MI CHAMPS INDIA

2022-23
ALL INDIA MATHS CHALLENGE EXAM (AIMCE)

Name of the Student : _____ Roll No.: | | | | | | | |

Name of the School : _____ Date : _____

Class : Subject: Mathematics Time: 60 Min

Instructions to the Candidate

1. Each question carries 1 mark. There is no negative marking.
2. Separate Optical Mark Reader (OMR) Answer Sheet is supplied to you along with question paper booklet.
3. Read the questions carefully and fill in the circle corresponding to your answer. Fill in the circle Completely.
4. Rough work should be done only in the space provided in the Question Paper Booklet.
5. Return the OMR Answer sheet to the invigilator before leaving the examination hall.
6. You can carry the question paper with you after completing the examination.
7. Once you enter the examination hall, you are not permitted to leave till the end of the examination.

VI Class Mathematics

1. If the average of four consecutive even numbers is 17. Find the difference between the largest and smallest even numbers among them

   (A) 14 (B) 6 (C) 20 (D) 34

2. If the three numbers are in the ratio 1 : 2 : 3 and their HCF is 12. Find the largest number

   (A) 72 (B) 12 (C) 24 (D) 36

3. The Roman numeral for 979 is

   (A) CMLXXIX (B) MCLXXIX (C) MCXLIX (D) CMXLIX

4. Which of the following is correct?

   (A) $(20 \div 5) \div 4 = 20 \div (5 \div 4)$ (B) $(20 \div 4) \div 5 = 20 \div (4 \div 5)$

   (C) $(20 \div 5) \div 4 \neq 20 \div (5 \div 4)$ (D) All of the above

5. On simplifying $25 - \{4 \div (-2)\} - 12 - 5\left(6 + \overline{2-8}\right)$, we get

   (A) 16 (B) –14 (C) 15 (D) –20

6. If the radius of a circle is increased by 3 times then the diameter will increase by

   (A) 2 times (B) 3 times (C) 4 times (D) 5 times

7. The difference between the sum of two supplementary angles and the sum of two complementary angles is

(A) 0° (B) 180° (C) 90° (D) 270°

8. The largest of the fractions $\frac{7}{12}, \frac{5}{8}, \frac{9}{16}, \frac{12}{20}$ is

(A) $\frac{9}{16}$ (B) $\frac{5}{8}$ (C) $\frac{12}{20}$ (D) $\frac{7}{12}$

9. Which of the following numbers is divisible by 11?

(A) 3333333 (B) 1111111 (C) 22222222 (D) None of these

10. The greatest number which divides 134 and 167 leaving 2 as remainder in each case is

(A) 11 (B) 17 (C) 33 (D) 12

11. A 8m 57cm pole was put in a pond to measure its depth. If 3m 98cm pole remained outside the water, what is the depth of the pond?

(A) 5m 59cm (B) 3m 59cm (C) 5m 41cm (D) 4m 59cm

12. If the cost of 25 packets of 10 pencils each is Rs.750, then the cost of 30 packets of 8 pencils each is

(A) Rs.600 (B) Rs.720 (C) Rs.640 (D) None of these

13. If 32 men can finish a piece of work in 25 days, how many men will be required to finish it in 20 days?

(A) 40 (B) 36 (C) 48 (D) 42

14. The present age of a brother is 4 years more than that of his sister. If the sum of their present ages is 21 years, the present age of the sister is

(A) 8 years (B) 13 years (C) 14 years (D) 7 years

15. An isosceles trapezium has

(A) no line of symmetry (B) 2 lines of symmetry

(C) 1 line of symmetry (D) 3 lines of symmetry

16. A room is 10m long and 8m wide. Its floor is paved with square tiles each of 50 cm length. How many tiles will be required?

(A) 320 (B) 104 (C) 160 (D) 52

17. Sides of a Rectangle are in the ratio 5 : 4. If its perimeter is 144 cm, then area of the rectangle is

(A) 1080 cm^2 (B) 1280 cm^2 (C) 988 cm^2 (D) 1084 cm^2

18. The perimeter of a parallelogram is 56 cm. If one side measures 15 cm. Find the measure of its adjacent side.

(A) 26 cm (B) 13 cm (C) 15 cm (D) 39 cm

19. The value of $3\frac{1}{12}-\left[1\frac{3}{4}+\left\{2\frac{1}{2}-\left(1\frac{1}{2}-\frac{1}{3}\right)\right\}\right]$ is

(A) $\frac{1}{2}$ (B) 2 (C) 1 (D) 0

20. What least number must be subtracted from 13,601 to get a number exactly divisible by 87?

(A) 25 (B) 29 (C) 27 (D) 23

21. The prime triplet is

(A) 57,59,61 (B) 3,5,7 (C) 29,31,33 (D) 39,41,43

22. Which of the following properties is incorrect with respect to the properties of whole numbers?

(A) Addition and subtraction are commutative

(B) Division by 0 is not defined

(C) Multiplication is distributive over addition

(D) They are closed under addition and multiplication

23. If A is the HCF of 226, 339 and 565 and B is the LCM of 24, 36 and 40 then which of the following is true

(A) A > B (B) A = B (C) A < B (D) None of these

24. In a triangle the angles are in the ratio 1 : 1 : 1 then ratio of the sides is

(A) $1:1:\sqrt{2}$ (B) $\sqrt{2}:1:1$ (C) $1:\sqrt{2}:1$ (D) None of these

25. If 'd' is the length of the diagonal of Square then its area is

(A) d^2 (B) $\frac{d}{2}$ (C) $\frac{d^2}{2}$ (D) 2d

26. If $3x+5,\ x+10,4x+5$ are the 3 angles of a triangle, then find 'x'?

(A) 20° (B) 25° (C) 30° (D) 35°

27. Points lying on the same line are called

(A) Collinear points (B) Concurrent points

(C) Coplanar points (D) All the above

28. The number of vertices and faces of a solid are 8 and 6, then number of edges is _____

(A) 10 (B) 12 (C) 14 (D) none

29. If 75% of a number is added to 75; then the result is the number itself. The number is

(A) 50 (B) 60 (C) 300 (D) 400

30. Two fifth of one third of three seventh of a number is 15.
What is 40% of that number?
(A) 105 (B) 84 (C) 136 (D) None of these

31. The ratio of the cost price and the selling price is 4 : 5. Then the profit percentage is
(A) 10% (B) 20% (C) 25% (D) 30%

32. The reciprocal ratio of 5 : 6 and 10 : 9 is
(A) 25 : 27 (B) 27 : 25 (C) 45 : 60 (D) 60 : 45

33. If $x+3=9,\ x+y=14,\ y+z=20$ then the ratio of $x+y+z$ to xyz is
(A) 288 : 13 (B) 26 : 288 (C) 13 : 288 (D) 288 : 26

34. The difference of $11100_{(2)}$ and $1010_{(2)}$ expressed in the decimal system
(A) 15 (B) 10 (C) 28 (D) 18

35. Ram and Shyam are each told to calculate 8 − (2 + 5). Ram gets the correct answer. Shyam ignores the parentheses and calculates 8 − 2 + 5. If Ram's answer is 'R' and Shyam's answer is 'S', what is the value of R − S?
(A) -10 (B) -6 (C) 0 (D) 10

36. For which of the following shapes is the order of rotational symmetry not equal to the number of lines of symmetry?
(A) Square (B) Scalene triangle
(C) Regular pentagon (D) Equilateral triangle

37. A "leap year" is a year which has 366 days including February 29 as an additional day. Any year that is divisible by 4 is a leap year, but a year that is divisible by 100 is a leap year only if it is also divisible by 400.
How many leap years are there from 2000 to 2017?
(A) 3 (B) 4 (C) 5 (D) 6

38. Find the highest common factor of $49ax^2,\ 63ay^2,\ 56az^2$
(A) 7 (B) 7axyz (C) $7ax^2y^2z^2$ (D) 7a

39. If a = 7, b = 5 the value of $(a+b)(a+b)-(a-b)(a-b)$
(A) 28 (B) 140 (C) 144 (D) 24

40. Sum of any two sides of a triangle is _____ than third side.
(A) greater (B) less (C) equal (D) None of these