

MIZORAM PUBLIC SERVICE COMMISSION

TECHNICAL COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF GRADE-V OF MIZORAM HORTICULTURE SERVICE UNDER GOVERNMENT OF MIZORAM. MAY, 2014

TECHNICAL SUBJECT PAPER – III

Time Allowed : 2 hours

Full Marks : 200

All questions carry equal marks of 2 each.

Attempt all questions.

1. Benzoic acid and SO_2 are added to preserve fruit and vegetable products with an objective to
 - (a) check microorganism activity
 - (b) decrease ethylene production
 - (c) reduce acidity
 - (d) None of these
2. The sparkling clear liquid free from all suspended solid is called as
 - (a) Concentrate
 - (b) Cordial
 - (c) Squash
 - (d) Beverage
3. Phenolic constituents such as tannins present in fruitsduring ripening
 - (a) increases
 - (b) decreases
 - (c) remains constant
 - (d) becomes zero
4. The enzyme responsible for conversion of starch to sugar in the process of ripening is
 - (a) Amylase
 - (b) Pectinase
 - (c) Lipase
 - (d) Cellulose
5. When susceptible tissues of some fruits and vegetables are injured at a temperature below 15°C , it is referred to as
 - (a) Chilling injury
 - (b) Freezing injury
 - (c) Discolouration
 - (d) Tissue breakdown
6. The approximate lowest safe temperature for storage of banana is
 - (a) 10°C
 - (b) 13°C
 - (c) 15°C
 - (d) 18°C
7. Vinegar is a solution that contains 2% of
 - (a) Citric acid
 - (b) Malic acid
 - (c) Acetic acid
 - (d) Oxalic acid
8. A commonly used preservative, that is a stable source of sulphur dioxide is
 - (a) Citric acid
 - (b) Monosodium glutamate
 - (c) Sodium Benzoate
 - (d) Potassium metabisulphite
9. Jam should contain at least of sugar
 - (a) 50%
 - (b) 60%
 - (c) 70%
 - (d) 80%

10. Pre cooling is related to
(a) Fruit preservation (b) Tissue culture
(c) Cut flower (d) Flower arrangement
11. Waxing is done to reduce
(a) Transpiration (b) Respiration
(c) Both of these (d) None of these
12. Vapour Heat Treatment was developed specially to control infections of fruits byafter harvest
(a) Fruit flies (b) Seed weevil
(c) Fruit borers (d) Anthracnose
13. Increase in Ethylene production with ripening is characteristic of
(a) Climacteric Fruit (b) Non-climacteric fruit
(c) Both of these (d) None of these
14. In Controlled Atmosphere Storage, metabolic activities are checked and ripening is slowed down by
(a) increasing Oxygen and reducing Carbondioxide level
(b) increasing both Oxygen and Carbondioxide level
(c) reducing both Oxygen and Carbondioxide level
(d) reducing Oxygen and increasing Carbondioxide level
15. Inactivation of enzymes is done by
(a) Canning (b) Freezing
(c) Blanching (d) Dehydration
16. The most suitable fruits for cordial preparation are
(a) Bael and Grape (b) Tomato and Mandarin
(c) Lime and Lemon (d) Pummelo and Grapefruit
17. "Syneresis" of jelly occurs due to
(a) Excess of acid (b) Over cooking
(c) Over cooling (d) Excess sugar
18. Pureline theory, one that provided the genetic basis for individual plant selection was proposed by
(a) Johanssen (b) Gregor Mendel
(c) G.H.Shull (d) Joseph Koelreuter
19. Nobilisation of sugarcanes was one of the notable achievement of plant breeders in this country
(a) U.S.A (b) Italy
(c) Japan (d) India
20. Cleistogamy favours
(a) Self pollination (b) Cross pollination
(c) Both (d) None of these
21. Femaleness in papaya is controlled by genotype
(a) M1M (b) M2M
(c) mm (d) M1M2

22. A cross between F_1 hybrid with any of its parent is known as
(a) Back cross (b) Hybridization
(c) Crossing over (d) Test cross
23. In bulk method, F_2 and subsequent generations are harvested
(a) Individually (b) In mass
(c) Randomly (d) Any of these
24. When flowers of different incompatibility groups are different in morphology, the type of self-incompatibility is
(a) Heteromorphic system (b) Homomorphic system
(c) Gametophytic control (d) Sporophytic control
25. The development of new crop species *Triticale* from a cross between *Triticum* sp. and *Secale cereale* is a result of
(a) Interspecific hybridization (b) Intervarietal hybridization
(c) Intergeneric hybridization (d) None of these
26. Functional male sterility is controlled by
(a) Dominant gene (b) Recessive gene
(c) Cytoplasm (d) Jumping gene
27. The ability of the plant cell to perform all the functions of development, which are characteristics of zygotes is called
(a) Development (b) Regeneration
(c) Totipotency (d) Sustainance
28. The first genetically modified crop introduced in India for commercial cultivation is
(a) Bt Brinjal (b) Bt Cotton
(c) Golden Rice (d) Herbicide resistant Soyabean
29. 'Golden rice' were produced through genetic engineering techniques, in which there is an expression of enzymes ofpathway in rice endosperm
(a) α -carotene (b) β -carotene
(c) Folic acid (d) Tocopherol
30. Genetically Modified (GM) foods may include
(a) Foods that contain added gene sequence (b) Foods that have a deleted gene sequence
(c) Animal products from animals fed GM feed (d) All of these
31. The cells containing nucleus of one species but cytoplasm from both the parental species is
(a) Hybrids (b) Symmetric hybrids
(c) Cybrids (d) None of these
32. Notification on mandatory labeling of GM products, 2005 was given by
(a) Ministry of Agriculture and Rural Development
(b) Ministry of Environment and Forest
(c) Ministry of Human Resource Development
(d) Ministry of Health and Family Welfare

33. Which portion of the plant is considered free from viruses and hence used to produce virus free plants?
- (a) Cambium (b) Embryo
(c) Meristem (d) Xylem
34. Fruit crop that is commercially micro-propagated in India is
- (a) Mango (b) Guava
(c) Banana (d) Jackfruit
35. The diffusion of solvent particles into a living cell or structure because of higher osmotic pressure (hypertonic solution) is called
- (a) Endosmosis (b) Exosmosis
(c) Turgor pressure (d) Imbibitions pressure
36. Maximum absorption of water by the plant roots take place in the
- (a) Tap roots (b) Root hairs
(c) Branch roots (d) Lateral roots
37. Which of the following theory explains the mechanism of ascent of sap?
- (a) Vital theory (b) Root pressure theory
(c) Physical theory (d) All of these
38. Plants treated with high light intensities, low water levels, high phosphorus and low nitrogenous fertilizers show
- (a) Heat resistance (b) Drought hardiness
(c) Salt tolerance (d) Frost resistance
39. Hatch-Slack cycle of photosynthesis is present in
- (a) C₃ plant (b) C₄ plant
(c) Both (d) None of these
40. Glycolate theory of stomatal opening and closing was proposed by
- (a) Zelitch (1963) (b) Health and Orchard (1956)
(c) Levitt (1974) (d) Von Mohl (1856)
41. When absorption of water greatly exceeds transpiration, excess water escape through the scars of leaves and lenticels is called
- (a) Incipient Wilting (b) Transient wilting
(c) Guttation (d) Stem bleeding
42. The main objectives of Front Line Demonstration is
- (a) To demonstrate newly released crops production and protection technologies and its management practices in farmers field under different agro climatic regions
(b) To demonstrate high yielding hybrids of crops to resource poor farmers in fragile ecosystem
(c) To assist the farmers to absorb the technology within a short span of time
(d) All of these
43. Who is known as father of Extension Education?
- (a) Paul Legans (b) Seaman A Knapp
(c) Edgar Dale (d) James Stewatt

44. Extension helps people to
(a) increase their income (b) draw funds from the government
(c) help themselves (d) all of these
45. The first KVK in India was established at
(a) Delhi (b) Rajasthan
(c) Pondicherry (d) Ranchi
46. Rural Development programme should be formed to meet
(a) Short term changes (b) Emergent situations
(c) Long term changes (d) All of these
47. Main objective of 'Training and Visit' system was
(a) Coordinating research training and extension (b) Local need based research
(c) Extension training programme (d) All of these
48. Lab to land Programme was a part of
(a) Ministry of Agriculture Silver Jubilee Year
(b) Birth anniversary of Charan Singh
(c) ICAR Golden Jubilee Year
(d) Celebration of Jai Jawan and Jai Kishan movement
49. Which of the following is not concerned with Participatory Rural Appraisal (PRA)?
(a) Mapping (b) Sondeo
(c) Transact walk (d) Crop calendar
50. Tractor is particularly suitable for use in farmer's fields because
(a) it has high efficiency which is similar to that of two bullocks working together
(b) it is designed to allow attachment of various implements for field works
(c) it has specially designed engine to permit long hours of hard work on adverse weather
(d) all of these
51. Which of the following is a device used in Tractor drawn seed drill?
(a) Fluted rollers (b) Double run type
(c) Cup feed type (d) All of these
52. Minimum tillage is a method of soil preparation which
(a) involves disturbing the soil as little as possible (b) increases the risk of soil erosion
(c) uses proper amount of fertilizers (d) minimum input is done on farm machinery
53. The use of tractor is economic only when it is utilized for a minimum of
(a) 500 hours a year (b) 1000 hours a year
(c) 1500 hours a year (d) 2000 hours a year
54. Which of the following is not a primary tillage practice?
(a) Ploughing (b) Planking
(c) Harrowing (d) Weeding
55. The implement used to break hardpans in sub soil is
(a) Disc harrows (b) Rippers
(c) Spiked harrows (d) Chisel plough

56.has a beneficial effect on symbiotic nitrogen fixation by leguminous plants, and increases resistance of plants to various abiotic and biotic stresses.
- (a) Nitrogen (b) Phosphorus
(c) Potassium (d) Calcium
57. Highly hygroscopic fertilizer is
- (a) Ammonium chloride (b) Ammonium nitrate
(c) Urea (d) CAN
58. The nitrogen percentage in CAN (Calcium ammonium nitrate) is
- (a) 20.6 (b) 46.0
(c) 25.0 (d) 26.0
59. The Integrated Nutrient Management (INM) includes use of
- (a) Organic manures (b) Chemical fertilizers
(c) Nitrification inhibitors (d) All of these
60. Bitter pit in apple is caused by the deficiency of
- (a) Ca (b) Mg
(c) Mo (d) B
61. Nitrogen application for horticulture crops is mostly done in split doses because
- (a) it is better absorbed this way
(b) the requirement varies with the soil and climatic conditions
(c) it gets lost easily
(d) it is expensive and hence more economical this way
62. The NE hill region of India which have undulating topography and steep slopes, usually havesoils.
- (a) Acidic (b) Alkali
(c) Saline (d) Lateritic
63. Magnesium deficiency of citrus is chiefly associated withsoils
- (a) Alkaline (b) Acidic and highly leached
(c) Water logged (d) Extremely dry
64. The bacteria considered most important for bringing about conversion of NH_4^+ to NO_2^-
- (a) Nitrosomonas (b) Nitrobacter
(c) Both (a) and (b) (d) Azotobacter
65. D-leaf is the best indicator of nutrient status in
- (a) Banana (b) Pineapple
(c) Mango (d) Citrus
66. Availability of phosphorus is maximum at soil pH
- (a) Neutral (b) Acidic
(c) Alkaline (d) All of these
67. Nitrogen is taken up by plants in the form of
- (a) Chloride (b) Oxide
(c) Nitrate (d) None of these

68. Salt tolerant crop among the following is
- (a) Mango (b) Date Palm
(c) Loquat (d) Aonla
69. Which of the following is an example of biennial weed?
- (a) *Phalaris minor* (b) *Cyperus rotundus*
(c) *Alternanthera pungens* (d) *Convolvulus arvensis*
70. Which of the following is a non selective herbicide?
- (a) Alachlor (b) Butachlor
(c) Paraquat (d) Atrazine
71. Mulching alonecontrol perennial weeds.
- (a) will effectively (b) will partially
(c) will not (d) is sufficient to
72. Butachlor and Propanil belong to which group of herbicides?
- (a) Carbamates (b) Aliphatic
(c) Amides (d) Ureas
73. Farm management deals with maximization of farming income. The ultimate aim or focus is upgradation of
- (a) The crop production (b) The livestock population
(c) The farmer's living standard (d) The monetary returns
74. Which of the following is not an advantage of farm budgeting?
- (a) It considers the farm as a unit and all resources and enterprises simultaneously
(b) It may allow for substitution relationship between resources
(c) It does not allow for the complementary, supplementary or competitive relationship between enterprises
(d) It draws attention to the multitude of factors affecting farm earning
75. On calculating cost of cultivation of a farm, the cost of seeds, fertilizers and pesticides, etc are included in the
- (a) Fixed cost (b) Variable cost
(c) Floating cost (d) Consumable cost
76. One night 18 percent of the female officers on a police force were on duty. If 180 officers were on duty that night and half of those were female officers, how many female officers were on the police force?
- (a) 90 (b) 180
(c) 270 (d) 500
77. Today is Mary's birthday. One year from today she will be twice as old as she was 12 years ago. How old is Mary today?
- (a) 20 yrs (b) 22 yrs
(c) 25 yrs (d) 27 yrs
78. In what ratio must water be mixed with milk costing Rs.12 per litre to obtain a mixture worth of Rs. 8 per litre?
- (a) 1:2 (b) 2:1
(c) 2:3 (d) 3:2

79. A machine takes 3 seconds to fix the cap on bottle of milk. If it works for 10 minutes, how many caps will it fix?
- (a) 100 (b) 200
(c) 300 (d) 250
80. In the series given below, pick out the correct answer to fill the blanks
3 8 23 68 203 _____
- (a) 608 (b) 609
(c) 610 (d) 607
81. It costs Rs.50 to make 7 envelopes. If the envelopes are sold at Rs.8 each, what is the profit that is made on each envelope?
- (a) Rs.0.77 (b) Rs.0.84
(c) Rs.0.86 (d) Rs.0.88
82. Average of 13 numbers is calculated as 30. It is discovered later on that while calculating the average, one number viz. 35 was incorrectly read as 22. The correct average is
- (a) 28 (b) 29
(c) 31 (d) 32
83. A shopkeeper bought an article for Rs 400 and sold it for Rs 460. What is his gain or loss percent?
- (a) 20% (b) 25%
(c) 15% (d) 30%

Directions (Q 84 to 86)

In each question below is given a statement followed by two or three conclusions. You have to assume everything in the statement to be true, then consider the conclusions and decide which of them logically follows beyond a reasonable doubt from the information given in the statement.

84. (1) All locks are keys.
(2) All keys are bats.
(3) Some clocks are bats.
Conclusion:
I. Some bats are locks.
II. Some clocks are keys.
III. All keys are locks.
- (a) Only I and II follows (b) Only II and III follows
(c) Only I follows (d) Only II follows
85. Death keeps no calendar.
Conclusion:
I. Men must die one day.
II. Death can come at any time.
- (a) Only I follows (b) Only II follows
(c) Neither I nor II follows (d) Both I and II follows

86. Wind is an inexhaustible source of energy and an aero-generator can convert it into electricity. Though not much has been done in the field, the survey shows that there is vast potential for developing wind as alternative source of energy.

Conclusion:

I. Energy by wind is comparatively newly emerging field.

II. The energy crisis can be dealt by exploring more in the field of aero generation.

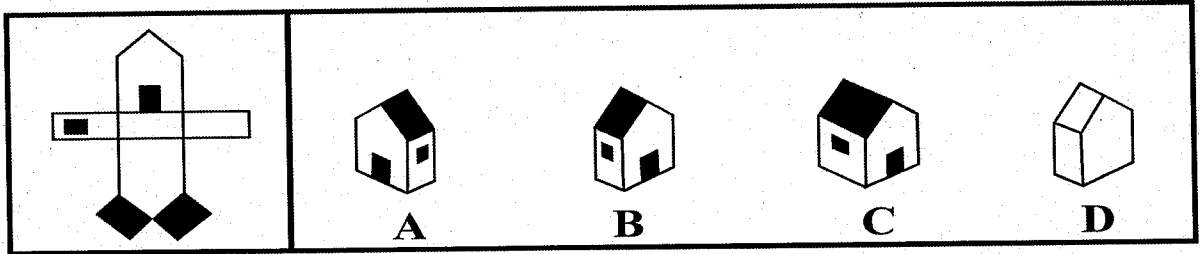
- (a) Only I follows (b) Only II follows
(c) Both I and II follows (d) Neither I nor II follows

Directions (Q 87 to 90)

In the following questions, the last word is omitted, and a blank space is provided in its place. Pick out the word which will fill the blanks so that the sentences will be true and sensible.

87. Apple is to tree as melon is to _____
(a) vine (b) water
(c) ripe (d) sweet
88. Pod is to pea as shell is to _____
(a) rifle (b) nut
(c) crack (d) peel
89. Each is to all as part is to _____
(a) separate (b) whole
(c) role (d) many
90. Halt is to proceed as stop is to _____
(a) prevent (b) bottle
(c) gone (d) go

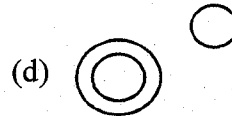
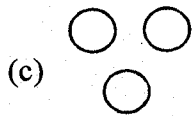
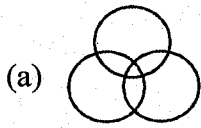
95.



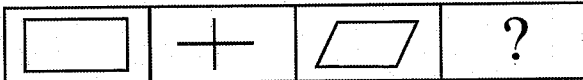
Problem figure

Answer figure

96. Which of the following correctly represents river, canal and perennial source of water?

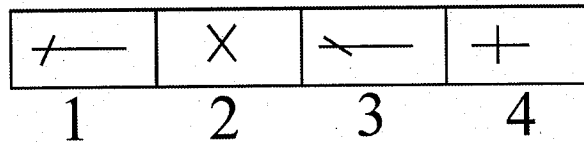


97.



Select a suitable figure from the answer figures that

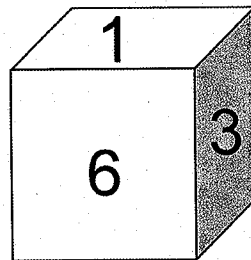
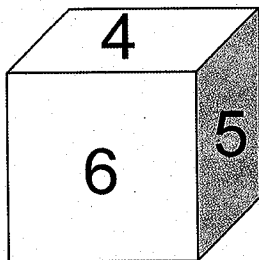
would replace the question mark (?).



- (a) 1
(c) 3

- (b) 2
(d) 4

98. Two positions of a dice are shown below. Identify the number at the bottom when the top is 3.



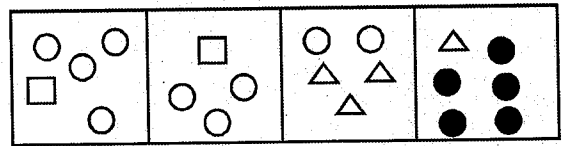
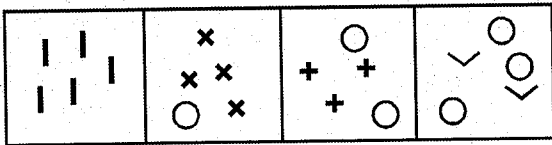
- (a) 2
(c) 5

- (b) 4
(d) 6

Directions (Q 99 to 100)

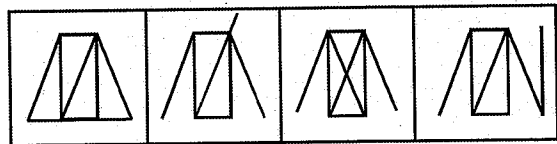
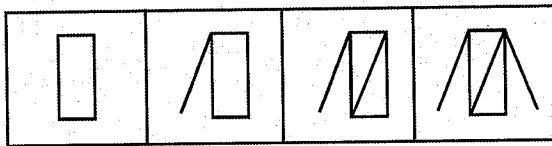
The rows of designs or figures below have four problem figures which make a series. The fifth figure is missing. Choose the right figure from among the answer figures, which belongs next in the series.

99.



A B C D

100.



A B C D

* * * * *