a self pollinated homozygous plant obtained by selfing is referred to as
    (a) Inbred   (b) Pureline
    (c) Hybrid   (d) Multiline

16. In a hermaphrodite flower when the female reproductive organs come to maturity before the male is known as _____ .
    (a) Dichogamy   (b) Protandry
    (c) Protogynous   (d) None of these

17. Cross for mango hybrid 'Ratna' is _____ .
    (a) Dashehari X Neelum   (b) Alphonso X Neelum
    (c) Neelum X Alphonso   (d) Neelum X Mulgoa

18. Papaya variety Pusa Nanha is developed through _____ .
    (a) Selection   (b) Hybridization
    (c) Introduction   (d) Mutation

19. Which one of the following fruit crop pollinated by wind?
    (a) Walnut   (b) Banana
    (c) Grapes   (d) Litchi

20. The molecular scissors used to cut DNA into specific genes of interest are called
    (a) Exonucleases   (b) Restriction endonucleases
    (c) Ligases   (d) Polymerases

21. Cytoplasmic hybrids are known as
    (a) Hybrids   (b) Cybrids
    (c) Both (a) & (b)   (d) None of these

22. In tissue culture regeneration of shoot and root occurs by manipulating the balance of
    (a) Auxin and ABA   (b) ABA
    (c) Auxin and Cytokinin   (d) Ethylene

23. Plants cells/ tissue has the ability to develop into a complete plant. This property of plant is known as
    (a) Pluropotency
    (b) Totipotency
    (c) Mutipotency
    (d) None of these

24. In cell culture medium commonly used carbon source is
    (a) Sucrose
    (b) Fructose
    (c) Glucose
    (d) Mannose

25. Most commonly used method for genetic transformation of plants is
    (a) Protoplast method
    (b) Electro-transformation
    (c) Agrobacterium mediated transformation
    (d) Micro injection

26. Chemical which is used for cryopreservation is
    (a) Oxy-acetylene
    (b) Liquid oxygen
    (c) Liquid hydrogen
    (d) Liquid nitrogen

27. Chemical used for sterilization of explants in micropropagation.
    (a) Sodium hypochlorite
    (b) Calcium hypochlorite
    (c) Mercuric chloride
    (d) All of these

28. Which one of the following method is used for raising haploid plants?
    (a) Anther culture
    (b) Callus culture
    (c) Embryo culture
    (d) Meristem culture

29. Which element is responsible for stomatal regulation and function?
    (a) N
    (b) P
    (c) K
    (d) Ca

30. Which part of root absorb water and minerals?
    (a) Root cap
    (b) Root hairs
    (c) Epidermis
    (d) Endodermis

31. IAA is chemically similar to the amino acid _____.
    (a) Methionine
    (b) Serine
    (c) Tryptophan
    (d) Proline

32. Guttation takes place through _____.
    (a) Stomata
    (b) Hydathode
    (c) Leaf veins
    (d) Guard cells

33. Photosynthesis is a _____ process.
    (a) Catabolic
    (b) Anabolic
    (c) Exothermic
    (d) Metabolic

34. Kreb's cycle take place in _____.
    (a) Vesicle of Endoplasmic reticulum
    (b) Lysosomes
    (c) Mitochondrial matrix
    (d) Dictyosomes

35. Passage of water across a selectively permeable membrane is
    (a) Osmosis
    (b) active transport
    (c) facilitated diffusion
    (d) pinocytosis

36. Which phytohormone ac as organizers for systemic stress defense?
    (a) ABA
    (b) Jasmonic acid
    (c) Salicylic acid
    (d) All of these

37. The term 'Extension Education' was first coined by which University?
    (a) Michigan State University
    (b) Cambridge University
    (c) Oxford University
    (d) Chiba University

38. Lab to Land programme was started by _____.
    (a) IIHR
    (b) IIVR
    (c) IARI
    (d) ICAR

39. Success in rural development project depends upon _____.
    (a) Regular training of workers
    (b) Regular contact of workers
    (c) Participation of beneficiaries
    (d) Amount of subsidy

40. For a study of farming system, the best PRA exercise is _____.
    (a) Transect walk
    (b) Resource mapping
    (c) Timeline
    (d) Chapati diagram

41. Extension is:
    (a) Education for all village people
    (b) Teaching through learning by doing and seeing is believing
    (c) Two way channel
    (d) All of these

42. First KVL was established in _____.
    (a) Rajasthan
    (b) Sikkim
    (c) Puducherry
    (d) Tamil Nadu

43. ICAR's National demonstration programme on major food crops was launched in the year _____.
    (a) 1964
    (b) 1972
    (c) 1981
    (d) 1995

44. Institutions Village Linkage Programme (IVLP) is part of which programme?
    (a) LLP
    (b) TARP
    (c) PRA
    (d) None of these

45. Training of Rural Youth for Self-Employment (TRYSEM) was launched in the year
    (a) 1974
    (b) 1976
    (c) 1979
    (d) 1982

46. Which of the following is a mineral lubricant?
    (a) Crude petroleum
    (b) Cotton seed oil
    (c) Linseed oil
    (d) Castor oil

47. It is a cylindrical part closed at one end which maintains a close sliding fit in the engine cylinder _____.
    (a) Cylinder head
    (b) Cylinder block
    (c) Sleeve
    (d) Piston

48. A tractor with less wheel base, higher ground clearance and low overall weight may work best in
    (a) Heavier soil
    (b) Lighter soil
    (c) Clayey Soil
    (d) All of these

49. Which of the following is engine components?

(a) Cylinder

(b) Piston

(c) Valves

(d) All of these

50. A reaper is used for _____.

(a) Cutting crop

(b) Cutting and winnowing

(c) Cutting and threshing

(d) None of these

51. Sub soiler plough is best suited for _____.

(a) Deep ploughing

(b) Breaking hard pan

(c) Making ditches

(d) Inter cultivation

52. The rotary or oscillating tool which does not turn the soil upside down is:

(a) Power tiller

(b) Rotavator

(c) Power harrow

(d) Treader or rotary tiller

53. BHP of an engine indicates:

(a) Power in cylinder

(b) Power on flywheel

(c) Frictional power

(d) Power at PTO pulley

54. What is the optimum soil pH for the availability of most of the plant nutrients?

(a) 5.0-6.0

(b) 6.0-7.0

(c) 6.5-7.5

(d) 6.0-8.0

55. Increase in soil water content and soil temperature, increases the availability of ..

(a) Nitrogen

(b) Phosphorus

(c) Potassium

(d) All of these

56. The ideal nitrogenous fertilizer suitable for foliar application is

(a) Ammonium nitrate

(b) Ammonium chloride

(c) Ammonium sulphate

(d) Urea

57. Blossom end rot in tomato is caused by the deficiency of

(a) Ca

(b) Mg

(c) Mo

(d) B

58. Fertilizer that supplies nitrogen in both ammoniacal and nitrate forms is _____.

(a) Urea

(b) Ammonium sulphate

(c) Calcium ammonium nitrate (CAN)

(d) Ammonium Chloride

59. Whiptail in cauliflower is caused by deficiency of which of the following nutrients?

(a) B

(b) Mo

(c) Zn

(d) Ca

60. Which of the following nutrient is immobile in plants?

(a) S

(b) P

(c) K

(d) Ca

61. Ca, Mg and S are called as

(a) Primary nutrients

(b) Micro nutrients

(c) Secondary nutrients

(d) Beneficial nutrients

62. Dolomite is
    (a) $CaCO_3$
    (b) $MgSO_4$
    (c) $Ca(OH)_2$
    (d) $CaMg(CO_3)_2$

63. Muriate of potash is a
    (a) Straight fertilizer
    (b) Compound fertilizer
    (c) Mixed fertilizer
    (d) Complex fertilizer

64. _____ is an annual weed.
    (a) *Bidens Pilosa*
    (b) *Chenopodium album*
    (c) *Phalaris minor*
    (d) All of these

65. Cuscuta is
    (a) Total stem parasitic weed
    (b) Partial root parasitic weed
    (c) Total root parasitic weed
    (d) None of these

66. Which of the following in non selective herbicide
    (a) Alachlor
    (b) Butachlor
    (c) Paraquat
    (d) Atrazine

67. *Cyperus rotundus* is an example of
    (a) Annual weed
    (b) Perennial weed
    (c) Biennial weed
    (d) None of these

68. 2,4-D is a _____ herbicide.
    (a) Selective
    (b) Non selective
    (c) Contact
    (d) Selective and systemic

69. Flooding kills the weeds by excluding the _____ from their environment.
    (a) Air
    (b) Water
    (c) Nutrient
    (d) All of these

70. Who coined the term allelopathy?
    (a) Jethro tull
    (b) Mohr
    (c) Misterlisch
    (d) Molisch

71. The capital that is consumed by a farm in the production process is called as:
    (a) Capital cost
    (b) Production cost
    (c) Depreciation
    (d) Dead-weight cost

72. Which of the following is not a component of farm business?
    (a) Capital
    (b) Environment
    (c) Land
    (d) Management

73. An individual who initiates, creates, and manages a new business can be called _____.
    (a) Leader
    (b) Manager
    (c) Entrepreneur
    (d) Professional

74. Innovation can best be defined as _____.
    (a) Generation of new ideas
    (b) Evolution of new ideas
    (c) Opposite of creativity
    (d) Successful exploitation of new ideas

75. Which State is Agri Export Zone for Organic Pineapple?

    (a) Karnataka   (b) Tripura

    (c) Tamil Nadu   (d) Assam

Direction to solve Question Nos. 76 - 78 : Seven Cricket players A, B, C, D, E, F and G are to be honoured with Arjuna Award at a sports function. The players will be seated on the dais in a row. A and G have to leave the function early and so must be seated at the extreme right. B will receive the best player's trophy and so must be in the center to facilitate presentation. C and D are rivals and therefore must be seated as far apart as possible.

76. Which of the following cannot be seated at either end?

    (a) F   (b) G

    (c) D   (d) C

77. Which of the following pairs cannot be seated together?

    (a) B and D   (b) C and F

    (c) D and G   (d) E and A

78. Which of the following cannot occupy the seats on either side of B?

    (a) F and D   (b) D and E

    (c) E and G   (d) C and F

79. Each of P, Q, T, A and B has different heights. T is taller than P and B but shorter than A and Q. P is not the shortest, who is the tallest?

    (a) P   (b) A

    (c) Q   (d) None of these

80. What comes in place of questions mark (?) in the series

AZ, BY, CX, ?

    (a) EU   (b) DW

    (c) GH   (d) EW

Direction to solve Question Nos. 81 - 85 : For the following statement, four options are provided. Choose the most relevant option/best option for the given statement.

81. As a District Magistrate, you receive and order of the Pollution Control Board for removal of tanneries which are discharging pollutants in the river in gross violation of the pollution control norms. You also receive a representation from the tannery owners requesting you not to execute the order as more than two hundred workers are employed in the tanneries who will lose their job and livelihood. Besides, these tanneries have been in operational for atleast two decades. Which of the following courses of action would you adopt?

    (a) Write back to the Pollution Control Board that tanneries cannot be removed as a large number of persons will lose their livelihood

    (b) Report the matter to the government secretariat in the state capital and seek their directions. This is going to take atleast 10 days. By pursuing this course of action neither the Pollution Control Board nor the local people will blame you for taking a wrong decision

    (c) Pass and order for removal of tanneries giving a notice of 10-15 days (as per law) to the owners/occupiers for vacation of the premise

    (d) Advise petitioners to file an appeal to the High Court against the order of the Pollution Control Board and take no further action till the appeal is filed.

82. You go to a movie theatre with your family to watch a movie for which you had been waiting for weeks. The person selling the tickets ask for double the printed price of the tickets as only a few tickets are left. What would be the wrong choice?

   (a) Threaten to report the matter to the theatre administration unless he gives ticket to you at the regular price

   (b) Go back without watching the movie

   (c) Take the tickets at double price and enjoy the movie. In any case, going back and coming another day would cost you more besides being a waste of time

   (d) Not purchase the ticket and report the matter to the theatre manager/administration

83. Your immediate supervisory authority had taken some decisions regarding setting up of a project which has run into heavy revenue losses. The higher authorities have set up a three-member committee to enquire into the matter which has called you for your deposition. Your boss wants you to justify the stand taken by him. He is likely to remain your boss for at least next one year. You would

   (a) Justify the decisions of your supervisory authority and bail him out

   (b) Outrightly criticise his decisions as in the past he has been rude and harsh with you

   (c) Give a fair account of what has happened which is likely to result in his implication, but is surely to adversely affect your personal equations with him

   (d) Give an ambivalent reply showing your lack of specific knowledge of the subject and thus save you the embarrassment of implicating your boss and also save you from being further dragged as a witness against your boss

84. You are a businessman who plans to start a new business venture for which a license is required from a regulatory government department. You have submitted the application after fulfilling all the procedural formalities and the required documents. Even after months from the date of application, you have not received the license. The reason, you have come to know for the delay is, demand for illegal gratification. The amount asked for granting the license is within every month because of the loss of business opportunity. You will:

   (a) Pay the amount asked for and get the licence, treating the amount paid as a business necessity and business expense

   (b) Ask a senior officer in the same department who is known to you and get the issue of license expedited.

   (c) Wait for official to change and hoe that the next official is honest

   (d) Make an application under RTI Act seeking status of your license application and the time frame in which such licenses are required to be issued

85. You are a Deputy Secretary in a Ministry of the government of India where you are dealing with the appointments of 'Technical Assistants'. On the basis of a written examination, 10 candidates have been shortlisted for two posts. Based on their educational and previous work experience you have to make your recommendation in order of preference. A senior official in the Ministry who is know to you, asks you to recommend the name of candidate Y amongst the first two choices. What will you do?

   (a) Bring the matter to the knowledge if your immediate superior officer and do as he verbally direct

   (b) Comply with the request of the senior officer who approached you and recommend the name of the candidate in the top two positions despite knowing that he is not among the best two. This way you will earn the goodwill of the officer who approached you.

   (c) Examine the profile of all ten candidates and take decision on merits even if it means that candidate Y is eventually selected

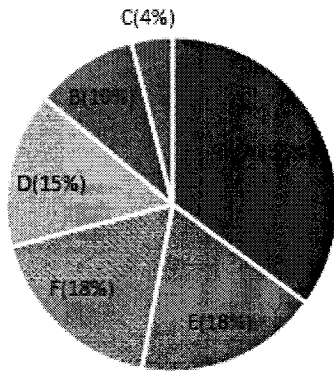   (d) See to it that candidate Y is not selected at all by placing him down in the preference

Direction to solve Question Nos. 86 - 90 : Solve the questions:

86. Rema buys a toy for Rs.75 and sells it for Rs.100. His gain percentage is
    (a) 25%
    (b) 20%
    (c) 33.33%
    (d) 37.5%

87. If 120 men can do a job in 100 days, in how many days will 150 men do it?
    (a) 70 days
    (b) 80 days
    (c) 90 days
    (d) 55 days

88. 35+5×4=?
    (a) 160
    (b) 700
    (c) 55
    (d) 44

89. A car is running at the speed of 108 kmph, What distance will it cover in 15 seconds?
    (a) 45 meters
    (b) 55 meters
    (c) 450 meters
    (d) Cannot be determined

90. A badminton player won 6 games and lost 4 games, the fraction of the games he won is:
    (a) 3/2
    (b) 2/3
    (c) 3/5
    (d) 2/5

Direction to solve Question Nos. 91 - 95 : Solve the following questions:

91. If '+' means '-', '-'means '×', '×' means '÷', '÷' means '+', then which of the following will be the value of the expression?
    $32 + 8 \times 2 - 3 \div 4$
    (a) 12
    (b) 20
    (c) 0
    (d) 24

92. If A implies '+', B implies '-', C implies '×', D implies '÷', then calculate the value of the expression 2A3B4C5D1.
    (a) 15
    (b) 0
    (c) -15
    (d) -12

93. If A means '×' B means '÷' C means '-' and D means '+', then
    4 D 16 A 5 B 8 C 5 = ?
    (a) 9
    (b) 16
    (c) 13
    (d) None of these

94. If '-' denotes addition, '+'denotes subtraction, '×' denotes division and '÷'denotes multiplication, then
    $7 - 10 \times 5 \div 6 + 4 = ?$
    (a) 3
    (b) 12
    (c) 15
    (d) 9

95. If '÷' means addition and '×' means substraction, then
    (15×9) '÷' (12×4) × (4÷4) is equal to:
    (a) 96
    (b) 6
    (c) 3/128
    (d) 143/8

Direction to solve Question Nos. 96 & 97 : Study the pie chart and answer the questions given below it.

C(4%)

B(10%)

D(15%)

F(18%)

E(18%)

A-Printing cost, B-cost of paper, C-Miscellaneous, D-Royalty, E-Advertisement charges, F-Binder's charges.

96. If miscellaneous charges are Rs. 6000, the advertisement charges are:

(a) Rs. 9000   (b) Rs. 27,000

(c) Rs. 1333.33   (d) Rs. 15,000

97. If the cost of printing is Rs.17,500, then the royalty is

(a) Rs. 7500   (b) Rs. 40833.33

(c) Rs. 15,000   (d) Rs. 750

Direction to solve Question Nos. 98 - 100 : A school has four sections of class IX students. The results of half yearly and annual examinations are shown on the table given below. Study the table and answer the questions given below:

Results	No. of Students			
	Section A	Section B	Section C	Section D
Students failed in both exam	28	23	17	27
Students failed in half yearly but passed in Annual exam	14	12	8	13
Students passed in half yearly but failed in Annual exam	6	17	9	15
Students passed in both exam	64	55	46	76

98. How many students are there in class IX in the school?

(a) 336   (b) 189

(c) 335   (d) 430

99. Which section has the maximum pass percentage in atleast one of the two examinations?

(a) Section A   (b) Section B

(c) Section C   (d) Section D

100. If the number of students passing an examination be considered a criteria for comparison of difficulty level of two examinations, which of the following statements is true in this context?

(a) Half yearly examinations were more difficult

(b) Annual exams were more difficult

(c) Both the examinations had almost the same difficulty level

(d) The two examinations cannot be compared for difficulty level

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