MIZORAM PUBLIC SERVICE COMMISSION

COMMON COMPETITIVE EXAMINATION FOR ASSISTANT AUDIT & ACCOUNTS OFFICER AND ASSISTANT ACCOUNTS OFFICER UNDER FINANCE DEPARTMENT, GOVERNMENT OF MIZORAM, SEPTEMBER-2024

ARITHMETIC

Time Allowed : 3 hours FM : 100

All questions carry equal mark of 1 each.
Attempt all questions.

1. The value of $\sqrt{2}$ upto three places of decimal is –
(a) 1.414 (b) 1.413
(c) 1.412 (d) 1.410

2. The smallest perfect square number which is divisible by 15, 24 and 25 is –
(a) 9604 (b) 2025
(c) 900 (d) 3600

3. The number 675 is to be multiplied by which smallest number so that the resulting number will become a perfect cube?
(a) 5 (b) 6
(c) 7 (d) 8

4. The value of 0.5777..... is –
(a) $\frac{57}{10}$ (b) $\frac{57}{99}$
(c) $\frac{26}{45}$ (d) $\frac{52}{99}$

5. $\frac{\sqrt{7}+\sqrt{5}}{\sqrt{7}-\sqrt{5}}$ is equal to –
(a) $6-\sqrt{35}$ (b) $6+\sqrt{35}$
(c) 7 (d) 6

6. The HCF of two numbers is 16 and their LCM is 160. If one of the numbers is 32, then the other number is –
(a) 48 (b) 80
(c) 96 (d) 112

7. The number of terms in the sequence 4, 11, 18, ..., 186 is –
(a) 17 (b) 25
(c) 26 (d) 27

8. The 8^{th} term of the Arithmetic progression 9, 6, 3, 0, ... is –
(a) –3 (b) –6
(c) –12 (d) –15

9. Rama gets 49% marks in an examination obtaining 294 marks. The percentage of marks obtained by his friend in the same examination, who scores 372 marks is –
   (a) 60% (b) 62%
   (c) 72% (d) 75%

10. If the length of a rectangle is increased by 20% and the breadth is decreased by 20%, then the area decreases by –
   (a) 2% (b) 3%
   (c) 4% (d) 5%

11. A shopkeeper sells two shirts at ₹1995 each. On one he gains 5% and on the other he loses 5%. His gain or loss in the whole transaction is –
   (a) 0.25% loss (b) 0.25% gain
   (c) 2.5% loss (d) 2.5% gain

12. What rate percent is one minute 48 seconds to an hour?
   (a) 2% (b) 3%
   (c) 4% (d) 5%

13. Three numbers are in the ratio 2:3:5. If the sum of their squares is 1862, then the first number is –
   (a) 35 (b) 21
   (c) 14 (d) 7

14. Two numbers are in the ratio 2:3 and if 8 is added to each of them, they become in the ratio 3:4. The numbers are –
   (a) 2 and 3 (b) 4 and 6
   (c) 8 and 12 (d) 16 and 24

15. The average height of 30 students out of a class of 40 is 160 cm and that of the remaining students is 156 cm. The average height of the whole class is –
   (a) 159 cm (b) 158 cm
   (c) 157 cm (d) 156 cm

16. The mean of ten numbers is 40. If the mean of the first five is 42 and that of the last four is 35, the 6^{th} number is –
   (a) 35 (b) 40
   (c) 42 (d) 50

17. The mean weight of 5 men is increased by 1 kg when one of them, whose weight is 60 kg, is replaced by a new man. The weight of the new man is –
   (a) 65 kg (b) 60 kg
   (c) 55 kg (d) 50 kg

18. Two pipes fill a tank in 10 hours and 12 hours respectively, while a third pipe empties the full tank in 20 hours. If all the three pipes operate simultaneously, in how much time the tank will be filled?
   (a) 7 hours (b) 7 ½ hours
   (c) 8 days (d) 8 ½ hours

19. If 8 men can reap 80 hectares in 24 days, how many hectares can 36 men reap in 30 days?
   (a) 400 hectares (b) 450 hectares
   (c) 460 hectares (d) 480 hectares

20. The speed of a moving car is 36 km/hr. This speed in m/sec is –
   (a) 10 (b) 15
   (c) 20 (d) 25

21. Two persons start from the same place and walk in opposite directions at 5 km/hr and 4 km/hr respectively. At the end of 3 hours, the distance between them is –

(a) 25 km (b) 27 km
(c) 30 km (d) 32 km

22. 'A' and 'B' are 30 km apart and walk towards each other. 'A' is walking at the rate of 4 km/hr and 'B' at 6 km/hr. They will meet after –

(a) 1 hour (b) 2 hours
(c) 3 hours (d) 4 hours

23. While walking at $\frac{3}{5}$ of the usual speed, a man reaches his destination 10 minutes late. What is his usual time to reach his destination?

(a) 12 minutes (b) 15 minutes
(c) 18 minutes (d) 20 minutes

24. Liana's age is 16 years and his elder sister's age is 21 years. After how many years will the sum of their ages be 51 years?

(a) 15 years (b) 11 years
(c) 7 years (d) 5 years

25. On a plane ground, a man walks 18 m due south then he turns to left and walks 6 m due east. He again turns to left and walks 10 m due north. How far is he now from the starting point?

(a) 2 m (b) 6 m
(c) 8 m (d) 10 m

26. A sum of money becomes ₹2420 in 2 years and ₹2662 in 3 years. If interest is compounded annually, the rate of interest is –

(a) 5% p.a. (b) 8% p.a.
(c) 10% p.a. (d) 12% p.a.

27. If the perimeter of a circle is numerically equal to the perimeter of a square, then the areas are in the ratio (take $\pi = \frac{22}{7}$) –

(a) 11:7 (b) 14:11
(c) 4:1 (d) 22:7

28. The length of the longest pole that can be kept in a room of dimensions (12m × 9m × 8m) is –

(a) 29 m (b) 21 m
(c) 19 m (d) 17 m

29. The volume of a cubical solid is 2744 cm^3. Its surface area is –

(a) 1176 cm^2 (b) 784 cm^2
(c) 588 cm^2 (d) 196 cm^2

30. How many bricks, each measuring (25cm × 11.25cm × 6cm) will be required to construct a wall of dimensions (8cm × 6cm × 22.5cm) if $\frac{1}{10}$ of the volume of the wall is occupied by cement mortar?

(a) 8000 (b) 6400
(c) 5760 (d) 5600

31. A kite is flying at a certain height from the horizontal ground. The thread 100 m long, attached to the kite is tied to the point on the ground. The inclination of the thread with the ground is 30°. How high from the ground is the kite flying?

(a) 100 m (b) 80 m
(c) 60 m (d) 50 m

32. In tossing two coins, the probability of getting two heads is –

(a) $\frac{1}{2}$ (b) $\frac{1}{3}$

(c) $\frac{1}{4}$ (d) $\frac{1}{8}$

33. A bag contains 4 white and some red balls. If the probability of drawing a red ball at random is double that of drawing a white ball, the number of red balls in the bag is –

(a) 8 (b) 6

(c) 4 (d) 2

34. In a committee, 32 people speak Hindi, 14 speak English and 8 speak both Hindi and English. How many speak at least one of the two languages?

(a) 36 (b) 38

(c) 40 (d) 46

35. In a survey of 200 students in a school, it was found that 125 like orange, 90 like apple and 60 like both orange and apple. How many like neither orange nor apple?

(a) 60 (b) 56

(c) 50 (d) 45

36. The cost of a mobile handset is ₹20,000. A lady purchased it by paying ₹12,000 and the balance is to be cleared in two equal instalments of ₹4500 each. What is the total interest charged under the instalment scheme?

(a) ₹9000 (b) ₹8000

(c) ₹4000 (d) ₹1000

37. If $(x-2)$ is a factor of x^3-2ax^2+ax-1, then the value is –

(a) $\frac{6}{7}$ (b) $\frac{7}{6}$

(c) $\frac{-6}{7}$ (d) $\frac{-7}{6}$

38. If x^3+x^2-2x-3 is divided by $x+2$, the remainder is –

(a) –5 (b) 5

(c) –3 (d) 3

39. Metallic spheres of radii 3 cm, 4 cm and 5 cm respectively are melted to form a single solid sphere. The radius of the resulting sphere is –

(a) 6 cm (b) 12 cm

(c) 18 cm (d) 24 cm

40. The value of $\sqrt[4]{81}-8\sqrt[3]{216}+15\sqrt[5]{32}+\sqrt{225}$ is –

(a) 0 (b) –1

(c) 1 (d) 2

41. The median class of the following frequency distribution table is –

Class	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50	50 - 60	60 - 70
Frequency	4	4	8	10	12	8	4

(a) 40 – 50 (b) 30 – 40

(c) 50 – 60 (d) 10 – 20

42. The difference between two whole number is 66 and their ratio is 2 : 5. The two numbers are –

(a) 44 and 110 (b) 110 and 176

(c) 176 and 242 (d) 242 and 308

43. Liana is twice as old as Mawii. Five years ago his age was three times Mawii's age. Find the present age of Liana.

(a) 10 years (b) 20 years

(c) 30 years (d) 40 years

44. Find the smallest multiple of 2352 which is a perfect square.

(a) 4761 (b) 9409

(c) 4704 (d) 7056

45. The list price of a shirt is ₹220. A discount of 20 % is announced on festival sale. What is the selling price of the shirt?

(a) ₹200 (b) ₹176

(c) ₹198 (d) ₹154

46. A TV is bought for ₹13500 including VAT of 8 %. The price of the TV before VAT is –

(a) ₹12000 (b) ₹12200

(c) ₹12500 (d) ₹13000

47. A shopkeeper buys 80 articles for ₹2400 and sells them for a profit of 10 %. Find the selling price of one article.

(a) ₹33 (b) ₹27.27

(c) ₹2640 (d) ₹2181.82

48. Arrange $\frac{-3}{10}, \frac{7}{-15}, \frac{-11}{20}, \frac{17}{-30}$ in decending order.

(a) $\frac{17}{-30} > \frac{-11}{20} > \frac{7}{-15} > \frac{-3}{10}$ (b) $\frac{-11}{20} > \frac{7}{-15} > \frac{-3}{10} > \frac{17}{-30}$

(c) $\frac{7}{-15} > \frac{-11}{20} > \frac{17}{-30} > \frac{-3}{10}$ (d) $\frac{-3}{10} > \frac{7}{-15} > \frac{-11}{20} > \frac{17}{-30}$

49. The additive inverse of $\frac{15}{-4}$ is –

(a) $\frac{-4}{15}$ (b) $\frac{4}{-15}$

(c) $\frac{15}{4}$ (d) $\frac{-15}{4}$

50. After reading $\frac{7}{9}$ of a book, Rema left 40 pages. How many pages he read?

(a) 180 (b) 140

(c) 120 (d) 100

51. Find the least number which must be subtracted from 7250 to get a perfect square.

(a) 25 (b) 20

(c) 85 (d) 146

52. Evaluate : $\sqrt{\sqrt[3]{\sqrt{4096}}}$.

(a) 4 (b) 2

(c) 6 (d) 3

53. $\sqrt{50}+\sqrt{8}-\sqrt{18}=?$

(a) $2\sqrt{2}$ (b) $3\sqrt{2}$

(c) $4\sqrt{2}$ (d) $5\sqrt{2}$

54. If 45% of the students in a school are boys and the number of girls in the school is 605. How many boys are there in the school ?

(a) 495 (b) 650

(c) 425 (d) 475

55. A wire, when bent in the form of a square, encloses an area of 121 cm^2. The same wire is bent in the form of a circle, find the radius of the circle.

(a) 5 cm (b) 7 cm

(c) 9 cm (d) 11 cm

56. 1 km/hr is equal to –

(a) $\frac{5}{18}$ m/s (b) $\frac{18}{5}$ m/s

(c) $\frac{3}{50}$ m/s (d) $\frac{50}{3}$ m/s

57. A gun is fired at a distance of 4.3 km away from the man. If the sound of the gun fired is heard by the man after 10 seconds, find the speed at which sound travelled?

(a) 210 m/s (b) 320 m/s

(c) 430 m/s (d) 540 m/s

58. If Sanga can finish a piece of work in n days, the workdone by Sanga in 3 days is –

(a) $\frac{1}{n}$ (b) $\frac{1}{3n}$

(c) $\frac{n}{3}$ (d) $\frac{3}{n}$

59. A tank which has a leak in the bottom is filled in 12 hours. Had there been no leak in the bottom, it would have been filled in 10 hours. The leak can empty the tank in –

(a) 40 hours (b) 50 hours

(c) 60 hours (d) 70 hours

60. If $x+\frac{1}{x}=2$, then $x^3+\frac{1}{x^3}=?$

(a) 3 (b) –3

(c) –2 (d) 2

61. The radii of two right circular cylinder of the same height are in the ratio 3 : 5. Find the ratio of their volume.

(a) 3 : 5 (b) 5 : 3

(c) 9 : 25 (d) 7 : 25

62. Find the median using empirical formula if mode = 29 and mean = 38.

(a) 40 (b) 37

(c) 35 (d) 33

63. A bag contains 12 white balls and some green balls. If the probability of drawing a white ball from the bag is thrice that of the green ball. Find the number of green balls?

(a) 10 (b) 8

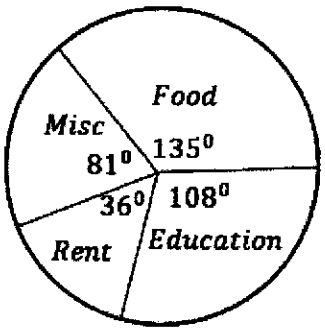
(c) 6 (d) 4

64. A card is drawn from a well-shuffled deck of 52 cards. Find the probability that a card drawn is neither a King nor a Queen.

(a) $\frac{12}{13}$ (b) $\frac{11}{13}$

(c) $\frac{10}{13}$ (d) $\frac{9}{13}$

Directions (Question Nos. 65 – 67) : The given pie-chart shows the monthly expenses of a family on four items. If ₹1600 was spend on Rent. Study the pie-chart and answer the questions that follow.



65. What is the total expenditure of the family?

(a) ₹14000 (b) ₹15000

(c) ₹16000 (d) ₹17000

66. Find the amount of expenditures on Education.

(a) ₹3600 (b) ₹6000

(c) ₹5400 (d) ₹4800

67. What is the difference between the expenses on Food and Rent?

(a) ₹4400 (b) ₹3200

(c) ₹2400 (d) ₹1200

68. How many two digit numbers which are divisible by 3?

(a) 28 (b) 30

(c) 33 (d) 36

69. If $p-2$, $p+1$ and $2p-1$ are in A.P. The value of p is –

(a) 1 (b) –1

(c) 5 (d) –5

70. In a class of 65 students, 40 like football, 10 like both football and hockey. How many like hockey only?

(a) 35 (b) 20

(c) 30 (d) 25

71. If A={a, b, c, d} and B={b, c, f}, then B–A= ?

(a) {b, f} (b) {f}

(c) {d} (d) {a, d}

72. The value of $tan23° \; tan33° \; tan45° \; tan57° \; tan67°$ is –

(a) $\frac{1}{\sqrt{3}}$ (b) $\sqrt{3}$

(c) 1 (d) 2

73. $9 \tan^2 A - 9 \sec^2$ is equal to –

(a) 0 (b) 1

(c) 9 (d) –9

74. The simplest form of $\frac{x^2-9}{x^2+x-6}$ is –

(a) $\frac{x-3}{x-2}$ (b) $\frac{x-3}{x+2}$

(c) $\frac{x+3}{x+2}$ (d) $\frac{x+3}{x-3}$

75. If a : b = 2 : 3 and b : c = 4 : 5, then a : b : c = ?

(a) 15 : 12 : 8 (b) 15 : 10 : 12

(c) 8 : 10 : 15 (d) 8 : 12 : 15

76. The L.C.M of two numbers is 48. The numbers are in the ratio 2 : 3. Find the sum of the numbers.

(a) 28 (b) 32

(c) 40 (d) 64

77. The product of the roots of the equation $(x-6)(x-5)=0$ is –

(a) –30 (b) 30

(c) 40 (d) 64

78. The discriminant (D) of a quadratic equation $2x^2-5x-3=0$ is –

(a) 49 (b) –49

(c) 1 (d) –1

79. The zeroes of the polynomial x^2-x-6 are –

(a) –1 and 6 (b) 1 and –6

(c) –2 and 3 (d) 2 and –3

80. The 8th term from the end of the A.P. 17, 14, 11, ... - 40 is –

(a) 19 (b) –19

(c) 29 (d) –29

81. The ladder 20 m long just reaches the top of a vertical wall. If the ladder makes 30° with the ground, find the height of the wall.

(a) 10 m (b) 20 m

(c) 30 m (d) 40 m

82. The value of -

$$441\div\left[270\div\frac{3}{7}+\left(17\div\frac{1}{3}\right)-\left(8\frac{1}{2}-\frac{5}{2}\right)\right]$$

(a) $\frac{49}{75}$ (b) $\frac{19}{75}$

(c) $\frac{39}{75}$ (d) $\frac{29}{75}$

83. $\frac{8.73\times8.73\times8.73+4.27\times4.27\times4.27}{8.73\times8.73-8.73\times4.27+4.27\times4.27}$ is equal to -

(a) 11 (b) 13

(c) $\frac{11}{7}$ (d) $\frac{13}{7}$

84. Find the least number of 6 digits which is a perfect square.

(a) 100089 (b) 100480

(c) 100489 (d) 100490

85. If $(46)^2$ is subtracted from the square of a number, the answer so obtained is 485. What is the number?

(a) 51 (b) 56

(c) 53 (d) 49

86. There are 40 children in a class in which boys are 4 more than the girls. If the average weight of all the students is 42.5 kg and the average weight of all the girls is 48 kg, then find the average weight of all the boys.

(a) 40 (b) 38

(c) 36 (d) 42

87. An article is sold for ₹642.60 after successive discount of 15% and 10%. What is the market price of the article?

(a) ₹840 (b) ₹820

(c) ₹880 (d) ₹800

88. In a school 10% of boys are equal to the one fourth of the girls. What is the ratio of boys and girls in that school?

(a) 5:2 (b) 3:2

(c) 2:1 (d) 4:3

89. Thanga spend 23% of an amount of money on an insurance policy, 33% on food, 19% on children's education and 16% on recreation. He deposits the remaining amount of ₹504 in bank. How much total amount does he spend on food and insurance policy together?

(a) ₹3, 200 (b) ₹3, 126

(c) ₹3, 048 (d) ₹3, 136

90. If $a:b=c:d=1:6$, then what is the value of $\frac{a^2+c^2}{b^2+d^2}=?$

(a) $\frac{1}{68}$ (b) $\frac{1}{36}$

(c) $\frac{1}{6}$ (d) $\frac{1}{16}$

91. The monthly incomes of X and Y are in the ratio 4:3 and their monthly expenditures are in the ratio 3:2. However each saves ₹12,000 per month. What is their total monthly income?

(a) ₹72,000 (b) ₹84,000

(c) ₹96,000 (d) ₹1,08,000

92. A and B can complete a job in 24 days working together. A alone can complete it in 32 days. Both of them worked together for 8 days and then A left. The number of days B will take to complete the remaining job is-

(a) 16 (b) 64

(c) 32 (d) 128

93. A and B can do a job together in 12 days. A is 2 times as efficient as B. In how many days can B alone completes the work?

(a) 18 (b) 12

(c) 24 (d) 36

94. A can do a work in 36 days while B can do the same in 48 days. If A work for 'x' days while B works for 'x+2' days, then one-third of the work is complete. Find the value of x?

(a) 3 (b) 9

(c) 6 (d) 5

95. If you travel 39 km at a speed of 26 km/hr, another 39 km at a speed of 39 km/hr and again 39 km at a speed of 52 km/hr. What is your average speed for the entire journey?

(a) 36 km/hr (b) 37 km/hr

(c) 39 km/hr (d) 32 km/hr

96. The simple interest on a certain sum for 8 months at 4% per annum is ₹129 less than the simple interest on the same sum for 15 months at 5% per annum. What is the sum?

(a) ₹2,900 (b) ₹3,600

(c) ₹3,500 (d) ₹2,500

97. A sum of ₹8,000 becomes ₹12,500.00 in 2 years at a certain rate of compound interest. What will be the sum after 3 years?

(a) ₹15,625.00 (b) ₹13,175.00

(c) ₹12,575.00 (d) ₹14,225.00

98. The difference between the simple and the compound interest on ₹x at 9% per annum for 2 years is ₹20.25. What is the value of x?

(a) ₹2,800.00 (b) ₹2,400.00

(c) ₹2,000.00 (d) ₹2,500.00

99. The area of a square and a rectangle are equal. The length of the rectangle is 8 cm more than the length of any side of the square and the breadth is 6 cm less. The perimeter(in cm) of the rectangle will be-

(a) 120 cm (b) 80 cm

(c) 100 cm (d) 140 cm

100. A water tank is 5 meter long, 3 m board and 1 m deep. How many litres of water can it hold?

(a) 729 litres (b) 810 litres

(c) 16000 litres (d) 15000 litres

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