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Mizoram PSC

Previous Year Paper
Finance and Accounts Service 2019 Arithmetic

MIZORAM PUBLIC SERVICE COMMISSION

COMPETITIVE EXAMINATIONS FOR RECRUITMENT TO THE POST OF
ASSISTANT AUDITOR, ASSISTANT TREASURY ACCOUNTANT & ASSISTANT DIVISIONAL ACCOUNTANT UNDER FINANCE DEPARTMENT, GOVERNMENT OF MIZORAM, JANUARY - 2019

ARITHMETIC

Time Allowed : 3 hours   Full Marks : 100

Attempt all questions.

<u>SECTION - A</u>
(50 Marks)

This Section should be answered only on the <u>Answer Sheet</u> provided.

1. Find the smallest whole number by which 1458 should be multiplied to get a perfect square. **(2)**

2. Simplify: **(2)**

$$\left[\left\{\left(\frac{1}{3}\right)^{-2}-\left(\frac{1}{2}\right)^{-3}\right\}\right]\div\left(\frac{1}{4}\right)^{-2}$$

3. A fruit seller purchases 15 apples for ₹ 100 and sells them at the rate of 10 for ₹ 150. What is the gain percent? **(3)**

4. Find the volume of a cube whose surface area is 1944 sqcm. **(3)**

5. Three boxes A, B & C contain marbles in the ratio 1:2:3. The total marbles is 60. The above ratio is changed to 3:4:5 if some marbles are transferred from C to A. How many marbles are required to be transferred? **(3)**

6. Liana's father is 7 times older than him. After 4 years, the sum of their ages would be 56 years. Calculate the present age of Liana. **(4)**

7. A certain sum of money doubles itself in 8 years at a simple interest in one bank, but trebles itself in 17 years in another bank at simple interest. Which of the two banks pays better rate of interest? Show the difference of the two rates of interests. **(4)**

8. A 6.5m long ladder placed 2.5 m away from the foot of the wall of a 5-storeyed building could reach only up to the floor of the third storey of the building. Calculate the height of that building. **(4)**

9. At what rate percent per annum will a sum of ₹ 31250 amount to ₹ 35152 at Compound Interest in $1\frac{1}{2}$ years interest being compounded half yearly. **(5)**

10. Two taps A and B can fill a tank in 5 hours and 20 hours respectively. If both the taps are opened then due to leakage it took 30 minutes more to fill the tank. If the tank is full, how long will it take for the leakage alone to empty the tank? **(5)**

11. A room is 16m long, 9m wide and 2.6m high. It has two doors, each of dimensions (180cm × 80cm) and three windows, each of dimensions (160cm × 80cm). Find the cost of distempering the walls of the room from inside at the rate of ₹ 50 per sq metre. **(5)**

12. Prepare a suitable graph from the following data that shows the quarterly expenditure of a particular Department's Office on OE head for the years 2015, 2016, 2017: **(5)**

Months	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
Expenditure in 2015 (in Rs. '000)	20	50	32	18
Expenditure in 2016 (in Rs. '000)	22	30	45	25
Expenditure in 2017 (in Rs. '000)	35	20	40	23

13. A man exchanged a note of ₹ 500 with ₹ 5 and ₹ 10 notes. If the total number of ₹ 5 notes and ₹ 10 notes he received was 90 in all, then, how many ₹ 10 notes he got? **(5)**

SECTION - B
(50 Marks)

All questions carry equal mark of 1 each. Attempt all questions.
This Section should be answered only on the <u>OMR Response Sheet</u> provided.

1. Which of the following is the correct way of writing 15 thousandths?

   (a) $15^{th}1000s$ (b) $\dfrac{1}{15{,}000^{th}}$

   (c) 15^{1000} (d) 0.015

2. Arrange the following decimals is descending order :
1.111; 0.342; 0.098; 1.021; 0.109.

   (a) $1.111 > 0.342 > 0.098 > 1.021 > 0.109$ (b) $0.098 < 0.109 < 0.342 < 1.021 < 1.111$

   (c) $1.111 > 1.021 > 0.342 > 0.109 > 0.098$ (d) $1.111 < 1.021 < 0.342 < 0.098 < 0.109$

3. The value of $4\dfrac{2}{3} \div 1\dfrac{2}{9}$ *of* $\dfrac{1}{4}\left(10 + \dfrac{3}{1 - \dfrac{1}{5}}\right) =$

   (a) 15   (b) 16

   (c) 17   (d) 18

4. The HCF of two numbers is 24 and their LCM is 1271. If one of the numbers is 246, the other number is :

   (a) 1295   (b) 84

   (c) 11664   (d) 124

5. The value of x in the following equation is:

$$\frac{1}{2} \div \frac{2}{10} \times \frac{3.5}{7} \, of \, \frac{8}{20}(0.08)x = 1\frac{3}{5}$$

    (a) 20   (b) 40

    (c) 25   (d) 35

6. A's salary is 20% below B's salary. By how much percent is B's salary above A's?

    (a) $16\frac{2}{3}$ (b) 20

    (c) 25   (d) $33\frac{1}{3}$

7. In an examination, 80% of the students passed. The number of students failed was 16. Find the total number of students.

    (a) 80   (b) 20

    (c) 84   (d) 96

8. By selling 44 articles, a shopkeeper gains the selling price of 11 articles. His gain percent is –

    (a) $33\frac{1}{3}\%$ (b) 75%

    (c) 25%   (d) $66\frac{1}{3}\%$

9. There are 40 Students in Class X and 50 students in Class IX. The average age of students is 8 years in each class (i.e., 8yrs for Class X and 8 yrs for Class IX). The average age of students in both the classes taken together is -

    (a) 8 years   (b) 9 years

    (c) 10 years   (d) 11 years

10. Thanga borrowed ₹ 2500 from SBI on 8th June, 2017 and returned it on 31st October, 2017 along with simple interest at 7% per annum. The total amount returned by Thanga is -

    (a) ₹ 2510   (b) ₹ 2550

    (c) ₹ 2570   (d) ₹ 3000

11. 60 students failed in Mathematics and 50 failed in Science in a class test. Out of these, 30 students failed in both maths and Science. If the total number of students in that class is 80, the number of students passed in both the subjects is

    (a) 20   (b) 0

    (c) 20   (d) 50

12. Rova receives a bonus from his boss. He uses 10% to buy a sweater and then donates ₹ 500 towards charity fund and then he uses 10% of the remaining to buy a drink. If he has ₹ 1170 left, then the amount of the bonus received is

    (a) ₹ 1750   (b) ₹ 800

    (c) ₹ 900   (d) ₹ 2000

13. A and B can do a piece of work in 18 days, B and C in 24 days and C and A in 36 days. If A, B and C work together, they can complete that piece of work in -

    (a) 4 days   (b) 8 days

    (c) 16 days   (d) 32 days

14. Two numbers are in the ratio 3:5. If 18 be added to the first number and subtracted from the second, their ratio becomes 5:3. Then the numbers are –

    (a) 24 and 40   (b) 27 and 45

    (c) 21 and 23   (d) 45 and 27

15. In the mixture of milk and water, the quantity of milk is 15 litres more than that of water. Then 6 litres of water is added to it. What would be the ratio of milk to water in the mixture if the quantity of the original mixture is 75 litres?

    (a) 1:5   (b) 4:5

    (c) 5:4   (d) 5:1

16. The present age of the father and the son are together 46 years. 5 years ago, the father was 11 times as old as his son. The age of the son after 5 years will be –

    (a) 12 years   (b) 13 years

    (c) 14 years   (d) 15 years

17. The length of a bridge is 0.5km. If a train moving at a speed of 150 kmph crosses that bridge in 18 seconds, then the length of the train is –

    (a) 400 m   (b) 350m

    (c) 300m   (d) 250m

18. Agriculture Department is going to auction a vehicle purchased three years ago at ₹ 4,56,000/-. The Department reserved the depreciated value of that vehicle which is calculated at a rate of 15% per annum. The reserved price (rounded-off to the nearest 1000) of that vehicle would be -

    (a) ₹ 68000/-   (b) ₹ 387000/-

    (c) ₹ 300000/-   (d) ₹ 280000/-

19. If a:b = 3:5 and b:c = 7:8, then 2a:3b:7c is equal to

    (a) 21:35:40   (b) 15:21:35

    (c) 6:15:40   (d) 30:21:350

20. The flight from Delhi to Mumbai and Delhi to Kolkata takes $1\frac{3}{4}$ hrs and 2hrs respectively. If the air flight distance from Delhi to Mumbai is 1225 km and from Delhi to Kolkata is 1300 km, the ratio of the average speeds of two flights is

    (a) 14:13   (b) 13:12

    (c) 12:11   (d) 13:12

21. Mawii sold a coat for ₹ 2700/- thereby losing 10%. At what price should she sell to earn a profit of 10%?

    (a) ₹ 6600   (b) ₹ 3300

    (c) ₹ 3000   (d) ₹ 6900

22. At what rate percent per annum will ₹ 64 amount to ₹ 125 in 3 years at compound interest being compounded annually?

    (a) 25%   (b) 30%

    (c) 40%   (d) 50%

23. What is the smallest number by which 72000 must be divided so that the quotient is a perfect cube?

    (a) 2   (b) 5

    (c) 8   (d) 9

24. The volume of a cube is 2197 cm^3. Find the total surface area of that cube.

    (a) 169 cm^2 (b) 1014 cm^2

    (c) 78 cm^2 (d) 676 cm^2

25. Rema starts from A to B at a speed of 4 kmph. Meanwhile, Thanga starts from B to A at the same hour and meets Rema after 6 hrs. If the distance between A and B is 42 km, the speed of Thanga is–

    (a) 3 kmph   (b) 6 kmph

    (c) 7 kmph   (d) 8 kmph

26. 3.123×10^5 equals

    (a) 0.3123   (b) 3123

    (c) 31230   (d) 312300

27. A dining table is marked at ₹ 1500 with 10% and 20% off. An additional discount of 3% is allowed for cash payment. Calculate the SP for cash payment.

    (a) 1047.60   (b) 104.76

    (c) 10476   (d) 10.476

28. The diameter of a wheel is 1.26m. How far it will travel in 500 revolutions?

    (a) 3.96 m   (b) 1.980 km

    (c) 19.8 km   (d) 198 km

29. Fela said to Rama, "If you give me ₹ 5, I shall have five times the amount of money as you have." But Rama said to Fela, "That's not fair. Give me ₹ 5 so that we can have equal amount of money." From this conversation, it is clear that Rama has –

    (a) ₹ 10   (b) ₹ 20

    (c) ₹ 30   (d) ₹ 40

30. A, B, C and D engaged in a business with a joint capital of ₹ 160000/-. At the end of the year, A receives ₹ 21000, B ₹ 45000, C ₹ 12000 and D, ₹ 18000. How much capital did C put in?

    (a) ₹ 12000   (b) ₹ 18000

    (c) ₹ 20000   (d) ₹ 31000

31. The diameter of a sphere is 48cm. It is melted and drawn into a cylindrical wire of 16mm diameter. The length of the wire is-

    (a) 244m   (b) 2.8m

    (c) 24m   (d) 288m

32. A bag contains 5 white balls, 7 red balls, 4 black balls and 2 blue balls. One ball is drawn at random from the bag. What is the probability that the ball drawn is neither white nor black?

    (a) $\dfrac{7}{18}$ (b) $\dfrac{11}{18}$

    (c) $\dfrac{13}{18}$ (d) $\dfrac{1}{2}$

33. The smallest number that must be subtracted from 438867 to get a perfect square is-

   (a) 600   (b) 623

    (c) 665   (d) 633

34. $\dfrac{\sqrt{98}-\sqrt{72}+\sqrt{50}}{\sqrt{18}}$ equals -

(a) 6

(b) $\dfrac{\sqrt{38}}{3}$

(c) $-\dfrac{4}{3}$

(d) 2

35. A solid hemisphere of base radius r is melted and recast into a solid cone of same radius, the height of that cone is equal to

(a) $2r^2$

(b) $2pr$

(c) $2r$

(d) r^3

36. From the given field measurement below, AB is drawn as the base, BCD forms a quadrant of a circle with D as a centre, EF and BG are drawn perpendicular to the base, then AB=100m, BE= 50m, DE=20m, BG=60m, EF=70m, the area of ACBGF is
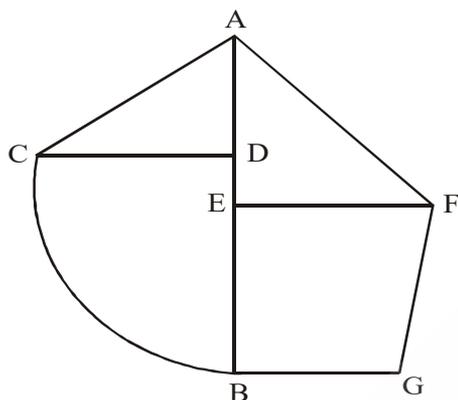
(a) 10000m²

(b) 9900m²

(c) 9000m²

(d) 8000m²

37. A rectangular field 40m×30m is surrounded by a uniform path of 2m. The coast of laying bricks at a rate of ₹ 5 per square metre along the path is

(a) ₹ 1320

(b) ₹ 1480

(c) ₹ 1520

(d) ₹ 2300

38. A cistern can be filled by the tap A in 40 minutes and by the tap B in 30 minutes. The tap C can empty it in 20 minutes. If all the three taps are opened and the cistern is empty, how long will they take to fill it?

(a) 60 minutes

(b) 120 minutes

(c) 1hr 20 minutes

(d) 3hrs

39. The mean, median and mode of group of 75 observations are 27, 29 and 34 respectively. Later, it was found that one observation was misread as 43 instead of the correct one of 63. Then what are the values of the mean, median and mode after correction?

(a) 27.26, 29.51 and 34

(b) 27, 34 and 32.84

(c) 27, 34 and 36.17

(d) 27, 34 and 29.51

40. Mode of 1,5,2,4,6,4,5,7,4,3,4,5,5,3,5,,6,7,6,5,4,3,4,5,6,7,8,5,4,3 is

(a) 1

(b) 2

(c) 4

(d) 5

41. The car consumes 5 litres of petrol to travel a distance of 70km . How far it will travel using 28 litres of petrol.

    (a) 392km   (b) 120 km

    (c) 300km   (d) 980km

Directions (Questions 42 – 46) : Study the graph below and answer the questions that follow.

The Bar graph below shows the production of Food grains by Mizoram State.
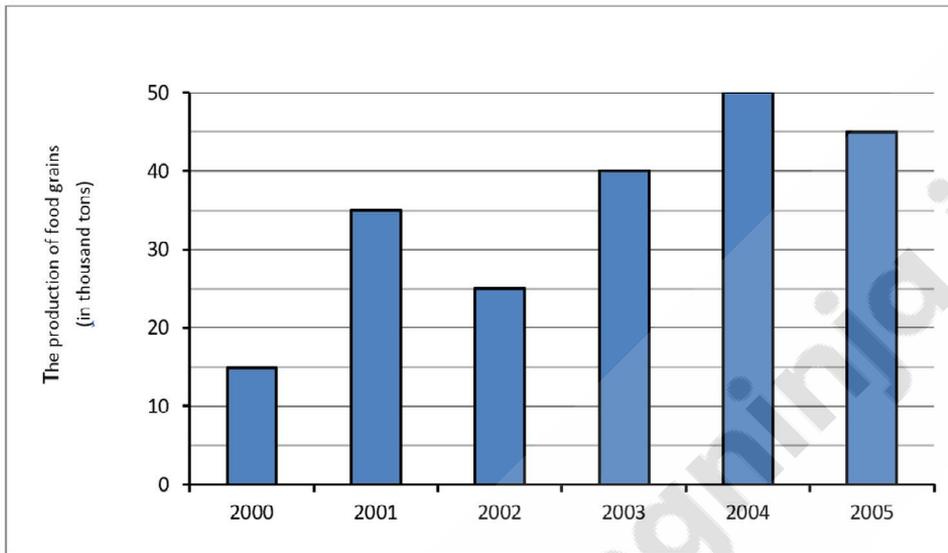
42. The sum of the production of food grains in the year 2000 and 2001 is equal to that in the year –

    (a) 2002   (b) 2003

    (c) 2004   (d) 2005

43. The difference of the production of food grains for the year 2005 and 2003 is

    (a) 5000 tonnes   (b) 3500 tonnes

    (c) 5500 tonnes   (d) 6000 tonnes

44. The percentage increase in production form 2003 to 2004 was

    (a) 20%   (b) 25%

    (c) 30%   (d) 40%

45. The ratio of Production in 2002 to that of 2003 is –

    (a) 3:7   (b) 7:5

    (c) 5:8   (d) 1: 2

46. The average yearly production during 2000 to 2005 was

    (a) 35000 tonnes   (b) 40000 tonnes

    (c) 50000 tonnes   (d) 60000 tonnes

Directions (Questions 47 – 50) : Study the graph below and answer the questions that follow.

The adjoining pie chart shows the monthly expenditure of a family on various heads :-

Total Income = ₹ 72000/-

Clothing 55°

Education 80°

Miscellaneous 65°

Food 90°

Savings
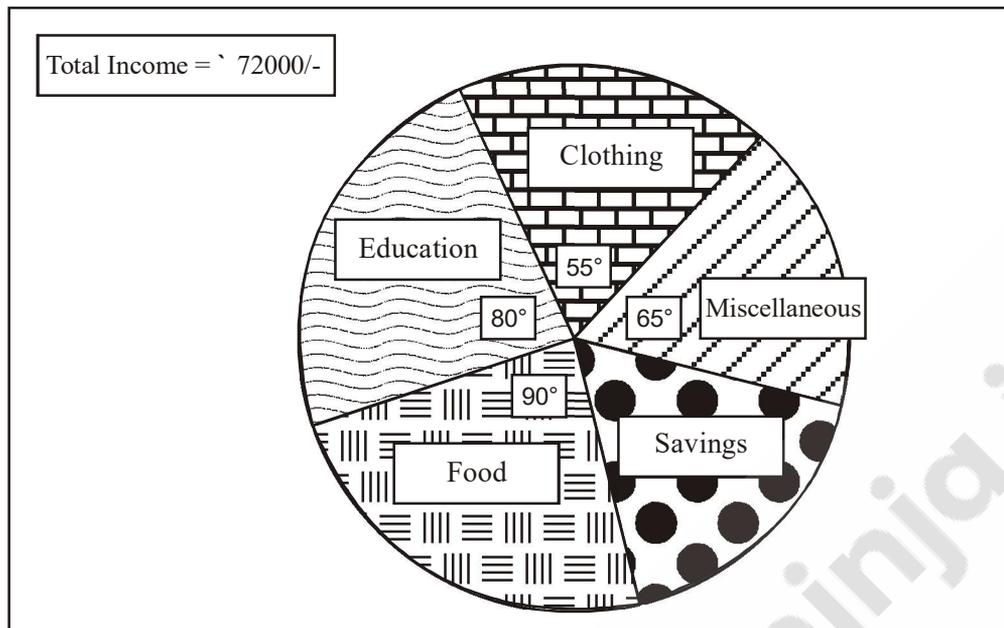
47. The total amount of expenditure on Food and clothing taken together is
   (a) ₹ 20000   (b) ₹ 32000
   (c) ₹ 23000   (d) ₹ 29000

48. The expenditure on Education exceeds the expenditure on Clothing by
   (a) ₹ 5000   (b) ₹ 6000
   (c) ₹ 2300   (d) ₹ 2000

49. Amount of Expenditure on Miscellaneous head is –
   (a) ₹ 10000   (b) ₹ 12000
   (c) ₹ 13000   (d) ₹ 14000

50. The monthly savings of the family is
   (a) ₹ 10000   (b) ₹ 12000
   (c) ₹ 13000   (d) ₹ 14000

* * * * * * *