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ROUGH WORK

Instructions for the Candidate

1. You are allowed additional 10 minutes to fill the required details in the RESPONSE SHEET (OMR).
2. The question paper is made as per syllabus guidelines & pattern given in the information Booklet. The Question Paper for Classes 1 to 6 contains 40 Questions each to be answered in 60 minutes. The Question paper for classes 7 to 12 contains 60 Questions each to be answered in 60 minutes. All questions are compulsory. Further instructions are given in the instruction letter to the teacher.
3. Use the response sheet to mark your responses by darkening the required circle. The response sheet has to be returned to the foundation, duly filled in. THE STUDENT CAN RETAIN THE QUESTION PAPER.

MENTAL ABILITY

1. In a class of 60 where boys are twice that of girls, Ramya ranked 17th from the top. If there are 9 boys ahead of Ramya, how many girls are after her in the rank ?

(1) 26 (2) 12

(3) 10 (4) 33

2. 'Soldier' is related to 'Army' in the same way as 'Pupil' is related to …….

(1) Education (2) Teacher

(3) Student (4) Class

3. What should come in the place of (?) in the given series?

ACE, FGH, ?, PON

(1) KKK (2) JKI

(3) HJH (4) IKL

4. 'Medicine' is related to 'Patient' in the same way as 'Education' is related to—

(1) Teacher (2) School

(3) Student (4) Tuition

5. What should come in the place of question mark in the following series ?

1, 4, 9, 25, 36, ?

(1) 48

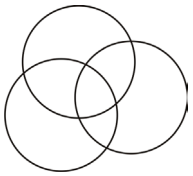
(2) 49

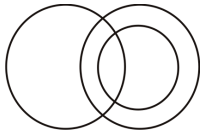
(3) 52

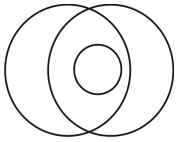
(4) 56

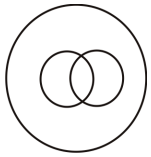
6. Answer the most suitable logical diagram from the given options.

Mother, Female, Widow.

(1) 

(2) 

(3) 

(4) 

7. In a certain code, SIKKIM is written as THLJJL. How is TRAINING written in that code ?

(1) SQBHOHOH (2) UQBHOHOF

(3) UQBJOHHO (4) UQBJOHOH

8. Shefali ranks 13th from the top and Seema 8th from the bottom. If the positions of Shefali and Seema are interchanged, Seema becomes 17th from the bottom then what will be position of Shefali from the top :

(1) 20th (2) 21st

(3) 19th (4) None of these

9. In a cricket team, Dhoni is taller than Virat but not as tall as Raina, Rohit is shorter than Dhoni but taller than Shikhar. Who among them is the shortest?

(1) Dhoni (2) Virat

(3) Shikhar

(4) Cannot be determined

10. Find the correct group of signs to solve the equation

24 * 16 * 8 * 32

(1) + + =

(2) – + =

(3) × ÷ =

(4) + – =

11. The absolute value of $|x - 6| + |6 - x|$, when $0 < x < 6$ is

(1) 6x (2) 12

(3) 2 (6 – x)

(4) None of these

12. Write the additive inverse of $\frac{-5}{6}+\frac{2}{3}$

(1) $\frac{1}{6}$ (2) $\frac{-1}{6}$

(3) 6 (4) –6

13. The numerator of a fraction is six more than the denominator. If the numerator is increased by 5 and the denominator is decreased by 1, the fraction becomes $\frac{3}{2}$. Find the fraction

(1) $\frac{31}{25}$ (2) $\frac{27}{29}$

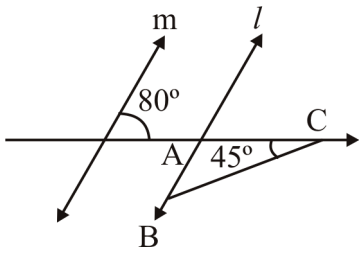
(3) $\frac{1}{25}$ (4) $\frac{29}{30}$

14. Solve $\frac{2x-3}{2}-\frac{x+1}{3}=\frac{3x+8}{4}$

(1) 1 (2) –46

(3) $\frac{4}{5}$ (4) $\frac{5}{8}$

15. In figure $l \parallel m$, then $\angle ABC$ will be



(1) 45° (2) 30°

(3) 35° (4) 125°

16. The additive inverse of $\frac{-a}{b}$ is

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

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

17. The rational number $0.\overline{3}$ can also be written as.....

(1) $\frac{3}{10}$ (2) $\frac{33}{100}$

(3) $\frac{1}{3}$ (4) 333

18. A piece of wire $\frac{15}{4}$ m long is broken into two pieces. One piece is $2\frac{1}{2}$ m long. Find the length of the other piece

(1) $\frac{6}{7}$m (2) $\frac{5}{9}$m

(3) $\frac{5}{4}$m (4) $\frac{5}{2}$m

19. A sum of money amounts to Rs. 9800 after 5 years and Rs. 12005 after 8 years at the same rate of simple interest. The rate of interest per annum is

(1) 5% (2) 8%

(3) 12% (4) None of these

20. What do we require to construct a quadrilateral if lengths of four sides are given?

(1) One of the angle

(2) Two angles

(3) Length of two diagonals

(4) Both (1) & (2)

21. What is the area of the largest triangle that can be fitted into a rectangle of length l unit and width w unit?

(1) $lw/2$ Sq. unit (2) $lw/3$ Sq. unit

(3) $lw/4$ Sq. unit (4) None of these

22. A wire bent in the form of a circle of radius $\frac{8\sqrt{2}}{\pi}$ cm is cut and again bent in the form of square, then the area of square will be

(1) $16\sqrt{2}$ sq.cm (2) $4\sqrt{2}$ sq.cm

(3) 32 sq. cm (4) $32\sqrt{2}$ sq.cm

23. In a polynomial, the exponents of the variables are always

(1) integers

(2) positive integers

(3) non-negative integers

(4) None of these

24. 0 reduced by $\frac{1}{2}$ is

(1) $\frac{1}{2}$ (2) $-\frac{1}{2}$

(3) 2 (4) –2

25. If the angle of a quadrilateral are x°, $(x - 10)^\circ$, $(x + 30)^\circ$ and $2x^\circ$, then the greatest angle is

(1) 136° (2) 180°

(3) 68° (4) 148°

26. Find the length of the rectangle, if its perimeter is given as 8 cm and difference of its length and breadth is given as 0.8 cm (length > breadth)

(1) 1.6 cm (2) 2 cm

(3) 2.4 cm (4) 2.8 cm

27. Simplify : $222-\left[\frac{1}{3}\left\{42-\left(56-\overline{8+9}\right)\right\}+108\right]$

(1) 87 (2) 113

(3) 89 (4) 90

28. Which of the following is equal to $4^{15} + 8^{10}$?

(1) 2^{31} (2) 2^{30}

(3) 2^{15} (4) 2^{10}

29. If the base of triangle is halved and is height is doubled then the area of the resulting triangle

(1) increases (2) decreases

(3) doubled (4) remain same

30. Triangle can be constructed by taking its sides as _____

(1) 5 cm, 7 cm, 13 cm (2) 6 cm, 13 cm, 20 cm

(3) 7 cm, 18 cm, 25 cm (4) 8 cm, 15 cm, 22 cm

31. $(-2485) \times (7) + (2485) \times (-3) =$

(1) 24850 (2) –24850

(3) 9940 (4) –9940

32. The length of the diagonals of a rhombus are 16 cm and 12 cm. Then the area of the rhombus is

(1) 10 cm^2 (2) 36 cm^2

(3) 96 cm^2 (4) None of these

33. The circumference of a circle is equal to the sum of the perimeters of an equilateral triangle of side 12 cm and a square of diagonal $2\sqrt{2}$ cm. Find the area of the circle in cm^2.

(1) 144 cm^2 (2) 135 cm^2

(3) 154 cm^2

(4) None of these

34. The sum of two numbers is 48. The smaller number is less than the greater number by half the greater number. Find the greater number

(1) 24 (2) 32

(3) 36 (4) 34

35. Let x and y be the positive integers such that x is prime and y is composite, then which of the following is true?

(1) y-x cannot be an even integer

(2) xy cannot be an even integer

(3) $\frac{x+y}{x}$ cannot be an even integer

(4) x + y is an integer

36. The sides of a quadrilateral are produced in order. What is the sum of the four exterior angles?

(1) 180º (2) 360º

(3) 420º (4) 720º

37. The expression $\sqrt{50}+\sqrt{32}$ is equivalent to which of the following ?

(1) $\sqrt{82}$ (2) $9\sqrt{2}$

(3) $9\sqrt{1}$ (4) 36

38. If $B = 2 \times 4 \times 6 ... 98 \times 100$, then the number of zeroes at the end of B will be

(1) 12 (2) 11

(3) 10 (4) 101

39. $\sqrt[3]{1+3+5+7+...+53} =$

(1) 11 (2) 13

(3) 7 (4) 9

40. If $\left(\frac{p^2}{q^2}\right)^{5x+7} = \left(\frac{q^3}{p^3}\right)^{x-8}$, then the value of (5x + 7) is

(1) 12 (2) $10\frac{11}{13}$

(3) 17 (4) $7\frac{2}{9}$

INTERACTIVE SECTION

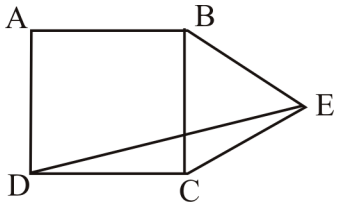
41. In the figure, ABCD is a square and BCE is an equilateral triangle, what is the measure of angle DEC ?

(1) 15°

(2) 30°

(3) 20°

(4) 45°



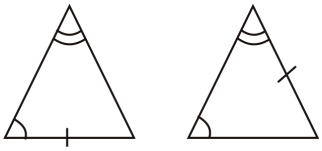
42. The triangles shown in the figure are

(1) congruent by ASA

(2) congruent by AAS

(3) congruent by SAS

(4) not congruent



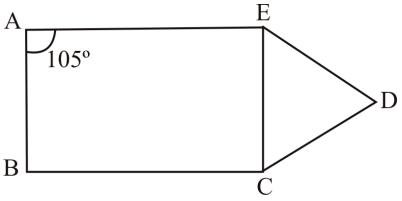
43. In the given figure AE = BC and AE || BC and three sides. AB, CD and ED are equal in length. If m ∠A = 105º, find measure of ∠AED (figure not upto the scale)

(1) 75º

(2) 105º

(3) 135º

(4) can't be determined



44. Ravi makes and sells wooden toys boats. For each boat, it costs him Rs. 2.00 for the wood and Rs. 1.00 for the materials to decorate it. He sells each boat for Rs 7.50. Which of these expressions could represent the amount of money that Ravi will

make selling n boats after his costs to make each boat are deducted?

n = number of boats sold

(1) $7.5\,n - 3$ (2) $7.5\,n + 3$

(3) $n\,(7.5 - 3)$ (4) $n\,(7.5 + 3)$

45. The pair of equations $3^{x+y} = 81$, $81^{x-y} = 3$ has

(1) no solution

(2) $x = 2\frac{1}{2},\ y = 1\frac{7}{8}$

(3) the solution $x = 2,\ y = 2$

(4) the solution $x = 2\frac{1}{8},\ y = 1\frac{7}{8}$

46. D, E, F are mid points of the sides BC, CA and AB respectively of ΔABC, then area of parallelogram ΔDEF is equal to

(1) $\frac{1}{2}$ ar (ΔABC) (2) $\frac{1}{4}$ ar (ΔABC)

(3) $\frac{1}{3}$ ar (ΔABC) (4) $\frac{1}{6}$ ar (ΔABC)

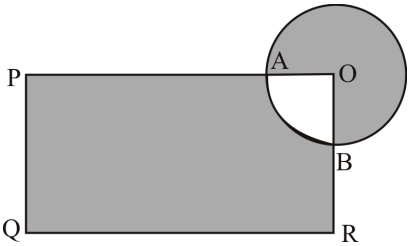
47. In the figure given below, O is the centre of the circle and OPQR is a rectangle. A is a point on PO such that $AO = \frac{1}{3}$ PO and B is the mid point of OR. Find the area of the shaded region if PA = 8 cm and BR = 4 cm (Use $\pi = 3.14$)

(1) 132.68 cm^2

(2) 121.12 cm^2

(3) 108.56 cm^2

(4) 116.44 cm^2



48. If $x = (-42) + 41 + (-42) + 41 + \ldots..$ (41 terms) and $y = (-13) + 11 + (-13) + 11 + \ldots..$ (30 terms) then the value of $y - x$ is

(1) –92 (2) –32

(3) –19 (4) 92

49. When Keisha installed a fence along the 200 feet perimeter of her rectangular back yard, she left an opening for a gate. In the diagram below, she used 'X' to represent the length (in feet) of the gate.

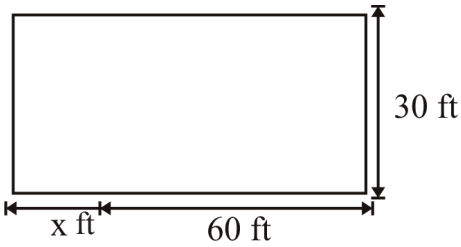
What is the value of x ?

(1) 10

(2) 20

(3) 25

(4) 30



50. If the product of two irrational numbers is rational, then which of the following can be concluded?

(1) The ratio of the greater and the smaller numbers is always an integer

(2) The sum of the numbers must be rational

(3) The excess of the greater irrational number over the smaller irrational number must be rational

(4) None of the above

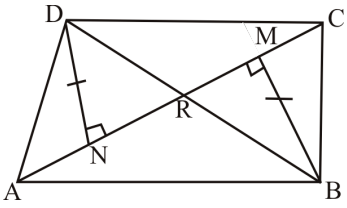
51. In quadrilateral ABCD, BM and DN are drawn perpendicular to AC such that BM = DN. If BR = 8cm, then BD is

(1) 4 cm

(2) 2 cm

(3) 12 cm

(4) 16 cm



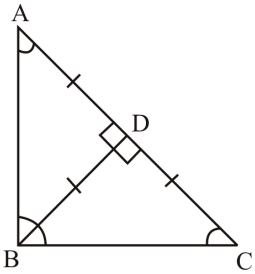
52. In the given figure BD $\perp$ AC, the measure of $\angle ABC$ is

(1) 60°

(2) 30°

(3) 45°

(4) 90°



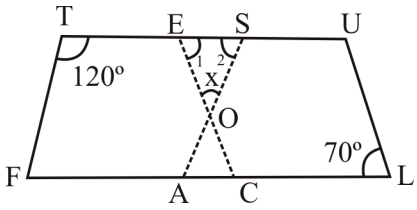
53. In the given figure, FAST and CLUE are parallelograms. Find the value of x

(1) 50°

(2) 40°

(3) 49°

(4) 60°

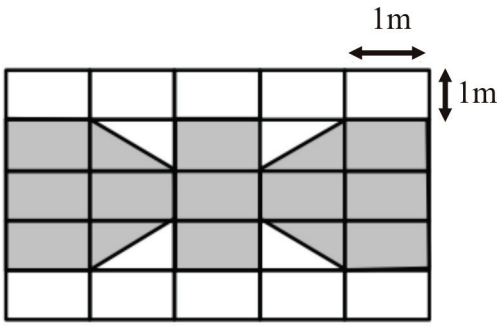


54. At the first stops on his route, a driver unloaded $\frac{2}{5}$ of the packages on his van. After he unloaded another three packages at his next stop, $\frac{1}{2}$ of the original number of packages remained. How many packages were in the van before the first delivery?

(1) 25 (2) 10

(3) 30 (4) 36

55. The perimeter of the shaded figure_____.



(1) 9 m (2) $13+4\sqrt{2}$ m

(3) $16+4\sqrt{2}$ m (4) none of these

56. Amit earns Rs. 16000 per month. He spend $\frac{1}{4}$ of his income on food; $\frac{3}{10}$ of the remainder on house rent; $\frac{5}{21}$ of the remainder on the education of the children. How much money is still left with him?

(1) ₹6000 (2) ₹6400

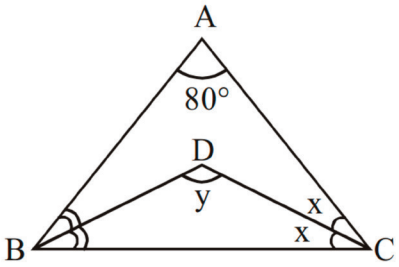
(3) ₹8000 (4) none of these

57. Sum of ages of brother and sister is 45. Five years ago, three times the age of sister was five more than two times the age of brother at that time. Find present ages of brother and sister respectively.

(1) 22, 23 yrs (2) 25, 20 yrs

(3) 30,15 yrs (4) 18, 27 yrs

58. In the given figure, $\angle A = 80^\circ$, $\angle ABC = 60^\circ$, $\angle C = 2x$ and $\angle BDC = y$. BD and CD bisects $\angle B$ and $\angle C$ respectively.



The values of x and y respectively are

(1) 15° and 70° (2) 10° and 160°

(3) 20° and 130° (4) 20° and 125°

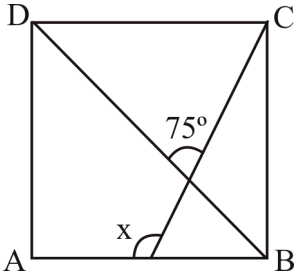
59. In adjoining figure, ABCD is a square, then x is equal to _____

(1) 100°

(2) 120°

(3) 75°

(4) 180°



60. A bus is carrying 45 passengers, some with 50-paisa tickets and the remaining with 1- rupee tickets. If the total fare received from all these 45 passengers is Rs 32.50, find the number of passengers with 50-paisa tickets.

(1) 20 (2) 25

(3) 35 (4) data insufficient

END OF THE EXAM