Young Scholors Foundation

MATHEMATICS

GRADE 8

Prizes

1st Rank	2nd Rank	3rd Rank
Trip to Dubai	₹ 25000	₹ 10000
+	+	+
Gold Medal + Certificate of Excellence	Silver Medal + Certificate of Excellence	Bronze Medal + Certificate of Excellence

4th TO 10th Rank
Rs 1100
+ Certificate of Excellence

11th TO 50th Rank
Wrist Watch

+ Certificate of Excellence

Instructions

Time : 1 hour **Maximum Marks : 100**

1. Maximum Time is 1 hour & You will get additional ten minutes to fill up information about yourself on the OMR Sheet, before the start of the exam.
2. Write your **Name, School Code, Class, Roll No.** and **Mobile Number** clearly on the **OMR Sheet** and do not forget to sign it.
3. The Question Paper comprises four sections:
   Mathematical Reasoning (15 Questions), **General Maths** (15 Questions), **Logical Reasoning** (10 Questions) and Wise Wizard (10 Questions). Each question carries two marks.
4. All questions are compulsory. There is no negative marking. Use of calculator is not permitted.
5. To mark your choice of answers by darkening the circles on the OMR Sheet, use **HB Pencil** or **Blue / Black ball point pen** only.

Roll No | | | | | | |

Student Name | | | | | | | | | | |

Father's Name | | | | | | | | | | |

SECTION - A (MATHEMATICAL REASONING)

Q1 . The value of $\left[4\times\left(343^{\frac{1}{3}}+729^{\frac{1}{3}}\right)^{\frac{1}{4}}\right]^{\frac{1}{3}}$ equals.

a. 4 b. 16 c. 8 d. 2

Q2 The compound interest on Rs. 24000 for one year at 6% per annum when compounded half yearly is

a. Rs. 2461.80 b. Rs. 4616.60 c. Rs. 1461.60 d. Rs. 3916.80

Q3 If $0.035 - 4.5x = \left(\frac{0.3-4.5X}{2}\right)+6$ then the value of x equals

a. $\frac{-453}{620}$ b. $\frac{-1545}{423}$ c. $\frac{-1625}{423}$ d. $\frac{-1223}{450}$

Q4 Which of the following is the correct ascending order of rational numbers greater than $-2\frac{1}{8}$?

a. 2, 3, 4, –2, –3 b. –2, –1, 0, 1, 2 c. –3, –2, –1, 0, 1 d. 0, –1, –2, –3, –4

Q5 The number of diagonals of a regular polygon with each exterior angle 45° is

a. 18 b. 15 c. 20 d. 16

Q6 Which of the following is not correct?

a. To construct a kite uniquely, the minimum number of elements required are 3

b. If two adjacent sides are given, then to draw a unique quadrilateral, we need 3 angles

c. A minimum of 5 measurements are required to draw a unique quadrilateral

d. A quadrilateral whose one measurement is enough for its construction is rectangle

Q7 The mean of cubes of first 10 natural numbers is

a. 605.2 b. 312.5 c. 302.5 d. 612.5

Q8 The value of $\sqrt{9\frac{175}{841}}$

a. $4\frac{1}{29}$ b. $3\frac{1}{26}$ c. $3\frac{1}{29}$ d. $4\frac{1}{26}$

Q9 Supriya sells two fans for Rs. 1800 each, gaining 20% on one and loosing 25% on the other. The gain or loss percent in the whole transaction is

a. $6\frac{8}{13}$ % gain b. $7\frac{9}{13}$ % gain c. $7\frac{9}{13}$ % loss d. $6\frac{8}{13}$ % $loss$

Q10. $(3x + 2y)^2 - (3x - 2y)^2$ equals

a. $3x + 2y$ b. $18x^2 + 8y^2$ c. 0 d. $24xy$

Q11. If A,B,C and D are the mid –points are sides PS, PQ, QR and RS respectively of a square PQRS, then $(AB)^2 + (BC)^2 + (CD)^2 + (DA)^2$ equals

a. $4\,(PS)^2$ b. $(PS)^2$ c. $2(PS)^2$ d. $\frac{1}{2}(PS)^2$

Q12. If any positive integer **n**, in which when its digits are added together, produces a sum which, when multiplied by the reversal of the sum yields the original number, then **n** cannot be

a. 1729 b. 81 c. 1458 d. 1765

Q13 The number of vertices of a octahedron is

a. 12 b. 8 c. 4 d 6

Q14 If the number $\frac{p}{143}$ lies between $\frac{1}{13}$ and $\frac{1}{11}$, then 'p' can be

a. 9 b. 10 c. 12 d. 14

Q15 The mean and median of 25 observations are 37 and 31 respectively. The number of observations greater than 37 can be.

a. 8 b. 13 c. 15 d. 17

SECTION - B (GENERAL MATHS)

Q16 In a medical camp, the following data of employees are observed.

Blood Group	A^+	B^+	AB^+	O^+
No. of employees	11	17	X	6

If the probability of an employee selected at random has a blood group AB^+ is $\frac{1}{3}$, then 'x' equals

a. 13 b. 15 c. 17 d. 19

Q17. Mr. Kapoor saves 20% of his income. This year his salary increases by 20% but his expenses remains the same. The percentage increase in his savings is

a. 20% b. 40% c. 50% d. 100 %

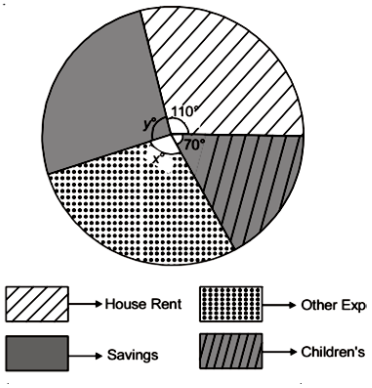
Q18 The ratio of the present ages of Rohit and Mohit is 5:8. After 10 years, this ratio becomes 5: 7. The sum of their present ages is

a. 39 years b. 52 years c. 65 years d. 78 years

Q19 A mansion has 6 cylindrical pillars each of height 3 m and radius 14 cm. The cost of painting the lateral surface of the pillars at the cost of Rs. 50 per square meter is

a. Rs. 792 b. Rs. 384 c. Rs. 990 d. Rs. 594

Q20. Mr. Kunal has a fixed monthly salary of Rs. 36000. The pie chart given below depicts his various expenses and savings in a month. If x = y, then the amount that Mr. Kunal saves monthly is



a. Rs. 6000 b. Rs. 7500 c. Rs. 9000 d. Rs. 10500

Q21 A sum of money is lent out at compound interest at 10% per annum for 1 year. It would fetch Rs. 2.5 more if the interest is compounded half yearly. The sum is

a. Rs. 1500 b. Rs. 1000 c. Rs. 3000 d. Rs. 2000

Q22 If 24 men can do a piece of work in 15 days, then the number of days in which 36 men will do the same piece of work is

a. 10 days b. 12 days c. 18 days d. 20 days

Q23. Mr. Rohit when asked his age said "In the year $\overline{20ab}$ (where a and b are single digit numbers) I will be $\overline{ba}$ years old". The maximum possible age of Mr. Rohit is 2009 could be

a. 45 Years b. 81 Years c. 90 Years d. 55 Years

Q24. Mr. Rakesh has a road map with a scale of 1 cm = 10 km. He drives on a road for 80 km. The corresponding distance on the map will be

a. 4 cm b. 2 cm c. 8 cm d. 16 cm

Q25. A road roller makes 200 complete revolution to move once over a road to level it. If the radius and length of the road roller are 42 cm and 1m respectively then, the area of the road levelled is

a. 528 m^2 b. 660 m^2 c. 420 m^2 d. 800 m^2

Q26. To reach on time, a train has to maintain an average speed of 60 km/hr. If the train travels at 55 km/hr, then it reaches the station 1 hour late. The scheduled time duration to reach the station is

a. 9 hrs b. 10 hrs c. 11 hrs d. 12 hrs

Q27. If the diameter of a circular park is 0.86056 km, then its radius will be

a. 43.028×10^3 m b. 4.3028×10^3 m

c. 4.3028×10^2 m d. 0.43028×10^{-3} m

Q28. There are two platonic solid. The first one is octahedron and second solid has same number of edges as that of first one. If there are two more number of vertices in second solid as compared to the first one, then second platonic is a/an

a. Tetrahedron b. Cube c. Dodecahedron d. Icosahedron

Q29. If $\frac{a}{b} = \frac{4}{5}, \frac{b}{c} = \frac{15}{16}$ and $\frac{c}{d} = \frac{8}{9}$, then the value of $\frac{a^3 - d^3}{a^3 + d^3}$ is

a. $\frac{35}{19}$ b. $-\frac{19}{35}$ c. $\frac{19}{35}$ d. $-\frac{35}{19}$

Q30. If x +y+z = 0 and $yz = x^2$, then the value of the expression $\left(\frac{a}{b}\right)^{\frac{(x+y)^2}{2}} \left(\sqrt{\frac{b}{a}}\right)^{-(y+z)^2} \left(\sqrt{\frac{a}{b}}\right)^{y^2}$ is.

a. 0 b. 1 c. $\frac{a}{b}$ d. $\frac{b}{a}$

SECTION - C (LOGICAL REASONING)

Q31. If in a certain code language HOME is written as INND and TREE is written as USDD, then answer the following questions

The code for MAT in that code language will be

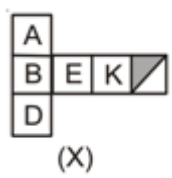
a. NUZ b. LBS c. LSB d. NZU

Q32 . If in a certain code language HOME is written as INND and TREE is written as USDD, then answer the following questions

The code for U and G will be respectively

a. V and F b. H and T c. T and H d. F and V

Q33. Choose from the options a dice that will be formed when figure (X) is folded along the edges.



(X)

a. 

b. 

c. 

d. 

Q34. Heart : Cardiology :: Spine and joints : ?

a. Neurology b. Orthopaedics c. Paediatrics d. Dentistry

Q35. Choose a correct option to complete the given series.

26, 37, 50, 65, 82, ?

a. 101 b. 100 c. 102 d. 99

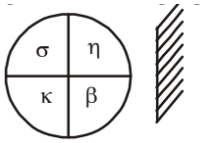
Q36. If '+' means '÷', '÷'means '–','–' means '×' and'×' means '+', then value of $315 + 45 \times 15 \div 3 - 5$ is

a. 2 b. 7 c. 3 d. 4

Q37. Find the missing character in the following number puzzles.

a. 236 b. 512 c. 216 d. 343

Q38. The mirror image of following figure is



a.  b.  c.  d. 

Q39. Find the number that does not follow the pattern of the following series:

8, 19, 61, 249, 1250

a. 19 b. 61 c. 249 d. 1250

Q40. Complete the analogy:-

52 : 49 :: 51 : 36 :: 93 : 144 :: 31 : ?

a. 16 b. 26 c. 36 d. 46

SECTION - D (WISE WIZARD)

Q41. The length and breadth of a rectangle are in ratio 1:3. If its length is increased by 3 times of the original length with the area of rectangle remaining the same, then its breadth will be

a. Unchanged

b. Decreased by 9/4 times of the original breadth

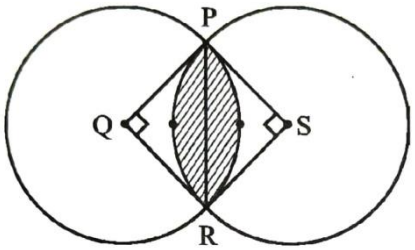
c. Decreased by 1/4 times of the original breadth

d. Decreased by 3/4 times of the original breadth

Q42. If K is an integer between 1 and 10, M - K = 15226 and M is divisible by 11, then find the value of $\frac{M+K-4}{5}$

a. 3048 b . 2096 c. 3024 d. 2996

Q43. Two identical circles whose centres are Q and S intersect each other and the points at which they intersect are P and R (as shown). A square PQRS of side 7 cm is so formed. Find the area (in cm²) of the shaded part of the circles. (Take $\pi = \frac{22}{7}$)



a. 21 cm^2 b. 28cm^2 c. 32cm^2 d. 35cm^2

Q44. The number of ways in which 2048 can be written as a difference of two perfect squares is

a. 7 b. 5 c. 12 d. 14

Q45. If T_n represents an interior angle of a regular polygon having 'n' side, then $\frac{2T_{4n}+T_n}{T_{2n}}$ equals

a. 6 b. 3 c. 3n – 6 d. n - 2

Q46. If n^3 has 7 digits ('n' is a natural number) then the number of digits in n^2 is

a. 6 b. 5 c. 4 d. 3

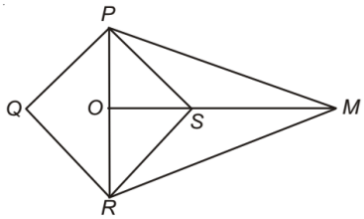
Q47. The product of the digits of $\left(\frac{5^{98}+5^{100}+5^{102}}{5^{98}+5^{99}+5^{100}}\right)+\left(\frac{5^{98}+5^{100}+5^{102}}{5^{98}-5^{99}+5^{100}}\right)$ is

a. 5 b. 7 c. 10 d. 17

Q48. If '**a**' is a natural number such that '$\mathbf{a^3+a}$' is a multiple of 10, then the last digit of '$\mathbf{a^3-a}$' can be

a. 1 b. 2 c. 4 d. 8

Q49. In the given figure, ∠PQRS is a rhombus. If ∠PQR = 70°, ∠SPM= 15°, then reflex ∠PSR : ∠PMR equals



a. 29:3 b. 13:3 c. 29:4 d. 14:5

Q50. If $a = b^{3x}$, $b = c^{3y}$ and $c = a^{3z}$, then which of the following is correct?

a. Xyz = $\frac{1}{3}$ b. xyz = $\frac{1}{9}$ c. xyz = 3 d. xyz= $\frac{1}{27}$

Space for rough work