INTSO EDUCATION

MATHEMATICS TALENT SEARCH OLYMPIAD(MTSO) 2015 - 2016
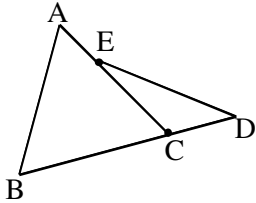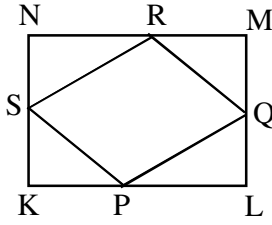
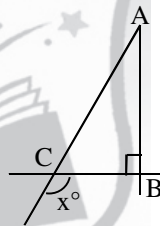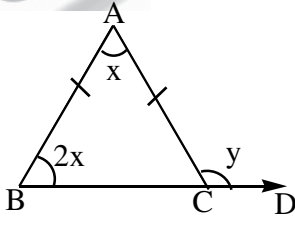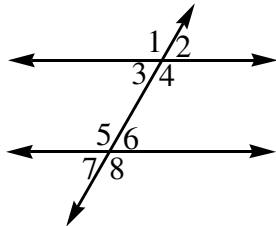|		
	STAGE - 2	**TIME** : 60 min.
CLASS : VI		**Max. Marks** : 50

Instructions:

⇨ *Fill the OMR sheet completely and carefully.*

⇨ *Each question carries one mark and has only one correct answer. ¼ (one fourth) marks will be deducted for indicating incorrect response of each question.*

⇨ *The question paper contains 50 questions to be answered in 60 minutes.*

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1. The p/q form of 1.9999 -------- is [   ]

   1) $\dfrac{19}{10}$ 2) $\dfrac{18}{10}$ 3) 2   4) 2.5

2. Population of Chirala was 2,35,471 in the year 1991. In the year 2001 it was found to be increased by 72,958 , the population of chirala in 2001 is [   ]
   1) 3,08,429   2) 2,98,492   3) 3,98,492   4) 3,35,470

3. The L.C.M of two numbers is 30 and the product of two numbers is 150. The H.C.F of two numbers is [   ]
   1) 3   2) 5   3) 10   4) 15

4. The least 3 digit number which when divided by 20,30,40 and 50 leaves remainder 10 in each case. [   ]
   1) 510   2) 610   3) 480   4) 620

5. The total 1152 students was assembled in rows and columns . If there are n rows and $\dfrac{n}{2}$ columns, then the number of students in and $\dfrac{n}{2}$ collumns. The number of students in each row is

   1) 36   2) 42   3) 48   4) 34   [   ]

6. If x is the smallest four digit number form by all the digit 0,7,8, and 9 . Y is the greatest four digit number formed by the digits 0,7,8,9 , then y – x is equals to [   ]
   1) 9081   2) 2781   3) 2777   4) 1890

7. In a computer game if we hit a balloon we get 500 points and if we miss the balloon we lose 300 points. Raj hits 20 balloons and misses 40 balloons . His total net score is [   ]
   1) 2000   2) –2000   3) 1000   4) –1000

8. The number of integer pairs $(m_1 n)$ which satisfies $m(n^2 +1) = 48$ is [   ]
   1) 4   2) 2   3) 0   4) infinite

9. The least number of numbers to be deleted form the set {1,2,3,4 ---- 13,14,15} so that the product of the remaining numbers is a perfect square is [   ]
   1) 1   2) 2   3) 3   4) 4

10. Which of the following is the set of measures of the sides of a triangle [   ]
    1) 8cm, 4cm, 20cm   2) 9cm, 17cm, 25cm   3) 11cm, 16cm, 28cm   4) 3cm,2cm,6cm

11. If the supplementary angle of x is 4 times its complementary angle, then x is equals to [   ]
    1) 45°   2) 60°   3) 30°   4) 50°

12. In figure BC = AC, CD = CE . If $\lfloor ABC = 50°$ then $\lfloor CED$ equals to   [   ]

    1) 30°

    2) 40°

    3) 50°

    4) 70°

13. In figure KLMN is a rectangle. P,Q,R,S are the mid points of $\overline{KL}$, $\overline{LM},\overline{MN} and \overline{NK}$ respectively.

    If $\lfloor KPS = 30°$ then $\lfloor QRS$ equals to   [   ]
    1) 100°
    2) 110°
    3) 120°
    4) 130°

14. In an isosceles triangle one of its equal angles is 40° . The greatest angle is   [   ]
    1) 110°   2) 120°   3) 90°   4) 100°

15. If Circumference of a circle is k times its radius , then k is equals to   [   ]

    1) π 2) 2π 3) 3π 4) $\dfrac{\pi}{2}$

16. In the figure ABC is a right angled triangle and BC = AB then x° is equals to   [   ]

    1) 45°

    2) 90°

    3) 120°

    4) 135°

17. In an n sided regular polygon , each interior angle is 144° the number of sides of polygon is
    1) 7   2) 8   3) 9   4) 10   [   ]

18. In figure AB = AC and BC is extended to D, then the value of x + y is equals to   [   ]
    1) 120°

    2) 160°

    3) 40°

    4) 144°

19. If the angles of a triangle are in the ratio 1 : 1 : 2 then the ratio of the sides is   [   ]
    1) 1 : 1 : 2   2) 1 : 1 : $\sqrt{3}$ 3) 1 : 1 : 3   4) 1 : 1 : $\sqrt{2}$

20. Which of the following is a reflex angle   [   ]
    1) 120°   2) 200°   3) 70°   4) 180°

21. The zero of the polynomial 5x –3 is   [   ]

    1) 3   2) 5   3) $\dfrac{3}{5}$ 4) $\dfrac{5}{3}$

22. If $y + \dfrac{1}{2y} = 4$ then $y^2 + \dfrac{1}{4y^2}$ is equals to   [   ]

    1) 16   2) 15   3) 12   4) 13

23. For what value of K, $16x^2 + 24xy + k$ is a perfect square   [   ]
   1) $9y^2$ 2) $18y^2$ 3) $3y^2$ 4) $16y^2$

24. If $496 \times 492 = x^2 - 4$ (x > 0) then x is equals to   [   ]
   1) 495   2) 494   3) 493   4) 496

25. What should be subtracted from $x^3 + 2x^2 - 3x + 10$, so that the diffrence is a multiple of x–2
   1) 10   2) 20   3) 15   4) 30   [   ]

26. If $\dfrac{1}{x+1} + \dfrac{2}{y+2} + \dfrac{2006}{z+2006} = 1$ then $\dfrac{x^2}{x^2+x} + \dfrac{y^2}{y^2+2y} + \dfrac{z^2}{z^2+2006z} =$ [   ]
   1) 2   2) 3   3) 9   4) 4

27. A student got x marks in a test . The student who got the first mark gets 48 more than this student who got x marks. If the total marks of both the students is 110, the highest mark secured is
   1) 83   2) 92   3) 79   4) 100   [   ]

28. 20 % of 50 % is what percent of 25% of 40 %   [   ]
   1) 80%   2) 60%`   3) 65%   4) 100%

29. It is given that $\dfrac{x}{y} = \dfrac{4}{5}$ which one of the following is incorrect   [   ]
   1) $\dfrac{x+y}{y} = \dfrac{9}{5}$ 2) $\dfrac{y+2x}{x} = \dfrac{13}{4}$ 3) $\dfrac{x^2+y^2}{xy} = \dfrac{41}{20}$ 4) $\dfrac{2x^2-y^2}{xy} = \dfrac{9}{20}$

30. If $P = 8x^4 + 6x^3 - 15x^2 + 27x - 20$ and $Q = 2x^2 + 3x - 4$ then the remainder when P is divided by Q.
   1) 0   2) –1   3) -8   4) –4   [   ]

31. If the number 65x5 is divisible by 3 then the least digit to replace 'x' is   [   ]
   1) 1   2) 2   3) 0   4) 3

32. The number of possible digits for x so that 123456 x is divisible by 2 is   [   ]
   1) 1   2) 3   3) 5   4) 8

33. The unit digit of 23^{562} is   [   ]
   1) 3   2) 6   3) 9   4) 7

34. Two cross roads each of width 5m run at right angles through center of a rectangular park of length 70m and breadth 45m parallel to its sides . The area of road is   [   ]
   1) $450m^2$ 2) $550m^2$ 3) $500m^2$ 4) $475m^2$

35. The number of possible values of a (digit) for which 33371 a is divisible by 4 .   [   ]
   1) 2   2) 4   3) 3   4) 1

36. A pair of alternate Interior angles is   [   ]
   1) $(\lfloor 3, \lfloor 6)$
   2) $(\lfloor 4, \lfloor 6)$
   3) $(\lfloor 3, \lfloor 5)$
   4) all

37. The pair of angles which are interior and also on the same side of transversal are called
   1) Alternate angles   2) Vertically opposite angles   [   ]
   3) Corresponding angles   4) Allied angles

38. $\overline{AB}$ and $\overline{CD}$ are two parallel chords of a circle which are on the opposite sides of the centre, such that AB = 10cm , CD = 24cm. The distance between $\overline{AB}$ and $\overline{CD}$ is 17cm. The radius of the circle is   [   ]

    1) 12cm   2) 13cm   3) 14cm   4) 10cm

39. In a $\triangle ABC$ D and E are mid points of AB and AC if the area of $\triangle ABC = 60 sq.cm$. The area of $\triangle ADE$ is   [   ]

    1) 30sq.cm   B) 45sq.cm   3) 15sq.cm   D) 20 sq.cm

40. ABCD is a parallellogram and E is the Mid point of side BC. If DE and AB are produced to meet at F. Then AB =   [   ]

    1) $\dfrac{1}{4}AF$ 2) $\dfrac{1}{2}AF$ 3) $\dfrac{1}{3}AF$ 4) $\dfrac{1}{6}AF$

41. An athlete takes 10 rounds of a rectangular park, 50m long and 25m wide total distance covered by him is   [   ]

    1) 1000M   2) 150M   3) 1500M   4) 750M

42. A floor is 5m long and 4m wide . A square carpet of sides 3m is laid on the floor. The area of the floor that is not carpeted is   [   ]

    1) 11m   2) 9m   3) 29m   4) 16m

43. Balu wants to cover the floor of a room 3m wide and 4m long by squared tiles. IF each square tile is of side 0.5m. the number of tiles required to cover the floor of the room is   [   ]

    1) 48   2) 38   3) 58   4) 44

44. Nadita travelled 5km 52m by bus , 2km 265m by car and the rest 1km 30m she walked. The distance travelled by her in all.   [   ]

    1) 8km   2) 7.347km   3) 1.030km   4) 8.347km

45. If f(x) = $1^3 + 2^3 + 3^3 + \text{----------} + x^3$ and g(x) = 1+2+3+ ------ + x then the value of

$$\frac{f(1)}{g(1)} + \frac{f(2)}{g(2)} + \frac{f(3)}{g(3)} + - - - - - + \frac{f(99)}{g(99)} \ is$$
      [   ]

    1) 3,28,350   2) 10099   3) 2,030,100   4) 99

46. The number of positive integers less than 3600 and co prime to 3600 is   [   ]

    1) 960   2) 940   3) 3600   4) 1260

47. If the number A 837 B is divisible by 88 then the digits A and B are   [   ]

    1) (6,6)   2) (6,5)   3) (5,6)   4) (4,6)

48. The product of 342 and the sum of $\dfrac{5}{9}, \dfrac{1}{2}$ is   [   ]

    1) 361   2) 324   3) 342   4) 360

49. The number that should be multiplied by 9248 to make it a perfect square is   [   ]

    1) 2   2) 3   3) 17   4) 5

50. The least number that should be multiplied to $3^{20} \times 5^{14}$ to make it a perfect cube is   [   ]

    1) 25   2) 125   3) 15   4) 625