

MIZORAM PUBLIC SERVICE COMMISSION

TECHNICAL COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF GRADE-V OF MIZORAM HORTICULTURE SERVICE UNDER HORTICULTURE DEPARTMENT, GOVERNMENT OF MIZORAM NOVEMBER, 2017

TECHNICAL PAPER - III

Time Allowed : 2 hours

Full Marks : 200

All questions carry equal marks of 2 each.

Attempt all questions.

1. Loss of angularity in the fruit is a common means for maturity indication of this fruit:
(a) Pineapple (b) Banana
(c) Papaya (d) Mango
2. This post-harvest treatment is intended to minimize the redistribution and transmission of pathogens from adhering soil, infested fruit or vegetable surfaces and in water disinfection
(a) Washing (b) Irradiation
(c) Sorting (d) Chlorination
3. This Act aims to establish a single reference point in our country for all matters relating to food safety and standards, by moving from multi- level, multi- departmental control to a single line of command
(a) Food Safety and Standard Act, 2001 (b) Food Safety and Standard Act, 2010
(c) Food Safety and Standard Act, 2006 (d) Food Safety and Standard Act, 2016
4. 'Grape guard' is a brown sheet containing _____ in which Sulphur dioxide is released in the package around the bunches that retard the growth of molds
(a) Sodium metabisulphite (b) Salicylic acid
(c) Sodium benzoate (d) Aminoethoxy Vinylglycine
5. This is a method of packaging fruits and vegetables in which semi-permeable polymeric films are used to create modified atmosphere around the fresh produce that is high in CO₂ and low in O₂.
(a) Intelligent packaging (b) Vacuum Packaging
(c) Controlled Atmosphere Packaging (d) Modified Atmosphere Packaging
6. The climacteric fruits are characterised and differ from non-climacteric fruits mainly due to -
(a) They have much better taste when ripened after harvesting
(b) Their ability to ripen properly only after harvest
(c) Their change in colour after they are detached from the tree
(d) The presence of respiratory peak after the fruits are detached from the plant
7. A jelly is a semi-solid product prepared by boiling a clear, strained solution of _____ containing fruit extract, free from pulp, after the addition of sugar and acid
(a) Cellulose (b) Starch
(c) Pectin (d) Ascorbic acid

8. Enzymatic browning is a biochemical process in which some fruits and vegetable tissues take on a brown color when exposed to
- (a) Ethylene (b) Carbondioxide
(c) Oxygen (d) Vacuum condition
9. The common method for preservation of fruit juices, R.T.S and nectar in which heating at boiling temperature or slightly below it for a sufficient length of time to kill the microorganisms which cause spoilage, is called
- (a) Sterilization (b) Pasteurization
(c) Asepsis (d) Minimal processing
10. _____ may be used for Hybrid seed production of brassicas, solanaceous and asteraceae crops
- (a) Cytoplasmic male sterility (b) Vegetative apomixis
(c) Self incompatibility (d) None of these
11. The chief objective of hybridization is to create
- (a) Variation (b) Clones
(c) Superior yielder (d) Resistance genes
12. In the theories of heterosis and inbreeding depression, at each locus the dominant allele has favourable effect, while the recessive allele has unfavourable effect. In heterozygous state, the deleterious effect of recessive alleles are masked by their dominant alleles. This hypothesis is
- (a) Single gene heterosis (b) Over dominance hypothesis
(c) Dominant hypothesis (d) Super dominance theory
13. Autogamy is the closest form of inbreeding, and it leads to
- (a) Heterozygosity (b) Homozygosity
(c) Both (a) & (b) (d) None of these
14. This refers to maturation of anthers and stigma of the same flower at different times, leading to cross pollination
- (a) Dicliny (b) Dichogamy
(c) Heterostyly (d) Herkogamy
15. The genetic material, DNA or RNA is localized in the chromosome and its contents are relatively _____ from one generation to the next.
- (a) Constant (b) Variates
(c) Sequenced (d) Combined
16. In perennial fruit crops breeding, F1 hybrids are subjected to selection of superior phenotypes, due to....
- (a) Non-availability of other techniques (b) Uncertainty in fertilization
(c) Phenotypic expression is most reliable (d) Long breeding cycles
17. The parent of *Amrapali*, a mango cultivar improved through hybridization, is
- (a) Ratna x Dashehari (b) Ratna x Alphonso
(c) Dashehari x Neelum (d) Neelum x Alphonso
18. Genetic transformation for crop improvement is very conservative technique because the new cultivar will only be improved by the
- (a) Addition of new genes (b) Deletion of genes
(c) Both addition and deletion of genes (d) Manipulation of gene sequence

19. The following vectors are used to transfer genes in plants, exception is
(a) Viruses (b) Plasmids
(c) Transposable elements (d) Bacteria
20. Somatic hybrids in citrus were obtained with chemical fusion of competent citrus protoplasts, of which one parent was a protoplasts and the second parent was isolated from
(a) Seedling leaves (b) Nucellus
(c) Embryo (d) Ovary
21. In banana, _____ is useful in rescuing embryos of sexual crosses that fail because the hybrid embryo aborts.
(a) Ovule culture (b) Embryo culture
(c) Test tube fertilization (d) None of these
22. In tomato, increased shelf life is achieved by developing transgenic tomatoes that inhibit decreased level of
(a) Abscisic acid (b) Ribosome inhibiting protein
(c) Chitinase (d) Polygalacturonase
23. In plant tissue culture, virus free plantlets are developed from
(a) Vascular tissues (b) Root hairs
(c) Apical meristem (d) All of these
24. When cryopreservation is done at a temperature of -196°C in _____ the plant cells stay in completely inactive state and can thus be conserved for long periods
(a) Solid carbon dioxide (b) Deep freezers
(c) Vapour phase nitrogen (d) Liquid nitrogen
25. The specific conditions for patent application of biological materials *does not include*
(a) Discovery of a product of nature
(b) The invention must have novelty and utility for the society
(c) The product must be inventive i.e., skills have been applied to it
(d) It must be reproducible and disclosed
26. Production of triploid plants which are self sterile and usually seedless, is achieved through
(a) Pollen culture (b) Embryo culture
(c) Endosperm culture (d) Anther culture
27. Cultures of plant tissues from which of the following is not totipotent?
(a) Cambium (b) Pith
(c) Cortex (d) None of these
28. The path for ascent of sap in plants is the
(a) Phloem (b) Xylem
(c) Cortex (d) Epidermis
29. In green plants, highest transpiration occurs through the
(a) Leaves (b) Flowers
(c) Stem (d) All of these

30. Which of the following statement is *false* about phytohormones?
- (a) They are organic substances
 - (b) They are produced naturally by plants
 - (c) Their site of action is similar to their site of production
 - (d) They are active in minute amounts
31. Photosynthesis occurs only in the visible part of the spectrum of lights, between wavelengths of
- (a) 200 nm to 250 nm
 - (b) 300 nm to 450 nm
 - (c) 400 nm to 750 nm
 - (d) 600 nm to 950 nm
32. Maximum absorption of water in plants takes place in the
- (a) Zone of root hairs
 - (b) Root tip
 - (c) Meristematic zone
 - (d) Lateral roots
33. In order to induce drought hardiness in plants, they maybe treated with low water levels couples with
- (a) High light intensities
 - (b) High phosphorus fertilizers
 - (c) Low nitrogenous fertilizers
 - (d) All of these
34. The water potential of those containing solutes, in a living cell is
- (a) Positive
 - (b) Negative
 - (c) Zero
 - (d) Changes constantly
35. The opening and closing of stomata is controlled by the guard cells, in which the stomata remains open in the presence of light, because the guard cells
- (a) Take up water and become turgid and opening the pore
 - (b) Lost water and and pull the inner walls apart
 - (c) The rigid inner walls are opened by light penetration
 - (d) Higher temperature releases water vapour and thus open the pore
36. When an extension worker approach a large number of people spread over large areas for disseminating new improved production technology, it is called
- (a) Mass communication
 - (b) Public communication
 - (c) Local communication
 - (d) Group communication
37. National Demonstrations are first line demonstrations conducted on the farmers field by
- (a) Research scientists
 - (b) Extension scientists
 - (c) Development staffs
 - (d) Extension officers
38. Concept of integrated rural development programme includes
- (a) Establishment and expansion of cottage and village industries
 - (b) Development of rural roads and transport
 - (c) Development of agriculture and allied pursuits
 - (d) All of these
39. The extension work must be based on
- (a) Constantly helping the people with latest technologies only
 - (b) The interest of progressive farmers
 - (c) The needs and interest of the peoples
 - (d) The interest and market demand of local mandis

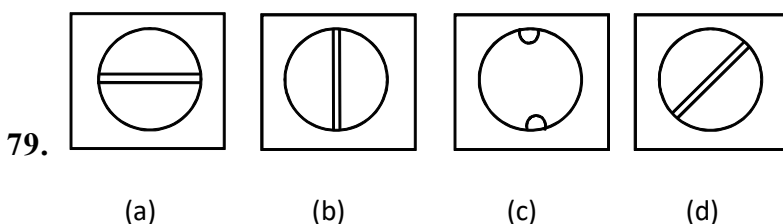
40. The T & V system was proposed by
(a) Dr Banerjee (b) Dr. Reddy
(c) Dr. Daniel Benor (d) Kelsey and Hearney
41. The Participatory Rural Appraisal (PRA) techniques approach aims to _____ in the planning and management of development projects and programmes
(a) Incorporate latest scientific discoveries
(b) Incorporate the knowledge and opinions of rural people
(c) Focus on progressive farmer's
(d) Incorporate use of information technologies
42. The first KVK was established at Pondicherry in the year
(a) 1972 (b) 1974
(c) 1976 (d) 1978
43. In Frontline Demonstration (FLD), the person directly involved in planning, execution and monitoring of the demonstrations for the developed technologies is..
(a) The farmer (b) The extension worker
(c) The scientist (d) The VLW
44. Country ploughs, *bakhar* and *patela* are the most popular traditional implements used in our country for
(a) Sowing seeds (b) FYM application
(c) Weeding (d) Seed bed preparation
45. Improved equipments for intercultural operations in crop cultivation includes...
(a) Khurpi and country plough (b) Cultivator and rotary tiller
(c) Digger and power thresher (d) Sickle and spade
46. The highest energy requirement for farm operations in agriculture sector was for
(a) Irrigation (b) Fertilizer application
(c) Seed sowing (d) Harvesting
47. Renewable energy sources that can be utilized for energy production in horticulture farming includes...
(a) Solar, fuel wood and coal (b) Solar, wind and biomass
(c) Biofuel and petroleums (d) Wind and petroleums
48. Most of the agricultural tractors used for ploughing, harrowing, sowing, harvesting, etc are four wheeled type with an average horse power of ...
(a) 10 to 15 (b) 20 to 25
(c) 30 to 35 (d) 60 to 65
49. A power tiller is a machine having
(a) Single wheel (b) Two wheels
(c) Three wheels (d) Four wheels
50. The parts of a tractor that mainly requires attention in giving lubrication, besides the engine unit and the engine accessories is
(a) The clutch (b) The transmission
(c) The chasis (d) All of these

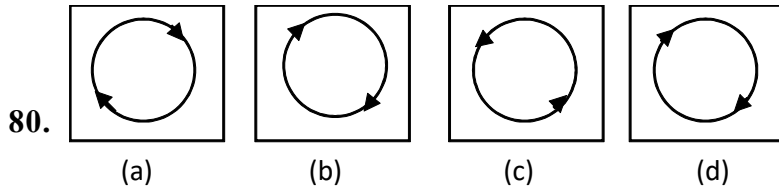
51. Low volume and ultra low volume sprayers are developed mostly to apply
- (a) Concentrated pesticides
 - (b) Fertigation
 - (c) Organic nutrients
 - (d) All of these
52. _____ deficiency is normally found in crops grown in acid soils, calcareous soils and coarse textured soils low in organic matter.
- (a) Potassium
 - (b) Phosphorus
 - (c) Carbon
 - (d) Magnesium
53. Soil fertility status can be assessed from nutrient deficiency symptoms, soil analysis, soil test and
- (a) Leaf measurement
 - (b) Nutrient uptake calculations
 - (c) Plant analysis
 - (d) None of these
54. The two most common type of potassic fertilizers used in India are
- (a) Muriate of potash and Urea
 - (b) Urea and ammonium nitrate
 - (c) Potassium sulphate and Urea
 - (d) Muriate of potash and potassium sulphate
55. Which of the following is not a component of Integrated Nutrient Management of plants?
- (a) Chemical fertilizers
 - (b) Bio fertilizers
 - (c) Green manures
 - (d) None of these
56. Plants absorb nitrogen from the soil solution as
- (a) Nitrate and ammonium
 - (b) Orthophosphate and ammonium
 - (c) Nitrite and amino acids
 - (d) Ammonium and sulphate
57. Humus have been synthesized by microorganisms in the soil from products of the breakdown or alteration of
- (a) Faeces of earthworms
 - (b) The original plant tissues
 - (c) The soil nutrient content
 - (d) The atmospheric nutrients fixed to the soil
58. Which of the following fertilizers is not suitable for use in fertigation due to their solubility?
- (a) Potassium sulphate
 - (b) Urea
 - (c) Phosphoric acid
 - (d) None of these
59. Acidic soils can be amended by application of
- (a) Sulfur
 - (b) Vinegar
 - (c) lime
 - (d) Organic fertilizers
60. Which of the following is true for release of allelopathic compounds by weeds affecting the growth of crops?
- (a) Released from weed plants into the soil as root exudates
 - (b) Release by decomposition products of their dead, worn out tissues
 - (c) Release volatile allelopathic compounds from their foliage
 - (d) All of these
61. Weeds like *Chenopodium album*, *Philaris minor*, *Digera arvensis* are classified under the _____ weeds
- (a) Annual
 - (b) Biennial
 - (c) Perennial
 - (d) Grasses

62. Dodder or *Cuscutta* spp., broomrape or *Orobancha* spp. and witchweed or *Striga* spp. falls under the _____ weeds
- (a) Aquatic (b) Parasitic
(c) Herbaceous (d) Grassland
63. The factors leading to introduction of several weed species in India include
- (a) Development of livestock industry (b) Long distance travel by birds
(c) Import of food grains and agricultural seeds (d) All of these
64. For control of noxious weeds like *Lantana*, *Saccharum* and *Striga* spp., the most effective method is
- (a) Selective control (b) Quarantine measures
(c) Weed eradication (d) All of these
65. This herbicide do not injure non-green, woody stems of fruit trees and hence can be sprayed in tree rings
- (a) Paraquat (b) Alachlor
(c) Glyphosate (d) Lenacil
66. 2,4-dichlorophenoxy acetic acid or 2,4-D is a selective postemergence herbicide used for control of _____ weeds
- (a) Grass (b) Broadleaf
(c) Perennial (d) Annual
67. The common name for *N'*-3,4-dichlorophenyl-*N,N'*-dimethylurea which is primarily a soil active herbicide to control annual grasses, is
- (a) Bromacil (b) Fluometuron
(c) Diuron (d) Isoproturon
68. Farm management is _____ oriented
- (a) Crop (b) People
(c) Livestock (d) Income
69. Which of the following is not a characteristic for a good typical farm plan?
- (a) Use latest agricultural methods and practices
(b) Utilize farmer's knowledge, training and experience
(c) Efficient use of farm resources
(d) Accommodate high risk and avoid flexibility
70. Estimating the outcome or returns of a farm for a part of the business, that may also be used in aid to full budgeting, it is referred to as
- (a) Partial budgeting (b) Enterprise budgeting
(c) Complete budgeting (d) None of these
71. The cost of those non-recurring in nature including cost of tractor and other machinery, buildings, irrigation structures, etc are termed in the farm management concept, as
- (a) Variable cost (b) Fixed cost
(c) Machinery cost (d) Building cost

72. The main focus for an efficient Farm management, besides other factors, will be
- (a) Supervising and handling day-to-day routine of a farm
 - (b) Increasing crop yield
 - (c) Increasing the farm income through sound business organization
 - (d) Upgradation of farm technologies
73. Which of the following is a component of contract farming in horticulture crops?
- (a) Regular/Steady supply of crops
 - (b) Pre-agreed prices of pre-determined quality product
 - (c) Pre-planned supply schedule
 - (d) All of these
74. The announcement of EXIM policy of 2004-2009 came up with export promotional measures; and among this, the policy that aims to promote export of fruits, vegetables, flowers and other value-added products is the
- (a) Towns of Export Excellence
 - (b) Target Plus
 - (c) Vishesh Krishi Gram Udyog Yojana
 - (d) Horti-Export Excellence
75. Motivation refers to goal-directed behaviour, what a person will choose to do when several alternatives are available to him. It also refers to....
- (a) The strength for exercising the choice, and the persistence with which he will engage in such behaviour
 - (b) His focus on clear cut goals
 - (c) The willingness to play leadership roles for project execution
 - (d) His ability to co-ordinate several tasks under various circumstances
76. In a certain code KINETIC is written as TICDKIN. How is MACHINE written in that code?
- (a) ENIGMAC
 - (b) INEGMAC
 - (c) INEGCAM
 - (d) ENIGCAM
77. Which among the option below comes at third place in the English Dictionary?
- (a) Monarchy
 - (b) Monastic
 - (c) Monetary
 - (d) Moneyed
78. How many meaningful English words can be made from the letters EAP, using each letter only once in each word?
- (a) None
 - (b) One
 - (c) Three
 - (d) Two

Direction for Qs. 79 & 80 : Select which one is odd.





81. In how many different ways can the letters of the word 'DREAM' be arranged?
- (a) 720 (b) 240
(c) 360 (d) None of these

Directions for questions 82 & 83: Study the following information carefully and answer the questions given below:

A, B, C, D, E, F, G, H and K are sitting around a circle facing the Centre. F is fourth to the right of A who is third to the right of B. K is fourth to the left of B and third to the right of D. C is third to the right of H. E is second to the left of G.

82. Who is to the immediate right of F?
- (a) B (b) G
(c) E (d) Data inadequate
83. In which of the following combinations is the third person sitting between the first and the second Persons?
- (a) GFB (b) BGH
(c) ADC (d) EGF
84. As 'LOGIC' is related to 'BHFNK', similarly 'CLERK' is related to-
- (a) JQDKB (b) QBKJA
(c) LPRTU (d) None of these
85. Which should come next in the following letter Series?
- ACFHKMPRUW?
- (a) Y (b) Z
(c) T (d) G
86. What will be the average of the following set of scores?
- 59, 87, 67, 101, 63, 59, 61
- (a) 62 (b) 71
(c) 75 (d) 52
87. What is the LCM of 12, 18, and 15?
- (a) 240 (b) 120
(c) 180 (d) None of these
88. What will be the circumference of a circle whose radius is 14 cm?
- (a) 88 cm (b) 140 cm
(c) 21 cm (d) None of these

89. 12% of 1300 =?
(a) 480 (b) 140
(c) 156 (d) 180
90. The speed of a train is 60 km/hr. The driver exceeds the speed of train by 12 km/hr. What is percent gain in speed of train? ·
(a) 15 (b) 20
(c) 25 (d) None of these

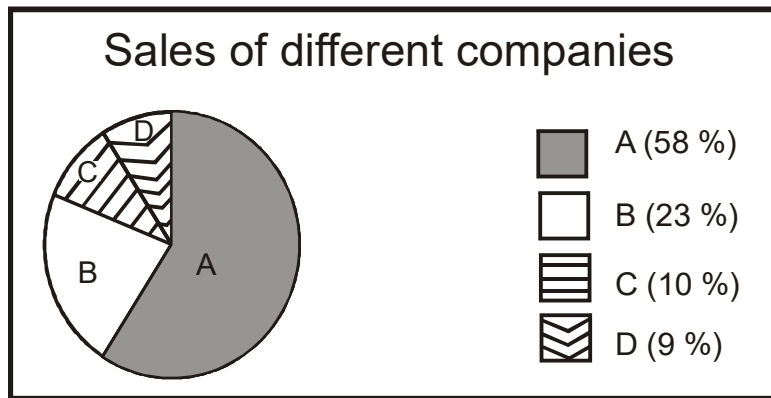
Directions for Qs.91 to 93: These questions refer to the following table showing the expenditure distribution of a certain family:

Table-EXPENDITURE DISTRIBUTION OF A CERTAIN FAMILY

S.No.	Item	Distribution of expenditure (%)
1	Rent	20
2	Food	30
3	Entertainment	10
4	Clothing	10
5	Transport	15
6	Taxes	10
7	Miscellaneous	5

91. If the family spends Rs. 50000/- per month, how much are its annual taxes?
(a) Rs. 37,800/- (b) Rs. 60000/-
(c) Rs. 45000/- (d) None of these
92. If in a particular month family spend Rs 4000/- on clothing, what will be the total expenditure for that month?
(a) Rs15000/- (b) Rs 25000/-
(c) Rs40000/- (d) None of these
93. If family spends Rs 30000/- per month, how much more money per month is spent by the family on food as compared to the rent?
(a) Rs. 3000/- (b) Rs. 3500/-
(c) Rs. 2750 (d) None of these

Directions for Qs.94 & 95: These questions refer to the following graph showing the sales of different companies:



94. If the total sales of companies is are Rs 50000. How much company B and C is selling ?
(a) Rs. 20000/- (b) Rs. 16500/-
(c) Rs. 2750/- (d) None of these
95. If the total sales of companies is are Rs 50000. What is the difference between maximum and minimum selling companies?
(a) Rs. 20000/- (b) Rs. 16500/-
(c) Rs. 24500/- (d) None of these
96. Old woman's son is my daughter's uncle, then what relation has the old woman to me?
(a) Sister (b) Mother
(c) Grandmother (d) Mother - in - law
97. Chose the odd one
(a) Pear (b) Apple
(c) Orange (d) Guava
98. Identify the pair which 'does not' exhibit the same relationship as the capitalized pair:
ETYMOLOGY: WORDS
(a) Psychology : Mind (b) Anatomy : Body
(c) Philosophy: Language (d) None of these
99. Which one of the pair is different from other pairs?
(a) Permission-Obstruction (b) Abundant-Replete
(c) Convergent-Divergent (d) Transparent-Opaque
100. Rempuii is prettier than Kimi but not as pretty as Mapuii, Then,
(a) Kimi is not as pretty as Rempuii (b) Kimi is prettier than Mapuii
(c) Mapuii is not as pretty as Rempuii (d) Rempuii is prettier than Mapuii